VOLUME CIV
NUMBER ONE

THE NATIONAL GEOGRAPHIC MAGAZINE

JULY, 1953

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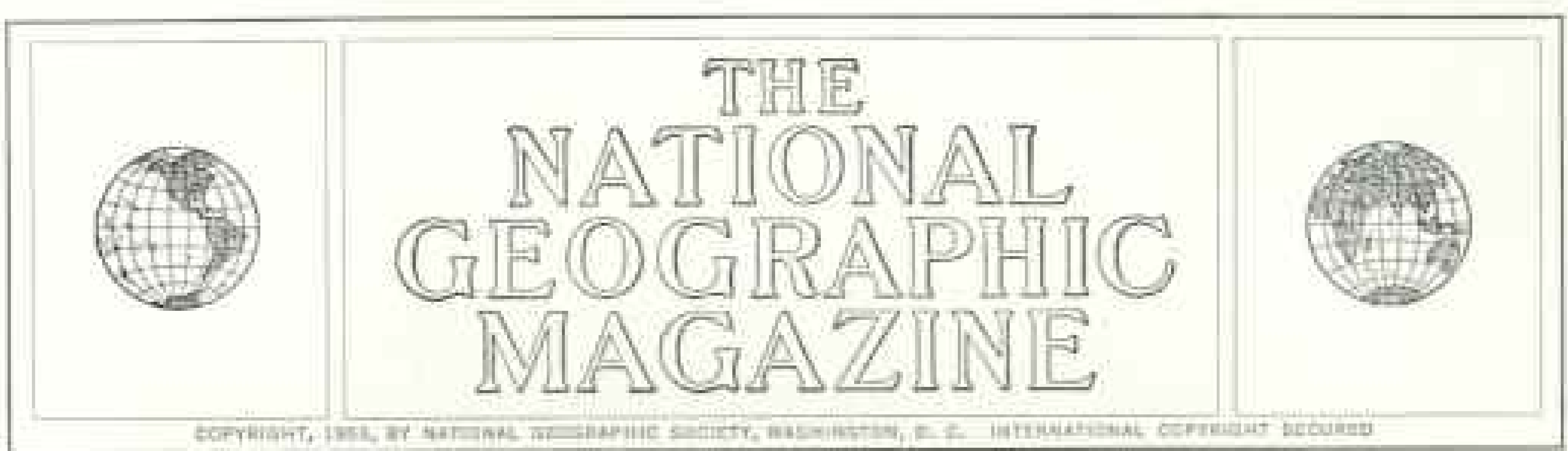
Sixty-four Pages of Illustrations in Color

PUBLISHED BY THE
NATIONAL GEOGRAPHIC SOCIETY
WASHINGTON, D. C.

$6.00 A YEAR 60¢ THE COPY

VOL. CIV, No. 1 WASHINGTON JULY, 1953



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From America to Mecca on Airborne Pilgrimage

A Moslem Student at Harvard Business School Records Islam's Sacred Rites in Color in the Interest of World Understanding

BY ABDUL GHAFUR SHEIKH

With Illustrations from Photographs by the Author

FROM every land, by every route, we came, driblets and droplets of humanity trickling down from distant mountains and from far-off ancient cities until over the whole scope of Islam our stream became in time a river, and our river a tide.

We flowed, at the command of the Prophet, toward Mecca. "Verily," the Koran says to us, "the first house founded for mankind to worship in is surely at Mecca, a blessing and a guidance to the worlds." To visit it at least once before we died, if at all possible, was our duty and our privilege.

We pilgrims numbered nearly 500,000; about a third were women. Some, trudging down dusty roads from Central Asia toward India, had already been a year or more upon the way. Others, journeying in the stifling holds of freighters and tramp steamers, made their slow passage from South America or the green islands of Indonesia (map, page 9).

Magic Carpet from New York

Still others, traveling by night under the desert stars, plodded eastward by camel from Meknès and Fès and the sandy wastes of Libya. Not a few still squatted on the wharves of Istanbul, Dubrovnik, Algiers, Gaza, Bizerte, Piraeus, waiting with haggard patience for a place on some crowded open deck.

But I, I came from America by magic carpet. Standing at the New York International Airport, I had uttered the pilgrim's traditional prayer: "Lord, roll up the earth for me!"

And it had been done. Oceans, countries, continents had fallen away beneath the wings of my Pan American Clipper until, on August 26, the sixth day of the Moslem month of Dhu 'l-Hijja, I stood at last before the Great Mosque of Mecca. I entered it by the Gate of Salvation and passed thence through the inner Gate of the Sons of the Old Woman.

Before the Black-draped Kaaba

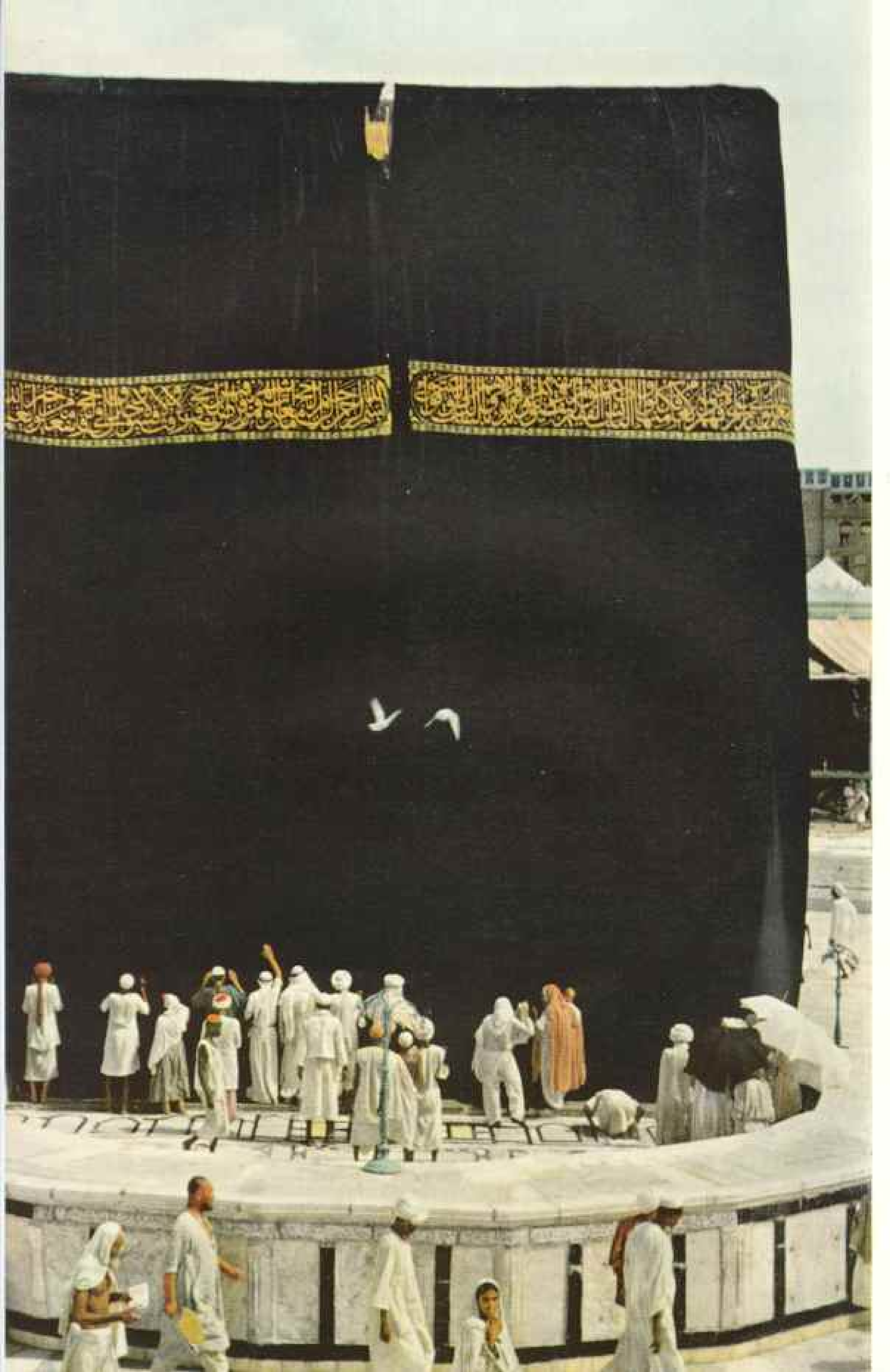
The dawn sky above Mecca was pale, and the air under the archway dank and cold. Two pilgrims hastening to prayers brushed by me, padding on brown bare feet. I gave them greeting, pressed forward, and emerged suddenly within the courtyard.

There, beyond the wide, stone-set pavement, stood the House toward which all Mos-

The Author

Abdul Ghafur Sheikh is the third son of a prominent East African businessman and philanthropist, Sheikh Fazal Ilahi, who came to Kenya in 1898 from what is now Pakistan. Prospering mightily, Sheikh Fazal Ilahi has set up the Sheikh Charitable Trust for welfare work in the Near and Middle East. To manage it he chose Abdul Ghafur and sent him to Dartmouth College and Harvard Graduate School of Business Administration.

Last year 21-year-old Abdul Ghafur came to the National Geographic Society's headquarters in Washington and announced his intention to go on *hadj* to Mecca during his vacation. He wished to make a photographic record of the pilgrimage as a means of interpreting Islam's sacred rituals to the West. Though he had had little experience in color photography, he sallied forth with two small cameras lent by The Society and returned with the extraordinary photographs which illustrate this article.—Editor.



lems, the world over, turn their hearts: the Kaaba—black-draped, severely square, immense. Unforced, the words of the *Talbiya* came to my lips:

"Here am I, O God, at Thy command! No equal hast Thou; here am I."

A breeze filtering down from the barren hills moved the skirt of the Kaaba's covering and let it billow and ripple in gentle folds. I felt a deep sense of humility. Part was that humility natural to any Moslem standing before the Presence: in the belief of Islam, Abraham built the Kaaba at the command of God. But part sprang from another source—the knowledge of my mission in this place.

For I had set myself a task with few precedents in the long history of Islam: to take in color, if I could, a full pictorial record of my religion's sacred rites.

Permission from a High Official

My purpose was simple and clear—to bring the West a richer knowledge of Islam, its high festivals and their meaning. To more than 370 million Moslems, the *hadj*, or pilgrimage, has a central, living significance. Surely, I thought, if I can convey to the outer world in words and photographs some measure of that great pageant's importance to men of my faith, I shall have advanced, by at least a little, man's understanding of man.

I had been careful, of course, to obtain the permission of a high Meccan official. Until fairly recent times such permission would have been almost impossible to obtain, and zealots among the faithful who flock to the sanctuary might have attacked me.

Why would zealots have considered my photography impious? First, because Mohammed banned all representation of the human form—sculpture, painting, murals—so the Arab would not return to the worship of images as idols. Second, because to bring a camera into a shrine of Islam would, in their eyes, defile the holy place.*

From beneath my *ihram*—the two seamless sheets which make up the pilgrim's garb—I drew my light meter. As I had surmised, the day was yet too young, contrast in color still too faint. Later in the day, when the sun was higher, I could return and commence the thorough photographic coverage of the mosque which I desired.

Now, however, I must resume my role of pilgrim. I stepped out into the courtyard to begin my own *tawaf*—the sevenfold circuit of the Kaaba which each *hadji* must perform on at least three occasions: when he first reaches Mecca, when he returns from the Stoning at Mina, and when he says farewell to the city on his last day (page 28).

Three laps of the tawaf must be accomplished at a trot, the other four walking. I knew not the special prayers which the guides recite for their followers, but I offered those phrases which welled most naturally to my tongue. The circumambulation, an old custom, is a means of turning the thoughts of pilgrims upon the soul's own seeking after the Lord. For such a journey, I thought, no paid guide was truly necessary.†

By this time, however, many thousands of eager, early-rising pilgrims had entered the square and with ecstatic indifference to those around them were jogging past the shrine, some chanting, some weeping, some struck dumb in contemplation of this, the "navel of the world." Caught up in this throng, crushed shoulder to shoulder, cheek to jowl, I was soon no longer capable of independent motion but surged forward like a chip on a racing tide.

← The Kaaba: "Navel of the World" Photographed in Full Color by a Devout Moslem

Moslems believe that Abraham built this cube of basalt blocks at the command of God. The curtain's gold embroidery cites verses from the Koran in Arabic.

To pay homage at this holy of holies forms one of the five basic obligations of Islam. The other four: to observe the fast of Ramadan; to recite the belief that "There is no god but God, and Mohammed is His Prophet"; to pray five times a day; to give to the poor one-fortieth of one's wealth.

Moslems confronting the Kaaba weep, wail, and prostrate themselves; they kiss its mantle and drench it in costly perfumes; or merely stand in awestruck contemplation. On rare occasions, when rain pours from the Kaaba's gilt Waterspout of Mercy, pilgrims vie for each drop of the heaven-charged moisture.

No planes are permitted to pass over the Kaaba. Even the doves (so the devout report) fly around but never above it. (See also pages 26-33.)

