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Ten-Color Supplement Map of Northern Africa

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ELSIE MAY BELL GROSVENOR
With 45 Illustrations, 39 in Natural Colors
GILBERT GROSVENOR

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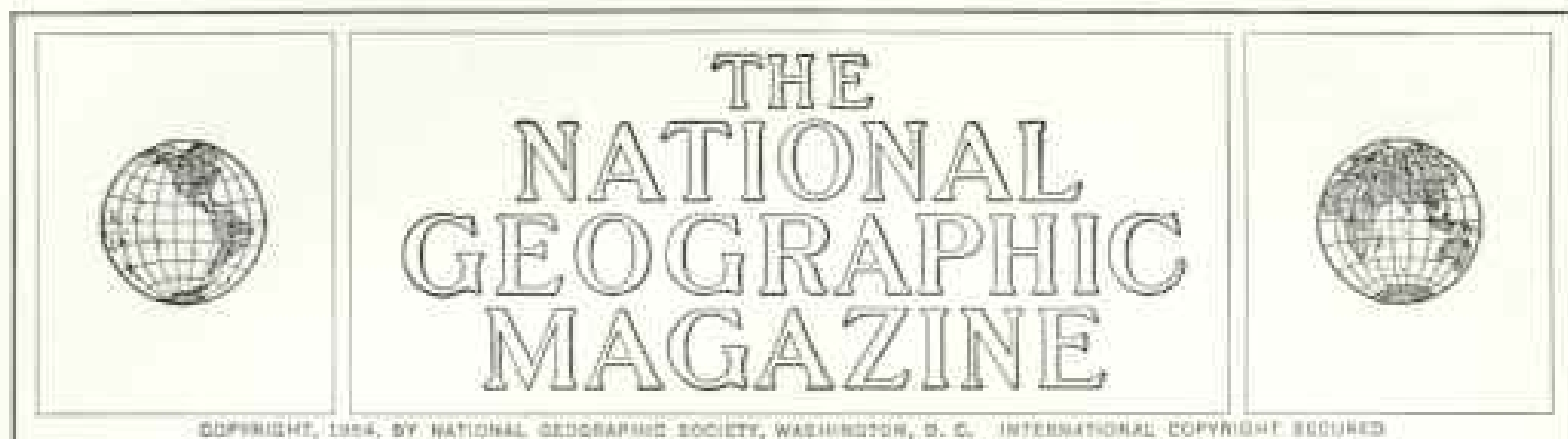

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Safari from Congo to Cairo

BY ELSIE MAY BELL GROSVENOR

With Photographs by Gilbert Grosvenor, Chairman of the Board of Trustees of the National Geographic Society

WE think of Africa as a hot, steaming, tropical continent humming with insects; as a land of ivory traders and sinister memories of slave traffic. Yet the one place we found on our safari that best fitted this popular conception was not in mainland Africa at all. It was the island of Zanzibar, 25 miles off the east coast.

Zanzibar is Africa as Hollywood dreams Africa should be. In Zanzibar I quickly learned why the British women don long evening dresses at sundown, and why the men wear high kid boots. It is to keep off the sharp-biting mosquitoes that come out each night.

Steaming and tropical? Zanzibar is deep in the Tropics—and feels that way! Government House, where we stayed as guests of the British Resident and his wife, Mr. and Mrs. John D. Rankine, has thick stone walls and spacious rooms. But not even these could keep out the humid, sweltering heat or the sweet scent of the cloves the island raises.

Ivory traders are there, for Zanzibar does a thriving business in ivory. As for slave traffic, Zanzibar city was a center of this grim commerce until the British stopped it in the late 19th century.

My husband, Gilbert Grosvenor, and I had flown to the island for a brief stopover on our way north. We were on the return half of a long, curving route that had taken us over most of the central and southern parts of Africa. Our destination now was Lake Victoria, at the headwaters of the Nile (see Northern Africa map supplement). Then we were to take a boat trip down the Nile itself. But first we wanted to see Zanzibar.

On my first morning there I visited the cosmopolitan waterfront bazaars, where Arab dhows arrive from India on the northeast monsoon, as they have for centuries, bearing cargoes of silks and Persian rugs, incense, and brassware. When the wind changes, the dhows sail back with ivory, spices, tea, and coffee.

While I shopped, my husband called on Zanzibar's Sultan, Seyyid Sir Khalifa bin Harub. Over sherbet and black coffee Dr. Grosvenor presented him with a copy of the NATIONAL GEOGRAPHIC MAGAZINE containing a photograph of himself in his own throne room, taken two years earlier by W. Robert Moore of the Magazine's staff.*

* See "Clove-scented Zanzibar," by W. Robert Moore, NATIONAL GEOGRAPHIC MAGAZINE, February, 1952.

Editor's Note

In this article Mrs. Grosvenor continues her notable report on present-day Africa as seen in 30,000 miles of travel throughout the no longer dark continent with her husband, Dr. Gilbert Grosvenor, in celebration of their golden wedding anniversary. Her first article, "Safari Through Changing Africa," in the NATIONAL GEOGRAPHIC MAGAZINE for August, 1953, brought many letters of commendation from members of the National Geographic Society, who requested this sequel describing the second half of the journey.

Most of the revealing photographs illustrating both articles were made by Dr. Grosvenor, who became Chairman of The Society's Board of Trustees last May upon his retirement after 34 years as President and 55 years as Editor of The MAGAZINE. Mrs. Grosvenor is a daughter of a former President of The Society, Alexander Graham Bell, inventor of the telephone.

Gleaming Mosque Crowns a Hilltop →
in Kampala, Uganda's Biggest City

On their 30,000-mile safari over the length and breadth of Africa, Dr. and Mrs. Grosvenor visited scores of cities and towns, but none quite like Kampala, a city run by and for its native Africans.

A thriving commercial center of 40,000 people, the city lies saucered amid seven flat-topped hills, each crowned by an imposing building, three of them churches. This mosque was built in part with funds given by the Aga Khan, head of the Ismaili sect of Moslems. Kampala has a large Indian population, most of whom are traders. Together with Negro converts to Islam, the Indians make up the Moslem section served by the mosque.

Another hilltop structure is the palace of the Kabaka, a native king, who plays an important part in governing his kingdom under British supervision.

Uganda was discovered in 1862 by the English explorer John Speke in his quest for the source of the Nile. Unlike other African countries where white men and Indians have taken over large areas for farming, Uganda discourages non-African settlement. A few European residents work for the Government.

Most of Uganda's exports, including cotton, coffee, and sugar, pass through Kampala, a railhead near Lake Victoria's northern shore.

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← Kenya's Masai Women Wear Massive Jewelry

When the authors camped out in Kenya's vast Amboseli National Reserve on the flank of Mount Kilimanjaro, they were prepared to rough it, but they found luxury in the jungle: roomy tents with canvas floors, electric lights, comfortable cots, and even daily baths in canvas tubs.

Guided by white hunters, they watched free-roaming hippos, lions, giraffes, and elephants in Amboseli. There they met the Masai, tall, proud, spear-throwing tribesmen (opposite).

The Masai entertained the visitors with a dance. As the men leaped gracefully into the air, their braided, red-ochered hair bobbed up and down. The elaborate beaded ruffs of women chanting on the sidelines flapped as they jumped in unison with the men.

Kodachromes by Gilbert Grosvenor

Dr. Grosvenor told me later that the Sultan, already a member of the National Geographic Society, was so delighted that he asked henceforth to have all his copies of The Magazine delivered by air mail!

The two men found they shared an interest in sailing. One of the royal yachts is sheltered on the first floor of the palace.

"A beautiful boat," Dr. Grosvenor told me, "modern and fast. The Sultan sails it himself and wins most of the races he enters."

My chief interest on the island was the Zanzibar Ladies Club, organized in 1947 for Arab, Indian, and native women as well as Europeans. Here in a cool, spacious clubhouse converted from an old Portuguese fort, Zanzibar's ladies can shed their veils and long, hampering skirts, play tennis or volleyball, gossip, read, and, if they like, drink lemon squash or even Coca-Cola—permitted by the Koran because it is nonalcoholic.

"It's a revolutionary idea for Moslem women to have any social life away from home," the English director of the club told us. The project, she explained, began with a clinic for mothers and babies and grew into a full-fledged women's club. When I visited it, membership was up to nearly 400.

Camping in Kenya's Jungle

From crowded, civilized Zanzibar city we flew back to the mainland and into the jungle. In Kenya, after a brief stop at the capital city, Nairobi, we camped in tents in the Amboseli National Reserve near the base of Kilimanjaro, Africa's highest mountain (page 734). Here, with experienced white hunters as guides, we drove through forests alive with animals, among them elephants and giraffes and a numberless variety of birds. We visited a tribe of spear-throwing Masai and watched them dance (page 723).

Then we continued to Entebbe, Uganda, on Lake Victoria's northern shore. Our plane landed at one of the largest airfields in Africa, just outside the city. Here, in contrast to Zanzibar, we were in the heart of Africa—and the scene was as un-African as an English country village.

From the window of our comfortable hotel I looked out on English gardens where petunias and marigolds blossomed. A rolling golf course glistened green in the morning sunlight. Beyond it Victoria sparkled invitingly. Only two lakes in the world are larger, the Caspian Sea and Lake Superior.

I strolled down to the water's edge, and there I noticed a heavy wire fence strung up around a cove in the lake.

"What's the fence for?" I asked one of the attendants.

"The fence? Oh, it keeps out the crocodiles and permits safe swimming. Lake Victoria is full of crocodiles."

Entebbe, a delightful small town of 8,000, is the British administrative center of the Uganda Protectorate. It lies almost on the Equator. Yet, because it is 4,000 feet above sea level, its climate is mild, ranging around 70°F. At night, when a cool breeze blew in from the lake, I found I really needed a sweater or a jacket.

Uganda: Reserved for Africans

Uganda is the remotest of the four countries that make up British East Africa. When it came under British rule in the early 1890's, it had been known to the outside world only a few decades.

Actually, the Uganda region was discovered in connection with another search. Hunting for the source of the Nile, the English explorer John Speke first visited Lake Victoria in 1862.

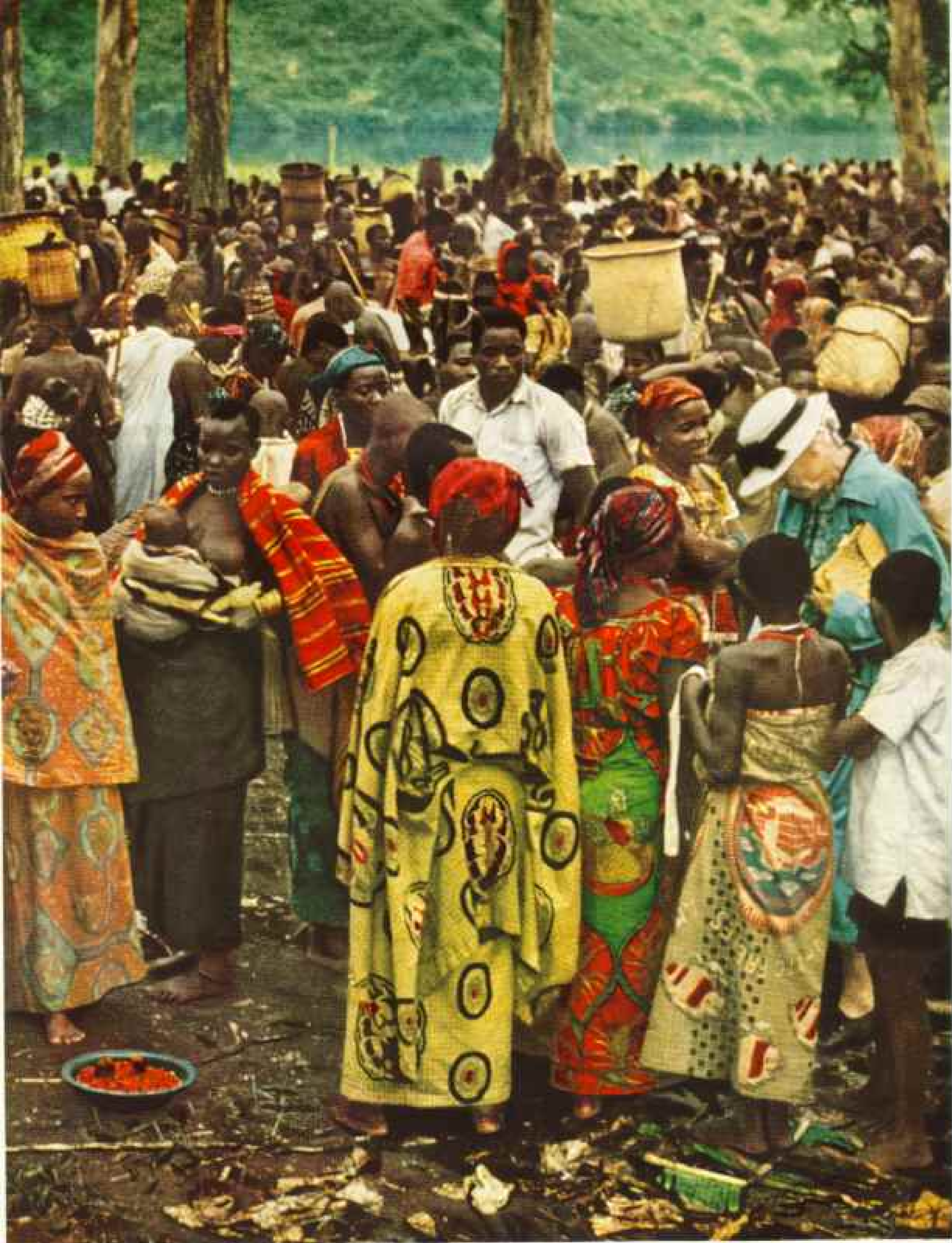
Speke, like Sir Henry Stanley (who circumnavigated the lake in the late 1870's after his famous search for Livingstone),* was amazed to discover a powerful native civilization centered in the court of the Buganda kings. The Buganda kingdom is still one of the four provinces that make up Uganda.

"Buganda is the most independent of the provinces that compose the Protectorate," a British information officer told us. "It is ruled by the *kabaka*, or king, with the aid of a native council and a native assembly. The other provinces are under various degrees of British control.

"The British have done away with the cruel practice of punishing criminals by cutting off ears or hands or by other mutilations; otherwise, we interfere as little as possible with native courts and customs."

The British govern Uganda for the black man's special interest. Unlike Kenya, laws here discourage non-African farmers, and rural lands are "held in trust for the use and benefit of the African population." As a result, European settlers in Uganda are few.

* See "Great African Lake (Victoria)," by Sir Henry M. Stanley, NATIONAL GEOGRAPHIC MAGAZINE, May, 1902.



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Kodachrome by Gilbert Grosvenor

Belgian Congo Shoppers in a Market Beside Lake Kivu Wear Fashionable *Pagnes*

Motoring near the lake, the authors were startled to see women draped in bright prints decorated with jet planes, automobiles, tires, buildings, and pictures of famous people. One popular pattern showed a sunburst of six spark plugs. One woman had adorned herself with portraits of Winston Churchill in front, Harry Truman in the rear, Joseph Stalin on one hip, and King Albert of the Belgians on the other. Here Mrs. Grosvenor bargains for souvenir pagnes woven in textile mills at Léopoldville.

In Entebbe's 70-acre botanical gardens, where broad lawns roll down to the soft blue waters of the lake, we saw an impressive collection of trees and plants. Started in 1898, these gardens have played a vital role in Uganda's economic development through the introduction of new commercial crops: coffee, tea, and rubber; also cinchona trees, whose bark yields quinine.

Cotton—the money crop natives raise in small home plots all over the country—is almost the only large Uganda export not introduced from outside.

"We study potentially valuable new plants," said Mrs. Anita Hayes, the garden's curator, "though work in established fields is now carried on by the experimental stations of our agricultural department."

Kampala's Sights Stand on Hills

"You can't miss the sights in Kampala," we were told when we drove to the Buganda metropolis. It reminded us of Rome with its seven hills. As we drove into this modern city of 40,000 people, we saw a succession of imposing buildings, each on its own hill.

Three were places of worship—a Protestant cathedral (Anglican), a Roman Catholic church, and a mosque. The mosque reflects the growth of Moslem influence in Uganda, where Indians have become important in trade (page 722).

Neighboring hills are crowned by the huge Mulago hospital and medical school and by the

Camels Kneel to Load Firewood and Fodder

Some of these hardy animals can carry half a ton 25 miles a day. Caravans are less numerous in North Africa today, but camels still transport produce, pull plows, and turn irrigation wheels. These traders pack acacia sticks and hay on dromedaries and donkeys for distribution in Dire-dawa, Ethiopia.

Gilbert Grosvenor

↑ Ankole Cattle Raise a Blockade of Horns on a Uganda Highway

Lyre-horned cattle pictured on Egyptian monuments suggest that these beasts descend from an ancient breed. Of Uganda's 2,750,000 cattle, 400,000 are long-horned Ankoles, named for the southwestern Uganda district in which most are raised.

Each morning herders drive their cattle out to pasture. At night the animals take shelter in temporary corrals. Ankole natives are master herdsmen; one man can easily manage 200 head. Warmly attached to their cattle, the owners pet the beasts and talk to them. Cows answer to their names, pushing through the herd to the driver when called at milking time. An Ankole yields up to five quarts of milk a day.

← Hippos Stampede from River to Shore

Uganda's lakes and rivers swarm with hippopotamuses. Lolling in the water or sunning on sandspits by day, they forage the shores by night. A full-grown bull may attain a length of 12 feet and a weight of almost four tons. Fat, ungainly river horses make surprising speed on land. In the water they prefer depths of not more than 10 feet, a comfortable distance to sink and walk on the bottom. They can remain submerged as long as 10 minutes.

Hippos rarely attack humans, but enraged bulls have been known to lift boats out of water and bite or slash holes in the hulls.

At one time African tribesmen killed the beasts for their flesh and used the hides for leather whips. Settlers in recent years have slaughtered thousands of hippos caught marauding their crops.

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Kodachromes by Gilbert Grosvenor (above) and (left) Vila from Guillumette

Charles Trieschmann

Swinging Machetes, a Kenya Work Party Hacks Stalks of Papyrus on Lake Victoria

Tribesmen weave the reeds into sleeping mats, fish traps, and crude nets. Egyptians developed the ancient world's most widely used writing material from papyrus marshes that once edged the entire Nile.

Makerere University College for Africans. This remarkable institution, founded only 32 years ago as a trade school, reflects the progress and intelligence of the Uganda Negroes. It has recently been turned into a full-fledged university and can grant advanced degrees in the arts, sciences, and medicine. It has several hundred students, including women.

We passed the home of the kabaka, and later we saw the Oxford-educated ruler himself, driving a red Rolls-Royce. Since our visit he has been exiled from Uganda after a disagreement with British authorities.

Behind a high reed stockade we saw the burial place of the Buganda kings (page 732). In this enormous pyramid of a house, made of beautifully woven reed, are the graves of native rulers from the time of Kabaka Mutesa, who reigned when the first white men came to Uganda.

With passes from the Buganda prime minister we were permitted to enter the enclosure and walk across the compound to the dim, reed-thatched interior. Through the shadows we saw a group of spears, shields, dishes, and other royal relics lying in array on the ground.

Kampala has a well-set-up ethnological museum. There, behind glass, we saw life-sized images of men, women, and children in groups illustrating the native types.

A smiling Buganda attendant proudly showed us the large collection of native musical instruments. "I will play for you," he said. Reaching among the reed flutes and rattling gourds, the drums, the marimbas, and harplike instruments, he drew sounds from them more musical than any we had heard in Africa.

Shakespeare by the Pound

The most surprising of Kampala's sights turned out to be the Bookshop. It is run by the Church of England Missionary Society, which founded it 50 years ago.

It was market day, and the shop was crowded with barefoot natives buying books and papers in the English and Swahili languages and in African dialects. We noticed that the shelves were loaded with English classics—Dickens, Thackeray, Shakespeare, and

early editions of travel and discovery books by Stanley and other African explorers.

One whole bookstack contained nothing but Shakespeare, complete in one volume.

"Why so many copies of Shakespeare?" I asked the storekeeper.

"It's very popular with the natives," he answered. "They feel they're getting their money's worth if the book is big and heavy."

We met a missionary there gathering volumes for a traveling bookstore he takes through the country. "It's rewarding work," he told us. "I have known people out there to walk 40 miles to buy a book."

During our stay in Kampala we drove by automobile to Jinja, where the Victoria Nile has its birth as an outlet of the lake. A mile and a half downstream the long-projected Owen Falls Dam was near completion.

Nearly 50 years ago Winston Churchill stood on the banks of the Victoria Nile at Jinja and envisioned this gigantic hydroelectric plant. The project, well under way when we saw it, was officially dedicated in April, 1954, by Queen Elizabeth. As the Queen pulled the switch that opened the dam, the gush of water began turning the first of 10 turbines that will provide electric power for all Uganda. The dam will also store water for irrigation in the Nile Valley all the way to Cairo.

West and southwest from Jinja our road led through cultivated land as emerald as Ireland. We drove by waving fields of sugar cane past settlements of neatly thatched huts and a sugar mill or two.

Highway Leads Through Green Jungle

Then, surprisingly, we were in primitive forest, rolling over one of Uganda's all-weather highways slashed through a solid heart of green. Emerging, we came to rubber, coffee, and tea plantations, then to several schools, both government and mission.

One school was run by the Order of the White Fathers of Africa, a familiar name to us, since we had often seen this organization's headquarters not far from our home in Bethesda, Maryland.

The people in this thickly populated area are great travelers. As soon as a native earns a little money, he is off to seek new worlds to conquer. Employment changes are a big problem in Uganda.

We passed crowded busloads of people, some even clinging to the sides of the buses. There were also barefoot walkers, trudging single file, erect and graceful, some women balancing great baskets on their heads and carrying babies on their backs. Many wore voluminous Mother Hubbards in bright prints with sashes around their hips, very different from the dresses worn by the people of the Belgian Congo. There the women wore gay prints, sometimes amusingly decorated with pictures of people, machines, and buildings (page 725).

We were now in the Ankole District, famous for its long-horned cattle. They are brown and white, with enormous lyre-shaped horns like those pictured in ancient Egyptian tombs (page 728).

Some say, indeed, that Ankole cattle are descendants of an Egyptian breed brought here by early Hamitic and Nilotic settlers.

Nile and Congo Born Together

Near Kabale, in far southwest Uganda, we drove through green and feathery papyrus swamps alive with hundreds of wading birds. Submerged roads forced us to make several detours, and here and there we saw workmen with picks and shovels draining the swamp water off the highway into ditches.

"The men have to look sharp for crocodiles," said our driver. "It's easy to lose a leg down there.

"These papyrus swamps divide their water between the Nile and the Congo. From one side they drain into streams that end up eventually in the Congo, and on the other side they flow into the Kagera River, then to Lake Victoria, and out as the Nile."

In the lovely highlands of the Kigezi District around Kabale we saw some of the most intensely cultivated farms in the world. The mountains on every side are covered to their peaks with patchwork patterns of crops.

On these sloping fields tribal farmers raise sorghum, beans, peas, and potatoes, manioc (cassava), and bananas of many kinds.

They find almost as many uses for the banana as the South Sea islanders do for their all-purpose coconut palm. They use the long green banana leaves to roof their huts, and also make them into bags and containers. They eat the fruit raw and cooked. They ferment the juices to make a kind of beer, and use the fiber of banana stems for rope.

The sharply graded farms at Kabale look as if a rainstorm might wash them off the hillsides. But when I saw them close up, I realized they are planted in modern con-

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Kodachromes by Gilbert Grosvenor

↑ A Conical Thatched Mausoleum Enshrines Three Buganda Kings

This huge hut stands in a reed-fenced compound on one of Kampala's hills. Besides the kings' graves, it houses spears, shields, and other relics. Women at left, a few of the monarchs' many widows, live in huts within the stockade. When they saw visitors arriving, they hurried out to stand guard.

↓ Uganda Fisherman Unloads His Canoe on Kazinga Channel Beach

Fishing is an important source of food in East Africa, where the tsetse fly kills off cattle in many areas. Kazinga Channel connects Lake George and Lake Edward, both well stocked with edible fish. Modern freezing plants preserve the catch; Diesel trucks transport iced fillets to Kampala.

tour lines, with a protective grassy bank between rows to prevent erosion.

These terraces differed from those we had seen in the Peruvian Andes, where stone and masonry were used. Mr. John Purseglove, the British Agricultural Officer at Kabale, told us the grass strips worked so well that no stonework was necessary.

"We have been wonderfully successful," Mr. Purseglove said, "in persuading the native farmers to go in for these horizontal contours. As a result of this system, plus sensible crop rotation, we have immensely increased the output of crops such as potatoes, tobacco, flax, and wheat."

But the population around Kabale is steadily growing, and pressures are heavy on the land. To deal with the growth, British authorities have launched a volunteer resettlement project in the lower country to the north. They have already persuaded some 20,000 Bakigas, the chief tribe, to move to the new community, where eradication of the tsetse fly makes farming possible.

From Kabale we drove west to see the Virunga Range, volcanic mountains which have enriched the Kigezi soil with their ash.

On our way we passed British officials' hillside homes, surrounded by flower gardens, and stopped at a local hospital. Its Irish director, Dr. Gabriel Murphy, trained in Dublin and interned at Holyoke, Massachusetts. He was the only white doctor there (page 741).

We saw many small clinics and dispensaries in remote areas throughout Africa. In Uganda they are run by Negro medical students, who treat minor ailments themselves and send serious cases to larger hospitals.

Islands of Birds and Lepers

Farther along we came to Lake Bunyoni, one of the most beautiful in Africa. Formed by some ancient earth upheaval which dammed a mountain river, the lake stretches like a twisting silver ribbon among the hills. It provides excellent fishing, and flocks of wild ducks and cormorants live on its many small islands and peninsulas. One island, by grim contrast, houses a leper colony.

We climbed higher over a narrow mountain road of hairpin turns and steep rises. On both sides rose giant tree ferns and weird bamboo forests, draped with lichen. Then suddenly we came to a breath-taking view.

Across a green valley, eight lofty volcanic peaks stood side by side. These are the Virunga mountains, one rising to 14,787 feet.

Somewhere among the mountains on the Congo side, Carl Akeley, American naturalist, found the wild gorillas he took back to New York's American Museum of Natural History for its famous habitat displays. In 1926, in these same mountains, Akeley died. He was buried on the slopes of Mount Mikeno.

As we watched, a mist drifted across the valley between us and the mountains. A moment later the volcanoes vanished in fog.

Never Argue with an Elephant

"Elephants have right of way," warned a road sign in western Uganda. I do not think we would have argued the point with an elephant, even without the sign! But the warning came as no particular surprise.

We had spent the night at a little inn in Kichwamba, high on an escarpment near Lake Edward. At dawn, when we looked down from our window we saw a mother elephant and her baby wandering among the thorn trees on the plain below us.

At this same inn we met some engineers with their wives. They were there to supervise the building of a local fish-freezing plant. Both Lake Edward and its smaller neighbor, Lake George, contain many edible fish. These are especially important in this area, where the tsetse fly spreads nagana, a form of sleeping sickness that attacks livestock. It has almost wiped out domestic cattle.

A few miles past Kichwamba our road led to the Kazinga Channel, which flows between Lake George and Lake Edward (opposite). We crossed it on a primitive ferry, a raft laid on boat hulls and propelled by a combination of native poling and a motor launch, separate but attached to the side of the ferry.

On the north end of Lake Edward we came to Katwe, an ancient salt-mining center. Its main industry depends on an odd little crater lake close to Lake Edward. Women of a local tribe, by long custom, do the actual salt collecting, wading into shallow water to gather raw salt from the lake's floor. The men's job is to transport it after it has been harvested.

We passed files of salt bearers on the road. Their heavy loads were wrapped in banana leaves and carried on their heads on a kind of wooden scaffolding.

We were now approaching one of the most exciting points on our safari: the mysterious land of the Mountains of the Moon.

For nearly 2,000 years these mountains

↑ Sensing Danger, a Bull Elephant Prepares to Charge

From 30 yards the nearsighted elephant can distinguish little. Smell and sound serve as his warning systems. If he is alarmed, gigantic ears fan out and become board-stiff.

Here in the acacia forests of Kenya's Amboseli National Reserve, elephants need fear only cameramen; gun-bearing ivory hunters are barred.

While camped in the Reserve, the author observed a herd of 100 elephants, including tiny calves; once she watched two huge bulls fight a battle over a female. Trees knocked down by roving herds provided firewood for campfires.

Bath at Sunset Tops → the Herd's Day

Detesting heat, elephants sleep by day, feed and drink by night. They often journey miles to bathe in water holes.

Tusks of bull elephants like the one at left are 6 feet long and weigh 60 pounds or more.

© National Geographic Society

Kodachromes by Ylla from Guillumette

were mentioned in legends and stories; yet no one in the civilized world knew where they were or even whether they actually existed.

It was Ptolemy, the 2d-century Alexandrian astronomer and geographer, who named them "Mountains of the Moon," though he suggested their location only vaguely as somewhere in Central Africa. But for centuries no traveler returned from Africa with first-hand, authentic reports of the mountains.

The official name, Ruwenzori, suggests why they remained so long undiscovered. It means "rainy mountains" and refers to the perpetual mists and equatorial rains that conceal the range as it rises for 80 miles along the Uganda-Congo border (page 738).

Not until 1888 did Sir Henry Stanley finally confirm that the snow-capped Ruwenzoris actually were there. The highest ridge was later named Mount Stanley. Its principal summit is Margherita Peak, which rises 16,795 feet. So thick are the mists around the peaks that 18 years earlier Stanley had camped almost in their shadow without seeing them!

We were luckier than Stanley. We crossed the Belgian Congo border and stopped overnight at Mutwanga in the Ruwenzori foothills. There we were treated to brief, dazzling glimpses of the snowy mountains almost immediately. Many a traveler has waited weeks for the mists to clear.

Pygmies and 7-foot Giants

At Mutwanga we were on the edge of the 3,000-square-mile Albert National Park, a sanctuary Carl Akeley helped start in his campaign to preserve Africa's wildlife.

The park's chief ranger, in fact, had just returned from repairing Akeley's grave. A buffalo had stepped on the slab which marks the lonely spot and had cracked it, so that a new stone had to be put in its place.

We drove into the Congo as far as Bukavu (Costermansville), capital of Kivu Province. On the way, skirting Ituri Forest, we were visited by a tribe of Pygmies (page 742).

We were particularly interested to see them, as Paul Du Chaillu, the explorer who first reported their existence in the 1860's, had visited us early in our married life and described his experiences to us. At that time his report of Pygmies, giants, and gorillas was deemed fantastic, and he was regarded as a "Baron Munchausen." But in the years since, his claims have proved correct.

Later the same day we watched another dancing tribe, the Watusi, some of whose men are seven feet tall (page 740).*

Near Bukavu we visited a new project which, to my mind, shows the scientific progress being made in changing Africa. This was the headquarters of Belgium's Institute for Scientific Research in Central Africa, where workmen, bulldozers, and stone crushers were putting up imposing buildings.

At lunch Dr. Louis van den Berghe, director of the Institute, described some of the planned projects: plant and animal research, including experiments in domesticating the eland, a species of antelope; ornithological study; seismographic stations; and a solar observatory equipped with a Schmidt lens.

Over the Great Rift to Ethiopia

Through our plane window I could see a lake glitter at the bottom of a 50-mile-wide break in the earth's surface. Headed for Addis Ababa, capital of Ethiopia, we were flying over the eastern trough of Africa's amazing Great Rift Valley (see map inset).

The Great Rift is a series of monstrous cracks in the earth's crust, 4,000 miles long. It starts in Syria north of the Dead Sea and stretches through eastern Africa all the way from the Red Sea to Mozambique.

Geologists have reached various theories as to how the Great Rift was formed in the ancient past. One is that it was caused by the splitting apart of the earth's land mass that originally formed the separate continents.

After this happened, great volcanoes burst through the floor of the Rift, partly filling it and covering vast areas in Uganda, Kenya, and Tanganyika with lava. Some of Africa's highest mountains were born this way; Kilimanjaro, Mount Kenya, and the Virungas all lie in or near the Rift Valley.

In some sections, notably Kenya, its steep cliff walls are as sheer as if they had been cut by a huge knife; in others they form a series of precipices each as high as 1,500 feet, like a giant stairway.

Large and small lakes dot the Rift's gigantic floor like puddles in a ditch. One is Lake Tanganyika, 4,708 feet deep, the second deepest fresh-water lake in the world. (Only Lake Baikal in Siberia is deeper.)

As we flew north, we were leaving behind

(Continued on page 745)

* See "White Magic in the Belgian Congo," by W. Robert Moore, National Geographic Magazine, March, 1952.

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Kodachrome by Gilbert Grosvenor

Supper's Food and Drink Ride Aloft as Lake Kivu Marketers Hike Homeward

Trained from childhood, Belgian Congo women carry headloads of everything from sheaves of heavy cane to tiny cooking pots. Pads of cloth or banana leaves cushion the burdens. A shoulder sling supports baby.

EQUATEUR

© National Geographic Society

Kodachrome by Gilbert Grosvenor

A Banana Plantation Straddling the Equator Rises So High That a Coat Feels Welcome

On the highway to Albert National Park, Belgian Congo, the author passed a road sign marked "Equateur" (inset). Here, at an altitude of 7,218 feet, she found the temperature brisk. The Ruwenzoris formed a magnificent backdrop. These lands yield rubber, coffee, cinchona bark, and pyrethrum for insecticides. Grassy dikes between terraces prevent erosion; they correspond to stone walls seen in the mountains of Portugal and Peru.

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↑ **Brandishing Sticks Instead of Spears, the Belgian Congo's Tall Watusi Warriors Stage the Courting Dance of the Crowned Crane**

This command performance for the visiting safari was given at Kisenyi. Busy with their crops, the Watusi consented to leave their fields only on orders from the chief (lower right, in European clothes). Here they dance in fiber-plume headpieces and ankle bells. A tribal "prime minister" in polka-dot robe leads the performance. Minstrels clad in red await their cue in background.

↓ Newly risen in remote areas, Uganda's small clinics and dispensaries supplement a 1,000-bed hospital in Kampala. This hospital stands near Kabale. Outpatients wait in line at the door of headquarters. An outbuilding (left) gets a new thatched roof. The director is an Irish doctor who served his internship in the United States.

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Belgian Congo Pygmies in Flower and Feather Bonnets Pay a Call on the Author

These 4½-foot Belgian Congo people left their jungle haunts and journeyed to a village near Beni to see the white visitors. They and 40,000 Pygmy kinsmen are remnants of an aboriginal stock.

Kodachrome by Gilbert Grosvenor

For Candy, Salt, Sugar, or Tobacco, Forest Gnomes Dance and Play on Flute and Drum

To reward performers, the author carried a supply of hard candy. "These were well-dressed Pygmies," she commented. "Most of the others wore only leaves." The tall Negro at right drove one of the safari's cars.

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Kodachromes by Gilbert Grosvenor

↑ **An English Garden Glows with Color on the Edge of the Sudan's Desert**

The Nile flows just behind this house, the home of the British Resident in Wadi Halfa. Petunias, marigolds, and spathodea tree belong to a fertile green strip separating river and desert.

↓ **Arab Caravaneers and Their Camels Are a Vanishing Sight in Africa**

Driving in from the airport near Wadi Halfa, Dr. Grosvenor spotted the riders moving slowly across the desert. Sunset's final rays gave to the scene the glow of an oil painting.

us the green depths of Central Africa. Before us rose another world: Ethiopia, a lofty plateau, is surrounded by heat-seared deserts. It has long been isolated from the influences that molded the rest of Africa. The landscape, as we looked down from the airplane, reminded us of an astronomer's view of the moon with its grim, forbidding hills and huge potholes.

Few casual visitors have wandered this way. Fewer still have penetrated the mysterious hinterland of the domain of His Imperial Majesty Haile Selassie I, the Conquering Lion of the Tribe of Judah, Elect of God, Emperor of Ethiopia, who claims descent from Solomon and the Queen of Sheba. His domain was increased in size when Eritrea was federated with it on September 15, 1952.