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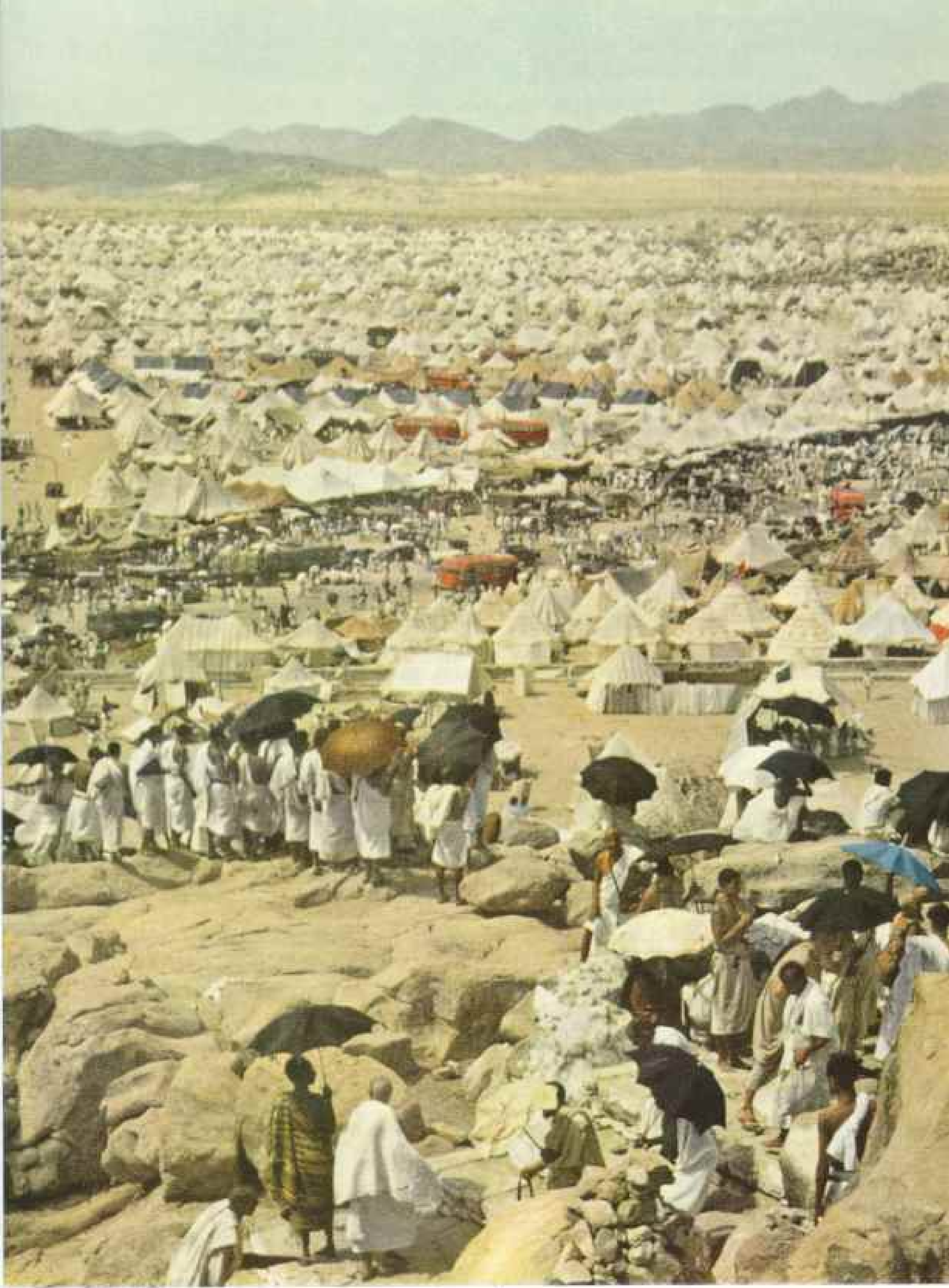
*** Editor's Note**

Some years ago pilgrims would have thought it sacrilegious to photograph the Kaaba and other sacred shrines. Indeed, zealots might have attacked anyone displaying a camera. But today comparatively few Moslems believe a photograph breaks Mohammed's ban; even to go abroad on a hadj they must have a passport photograph.

With increasing frequency, approved Moslems are permitted to record the hadj on film. In fact, the great pilgrimage is lavishly illustrated in Arabic language newspapers, and souvenir photographs are available in shops near the gates of Mecca's Great Mosque.

Nevertheless, scenes such as the ones which accompany this article are still rare in Western publications. This reverent and fully illustrated record of the great pilgrimage to Mecca was made possible when one of the progressive officials of the Saudi Arabian Government granted Abdul Ghafur Sheikh permission to make the photographs.

† See "Pilgrim's Progress to Mecca," 22 illustrations in duotone, NATIONAL GEOGRAPHIC MAGAZINE, November, 1937.



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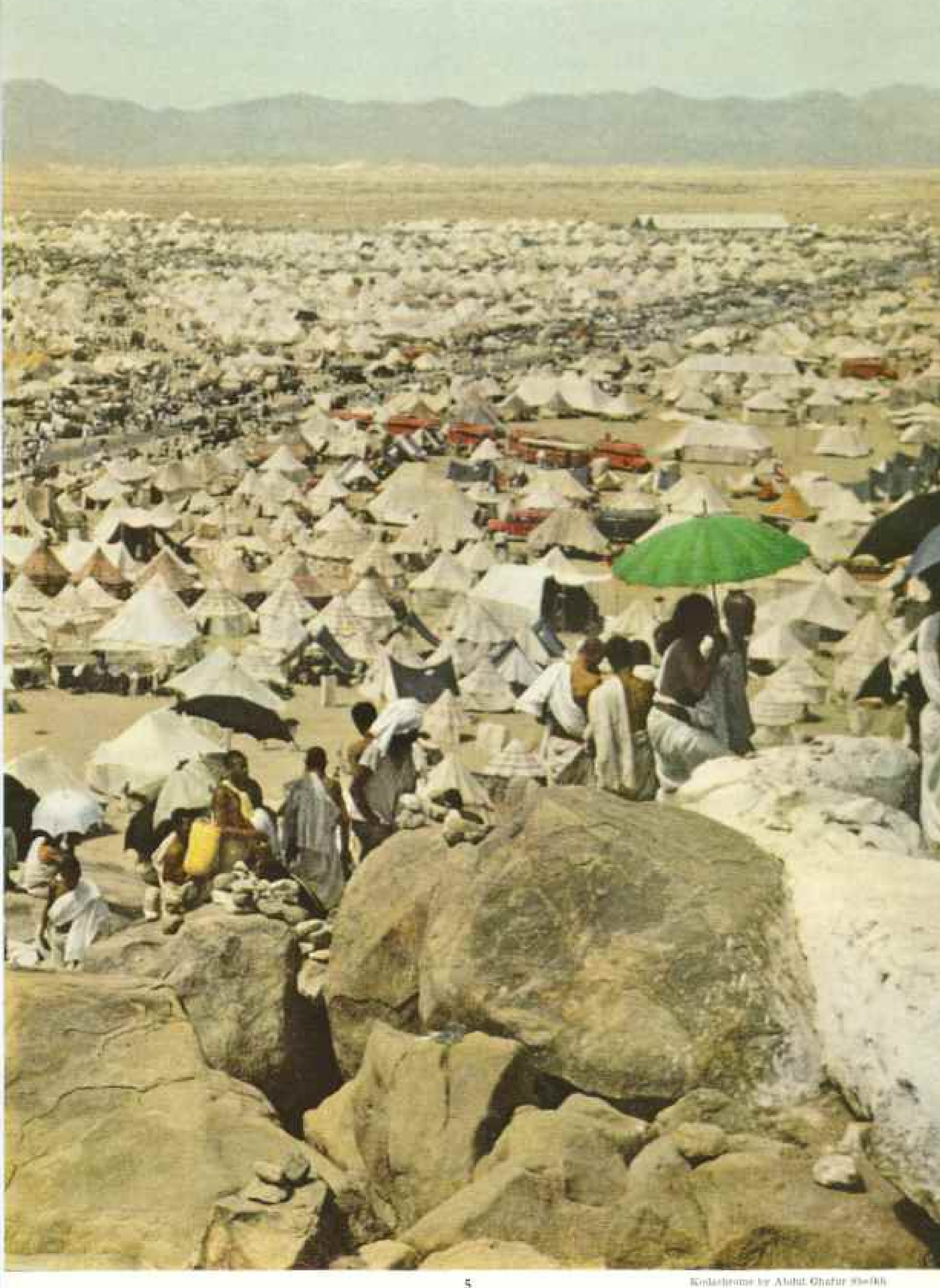
On the Tented Plain of 'Arafa, 14 Miles from Mecca, 500,000 of the Faithful Convene

No Moslem can truly say he has made the *hadj*, or sacred pilgrimage, unless he has stood at 'Arafa before sunset on the appointed day. At twilight the throng breaks camp and rushes pell-mell for the road to Murdalifa.



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Kodachrome by Abdul Ghafur Sheikh

Here Mohammed Prayed on His Last Pilgrimage. The Devout Repeat His Steps and Prayers

Moslem legend holds that Adam and Eve met on this spot after expulsion from Eden. Goal of a Standing, or gathering, is an attendance of 600,000. If fewer appear, angels are supposed to descend and make up the difference.

I was fortunate in one thing: before me ran a gaunt Moroccan reciting verses from the Koran in a voice at once majestic and exquisitely tuned. Arabic, and most particularly the Arabic of the Koran, carries the pitch of poetry with ease and emphasis, and on the lips of a gifted declaimer it can weave a rare enchantment. So, as the great crowd bore me onward in our counterclockwise rotation, I drank in my companion's words as one athirst.

Such pleasure served to offset in part the pain given me in another quarter. Being in a mosque, of course we wore no shoes. I was glad that all pilgrims must pare their nails before beginning the hadj, for with each stride the Bedouins behind me trod on my bare heels with their calloused feet. Before I had finished my sixth lap and kissed the Black Stone embedded in the Kaaba's eastern corner (page 27), my feet were painfully bruised.

Eventually I limped from the mosque by the Safa Gate and began the ritual of running between the hills of Safa and Marwa. Here, in Moslem legend, Abraham left Hagar in the desert with her son Ishmael. Rushing frantically from one spot to another, she searched for water, until the angel Gabriel led her back at last to a spring which bubbled up miraculously near the child's feet.

That same spring, Moslems believe, now feeds the well of Zemzem within the Great Mosque. By their "running," pilgrims commemorate each year the mother's anguish and her amazed discovery.

Dhahran to Jidda—by Air

The route of Safa-Marwa flanks one side of the mosque and intersects the city's most turbulent bazaars (page 56). It was still early when I commenced my seven courses to and fro, but already men thronged the coffeehouses and merchants hawked their wares. With burning lungs and aching feet I flung myself into the crowd and was buffeted at every step.

I made my devotions as best I could, though compelled to concentrate as much upon keeping my balance as upon maintaining a humble and attentive heart. When I had sidestepped the last gesticulating merchant and had uttered my culminating prayer, I withdrew, panting, to the waiting chair of a barber for the ceremonial trimming of hair which follows the Safa-Marwa.

Much I had to ponder, and not least the question of where I was to lay my head that night and for the nights to come. My father was to have joined me in the city this day, flying from Damascus to Jidda, Mecca's Red Sea port, and driving inland by car. He kept a house in Mecca; but I had knocked upon its door and found it locked, unoccupied, and I feared he had been grounded and his application rejected by airlines swamped with insistent hadjis.

I myself had reached Jidda only through the timely help of Aramco, the Arabian American Oil Company, which had found me, its guest, stranded in its headquarters town of Dhahran. With kind efficiency the company's officials had hustled me aboard a plane carrying cargo and assorted pilgrims southwestward into the Hejaz, the coastal Arabian province along the Red Sea.

Airborne Passengers Jubilant

We were a jubilant lot. Gazing down upon the coppery rock and sand, the camel's-thorn and fields of outcropped lava, we blessed our prop-drawn steed for the discomfort it was sparing us, the hours of tedium and torment which had been the fate of earlier caravans.

Most of my fellow passengers had changed into the ihram, and they upbraided me for laxity. "For this," they decreed, "you must sacrifice an extra goat at Id al Adha"—the day of sacrifice which we should celebrate, later in the hadj, at Mina.

We found Jidda hot with the damp, vindictive heat of the Red Sea, stifling, devitalizing; and the hordes of pilgrims which each ship or plane loosed upon its dusty streets seemed to raise the city's fever another degree (pages 20, 21).

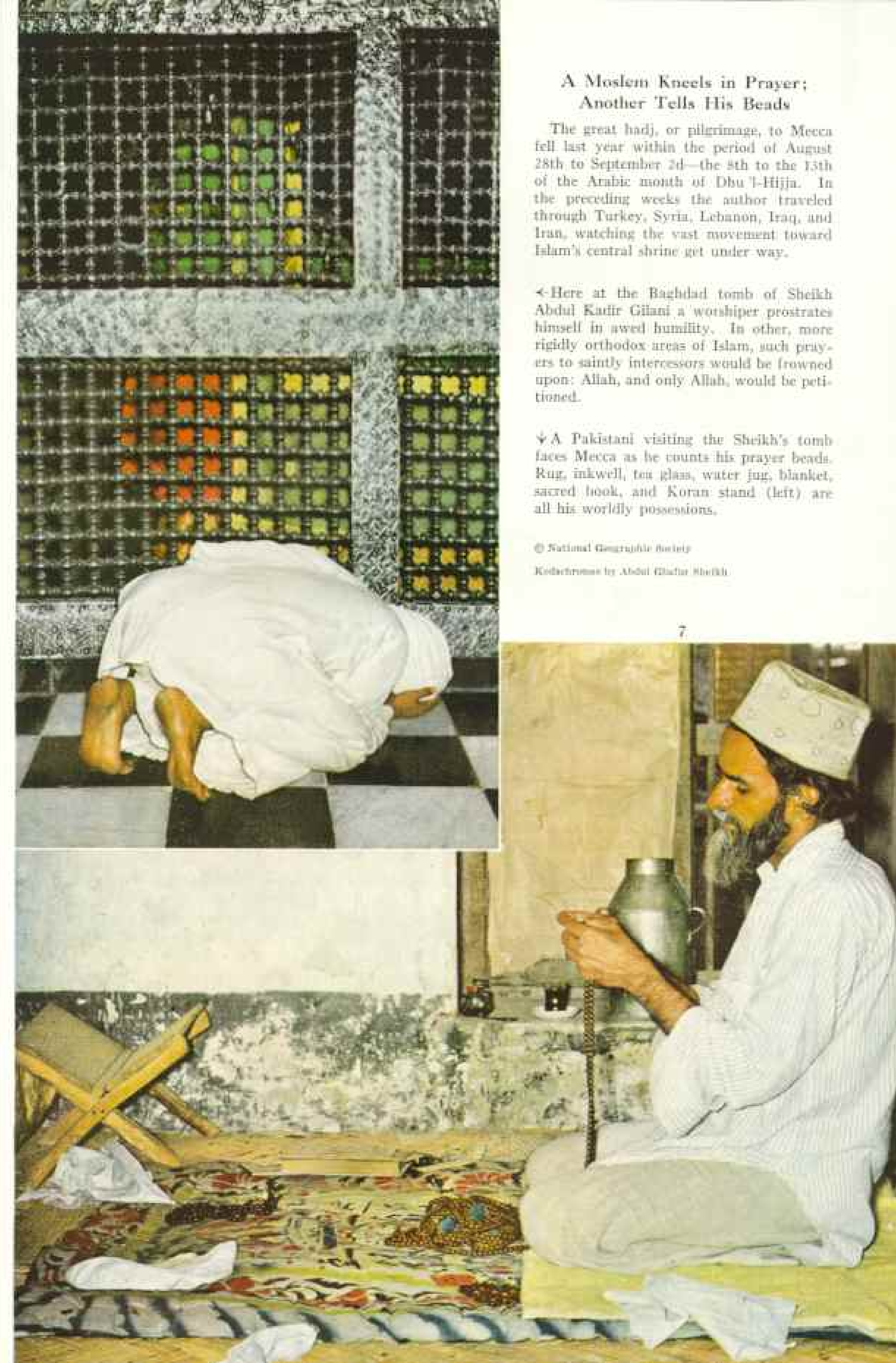
There was little to tempt one to prolong his stay in Jidda. Most pilgrims, and I among them, hastened to procure passage for Mecca, 45 miles away. In the courtyards of old hostelries I could hear the cameleers helping their passengers climb aboard the rickety bamboo-framed litters in which they would ride to the holy city, and then the sharp "Yahh! Yahh!" as the guides kicked and prodded their beasts upright.

Many such caravans filed out into the desert and were lost to our sight in the haze, and not a few pilgrims set out stubbornly on foot because they thought that they gained in favor by walking the entire distance. But for the most part the hadjis traveled by bus and by car.

No Non-Moslems Allowed

I was fortunate in this, that an official of Mecca sent down his own car for me and for my friend, Hadji Fateh Mohammed. Jidda we left in darkness, but the driver knew the route like the back of his brown hand, and he guided us unerringly to the several places of visitation along the way where the Prophet had rested during his travels. Here we washed and prayed and drank little cups of coffee and went on.