A New Kind of Africa

Our first impression after landing in Addis Ababa was of a land completely different from others we had seen.*

As we drove through the rambling, hilly streets, we saw no veiled women, no scantily clothed natives, no women dressed in brilliant prints. Nor did the pedestrians carry bundles on their heads as in other parts of Africa.

The women usually wore white or light-colored dresses, and instead of a veil a *chamma*, or shawl, made of a kind of cheesecloth material. These are embroidered at the ends and usually worn draped over the head and thrown back over a shoulder.

Men favored jodhpurlike trousers and knee-length jackets, usually khaki-colored, with chammas hung from their shoulders.

The people here were dark but not Negroid, neither black nor of the rich chocolate-brown color we had met earlier in Africa. Many had finely chiseled, classic features.

Another surprise was to find so many horses and still more numerous donkeys, all but invisible under loads of hay, hides, wool, or cotton. Africa south of Ethiopia has almost no domestic work animals, because of the ravages of rinderpest and nagana.

An odd vehicle we met in Addis Ababa and in Harar was a light 2-wheeled horse-drawn sulky equipped with automobile tires (page 752). We understood these were introduced during the Italian occupation. Together with imported United States cars, they contest the way with donkey trains, cattle, and sheep.

Such contrasts are typical of Addis Ababa. Mansions rise beside shanties, and broad, well-paved streets parallel dirt lanes. Modern cement buildings, dating from the Italian occupation, stand near old Byzantine domes crowning Coptic churches.

The people of Ethiopia are a mixture of races and tribes, with a confusion of religions, languages, and customs.

Thousands of years before Christ, Ethiopia was overrun by Hamitic peoples from Egypt and the Mediterranean shores. These fought with, conquered, and sometimes intermarried with the less civilized Negroid people they found already occupying the land.

After the Hamite invasion came Semitic tribes from the northeast, who left their mark permanently on culture and language. The ancient language of Geez, used in the liturgy of the Ethiopian Church, is a Semitic tongue. So, basically, is Amharic, the official language of the country.

Yet, because of the geography of Ethiopia, no change in any one part necessarily affected the rest of the country. Living in a land crisscrossed by ranges rising sometimes 15,000 feet and split down one side by the Great Rift Valley, isolated tribes have developed independently and evolved their own dialects. In the remote city of Harar we were to hear Harari, another Semitic tongue; the brown-skinned Galla tribes, widespread across south-central Ethiopia, still speak a Hamitic language. Altogether, more than 30 different languages are spoken in the country.

In religion, too, Ethiopia's tribes have developed independently. Though the entire country was never conquered by Islam, it has a large segment of Moslems. In the south, among the Gallas and the Shangallas, there are pagans who worship serpents and practice sorcery.

An Ancient Christianity

But the official Ethiopian religion is one of the most ancient forms of Christianity. From the beginning it has been closely linked with Egypt's Coptic Church. It was founded by St. Frumentius, who converted the royal family to Christianity in the fourth century. For some 16 centuries the Patriarch at Alexandria appointed the high priest of Ethiopia's Coptic Church, but two years ago the Em-

* See, in the National Geographic Magazine: "Traveling in the Highlands of Ethiopia," by Leo B. Roberts, September, 1935; "Life's Tenor in Ethiopia," by James Loder Park, June, 1935; "Modern Ethiopia," by Addison E. Southard, June, 1931; and "Coronation Days in Addis Ababa," by W. Robert Moore, June, 1931.

↑ Centuries-old Stone Wall Girds Harar, Ethiopia

Medieval Carcassonne, France, and Kano, Nigeria, came to mind when the author saw Harar. Harar's encircling wall lacks the reinforced ramparts of Carcassonne fortress, and, unlike Kano's mud walls, it is made of masonry; but the tempo of life within the maze of narrow, crooked streets suggests an ancient day.

Arabs from Yemen built the city in the seventh century. The wall has been remarkably preserved. Repaired and rebuilt sections reflect the workmanship of succeeding invasions by Somalis, Egyptians, Ethiopians, and others (opposite and page 752).

← Water Vessels Ride Children's Heads

Many of Harar's houses lack piped water; public wells supply inhabitants. Girls get the job of filling cups, pans, and gourds for every need. The scarf headdress is popular with Ethiopian women. Bead necklaces identify a Moslem girl on the left.

Gilbert Grosvenor

peror won the right for the Ethiopian Church to appoint and consecrate its officials.

We looked into St. George's Cathedral during Sunday-morning service. All along the paths approaching the church we saw men and women kneeling. Some reached out to touch the garments of passing priests or to kiss their crosses.

Under a large rotunda huddled a few rude benches; at the far end stood a kind of altar. At one side of the church the choir chanted in the ancient language of Geez, which few but priests and scholars understand now. There was an accompanying boom of drums and much swinging of censers.

From paintings on the walls big almond-shaped eyes of Biblical and native saints and devils stared out. These paintings, usually divided into squares not unlike our comic books, depict martyrdoms and miracles, death and salvation. We bought one such painting on canvas at a handicraft shop (page 750).

Narrow, stony streets led us to the market. Here we wandered among booths selling textiles, saddles, books, raw beef, live sheep, and silver Coptic crosses.

Addis Ababa is learning new ways from the outside world. Since Ethiopia won back its independence after World War II, foreigners have flocked into the capital. Some have sought industrial and mining concessions; others have introduced new methods of agriculture.

To Harar by Bucket and Bus

Our guide was a young Armenian woman from Smyrna (Izmir) who had started a travel bureau, using local drivers and automobiles. An English girl from Kenya sold us our airplane tickets in the office of the Government-owned Ethiopian Air Lines, managed and operated by Trans World Airlines.

Another sign of the times was the modern building housing the U. S. Information Center. On the front in large English letters were the words "Reading Room." Above were the same words in Amharic.

From Addis Ababa we flew to Diredawa via the Ethiopian Air Lines. Of our two pilots, one came from Seattle, Washington, the other from Minnesota.

It was our first experience riding in a cargo plane on bucket seats. Strapped in securely with our backs to the windows, we faced huge bales of cotton or other merchandise. I couldn't help thinking how uncomfortable American GI's must have felt crossing whole oceans in seats like these!

Diredawa stands 3,950 feet above sea level (page 726) and has a population of about 30,000. As we alighted, a fellow passenger was met by a swarm of gaily dressed women who besieged her as she arrived (page 750). Obviously she was coming home. We, on the other hand, were crowded into a small German bus whose windows refused to open despite all our efforts, and in this conveyance we wound over the mountains to Harar.

After lunch at lovely Lake Haramaia we drove up the mountainside toward the old walled city. Built in the seventh century after Christ by Arabs from Yemen, Harar has been captured and recaptured time after time. The wall of stone and plaster shows the original Arab workmanship and bits of Ethiopian and European repair work. It completely surrounds the city, with very few gates (opposite, and page 752).

A Melting Pot of Peoples

Near the gates I saw a new wall-enclosed mausoleum built for Haile Selassie's parents. The imperial family had its origin in Harar Province, and he himself was born near Harar city. Stone lions guard the doorways, and sentry posts in the corner of the square make it look more like a fort than a graveyard.

Harar is an island of contrast inside Ethiopia. Mosques and minarets show its old Moslem affiliation, though I could see evidence that Coptic Christianity has made some headway, in the cross-crowned cathedral on the main square.

The Harari, like no other people of Ethiopia, are chiefly a combination of Arab-Somalis, from near-by coastlands, and the Gallas, largest of Ethiopia's native tribes. Amharas from the central highlands and Yemen silversmiths and shopkeepers from the Near East add variations to the blend.

Harar women have a reputation for beauty. We thought their smooth hairdo, flower-decked in Galla style and tucked up in simple buns behind the ears, a pleasing change after the frizzy pompadours and tiny plaits so popular elsewhere in Africa.

Many of the people I saw had skin of a rose-copper color, pleasantly set off by bright costumes, some with contrasting pantaloons.

Now we followed a rocky labyrinth of steep, narrow streets paved with rough stones of many shapes. Winding our way between

blank-walled houses and open sewers, we came to Harar's market place (opposite and page 754).

It was market day, and members of visiting tribes of Gallas and Arabs crowded the city. Here, too, were contrasts with other African markets we had visited. Under arcades surrounding a small open square, shops recalled those of southern Europe.

They displayed all sorts of goods: flat disks of bread that looked like big pancakes, jars of *tej* (a fermented honey drink), piles of coffee bags, silver and leather work, and gaily colored lengths of silk and cotton cloth. Here and there were spread twigs and leaves of a shrub called kat, chewed for stimulation.

In one of the shops selling woven baskets, trays, and mats we climbed up a shaky ladder through a trap door to see them being made.

Half a dozen young girls sat on the floor weaving briskly under the ever-watchful eyes of their taskmistress, an old woman swathed in flowing blue and red. The supple fingers of the workers never hesitated. Stopping only to moisten their vivid and varicolored fibers in a tub of water, they were still weaving in and out as we clambered down again.

A modern addition to old Harar is a teachers' training school, transferred there recently from Addis Ababa. A boarding school, it has more than 100 students.

That afternoon we returned over the mountains to Diredawa. By comparison, it seemed quite a modern center with its electricity, water supply, industrial plants, railway station, and good hotel.

Next morning we visited the city's pride, a big cotton factory. Here large quantities of white cotton sheeting are turned out to meet the perpetual demand for men's robes.

"We are thoroughly mechanized," said the manager as he showed us through rooms filled with spindles and weaving machinery. "The Emperor is much interested in modernizing Ethiopia."

Khartoum, Where Two Niles Meet

"Look!" said Dr. Grosvenor. "You can really see the difference between the Blue and White Niles here."

We were flying into Khartoum. Below us the two rivers came together in a mighty trunk. The Blue Nile, whose source we had passed in faraway Ethiopia, was clear and blue. The White Nile was creamy with silt.

Khartoum, capital of the Sudan, is a metropolis on the green oasis that follows the Nile north through the desert to the Mediterranean.

Our hotel, like many of the city's handsomest residences, overlooked the river. From our veranda we could see date and sunt trees (a kind of acacia) lining the banks.

Now and then camels and donkeys passed, led by Arabs and Nubians in white gowns. Several vendors came up to the hotel steps to show visitors leather bags, belts, and purses.

After the bright costumes of Central Africa the dark blue and white worn by Moslems here (stark black farther north) seemed depressing. Even more so, to me, was the sight of dark-robed women tilling fields under the broiling sun.

Men Now Prefer Literate Brides

"But conditions are much better now than they used to be for Sudanese women," said Sir James Robertson, British Civil Secretary for the Sudan, when he and Lady Robertson entertained us at lunch.

"In education, particularly, women here have made considerable progress. Many village girls come in to the capital and other urban centers to attend boarding schools. All the more progressive and educated men—and in the Sudan the great majority are Moslems—now want to marry women who can read and write and give them companionship."

Whenever Khartoum is mentioned, someone is sure to bring up two names from its turbulent past. One is the British general Charles George Gordon (known as "Chinese Gordon" from an earlier career in China), who was killed in Khartoum in 1885 during a revolt led by the Mahdi.

The other is Lord Kitchener, who, 13 years after Gordon's death, led a British army into the Sudan and defeated the rebel Arabs in the Battle of Omdurman.

Khartoum today is a busy town of fine

(Continued on page 757)

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A Galla Woman in Harar's Market Bargains for a Cup of Grain →

Arabs and Gallas jam this eastern Ethiopian city on market day. Canopied stalls display foodstuffs, bright silk and cotton cloths, silver and leather goods. *Tej*, a fermented beverage, and green kat, a chewy leaf, are other best-selling items. The merchant wears loose jodhpurlike trousers, knee-length jacket, and shawl.

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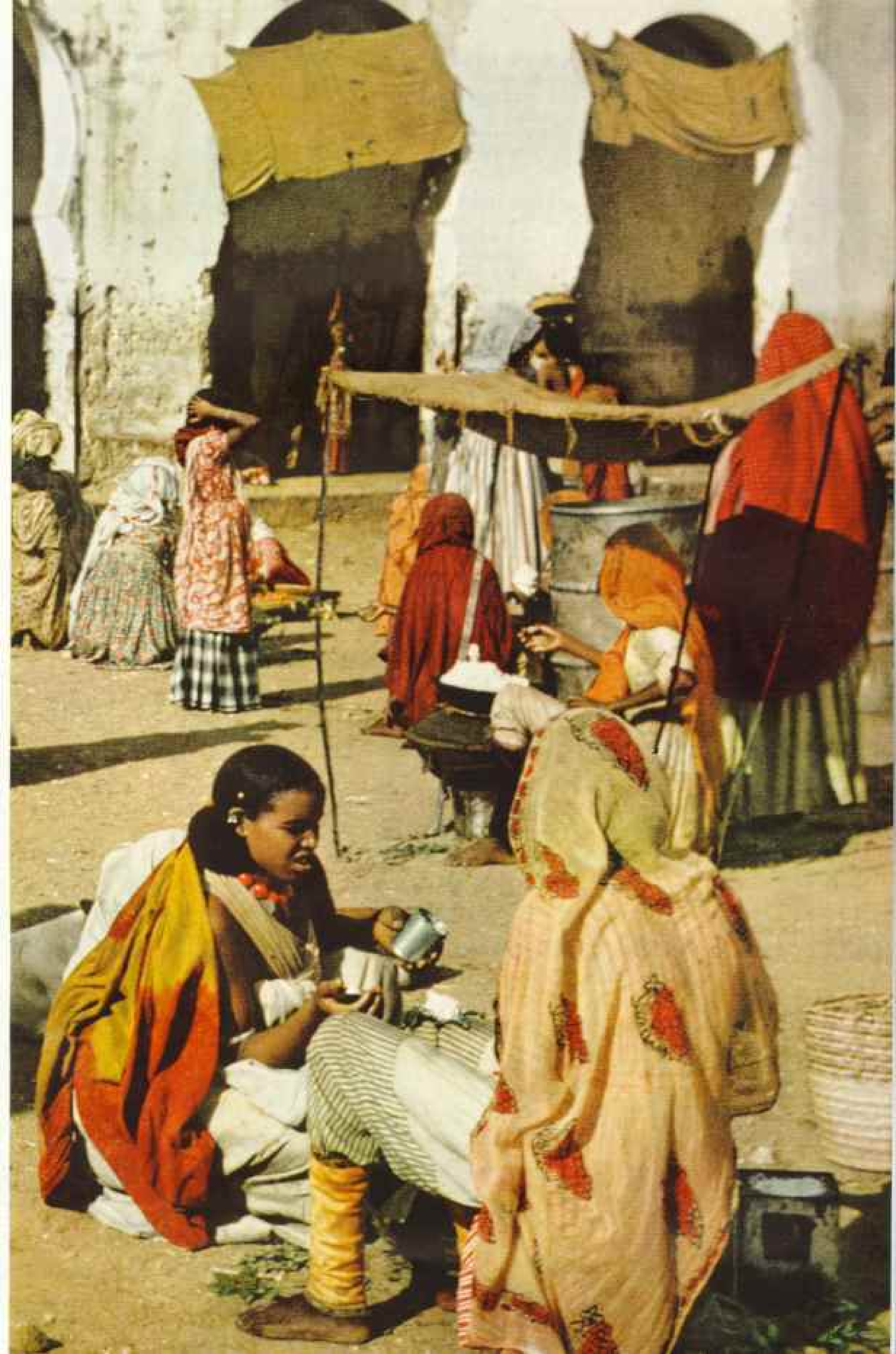

American Planes Flown by U. S. Pilots → Link Ethiopia's Remote Cities

The authors flew from Addis Ababa to Diredawa via the Ethiopian Air Lines, which is operated by Trans World Airlines. Their pilot and co-pilot were two young Americans. Designed for cargo, the plane carried its passengers in bucket seats facing bales of cotton and other freight.

Ethiopia, like much of Africa, lacks good transportation facilities. Few roads bridge the mountains and deep gorges, and only a single-track railway links the interior with the sea. Now the Air Age is opening untapped agricultural and mineral resources. Already the Lion-of-Judah emblem (shown on plane) decorates a fleet of airliners. Here Ethiopian schoolgirls welcome one of the Grosvenors' fellow passengers home to Diredawa.

↓ Cartoonlike Painting Depicts the Sheba-Solomon Romance

II Chronicles: 9 records that "when the queen of Sheba heard of the fame of Solomon, she came to prove Solomon with hard questions at Jerusalem, with a very great company, and camels that bare spices, and gold in abundance, and precious stones . . . and king Solomon gave to the queen of Sheba all her desire . . . so she turned, and went away to her own land. . ."

Ethiopians, who believe their royal house descends from a son born to King Solomon and the "Queen of the South," are fond of painting the story in comic-strip style. Mrs. Grosvenor, intrigued by the paintings, bought this 72-panel canvas in Addis Ababa. It combines several legends. One version relates that the Queen, disfigured by a drop of serpent blood, visited Solomon seeking a cure.

Opposite: Amhara women carry heavy water jugs.

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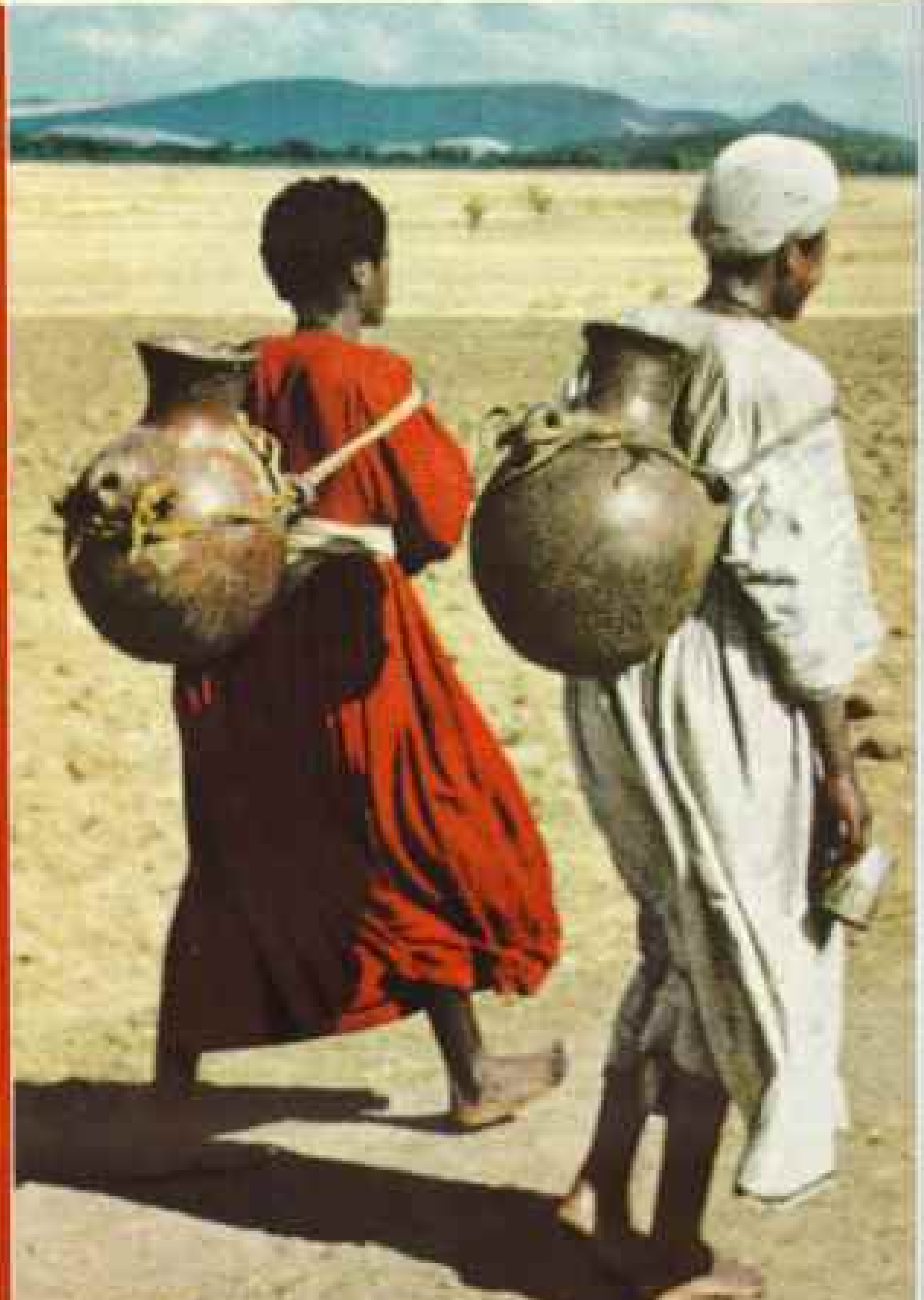
Kodachromes by Gilbert Grosvenor; painting by unknown artist



Lofty Mountains Isolate Harar →

Trees and buildings conceal a stone wall surrounding the city. In the outskirts the author observed many citrus and coffee trees. Coffee is Ethiopia's most important cash crop.

↓ Soldiers in Khaki Guard the City's Gates

Harar's wall, designed for protection in early times, has only five narrow gateways. When the city was attacked by Italian bombers in 1936, the wall served as a trap rather than a safeguard, and many residents died in the crush to get out.

The object leaning against the shed is a *gharry*, a popular conveyance. This 2-wheeled horse-drawn sulky runs on automobile tires. It got its start during the Italian occupation, when the gasoline shortage stalled motorcars.

Opposite: An Amhara woman walks her pet dog near Lake Bishoftu in suburban Addis Ababa. She wears a head scarf and a shawllike *kurtah* above her flowing pink gown.

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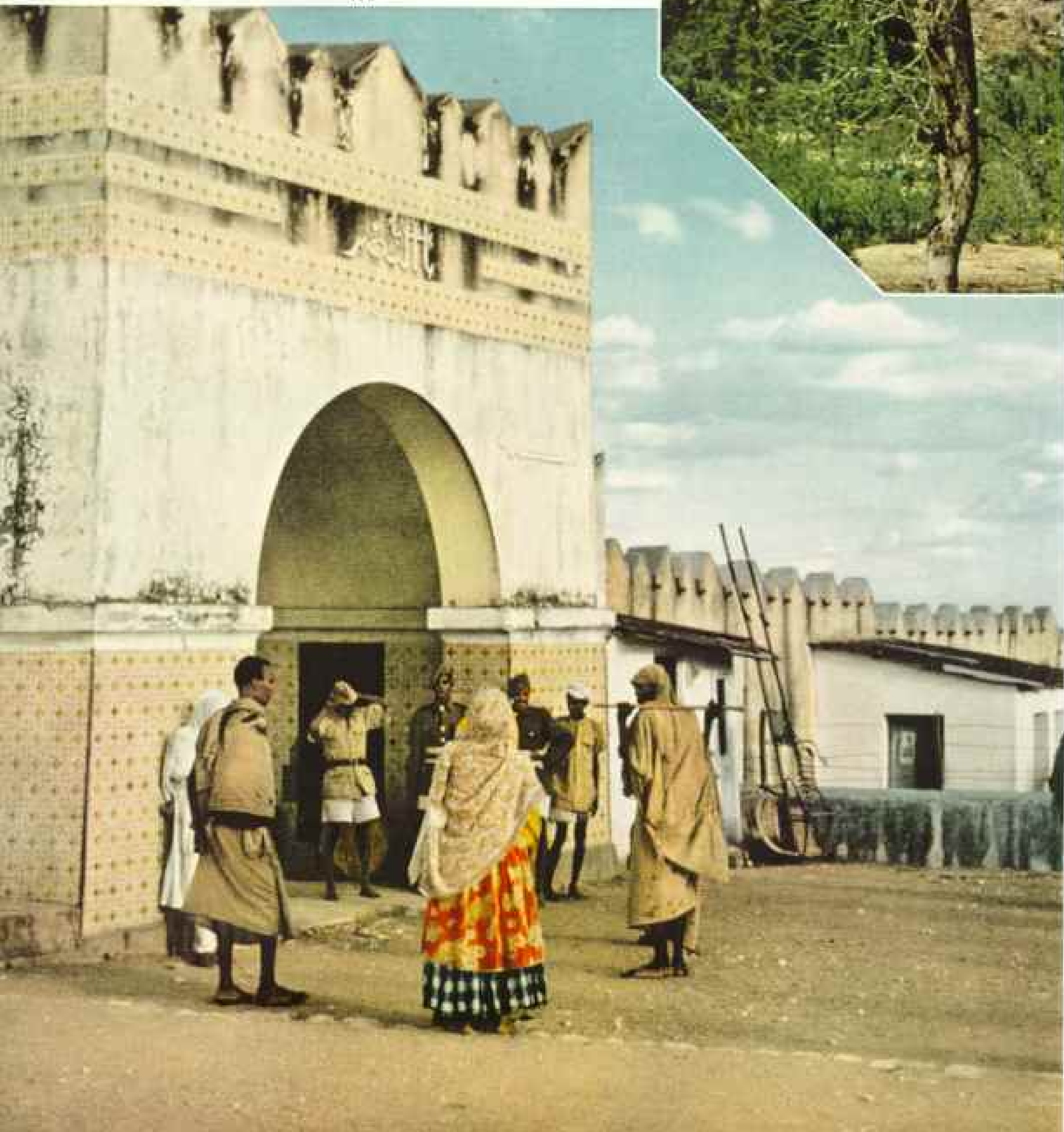

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Market-day Throngs Turn a Harar Square into a Babel

Inside Harar's wall the author found herself in a busy throng gathered for market day. No automobile could force its way through the narrow, crowded streets; even donkeys had a tight squeeze.

Kodachrome by Gilbert Grosvenor

A Bright New Mosque Hides Crumbling Stone Walls near This Market Square

Food for sale in stalls included plenty of beef, butter, cheese, cereals, and vegetables. Rich soil and ample rain give Ethiopia a surplus of food and a wide variety of crops.

↑ Sunrise Lights an Egyptian Rock Temple Built by Rameses II Some 32 Centuries Ago

The authors sailed down the Nile from Wadi Halfa in the Sudan to Aswan on a paddle-wheel steamer. Coming into Abu Simbil at sunrise, passengers rose and went on deck to see what Mrs. Grosvenor calls "the most magnificent sight of our whole African journey": the three temples of Rameses II carved into the face of a massive sandstone cliff. Rameses planned the setting with the care of a master stage designer. His spotlight, the rising sun, still sets the scene aglow each morning as it did when he built the temples in the 13th century B. C.

Six colossi—four of Rameses and two of his wife, Queen Nefertari—flank the entrance to this temple, which is named for the goddess Hathor. Smaller stone figures at the monarchs' feet are their children. A Nile dhow loaded with firewood casts a long shadow on the beach.

← A Faceless Colossus of Rameses II Stands Watch over Luxor Temple

Modern Luxor preserves the ruins of Thebes, which served for centuries as the world's center of civilization. Temples and palaces of its pharaohs rose above green gardens at a bend in the Nile; gold-capped obelisks tapered skyward.

Excavation has uncovered only part of the ruins of Thebes. This colossus of the Pharaoh once fronted a gateway of an imposing temple. Siege, fire, and earthquake through the centuries have left some walls, columns, and battered statues.

A retaining wall at left marks the end of present excavation. It supports ground where a modern mosque has been erected, presumably over more ancient ruins.

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Kodachromes by Gilbert Grosvenor

buildings along broad paved streets laid out by Kitchener. We motored by the famous statue of Gordon astride his camel and visited the site where he perished.

Driving across an 8-span bridge over the White Nile, we came to the prosperous mud-brick city of Omdurman. It is the home of more than 125,000 Sudanese, many of whom commute daily to work in Khartoum.

Here, too, we found memorials to the war, including the tomb of the Mahdi and a museum containing, among other things, an exhibit of British soldiers' uniforms of the 1880's. The tall fur hats and tight red coats made no concessions to temperatures of at least 100°F. in the shade—and the battles were not fought in the shade!

Nowhere can you see more dramatically than along the Nile that water is life.

When we flew 440 miles from Khartoum to Wadi Halfa, near the Egyptian border, we looked down on blazing, barren desert sand. From the airport into town no green thing appeared till we came to water's edge. Then, abruptly, everything was green and growing.

The formal gardens of our riverside hotel and of the British Resident we visited were masses of petunias, phlox, verbenas, and roses (page 744). Along the banks water wheels creaked while men, oxen, and donkeys turned them to keep alive narrow strips of cultivated land. Clumps of palms stood out against the sky; many grew far out into the river itself.

Less pleasant were the green gnats that swarmed outside the screened (for a wonder!) doors and windows of our rooms. They are known locally as "nimiti." So thick were they that dead gnats had to be shoveled from in front of our door. They breed in the river bed and swarm this way only a few days each year.

Navigating the Nile in a Felucca

Pleasant, tree-shaded, Wadi Halfa stands near the Second Cataract of the Nile, which halts steamer traffic up the river. From early times Egyptian pharaohs and later the Romans built forts at this strategic spot.

At Wadi Halfa we hired a felucca, a small Nile boat with lateen sails and huge rudder, to sail us across the river to Beben, site of an ancient Egyptian town. In midstream Dr. Grosvenor took the tiller and mainsheet and sailed it easily (pages 758 and 759).

As the boat heeled over in the fresh breeze, we climbed to the high side, as we usually do in small craft. But our skipper, a lad with a gleaming smile on an ebony face, pushed out the narrow gangplank and clambered out on it to balance the heeling felucca.

As we approached the other shore, we saw a ruined pylon or gateway of bricks near some fragments of walls. This is all that remains of an old fortification built by Senusret I nearly 4,000 years ago.

The Queen Who Became King

Two ruined temples left here are of later origin. One was the work of a remarkable woman, Queen Hatshepsut, who ruled Egypt about 1500 B. C. Daughter of King Thutmose I, she shared the throne with her half-brother, Thutmose II, and after his death she took over the rule completely from her nephew, Thutmose III, during his early years. For a long time she held officially the royal power and title of king.

When Thutmose III finally ascended the throne, he vented his hatred for his domineering aunt. After her death—some say by poison—he destroyed, wherever he could, every reference to her in name or image.

In the little temple of Beben one can plainly see the records of Queen "Hat's" accomplishments superimposed by inscriptions and reliefs showing the victories of Thutmose III.

Later, when we saw the Queen's great mortuary temple in Thebes and her obelisk at El Karnak, we realized how futile had been Thutmose's efforts to banish the memory of this first powerful ruling queen of recorded history.

Wadi Halfa is one of the more progressive towns of the Sudan. At our hotel we met a young Scotswoman, principal of a boarding school for girls between 9 and 14. "Come and see our work," she urged us.

In the classrooms were the usual hanging maps, chalked lessons, and youthful drawings. But the Sudanese teachers were dressed in white robes and veils. The veils, however, covered their heads rather than their faces.

Our Scottish friend also took us to visit an elementary day school for younger local girls. Its principal was a Moslem woman dressed in European style, without face covering.

Both schools were surrounded by high walls that left little space for exercise and play. Our hostess explained that lack of playgrounds doesn't bother Moslem girls as much as it would Americans. "These girls have more freedom here," she pointed out, "than they have in their own homes.

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Inveterate Sailors, the Grosvenors Hired a Nile Felucca to Try Its Lateen Rig

© Kodachromes by Gilbert Grosvenor and (above) Elsie May Bell Grosvenor

↑ Dr. Grosvenor Takes *Whitebird's* Tiller on the Blustery, Mile-wide Nile

A charter member of the Cruising Club of America, Dr. Grosvenor had never before tried sailing a felucca. Taking over the helm and mainsheet in midstream, he found the boat easy to handle. Winter's winds at Wadi Halfa often churn the Nile.

↓ Skipper Climbs Out on a "Hiking Board" to Balance the Heeling Felucca

During strong gusts the passengers climbed to the high side of the boat while the skipper hiked out. The same board doubled as a gangplank (opposite). Destination was the ancient west-bank town of Behen on the Nile's Second Cataract.

"We give considerable training in domestic science, modern home sanitation, child care, and so on," she added. "We are also trying in our academic training to raise the general educational level of Moslem women."

At Wadi Halfa we took a paddle-wheel steamer down the Nile.

Bound for Aswan, 250 river miles north, we had as fellow passengers a member of the Egyptian Parliament, a rich Sudanese businessman, and a European from Khartoum who had injured his arm and was on his way to a Cairo hospital.

Hitched off-side our steamer was a smaller boat for third-class passengers. These people seemed perfectly at home; they sang and talked while their laundry dried on the deck and their food cooked on charcoal braziers.

Next morning we awoke, at Abu Simbil, to the most magnificent sight of the whole African journey—the sunrise view of the rock-hewn temples of Rameses II (page 756).

From a massive sandstone cliff four enthroned kings, or rather four images of the same king (one in ruins above the knees), looked majestically toward the east.

Over the scene poured the glowing fire of the sun, a dramatic effect planned more than 3,000 years ago when this temple, the chief of three cut into the rock here, was made to face the rising sun. It was so built that the sun's rays penetrate the innermost sanctuary, to light another figure of Rameses.

Colors Bright After 30 Centuries

In the inner chambers we found ceilings and walls covered with unbelievably bright paintings, their colors happily preserved by the dry Egyptian climate.

They depicted scenes of Egyptian history, with accent on Rameses in battle, Rameses receiving homage, Rameses the ruler presenting gifts to himself as a god.

It was the custom in his time for kings and nobles to build to themselves tombs and elaborate temples. Rameses outbuilt all the others. His structures cover literally acres with granite and stone.

It was cool and pleasant on our river boat, for we were back to early spring on the north side of the Equator, a curious step backward in time after the summer of South Africa and the winter sleet we had left in Washington, D. C. In the sun parlor at the stern passengers could read or play cards.

At mealtimes we were served by men in white turbans and "nightshirts" buttoned up to their chins and encircled at the waist by broad colored cummerbunds. What's more, the waiters wore strap sandals or slippers. This steamer and the hotels of the Sudan and Egypt were the only places in Africa where our waiters were not barefooted!

Isis' Temple Lies Under Water

Near Aswan we came to the drowned island of Philae, with its Temple of Isis barely reaching above the surface of the water. Looking down, as through green-tinted glass, we could make out the graceful columns and courts of this temple to the goddess of fertility.

When the great Aswan Dam was built, between 1898 and 1902, the Nile waters rose and submerged Philae, along with scores of riverside Nubian villages. Only during the summer and fall months, when water is released from Aswan reservoir for irrigation downriver, does the temple emerge, gray and dripping, from its long bath.

We steamed on through the broad, lakelike waters of the impounded Nile and landed at Aswan, an ancient Egyptian city near the First Cataract.

We had hardly touched land when health inspectors rushed aboard and sprayed the boat thoroughly with the strongest disinfectant we had yet met. They even entered the staterooms to spray under the beds and on walls and ceilings. We noticed, too, that our own medical inspection was unusually meticulous.

It seems there had been an outbreak of cerebral malaria in the district, the Arab health officer explained, and the authorities were afraid of more contagion.

We were also met by the Egyptian tourist police, who offered our party a safety escort. The courtesy was the aftermath of the destructive Cairo riots not long before, but it was particularly valuable to us because Dr.

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Luxor Temple's Colonnade Reflects the Glory of Ancient Egypt →

Massive "papyrus columns" and spacious courts made Luxor Temple one of the most impressive in Egypt. Several pharaohs put their hands to the work: Amenhotep III designed the structure, Tutankhamen carried on the work, and Rameses II added a colonnaded court. The ruins stand in modern Luxor. Capitals on these columns are designed to resemble papyrus buds.

Uniformed man at right is a member of the Egyptian tourist police assigned to the safari.

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Grosvenor, thus officially escorted, could take photographs without interference.

Along Aswan streets we saw many small, one-story houses with crude colored pictures, painted on the outside, of camels, ships, and even airplanes. This was a sign that the owner had made the pilgrimage to Mecca and showed how he got there.

When we stopped, people crowded around our car to sell us souvenirs. Because of the riots, the city had had practically no visitors, and local people who depended on the tourist trade for a living were almost desperate.