Again and again our car pulled to a halt



A Moslem Kneels in Prayer; Another Tells His Beads

The great hadj, or pilgrimage, to Mecca fell last year within the period of August 28th to September 2d—the 8th to the 13th of the Arabic month of Dhu 'l-Hijja. In the preceding weeks the author traveled through Turkey, Syria, Lebanon, Iraq, and Iran, watching the vast movement toward Islam's central shrine get under way.

← Here at the Baghdad tomb of Sheikh Abdul Kadir Gilani a worshiper prostrates himself in awed humility. In other, more rigidly orthodox areas of Islam, such prayers to saintly intercessors would be frowned upon: Allah, and only Allah, would be petitioned.

↓ A Pakistani visiting the Sheikh's tomb faces Mecca as he counts his prayer beads. Rug, inkwell, tea glass, water jug, blanket, sacred book, and Koran stand (left) are all his worldly possessions.

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Kodachromes by Abdul Ghafur Sheikh

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Looking More Like an Arab than a Harvard Student, the Author Nears Mecca

Few non-Moslem travelers are known to have penetrated Islam's holiest sectors. First European to enter in disguise was Ludovico di Varthema of Bologna in 1503. Best known was Sir Richard Burton, the English explorer. The present author, a Pakistani Moslem born in Nairobi, Kenya, here stands beside a sign midway between Jidda, port of entry for pilgrims, and Mecca, Islam's holy city.

at check points, and Saudi guards peered in the windows and examined our credentials. The guards' aim seemed largely to make certain no non-Moslem should penetrate the restricted sector.*

For three hours we traversed the straight and level way, and then, topping a ripple of low hills, we saw abruptly the lights of Mecca. Shadowy the city might be, but in my mind's eye bright with the luster of history. For, long even before the coming of the Prophet, Mecca was renowned as a key point upon the myrrh and frankincense route which caravans followed from Palmyra to Sheba. Here came spices and fruits from Yemen, ivory from Ethiopia, fair women from Damascus, slaves from Egypt. Here too stood the images of sundry gods worshiped by the tribes, and a strange cubical building, the Kaaba, around whose origins clung many a legend.

Now, in the wavering light of weak oil lamps stationed at the street corners, I could make out on either side of the car the ragged outlines of tin-roofed shacks, the hovels of the poor. A half mile beyond appeared an encampment of guns, tanks, trucks, jeeps—display window of the King's armed might in the Hejaz.

Into the Ancient Holy City

In another moment, clearing the last guard post, we plunged into the narrow, twisting, bazaar-flanked streets of the city proper and fought our way toward its heart (pages 24 and 25). Ancient houses, fretted with projecting wooden balconies, leaned over us at a tipsy angle. A policeman walked ahead, rapping on the hood of our car with his stick and crying "*Yallah, yallah!* Get out of the way!" to pilgrims slumbering on the cobbles, slack-jawed obstinate camels, men pushing carts.

* See, in the National Geographic Magazine: "An Unbeliever Joins the Hadj," by Owen Tweedy, June, 1934, and "Mecca the Mystic," by Dr. S. M. Zwemer, August, 1917.

The Moslem World

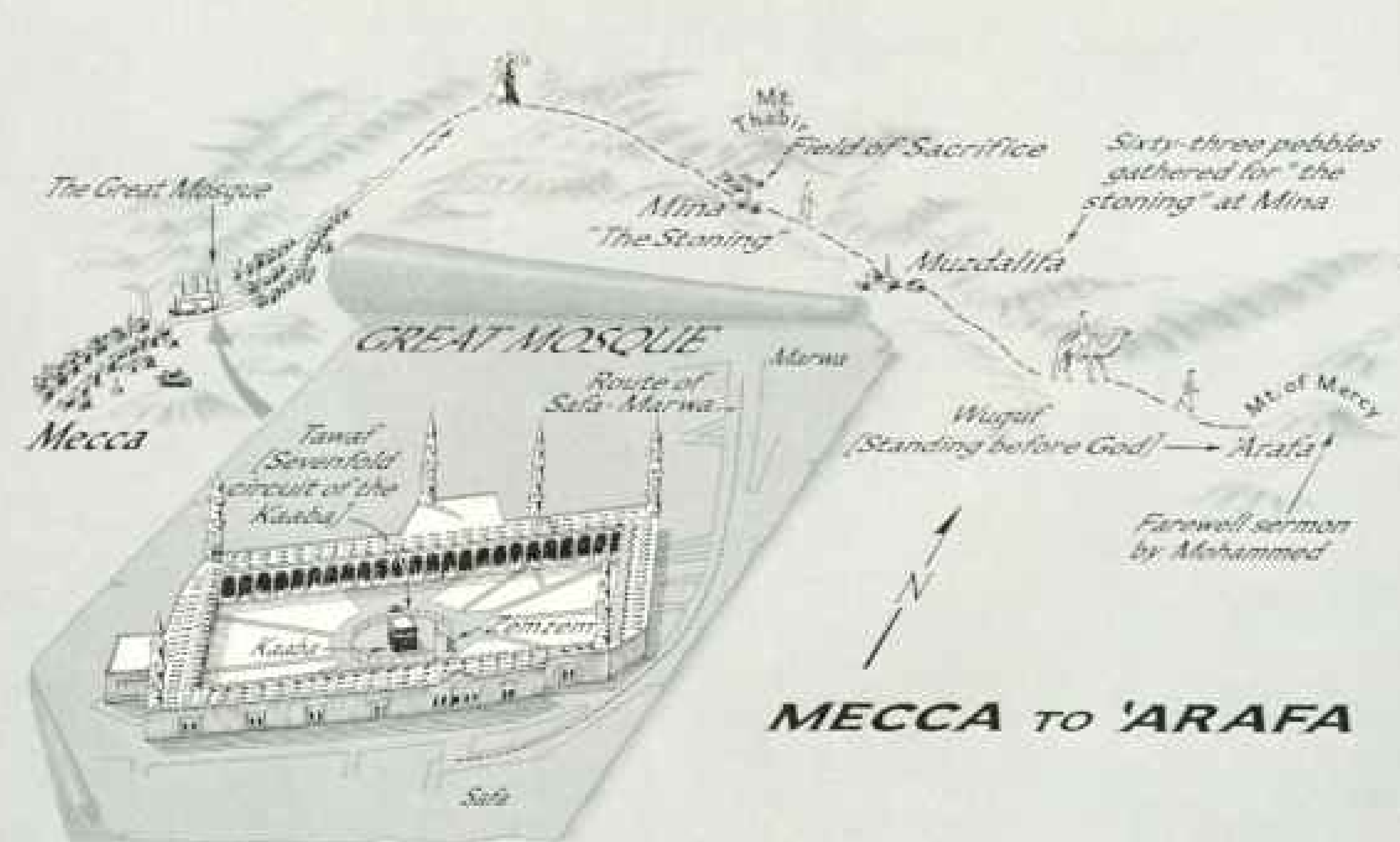
From the Near East sprang all three of the world's great monotheistic religions: Judaism, Christianity, and Islam. Born in Arabia's capital, Mecca, more than 13 centuries ago, Islam at first met strong opposition and won few followers. But, today, with some 370,000,000 adherents, the Moslem religion exerts a powerful influence through a vast area.

Story Area

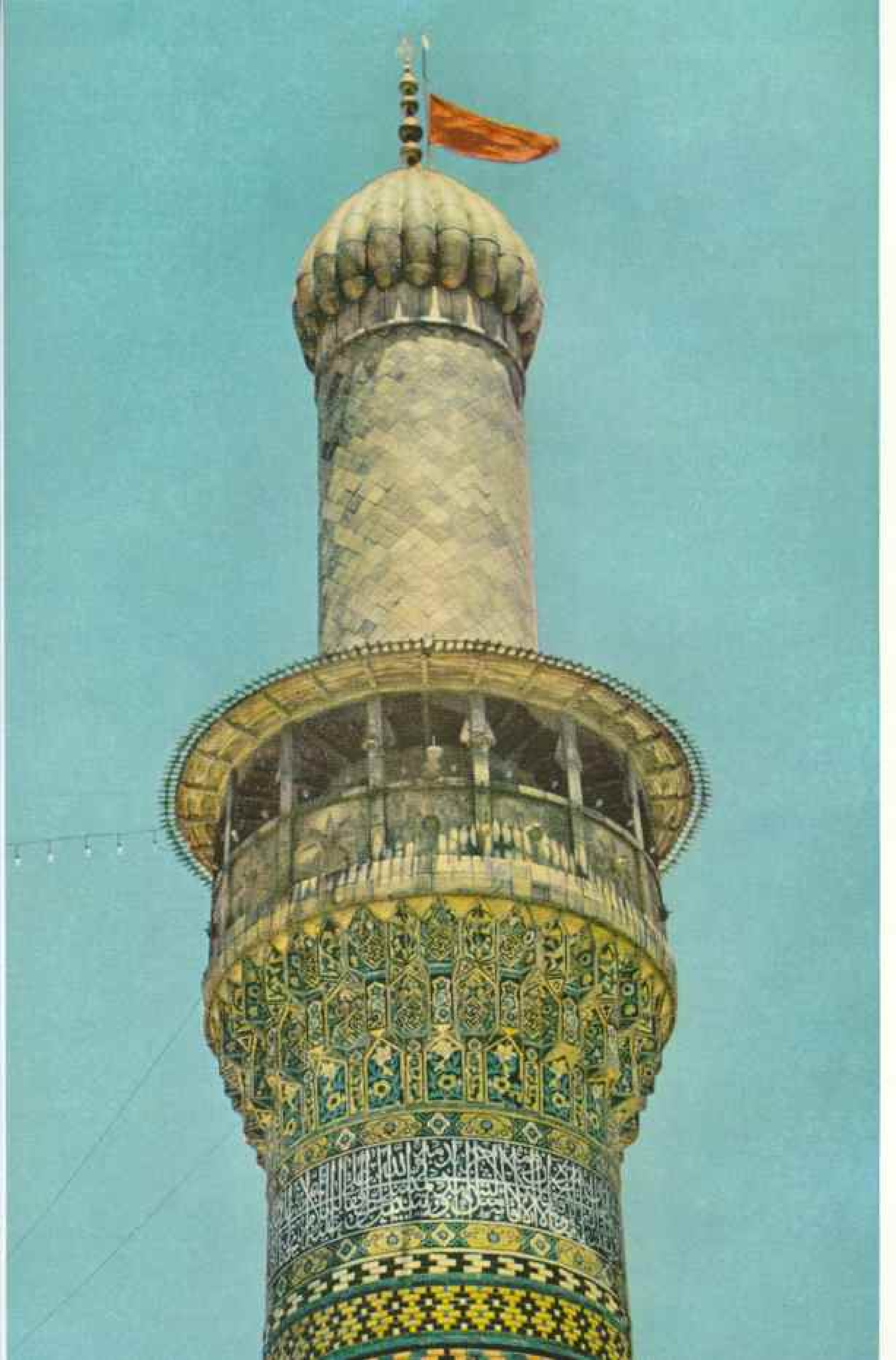
"Verily, the first house founded for mankind to worship in is surely at Mecca, a blessing and a guidance to the worlds," says the Koran. Devout Moslems honor this city of the Prophet's birth, hope to visit it at least once in a lifetime, and face toward it for prayers five times daily.

Mecca to 'Arafa

Goal of every Moslem pilgrim, after visiting the Great Mosque in Mecca, is to trace the 14-mile route to the Mount of Mercy at 'Arafa. Here the faithful pray on the spot where they are reminded of the Day of Judgment when they must stand before Allah.



Drawn by William N. Palmstrom



Thus I had come at last to the Great Mosque that morning and had said goodbye to my friends of the journey and entered to perform my tawaf. And thus, too, my hair freshly trimmed, I found myself now standing by the main gate, searching the faces of the crowd for one I might recognize.

Reunion in Mecca

The sun was warm on my face before there came by a young man I had known in Pakistan. He hailed me, and I inquired after my father; but he knew nothing of him. One thing he gave me, however: directions to the house of the friends with whom I had ridden from Jidda. I was about to set forth when a gleaming car drew slowly past our portal, stopped, and a tall, bearded man in a snowy turban stepped out. It was my father.

"*Salaam aleikum*," he said gently. "Peace be upon you."

"And upon you, peace," I replied.

He looked frail, but his stance was as uncompromisingly erect as ever. A philanthropist and an international trader in sisal and timber and other things, he keeps his headquarters in Kenya; but he has returned more times than I can remember to Mecca, for this is his spiritual home.

We rode back together to the family house. At once orders flew like sparks from a struck anvil. One servant rushed to the market to buy bread and dates for breakfast; another went to tell my father's friends of his arrival; a third cleaned and aired the sleeping chambers.

In a little while the hall and courtyard grew clamorous with venerable men from a dozen countries, eager to splice the threads of old acquaintance.

Drowsy with the forenoon's growing heat, I dozed, then roused myself for midday prayers and a prolonged bout with my camera around the mosque. I returned in the evening to find my father still surrounded by his grave contemporaries.

Seated cross-legged on their carpets as the glasses of chilled yoghurt went round, these men from Pakistan and Indonesia, Turkey and Er Riff questioned me with a flattering insistence. Their concern, however, was less with learning about the United States than with discovering if I had strayed from the true way.

"O son of a merciful man, you have lived among strange men who worship strange gods," said one. "I trust you have not forgotten the glories of Islam."

"How could I do that?" I asked.

But the elder was not so easily to be diverted from his lecture. He reminded me of how, in less than a century after the death of the Prophet, Moslem banners had waved over an empire greater than the Romans', from Cádiz to Cathay, from the Pillars of Hercules to the steppes of Tartary. He spoke of the universities which the conquerors planted at Seville, Granada, Cairo, Fés, Córdoba, Baghdad. He dwelt at some length upon the achievements in medicine, chemistry, agriculture, mathematics, astronomy, and philosophy which Moslem savants bequeathed to a still largely backward Europe.

He had discoursed in this vein for some time before a trimly bearded Syrian at my left broke in quietly.

"You know," he said, "I think that our most notable accomplishment was none of these. I think it was this: that under our empire Christian and Jew and Moslem could live and worship and prosper in peace. Look at the Jews who held high state positions under several caliphs. Or the Christian grand viziers in Baghdad. And as for Sicily under the Aghlabite Moslems from Tunisia . . ."

Where Legends Say Adam Met Eve

Around and around my head the talk buzzed, and in the dust-flecked shafts of sunlight which filtered through the latticed blinds the old tales of Islam seemed to dance and weave hazy memories of splendors long past. I excused myself in a moment, pleading our need to plan the forthcoming trip to 'Arafa (page 4).

This plain of 'Arafa lies some 14 miles east of Mecca, and it would be here, on August 29, ninth day of the month Dhu 'l-Hijja, that the *wuquf*, or Standing before God, would take place.

We could not miss this ceremony, for it is the crux of the whole hadj; indeed, he who has not stood bareheaded at 'Arafa before sunset on the appointed day has not truly made his hadj at all.