Aswan: a Needle and a Dam

Near Aswan great granite hills rise somberly out of the surrounding desert. The quarries of Aswan (Syene to the old Greeks) provided building materials for many of the mighty monuments along the Nile, including the Pyramids' granite facing.

One method used to cut it was simple but effective. Slaves pounded wooden wedges into holes in the stone, wet them, and waited for the expansion to break the granite into sections. The blocks were then loaded onto rafts and barges and floated downstream.

Eventually many of the huge obelisks cut at Aswan found their way to the capitals of Europe. One even got to New York City, where it is misnamed "Cleopatra's Needle."

In an Aswan quarry, in a barren countryside, we found the giant of them all. An unfinished obelisk measuring 137 feet of reddish-tinted granite, it was apparently abandoned because of defects in the stone.

The Aswan Dam, a mile and a quarter long, is built of the same solid granite that made the ancient monuments. It stands 172 feet above its foundations.

Walking across the mighty trestle of the dam, we had a spectacular view of Aswan and the Nile. But more exciting was the work going on below us—the installation of big turbines to tap the rushing waters for hydroelectric power.

North of Aswan the countryside changes completely. From the train that took us from Aswan to Luxor we hardly saw the Nile, though the railroad runs parallel to it.

Green and waving plains of cultivation replaced barren hills. Everywhere men and women, in stark black and white clothes, bent over their fields. The scenery included eucalyptus trees and palms of many kinds.

Luxor officials met us with a bouquet of carnations and pinks, a sheaf three feet long. Uniformed police were on hand as escort, again the result of the Cairo disturbances.

Luxor, normally crowded with visitors, was almost deserted. At the height of the season for this Egyptian center of antiquities, some of the big hotels were closed. The very palms seemed to droop in their formal gardens.

Three modern towns, Luxor and El Karnak on the east side of the Nile, and Qurna on the west bank directly opposite, now share the site of what was once the world's greatest city, the ancient Egyptian capital of Thebes. For nearly 400 years (1600 to 1200 B. C.) "hundred-gated Thebes," as Homer described it, was the center of the civilized world. Thebes straddled the Nile, with its biggest temples and dwellings on the east bank, its Necropolis, or City of the Dead, across the river.

Its ruined temples and dusty avenues of tombs make up the world's greatest single collection of the remains of an ancient civilization.

Almost on our doorstep was Luxor Temple, begun by Amenhotep III, who reigned between 1413 and 1377 B. C. It is regarded by many as the most beautiful of its time.

As is usually the case in Egypt, we found excavation going on around the temple's restored courts and fallen columns, its gigantic reassembled statues, its magnificent colonnades. The excavation stopped at a retaining wall which guards the foundation of a modern mosque (pages 756 and 761).

A mile and a half beyond the Luxor Temple, and linked with it in ancient times by an avenue of sphinxes, lies El Karnak. Its chief building, the Temple of Amun, is the biggest columned temple ever built by man.

Queen Hat's Obelisk Tells a Story

One of the huge obelisks still standing at El Karnak was shipped down from the Aswan quarries and set up by Queen Hatshepsut, whose little temple we had visited at Wadi Halfa. On it are sculptured reliefs and an inscription stating that the Queen raised this and another obelisk here to her "father," the god Amun, and recounting the history of her reign.

Thutmose III tried to hide the name of his aunt by building a wall around the obelisks. He chose this method, the legend goes, because the high priest forbade him to deface the name of Amun. Eventually, however, the walls crumbled, and then Queen Hatshepsut's story was all the more dramatically revealed (opposite).

Following the westward course of ancient funeral processions along the riverbank, we sailed as they did across the Nile to the "eternal home of the dead" in the Valley of the Tombs of the Kings.

On donkeyback we jogged through green patches of cultivation till we came to a broader road. There we transferred to antiquated cars that would take us deep into the desolate and wind-swept hills in which the old Thebans entombed their rulers.

Sleds Carried Coffins Downhill

The Valley of the Tombs of the Kings is the largest of several such valleys. Sloping corridors lead to the funerary chambers and the sarcophagus, or stone coffin, that held the mummy in its wrappings. The size, decorations, and furnishings depended on the station and wealth of the deceased. The richest tombs were crowded with vast treasures in furniture and personal possessions. Sometimes several members of the family were interred in the same grave with the king.

Through the centuries grave robbers have looted Egypt's tombs, but the immovable chambers and their paintings and carving remain. They give clear proof that the ancient Egyptians not only believed in a life after death but had a very practical concept of it.*

Along one of the royal avenues we visited the now empty tomb of Rameses VI. We went first down an inclined passageway; here, in the ancient days, the heavy stone coffins were placed on sleds and pushed down the slope into the tomb.

* See "Daily Life in Ancient Egypt," by William C. Hayes, National Geographic Magazine, October, 1941.

Gilbert Grosvenor

A Queen's Gift to the Sun Soars Above El Karnak

Egypt's Queen Hatshepsut erected two gold-tipped monuments to the solar deity in the Temple of Amun at ancient Thebes. One pink granite monolith still rises 97 feet. Large hieroglyphs praise "Son of Re, Khnemet-Amun, Hatshepsut, beloved of Amun-Re, king of gods, who is given life, like Re, forever." For Queen Hatshepsut to call herself son of a god was characteristic; she also proclaimed herself king. Statues show her wearing a pharaoh's plaited beard.

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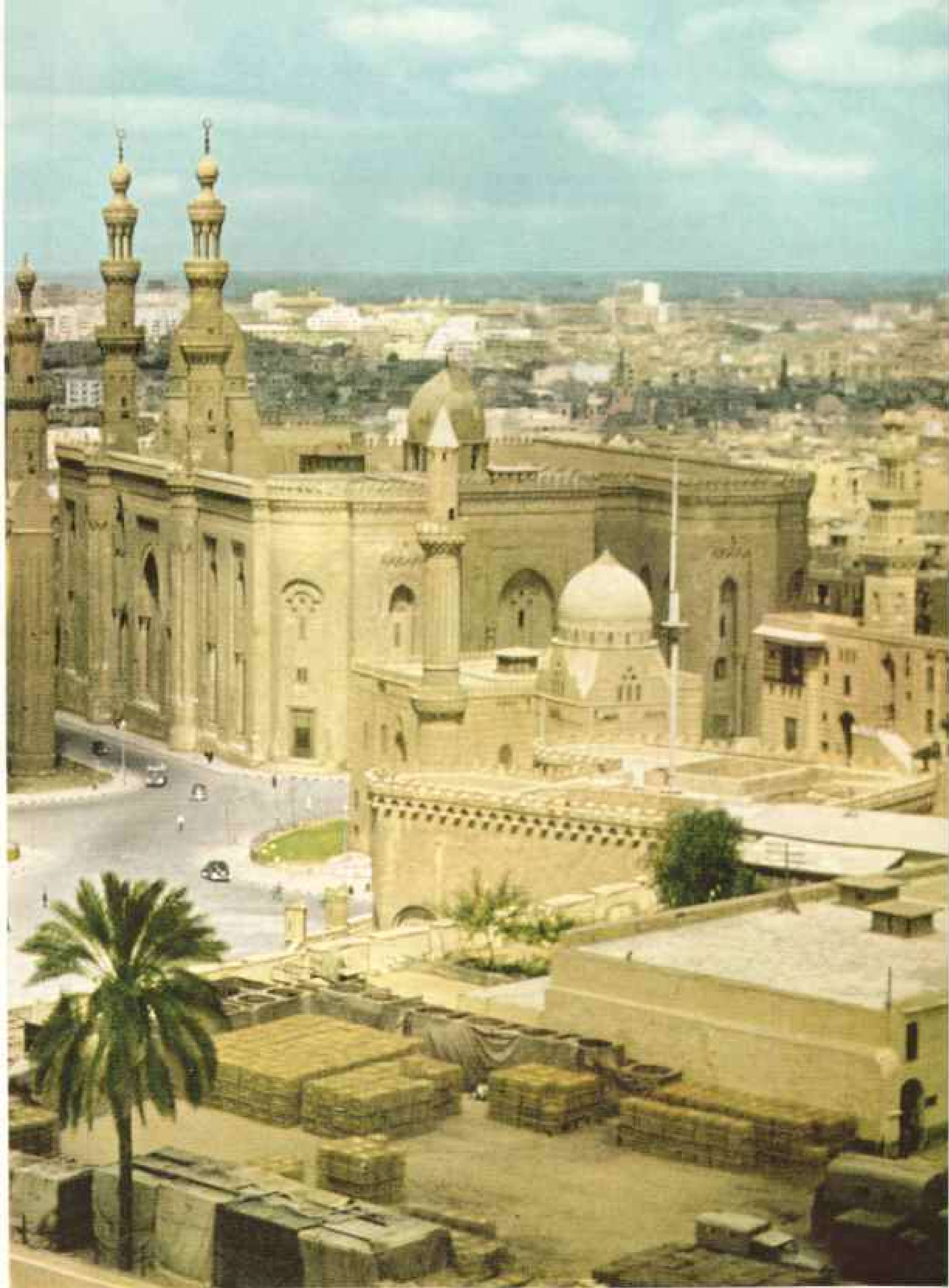
Minarets Mingle with Skyscrapers in Cairo, Junction of East and West

Seen from Saladin's Citadel, Africa's largest city embraces two worlds: medieval structures, winding streets, bazaars, and donkey carts, and the bustling new city of gleaming buildings and motorcars.



Kodachrome by Gilbert Grosvenor

Twin Spires Top Rifai Mosque. Desert on Horizon Lies Beyond the Nile

Sultan Hasan's mosque (left) ranks as one of the finest of Cairo's 400. Pyramids and Sphinx are off to the left of this picture, about eight miles away. Egyptian army gear is piled in the Citadel court.

Looking at us from all sides of the passageway were still vivid pictures of life in the world of the dead.

The last tomb we entered, down a very steep runway under the tomb of Rameses, was the smaller crypt of King Tutankhamen. Probably because of its depth, it had escaped serious looting. It is supposed to have been prepared for one of the king's ministers, but Tut died suddenly before his own tomb was ready and the minister's was used instead.

Later, in a Cairo museum, we saw the marvelously preserved furnishings that were taken out of this crowded room. They included everything from beds, chariots, crowns, and chairs to such personal items as gloves, sandals, and even a lock of Queen Tiy's hair.*

Queen Hatshepsut's mortuary temple, Deir el Bahri, is built against a massive cliff facing El Karnak across the river. It rises on three open terraces, backed by graceful colonnades against the yellow sides of the cliff. At the summit a sanctuary is cut deep into the rock.

Geographic Expedition—1500 B. C.

Inside the temple's columned porticoes many of the pictorial accounts of the life of Hatshepsut were scratched out long ago. But still enough remains, with the inscriptions on her obelisk, to tell fascinating stories about this remarkable and energetic woman.

She sent out an exploring expedition nearly 1,500 years before Christ, to the land of Punt on the Somali coast. The Queen's ships sailed down the Nile and crossed to the Red Sea through an ancient waterway not far from the modern Suez Canal.

In the exotic cargo they brought back were gold, ivory, ebony, apes, and aromatic trees and plants, including myrrh.

Somewhat reluctantly—for we would have liked more time in Thebes—we took the evening train for Cairo, 300 miles to the north. When we arrived, we were met by representatives of Egypt's Minister of the Interior and the government tourism department. We had now reached the storm center of the recent riots. Soldiers, surrounded by sandbags and barbed wire, guarded parks and bridges.

From our hotel, the Semiramis, we had a fascinating view of river life on the Nile. Some of the freight of Egypt is still borne by lateen-rigged vessels, and we watched the stately craft sail by in a steady procession (page 770). As each boat approached one of the low-slung highway bridges, the crew lowered and folded the sails and bent or lifted out the masts. The tall spars that hold the sails aloft are of bamboo and easy to lift.

Cairo, despite the riots, was still fascinating, a new-old city of Oriental bazaars, modern apartment houses, mosques, and minarets. Overlooking them all was the Citadel, first built in the 12th century by the Sultan Saladin. From its hills we could see the whole city.

Some of Cairo's most famous mosques stand in and around the Citadel. We visited two of them, the Sultan Hasan's mosque, built in 1357, and the Rifai (page 764).

The Rifai was erected by the family of the lately deposed King Farouk. There many royal ceremonies have been held and there King Fouad, Farouk's father, was buried. The Imam, in gown and white turban, met us at the entrance and escorted us through the building, showing us the many beautifully carved verses from the Koran, and decorations of ivory, ebony, gold, and silver. There were no statues, for human likenesses are not permitted by Mohammed.

Later we drove across the Nile to the Mena House, a hotel near the famous Pyramids of Giza. From here visitors may go by automobile, camel, donkey, horse, or foot into the desert to see the most famous of man-made wonders, the three colossal Pyramids of Khufu, Khafre, and Menkure. They have stood here, stark, enormous, and mysterious, for more than 45 centuries.

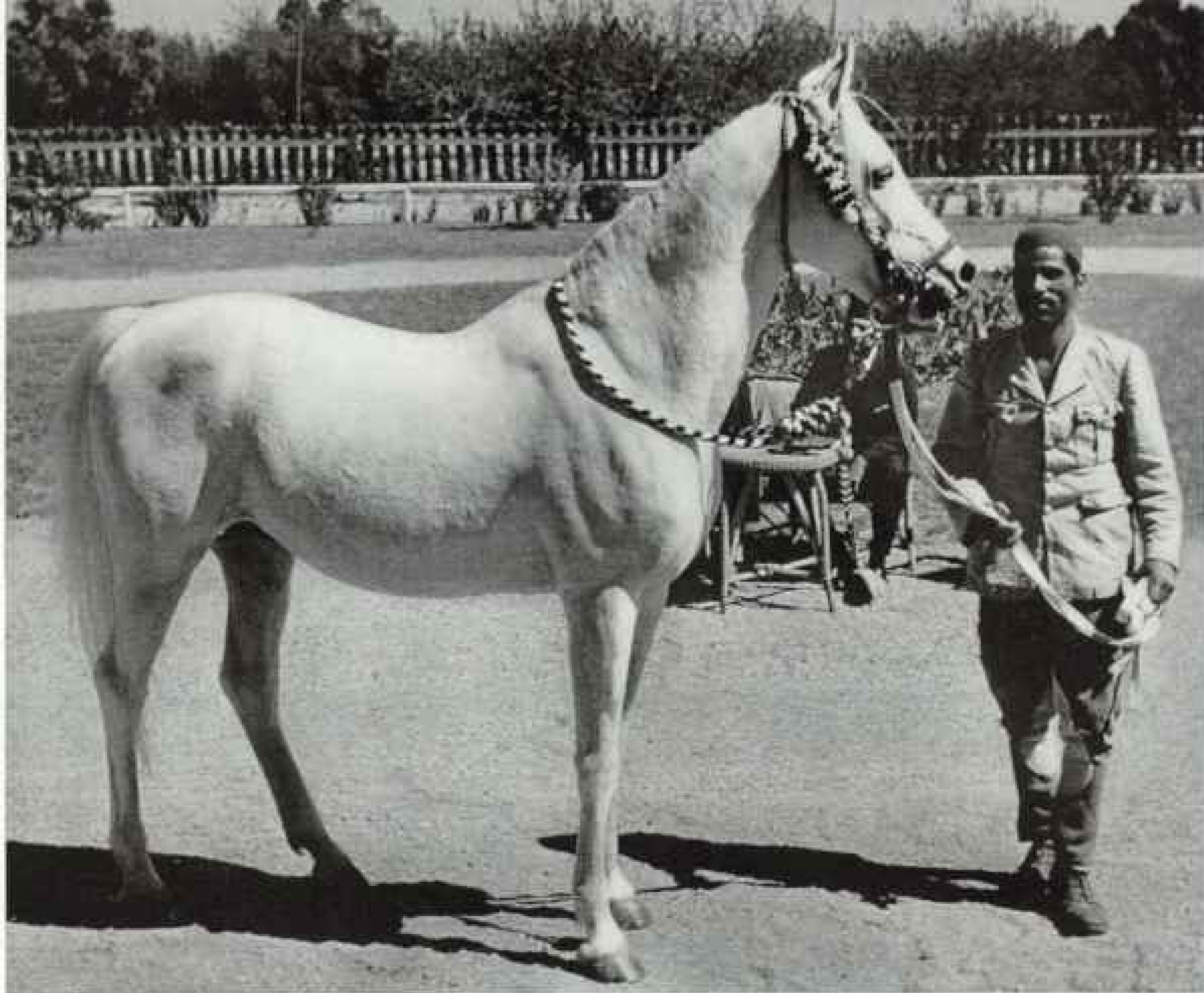
Camel Rises First End Last

We chose camels as our mounts (page 768). The most disconcerting part about riding this animal is getting on and off. You mount a camel when he is lying on the ground. He gets up rear end first, throwing you forward almost over his head. When you get off, he kneels down front legs first, again almost precipitating you over his head. While he is on his feet he lurches along in a swinging gait not at all unpleasant.

We climbed up the rough blocks of a vast triangular side of the Great Pyramid to an opening 40 feet high that leads to inner passages and chambers. Beyond us loomed the Sphinx, that ancient figure of mystery whose huge paws stretching along the desert sand were revealed only in the last century.

Not far away—about 50 feet south of the

* See "At the Tomb of Tutankhamen," by Maynard Owen Williams, NATIONAL GEOGRAPHIC MAGAZINE, May, 1923.



Gilbert Grosvenor

Egypt Maintains This Snow-white Stallion to Improve the Arabian Breed

Speed, stamina, and intelligence make the Arabian an outstanding saddle horse. Western horsemen developed the thoroughbred racer largely from Arabian stock. Having fewer vertebrae, the Arab differs from other breeds in structure as well as appearance. A tribal Arab regards his horse as his most precious possession; rider and mount often share the same tent. This breeding station operates near Heliopolis.

Great Pyramid—an ancient rubble wall still hid what was to be one of the most interesting archeological discoveries in recent decades—the nearly 5,000-year-old "solar boat" of Khufu.

Preliminary investigation in 1954 indicated it was a fully equipped galley in which, according to ancient Egyptian belief, the king's soul would ride through the sky as a sun-god.

Egypt Exports Famous Horses

We were scheduled for a trip into the Delta country north of Cairo, for we had letters of introduction to prominent officials in that area from the Egyptian Ambassador in Washington, D. C. On our way we drove through the fashionable suburb of Heliopolis. Its handsome villas, movie palaces, and broad boulevards are very different from Cairo's narrow streets.

One of the most interesting places we visited, not far beyond Heliopolis, was a breeding station for Arab horses run by the Egyptian Agricultural Society (above).

Arab steeds have been bred in Egypt since the seventh century and are noted for their beauty, speed, and endurance. Some of the finest Arab stallions in the world are found here in this Cairo station.

Arab horses differ from other breeds in skeletal structure, with fewer vertebrae in spine and tail. They are smaller than many popular breeds, but also hardier. They can travel long distances under the hot desert sun with a minimum of food and water.

Those paraded before us were splendid specimens, as were the beautiful mares, and also the sprightly yearlings and colts we saw galloping around the corrals.

The Egyptian Agricultural Society is send-

↑ **The Grosvenors Ride Camelback to Sphinx and Pyramids**

A few miles southwest of Cairo rise the Pyramids and the Sphinx, greatest of Egypt's ancient wonders. Highest of the three, Khufu's Pyramid (right) climbs 450 feet and covers 13 acres. Its 2,300,000 stone blocks average 2½ tons.

Archeologists recently discovered a solar boat sealed in a 5,000-year-old crypt at the base of Khufu's tomb.

Crouching in a sandy hollow, the 240-foot-long Sphinx was carved from a rock spur by Khafre, who built the Second Pyramid. The lion-shaped body symbolizes strength, the human head wisdom. Mameluke riflemen scarred the face with bullets.

← **Colossus of Memnon: a King in Stone**

Amenhotep III erected a funerary temple on the fertile plains of Thebes, close to the Valley of the Tombs of the Kings. A later pharaoh destroyed the structure for building stones. All that remain are two 65-foot statues ravaged by earthquakes and sandstorms.

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Kodachromes by Gilbert Grosvenor

ing some of the stallions out into the country to improve the domestic stock and is exporting others to horse breeders in Arabia, England, and the United States.

We were interested not only in ancient, dead Egypt, but in modern Egypt as well. In the Delta region we visited a landscaped, mass-production glass factory, owned by one of the few wealthy Egyptians who rose from the people—Mohamed Sayed Yassin. He made his fortune in the horsecar, then electric car and bus businesses.

At his plant he had modern glassmaking machines, and to our surprise his main product seemed to be Coca-Cola bottles. He made 16,000 of these a day, along with water glasses and glass shades for oil lamps.

"Egypt has plenty of sand for you," I remarked, referring to the vast Sahara.

"Oh, no," was the reply. "It isn't pure enough. We get our sand from Holland."

Cotton Mills Mark Progress

Cotton, however, is still Egypt's major export. The cotton mills at El Mahalla el Kubra are the largest in the country. We drove out to see this giant factory.

Abdel Rahman Hamada, managing director of the Mahalla Textile Industries, met us at the office building; he was, he told us, a member of the National Geographic Society.

He ushered us into a beautifully paneled dining room where we had lunch with him and other members of his staff. They gave us a firsthand account of the rise of this factory, the most modern in Egypt.

A decree of the former royal Government ordered factories to provide proper living quarters and recreation areas for their employees. In the Mahalla compound stood not only modern factory buildings but an employees' cafeteria and a mosque. Near the mosque was an athletic field, and farther away were dormitories for the single men.

After we left Mahalla, we visited another sample of modern Egypt, a village social center run jointly by the National Government and the townspeople. The State provides trained social workers and some financial assistance, but the villagers pay part of the expenses and head committees on schools, health, agriculture, etc.

At the center we saw a whitewashed, sanitary little house, a small garden showing different methods of planting, a handicraft room, and maternity and prenatal clinics. There was also a day nursery paid for and run by the Cairo women's club.

We had arranged to visit the Barrage, nerve center of the Delta irrigation system. On the way our car had a blowout, and while the driver changed the tire, we found we had stopped near another unusual Egyptian project, a school for gardeners (page 771). The students flocked out of the school building, dressed in striped flannelette robes buttoned up to the neck like children's nightgowns! We asked if this was a uniform, but were told no, just normal clothing.

The school was charming. Its neat classroom buildings were surrounded by green lawns and flower beds of snapdragons, gladioli, and other familiar flowers. The boys were doing their "field work"—pushing lawn mowers or weeding plots.

The near-by Barrage—the first dam built to catch the precious Nile flow for irrigation back in the 19th century—was surrounded by beautiful well-kept grounds.

In its museum we saw a large-scale model of the expanded modern system by which water is fed to the entire Delta area through a network of canals. Telephone calls notify central headquarters of each area's irrigation needs, and the water is simply turned on!

Signposts of the Future

It was a fitting final excursion for a journey through today's Africa. The great dams that have tamed the Nile, like the busy ports of South Africa and the boom towns of the interior, are signposts toward the future.

We had made a round trip over the entire length of Africa, with ease and convenience and many stopovers, in three months. We soared across the continent by 20 different airlines; only once during the trip were we forced to change schedule—and that was between Washington, D. C., and New York, where fog canceled our air flight and we took the train instead. We were put up—always comfortably—at 50 different hotels, inns, and rondavels. We were served excellent meals and even had private bathrooms.

Moreover, as representatives of the National Geographic Society we made hardly a stop without running into at least one of Africa's 13,000 National Geographic members. Everywhere, we learned to our delight, our Magazine was not only an introduction but a passport to heart-warming friendliness for visitors far from home.

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Kodachromes by Gilbert Grosvenor

↑ Nile Freighters Fold Back Mast and Sail to Pass under Cairo's Many Bridges

↓ An ornate fountain in the courtyard of Cairo's Alabaster Mosque provides water for the faithful to wash hands and feet before entering.

Sail Among Palms Seems a Mirage; → Trees and Flowers Hide a Nile Canal

Students of an Egyptian state school for gardeners wear striped robes buttoned to the neck. They tend a field of snapdragons in the Delta country.

New National Geographic Map Depicts Northern Africa and the Mediterranean

So geographers, in Afric maps,
With savage pictures fill their gaps,
And o'er unhabitable downs
Place elephants for want of towns.

Since the English satirist Jonathan Swift penned those lines more than two centuries ago, explorers and map makers have covered the face of the once-dark continent with detailed surveys by land and air.

Swift would find no savage pictures or elephants on the new 10-color map, Northern Africa, just completed by National Geographic Society cartographers and presented as a supplement to this issue. Instead he would see the manifold works of man—his roads, rails, cities, canals, airports, oil fields, pipelines, and dams.

There are still "unhabitable downs"—notably the vast Sahara—but hardly a "want of towns." The map has 9,019 place names, and the population of its area is 343,000,000, much more than twice that of the United States.

Backdrop for Front-page News

On a 41-by-29-inch sheet, the map covers about 11,000,000 square miles. Just the portion of Africa shown is nearly as large as North America. Extending from below the Equator to the port city of Trieste, now part of Italy by peaceful agreement with Yugoslavia, the map embraces the entire Mediterranean and almost all of the Near East. It affords an up-to-date picture of this important area at a time when events in Tunisia and Morocco, Kenya, Egypt, Israel, or their neighbors often make front-page news.

To meet the needs of National Geographic Society members throughout the world, 2,161,000 copies have been printed.*

On this map members may follow the travels of Elsie May Bell Grosvenor and Gilbert Grosvenor, recounted in this month's Magazine (page 721). Also on the main map, as well as on two large-scale insets of the Eastern Mediterranean, readers may retrace with Harold Lamb the route of the Crusaders to Jerusalem (page 815).

South of the narrow Mediterranean coastal strip a mighty band of deserts, nowhere less than 1,000 miles wide, marches across Africa into Saudi Arabia and Iran. This tremendous bar to communications kept much of Africa out of the main stream of history until the last century. Its spectacular waves of sand, so familiar to the movie goer, are actually rather limited in area; most of the Sahara's surface is loose gravel or wind-swept rock.

At about the 15th parallel, desert changes into thorny scrub vegetation and grassy savanna, which in turn give way to equatorial rain forest along the map's southern margin.

The Great Rift Valley, where Africa split asunder eons ago, stretches 4,000 miles from Mozambique to Syria. This remarkable geological phenomenon is outlined in a third inset.

The map also reflects political changes. Libya became a fully independent nation on December 24, 1951, and the former Italian colony of Eritrea was federated with Ethiopia in 1952. In 1953 Egypt and Britain agreed to end their joint rule over the Sudan and let the Sudanese settle their own political destiny by plebiscite.

Britain closed a chapter of history last July by agreeing to withdraw military forces from the Suez Canal, shown in a fourth inset.

A century and a half ago, Barbary pirates made the Mediterranean and the north African coast a place of dread, preying on shipping and wresting tribute from many countries, including the young United States. Today, by contrast, this area plays an important role in American defense.

U. S. Warships and Planes Here

North Atlantic Treaty Organization forces in the Mediterranean include the United States Navy's Sixth Fleet. Mediterranean members of NATO form the treaty organization's strong right flank, with Turkey as its eastern bulwark.

The United States Air Force has bases in French Morocco, Saudi Arabia, and Libya, and plans others in Spain.

Sharp-eyed readers may note on the Gulf of Guinea a name infrequently seen on maps. It is the Forte de São João Baptista de Ajudá, a tiny Portuguese enclave within the city of Ouidah in the French colony of Dahomey. Portugal stoutly maintains sovereign rights over this 336-year-old fort.

* Members may obtain additional copies of the map of Northern Africa (and of all standard maps published by The Society) by writing to the National Geographic Society, Washington 6, D. C. Prices in the United States and elsewhere, 50¢ each on paper; $1 on fabric; Index, 25¢. All remittances payable in U. S. funds. Postpaid.

Here's New York Harbor

By Stuart E. Jones
National Geographic Magazine Staff

Illustrations by Staff Photographers Robert F. Sisson and David S. Boyer

"So you want to see what makes New York Harbor tick," said the admiral. "Well, you've come to the right place. Let's see—"

A ship whistle's long, abrasive blast drowned out his words. We watched a sleek new liner gliding down the Hudson through a rag, tag, and bobtail of lesser shipping—tugs, ferries, railroad car floats.

"There goes the *Andrea Doria,*" said the admiral. "Italian Line. A fine ship. She'll be in Genoa soon."

My host was Rear Adm. Edmond J. Moran, USNR, yachtsman and president of the company whose tugboats perform about a third of all New York Harbor towing jobs.* We sat in his big-windowed office 25 floors above Battery Place, where Manhattan sticks a bold toe into salt water (map, page 781).

Our observation post was part of the matchless sky line that never fails to overwhelm travelers arriving by sea (page 776). Far below, men, ships, and machines were busy with the affairs of the world's greatest port. Down at the piers, swinging booms and derricks were handling cargoes ranging from inbound crates of rhesus monkeys to outbound locomotives.

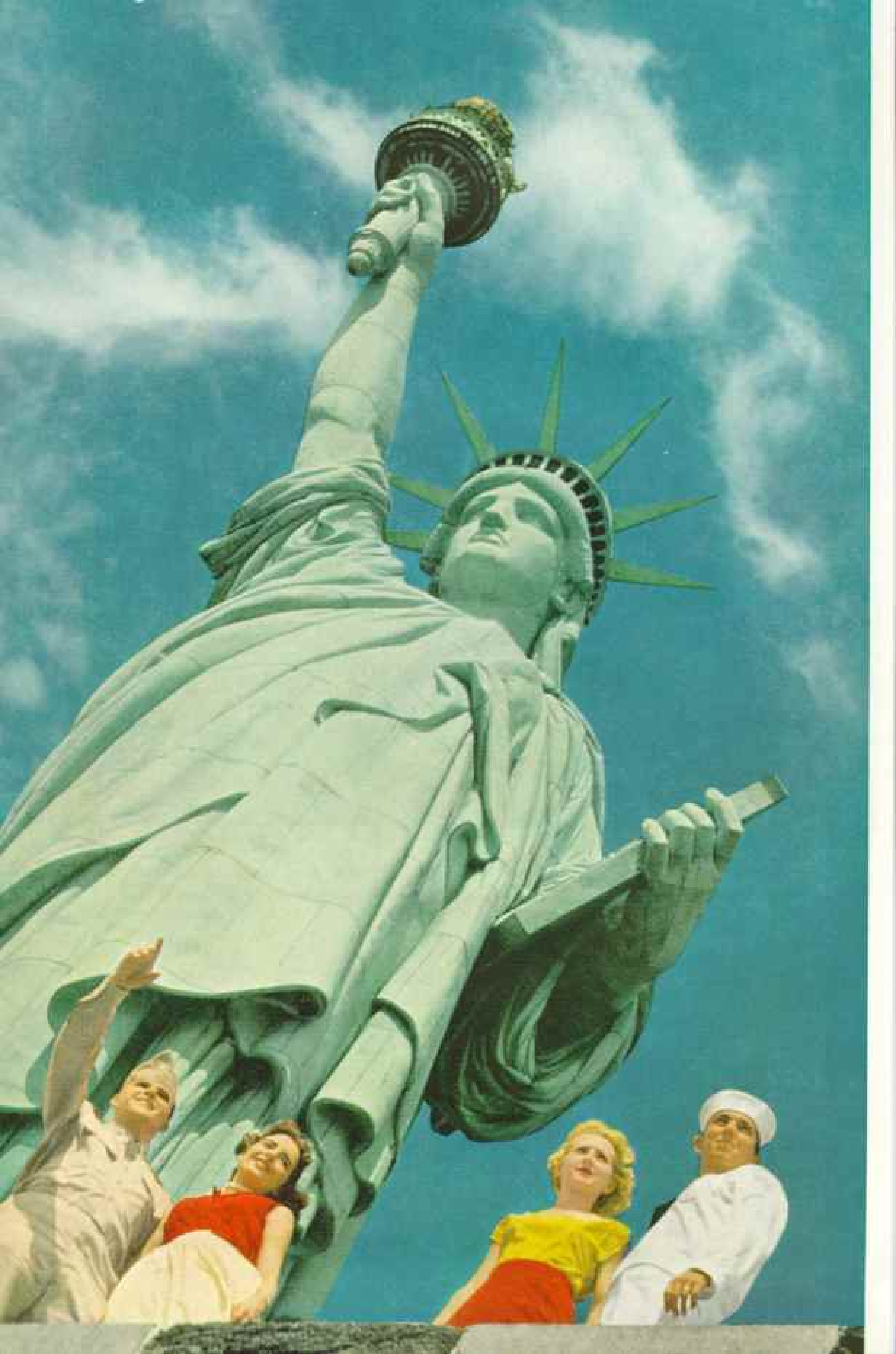
"17" Directs Tugboat Movements

The admiral returned to his desk.

"Now, let's see," he said, thumbing through the *New York Times* to the shipping news page. "Ah, good! The *Queen Mary* is due tomorrow. I'll see that you get aboard one of the tugs assigned to her docking."

National Geographic staff photographer

* See "Stop-and-Go Sail Around South Norway," by Rear Adm. Edmond J. Moran, USNR, National Geographic Magazine, August, 1954.



Bob Sisson and I reported next morning to the Moran dispatch office—"17" in harbor code. The number is both Moran's street address and the call sign for the radio-telephone link between headquarters and towboat skippers.

A wide window before the dispatcher's desk framed a seascape of Upper New York Bay and The Narrows. When Western Union's maritime ticker spelled out RMS QUEEN MARY PASSING IN QUARANTINE, the dispatcher alerted by radio a cluster of tugs waiting in "Tugboat Alley," the Pier 1 slip opposite Moran's Whitehall Building offices.

Docking Pilot Takes Over

Waiting with the tugs was Capt. Chester Evans, one of five Moran pilots entrusted with the berthing of superliners. The dispatcher told Captain Evans:

"The *Mary*'s on time. She's due off Pier 90 at 10:45. You'll have the *Grace Moran, Doris Moran, Moira Moran, Peter Moran, Carol Moran*, and *George Barrett*."

We were surprised to find a lonely intruder, the *Barrett*, in the Moran family. That tug, we were told, still bore the name of the company from which it had been purchased.

Aboard the *Grace* we were welcomed by her skipper, Capt. Kenneth Buck, and docking pilot Evans. As the *Grace* and her companions moved out into the stream, Evans studied a book of tide tables. He switched on the wheelhouse microphone and called in the tugs under his command.

"Here's the line-up," he said. "*Grace* will put me aboard, then take the stern hawser. *Barrett* on the starboard quarter, *Moira* and *Doris* on the starboard bow, *Carol* and *Peter* on the port bow."

Looming magnificently in the morning sunlight, the *Queen Mary* was steaming slowly past the southern tip of Manhattan. Five of the tugs moved into position as precisely as dancers in a ballet figure. The *Grace*, throttled down to match the *Mary*'s speed, drew alongside under an open port midway between main deck and water line.

Carl Carlson, the *Grace*'s muscular deckhand, raised a ladder and Captain Evans climbed aboard the liner. On the bridge he took over from the bar pilot, who had boarded the *Mary* at Sandy Hook and guided her on the last 15 miles of her voyage (page 806).

From this point on, Evans's orders, transmitted by police-whistle signals, directed the job of easing the 1,020-foot, 81,237-ton Cunarder—the world's second largest merchant ship—safely alongside a pier 1,100 feet long.

All the docking pilot's moves must be planned with the knowledge that forces of wind and tide might upset them in an instant. The slightest miscalculation could send the ship crashing into a pier, causing thousands of dollars damage.

While the *Grace* fell back and loafed along in the *Mary*'s wake, the *Barrett* moved in close under the stern overhang. British seamen lowered a 10-inch manila hawser; a *Barrett* deckhand captured it with a long-handled steel hook and hitched it to a massive iron bitt on the tug's afterdeck.

A winch on the *Mary* paid out line, and the *Barrett* moved forward to its position on the starboard quarter. Then the *Grace* advanced and received another fat hawser, which was made fast to a forward bitt. The *Grace* dropped back, putting enough tension on the hawser to keep it out of water.