Why 'Arafa? It was at 'Arafa that Mohammed, astride his she-camel, preached from the Mount of Mercy a farewell sermon. And it is there that Moslems are reminded of the Day of Resurrection. According to our legends, Adam met Eve at 'Arafa after their

← Karbala's Gold-domed Minaret Calls Faithful to Prayer

Muezzins chanting "Come to prayer!" from spires like this noble shaft in Karbala, Iraq, are appointed by a mosque committee. A learned elder called an *imam* usually leads the prayers, but defers to anyone in the congregation he considers more worthy. The minaret towers from a mosque holding the tomb of Husain, grandson of Mohammed.

For more than 13 centuries Islam has spread over the globe with no clergy, no pontiff, and scant liturgy. Its caliphs, even at the apex of Arabic power, were temporal rulers only.

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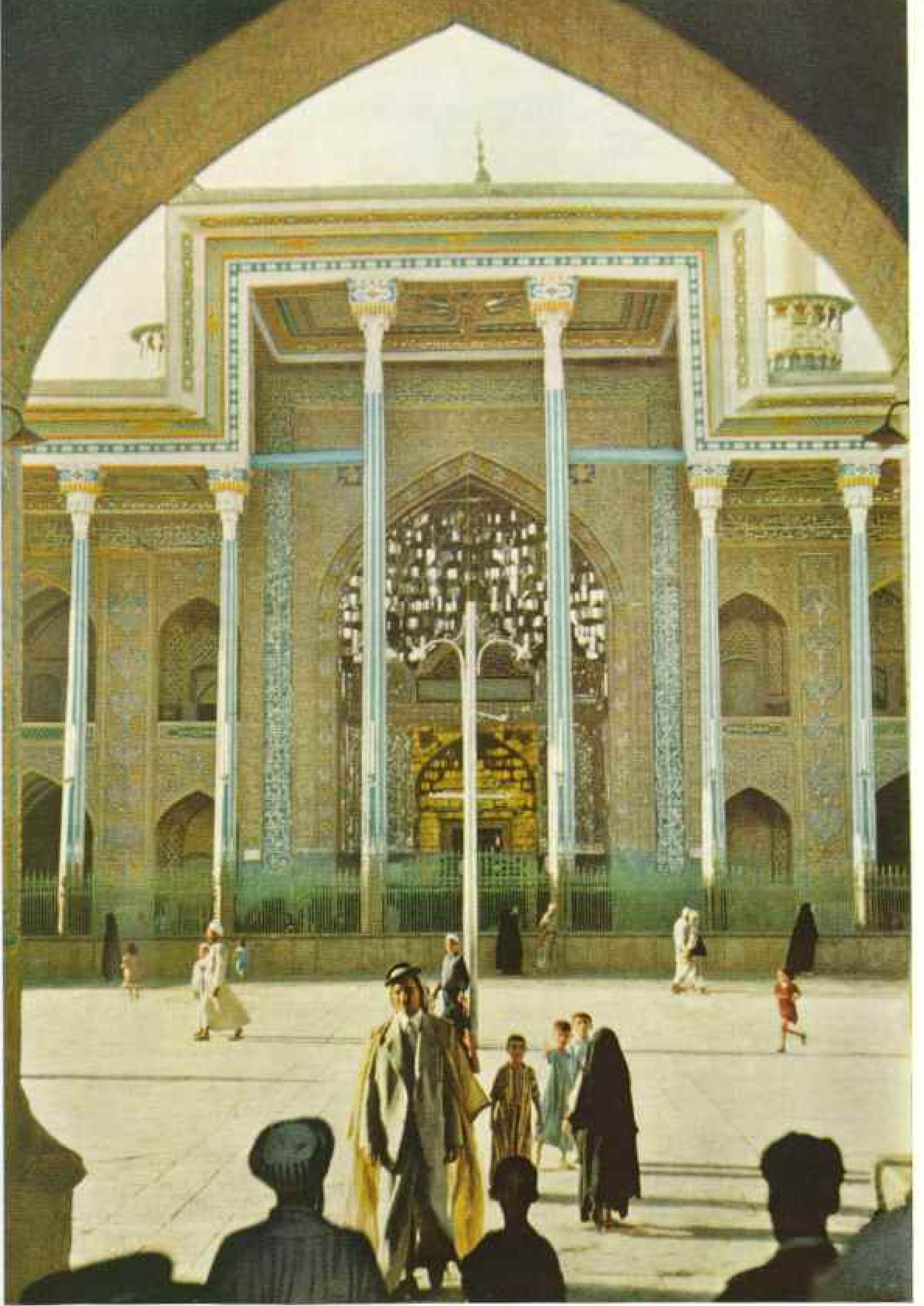

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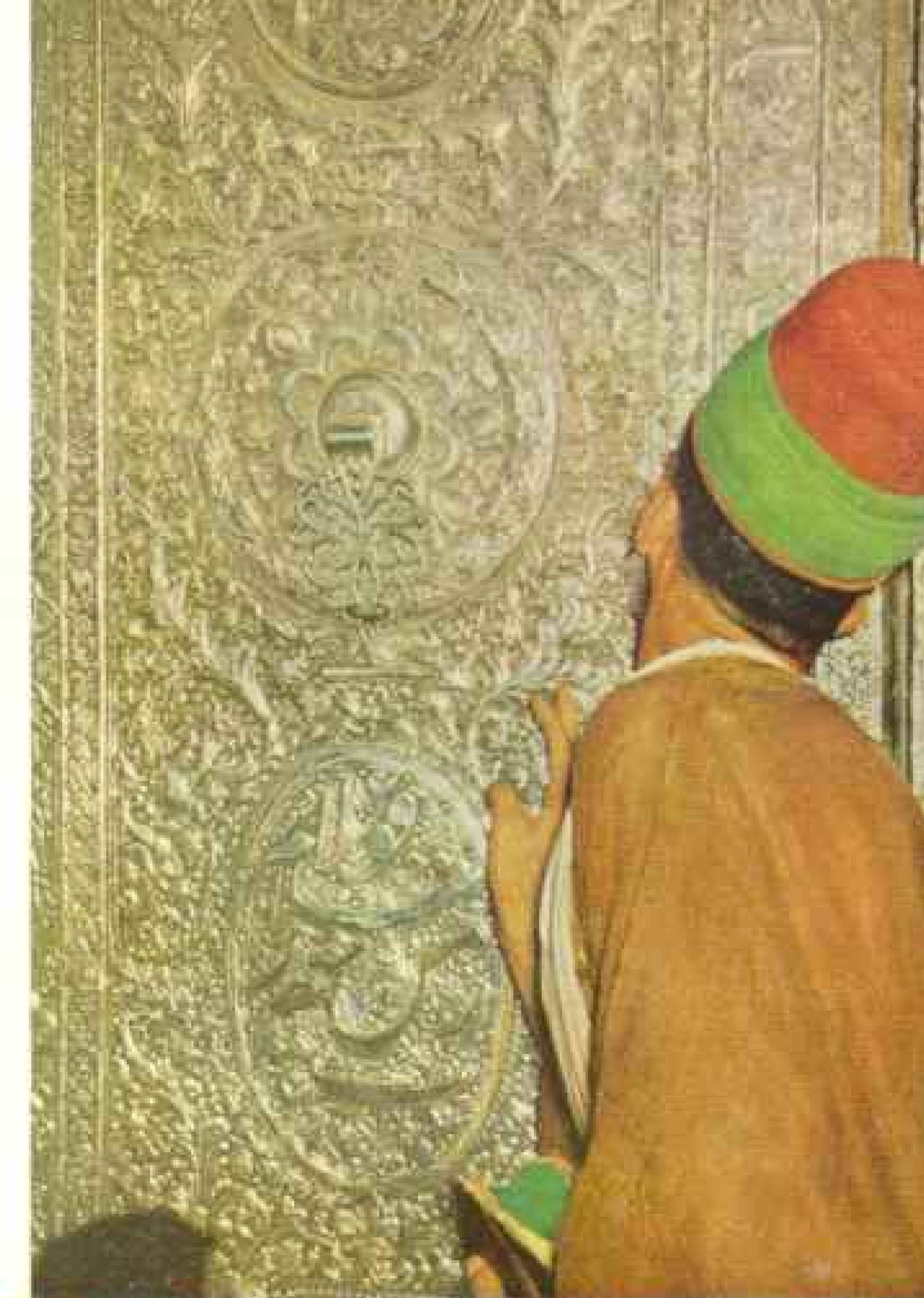
Iraqis in Karbala Promenade Before the Tomb of Husain, Grandson of the Prophet

A novice with a color camera, the author practiced in other Moslem centers on his way to Mecca. Through an archway he snapped this picture of Husain's tomb, sacred to Islam's Shiite sect.

A Devotee Kisses a Silver Door to Husain's Tomb

Moslem craftsmen, forbidden to reproduce human or animal forms, developed decorative handwriting into a fine art. Their elegant script, often interwoven with floral and geometric designs, wreathes the spires of mosques from Morocco to Mongolia and embellishes doors such as this portal in Karbala (opposite). Shiite pilgrims approaching the holy gate sometimes faint in ecstasy.



↓ The custodian's arm points limply toward a hole in the basement of the mosque in Samarra, Iraq (page 15). Through this aperture in 878, legend relates, disappeared the Twelfth Imam, a direct descendant of Ali, Mohammed's son-in-law. Followers of the Shiite sect believe that the Twelfth, the Mahdi, or Messiah—at whose name the devout rise and bow—will reappear and restore true Islam.

Kodachromes by Abdul Ghafur Sheikh

expulsion from Eden and their separate wanderings over the face of the earth.

My father had arranged seats to the plain on a bus, but I objected: it would be crowded and would give me no chance to stop where I liked along the route and take pictures. So I urged on him the luxury of a hired car, even though for these few miles it would cost us nearly $200.

In the three days before the Standing we haggled and argued, made plans and changed them and made them again, in a fashion time-honored within my family.

In between these forensic bouts I slipped out into the city for several hours each day with my camera.

Then I was arrested. I was taking a picture near the Station of Abraham when a guard suddenly grasped my shoulder and demanded "What have you there?"

With a firm grip on my arm he led me to the police station. There I met a volley of questions from the guards, who, incidentally, are accomplished linguists, for each hadj brings to Mecca a babble of tongues from a hundred lands.

Eventually my interrogators released me, still in possession of my camera, lenses, and light meter.

How the Telephone Came to Arabia

Next day we drove down the eastern road to Mina on our way to 'Arafa. Here the Prophet had halted overnight to rest his camel; and so, by tradition, did our great throng of several hundred thousand pilgrims. Mina, of course, could not hold us; a few houses, a few shops comprise the village. The hadjis spread out over the narrow valley under Mount Thabir in a cloud of tents.

My father's tent was pitched upon a slope he had frequented in years past; and hardly had the smoke of our cook fires ascended before friends down the line began to arrive with gifts of food and cooling drinks. It was like the first night in some summer resort to which the same group of enthusiasts returns each year from their scattered places of winter work.

Often the talk veered to the impact of the West upon Islam, and there was much viewing with alarm and shaking of aged heads. But not all the innovations that worried them were untinged by humor. One sheikh, for instance, told how wily King Abdul Aziz al Saud introduced the telephone into Saudi Arabia.

"You must understand, O enlightened ones, that the religious leaders around the King, the *ulema*, are strict in their ways. When the ulema heard that certain Infidels were foisting upon His Majesty an odd black instrument which spoke, they felt sure the Devil was at work.

"So the King (may Allah grant him a long life!) called the ulema to his palace at Riyadh, and when they had gathered he held out the receiver to the chief among them and told him to put it to his ear. Trembling, the old man obeyed, and in a moment a beatific smile dawned on his lips. For from the instrument came a voice chanting the first chapter of the Koran:

" 'In the name of Allah, the Compassionate, the Merciful; praise be to God, the Lord of creation . . .'

"And the King, who had stationed the speaker at the other end of the line in Mecca, turned to the ulema and said: 'Is this the voice of Satan?'

"And as one man the elders cried, '*Nastaghfrul-Allah!* We beseech God's forgiveness!' "

Then spoke a man on my right. "But were the ulema wrong? Verily, at times when I have tried to complete a call between Mecca and Jidda, I, too, have thought this an invention of the Devil!"

A merchant from Jidda joined in the laughter. "I know well what you mean," he said. "But service has improved a little. For a time it seemed impossible to get through, for the operators would sip their coffee and tell you again and again: 'We are sorry, but Prince Faisal is on the line.'

"This was all very well, until one day Prince Faisal himself tried to telephone. They told him, 'Pardon, the line is engaged. Prince Faisal is talking.' The Prince strode down to the telephone exchange and roared out to them: 'Look! Here is your Prince Faisal!' " And he gave them a tongue-lashing that left them trembling.

"As I say, the service has now improved somewhat."

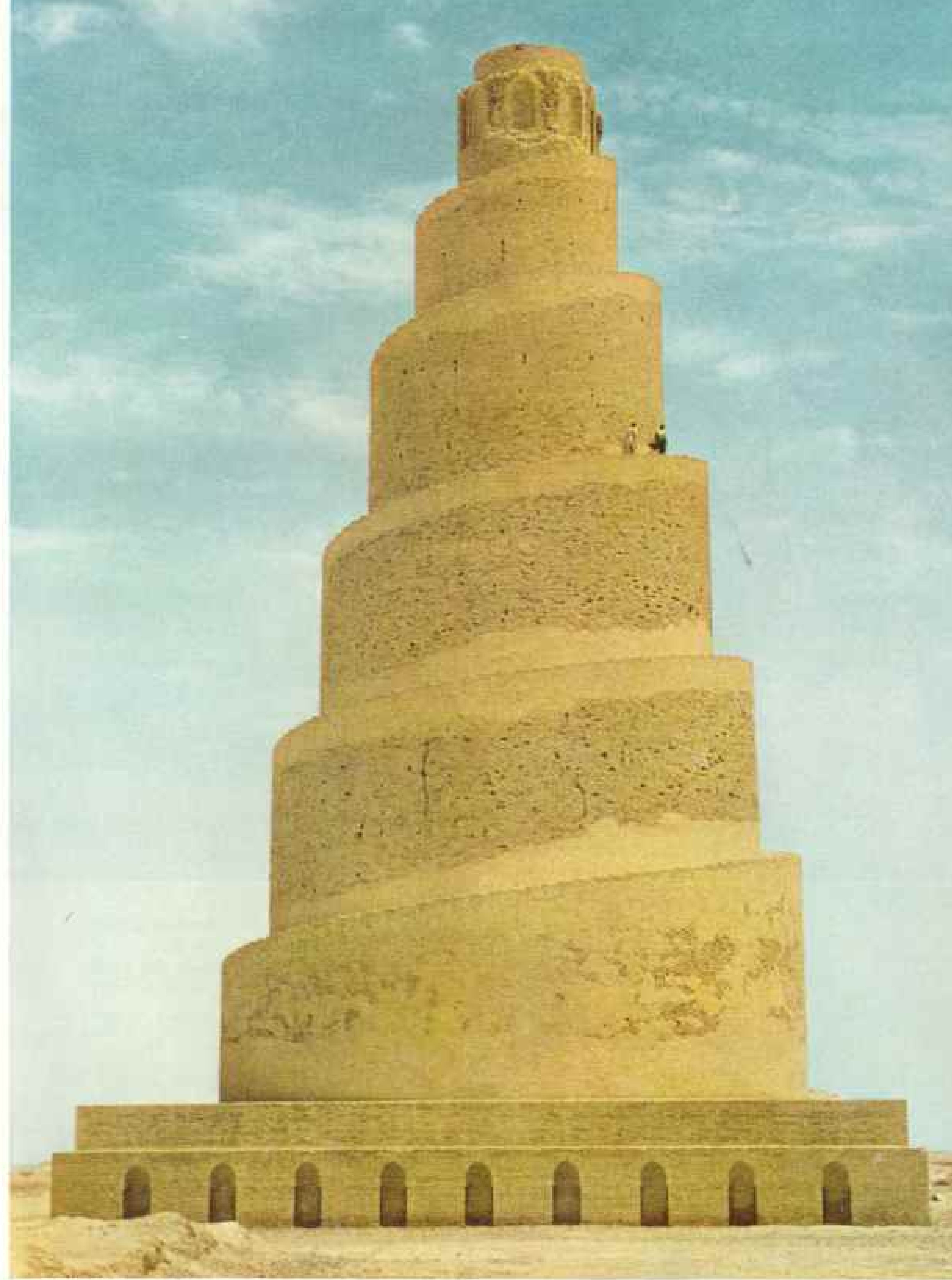
I suspect the story is apocryphal, but it shows the Moslem sense of humor.

Islam Marches to 'Arafa

We broke camp at Mina after the morning prayers, and the whole entourage moved toward the plain, nine miles away. On this, the appointed day, Mina and Mecca itself would be ghost towns, for all who could walk, and some who could not, would find their way to the Standing.

In truth, we were not a nation on the march but a community of nations—slim Chinese with little goatees; huge turbaned mountaineers from Afghanistan; knife sharpeners from Turkistan with their grindstones strapped to their backs; ebony chieftains from Uganda; neat, delicately boned Javanese; fez-topped Egyptians; Lebanese emigrants from

(Text continued on page 33)



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Kodachrome by Abdul Ghafur Sheikh

Like a Child's Sand Castle, Samarra's Ramped Minaret Spirals Skyward

Caliph Mutawakkil in the 9th century patterned his bricked minaret upon Babylon's towers, or ziggurats, which were "mountains going up to heaven." This 170-foot spire served near-by Friday Mosque, now lying in ruins beside the Tigris. Climbers nearing the top are Mr. and Mrs. Calvin W. Stillman, of Chicago.

Swords Clash in Damascus Along the Street Called Straight

To many a Crusader his most valuable loot from the East was a blade of Arab-forged Damascus steel. Less well known are other Arab gifts to feudal society: the knightly tournament, the troubadour, the art of fortification, even chivalry itself.

← In a Beirut antique shop friends of the author bought this pair of stiltlike shoes, hand-carved and inlaid with mother-of-pearl. Such footwear, of Oriental origin, was designed especially for a woman's trousseau. Bells jingle as the wearer walks.

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Kodachromes by Abdul Ghafur Sheikh

"Ali, Give Me Strength!" Cry Muscle-building Executives of the Bank of Iran

Financiers in Tehran believe in physical as well as fiscal soundness. At their *zur khaneh*, or House of Strength, they meet regularly in embroidered leather breeches to drill with huge clubs, lift heavy wooden shields, and toy with iron chains. Mostly Shiite followers of Mohammed's son-in-law, Ali, they begin the exercises by touching the ground and shouting, "Ya, Ali!"

↓ While an off-scene spiritual leader beats cadence and recites Persian verse in hypnotic tones, the banker-athletes perform pushups on little wooden platforms.

Druses Live in Moslem Lands but Follow a Different Faith

Women of the sect wear muslin veils, often at nose level. A cherub surmounts this public fountain in Es Suweida, Syria.

For a religion which girdles the globe and has suffered history's divisive pressures for 1,331 years, Islam is singularly united in its faith. But one sect which sprang up in the 11th century still maintains its exclusive identity: the Druses.

Now largely confined to Syria's mountain fastnesses, the Druses believe that God has revealed Himself through 70 incarnations, including Jesus but not Mohammed. They assert that God's last incarnation was Hakim, who became Caliph of Cairo in 996.

Druses take their name from Hakim's henchman, Darazi, who persuaded him to proclaim his divinity in 1017. (The Arabic plural of Darazi is Duruz.)

When Hakim fell to an assassin's dagger, orthodox Moslems slaughtered his followers. Remnants of the sect fled to Syria and Lebanon and went underground.

To this day the Druses accept no outsiders as converts for fear of admitting spies. They have no mosques, hold all meetings in secret, do not pray in public, believe in the transmigration of souls.

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Business Waits on Hospitality in Damascus —It's Always Coffee Hour in Islam

Before the coming of the Prophet, Arabs relished wine and gambling. Mohammed banned both, but his followers may enjoy coffee and tobacco.

The most celebrated Arabian coffee—thick and sweet—comes from Yemen. Moslems of the Near East sip another type, a thin, yellowish-black essence flavored with cardamom seeds. A smoker in center enjoys a *hookah*, or water pipe.

↓ Obliging Arabs demonstrate for the author how a daring Moslem Romeo would greet his unveiled Juliet at the grilled window of her apartment.

Kodachromes by Abdul Ghafur Sheikh

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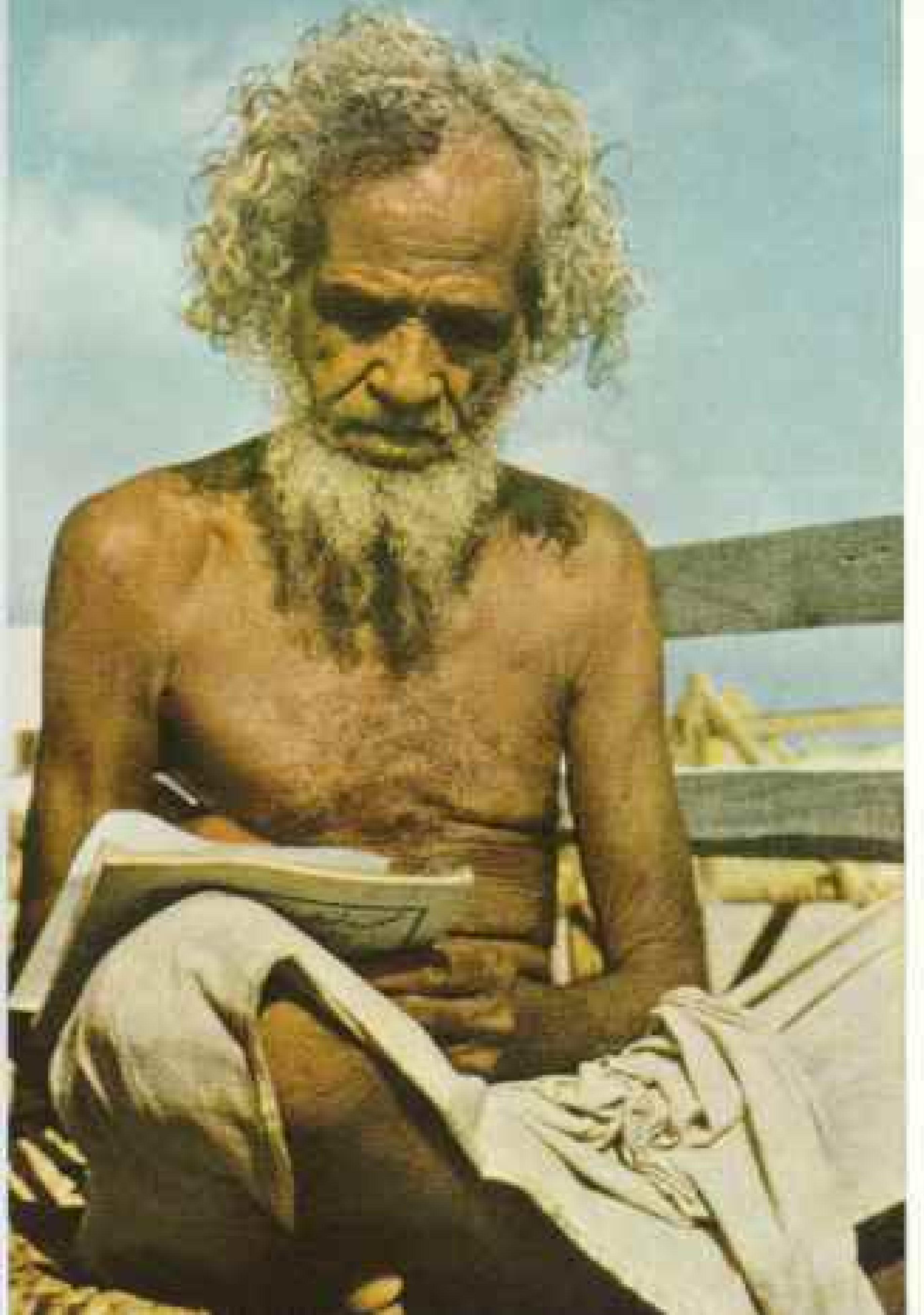
"Here Am I, O God, at Thy Command!" Cry Pilgrims Arriving in Saudi Arabia by Airplane or Ship

Moslems may acquire merit by journeying to Mecca at any time of year, but the crucial ceremonies of the great hadj occur from the 8th to the 13th of Dhu 'l-Hijja, twelfth month of the Moslem year. Many walk overland from the Levant, most come by ship, but thousands (like the author) fly. Commercial lines last year were so deluged by applications that the United States Air Force stepped in and airlifted nearly 4,000 pilgrims from Beirut to Jidda.

↓ Onto the docks of Jidda, gateway to Mecca, pilgrims disembark from a ship bringing Egypt's annual gift, a new covering for the Kaaba (page 26).



Rich and Poor, Brown and White Perform Their Pilgrimage as Equals

The Governor of Jidda (in Arab dress) greets the chief of the Egyptian delegation bringing the year's new covering for the Kaaba. Only those bound for Mecca on the hadj need to wear the pilgrim's garb—the *ihram*—two pieces of seamless cloth wound about the body so as to leave one shoulder bare. Purpose of the ihram is to erase class distinctions and to stress, in its resemblance to the shroud, the pilgrim's renunciation of worldly things.

While on hadj, the devout must avoid quarrels, have no relations with women, say nothing frivolous, and, except for sacrifices, kill no plant or animal save only the five nuisances: crow, kite, rat, scorpion, or biting dog.

← His pen moving from right to left, a pilgrim scribbles a letter home to Yemen.

→ Worshipers emerge from Mecca's Great Mosque. A litter for the aged or infirm stands at left. Some pilgrims leave their sandals under the custodian's awning (right); others drop them in any nook.

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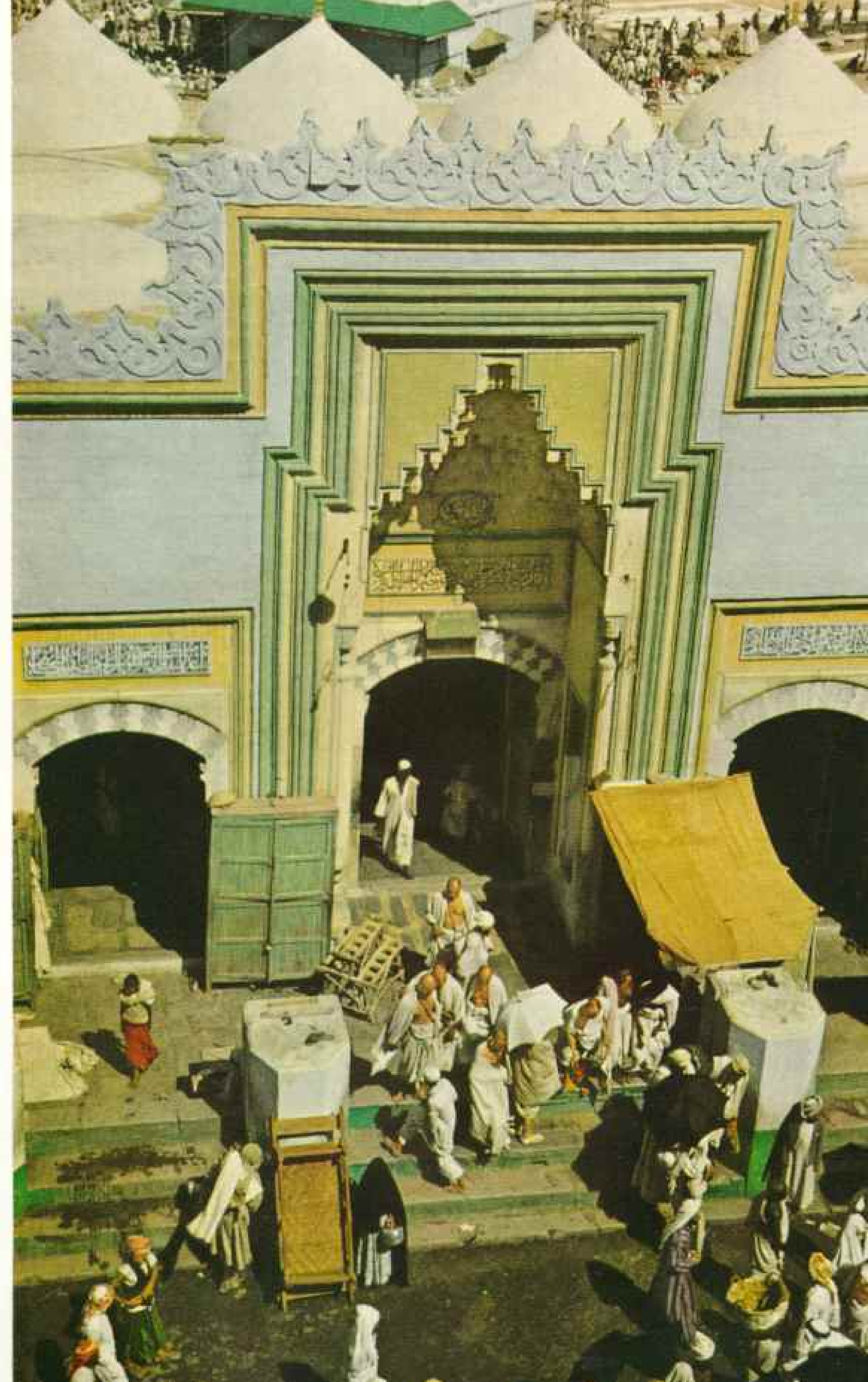

Tier on Tier, Mecca's Houses Rise Above the Great Mosque

A key caravan point along antiquity's myrrh and frankincense route, Mecca was a pilgrimage center for totem worshipers long before Mohammed smashed the city's idols.

As Mohammed's birthplace, Mecca is first city to the world's Moslem millions. At lower left rises one of the six minarets of the Great Mosque, whose Kaaba is the center of attraction for all Moslems.