Near Berth, Tugs Change Positions

From the *Grace*'s cavernous engine room came the metallic song of a 1,750-horsepower Diesel-electric plant.

As the *Queen Mary* angled in toward her berth, her propellers halted; now the tugs supplied all the power. *Moira* and *Doris* left the starboard bow and joined *Carol* and *Peter* on the port side. There they thrust hemp-bearded prows against the *Mary*'s plates and pushed, while the *Barrett*, far astern on the starboard quarter, shoved in the opposite direction.

On the bridge Captain Evans whistled shrill orders to the tugs and occasionally called on the *Mary*'s own engines and rudder for assistance.

The *Grace*, dead astern, acted as a brake on the *Mary*'s forward movement. Occasionally, in response to Evans's whistle, the tug lay back and shuddered under reverse power until the hawser stretched taut as a bowstring.

Page 774

← "Give Me Your Tired, Your Poor, Your Huddled Masses..."

Since 1886 the Statue of Liberty, bearing Emma Lazarus's words of welcome on its base, has held aloft a torch in New York Harbor (page 776). Popular subscription by Frenchmen bought the statue; Americans paid for the pedestal; the Government donated the site—tiny Bedloe's Island, once known as Great Oyster. Officials began counting Liberty's visitors in 1933; the total has passed 9,000,000.

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Kodachrome by National Geographic Photographer David S. Boyer

Speed Queen of the Atlantic, SS *United States* Heads for the Open Sea →

Bound for Europe, the *United States* accepts a farewell salute from the Statue of Liberty. Off her port beam the spires of lower Manhattan reach for the sky.

All the latest advances in shipbuilding are embodied in the 990-foot length and 53,300-ton bulk of the superliner, largest ever built in the United States and the world's fastest. She incorporates certain defense features which make her readily convertible to a military transport.

Pride of the United States Lines, the ship established new speed records on her maiden voyage in July, 1952. From New York to England her time was 3 days, 10 hours, 40 minutes, an average of 35.59 knots for 2,942 miles. The return passage was made in 3 days, 12 hours, 12 minutes, an average of 34.51 knots for 2,906 miles.

On regular runs the liner spends about four and a half days crossing from New York to Le Havre, France.

Fireproofed to an unprecedented degree, the *United States* uses wood only in her pianos and butchers' chopping blocks. More aluminum went into her construction than into any other single structure on land or sea.

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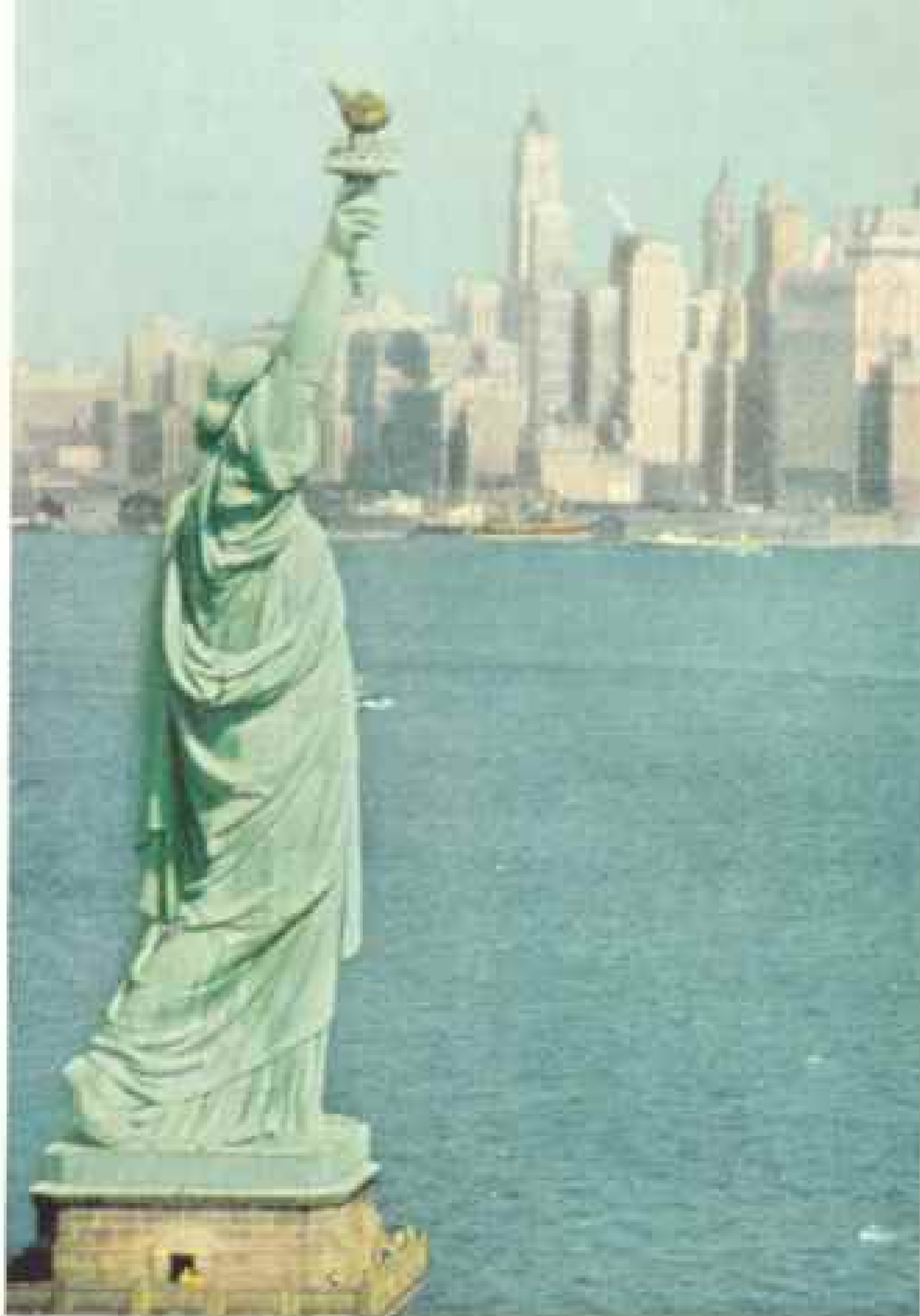


← French Line's *Flandre* Brings a Bit of Paris to New York

Aided by tugs, the 20,469-ton vessel nears her midtown Manhattan berth after a 6-day crossing. One towboat, with a line to *Flandre*'s stern, pulls while another pushes at the bow to swing the vessel into her dock. Newest French liner in transatlantic service, *Flandre* carries as many as 700 passengers.

↓ A Brazilian family on *Flandre* views the sky line.

© Kodachromes by National Geographic Photographers Robert F. Sisson and (below) David S. Boyer

The *Mary*'s starboard side gently touched the camel, a docking fender of heavy timbers floating between ship and pier corner.

As if on cue, two new characters in the waterfront drama—Cunard employees known as "Peter and Paul"—appeared on stage. They rowed out from the pier in a small skiff and waited under the *Mary*'s flaring bow until a messenger line was dropped. Attached to the light line was the *Mary*'s bow hawser.

Peter and Paul rowed back to the pier and secured the hawser. A few days earlier, watching this part of another Cunard docking, I had heard a small spectator say to his mother: "Look, Mom, those men are pulling that big boat with a little string!"

Many Other Tug Fleets Kept Busy

Tugs slowly pushed the ship, pivoting on the camel, until it was in alignment with the pier. Other lines were made fast. On the bridge an officer peered along the sighting vanes of a pelorus, a compasslike instrument for taking bearings.

When the pelorus bore directly on a white arrow painted on the pier, the officer shouted: "Make fast—hold everything!" The *Queen Mary* had ended another voyage. The chunky tugs, wearing the big white "M" for Moran on their funnels, exchanged parting toots with the liner and churned off to call "17" and ask for more work.

While the Moran fleet is the largest in New York Harbor, it is by no means the only one. Vessels of the Meseck, Dalzell, McAllister, and other companies, as well as those owned by fuel concerns, railroads, Navy, Coast Guard, and Army Engineers, scurry endlessly about their work-horse duties.

From docking a luxury liner, a tug might proceed next to the unglamorous job of towing garbage scows to deep-sea dump areas, or pushing railroad car floats from Jersey City to Brooklyn. Others, equipped to stay at sea as long as a month, might be found transiting the Panama Canal en route to Alaska or towing dock sections to our Air Force base at Thule, Greenland.*

The tugboat fleets, allied with efficient shore establishments, help make New York Harbor the only place in the world where annually there are some 24,000 arrivals and departures by ocean-going vessels discharging and picking up cargo and passengers.

Each month sees 1,000 sailings—from New York to everywhere. The ships range from Great Britain's lordly Queens, the largest, and America's own *United States* (page 776), the fastest, to the dowdiest old frump of a 5,000-ton freighter.

Of special importance to shippers is New York's ability to give a swift turnaround in port, for a ship earns money only when carrying passengers and cargo. Idle in a berth, it piles up expenses at a staggering rate.

Passenger lines, operating on strict timetables, find the quick turnaround of highest value. Even before a big Cunarder is fast to her pier and the docking pilot has whistled the cheery warble that means "Finished with tugs," the feverish job of speeding the ship back to sea has begun.

First, a tug pushes a pair of deep-laden fuel barges under bunkering ports on the ship's off-pier side. Heavy six-inch hoselines, coupled to the liner's intakes, soon leap and stiffen under the throb of the pumps. Steam coils in the barges heat the oil to make it flow easily. Pumping goes on steadily, stopping only long enough for empty barges to be removed and full ones brought alongside.

For the *Queen Elizabeth* (opposite) and *Queen Mary*, two days is the usual stay in port. Occasionally, however, bad weather or other unforeseen trouble delays a ship's arrival. Tardy docking may be condoned, but only the gravest of circumstances will excuse a delayed sailing.

Elizabeth's Turnaround Record

Such a late arrival caused the *Queen Elizabeth* to establish a Cunard turnaround record in December, 1953. Nineteen hours and 57 minutes after docking she was ready to sail again, her tanks replenished with more than 40,000 barrels of fuel, whose power will turn giant turbines that roar and strain with the strength of 200,000 horses.

Besides refueling, the *Elizabeth*'s turnaround involves landing as many as 2,000 passengers and their baggage, cleaning the ship from stem to stern, loading enough food for some 100,000 meals per round-trip voyage, taking on tons of water and other supplies, and embarking another 2,000 passengers for the return dash across the Atlantic.

Just after arrival, 350 shore employees troop aboard to join 1,287 crew members in an assault upon a colossal house-cleaning

* See "We Followed Peary to the Pole," by Gilbert Grosvenor and Thomas W. McKnew, NATIONAL GEOGRAPHIC MAGAZINE, October, 1953.

↑ Green "Go!" Sends World's Biggest Liner to Sea

Just before *Queen Elizabeth* casts off dock lines, a Cunard employee at the end of her midtown Manhattan pier looks carefully up and down the Hudson. Finding the river clear of traffic, he switches the light from red to green.

Then comes the moment eagerly awaited by passengers. Sounding three short whistle blasts (the signal for "I am going astern"), the *Elizabeth* backs slowly into the river with the help of tugs. In midstream the 1,031-foot ship turns seaward, dismisses tugs, and gradually picks up speed under her own power. Less than five days later she arrives at Cherbourg, France.

←Waiting for friends to disembark from the just arrived *Queen Elizabeth*, these young New Yorkers pass the time with hot dogs and soft drinks.

© National Geographic Society

Kodachromes by National Geographic Photographers Robert F. Sisson (above) and David S. Boyer

chore. Stewards and stewardesses clean 1,016 staterooms and sort about 85,000 pieces of soiled linen to be sent ashore to the laundry.

Other workers vacuum-clean six miles of carpet in the liner's 35 public rooms and scrub the 18,270-square-foot floor of the main restaurant. A whopping half a million pieces of china, glassware, and table silver are washed, polished, and buffed. Sailors swab three acres of deck space.

Meanwhile, hoselines pipe 1,200,000 gallons of fresh water from pier hydrants into the ship's tanks. Those crewmen lucky enough to be off watch go ashore for a few hours of recreation, which may include cricket in Central Park or pleasure seeking in Times Square.

Into the holds go about 3,000 bags of mail and 300 tons of high-tariff cargo, such as automobiles, furs, and magazines. Once a month a Cunarder's express cargo includes 146,000 copies of the NATIONAL GEOGRAPHIC MAGAZINE for The Society's members in the British Isles, continental Europe, Africa, and India.

By the time champagne corks start popping at the *bon voyage* parties, virtually all the hard, dirty work of the turnaround will be completed. Passengers find the ship functioning like a great hotel, its decks, corridors, staterooms, and public rooms as spic and span as if for a maiden journey.

Ships Stock Pantries in New York

Crack vessels of the French Line—the *Ile de France* (which in August of this year put back to sea in a record 17 hours and 34 minutes), *Flandre* (page 777), and *Liberté*—also strive for speedy turnarounds, as do the *United States* and *America* of the United States Lines, and the *Independence* and *Constitution* of American Export Lines.

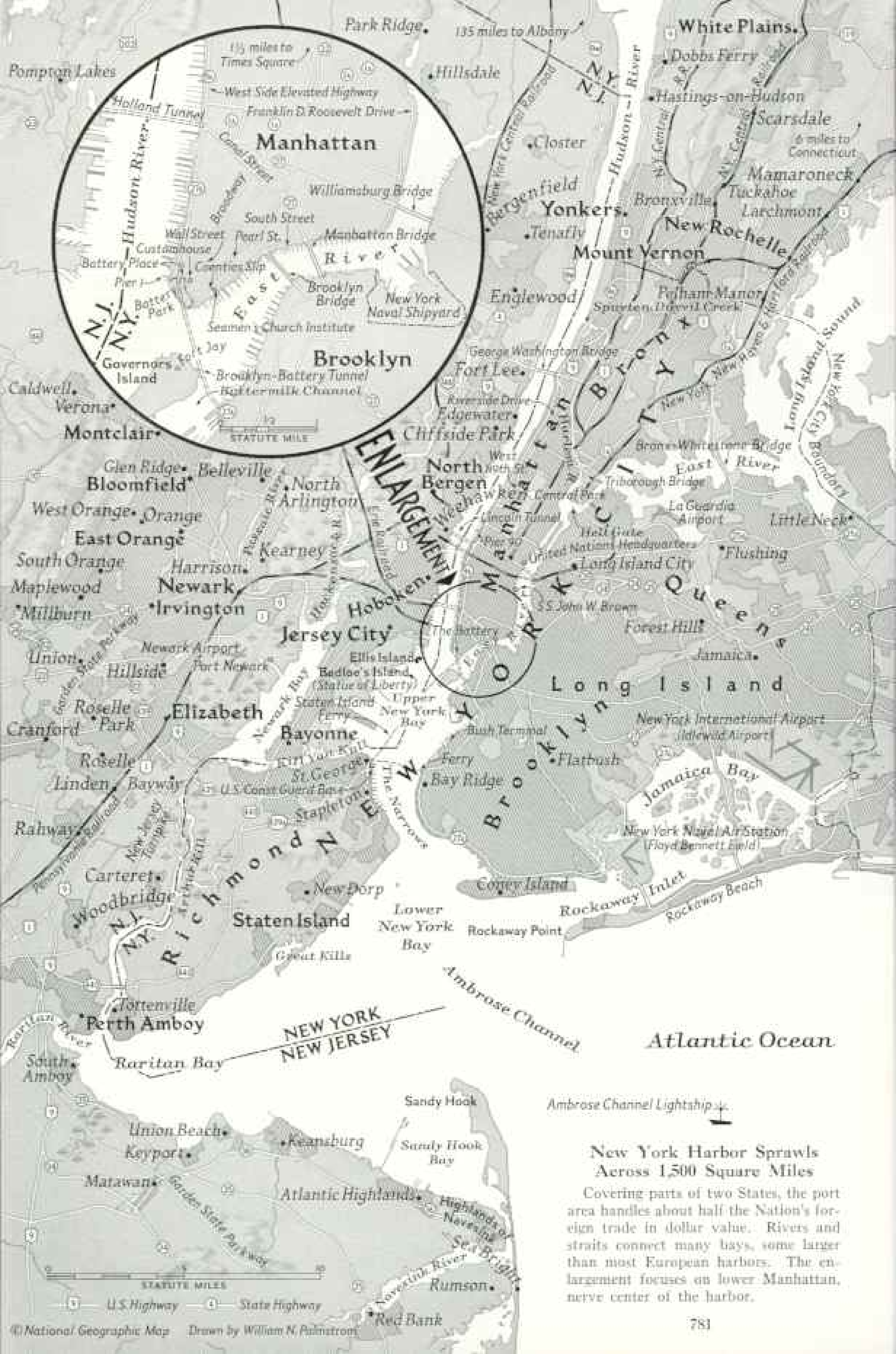
About 60 percent of the foodstuffs used on the Queens goes aboard in New York. Provisions are bought in advance by the line's catering department and delivered to the piers on rigid schedules.

Men charged with the care and feeding of transatlantic travelers must possess vast wisdom, imagination, foresight, and tolerance of human foibles. With them it is a point of honor never to be caught without any particular item, however improbable, that a passenger might demand.

← **Tugboat Skipper Dresses as if for Wall Street**

Capt. Mark Grimes pilots the *Doris Moran* as she plies the busy waters surrounding New York's skyscrapers. Wheelhouse controls enable him to regulate the vessel's Diesel-electric power as simply as a motorist handles his car with accelerator, clutch, and brake.

On only a few older tugs do skippers still use bell signals to call on the engine room for "Full ahead," "Slow astern," and the like.



New York Harbor Sprawls Across 1,500 Square Miles

Covering parts of two States, the port area handles about half the Nation's foreign trade in dollar value. Rivers and straits connect many bays, some larger than most European harbors. The enlargement focuses on lower Manhattan, nerve center of the harbor.

← **Ambrose Lightship Casts a Powerful Guiding Beam**

Steel-hulled and deep-bellied to withstand heavy seas, the 128-foot vessel rides to anchor at a chart position known to navigators the world over: 40° 27′ N lat., 73° 49′ W long., or about 20 miles southeast of Manhattan.

A revolving beacon atop the tripod foremast shines with maximum intensity of 3,500,000 candlepower, but usually operates at 250,000 candlepower with 13-mile visibility.

The lightship broadcasts radio-beacon signals to guide vessels within 200-mile range. When fog blankets the harbor entrance, the Ambrose diaphone sounds a melancholy *bee-ohh*.

Coast Guardsmen who man the vessel spend two-thirds of a month on duty and a third ashore. Here a relief crew approaches to be hoisted aboard.

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Coast Guardsmen Give a Harbor Buoy a New Supply of Gas →

The Coast Guard enforces harbor traffic and safety rules, maintains constant security patrol, and searches incoming ships for atomic or other explosive devices.

Once each week a buoy tender puts out from the Coast Guard's Staten Island base to inspect and service navigation aids lining the approaches to New York Harbor.

These men, working from a tender's rail, install a fresh cylinder of acetylene gas to fuel a channel marker's flashing light. The buoy carries steel clappers which clang against a 1,000-pound bell with the surge of the sea.

Kodachromes by National Geographic Photographer Robert F. Sisson

Thus, in addition to the high-quality victuals that appear at regular meal hours, there must be stores of miscellaneous goodies to gratify the sudden whim, the off-beat appetite. Pantries and refrigerators are stocked so knowingly that a passenger, awakening at 3 a.m. with a ravening desire for, say, a bowl of yogurt and a slice of watermelon, would stand a good chance of getting his snack just by calling the night steward.

A Gourmet Plays a Game

Ships must also stock foods for children, invalids, and special dietary cases, to say nothing of the dogs, cats, birds, and other pets snugged down in the veterinary quarters. Requests for various national dishes are readily filled.

One wealthy traveler, who rides Cunarders across the Atlantic as casually as other people shuttle between Manhattan and Connecticut, plays a kind of gastronomic game with chefs and stewards. On each of his crossings he throws the galley at least one difficult request. The staff, respectfully complying, bats his pitches right back.

On a recent crossing this passenger warmed up with some medium-hard demands, then let fly with one designed to humble the opposition forever. His supper one midnight, he decided, would be a serving of haggis, the Scottish pudding made of oatmeal and various animal parts, all boiled in a sheep's or calf's stomach. He picked up his telephone and gave the order.

"Beg pardon, sir," said the steward, slightly incredulous. "Would you repeat that order, please?"

"I said haggis," said the passenger firmly. "H-a-g-g-i-s!"

"Yes, sir," said the steward. "Haggis. Immediately, sir."

In due time a room steward appeared with a tray and set it down with dead-pan aplomb, as if he were delivering nothing more complicated than a peanut-butter sandwich. He arranged a table, lifted a cover off the steaming haggis, and quietly withdrew.

As the steward closed the door, it seemed to him that the passenger, gazing thoughtfully at his supper, wore the look of a man who knew he had met his match.

Just as the harbor toils to speed ships in and out, so does it seek to ease the problems of arriving travelers—many of them strangers in a strange land. Ellis Island, once the gateway for millions of immigrants, now sees only occasional aliens who must be detained while the Immigration and Naturalization Service checks their papers (page 810).

All but the biggest incoming ships, on regular runs, must drop anchor off Stapleton, Staten Island, and fly the yellow quarantine flag while Public Health Service officers check passengers and crew for communicable diseases. The biggest liners enjoy the privilege of entering port without stopping, but must slow down to take Public Health men aboard.

Agriculture Department inspectors also go aboard to halt importation of diseased or otherwise undesirable foodstuffs, drugs, livestock, or plants (page 790).

Journey's end brings most passengers into immediate contact with the customs inspectors, a corps of men and women who receive little thanks for hard, exacting work (page 796). The inspectors' job is to prevent the smuggling of contraband and to see that Uncle Sam collects his lawful duty, a percentage of the value of articles legally imported.

Some 550 of these career civil servants represent the United States Department of the Treasury in Customs District 10, which covers piers, anchorages, freight terminals, and airports of the metropolitan area. The district extends as far west as Perth Amboy, New Jersey, and north to Albany.

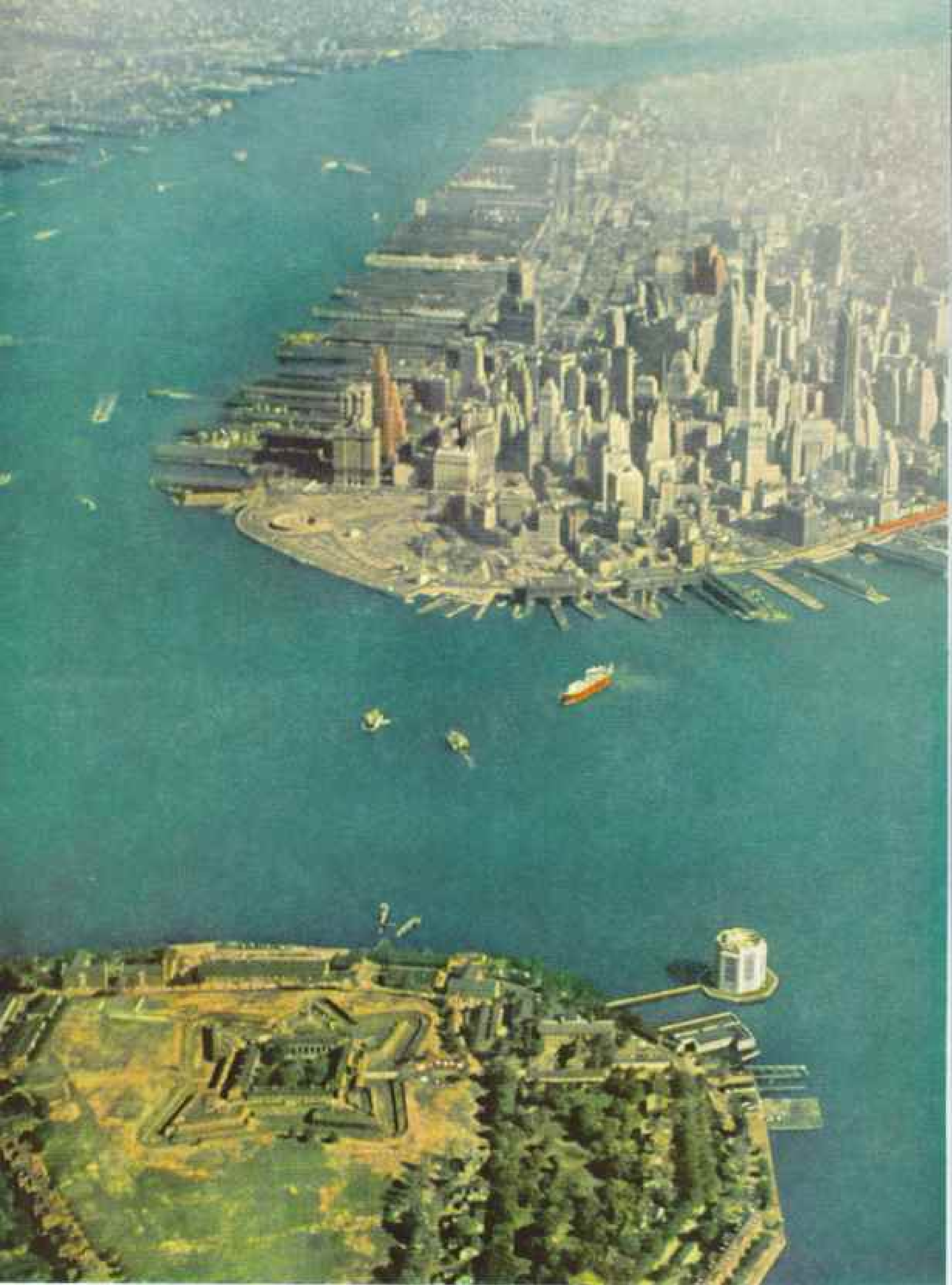
How Smugglers Are Caught

The popular conception of customs men as hard-eyed, ruthless ogres was belied by Inspectors George Gilbert and Jack Ehrlich, with whom I chatted in a waterfront diner. They had just finished clearing the incoming *Queen Elizabeth*'s 1,200 passengers.

"The vast majority of people who arrive by ship are on the level," Gilbert said, and Ehrlich agreed. "They fill out honest baggage declarations and breeze through customs without any trouble, because there's no reason to suspect them of trying to evade the duty."

"But the others!" said Ehrlich. "Boy, they give us plenty of headaches! Some are just plain professional smugglers. Others are normally law-abiding citizens, probably returning from their first trip abroad, who get the idea that putting something over on Uncle Sam is a nice, harmless little game. One way or another, we manage to catch up with most of them."

"Take a typical case," said Gilbert. "A fellow comes up to the customs desk and



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Hudson River's Fingerlike Piers Shelter the Luxury Liners of Transatlantic Service

Star-shaped Fort Jay tops a knoll on Governors Island, headquarters of the First Army. Brooklyn-Battery Tunnel's octagonal ventilator rises off the island's northeast shore.

Kodachrome by National Geographic Photographer Robert F. Sisson

Freighters from the Seven Seas Moor at Brooklyn's East River Docks

This tidal strait tests mariners' skill with its swift waters. Here vessels plow upstream toward Brooklyn and Manhattan Bridges; others head into Buttermilk Channel between Brooklyn and Governors Island.

stands there, gay and smiling and looking innocent, while the inspector goes over his declaration. There's nothing questionable in his bags. The inspector notices that the total value of the declared articles is given as $490.

"Now this strikes the inspector as being a bit too neat—a bit too close to the $500 exemption. Also there is something about the passenger's manner. In other words, the inspector has a hunch.

"So, riding his hunch, he runs his eye down the list and spots an entry: 'One watch—$100.'

"'Sir,' he says to the passenger, 'may I see the watch?'

"The fellow says, 'Why, certainly,' takes the watch off his wrist, and hands it over. The inspector looks at the dial and sees the manufacturer's name: 'Patek, Philippe and Company.'

"Well, you just don't buy that make of watch for $100, even in Switzerland where it's made. Three or four hundred dollars would be more like it. Therefore, if the watch's real value were added to that of the other articles declared, this passenger would go well over the allowable $500.

"So the inspector tells the passenger about the facts of life, quietly and politely. The declaration is revised, the additional duty is paid, and that's that—no prosecution, no penalty. And, of course, the man still has his watch; it just cost him a little more than he thought it would."

Most inspectors work their way up from lesser positions and then learn their special trade at the United States Customs School, housed in a building near The Battery.

The Case of the Smuggler's Wedgies

Joseph A. Kennedy, the school's training supervisor, told me that many customs seizures result from data supplied by informants or by special agents operating all over the world. But in a surprising number of cases, he said, the first intimations of guilt are supplied by the offenders themselves.

"Nothing is more revealing than a guilty conscience," said Kennedy. "Most smugglers announce the fact by their very actions. They are nervous or frightened, or both. Customs inspectors are trained to detect the symptoms and to act upon them. Very often they apply psychological methods, or simple, common-sense deduction, to detect a would-be smuggler."

Among favorite vehicles for the smuggling of small valuables are shoes with false heels or recesses in the soles. In the school's "museum" Kennedy showed me dozens of such exhibits, including a pair of black wedgies which came to New York bearing a small fortune in diamonds in their 3½-inch heels.

In January, 1951, customs officials received word that a European woman, a diamond-smuggling suspect, was flying to New York from Europe. Agents met her at Idlewild Airport and made an exhaustive examination of her person and effects. The suspect's wedgies yielded cut, polished diamonds weighing 1,674.21 carats. From recesses in the framework of her suitcase came more stones weighing 1,703.60 carats. Total value of the haul was $493,998.

The culprit received an 18-month penitentiary sentence. An informant, who gave customs agents in Europe the tip which led to the woman's undoing, was paid a reward of $50,000.

A Novel Hiding Place

Smugglers of narcotics also use ingenious methods to transport their wares. Kennedy handed me a novel called *Felix O'Day*, saying, "You wouldn't think there was any harm in this, would you?" When opened, the book revealed a neat pocket made by cutting through pages in the center.

"We found it in a seaman's bunk," Kennedy explained. "It had $25,000 worth of heroin in it."

Dealing with individual travelers consumes only a small part of District 10's time and effort. A bigger and less exciting task is that of appraising the never-ending mountains of merchandise brought in by ships and airplanes (page 796).

United States imports for consumption in 1953 were valued at $10,800,000,000. More than half were appraised in New York, and the customs collections here enriched the Treasury by about $265,000,000.

Bulk imports, such as ores and oil, are examined at piers. Samples of package cargoes are trucked to the Appraiser's Stores, a vast warehouse which sees a ceaseless flow of goods from every corner of the globe. Here U. S. Appraiser of Merchandise Aleer J. Couri's staff labors to release imports to consignees within 24 hours.

Chief Assistant Appraiser A. Theodore R. Bishop guided photographer Dave Boyer and me on a tour of the warehouse. He pointed

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Kodachrome by National Geographic Photographer David S. Boyer

Queen of Bermuda, the Honeymoon Special, Sails amid a Blizzard of Streamers

Year-round voyages of Furness Bermuda Line ships carry vacationers to the island resort 666 nautical miles and 40 hours from New York. Reservations are heaviest in June, the month of weddings.

out some of the aides, specialists in varied lines.

Examiner Max Kahn, busy with a shipment of rugs, is an expert in hundreds of varieties. He assesses them for workmanship, size, color, design, and market demand.

Paintings are the specialty of Frank McCarthy and Nathan Nathanson, assistant appraisers. If they find an imported work of art to be an original, they must declare it so and pass it duty-free. A copy would be dutiable. Nathanson's field also includes books, watches, and precious stones and metals.

From Examiner Leroy Pipino I learned that a little knowledge of customs law can save money for buyers of diamonds abroad. By a quirk of the law, loose cut stones carry a 10-percent duty; diamonds set in rings vary from a 30- to a 55-percent impost.

Another assistant appraiser, Albert Brengel, specializes in a motley array of imports, including embroideries, silks, wool, and human hair. The hair, much of it grown by Italian women for American makers of wigs and toupees, is taxed at 17.5 percent of value.

My guide pointed out other men dealing with chemicals, antique silverware, and fragrant bales of spices.*

"Just name it," he said, "and if it's an article of commerce made abroad, you'll find it passing through our hands sooner or later. Last year we examined 338,900 parcels, boxes, cases, cartons, crates, casks, barrels, hogsheads, and bales containing every imaginable kind of merchandise. Chances are this volume will increase, now that 'trade, not aid' is the goal in our foreign policy."

Many Wonders Await Sight-seers

The many wonders that make New York Harbor the world's greatest are conveniently arranged for the sight-seer's enjoyment. He may take the subway down to Battery Park and there stroll the waterfront, or sit on a bench and watch the ships come and go.

Turning his back to the sea and observing the tall man-made cliffs and the bustling throngs, he may reflect upon the fact that one out of every eight of the 4,000,000 persons gainfully employed in the New York-New Jersey area draws his livelihood directly or indirectly from port commerce.

For a closer view, in summertime, the sight-seer may ride around Manhattan on an excursion boat, passing some of the piers whose frontage on navigable waterways totals 755 miles. If the wind is right as he rounds The Battery, he may sniff a pleasant aroma from coffee-roasting plants. New York imports each month enough coffee to make about 4,000,000,000 cups (page 795).

Along the docks he will see new automobiles being lowered into ships' holds. If all the cars and trucks exported through New York each year were placed end to end, they would create a monumental traffic jam stretching from Manhattan to Indianapolis, Indiana.

A Fighting Ship Takes Form

Sight-seeing steamers pass close to the New York Naval Shipyard, better known as Brooklyn Navy Yard, where the giant aircraft carrier *Saratoga* takes shape with a chatter of riveting guns and a swinging of mammoth cranes (page 798). Here also is the birthplace of the famous USS *Missouri* and many other fighting ships.

Gliding upstream under the Brooklyn, Manhattan, and Williamsburg Bridges, the sight-seeing boats give passengers a breath-taking view of the 39-story United Nations Secretariat (page 811). Near Hell Gate they swing northward into the Harlem River and Spuyten Duyvil Creek, emerging into the Hudson just above the George Washington Bridge, and cruising downstream back to the starting point (map, page 781).

Other boats take sight-seers from The Battery to the Statue of Liberty on Bedloe's Island (pages 774 and 776).† Less than a century ago the island offered a more sinister attraction. A criminal was hanged there as late as 1860, and people who wanted to watch bought tickets and rode out on special excursion boats.

And there is always the Staten Island ferry, justly billed as the "world's greatest nickel's worth." For two nickels a passenger can make a salt-water round trip between The Battery and St. George, feeling the surge of the sea while viewing the Statue of Liberty, Governors Island, and a multitude of shipping.

On any of these jaunts the sight-seer may spot one or more of the strange craft that ply New York waters, all bent upon special

(Continued on page 797)

* See "Spices, the Essence of Geography," by Stuart E. Jones, National Geographic Magazine, March, 1949.

† See "Shrines of Each Patriot's Devotion," by Frederick G. Vosburgh, National Geographic Magazine, January, 1949.

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An Expansion Loop, Flexing with Temperature Changes, Frames a Tanker Unloading Oil

The yellow line carries high-pressure steam to stills and cracking units of Esso Standard Oil Company's Bayway Refinery on New Jersey's Arthur Kill. Pumps transfer *Esso Lima*'s 190,000 barrels of Texas petroleum.

↑ Sampler Taps Barrels of Olives

This workman at a Brooklyn freight terminal withdraws specimens to be inspected by the importers.

↓ Imported plants go through rigid inspection for disease at a Department of Agriculture "Ellis Island" at Hoboken, New Jersey. As a rule, all plants are fumigated. These inspectors check an azalea bush.

© National Geographic Society

↑ Bush Terminal Sees the World Come and Go

One of the busiest places in New York Harbor, the Brooklyn terminal's eight piers can handle about 25 ships at a time. On a typical day a freighter loading machinery for India may lie beside one discharging African animals for American zoos.

Adjoining the piers, 18 warehouses store imports such as coffee, cocoa, rubber, burlap, and spices. To handle cargo, the terminal operates six railroad car floats, two tugboats, eight Diesel locomotives, and four cranes.

→ Toy ships move about on a magnetized scale model in Manhattan headquarters of the Port of New York Authority. Pier sheds, railroad tracks, and channel represent Port Newark, New Jersey. The operator posts vessels on the board as they arrive and removes them as they depart.

© Kodachromes by National Geographic Photographers Robert F. Sisson and (opposite, below) David S. Boyer

← Manhattan and the Hudson, Their Day's Work Done, Sparkle at Twilight

Viewed at dusk from the heights of Weehawken, New Jersey, the United States' biggest city suggests an artificial wonderland as lights flash on amid cliffs of masonry, steel, and glass.

Topped by a television mast, the 102-story Empire State Building (right) towers above surrounding structures. A needle spire marks the Chrysler Building (center). Farther north, RCA Building dwarfs its neighbors in Rockefeller Center.

Moonglow reflects over the unseen route of Lincoln Tunnel, which speeds motor traffic under the river between New York and New Jersey. Square twin structures on the New York waterfront ventilate the tube. Automobile lights trace curving lines on the tunnel's elevated approach along the New Jersey shore.

This evening hour marks a lull between the close of New York's working day and the beginning of night life. Most workers have gone home, leaving offices, shops, factories, and piers to charwomen, janitors, and watchmen. Jobs in harbor commerce occupy about 500,000 of the 4,000,000 gainfully employed in the metropolitan area.

↓ Setting sun casts golden light into the windows of lower Manhattan, as seen from Jersey City.

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Kodachromes by National Geographic Photographers Robert F. Sisson and (below) David S. Boyer

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↑ Sail Still Ruled the Harbor 100 Years Ago

These youngsters inspect a diorama of South Street, lower Manhattan's "street of ships" when clippers and packets unloaded tea, spices, and silks for American households. The display was prepared for an exhibition at the Museum of the City of New York.

In the 1850's scores of windjammers lay at South Street's wharves, running along the East River from The Battery. Long jib booms, poised like spears, stretched across the busy thoroughfare and almost touched the shops of ship chandlers and other merchants.

Some of South Street's old buildings still stand, darkened now by the shadow of a new elevated extension of Franklin D. Roosevelt Drive.

←Coffee grown in Colombia arrives in New York on its way to roasters and grinders, and finally to millions of American tables. The longshoreman unfastens a rope sling before sending it back to a Grace Line ship's hold for another load of bags.

→A sailor-artist at Seamen's Church Institute works on a section of a mural depicting the history of the American merchant marine. The institute, a stone's throw from East River docks, offers shelter and recreation to merchant seamen of all races, creeds, and ratings.

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← Trunks and Bags Hold Few Secrets from Customs Men

Mother looks intent, daughter shows interest, and dog registers unconcern as this family, arriving in New York on a Cunard liner, bares baggage to an inspector for United States Customs District 10.

Examining suitcases, the officer checks their contents against goods listed on a customs-declaration form. Americans are allowed to bring in $500 worth of foreign merchandise duty-free, with certain items barred. If imports exceed that amount in value, duty must be paid.

Some 550 customs inspectors, agents of the Treasury, keep a sharp watch for smugglers at District 10's piers, freight terminals, and airports.

↓ At the United States Appraiser's Stores warehouse an expert checks shipments of wool and silk from Scotland, cotton from Switzerland, and rayon from France. Samples of all imported merchandise are trucked to the warehouse for determination of value and duty.

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New York Times

New York's Airborne Police Hoist a "Shipwreck" Victim in a Rescue Drill

Plucked from a launch representing a disabled vessel, the man climbs a ladder lowered from the helicopter. Police chiefs, in Manhattan for a convention, watch the demonstration from a sight-seeing steamer.

missions. One is a burly lummox of a ship, the seagoing hopper-dredge *Essayons*, operated by the United States Army Corps of Engineers. The 20,000-ton vessel's French name stands for "We will try"—motto of the Engineers. Its job is keeping the harbor's channels dredged to depths that will permit safe passage of the world's largest ships.

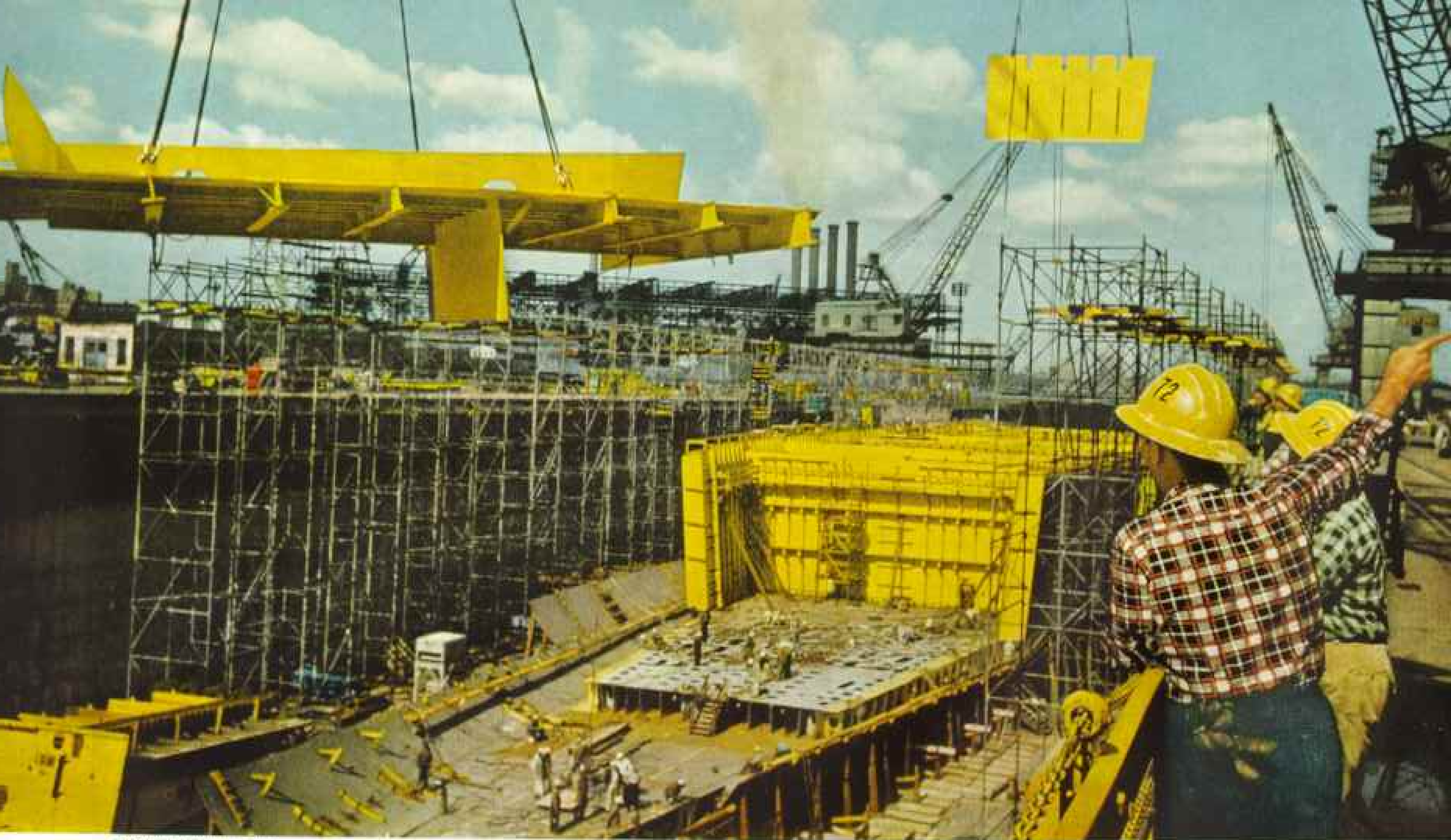
Each year the Engineers remove about 2,500,000 cubic yards of sand and silt carried down the Hudson, mostly by the natural current. Industrial and sewer wastes, material dropped overboard from vessels, and soil chewed from channel banks by tidal currents also add their heavy quotas.

Operating around the clock seven days a week, the *Essayons* with its powerful pumps and suction drag pipes scours the channel floors. When its hoppers are filled, the *Essayons* puts to sea and dumps its load in deep water a few miles east of Sandy Hook.

Ambrose, the harbor's main channel, is kept dredged to a depth of 45 feet and a width of 2,000 feet. Off "Luxury Liner Row" at midtown Manhattan, where the largest ships dock, a 48-foot depth is maintained to permit maneuvering.

Big ships like the Queens normally draw about 39 feet. When at a right angle to the shore line during docking, they become huge dams, blocking off as much as a third of the Hudson's flow. Hence the need for a few extra feet of water under their keels.

Keeping the channels free of floating menaces to navigation is another job of the Engineers. This they do with the *Driftmaster*, a



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Cranes Swing Preassembled Steel Sections into Place for the Aircraft Carrier *Saratoga*, Building at New York Naval Shipyard

Scheduled for completion in 1956, the 59,900-ton *Saratoga* will be one of the world's largest warships. Sister carriers *Forrestal* and *Ranger* are taking shape at Newport News, Virginia. A fourth will be built at the Brooklyn yard after *Saratoga*'s launching.

A Diver Gets His Helmet for Work in New York Harbor's Murky Waters →

Olaf Danielsen, an employee of the Merritt-Chapman & Scott Corporation, undertakes an underwater inspection of a disabled ship. So dark is the water that he must rely on his sense of touch.

↓ These shipyard repairmen prepare to operate on an ailing tanker. Working at the stern of the dry-docked vessel, they hoist a ponderous boring rod to machine new bearings in the propeller-shaft tube. Such bearings are made of lignum vitae, a tough, durable wood from tropical America. The job proceeds at Bethlehem Steel Company's Hoboken shipyard.

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100-foot vessel unlike any other in the world. Between a pair of pontoon hulls the *Driftmaster* carries two steel nets which scoop up logs, crates, and other flotsam as the craft moves through the water.

When nets are full, the *Driftmaster* deposits its burden on incinerator barges anchored in the Upper Bay off Bayonne, New Jersey. Although debris has been burning on the barges for years, the tall columns of smoke often cause excited ferry passengers or shore watchers to turn in fire alarms.

In addition to heavy logs and other drift that might damage propellers or hulls, the *Driftmaster's* nets frequently yield surprises. Grand pianos, sofas, chairs, and many kinds of dead animals have appeared in the haul. Once, unaccountably, the ship picked up a side of beef in fair condition.

Seatrain Ships Carry Railroad Cars

Daily the harbor witnesses the comings and goings of huge boxlike vessels loaded with railroad cars. These are ships of Seatrain Lines, Inc., plying between Edgewater, New Jersey, and southern and Gulf ports. Each of the company's six ships carries 100 loaded freight cars on four decks.

At Seatrain terminals cranes transfer the freight cars to pierhead tracks to resume their journey overland. Depending on the commodity and the length of railroad haul to and from the port, shippers find this method of transportation cheaper than all rail.

Crossing one day on the Staten Island ferry, I noticed that the swift double-ended craft was named *Verrazzano*. Suddenly I realized that this and a Battery Park statue were the only public recognition I had seen for the Italian seaman who discovered New York Harbor.

Giovanni da Verrazano, born near Florence about 1480, began his seafaring career with the French fleet when he was in his twenties. His feats so impressed King Francis I that the monarch put him in command of an expedition charged with expanding the French empire to America.

On an April day in 1524 Verrazano and his crew of the caravel *Dauphine* found themselves in "a very pleasant place, situated amongst certain little steepe hilles: from amongst the which hilles there ran down into the sea a great streame of water."

The hills obviously were the Highlands of Navesink and the high ground at the east end of Staten Island. The great stream was the mouth of the Hudson.*

Beyond the hills Verrazano found "within the land about halfe a league" a place "where it made a most pleasant lake about 3 leagues in compasse. . . ." (Length of a league varies; in Columbus's time it was about 3.18 nautical miles.) The "lake" was Upper New York Bay.

Here was one of those moments when one man's act might have altered the whole course of history. Had Verrazano elected to stay, to explore, to colonize, this corner of North America might have become French soil instead of Dutch—with future results that can only be imagined.

"A Great Place to Visit, but—"

Instead, Verrazano moved on. His own report fails to give the time of departure; it may have been the very day of arrival. Wags have suggested that Verrazano may have been the first of a long line of people to say of New York City: "Well, it's a great place to visit, but I wouldn't live there if you gave it to me!"

Actually, he left reluctantly and with what he regarded as good reason—a storm that forced him to put to sea.

After Verrazano the tides ebbed and flowed, with only an occasional European ship approaching the river. Nearly a century later the *Half Moon*, owned by the Dutch East India Company and skippered by Henry Hudson, a bold English mariner who was looking for a northwest passage to the Orient, dropped its anchor inside Sandy Hook.†

From that day—September 3, 1609—New York Harbor was on its way to greatness.

Ship after ship followed the *Half Moon* to the Hudson. Dutchmen established a trading post near present-day Albany, and the first colonists came to Manhattan a hundred years after Verrazano. By 1626 the pioneers under Governor Peter Minuit had built Fort

* See "The Mighty Hudson," by Albert W. Atwood, National Geographic Magazine, July, 1948.

† See "Henry Hudson, Magnificent Failure," by Frederick G. Vosburgh, National Geographic Magazine, April, 1939.

Page 801

Painters Aboard a Floating Scaffold → Swing Long-handled Rollers

"These gadgets beat brushes all hollow," one of the painters told the author. They coat steel plates of the freighter *Carroll Victory*, being reconditioned in Bethlehem's Hoboken yard.

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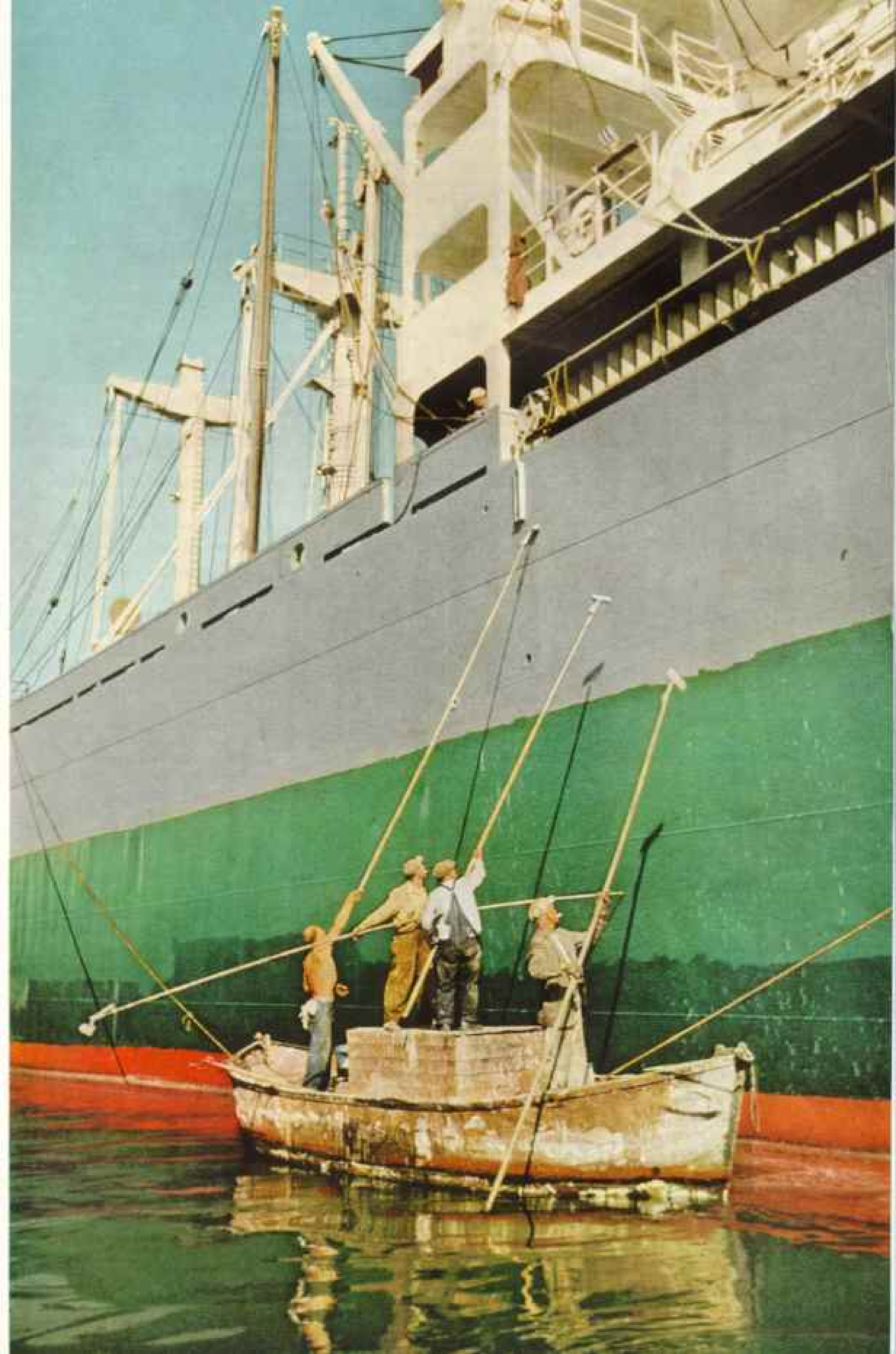

Amsterdam, a stockade whose guns commanded both Hudson and East Rivers from the site of today's Customhouse.

At the same time Minuit closed his famous real estate deal with the Indians, acquiring Manhattan Island for the equivalent of $24. The Indians thought they were merely granting the settlers the right of occupancy; they had no realization of land ownership as such.

From Wilderness to Metropolis

During New York's two colonial periods—half a century under the Dutch and a century under the English—the port grew steadily, despite frequent wars, maritime disasters, depressions, and the difficulties of contending with pirates and smugglers.

After the American Revolution shipowning merchants, trading in furs, rum, and African slaves, laid the foundations of great fortunes. A shipbuilding industry, founded by the Dutch, reached full glory in the clipper and packet days and now is represented by such giants as Bethlehem's yards in Hoboken (pp. 799 and 801), Todd's in Hoboken and Brooklyn, the New York Naval Shipyard in Brooklyn, and its annex in Bayonne, New Jersey.

Although the port has grown mightily beyond its original boundaries, its commercial headquarters remains the jumble of narrow streets at the foot of Manhattan. Here are the offices of steamship lines, tugboat companies, freight forwarders, brokers, insurance underwriters, admiralty lawyers, and countless others who help keep shipping on the move.

Near by are the shops of ship chandlers, dealers in marine paint and hardware, and some who still call themselves sailmakers, even though their chief products today are deck coverings and tarpaulins.

The thousands who swarm to work daily at The Battery busy themselves with million-dollar deals as well as the minutiae of world commerce. The community has its own distinctive

(Continued on page 807)

← Want to Know the Right Time? Ask Negus

The venerable shop of T. S. & J. D. Negus specializes in fine chronometers, vital navigating instruments. Negus chronometers went with Peary to the Arctic and with Byrd to the Antarctic (page 807).

Here an expert checks a ship's sensitive chronometer against a master pendulum clock that has been keeping time since 1848. The big clock is rated daily against a signal telegraphed from the United States Naval Observatory in Washington, D. C.

Sailor Boy, a teak figure holding a binnacle, or compass housing, stands in Negus's display window; in the 19th century he faced the wheel of the clipper ship *N. B. Palmer*. "Mind Your Helm," says his hat brim.

Page 803

Galahad Keeps Watch →

This figurehead from an unknown ship stands guard over Seamen's Church Institute. Seafarers, one shouldering his sea bag, cast long shadows on Coenties Slip.

Tugs in Holiday Dress Race on the Hudson

As part of International Maritime Week in 1953, many of the harbor's work horses took a day off from drudgery and competed over a 2-mile course off upper Manhattan. Crowds on shore, in Riverside Drive apartments (background), and on other vessels watched the spectacle.

Tugboat chores in New York range from assisting proud luxury liners (page 779) to hauling garbage scows to deep-sea dumps. Built of welded steel, today's Diesel-engine craft generate up to 1,750 horsepower. Equipment includes radar, ship-to-shore phones, and air conditioning.

Upper: Three tugs push foaming bow waves as they sprint for the finish line off West 89th Street.

Lower: *Dalzellera* (left) puts on a burst of speed in an effort to catch *Dauntless 14* in the event for vessels of more than 1,250 horsepower.

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Kodachromes by National Geographic Photographer David S. Boyer

AMERIC N E
30
29

restaurants, such as Whyte's and historic Fraunces Tavern. Much port business is conducted within the members-and-guests-only confines of the Whitehall Luncheon Club, the Downtown Athletic Club, and India House.

In a mellower day South Street, running from The Battery along the East River, was the "street of ships," with a forest of masts towering above its wharves (page 794). Jib booms of clippers and schooners stretched across the street, almost touching the buildings opposite. Sometimes a cabin boy, ordered to call a captain or mate asleep in shore lodgings, could do so by clambering out on a jib boom and tapping on a window.

Concert Played by Ship Bells

South Street pedestrians, dodging drays, horses' hoofs, and hustling stevedores, enjoyed a sort of impromptu carillon concert every half-hour. The music, rising in silvery waves above the waterfront clatter, came from the pealing of ships' bells by the score.

Only a few decades ago young men on vacation from college could go to South Street shipping agents and sign aboard American ships as ordinary seamen, or "workaways." By this means many members of today's middle-aged set journeyed at no expense to Europe, South America, and other far places.

This opportunity exists no longer, except in rare cases when owners agree to carry such extra hands in addition to the regular crew. Virtually all ship operators hold collective-bargaining contracts with maritime unions, which control the recruiting of crews through hiring halls. Union men sympathize with youths who lack funds to appease gnawing wanderlust, but shed no tears over them.

"Jobs are none too plentiful even for qualified seamen," a union official told me. "Why should amateurs be allowed to do the work that means bread and butter to professionals?"

A nautical aura clings to South Street, now shadowed by an elevated expressway. Along the landward side stretch rows of shops ready to sell seafarers anything from a sewing kit to an anchor. Ships themselves lie at long piers jutting fingerlike from the street.

Wherever sailormen gather, from Antofagasta to Zanzibar, the address "25 South Street" crops up often in conversation. Here is the Seamen's Church Institute of New York, shore home for active merchant seamen of all races, ratings, and creeds.

Atop the institute stands a lighted cross and the 1,800-candlepower *Titanic* memorial light, visible for six miles down The Narrows. At noon each day men in near-by streets and aboard ships in the harbor turn their faces toward the institute roof. At the precise split second of 12 meridian a time ball drops from a pole atop the *Titanic* tower, landing in a cup at its base.

As many as 5,000 seamen cross the institute's threshold every day to find a friendly welcome, rest, comfort, and recreation between voyages (page 795). "Sir Galahad," a ship's figurehead of unknown origin, stands guard over the main entrance (page 803). Beside it a bell, salvaged from the Long Island Sound passenger steamer *Atlantic*, wrecked in 1846, chimes out the hours and half-hours. From a mast high above street level flies a hoist of signal flags saying QKF—"Welcome" in International Code.

Where Seamen Get Their Mail

The institute's post office does a first-class mail business equivalent to that of a town of 30,000. A special-services department can be delegated authority to open personal mail and expedite the affairs of addressees who may be half a world away. For thousands of seafarers, 25 South Street is their only mailing address.

In smaller streets near South the tar-and-oakum flavor of another day is even stronger. One such street is Pearl, where a narrow building houses the venerable firm of T. S. & J. D. Negus, compass adjusters, chart agents, and dealers in nautical instruments.

The Negus shop looks today much as it did when it opened for business in 1848, in the roaring clipper-ship era.

A fascinating clutter of compasses, binnacles, sextants, chronometers, barometers, peloruses, binoculars, and navigation textbooks fills the single show window. Over this display presides the salt-soaked teak figure of the "Sailor Boy," a Negus trade-mark and a neighborhood landmark (page 802).

Years ago the Sailor Boy served as the bin-

Page 806

← **Harbor Pilot Boards an Incomer off Sandy Hook**

Responsibility for guiding vessels safely in the harbor rests with licensed specialists wise in maritime lore. Leaving outbound craft at the harbor mouth, they wait aboard their station ship for inbound assignments. This pilot climbs a Jacob's ladder en route to the bridge of an American Export Lines freighter.

↑ An Artist Sketches Wooden Ships from His Floating Studio

John Noble, a lithographer of marine scenes, built his scow and workshop from the salvaged parts of about 150 vessels wrecked or abandoned to bone yards in New York Harbor and along the Atlantic coast. His windowed cabin used to be the main saloon of a steam yacht of 1900 vintage. Nails fastening the scow's bottom planking came from the steam schooner *Robert Dollar*.

Here the artist has moored his studio between a World War I wooden steamer (left) and a five-masted barkentine. These old hulks decay in a backwater of the Kill Van Kull near Bayonne, New Jersey.

→Surrounded by teak paneling, Mr. Noble applies a sketch to stone. He uses a special crayon containing oils which impregnate the block. Printers ink the surface and transfer impressions to paper.

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Kodachromes by National Geographic Photographer Robert F. Sisson

nacle, or compass stand, of the clipper ship *N. B. Palmer*, which made many a swift passage to China, around the Horn.

In the days of its usefulness the Sailor Boy, cradling a compass in outstretched arms, stood facing the *N. B. Palmer's* wheel. The figure's hat brim bears the admonition "Mind Your Helm."

Clipper Ship's "Evil Eye"

J. C. Negus, who with his son J. S. Negus II directs the firm today, told me how the Sailor Boy became a company possession.

"It seems that sailors on the *N. B. Palmer* simply couldn't stand the figure's wooden stare," he said. "It made them uncomfortable. Men on wheel watch minded it most, but those at work near by also were forever conscious of those painted eyes fixed upon them no matter which way they moved.

"Finally, they began complaining to the captain. I don't know exactly what he said, but from what I've heard of shipmasters of those days, I'd guess that he told them to get back to work, unless they wanted a taste of a rope's end.

"However, the muttering continued. When the *Palmer* had a few misfortunes, the more superstitious among the crew blamed the Sailor Boy and his 'evil eye.' After a few years of this, matters reached a point where it became difficult to recruit hands.

"Eventually the owners decided to discard the Sailor Boy. They came to us for a new binnacle and we made one with the base in the shape of three dolphins standing on their heads. So far as I know, this served the *Palmer* to the end of her days.

"Since nobody wanted the Sailor Boy, we took him over, and here he has remained ever since. We haven't noticed any jinx effects."

The forgotten artist who carved the Sailor Boy bored a hole in the head into which linseed oil was—and still is—poured to keep the teak from drying and cracking.

Chronometers Once a Specialty

A Negus specialty, fine chronometers, spread the family name world wide in the ages of both sail and steam. When World War II's swollen fleets demanded these vital navigating tools in huge numbers, the supply problem was turned over to large-scale manufacturers of watches and clocks.

Under wartime pressure, the manufacturers applied new techniques and turned out fine chronometers, hitherto made only by hand, virtually on a mass-production basis.

Negus still does a thriving business in repairing and rating chronometers, sensitive instruments much more accurate than the average landlubberly clock.

Until a few years ago the firm handled chronometers as if they were of eggshell delicacy. A messenger carrying one between shop and ship was required to walk at a slow, stately pace, as if he bore a brimming cup of tea. His valuable burden in its polished wooden box was held close to his body to avoid jarring the mechanism.

Chronometer carriers still move carefully, but under today's relaxed rules they may ride in automobiles.

Nor does the firm any longer insist that costly porpoise oil is the only lubricant good enough for chronometers. High-grade light oils, made from petroleum, have replaced the fluid extracted from jaw sacs of the sea mammals. But for special cases—such as a Negus timepiece which the firm feels deserves only the best—a small quantity of porpoise oil is kept on hand.

Harbor Teems with Fish

A little-known bit of harbor life revealed itself one evening as I sat on a Hoboken pierhead, eating a sandwich and watching neon and Mazda perform twilight magic amid the canyons and spires of Manhattan across the Hudson (page 792). My perch was a crate of tractor parts waiting to be picked up and taken to Kuwait, the oil-rich kingdom on the Persian Gulf.

Idly I flipped a bit of bread into the river. A fish rose and seized it; the small splash left widening rings of wavelets. How, I wondered, could fish live in these polluted waters?

I took my question to Dr. Alfred Perlmutter, senior aquatic biologist of the Bureau of Marine Fisheries, New York State Conservation Department. His answer surprised me.

"There are all degrees and types of pollution," he said. "Not all pollution is unfavorable to fish or other aquatic life. City sewage, if dispersed over a wide enough area, so that decomposition does not lead to a local oxygen deficiency, can actually be beneficial. Such sewage adds nutriments to the water which are utilized by the plankton organisms, which, in turn, are utilized by some of the smaller fish as well as the larger plankton feeders (menhaden,

Sight-seers Circling → Manhattan Head up the East River

Summertime's three-hour cruises around the island entertain and instruct thousands of New York visitors.

Here the Day Line steamer *Knickerbocker*, drawing abeam of the Empire State Building, points its bow toward the spear-like Chrysler Building. The 39-story slab of the United Nations Secretariat rises on the extreme right.

Lower right: Youngsters learn the seaman's trade with the aid of a model freighter. They attend class aboard the Liberty ship *John W. Brown*, which is listed as one of the buildings of New York's Metropolitan Vocational High School.

↓From a window at Ellis Island, Manhattan appears as a shimmering dream city to young immigrants—Sicilian, Chinese, and Spanish. Waiting for the Immigration and Naturalization Service to check their entry papers, they study the English language and read books about America.

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Kodachromes by National Geographic Photographers Robert F. Sisson (above) and David S. Boyer

SHEER PLAN

for example). These fish in turn are eaten by the predatory species, such as cod, whiting, and bluefish.

"Industrial pollution, both oil and chemical, may or may not be harmful, depending on the type and concentration. Oil pollution may affect shellfish beds and spawning grounds but not affect the adult fish themselves. Provided there is no concentration of toxic chemicals or oxygen depletion, many species of fish will not only live but thrive in polluted waters.

Food Value Not Always Affected

"Pollution usually does not impair the food value of the finny fish. The flesh is not contaminated by the environment. It sometimes happens, of course, that some species taken in polluted environments may take on an objectionable flavor.

"However, from a conservation viewpoint there is little that can be said in favor of pollution. It is often responsible for kills of fish and other aquatic life. It changes the environment so that many desirable species of fish and shellfish no longer can exist in the area affected, and results in the closing of areas to the taking of shellfish, as a protective health measure. It lessens or destroys the recreational value of the area."

During spring, summer, and fall, Dr. Perlmutter said, at least 36 species of fish enter the harbor from the sea. These include most of the common eastern seaboard fishes, as well as occasional tuna and colorful strays from tropical waters, such as butterfly fish and triggerfish.

Harbor fishermen net menhaden in huge numbers. These fish are ground up and rendered into meal for animal feed and oil for the manufacture of soap, paint, and printing ink.*

Shad Arrive in Spring

Next to menhaden in commercial importance are shad. Each spring these bony but succulent members of the herring family rush toward upriver spawning grounds, providing brief bonanzas for fishermen who set nets within sight of New York's skyscrapers.

In good years the annual Hudson River shad catch amounts to about 2,000,000 pounds, with a value of around $350,000.†

Everywhere, at all seasons, there are eels. These hardy scavengers live as happily around sewer outfalls as in the cleaner water of Sandy Hook Bay. Their presence is welcomed by New York's many residents of European extraction, who regard eels as excellent food.

A sizable lobster industry once flourished in the harbor. Today the only lobsters in commercial quantities are taken by boats operating in the ocean southeast of Ambrose Channel Lightship. Divers working around wrecks occasionally capture lobsters and thriftily take them to the surface in tool bags strapped to their waists.

The harbor's shellfish industry once produced oysters so choice they were shipped to Europe for gourmets' tables. (Bedloe's Island formerly was called Great Oyster.) Oysters and clams still abound, but only those from a few approved beds are allowed to be gathered for human consumption.

Visitors often ask, "Who runs the harbor?" Control lies in the hands of many men and many agencies. Perhaps the best known of these is the Port of New York Authority, created by a compact between New York and New Jersey in 1921 to develop and operate public land, sea, and air terminals and transportation facilities in the 1,500-square-mile Port District and to promote and increase the port's commerce (page 791).

Coast Guard Keeps Watch

With helicopters, airplanes, and surface craft the Third District, United States Coast Guard, keeps constant surveillance over the port. The port security unit watches out for sabotage and disasters, with a specially trained crew checking all incoming ships which have touched an Iron Curtain port for atomic or other explosive devices.

The Coast Guard maintains aids to navigation and supplies crews to stand lonely watch on lightships stationed at the harbor entrance (page 782). Working closely with the Coast Guard and other Federal agencies are the police and fire departments of New York City and the New Jersey ports (page 797).

Defense of the harbor in wartime rests in the hands of the Navy's Eastern Sea Frontier, a task force under the Commander in Chief, Atlantic Fleet. Nineteen combat vessels of the Atlantic Reserve Fleet lie in mothballs at Bayonne, ready to shed their plastic cocoons and go to war on short notice. Forming and sailing convoys leaving from the

*See "Menhaden—Uncle Sam's Top Commercial Fish," by Leonard C. Roy, NATIONAL GEOGRAPHIC MAGAZINE, June, 1949.

†See "Shad in the Shadow of Skyscrapers," by Dudley B. Martin, NATIONAL GEOGRAPHIC MAGAZINE, March, 1947.

Watson, New York Daily News

Abandon Ship! Manhattan Youngsters Plunge into the Cool East River

Because traffic is heavy and pollution a hazard, New York City laws discourage swimming in the harbor. On hot days, however, boys will be boys. This carefree group takes off from a barge.

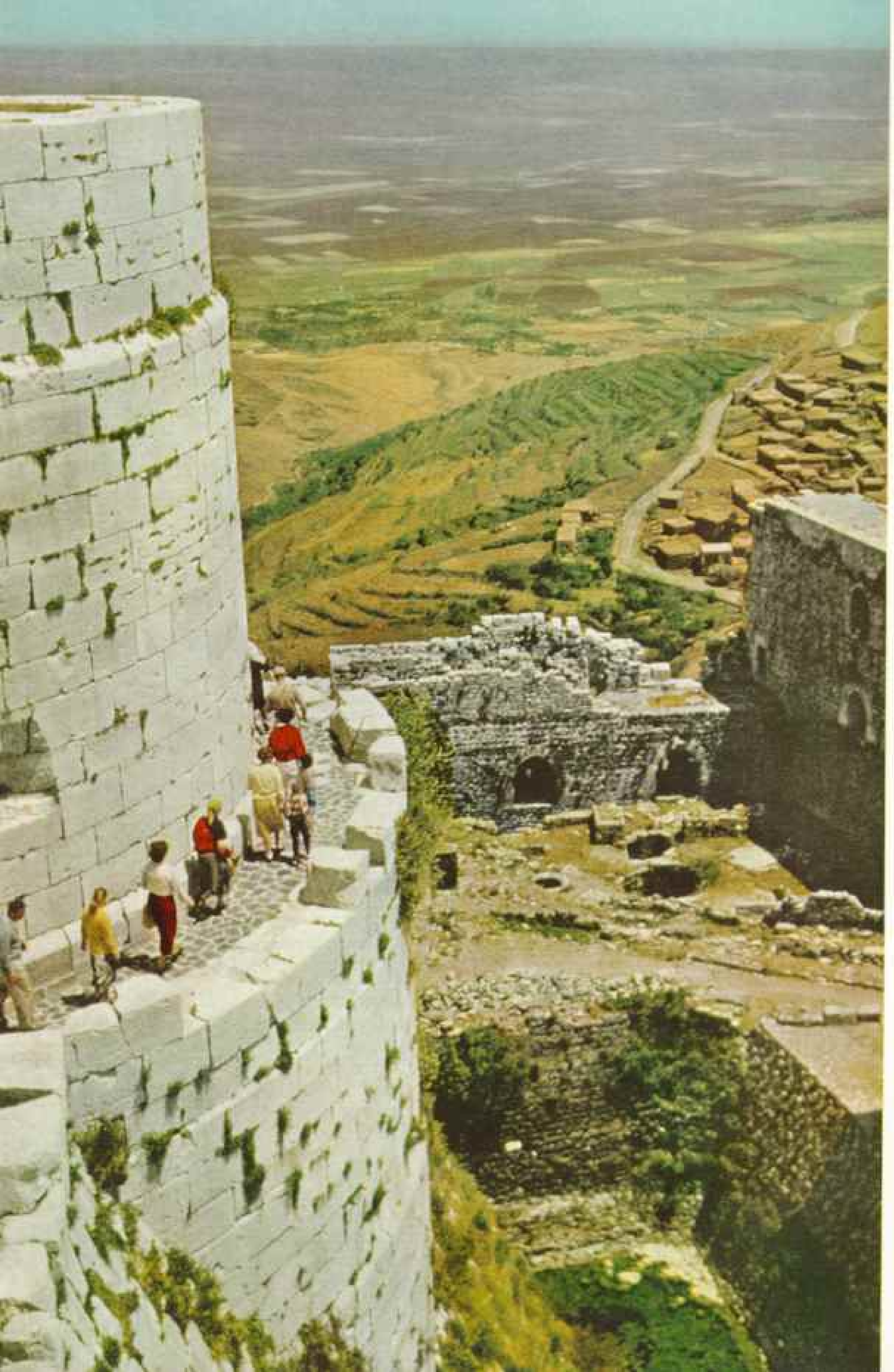
port of New York would be another Navy function. During World War II about a sixth of all shipping from the United States was routed through New York Harbor.