Near the top of the hill (background) stands a smaller mosque; others are scattered throughout the city.

Housing problems became acute when the annual hadj brought about 500,000 pilgrims. Mecca's normal population is some 150,000. Alleys, sidewalks, doorways, courtyards, gardens, and even mosques were crowded by night with sleeping figures.

The author's father, a Pakistani merchant with headquarters in Nairobi, Kenya, keeps a house in Mecca for his family's use during the hadj. It too, the author reported, gets its share of uninvited visitors, who bed down wherever they find room to stretch a rug.

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Merchants Crowd the Streets of Holy Mecca. By Night Thousands of Pilgrims Cook, Eat, and Sleep on Sidewalks

Cries of squatting rug sellers rise above the slap-shuffle-slap of sandaled feet. A baker balances a tray of fresh bread (lower right). Luckier men walk in the shade of umbrellas. Others wear prayer rugs over shoulders (left). Barber shops and cafés serve customers beside arched entrances of buildings.

Kodachromes by Abdul Ghafur Sheikh

↑ Pilgrims Watch as Egypt's Gift, a Rich Mantle for the Kaaba, Drops into Place

The gold-embroidered black robe is renewed during each hadj. Islam's holiest house has a single gold-and-silver door, seldom opened.

↓ A policeman (center) cleans the Kaaba's sacred Black Stone. His job is keeping order among worshipers seeking to kiss the stone.

Kodachromes by Abdul Ghafur Sheikh

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Barefoot on the Burning Marble, Pilgrims Shuffle Counterclockwise Around the Kaaba

Seven times, on three different days, hadjis must circle the black-robed House of God—three laps at a trot, four walking. Awnings shelter those who wish to rest and pray in shade. Many pilgrims sleep here at night.

Kodachromes by Abdul Ghafur Sheikh

Pilgrim Shrouds, Sprinkled at Holy Well of Zemzem, Dry in Strips on Mosque's Paving

Six minarets crown walls; 44 doors pierce them. Zemzem's domed well house stands just behind the Kaaba. Semicircular barrier (left) marks an area where a section of the Kaaba stood until a flood destroyed it.

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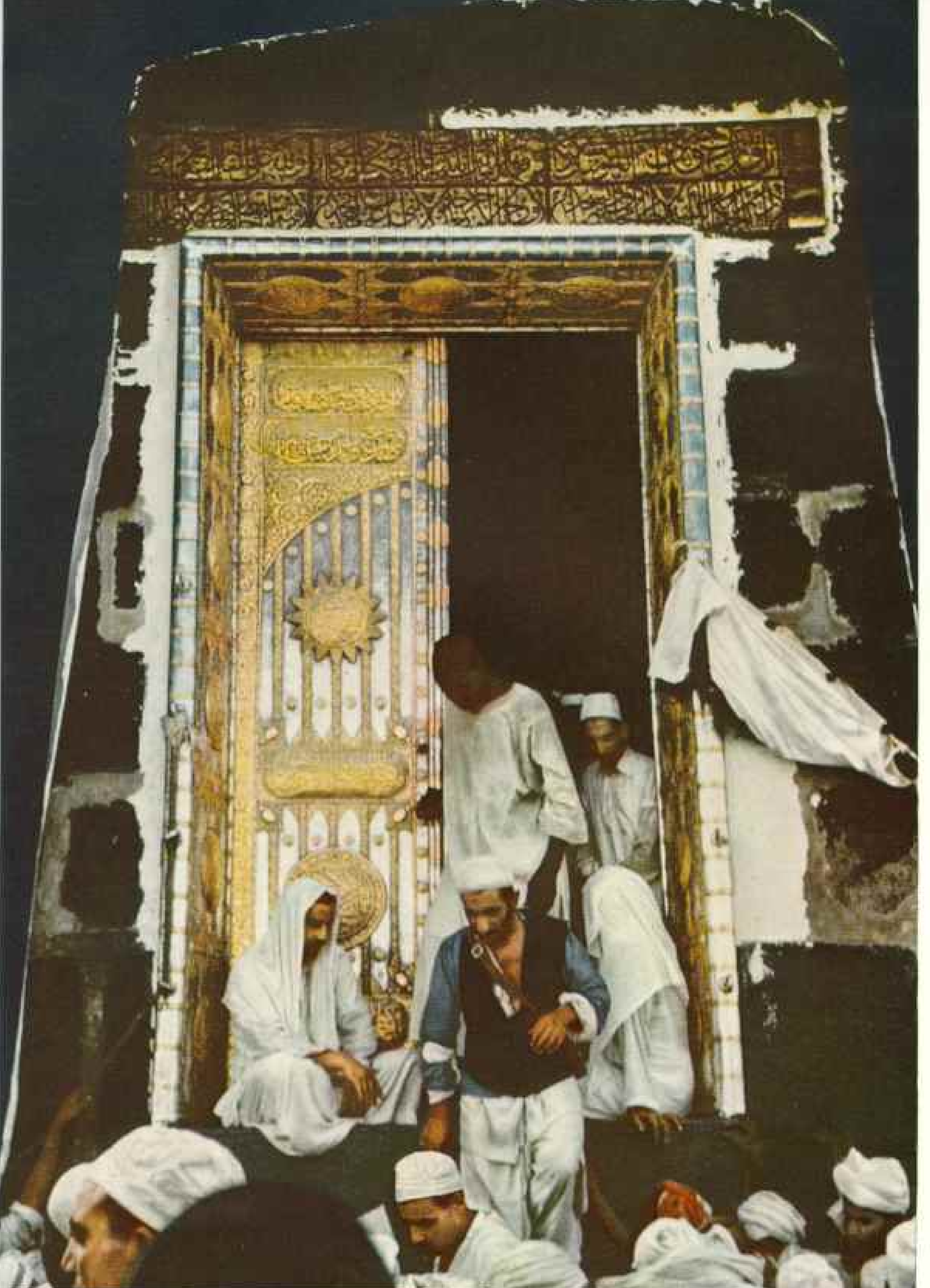
↑ **Guides Chanting Verses from the Koran Lead Their Pilgrim Parties Seven Times Around the Kaaba**

Moslems don't sing hymns; their ceremonies consist mainly of prayer. On Fridays an elder delivers a brief, stylized sermon. The pulpit stands at left.

↓ An overflow crowd, unable to enter Mecca's packed mosque, kneels in a gateway to hear the imam's address.

Kodachromes by Abdul Ghafur Sheikh



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Behind the Kaaba's Rarely Opened Door Lies a Sanctuary Lit by Gold and Silver Lamps

Only a dim, bare room awaits the pilgrim. But some are so exalted by setting foot in the House of God they vow never to let their unsandaled soles touch the common earth again outside the mosque.

Entranced Pilgrims Touch and Kiss the Sacred Kaaba's Mantle

One Moslem, shielded by an umbrella, stands before Mecca's House of God in quiet adoration. Beside him, two others kneel to pray before they move close to the black robe. From the group rises the sound of prayers in many tongues. To cope with the crowds Mecca's police must be linguists (page 14).

South America; "displaced" Moslems from Romania and Yugoslavia; Moros from the Philippines; nomads from Baluchistan.*

Some slouched on camels; many more crowded aboard buses, with a contingent sitting on the roof; trucks and cars carried full loads; thousands walked.

I saw one man carrying his mother pickaback the whole long, dusty route. Whether or not he carried her back after the ceremonies I never knew, but I think it would have been against her wish, for, like so many aged hadjis, she would have asked no more than the privilege of dying on such holy ground.

Her sole concern would have been whether Allah had "accepted" her pilgrimage; vivid in her mind would be the implied promise of the Prophet that her reward for this would be Paradise itself. But she, like all of us, would be aware, too, that the hadj has more than individual significance.

To Moslems, indeed, the pilgrimage is the culminating experience of their life within a religious fellowship. Separately or together, but all at the appointed hours, they pray five times each day (page 41). On Fridays they meet at noon in the local mosque for the Moslem Sabbath. And twice each year, at the festivals of Id al Adha and Id al Fitr, they convene for area-wide celebrations.

But it is on the great hadj itself that the Moslem senses most keenly his identity with a global faith. He is urged by the Prophet to come not by himself, nor with a single friend, but in a group. Thus the Moslem emphasizes the brotherhood of man.

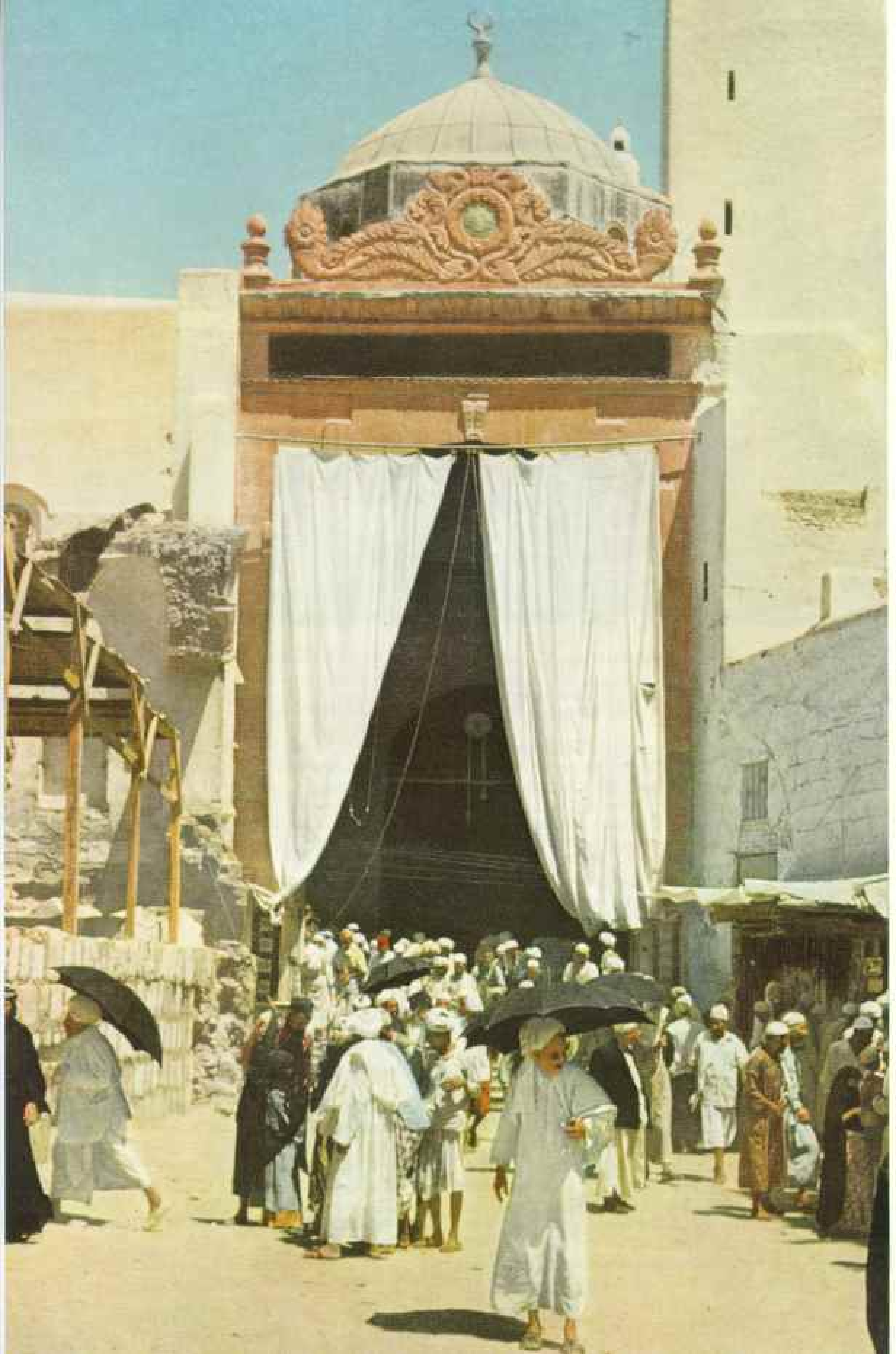
Surging Sea of 500,000 People

When we at last pushed our way onto the plain itself, the great arid waste below the Mount of Mercy was already white with tents and swarming with men and women. Our guide sat on top of the car, with our tent, and argued with the driver as to the best spot to pitch it. They finally found a tiny backwash in this sea of humanity, and there we cast anchor.

At 'Arafa, as a mark of respect, men must stand bareheaded until twilight.

The sun is overwhelming in its power, awesome and absolute. Most pilgrims interpose an umbrella to its rays, and my father strove fiercely to have me carry one; but I could not obey and still manipulate the camera and

* See Map of Southwest Asia, with inset of the Moslem World, a supplement to the June, 1952, National Geographic Magazine.



National Geographic Photographer Robert F. Sisson

Prince Faisal of Saudi Arabia and the Author Study His Photographs

The son of King Abdul Aziz al Saud examines the original color films used to illustrate this article in the NATIONAL GEOGRAPHIC MAGAZINE. In his left hand the Prince holds proofs of the pictures, while beside him stands Abdul Ghafur Sheikh (pages 1, 8), whose unusual photographs and story appear in these pages. The two meet in New York City, where Prince Faisal, Saudi Arabia's Foreign Minister, was his country's chief delegate to the General Assembly of the United Nations. They first met in 1948 when the author was vice president of the International Student Movement for the United Nations. As Viceroy of the Hejaz, Prince Faisal is official host to pilgrims visiting Mecca during the hadj.

lenses I wore beneath my ihram (page 54).

When the guides had prepared the midday meal of steamed lamb and rice (page 44), I joined the stream of pilgrims surging toward the Mount of Mercy. Concrete steps led upward in zigzag fashion among the boulders crowning the mount, and at all stages stood little knots of worshipers, each with a prayer leader, ecstatically absorbed in their bowings and chantings and quite unmindful of the presence of the rest of us as we jostled past (pages 43, 46).

From the stone pillar at the peak I looked back over the crowded plain. In the west the dark smudge of an approaching dust storm erased the outline of the low encircling hills and cast a lemonish gleam across the vast encampment.

Hour dragged after hour under the intolerant sun. There is no culminating ceremony at 'Arafa, no group ceremonies at all. Men pray, singly or in clusters of 50 or 100 or 150, behind their chosen or hired *imams* (prayer leaders).

The Rush for Muzdalifa

All turned toward Mecca, but with an eye on the setting sun. As it slipped by infinitesimal degrees behind the blue mountains in the west, a great shout went up, and at the booming of a gun the dash for Muzdalifa began.

The camel trains, in fact, had plodded off already, for it would take them, as it had

← Medina Mosque Entombs the Prophet

Here lies Mohammed's body in a grave protected by metal screens. In life the Prophet pleaded, "O Lord, let not my tomb be ever an object of worship" (page 57).

© National Geographic Society Kodachrome by Abdul Ghafur Sheikh

← Merchants in Dhahran Can Take Inventory at a Glance

Umbrellas in Saudi Arabia rarely serve to ward off anything but the relentless sun. Tough-soled Arab tradesmen in this bazaar scorn to wear the sandals they offer for sale.

↓ Pebbles Fly. The Pillar Is Stoned at Mina

According to Moslem legend, Ishmael encountered the Devil three times at Mina and on each occasion rebuffed tempting offers to flee his father, Abraham, and evade his role as a living sacrifice to God.

Now pilgrims reject the Devil by casting seven pebbles on three successive days at each of three pillars marking the spots where Ishmael was tempted. Shouting "God is most great!" with each throw, the pilgrims dodge bad pitches from the other side.

With nearly 500,000 Moslems on hadj last year, the pillars were hit by about 30 million stones. Legend insists that angels remove the stones at night, but trucks have been known to help.

Hadjis beneath the far sign buy soft drinks.

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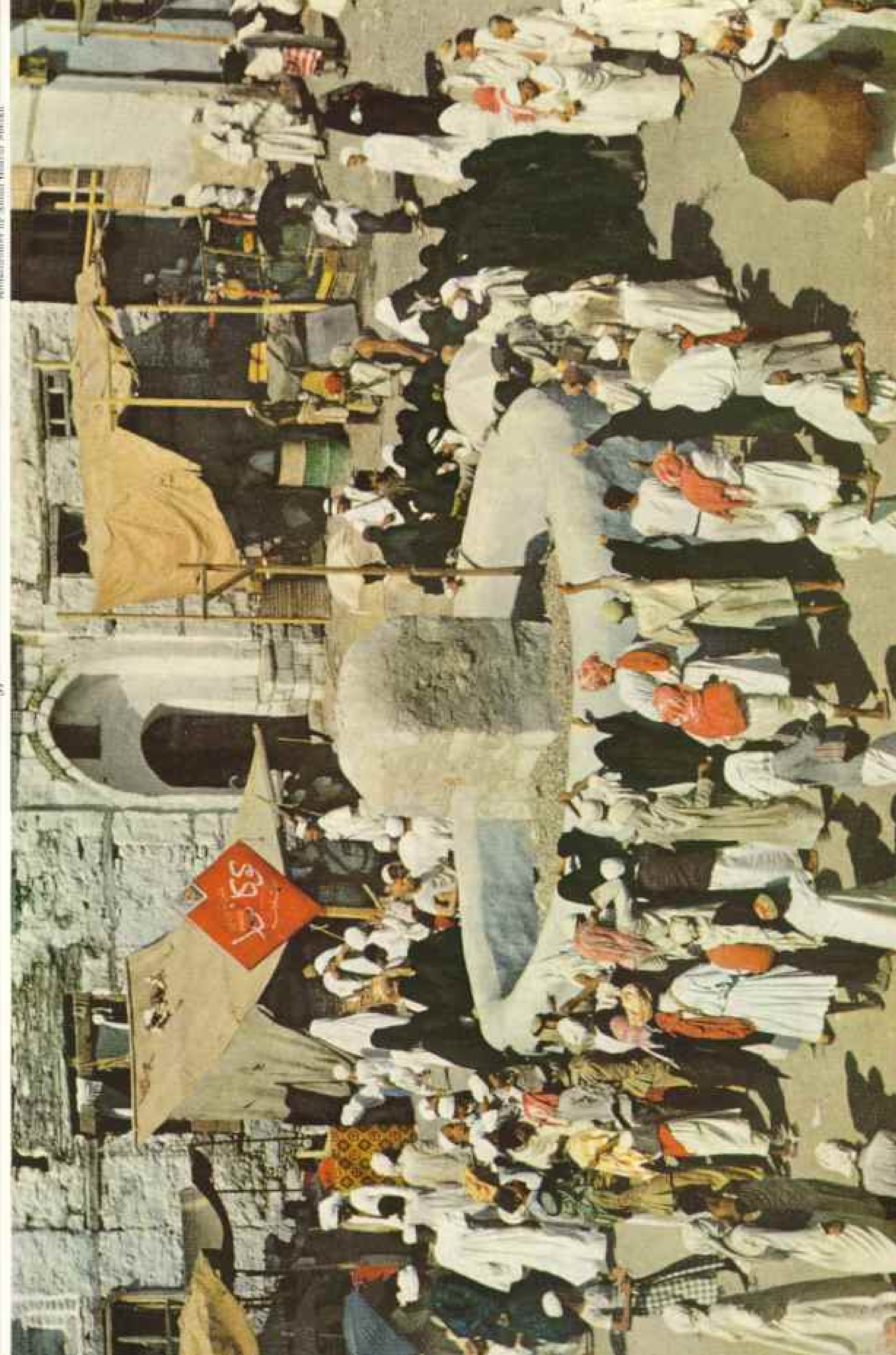


taken the Prophet, an hour or more to reach this way station on the route to Mina. In theory, the cars and buses would easily overtake them; in practice we knew well that so many hundreds of thousands pouring through one bottleneck out of the plain would produce a stoppage of monumental proportions.

Unhurried, we lay on our carpets and scanned the early stars, grateful for the winking out of God's great diurnal lamp.

Not until one o'clock in the morning did the choked lines of traffic unravel sufficiently for us to proceed, and even then we did not dare keep to the road but cut through the hills on tracks the guide claimed he knew.

At Muzdalifa we paused long enough to gather, as custom dictates, the pebbles we should need for the Stoning at Mina—63 pebbles apiece. We tried, too, to find something to quench our parched throats; but this was not so easy. At length I came upon a party of Yemenites who had an oil drum of water.

"For the love of Allah," I cried, "give me to drink!"

They looked at me and saw only a sweat-stained, dirty beggar, and they shouted: "Yallah! Begone!"

I went. But I came back when their attention was diverted elsewhere and drained a jar full of water from their tank. It smacked of oil, but it was at least wet.

Stones Fly in Scorn of Satan

At Mina we settled at our former campsite, and in the morning before the sun was high we sallied forth to the Stoning. According to one Moslem legend, Ishmael encountered the Devil three times at Mina, and each time he rejected Satan's enticements, refusing to combat his father Abraham's purpose of sacrificing him to the Lord. In remembrance now the faithful, too, spurn the Devil at Mina by throwing stones.

There are three stone pillars marking the spots where Ishmael (in the Bible, Isaac) was tempted. At each in turn the pilgrim shouts, "*Allahu akbar!* God is most great!" and flings seven pebbles in succession (page 37).

We threw ours with a will and dodged as best we could those coming from the other side of the pillar. There was much laughing and shouting by the crowd and a genial sense of solidarity.

The Prophet had recommended this rite so that his followers should learn that, though each was weak and armed only with a pebble, together as brothers in Islam their collective strength was great.

I hoped that, for my generation, it would be a reminder of how all Moslem nations must unite if they are to defeat their common enemies: poverty, disease, ignorance, and communism.

From the Stoning we went to the Field of Sacrifice. Here, for three days, the feast of Id al Adha would be celebrated; but not only here, for all over the world Moslems would be observing this annual holiday. We at Mina felt ourselves at the ceremony's epicenter, however, in that it was here Abraham is believed to have offered his son as a living sacrifice to God, and here that the angel produced as substitute a ram.

Bleating Flocks Await Slaughter

In commemoration, Moslems today choose a beast for slaughter—a sheep or a goat or a camel—and give most of its body to the poor. Those who have sinned against Koranic law in some respect often sacrifice a second or a third animal in expiation.

The field was thick with flocks when we came to it, and loud with the bleating of the huddled victims (page 52). I watched as a friend of mine bought a sheep from a wiry Bedouin, pointed its head toward Mecca, murmured "In the name of Allah, the Compassionate, the Merciful," chanted "Allahu akbar," and drew the knife across its throat. The hot and thirsty sand drank up the blood; the sacrifice had been fulfilled.

Before the evening of the third day of Id al Adha, the pilgrim must journey back to Mecca and make his second tawaf around the Kaaba. My family urged me to accompany them in a hired car, but I insisted on walking—not from an excess of piety so much as from a desire to take pictures along the way.

Dust Storm Wraps the Road to Mecca

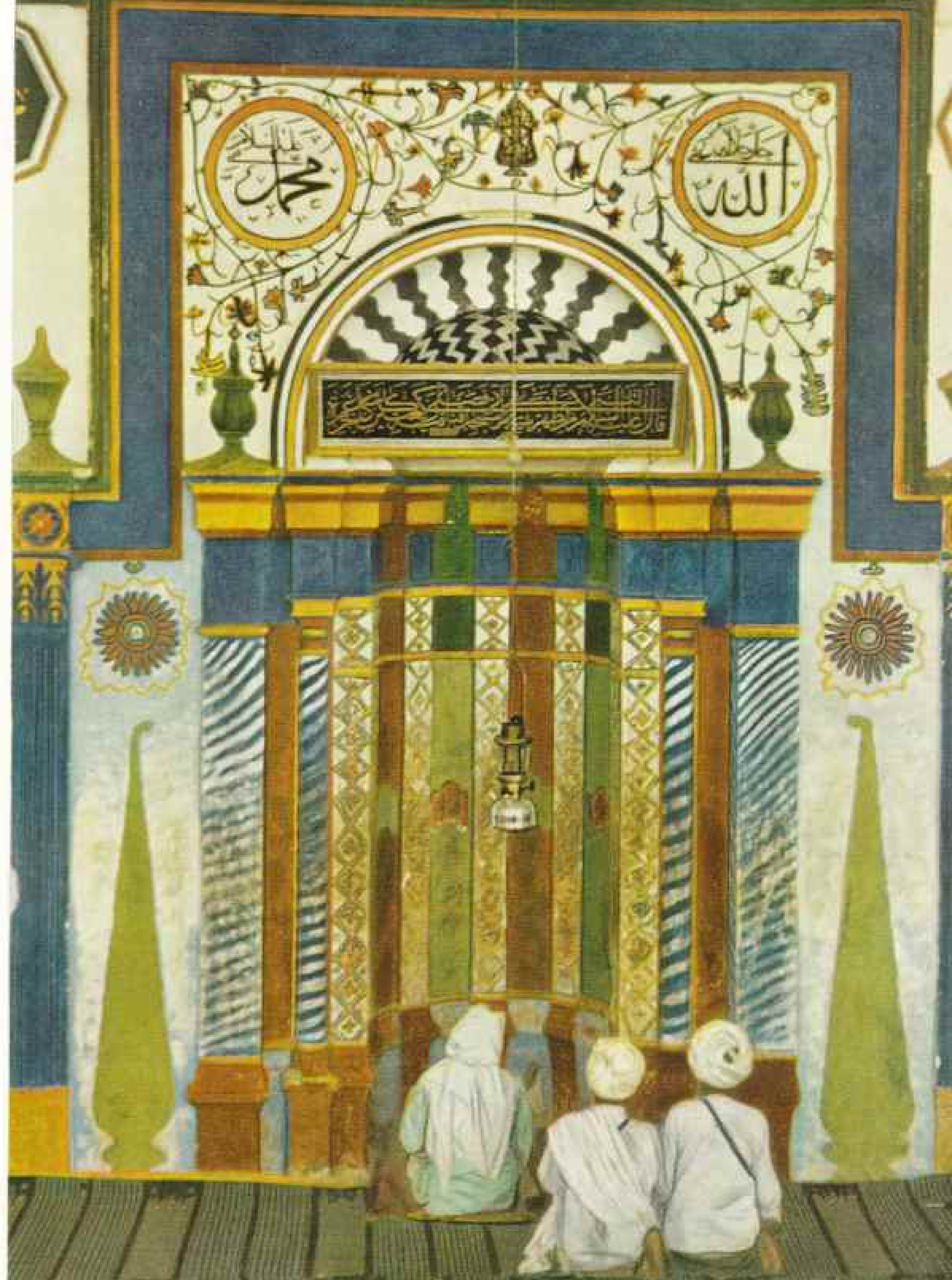
As I plodded along the Mina-Mecca road, another dust storm swirled up from the alien desert and wrapped our straggling column in choking, stinging clouds of grit. By the time it had bedeviled us enough and danced off across the dun-brown plain, the light had begun to fail.

Truly anxious now lest I miss my tawaf, I hailed a passing truck. For five *riyals* (about $1.50) the driver let me ride beside him, and we jounced into Mecca at a good clip. In the Bazaar of the Bedouin he let me descend and, dusty and disreputable, I hobbled through the clotted streets to the mosque.

I had come in time, and the day was not yet spent before I completed my circumambulation, jogged the seven long laps between Safa and Marwa, and submitted once more to the ritual hairclipping. Numb, exhausted, I stumbled back to my father's house, savoring in my mind its hospitable serenity.

Hospitable I found it; but hardly serene.

(Text continued on page 43)



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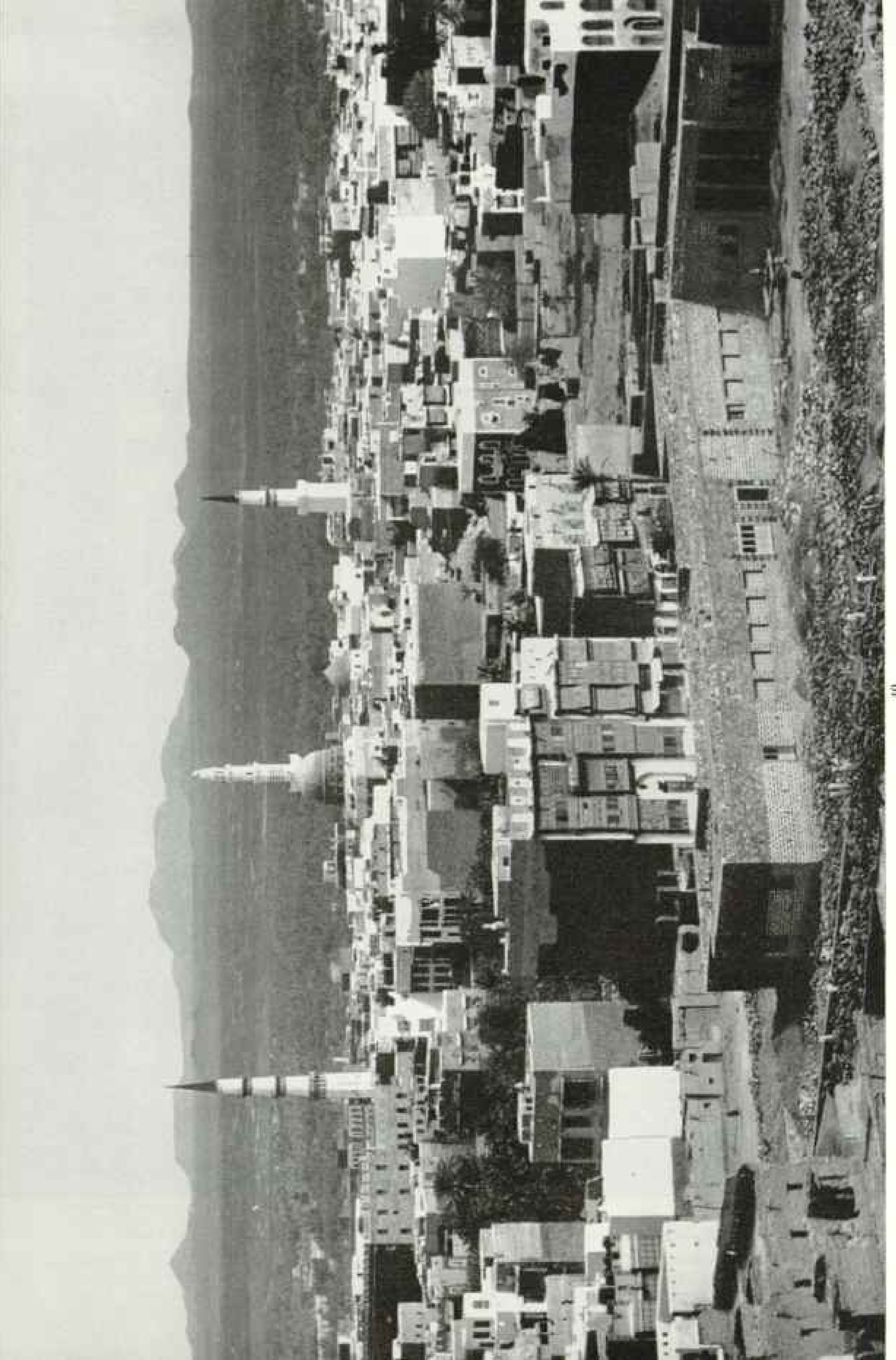
Kodachrome by Abdul Ghafur Shaikh

Worshipers in a Mosque at Kuba Face Mecca, as Moslems Do the World Over

Arabs long ago directed their prayers toward Jerusalem, and so did Mohammed for some time. Afterwards he announced he had been enjoined to direct his prayers toward the house which Abraham built in Mecca—the Kaaba.