A clearinghouse of shipping problems is the 81-year-old Maritime Association of the Port of New York, better known as the Maritime Exchange. Its membership of 1,500 covers every phase of the industry.

William F. Giesen, the association's general manager and counsel, forecast an early end to the one overriding problem which has kept New York Harbor in the headlines in recent years. This is the plague of labor troubles, accompanied by revelations of waterfront crime and racketeering.

"This port," said Giesen, "has undergone a house cleaning which has been monumental in scope and incomparable in soul-searching nature to anything of its kind in the history of port affairs and port facilities.

"New York has been through the worst. Natural advantages, augmented by man-made facilities and the experience of handling a major portion of the world's overseas commerce since the era of sailing ships, will continue to keep this harbor the greatest maritime center on the face of the earth."



Crusader Lands Revisited

A Distinguished Historian Retraces the Route of Medieval Knights from İstanbul to the Holy Cities of Christianity's Birth

By Harold Lamb

With Illustrations by National Geographic Photographer David S. Boyer

WOULD you refuse a magic carpet to waft you over Crusader lands? I asked myself that question and told myself the answer: no.

The letter in my hands had come from an old friend, Maj. Gen. Earl S. Hoag, who commanded Air Force activities of the Joint American Military Mission for Aid to Turkey. He suggested that I journey east, there to retrace the route I had followed more than 20 years before (1929-32) in the footsteps of the Crusaders.*

Enclosed with the letter was a scrawl in red pencil bidding me come, signed "G. W." So another friend, George Wadsworth, who was United States Ambassador to Turkey, added his word to the invitation.

While the flying carpet of the Arabian Nights might have some advantages over modern planes, as in landing upon housetops, it could not have summoned me forth more quickly than these welcome notes from soldier and diplomat. I hastened to cable General Hoag the probable date of my arrival at İstanbul's airport and packed a light suitcase for this journey through the air.

I wanted to visit again in this manner the castles and battlefields of the Crusaders—those European warriors who set out more than eight centuries ago to wrest Christianity's holy places from the Saracen rulers of the East.

Our ancestors of the First Crusade—Normans, Provençals, Flemings, Burgundians, Anglo-Saxons, Lorrainers, and many others—had felt a call to leave their familiar homelands in western Europe to journey into the unknown Orient, there to seize the Holy Land of Christ from the Moslems. The road of their mass migration, which they called the *Via Dei*, or Way of God, led them for three years (1096-99) by land and across the sea to Constantinople, gateway to the Turkish plateau, thence along the arduous coast to the city of their dreams, Jerusalem. (See map, "Northern Africa," a supplement to this issue.)

Crusaders Stayed for Two Centuries

Many of the knights stayed to found a kingdom in *Outremer* (Beyond the Sea) and defend it from the Moslems until they were driven out of their last strongholds in 1291.

In following them thither nearly a generation ago I had traveled by ship and train, by unreliable automobiles, and by reliable but plodding donkeys. Then, during World War II, I was sent by the Office of Strategic Services to these same Crusader lands, using what transport I could find—mostly local buses or British military vehicles.

Now the miraculous ways of the air would take me back to something new.

This Near East, as we call it, has changed. Syria and Jordan have joined Turkey as self-governing nations, Islamic as in the beginning of the Crusades. Lebanon, predominantly Christian, also has achieved independence. The new State of Israel, almost seven years old, occupies much of Palestine. And now Americans are faring east in numbers to help administer United States assistance programs, journeying from the modern West of Point 4 and the North Atlantic Treaty Organization to these older lands beyond the sea.

It was no winged jinni of the Arabian Nights but a silent young pilot in the gray-

Page 814

← **Gaunt Crusader Castles Tower Above Syria's Terraced Fields**

Fired by Pope Urban II's call for liberation of the Holy Sepulcher, medieval Europe sent tide after tide of Crusaders into Moslem lands. Today wind-scoured castles bear witness to the passage of these dedicated warriors to Jerusalem.

Lawrence of Arabia considered Krak of the Knights (Krak des Chevaliers, here and page 816) perhaps the finest and best-preserved castle on earth. Built about 1110 on the site of a still older fort, Krak was enlarged early in the 13th century by European soldier-monks of the Knights Hospitalers. Its walls sheltered at least 2,000 men and hundreds of horses; today sight-seers troop through the castle to look down on peaceful fields and villages (page 826).

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Kodachrome by National Geographic Photographer David S. Boyer

* See "Road of the Crusaders," by Harold Lamb, National Geographic Magazine, December, 1933.

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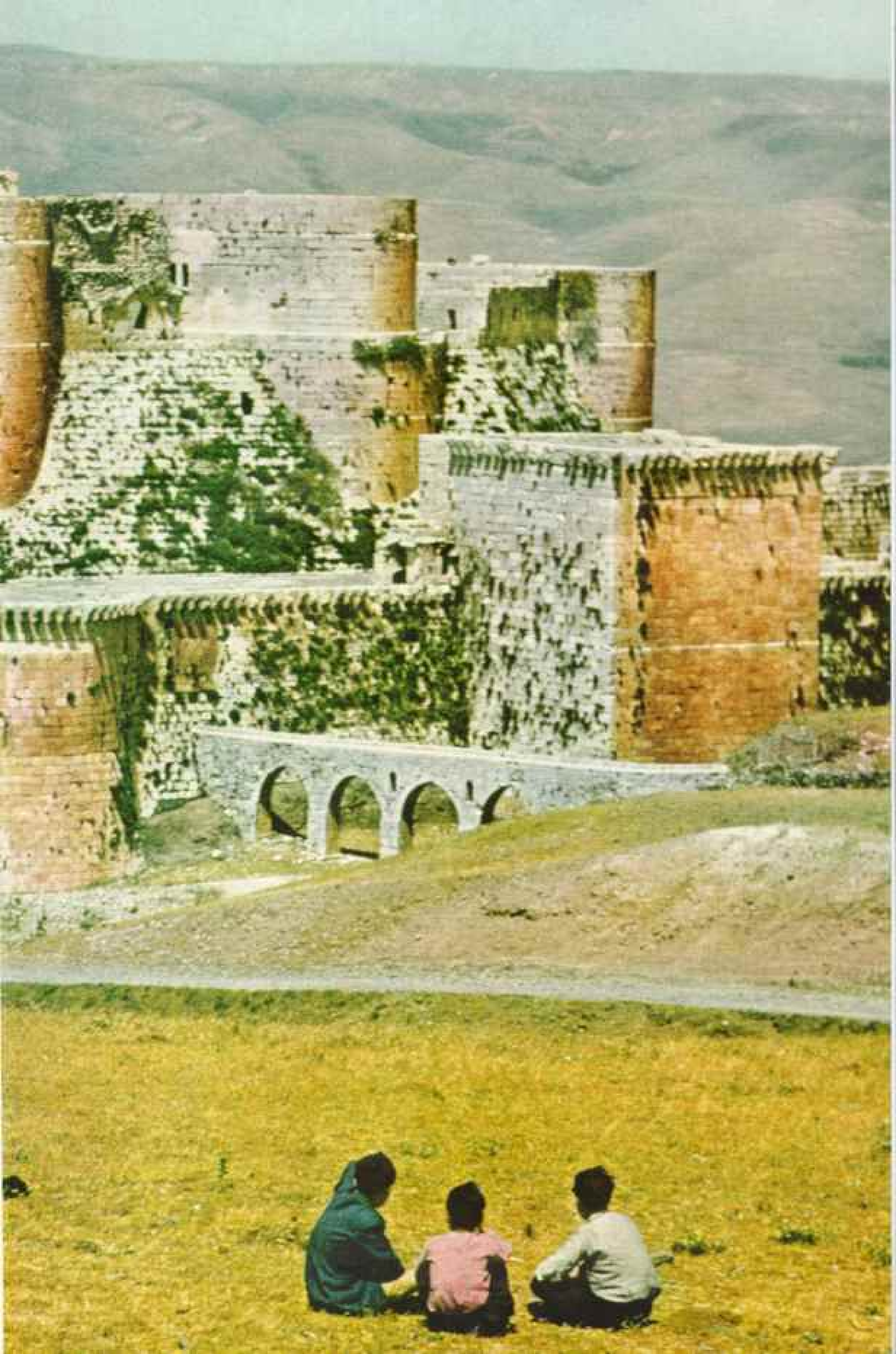
Black-garbed Christian Knights in 1271 Looked Out from These Walls for the Last Time

Loss of Krak of the Knights was a deathblow to the Crusades. Its garrison surrendered after receiving an order purporting to be from the Christian Count of Tripoli; actually the author was the Saracen Sultan Bibars.



blue of the Turkish Air Force who took me up into the clear air of a July morning from the new airstrip at Eskişehir (Old City) on the plains west of Ankara.

Shortly after take-off the eyes of the pilot beside me shifted abruptly, our small training plane soared, and I caught the flash of a Spitfire brushing beneath us to land. Evidently this young lieutenant was as trigger-quick in the air as his ancestors had been in the saddle of a horse. I asked him where he had got his wings.

"Deep in the heart of Texas," he explained in good American English.

A little later he shouted again above the noise of wind and engine: "We're passing over the place of that old battle."

Below us gray foothills rose from the half-dry bed of a stream. Only one battle could have been fought here, near Eskişehir on the road that led south across the Anatolian plain. Dorylaeum!

Down by that stream Crusaders led by the Norman prince Bohemond had camped in the heat of another July, more than 850 years before. Over those rolling hills the Turkish horsemen of Sultan Kilidj Arslan had launched their first attack, raining arrows against the shield wall of the hardy Normans.

Turkish valor almost prevailed over the steady courage of the Christian knights and men-at-arms. By midday there seemed to be nothing but surrender or death in store for the Christians, who could not compete in the saddle with Asia's swift horsemen.

Crusaders Win a Costly Victory

Then the Crusader host of Godfrey of Bouillon appeared, riding headlong to the aid of their comrades. And the fighting bishop of Le Puy, Adhemar of Monteil, circled the ridge behind the Turks, driving them from the field. The Crusaders won this first major battle, but at a heavy price. With new respect for their Saracen foes they marched on across the desert toward Iconium (Konya).

The young pilot beside me was a descendant of those Turks who had fought my ancestors along the Via Dei. I wondered what this Texas-trained warrior of the air thought of our American Mission today—of United States soldiers entering Turkey in uniform to reinforce its defenses with their newest equipment. Did the Turks really trust us?*

I couldn't very well ask them that. The air force, taciturn in the Turkish tradition, volunteered no answers. I had to seek out the evidence elsewhere.

As we dropped to the Merzifon airstrip, only 50 miles from the Black Sea, something went wrong. My pilot did not have his earphones on and thus was out of touch with the control tower. A red star flare shot across the path of the plane, and the lieutenant zoomed up—just in time to clear a string of Spitfires landing unperceived beneath us.

When we were safe on the ground, a natty Turkish captain dressed my pilot down for failing to use the radio or his eyes. "And making our guest dizzy!"

Fingering Beads an Ancient Habit

While he sounded off, the captain twined a string of rosarylike beads in his fingers from force of habit. Many Turks, like their Moslem brothers in neighboring lands, finger strings of "worry beads," much as Americans sometimes twirl key chains.

When we lunched upon fried meat-filled *beureks* and *pilaf* (rice with meat) outdoors under the plane trees, I noticed how the gravel paths had been neatly planted with cucumber and tomato vines as well as jonquils. These Turkish aviators had brought along both vegetables and flowers, to transform their barracks into a homelike garden aswarm with pigeons and swallows.

At pleasant Bursa (Brusa) I lingered with the throngs in a mosque, listening to a 7-year-old boy reciting verses of the Koran from memory. My volunteer guide, who carried his shoes carefully in his hand, was a teen-age uniformed cadet from the naval school on Heybeli Ada, who wanted to practice his English.

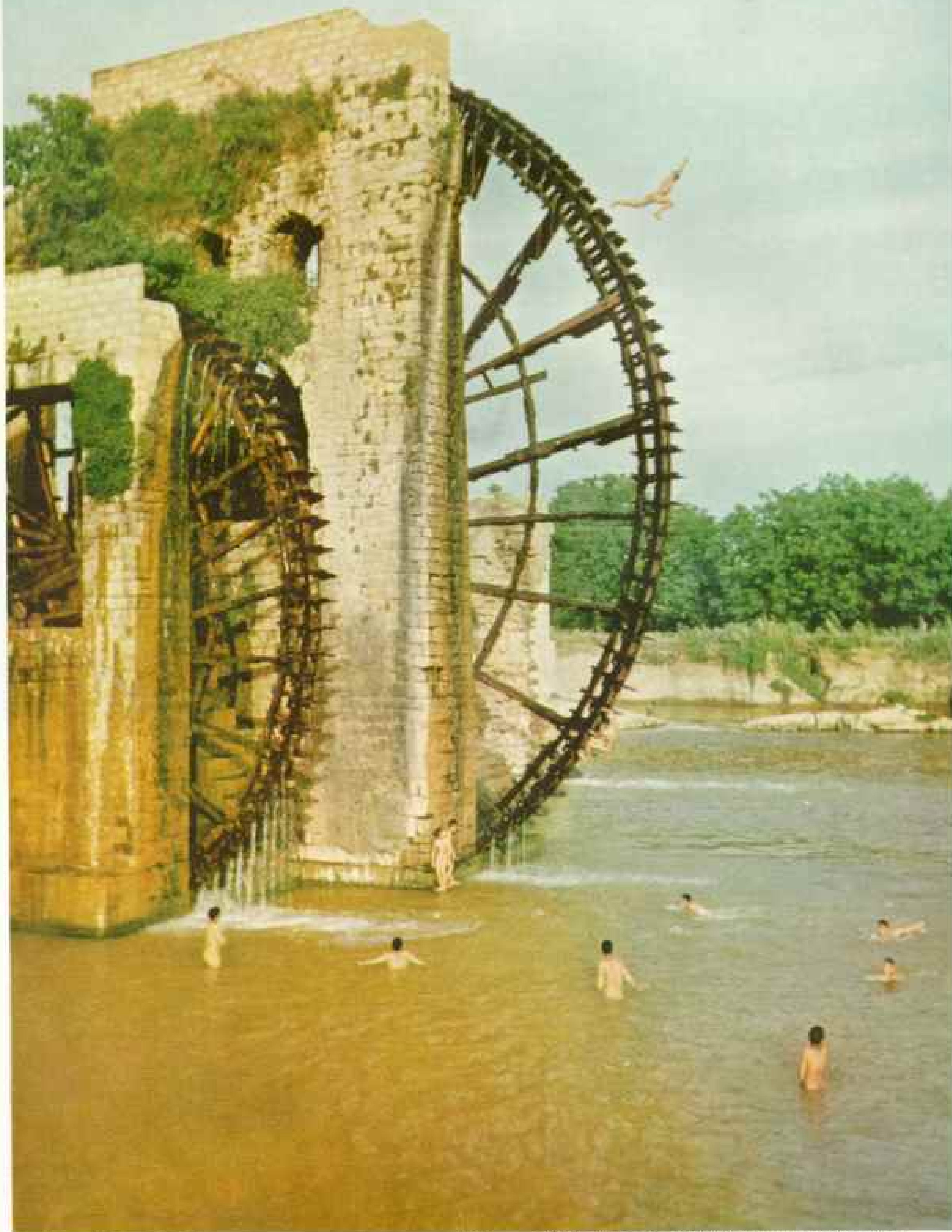
He had heard the tradition that the Bursa mosque had been built with spoils taken from the Christians at one of the battles of Kosovo (Field of the Blackbirds), but he could not read the Arabic script on one of the tombs.

"I don't know that old writing," he explained. "What does it say?"

"It says," I translated, "'This is the resting place of Osman, the Sultan.' He was one of the founders of your nation."

At Bursa the chain of my air transport broke. Regretfully the Turkish field commander explained that they had only Spitfires available, which could not take a passenger.

* See "Where Turk and Russian Meet," by Ferdinand Kuhn, National Geographic Magazine, June, 1952.



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A Young Syrian Makes a Daredevil Leap; Another Rides Hama's Mighty Water Wheel

Currents of the Orontes River turn old wooden wheels that lift water to the houses and gardens of Hama. The Orontes Valley marked the eastern frontier of the Crusaders' coastal domain.

Mount Ararat Rears a Snowy Crest; Little Ararat Shows an Arid Cone

Maj. Gen. Earl S. Hoag, then Air Force commander of the Joint American Military Mission for Aid to Turkey, made this photograph as he and the author winged past Ararat's summit in a B-17 (page 823). Airplanes gave a new vantage point to Mr. Lamb, who has traveled widely gathering material for a history of the Crusades and biographies of Alexander the Great, Omar Khayyam, Tamerlane, and Genghis Khan.

Would I mind going by steamer to Istanbul, across the Sea of Marmara?

I did not mind at all. The Crusaders had ferried themselves over this same water barrier to the shore of unknown Asia. Comfortably wedged among holiday-making passengers, I ate my going-away present of baklava, a nutty pastry soaked in honey syrup, and watched the panorama of the Bosporus.

Bosporus Boasts a Ferris Wheel

Speedboats flashed past 4-oared racing shells. The United States ensign fluttered at the stern of an admiral's launch. Beside me Turkish sailors on leave exclaimed—but did not whistle—at sighting the new abbreviated bathing rig on sun-seeking girls. At a resort the sailors swarmed ashore like American gobs to ride a Ferris wheel or bicycles, or have themselves rowed around in brightly painted caiques. It looked a bit like Coney Island.

Bikini bathing suits in Turkey—even the appearance of unveiled women on the streets—mark a radical departure from the conservative tenets of Islam. Yet the old religion remains a force in Turkish life.

After sunset on this eve of Kurban Bayram—Moslem religious festival following Ramadan, the month of fasting—lights broke out on the minarets of mosques as they had done for centuries. Istanbul became an illuminated city reflected in the water. The brightest light chains draped the masts and railings of American-built destroyers anchored in the Bosporus.

At the hotel room reserved for me overlooking the waters, ruddy General Hoag joined me.

"What do the Turks think of us?" The air commander repeated my question thoughtfully. "Well, they looked us over hard and

carefully when we first came in. Then they waited to see if there was any hidden political motive behind us. After that they gave us their full confidence—all out."

I saw one reason for that a few days later. Hoag's officers flew me to Erzurum and along the tranquil, mountainous Black Sea coast. The plane this time was a T-11, used for training bombardier-navigators. Turkish Lt. Col. Roman, acting as pilot, put me in the best observation spot, the bombardier's Plexiglas-enclosed "office." He handled the T-11 with the carefree zest of a pursuit pilot.

In the windowed nose without handholds I felt somewhat like a goldfish being shaken in a bowl. When we brushed treetops over the main street of a mountain village all the inhabitants ran out to stare and wave.

The explanation lies at the end of the Black Sea shore where dim mountains, the Caucasus, rise into the clouds. For centuries these peaks have marked the frontier of Turkey's hereditary enemy, Russia. Yes, the villagers were

↓ Turkish Air Students Learn to Read Instrument Dials of U. S. Planes

United States military aid to Turkey has almost doubled; this year the Turks will get nearly $200,000,000 in weapons and assistance. Here at Eskişehir, where Crusaders defeated Saracens in 1097 (page 818), a United States Army captain (left) directs a training session.

George Pickow, Three Lions

↑ Sun's Slanting Rays Gild Beehive Homes

Much of the Near East is treeless; building materials must come from the earth. Hive-shaped rooftops of these houses near Hama are made of sun-dried mud bricks plastered with more mud. As the owners prosper, they build additional beehives, until as many as a dozen cluster about a central courtyard.

← Tattoo and Nose Ring Adorn a Syrian Madonna

Fashion among rural women decrees a gold nose ring and blue designs on forehead and face. The tattooing is done by Gypsies, who dip their needles in a solution of indigo.

Both mother and child wear smears of kohl, or powdered antimony, on eyelids to make their eyes appear larger. Villagers believe kohl also combats disease and wards off glare.

Kohl is one of the oldest cosmetics. Containers found in neighboring Iraq show that Mesopotamian beauties used it 5,000 years ago.

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glad to see American wings above their homes.

Poker-faced General Hoag had been keeping something very much like a flying carpet up his sleeve. "How would you like," he asked, "to see Mount Ararat from a B-17?"

On a misty morning I took off with the General from Ankara's military airport. Two hours and a half later our plane was passing through clouds over timbered and snow-streaked heights. After the clouds thinned Capt. Balkan, our Turkish interpreter-aide, pointed through a cabin window to the right. There, apparently close to us but in reality miles distant, the cone of Ararat stood against a clear sky. This was a rare sight; usually in summer heat the snow summit of the 16,946-foot giant is hidden by mist except at sunrise and sunset.

We approached from the northwest, climbing from the 12,000-foot level. In crystal-clear air we were able to circle close to the crest of the mountain. Without a jolt or quiver the B-17 passed over the saddle between the peak of Little Ararat and the loftier summit of great Ararat (page 820). The upper slopes showed streaks of yellow sulphur and ravines blackened by volcanic ash below the snowcap, as if tortured by furnace heat. Though volcanic, Ararat has no crater top.

While the other officers used their cameras with the agility of machine-gunners, U. S. Capt. William Mandros, our navigator copilot, kept his eye on the plain beyond the ravine of the river Aras to the east. There within artillery range lay the Armenian Soviet frontier—and Russian pursuit planes had been known to intercept casual American aircraft. But this time no interceptors rose from the ground of Turkey's giant neighbor.

Noah's Ark Still Undiscovered

Although superstition insisted, long ago, that Ararat could never be surmounted by human beings, the mountain has been climbed a number of times during the last century. In 1952 it was, in fact, attempted by an exploring party of Westerners in a vain search for Noah's ark.

Even with powerful glasses we saw no traces of the ark—not so much as a curious rock formation that might resemble the prow of a ship. Asked about the legend, Capt. Balkan merely smiled and said the mountain was known to the Turks not as Ararat but as Aghri Dağ, the White Mount. The Book of Genesis itself gives the rise of that earliest great flood as 15 cubits (about 23 feet) which could hardly carry a ship far up the slopes of mighty Ararat-Aghri Dağ.

Yet in turning away from that solitary dome of snow and ice we both had a moment of contemplation. From that height no manmade dwelling or road was visible on the gray surface of the earth beneath. We might have been looking at a vista of 5,000 years ago.

Dogs and Goats Drew Crusader Loads

I left the Turkish plateau convinced that while the entrance of so many American technical groups, often ignorant of the country, has caused some confusion, a genuine friendship has been struck up between these present-day Christians and Moslems.

From Ankara a comfortable Turkish State airliner carried me south. Its pilots hardly glanced at compass, map, or landmark.

The first Crusaders had been able to advance only a few miles a day over that arid tableland. Wandering tracks served them for roads; they had no maps. Friendly Armenian Christians in the hills showed them a route across the desert to Iconium and taught them to carry water in animal skins.

The Crusaders saw their cherished war-horses die from thirst as well as battle; goats and dogs helped draw their loads. Their only food at times was wild grain husked between their hands.

"Here," a Crusader wrote, "were Franks, Flemings, Lotharingians, Bavarians, Normans, Angles, Scots, Italians, Britons, Greeks, and Armenians all together.... But even if we spoke such varied languages, we ... seemed like kinsmen."

Misfortune and a common longing to reach the City of Salvation held together the varied elements of that great migration.

From the plane I glimpsed the white spot of Heraclea (Ereğli) to the east. There the Crusaders found a little food and sighted the mighty barrier of the Bolkar Dağları, spur of the Taurus (Toros Dağları), before them. Around these "mountains of the devil" the pilgrim-warriors had pressed through barren gorges where they cast away their heavier armor and supplies.

Crossing the Taurus range, my plane headed south over the sea to make a stop at Cyprus. Here the redoubtable Richard the Lion-hearted had landed on one of his reckless adventures, a century after the First Crusade. I waited a lazy hour in the latticed lounge of

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↑ **Patched Netting Guards a Fruit Tree from Hungry Birds at Biblical Sidon**

Jesus once traveled "into the coasts of Tyre and Sidon" (Matthew 15: 21). Centuries later these twin ports of the ancient Phoenicians were taken by besieging Christians. A Crusader castle still guards hoary Sidon's silted Mediterranean harbor (page 835). A young Lebanese here harvests loquats, which the Arabs call *ekki denya*, "two worlds." This Asian tree bears successfully in the American Southwest.

→ Nut-filled pastries drenched with honey syrup and rose water fill a Damascus sweetshop. Sugar was one of the discoveries brought from Moslem lands by Crusaders.

↓ June is harvest month on the desert's edge. Grain, nurtured by winter rains, turns golden under spring's hot sun. Donkeys carry sheaves and harvesters to the village threshing floor.

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the airport, reflecting upon the course of history.

As in Richard's day, Cyprus lives under British rule. It is now the only territory so governed in the eastern Mediterranean.

Oddly enough, the island was also the last foothold of the Crusader knights after their retreat from the Holy Land in 1291. As we left Cyprus, a tawny limestone castle showed for a moment amid the greenery. This was Kolossi, built by the soldier-monks of the Hospital of St. John of Jerusalem.*

As my plane neared the long massif of the Lebanon, I thought I glimpsed the white speck of another Crusaders' citadel beyond the frontier in Syria—the great Krak of the Knights (Krak des Chevaliers, pages 814, 816).

On a previous journey I had climbed the twisting path behind a wandering camel to the summit where the castle overlooks the coast. There soldier-monks had crowned the hilltop with towered walls within walls. The Krak, like a miniature Gibraltar, served them as living quarters as well as fortress. Its vaults held food for months of siege; its cisterns preserved a season's rain water; its stable accommodated 400 battle chargers upon which the iron men sallied out from a gate to drive enemies back down the steep slope.

A windmill ground grain for the defenders, while a steam-filled bath of the Roman type cleansed them by the score. An inscription carved over one of the entrances warned: "Though wealth, wisdom, and beauty are given you, all will be worthless if you add pride to them."

History tells us that these Knights of the Hospital held out in their citadel until only one man in 10 survived to defend the walls. The last 200 were brought to surrender by an order professing to be from their commander in Tripoli, but actually coming from the besieging Saracen, Sultan Bibars.

Arabic Replaces French in Lebanon

Before sunset my plane dipped to the edge of the sea, landing on the thronged beach airport of Beirut, French-flavored capital of a new Arab nation. In less than one afternoon I had flown over the route where the First Crusade had toiled and fought for two years.

From the plane I stepped into a free Lebanese Republic for the first time. Beyond the woven wire façade of the terminal a young Lebanese mechanic called out, "*Markabba*"—ubiquitous Arabic equivalent of "How are you?"—to a smart, diminutive stewardess. Swiftly spoken Arabic has replaced the official French of the war years, when last I had been in the Near East. Then Lebanon was a French mandate. Now I saw not a single French uniform.

I had hardly opened my bag in my seaside hotel room when I became aware of a new activity on the calm Mediterranean. Beneath the window balcony, racing shells and paddle boards circulated among the heads of swimmers, while a pair of water skiers swept past. One bronzed skier flashed by at a dizzy pace to make a jump from a wooden incline.

Crusaders Never Saw This Sport

The sport-loving younger Lebanese, I heard, take to other skis in wintertime, going up to the snow heights north of Beirut, where a few of the historic cedars survive (page 830).

At Beirut I visited the cedar-fragrant campus of the American University of Beirut. This garden spot rising from the sea is always a joy, a true meeting place of minds from west and east.

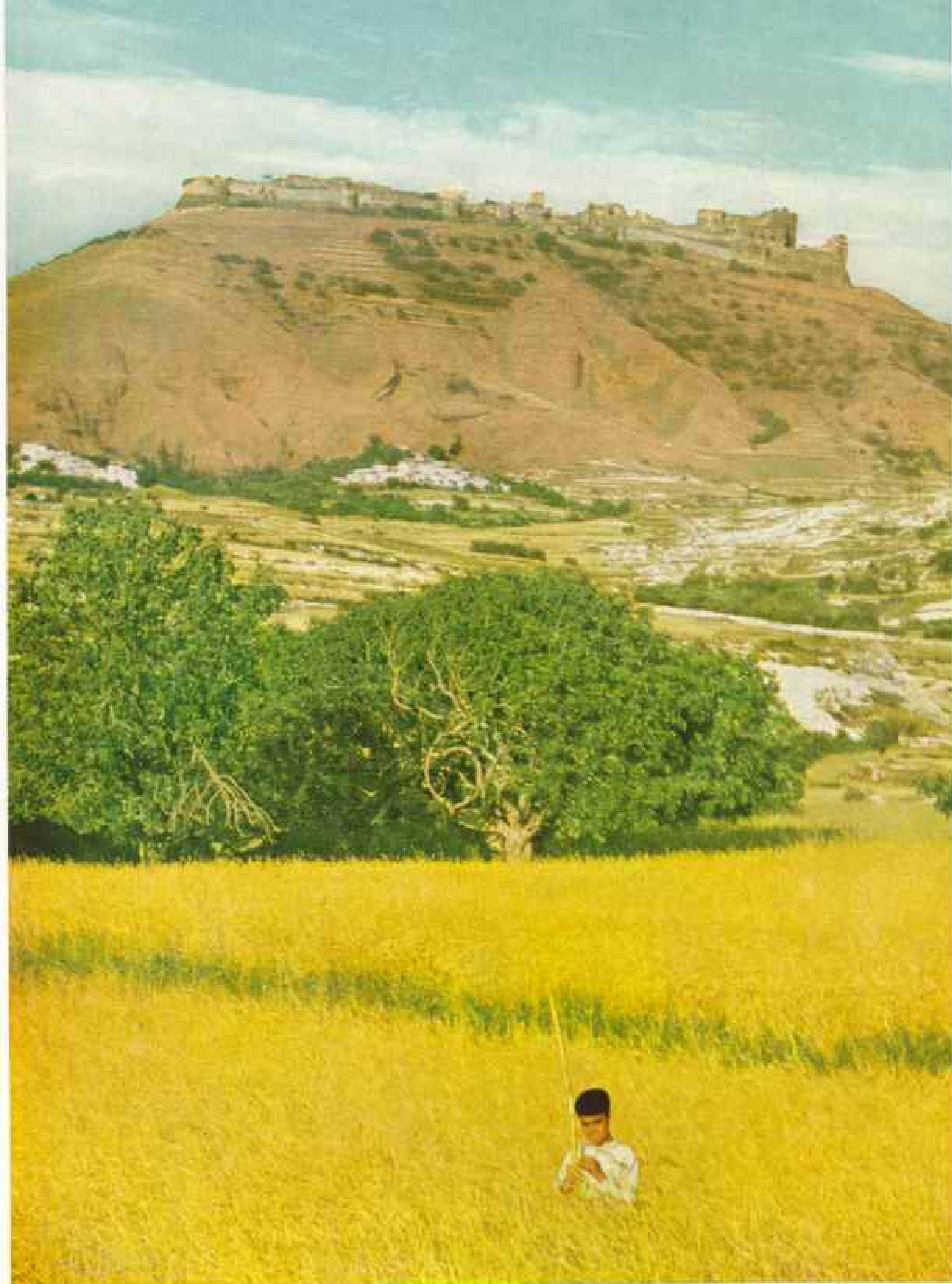
For nearly 90 years the American University here, like its sister schools in Istanbul and Cairo, has opened the doors of learning to students of many nationalities with hospitality and encouragement. I had seen the balance changing in its teaching staff from American to eastern—yesterday's students becoming today's masters.†

This phenomenon had taken place in the time of the Crusades as well. Newcomers, whether pilgrims or men-at-arms fresh from Europe, often caused trouble by their consternation at coming upon a Moslem mosque or hearing a prayer in Arabic, which they believed to be the language of Satan worshipers. But old residents of Outremer had come by degrees to adapt their habits to the country.

By chance, at the gate of the university I met philosophic Dr. Stanley Kerr who, like the medieval Templars, had spent most of his life and labor here beyond the sea. We talked in an air-cooled milk bar, which might have been in any American college town except that the students around us spoke Arabic. The veteran head of an expanding American hospital, Dr. Kerr was teaching the miracles

* See "Cyprus, Idyllic Island in a Troubled Sea," by Jean and Franc Shor, NATIONAL GEOGRAPHIC MAGAZINE, May, 1952.

† See "American Alma Maters in the Near East," by Maynard Owen Williams, NATIONAL GEOGRAPHIC MAGAZINE, August, 1945.



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Mighty Margat Rides Its Syrian Hilltop Like a Ship on a Wave

Saracens thought the fortress could be wrested from the Crusaders only by angels, but it succumbed to Sultan Kalawun seven centuries ago. His warriors' arrowheads can still be seen imbedded between Margat's foot-square blocks of basalt.

of Western surgery to the folk of this modern Outremer.

I thought how different it had been in the days of the knights, who learned much about drugs, hospitalization, and the benefits of diet from the Arab masters of medicine.

One account of the medical practice of the Franks has been preserved in the writing of a local physician named Thabit. He was called in to treat a knight with an abscessed leg and a Christian woman with consumptive fever. Thabit applied a plaster to the knight and put the woman on a diet.

Then a European doctor interfered, saying the patients would never be cured that way and asking the knight, "Do you want to live with one leg, or die with two?"

Frankish Customs Puzzled the Saracens

While the startled Thabit watched, the European called in a man-at-arms with a hatchet. The sufferer from the abscess was laid on a wooden block and his leg was cut off with one blow. Loss of blood killed him.

Then the foreign doctor diagnosed the case of the woman: "She is possessed of a devil in her head," he said, and prescribed that the head be shaved. When the patient did not improve, the Frankish doctor declared, "The devil has entered her body."

Thereupon with a razor he slashed her scalp to the bone in the shape of a cross. Salt was rubbed into the cuts; the woman died. Small wonder that Christian lords of Outremer preferred Moslem physicians to their own!

So many Yankees are appearing in the Near East—technicians of the Foreign Operations Administration, members of legation staffs, United Nations representatives, and ordinary visitors—that their habits, like those of the Crusaders, often clash with the customs of the countries.

A Moslem scholar, talking to me, criticized the Yankee habit of conversing over cocktail glasses, and the way some women come in to sit on the stools of bars. Similarly, in Crusader times the Moslems decided that the Franks were as brave as animals yet without modesty because they bathed naked and allowed their women to go unveiled and to talk with anyone who spoke to them.

As does Western behavior, Anglo-Saxon law nowadays puzzles many older Moslems. Accustomed to a single judge deciding a case by Koranic law, they ask why we depend on twelve persons picked at random to decide guilt, and exact money payments while ignoring religion.

Moslems of Crusader days could not understand why the Franks settled disputes by taking to weapons instead of going to a judge. Trial by battle hardly seemed good legal practice to the Syrians.

In one case a Christian farmer, accused of aiding the enemy, was made to take a cudgel to defend himself; his accusers picked a blacksmith to oppose him. Naturally the club of the blacksmith prevailed, so the accused was found guilty.

In industry and science, as in medicine and law, the balance of skill lay with the Moslems. The best chain mail and steel came from Damascus, and the finest woven fabric, muslin, from Mosul. Islamic libraries housed the higher textbooks, the science of Avicenna (Abu Ali ibn Sina), and translations from Aristotle and the Greek physician Galen. Arabic astrolabes that could take the elevation of stars and mountain summits were treasures to be sent home to Venice or Paris. The knights marveled at a mosque clock that marked the hours of the night by a changing pattern of lights.

The Christians soon learned to crave the luxuries of the East—the spices and sweet juice of sugar cane, snow-chilled fruits, smooth paper to write on, and porcelain dishes to eat from.

Strangely enough, our ancestors found here their first soft drinks (*sharbah*, sherbet, and

(Continued on page 837)

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Western Informality Invades an Eastern Classroom →

Progressive little Lebanon, only Arab nation with a Christian majority, signed agreements last spring for $6,000,000 in United States economic aid. Major goals are improved roads, increased water supplies, and expanded agricultural production. In addition, a Technical Assistance (Point 4) program may help the Lebanese remodel their educational system along Western lines.

Here in a demonstration class near Beirut, the nation's seaside capital, Arab teachers and students sample the freedom of American classroom methods. Two children learn to weave on miniature looms. Others color with American-made crayons. Mop-topped stone pines dot the scene outside the window.

United States educators in Lebanon have a proud record: Beirut's American School for Girls dates from 1830; the American University of Beirut nears the century mark. Both have assumed new importance since Lebanon achieved independence in 1944.

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↑ Cedars of Lebanon: Ancient Symbol of a New Arab Nation

From Lebanon's forests King Hiram of Tyre sent timber for Solomon's Temple in Jerusalem. Today a cedar graces the young republic's red-white-and-green flag. Here above Bsherri a few gnarled giants survive. Skiers make the grove a popular winter resort.

↓ Beirut, an Old Phoenician Market, Still Deals in Oriental Treasures

Damascus brocades, velvet "Crusader" jackets from Bethlehem, Indian sandals, and embroidered Far Eastern robes fill these shelves. Arab salesmen display a profusion of wares. This merchant garbs his American customer in a silk gown.

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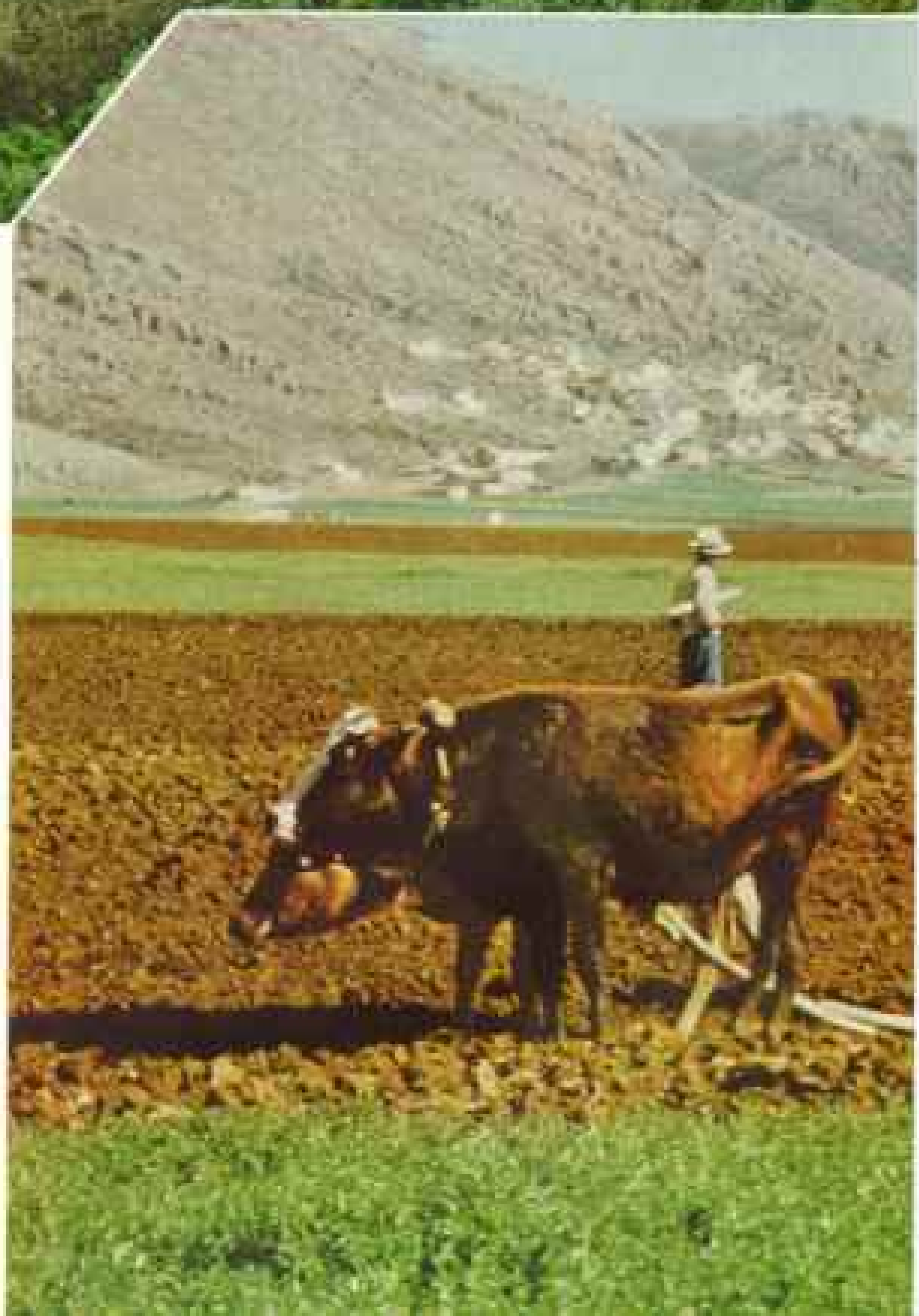
Which Rug Will Look Best in an American Living Room?

These boldly patterned Caucasian rugs present a difficult choice to United States visitors in a Beirut shop. A flowered Persian carpet hangs on the wall. Porcelain figurines in the cabinet await purchasers.



**Surveyors Take Their Own Shade →
to El Beqa', Lebanon's Sun-bright Granary**

United States and Lebanese technicians, using funds supplied by the Foreign Operations Administration, have drawn up plans for development of a "little TVA" along Lebanon's Litani River. The swift-flowing waters will supply power for new hydroelectric plants and irrigation for such areas as El Beqa', this rich upland valley.

Here, not far from the Syrian frontier, Americans and Lebanese line up a canal. An umbrella shades the surveyor. The ox team rests as its driver watches. His wooden plow, bearing metal only on the tip of the share, resembles those used in Biblical times.

Snow-streaked Mount Hermon looms in the background.

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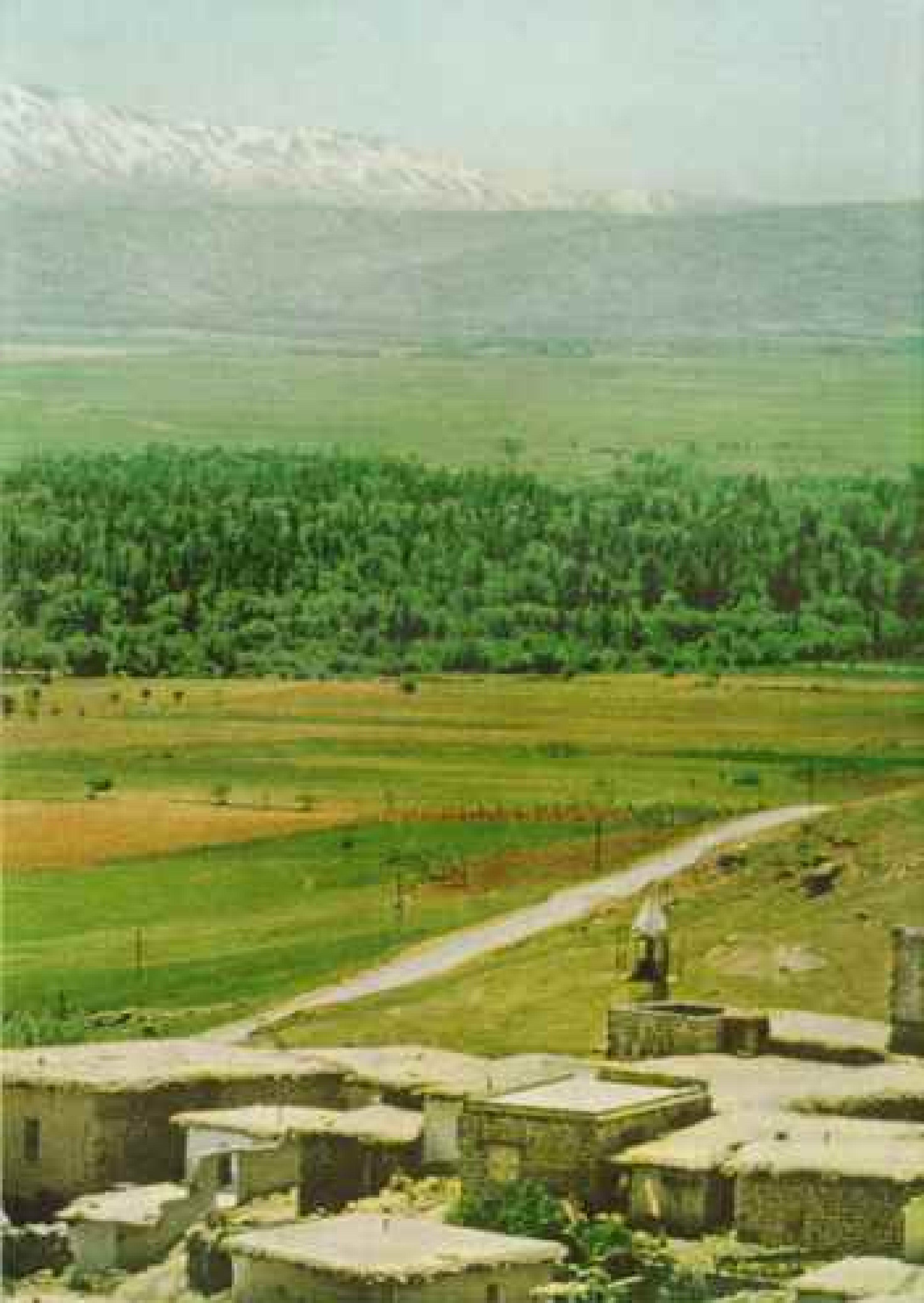

← Hermon, Bible's "Mount Sion," Soars Above a Fertile Valley

Sandwiched between the coastal Lebanon mountains and the Anti-Lebanon range farther inland, the red-earth Beqa' has been a breadbasket of the Near East for at least 25 centuries. Its level fields, sitting 3,000 feet above the Mediterranean, have provided a conquerors' route since the time of the Hittites. El Beqa' never became part of the Crusaders' Outremer, or oversea domain, though Christian castles controlled many of its seaward mountains.

Here verdant fields spread below a cluster of mud-and-stone houses. Flat roofs serve as platforms for drying fruit and grain and sometimes as winnowing floors. A small minaret rises from the village mosque (right). From its eminence a crier calls faithful Moslems to prayer five times a day.

Mount Hermon, called Mount Sion in the Old Testament, rises 9,232 feet on the horizon, which looks inland toward Damascus. Snow-crowned most of the year, the majestic summit is thought by some Bible students to have been the place of Christ's Transfiguration. Springs swelled by its snows feed the River Jordan.

Luxury-loving sultans of Damascus ordered ice from Hermon's crest to cool their drinks. The chivalrous Saladin, entertaining the Crusader leader Guy of Lusignan after he had defeated him at Hattin in 1187, served a goblet of rose water chilled with Hermon's snows.

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↑ Tending Fields Is Woman's Work in Moslem Lands

The deep soil of Lebanon's Beqa' nourishes vegetables, fruit, corn, barley, and wheat. Grapes thrive in its vineyards, and its mulberry leaves feed silkworms.

Here, under the watchful eye of an overseer, village women plant onions. Beyond them, toward the Mediterranean coast, 8,622-foot Jebel Sannin sends melting snows to water Beqa' crops.

Boys Play Cards → in Sidon's Castle

Christian knights built this stronghold after besieging the Sidonians for two years. Constructing walls eight feet thick, the thrifty Crusader architects laid in them sections of basalt columns first used by the Romans. Later the castle served as a Turkish fort. Arabs have quarried its stone for centuries. Today few travelers stop to examine the ruins.

Cisterns in some Crusader castles still hold potable water.

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↑ **The Sun Does Most of the Work in a Seaside Salt Plant**

Mediterranean water, pumped by windmills, evaporates and leaves coarse salt crystals in these concrete pans on the Lebanese shore. The near-by city of Tripoli was a strong point on the Crusaders' coastal route to Jerusalem.

↓ **Cottonseed, Once Thrown Away, Now Yields Oil and Cattle Feed**

Christian knights found a widespread weaving industry in the Near East. Muslin takes its name from Mosul, a city in present-day Iraq. Northern Syria grows the cotton for a modern textile plant in Tripoli. This coastal freighter loads cottonseed.

sharab, syrup) with candy (*qandi*) and probably their first chewing gum in the aromatic gums of Arabia.

Women who migrated out to this coast of the Holy Land were quick to take to the new riches. Ladies of the castles exchanged their bronze mirrors for glass; they clothed themselves in soft silken underthings and made themselves comfortable on divans piled with cushions. They also managed, history shows, to live longer than their sisters in Europe.

Proverbs of Two Lands

I was reminded of that fact by a busy Beirut official who sat at a desk furnished with no more than a pen and inkstand in a room bare as a medieval cell.

"Your people have a saying that time is money," he observed. "We have a different proverb—time is life."

Yet a young Lebanese reporter with whom I talked put aside the politics of the day to acknowledge Yankee initiative and mastery of mechanics. We had accomplished, he admitted, something like a miracle in the air.

It had happened in the heat of August, 1952. A throng of thousands of Mecca-bound pilgrims, mostly elderly, became stranded for lack of transport at the Beirut airport. Many of them had spent their life savings for airplane tickets to the great Id al Adha festival, and despaired of arriving there in time.

Then United States military planes dropped unexpectedly out of the sky, coming in from German and African fields. Moslems wearing the white robes of the pilgrimage lined up to climb into C-54's. "That was a Christian act," one spokesman summed up his opinion of the Mecca airlift.*

Arab historians of old also testified to the chivalry of many of the unpredictable knights of the Cross. In battle a Saracen once rode at a helmeted Christian who was in advance of his fellows. Singling him out, the Moslem gripped his spear and charged. Then his foot slipped from a stirrup and he was carried on, helpless, by his horse. Noticing the Saracen's predicament, the unknown Crusader held up his hand for a truce, and the fight ended.

Religion still remains a touchstone of the Near East. On a torrid night of mid-September I noticed flares along the dark heights above Beirut. "What is the celebration?" I asked a neighbor at a tea table, thinking the fires might be some political joy fest.

My Lebanese companion put aside his evening paper with its headlines of political crisis. "It is a festival," he explained. "The festival of St. Helena, I think."

The finding of the True Cross! Legend tells us that the sacred relic was discovered miraculously by Helena, mother of Constantine the Great, first Christian emperor of the Eastern Roman Empire.

She it was who urged the building of the original Churches of the Nativity in Bethlehem and of the Holy Sepulcher in Jerusalem. All of this had happened seven and a half centuries before the Crusaders came, yet here were 20th-century descendants of Byzantine Christians still celebrating Helena's feast with fires on a mountaintop.

As I watched the faraway points of light I wondered how many ancient Christian sects—Orthodox Greeks, Maronites, Nestorians, and Jacobites—had sought sanctuary in this tolerant corner of the nearer East. To this day it is so; Lebanon is the one Arab land where more Christians than Moslems dwell.

Over cool heights of the Lebanon that once marked the border of the Crusaders' Kingdom of Jerusalem I drove to Damascus, a Moslem stronghold that the knights never captured. When I had seen it last, after V-E Day, the Syrian populace had been locked in conflict with the French garrison forces, and fighting had swept the streets of the city.

Damascus, "Bride of the Earth"

All wartime scars have been effaced from this terminal city lying at the hub of long desert highways. The Bride of the Earth, as its people fondly call it, has become its own mistress after centuries of Ottoman Turkish rule and years of French mandate control. I found the first manifestation of its freedom to be a building boom. On either hand the hammers of stonemasons beat staccato time over the roaring of trucks.

I was deposited in the lobby of a spotless new hotel. The steel ribs and concrete walls of a still larger hostelry rose across the street. Later I visited the most unusual of the city's night clubs. Out at the renovated Damascus airport, passengers from planes en route are taken into an air-cooled dinner-dance chamber where a jazz orchestra plays and fruit juice and cakes await them on the tables—but no one seems to dance.

* See "From America to Mecca on Airborne Pilgrimage," by Abdul Ghafur Sheikh, NATIONAL GEOGRAPHIC MAGAZINE, July, 1953.

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Bedouin Tribesmen Welcome Their 18-year-old Ruler to 'Amman, Capital of Jordan

Wearing a scarlet-topped Arab Legion cap, Hussein I leaves the Parliament Building after his coronation in May, 1953. Salutes of 101 guns blazed in 'Amman and ancient Jerusalem during the 3-day festivities.

Kodachrome by National Geographic Photographer David S. Boyer

Legionnaires on White Horses Provide an Honor Guard for the Newly Crowned King

Hussein's subjects include 867,300 Arabs of eastern Palestine and old Transjordan, many of them nomads, plus 465,700 refugees who fled from neighboring Israel in 1948.

840

John Scofield, National Geographic Staff

Sunset Brings Coffee and Music to a Goat-hair Tent in the Jordan Wilderness

Desert-patrol troopers at Qasr el Azraq roast coffee beans, then pulverize them with a brass mortar and pestle (center). The cardamom-flavored beverage is brewed in long-spouted pots. Bedouin etiquette demands that cups be emptied at least three times. Here an Arab Legionnaire plays his one-string violin.

I sensed a new exuberance in the streets of Damascus, where tribesmen in camel-hair cloaks surged through workaday throngs of shopkeepers and students. Like the buildings, the people of this city of the Apostle Paul and Saladin, adversary of the Crusaders, seemed to be waking from a long sleep.

I found this new eager outlook toward the future and the West where I least expected it—in the audience hall of the Arab Academy. There venerable leaders in orthodox black robes asked hopefully if El Kuds, the Holy (Jerusalem), could not be set apart as an international zone, accessible to everyone.

How like Saladin this sounded! In his time the liberal-minded Saracen had granted Christians the privilege of abiding peacefully in their shrines at Jerusalem.

I thought of all this as I sought out the Tomb of Saladin beside the great mosque of Damascus. It had been given a new look with fresh white paint, and flowers bloomed in the entrance garden. The attendant, instead of waiting drowsily by the door for baksheesh, welcomed me to a reception room bright with sunlight.

Saladin Spared Christian Captives

Saladin would have approved; he believed in character rather than money wealth. After his death they found only 47 silver *dirhems* and one gold piece in his possession.

Saladin's tolerance earned the respect of his enemies, among them downright Richard the Lionhearted, who failed to wrest Jerusalem from the Saracen ruler. A Christian chronicler describes how Saladin dealt with the poorer sort of his enemies, who could not ran-

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↑ From Schoolboy to Lieutenant General: Jordan's King Reviews His Troops

Hussein, grandson of the assassinated King Abdullah, jumped overnight from the classrooms of England's Harrow to leadership of a progressive Arab nation. Glubb Pasha, British-born commander of Jordan's Arab Legion, stands at far end of the line of officers.

↓ Desert Patrolmen Have Brought Security to Arid Wastes

General Glubb designed the uniform of these proud fighters recruited from hinterland tribes. Troopers train and care for their camels, all easily tamed females. Many of the men bring their own animals when they enlist. Rifles are British Lee-Enfields.

Jordan Water Quenches a Thirst

In Tsarist times, Russian pilgrims thronged the Jordan, taking back bottles of water as souvenirs. They arrive no more. This Arab shepherd boy scoops a drink from the river near Israel's Lake Hula.

↓ Bethlehem Wives Wear Their Wealth

The traditional bridal costume in the village of Christ's birth is erroneously attributed to Crusader influence; actually the costume originated centuries earlier.

This Palestinian beauty models a *shatweh*, or hat, faced with Red Sea coral. Its 78 Turkish gold coins, the bride's dowry, serve as the family's bank account in times of need. Spanish coins on the heirloom silver necklace show dates from 1717 to 1724.

John Scofield, National Geographic Staff

som themselves after his capture of Jerusalem in October of 1187.

The wealthier families had been allowed to pass out with their possessions after paying at the gate the ransom coins demanded by Saladin. Several thousand Christians were left who could not pay. Saladin's brother (whose son was later knighted by Richard) came to the Saracen conqueror and requested that 1,000 of those left be given him as slaves.

"What will you do with them?" Saladin asked.

"I will do what I think best for them."

The 1,000 captives were bestowed on Malik al Adil, the brother; he took them out and set them free. Seeing that happen, the Christian Patriarch begged the victorious Saracen to deliver forth the poor who remained. Saladin gave 700 to him, and then 500 to Balian, the Holy City's military commander.

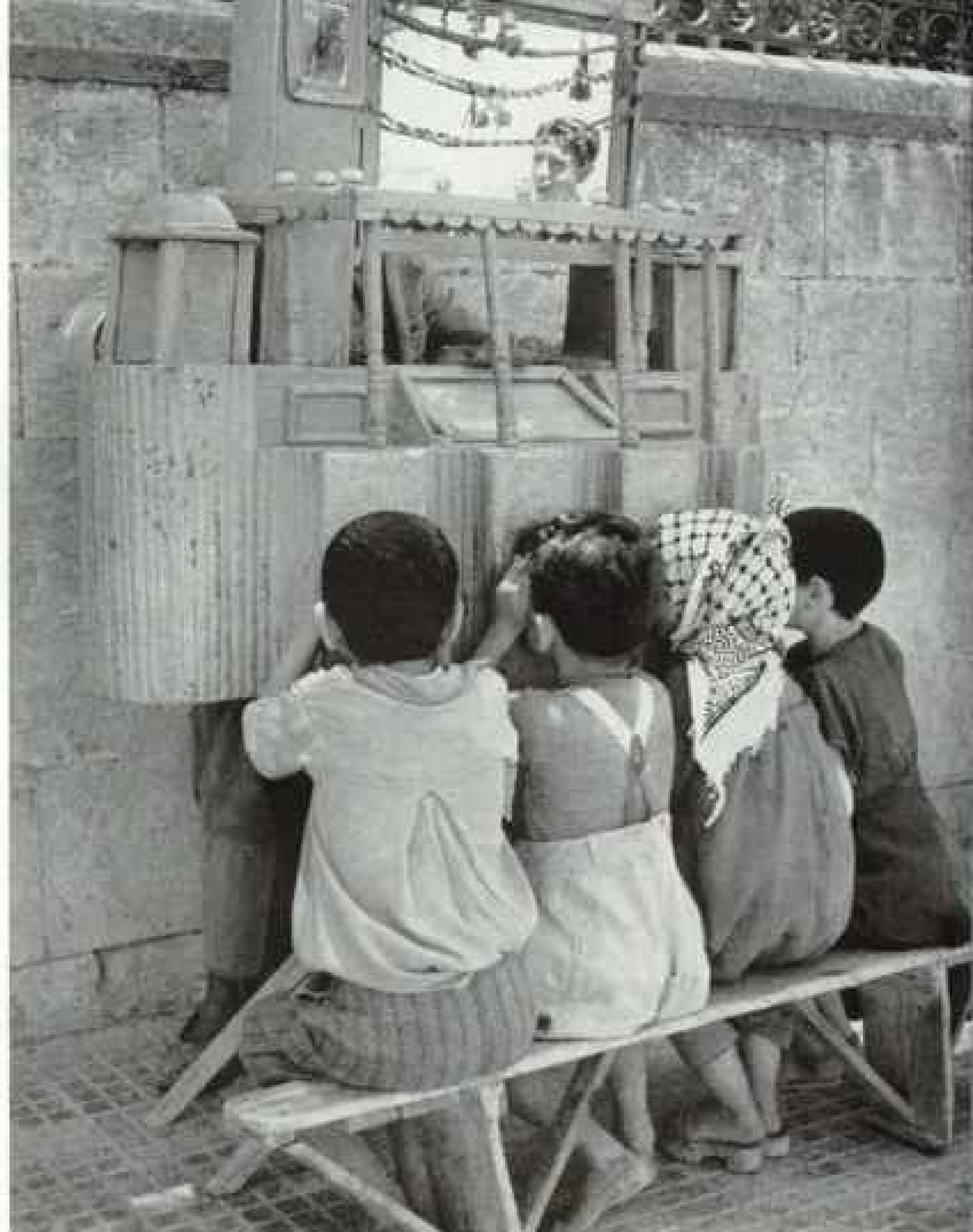
When these were gone, Saladin said, "Now would I make my alms also."

He ordered the postern gate to be opened and liberated many remaining captives, including aged folk and numerous women and children. They were unmolested by the Moslems as they moved toward Tripoli, the nearest Christian port.

En route these same refugees, spared by Saladin, were robbed of their possessions by the men-at-arms of Raymond, lord of Niphin. Such powerful barons of Outremer often chose to raid rather than trade peacefully.

Other lords, newly arrived from Europe, would hear of nothing but making war on the "paynims," or pagans, across the Jordan. But the common folk, the Christian burghers and pilgrims, reached a live-and-let-live understanding with their Moslem neighbors.

"We who were once the Westerners have become like the Asiatics," wrote one Christian resident of the Holy Land, Fulcher of Chartres. "He who was once Roman or Frank is now a Galilean, or man of Palestine.... Already, we have ceased to mention the places of our birth.... Some have married ... Syrians, Armenians, or even Saracens who have received the grace of baptism.... One cultivates vines, another fields. They speak different languages and are already capable of understanding all of them. Why should anyone go back to the West when the East is so kind?"



Maynard Owen Williams

Syrian Children Enjoy a Peep Show, Aleppo's Version of TV

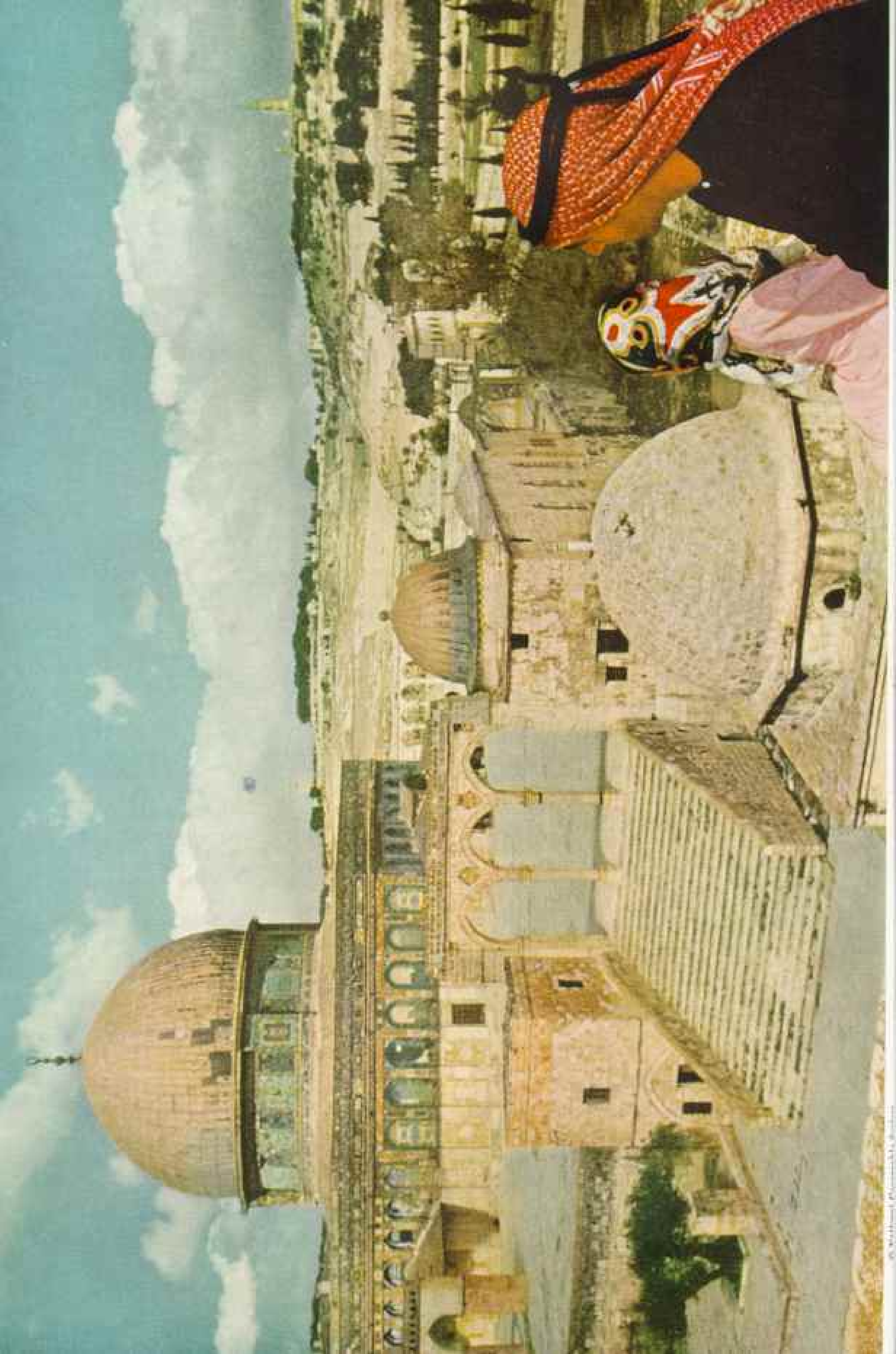
Almost hidden behind his homemade machine, the operator cranks a roll of paper past the audience's eyes; pasted on it are colored illustrations cut from magazines. What looks like a television screen is an ordinary mirror. One viewer wears a head scarf and wooden clogs; two favor Western togs.

War Against Disease and Pests

While these pilgrims who stayed in the Kingdom of Jerusalem learned something about hygiene and medical care from the more scientific Moslems, the farmers among them learned how to make windmills grind grain and how to lift irrigation water by giant wheels from the rivers (page 819).

Now the picture is reversed. South of Damascus, American technicians of the Near East Foundation are helping Moslem villagers lick the ancient plagues of crop blight, malaria, and locusts, with modern discoveries. Where Crusaders carried home the secret of honey-sweet *sukkar*, or sugar, these Yankees start sugar beets as a new crop. Similar help has come from the United Nations.

Today's curse from Upper Egypt to the summits of the Taurus Mountains is the backwardness of village life. Sometimes the technicians run up against a villager like the one who demanded, "What is this? First you came and sprayed our village with DDT; after that you took two houses for your work. Now you have sprayed again with DDT. Will you take our entire village next?"



↑ Dome of the Rock Dominates Jerusalem's Skyline

The tiled mosque, begun A.D. 688, shelters a huge stone revered by Moslems. Crusaders, many of whom believed the building was Solomon's Temple, used it as a church. The Mount of Olives rises in the background.

↓ Pilgrims Worship at the Birthplace of Christ

Franciscans kneel with American visitors before the traditional Nativity site in Bethlehem. Brocades cover limestone walls of the underground stable. The altar (right) is dedicated to the Three Wise Men.

© Kodachromes by National Geographic Photographer David S. Boyer

John Scofield, National Geographic Staff

An Armenian Priest Kneels in the Sepulcher, Christendom's Holiest Shrine

The rock-cut tomb of Joseph of Arimathea, to which Jesus' body was carried from the Cross, was a great prize of the Crusades. Jerusalem's streets ran with blood as the knights hacked their way toward the goal in 1099; later they built the Church of the Holy Sepulcher over it (opposite). Less than a century passed before Saladin wrested the city from the Christians. Church keys still belong to a Moslem family by right of inheritance, and its members unlock the doors daily. Only two or three worshipers can squeeze into the tiny crypt. Marble now covers the shelf from which Jesus rose on Easter morning.

The villagers soon discover, however, that spraying can destroy insect pests in the fruit orchards as well as in their houses.*

Tradition holds firm in the remote villages, where a mobile clinic is more of a marvel than a plane. Young Syrian instructors in homemaking and hygiene often wear old-style native dress to reassure village women to whom prenatal care and the cure of worms in children are unknown.

Since the Near East Foundation and its Syrian assistants alike can spend little money, they work chiefly with the tools of the countryside, often using donkey power, or sometimes camel transport, to take a nurse on rounds of distant homes.

Young girls flock to the sewing and homemaking classes in winter, when they can be spared from field work. These young women of the renovated villages are gaining a secret pride. They are beginning to dress and keep house like city women. They point to their medical clinic and exclaim, "It's like Damascus."

The center of Damascus is still the great Omayyad Mosque. Going toward it, you find the plate-glass windows in the covered bazaar streets filled with the shoes, the mechanical gadgets, and especially the Syrian silk garments of today. Then, emerging from the shadows of bustling trade, you step into the blaze of the vast courtyard and feel as if you had come through an ageless portal.

If you look closely at this mosque, you will perceive its ties to early Christianity. It was built in the first years of the eighth century when the swift expansion of Islam had gone beyond the frontiers of the Roman Empire to the Bay of Biscay in the West and the

* See "Report from the Locust Wars," by Tony and Dickey Chapelle, NATIONAL GEOGRAPHIC MAGAZINE, April, 1953.

John Scofield, National Geographic Staff

Steel Scaffolding Protects Arab Jerusalem's Church of the Holy Sepulcher

Shaken by earthquake in 1927 and damaged by shellfire during the Arab-Israel war of 1948, the Crusaders' church shows its age. Beams support the façade pending repairs. Here the Roman Catholic Patriarch (center) leaves the church after visiting the Sepulcher (opposite) on the Saturday before Easter. Guards (left) in antique Turkish uniforms precede him. The processional cross is covered.

banks of the Indus in the East. At that time Damascus was the seat of the Caliphate, and the mosque the prayer center of multitudes.

Today the structure, with its spaces of colored marble and softly gleaming mosaics, seems more like a nonsectarian church, very open to the sky. One minaret might well be a bell tower; it was in fact modeled upon such Byzantine towers. The dome over the sanctuary has a familiar look. So do the three naves of cathedral size.

Many of the giant pillars were taken from Roman edifices. Within the mosque there is a sealed entrance, and over it an inscription worn by time: *Thy kingdom, O Christ, is an everlasting kingdom, and Thy dominion endureth throughout all generations.*

Leaving Damascus, I took to the air for the last stage of the journey to Jerusalem.

The Crusaders had pressed along the coast route toward the Holy City. My small Middle East Airlines plane stayed inland to avoid passing over Israeli territory—climbing within sight of the majestic thrust of Mount Hermon

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Kodachrome by National Geographic Photographer David S. Boyer

Flowers Glow in the Garden of Gethsemane, Where Judas Betrayed Jesus

(pages 832-3). To the right, across the blue-green glint of Galilee, a dark speck marked the black basalt castle of Tiberias, which had been a frontier post of the knights' kingdom. Now the lake divides the territory of Israel from the southwestern tip of Syria.

Speeding along the Jordan's ravine, which the knights crossed only to make forays, we came over the Hashemite Kingdom of Jordan and landed on the narrow airstrip north of Jerusalem.*

Crusading Knights Reach Their Goal

In 1099 the surviving Crusaders of Godfrey's host had their first sight of the Holy City. Camped only a few miles from Jerusalem, knights and men-at-arms led by Tancred of Sicily (who could speak Arabic) roused at midnight to surprise the sleeping town of Bethlehem. They wished to make certain that no harm came to the Church of the Nativity (page 845).

So at dawn the monks who tended the shrine beheld horsemen wearing the cross clustered jubilantly outside the narrow door of the church. They had come to their journey's end after three years of suffering. "Weeping, they sang, and singing, they prayed."

The eastern Christians who dwelt in Bethlehem then, as now, hurried forth to greet the armed men of the West with amazement and some dread that war might follow them. Tancred placed his banner before the church to protect it, and rode north to gain his first sight of Jerusalem five miles away.

The Crusader host, streaming behind Tancred to the gates of the Holy City, took their cue at first from the Old Testament story of Jericho. Walking barefoot around Jerusalem, they tried to blow down the walls with trumpet blasts. That failing, the knights resorted to siege; on July 15, 1099, the northeast wall of the city was breached. Shouting and singing, victorious knights hacked their way toward the Sepulcher through streets that ran with blood. One Crusader historian estimated that 65,000 Moslems and Jews were slain at the Aksa Mosque alone.

Following their route eight centuries later, I found the Bethlehem-Jerusalem road closed a little beyond the small shrine called Rachel's Tomb by the barrier of the Armistice Line that divides Israel from Moslem Palestine.

With its rusted barbed wire, concrete roadblocks, and stretches of thorn-grown ruins, it divides, too, the city of Jerusalem. I had seen the city last when it was still whole and active under British administration at the end of World War II. It was hard to believe what I beheld now—a city divided by a military frontier, with scars still unhealed.

The change in its aspect showed from the roof of the French School, beneath which the line with its waste of no man's land closes the great Suleiman Road. Across that street rise the shattered walls of the Hospice of Notre Dame de France. The abandoned street forms a frontier between two nations.

The gray stone wall built by the enlightened Sultan Suleiman still stands intact around the Old City. After building it, the Turkish ruler ordered: "The Christians shall live peaceably under our protection; they shall be allowed to repair their doors and windows, and to preserve in all safety their places of prayer and living. No one shall prevent or terrorize them in so doing."

Just then, as if in echo to the words, bells tolled softly from a tower near me. My watch showed twelve o'clock. When I descended the stairs people were kneeling in prayer in the small chapel below. A French priest rose to escort me to the entrance. "You see," he said with a pleased smile, "how we have repaired the building. We hope now there will be no more damage."

As the hours passed this sensation of change grew stronger. I met no groups of tourists or soldiers on leave, as before. The soldiers lingering around the gray Tower of David were Arabs in the colorful brown-and-red uniform of the Arab Legion (page 841).

Lutherans and Quakers Clothe Refugees

Near the Hospice of the Knights of St. John I came upon a group of children, Arab and Greek, waiting patiently at a door.

The young Anglican vicar from St. George's Church explained that the youngsters were waiting for food in the soup kitchen of the Greek Orthodox hall. As of old, the churches have their doors open to the poor. And I heard that Lutherans and Quakers send tons of old clothes from beyond the sea as gifts to Arab refugees from Israel.

In its new isolation Arab Jerusalem, the Holy City of the knights, is building its way slowly to the semblance of a modern city. Figures of the Old Testament in woolen cloaks

* See "Hashemite Jordan, Arab Heartland," by John Scofield, NATIONAL GEOGRAPHIC MAGAZINE, December, 1952.

↑ "He Is Risen from the Dead"

On Easter Saturday Orthodox Christians gather in Arab Jerusalem at the Tomb of Christ for their ritual of the Holy Fire, symbolizing the Resurrection.

Here the Greek Patriarch emerges from the marble-encased Sepulcher. Pilgrims struggle to light their candles from the two he carries. In a moment the dim old church will glow with flickering pin-points of light as the sacred flames are passed through the crowd.

Arab lieutenants in scarlet caps assist the Patriarch; spiked helmets identify Jordan policemen.

← "Hosanna; Blessed Is He That Cometh"

On Palm Sunday hundreds of Christian Arab school children enact Christ's triumphal entry into Jerusalem. Here they carry palm branches as they move down the Mount of Olives toward the Holy City. Crusader knights, taking Christianity back to its homeland 800 years ago, wore similar tunics marked with a cross.

© Kodachromes by National Geographic Photographer David S. Boyer

and sandals still thronged the *Via Dolorosa*, the traditional path of Christ on His way to the Cross. Laden donkeys pushed past me in the covered streets. Candles lighted the dark warren of the markets.

The same darkness filled the depths of the Church of the Holy Sepulcher within its framework of old scaffolding erected to hold the shrine intact until repairs can be made (pages 846 and 847).

War Leaves Scars on an Ancient Shrine

Feeling that I was in a Jerusalem I had never known, I went at sunset through the Gate of the Chain to the paved enclosure of the Haram esh Sharif. This, the Noble Sanctuary of the Moslems, had been known to the knights as the Square of the Temple. It had given its name to the military Order of the Templars.

The shrine itself rests upon the site of Solomon's ancient temple. Its dome covers the mighty rock that was the "high place" of Jerusalem long before Solomon. Upon it the Crusaders raised an altar.

Weathered marble and ancient olive trees of the temple enclosure seemed to be unchanged. But in the dome, over the great rock of Judea, there was the scar of a shell, and many of the stained-glass windows had been shattered (page 844).

As I walked over ancient flagging to the eastern parapet, two men in dark robes passed silently, an Armenian and an Ethiopian. These groups also have shrines in Jerusalem.

I was on my way to keep a personal rendezvous with the past. Many years ago, during the writing of *The Crusades*, I had made a habit of going at sunset to this parapet above the quiet valley of the Kidron. The vista of that ravine and the Mount of Olives beyond brought back the past in sharp reality. Then during the war years I had taken the same twilight walk because no one else seemed to do so, and it was restful.

Christians Pray in the Aksa Mosque

Now, however, a stranger joined me, an Arab professor of history in European clothes. He had heard that I was a writer of history, and he accompanied me courteously, respecting my mood of silence.

We passed the white loom of the Aksa, where an assassin's bullets on July 20, 1951, had ended the career of Abdullah, Jordan's first king.* The mosque was built on the framework of a Crusader cathedral; beneath it are vast underground rooms where Christian knights are believed to have kept their mounts.

"And in the Christians' time of rule a mosque was preserved near it for the Moslems," I added.

Then I remembered a legend of Islam: When the day of the Last Judgment comes, the souls of human beings will throng to this height, into the presence of the Prophet Mohammed. And with him will stand David, King of Israel, and the Messiah Jesus.

"It is an old tradition," said the modern-minded scholar at my side. Then he added with a smile, "Does any other place on earth have such a tradition?"

As the sun sank behind us we climbed to the far parapet, watching the light fade upward from the depths of the Kidron. It passed from the olive trees of the garden called Gethsemane (page 848); it touched the Carmelite monastery and the towered Russian church. Then it left the Mount of Olives, and the earth lay under the glow of the sky.

Perhaps after watching such a sunset the wise Saladin had opened the postern gate to the Christian poor.

Holy City a Symbol of Hope

The Crusaders lost their kingdom. Politics divided them; it might be that pride, as the inscription within the Krak warned, made their wealth and knowledge worthless.

I thought of the Americans now entering these lands from Turkey to the border of Jerusalem. They have no kingdom to found, no land to fortify with castles as the Crusaders did. Too often, like their ancestors, they have a certain pride of superiority that ill befits their inexperience. But they also have a task to carry out. Will they succeed, or will they, like the Crusaders, fail?

They will not fail, I thought, if they devote themselves, like so many of the crusading folk of Outremer, to the needs of these eastern peoples; if they learn to work here patiently in carrying out the new work of America.

"It is almost dark," said my companion, "and it is time for us to leave."

So we walked back over the weathered stones. "No," I answered him, "I do not think any other place on earth has held so much of simple human hope as Jerusalem."

* See "Home to the Holy Land," by Maynard Owen Williams, NATIONAL GEOGRAPHIC MAGAZINE, December, 1950.

Viking Festival in the Shetlands

Photographs by Karl W. Gullers

All photographs © Karl W. Gullers, Magnum

A Viking Lord in Winged Helmet Catches Up with the News on His Day of Festival Rule

More than a thousand years ago Norsemen pillaged and colonized the Shetland Islands, Scotland's most northern domain. The spirit of those adventurers lives today in the festival of Up Helly Aa, held each year at Lerwick, the islands' capital. On the last Tuesday of January bands of costumed guizers, or mummers, celebrating the approaching end of winter, march in a torchlight parade, fire a Viking ship, and revel in the manner of their Nordic forebears.

Arthur Williamson here takes time out for a glance at a Shetland paper before stepping back into history to play the 1953 festival's most important character, the Guizer Jarl, earl of the steering oar and chief of the warriors.

↑ Wife Helps the Jarl into His Regalia

The Guizer Jarl grew whiskers for the occasion. He neglected to bleach beard and hair saffron yellow, a custom among many old-time Norsemen.

Mrs. Williamson adjusts cross-garters on her husband's *leistabraekr*, a combination of pants and stockings.

Upper right: The Jarl's traditional costume appears to have borrowed the helmet shape from Viking armament, raven-wing decoration from Anglo-Saxon chiefs who invaded Britain in the fifth century, and tunic of gilded scales from a dress popular at King Arthur's court. Vikings preferred chain mail.

→ On Up Helly Aa day the Norse chief visits Lerwick's hospitals to give shut-ins a glimpse of festival fun.

Battle-ax in Hand, the Jarl Leads His Men on a Peaceful Invasion of Lerwick

In medieval times the Vikings repeatedly swooped down from the north to raid, conquer, and colonize. They occupied much of Scotland, Ireland, and England. Their keels grated on Black Sea sands and probably on New World shores. War to these sailor-soldiers was an honorable way of life and the means of attaining Valhalla, the warrior's paradise. To their victims, however, the Vikings were crews of pirates. Christians in coastal and river districts prayed as part of their litany, "From the fury of the Northmen, good Lord deliver us."

Time has given a romantic tinge to the Vikings. Just as Americans fondly recall the deeds of Western bad men, Shetland Islanders honor their Norse ancestors for unquestioned valor. The raiders' mighty deeds are commemorated by three songs sung during the parading and burning of a Viking ship (pages 856 to 859).

Here the Jarl and his bodyguard march to the docks for a ceremony aboard their long ship.

The Jarl Sails His Dragon Ship on Its Last Voyage Through Lerwick's Torchlit Streets

Schoolboys Strain to Tow the Galley to Its Fiery End; Warriors March Beside the Ship

Torches Flare; the Dragon Ship Is About to Burn

When the galley reaches its anchorage on Clickimin Loch, hundreds of torches trace paths across the night to the ship's side. Soon the flaming galley silhouettes the figures of guizers moving townward for a night of merrymaking.

The Up Helly Aa festival and its ceremonial use of fire evolved from the old Norse midwinter feast. The tradition of burning a ship echoes a Viking funeral rite of consigning to flames a long ship, together with its master and many of his possessions.

Originally the Shetlanders confined themselves to dragging burning tar barrels through Lerwick's streets. By 1874 public opinion and the courts had forbidden this practice, and the festival gradually achieved its present form.

Old rowboats once served as galleys. Now master carpenters build the 28-foot dragon ship and launch her on a billowy sea of canvas waves supported by a wheeled chassis.

The timbered vessel is often painted red, black, and gold. Shields of the galley's warrior-rowers add touches of heraldic splendor. The ram used to shatter enemy hulls projects from the bow. Mast, crow's-nest, and raven banner complete the picture.

A crimson hand mounted on a pole forward of the mast memorializes a fearless Viking leader.

Norse tradition gave to the jarl who first touched a new land all rights of loot, conquest, and colonization. Legend tells of two Viking ships that made landfall simultaneously. Rowing furiously, the crews neared shore in a dead heat.

Finally, with land only a few feet away and the galleys matching each other stroke for stroke, one jarl laid his left arm on the deck and cut off his hand with his sword. Seizing the severed hand, he hurled it ashore and claimed the land as his right. Thus the blood-red hand became a symbol of reckless valor.

Uplifted Broadswords and Raven Standard Announce the Arrival of the Jarl (Center) and His Squad for an Hour's Revel at a Dance Hall

Ravens acted as messengers for Odin, Norse god of war. Up Helly Aa, once held in disrepute because of disorders, ranks now as an honored spectacle.

Ogres Perform a Skit, and Death Dances a Reel

Tradition requires that guizers attending parties remain masked until their identity is disclosed. While still unknown they indulge in the "aff-lay," a humorous commentary on public events and Lerwick people, not sparing themselves. Costumes may be fashioned to suggest any event in history or even an item in Shetland gossip. Once used, they may never be worn again for Up Helly Aa.

These masks create intake problems for hungry, thirsty mummers.

Weary Warriors Pause for Tea and Cakes as Festival Night Draws to a Close

Although Scotland acquired the Shetlands in 1469, Norse language, laws, and customs continued in use until the 17th century. Even today Shetlanders retain links with their Viking past.

"Scoff not at the guest, nor drive him to the door," counseled the *Havamal*, the Viking code of morality. At festival time Lerwick hosts and hostesses live up to the code with all-night parties, demonstrating at the same time another tenet of Norse belief, "Man is the delight of man."

Guizer squads are honor bound to visit all open halls and restaurants hired for the occasion. Each group presents a skit, indulges in the aff-lay, dances Highland reels, schottisches, and waltzes, and partakes of the feast.

With many a laugh the revelers recall the jokes in the Bill, a posted proclamation that pries good-humoredly into Lerwick's private lives. Having eaten and danced its fill, each squad cheers its hosts and passes on to another establishment. In 1953, fifty squads made the rounds.

By 5 or 6 in the morning even the sturdiest feet are weary and the brightest eyes are bleary. As the final squad concludes its show, everyone sings "Auld Lang Syne."

Then the old folks climb into bed while the young troop out to watch the sun come up over the sea. Soon they, too, will be asleep, and Up Helly Aa, the strange festival recalling the lusty days of the Norsemen, will be gone for another year. Happily, the day following Up Helly Aa is always a holiday in Lerwick.

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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.

The Society's notable expeditions have pushed back the historic horizons of the southwestern United States to a period nearly eight centuries before Columbus. By dating the ruins of vast communal dwellings in that region, The Society's researches solved secrets that had puzzled historians for 300 years.

In Mexico, The Society and the Smithsonian Institution, January 16, 1939, discovered the oldest dated work of man in the Americas. This stone is engraved, in Mayan characters, November 4, 291 B. C. (Spinden Correlation). It antedates by 200 years anything else dated in America, 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 took aloft a ton of scientific instruments and obtained results of extraordinary value.

A notable undertaking in the history of astronomy was launched in 1949 by The Society and Palomar Observatory of the California Institute of Technology. This project will photomap the vast reaches of space and provide for observatories all over the world the most extensive sky atlas yet made.

In 1948 The Society sent seven expeditions to study the sun's eclipse on a 5,320-mile arc from Burma to the Aleutians.

A Greek cargo ship sunk in the Mediterranean 2,200 years ago was found and investigated in 1952-54 by the National Geographic Society–*Calypso* Marine Archeological Expedition led by Capt. J.-Y. Cousteau of the French Navy.

The National Geographic Society and the Royal Ontario Museum in 1951 explored and measured newly found Chubb meteor crater, 11,500 feet in diameter, in northern Quebec.

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.

One of the world's largest icefields and glacial systems outside the polar regions was discovered in Alaska and Yukon by Bradford Washburn while exploring for The Society and the Harvard Institute of Exploration in 1938.

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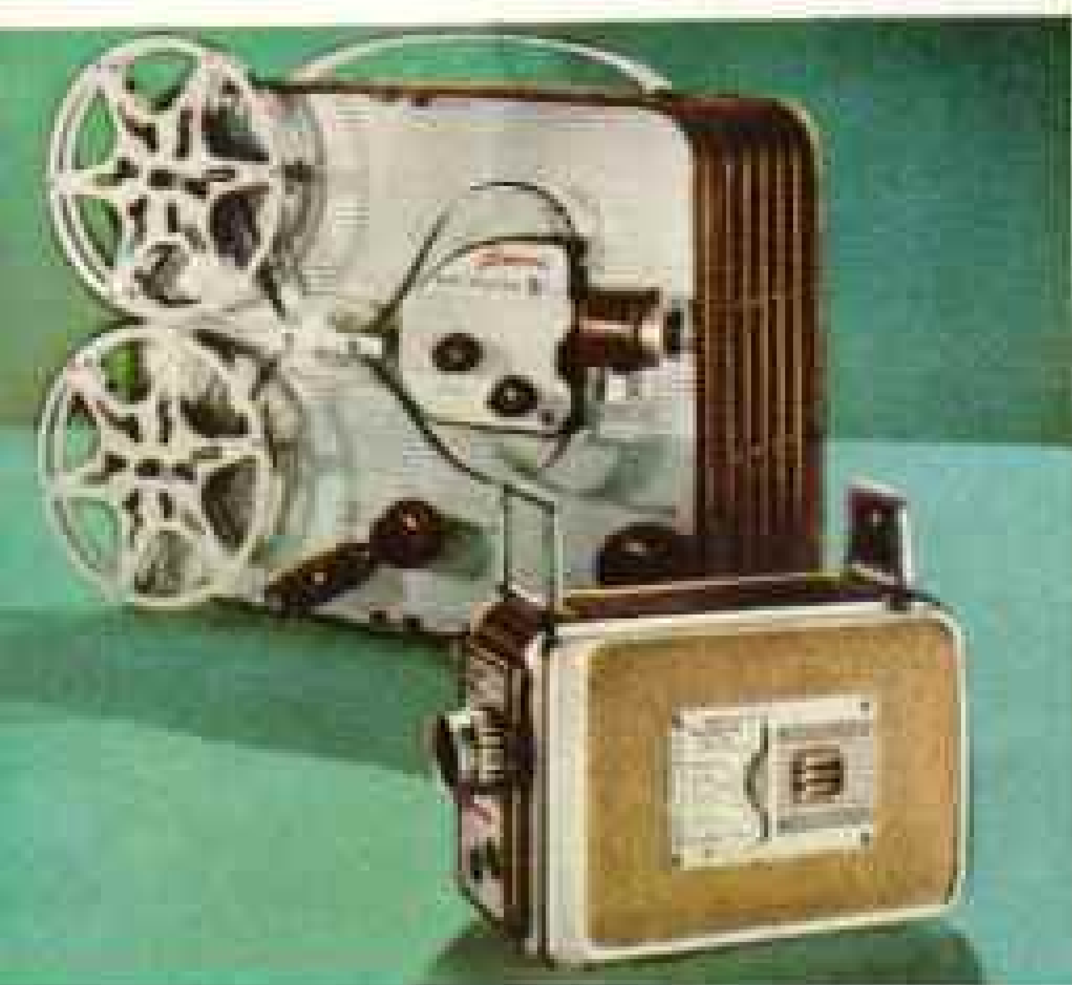

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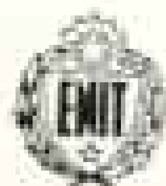

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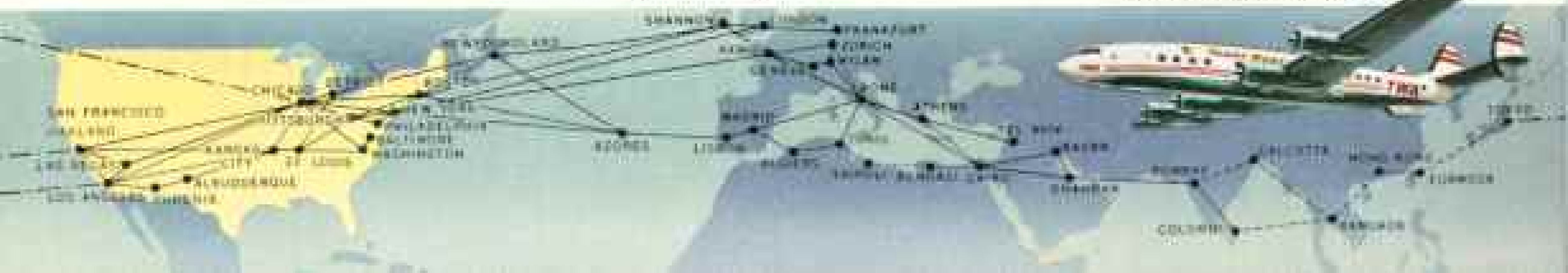

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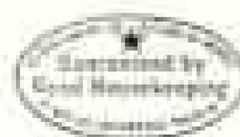

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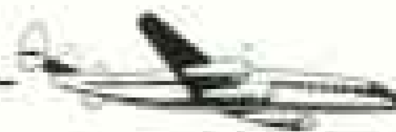

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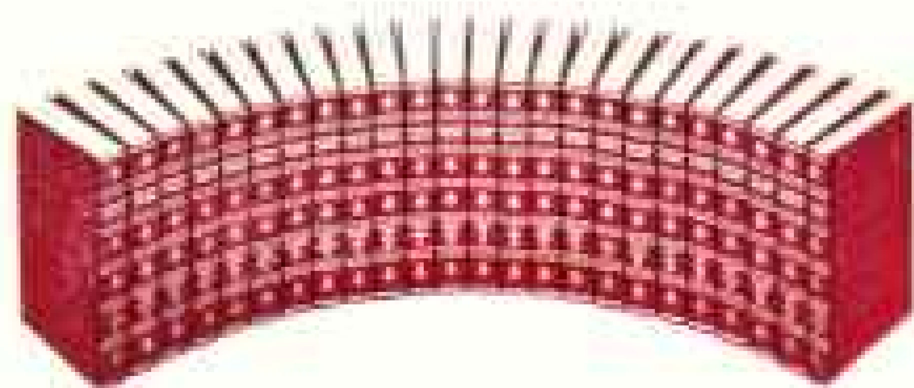

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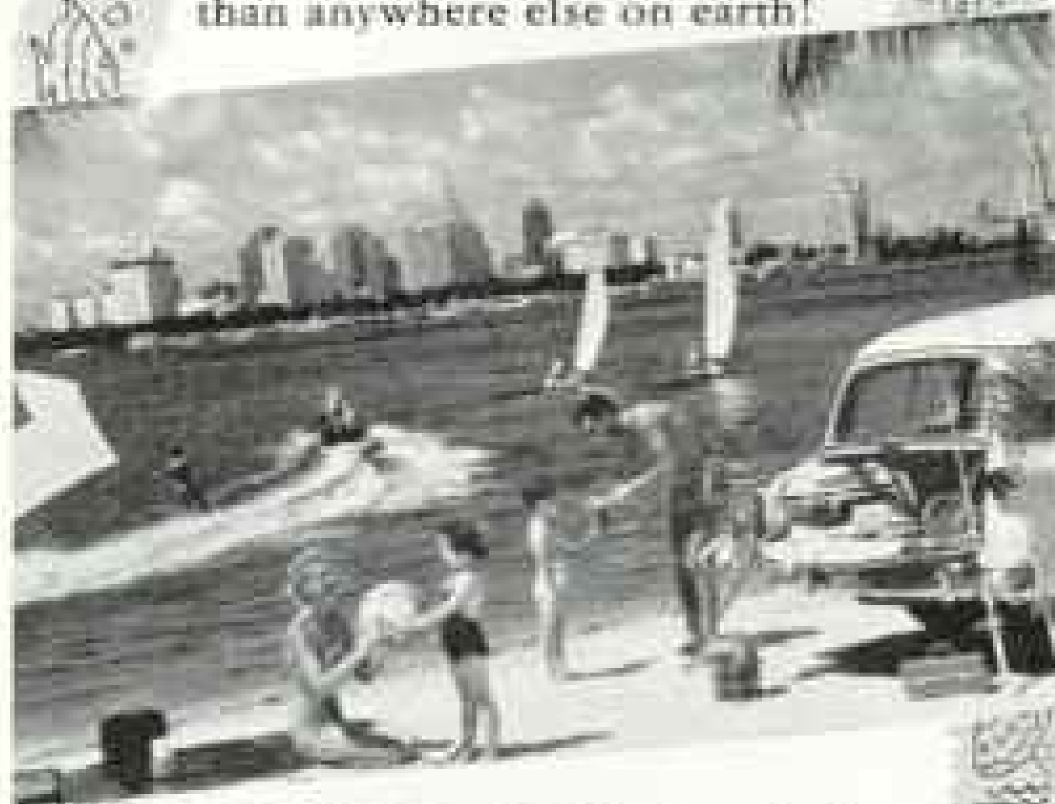

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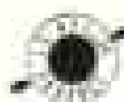

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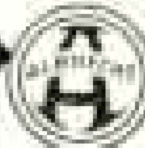

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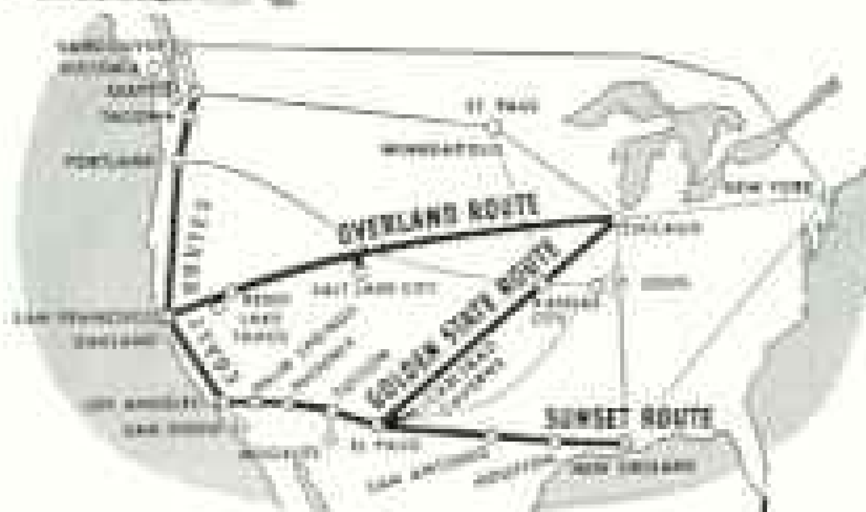

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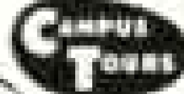

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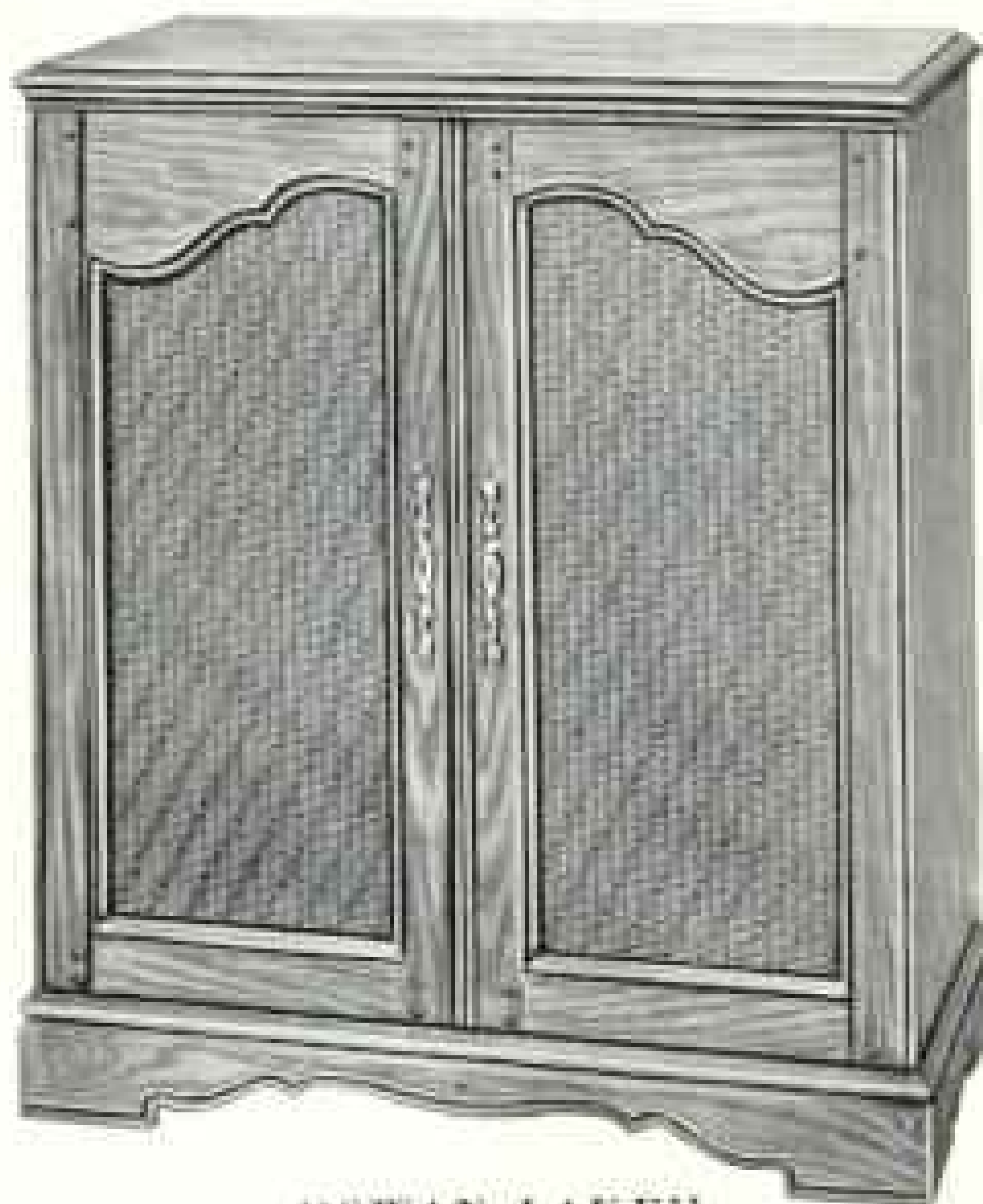

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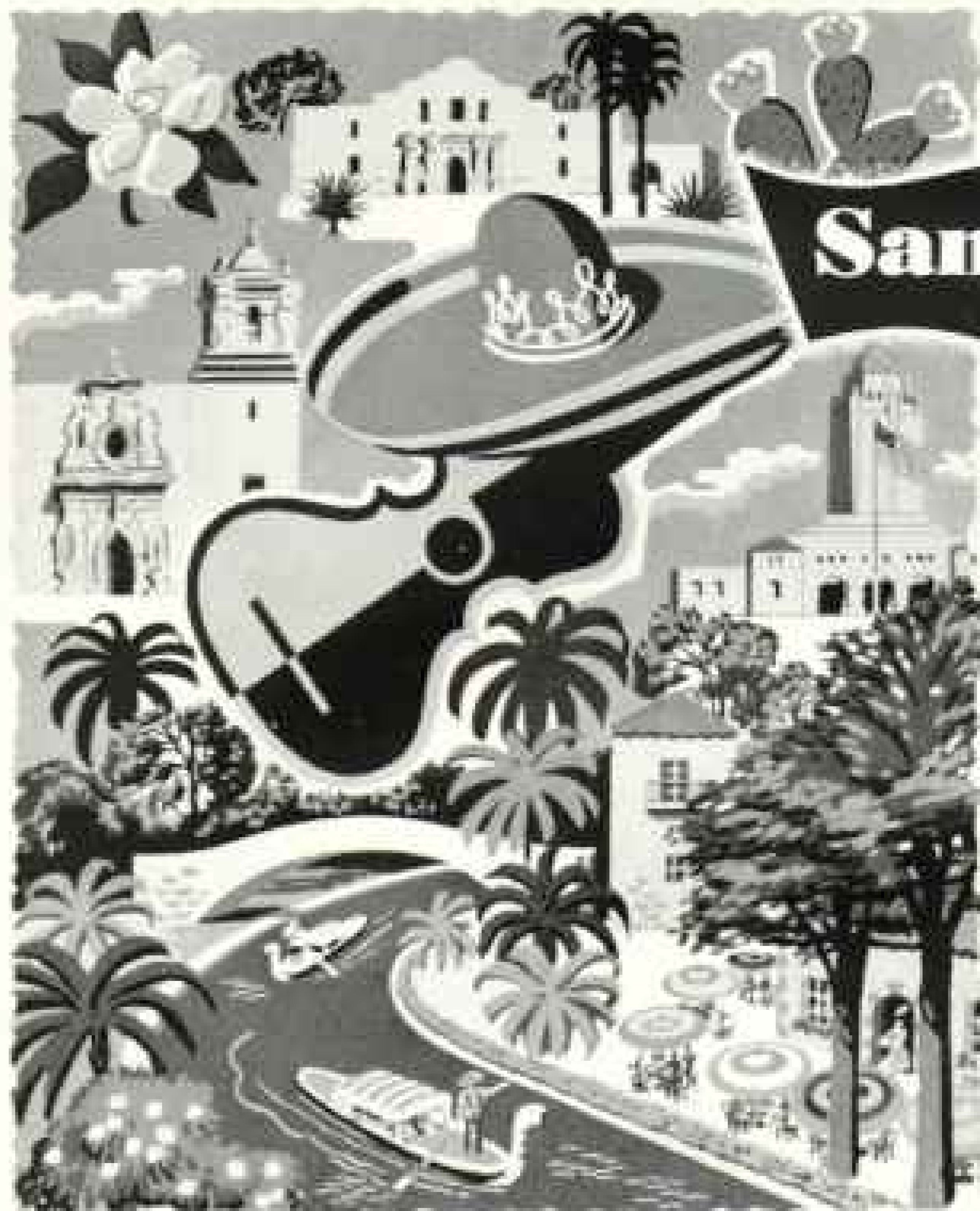

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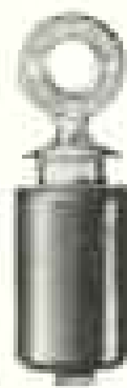

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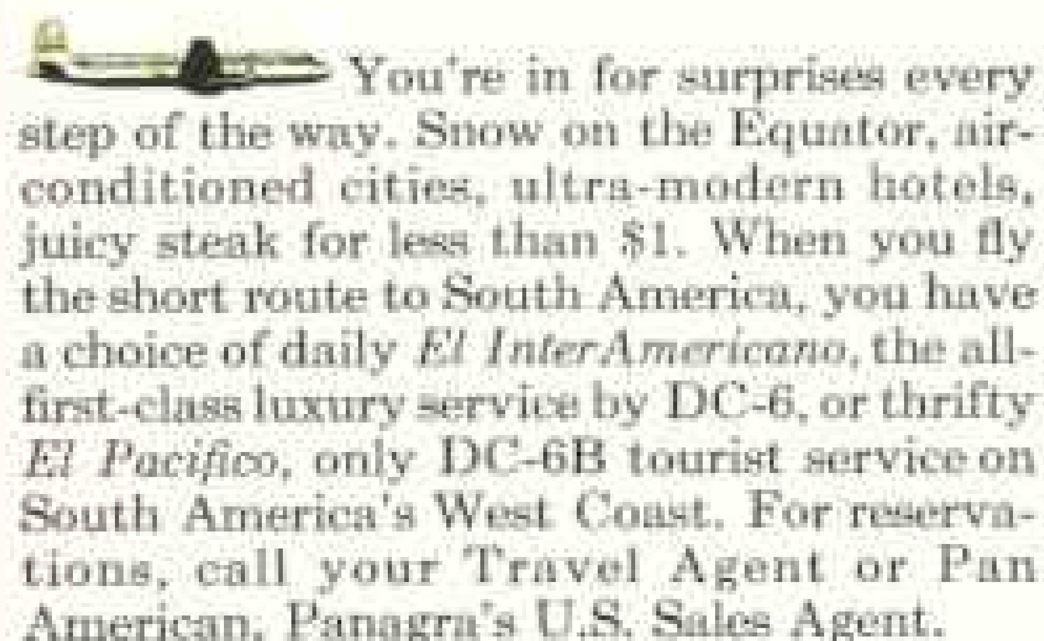

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