Encircled Arabic words above this richly decorated niche read "Mohammed" at left, "Allah" at right. Kuba is four miles southwest of Medina.



▲ Minarets Stab Sky over Medina, Islam's Second Holiest City

Medina, more temperate in climate than Mecca, is known to the Arab world for its luscious dates, its leisurely ways, its piety, and its befriending of the Prophet in his exile.

Many aged Moslems settle here to die, confident that Judgment Day will find them arising with Mohammed and marching to Mecca to arouse the rest of mankind (page 60).

◄ Rank on Rank, Islam Bows in Prayer

Five times a day—at dawn, noon, midafternoon, sunset, and early night—Moslems wherever they are face Mecca and pray. These offer midafternoon prayers in Mina.

The basic *rakah*, or bowing, consists of seven movements: crying "*Allahu akbar!*" (God is most great) with hands open beside the face; reciting, upright, verses from the Koran; bowing from the hips; straightening; sliding to knees and falling face forward; sitting back on one's haunches; a second prostration.

Curtained Cart Gives a Lady a Stifling Ride from 'Arafa to Mecca

Saudi Arabian women, whose country follows the Moslem orthodox and conservative Hanbali school of thought, live in seclusion. Except for veiled visits to friends or to the mosque, they keep to the harem.

◄ Bedouins, it has been said, are the raw material of Islam. Cameleers and shepherds, they have matured on the cruel, demanding desert—"where nothing is save God." From their ranks have come the warriors who once swept Islam's banners to the Pyrenees of Spain and the steppes of Asia.

Now King Abdul Aziz al Saud, seeking to ease the Bedouins' hunger-driven nomad ways, is founding model farm communities and irrigation projects. He has already clamped down hard on a custom dear to Bedouin hearts for centuries: the intertribal *razzoo*, or looting raid.

But Bedouins like this bearded young shepherd still wander across the Arabian deserts with their women, flocks, and black goat-hair tents.

© National Geographic Society

Kodachromes by Abdul Ghafur Sheikh

In the courtyard a party of Javanese had camped and were cooking their food over little fires. On the first floor slept families of Iraqis, and upon the stairs reclined great swarthy men from Afghanistan. At each window other faces peered in, curious, attentive, unabashed.

With care and deference I threaded my way past these clusters of informal guests and climbed to the roof, where my father had erected a kind of flimsy penthouse. At times I thought any mild wind would pitch it five floors into the street, and me with it; but at night it was hot enough below to tempt me to accept any perils for a breath of moving air.

This evening I lay down upon my rug, pillowed my head on my arms, and dropped into oblivion. I arose to the surface of consciousness only at the cry of the muezzin at dawn: "Prayer is better than sleep!" It seemed to me, at the time, a debatable point. But my father permitted no rebuttal; presently I heard his call:

"*Sabah el-kheir*, Abdul Ghafur. May your morning be bright. Are you awake?"

"May your morning also be bright. I am. Unfortunately."

After breakfast we conferred upon our next moves. We had finished the chief requirements of the hadj proper, but we could still perform if we wished the *ziyarat*, or pilgrimage to Medina. I wanted very much to go, but the time was drawing near when I must return to the United

(Text continued on page 48)

"*La Ilaha Illa Allah!*" Cries a Yemenite on Mount of Mercy

Umbrella and sandals aloft, money belt secure around his waist, an ecstatic pilgrim states his faith, "There is no god but God," at the ceremony of the Standing above the plain of 'Arafa.

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^ Pilgrims on Fiery Plain of 'Arafa Cannot Live by Ecstasy Alone

Professional guides who conduct pilgrims to the Standing at 'Arafa must know how to cook as well as how to lead the appropriate prayers. Tradition demands that they play host for the midday meal, usually a pot full of lamb and rice.

With hundreds of thousands milling around the plain and camping in nearly identical tents, it's no trick to get hopelessly lost. On an earlier hadj, the author (at the age of 8) and his mother became separated from the family and, footsore and thirsty, found them again in Mecca three days later.

Saudi Arabia's Government has done much to relieve the hardships of those on pilgrimage.

Time Out for a Coke >

Moslems, whose religion bans alcoholic beverages, welcome soft drinks from the famous red cooler. A bottling plant at Jidda sends Coca-Cola to Mecca.

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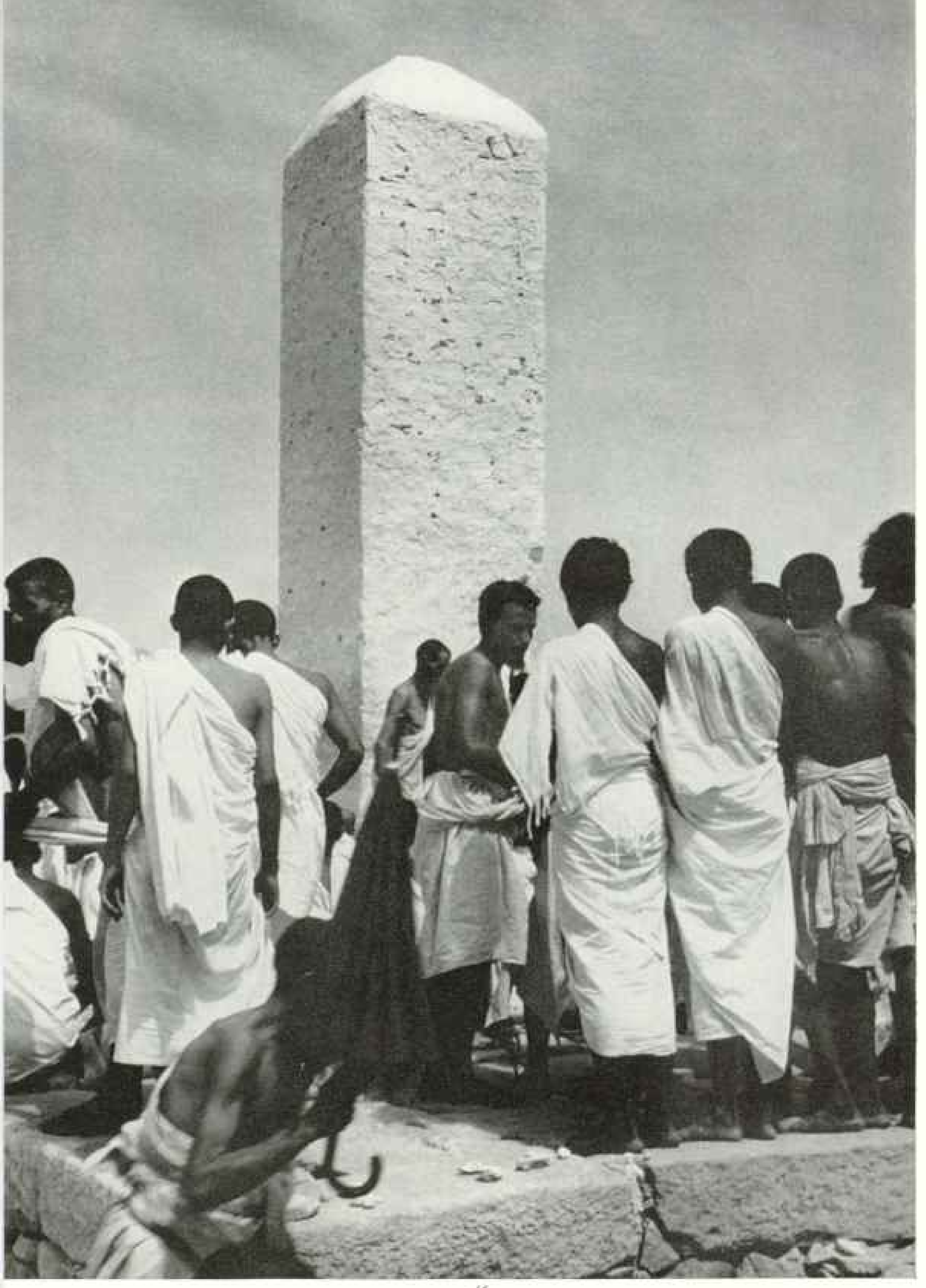

Hadjis on the Mount of Mercy Stand Bareheaded in the Blazing Sun Until Twilight

Here Mohammed, astride his she-camel, delivered a farewell sermon. "The best of prayers," he said, "is the prayer of the Day of 'Arafa." Most coveted spot to pray is this hill 200 feet above the 'Arafa plain.

Raiding Pilgrims on Hadj Once Formed the Bedouins' Favorite Outdoor Sport

King Abdul Aziz al Saud ascended the throne of Saudi Arabia in 1932. One of his first reforms was to assure those who came on pilgrimage that they would not be fleeced, beaten, or left to die of thirst.

Once when a barber from India, trudging from Jidda to Medina, was robbed and knocked unconscious, the King jailed every Bedouin chieftain between the two towns in hope that they would produce the highwayman.

When a month passed with no results, the monarch ordered each sheikh's son to take his father's place in jail so that the sire might return to his tribe and hunt the culprit. This time the thief was found. As a reminder not to steal again, the King's executioner lopped off the offender's right hand.

Now pilgrims travel in safety, secure against even the snatching of a purse. Money-changers and jewelers in the bazaars leave their stands unattended to pray in the mosques.

→ This royal guard carries a wire flail to disperse unruly crowds. Though he obviously could afford shoes, he prefers to go barefoot.

↓ A Sudanese woman rigs shade against the fierce noon sun. Some pilgrims sell their fine rugs to finance their journey home.

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Kodachromes by Abdul Ghafur Sheikh

States, and we hadjis were still the guests of Prince Faisal (page 35), Viceroy of the Hejaz, obliged by the laws of hospitality to await official permission before leaving the city. Authorities were apparently withholding that permission until Jidda had prepared itself to cope with the returning hordes.

I asked our guide to secure a special pass from the authorities so that I might have at least a day's grace before the floodgates were unlocked. But he replied only with a shrug of resignation and the advice: "Wait, wait. You Americans must do everything today, or, if possible, yesterday. Tomorrow will do."

"Tomorrow!" I cried. "Your 'tomorrow' is a pregnant woman. Who knows what it will bring forth? I am more interested in today."

But he would do nothing. So in the end I trotted from office to office myself, badgering sleepy bureaucrats, parrying excuses, outwaiting those "in conference." I still had a slip of paper on which a Jidda official, days before, had jotted down Crown Prince Saud's name and an hour at which I might see him. Our conference had long since taken place, but I saw no need of stressing this fact. At last I found a desk holder so impressed by the urgency of this royal audience that he scribbled me a permit to leave Mecca at once.

Airline Besieged by Pilgrims

When I returned, triumphant, to my father's house, I found myself immediately embroiled in a family argument as to whether I should go alone or whether they would all, permit or none, accompany me. The dispute dragged on like a wounded snake, getting nowhere, until I tired of it and, shouldering a great bag of silver riyals, declared I was going to Medina and would meet them there when and if they ever arrived.

Easier said than done. In Jidda I found the airline willing enough to sell me a ticket to Medina, but in no hurry to give me a reservation on a particular flight. Hundreds of applicants indeed were already besieging the airport, camping day and night in the lobby and asserting squatters' rights to positions near the counters. When, a short while after I had come, officials released the hadjis from Mecca, this army received formidable reinforcement.

I might be waiting yet to break through this cordon if it had not been for the help which my brother, Rashid, in an odd way provided me. The previous year he had hopped across the Red Sea to Jidda in his little private yellow plane and hammered on every door for permission to fly on to Medina. This was firmly refused, of course, for airborne sight-seers are not permitted above the holy city. But in the course of his stubborn petitioning he had charmed as well as astonished every official in Jidda, and when I came in my turn to plead with them, they greeted me with courtesy interlaced with considerable curiosity. And, in due course, I received my reservation.

Ordeal by Air Pocket

Once in the air, however, I had cause to question my good fortune. I had flown many hours in all manner of planes; in my own two-seater I have fought the truly violent downdrafts of Africa's mountain passes. But never have I endured so bumpy a flight as this 200-mile trip to Medina.

The heat which rose from the desiccated plain was almost visible, and the air pockets into which we lurched and sank seemed bottomless. It was as if we had been caged in an elevator with an operator gone berserk, or had stumbled into the revolving room of some Crazy House at a children's carnival.

When our wheels at last touched ground at Medina, I joined my fellow passengers in giving thanks to God, not so much for the privilege of being in the town beloved by the Prophet as for arriving on the ground at all, and in one piece.

We waited no more than an hour in the full sun before the Government bus arrived, crammed to its heat-blistered sides, and we rode into the city packed together like tin soldiers in a box.

Hailing a porter, I set forth into the twisting, ancient streets in search of my friend's house. His name was Maulana Zeyahodin, and he had lived in Medina many years.

But the address meant nothing to my bearer, and it was late afternoon before we found ourselves, dusty and footsore, at Zeyahodin's gate.

My telegram of two days previous had not yet reached him. But he embraced me, nonetheless; cried, "God be glorified that you are here," and called his children to meet me.

When I had rested, he suggested that before the evening prayers I might like to visit the public baths. Gratefully I went and steamed from myself the petty irritations and annoyances of the day, returning refreshed in body and spirit.

By the Tomb of the Prophet

As I strolled past walled gardens and houses old before the Prophet's time, a breeze that bore the promise of a cool night to come ruffled my fresh, clean garments and brushed my brow with a gentle touch.

At Zeyahodin's I met a young man with whom I had played as a child on my first hadj. Possessing now a great beard, tall, most dignified in his Arab robes, he met my startled

(Text continued on page 57)

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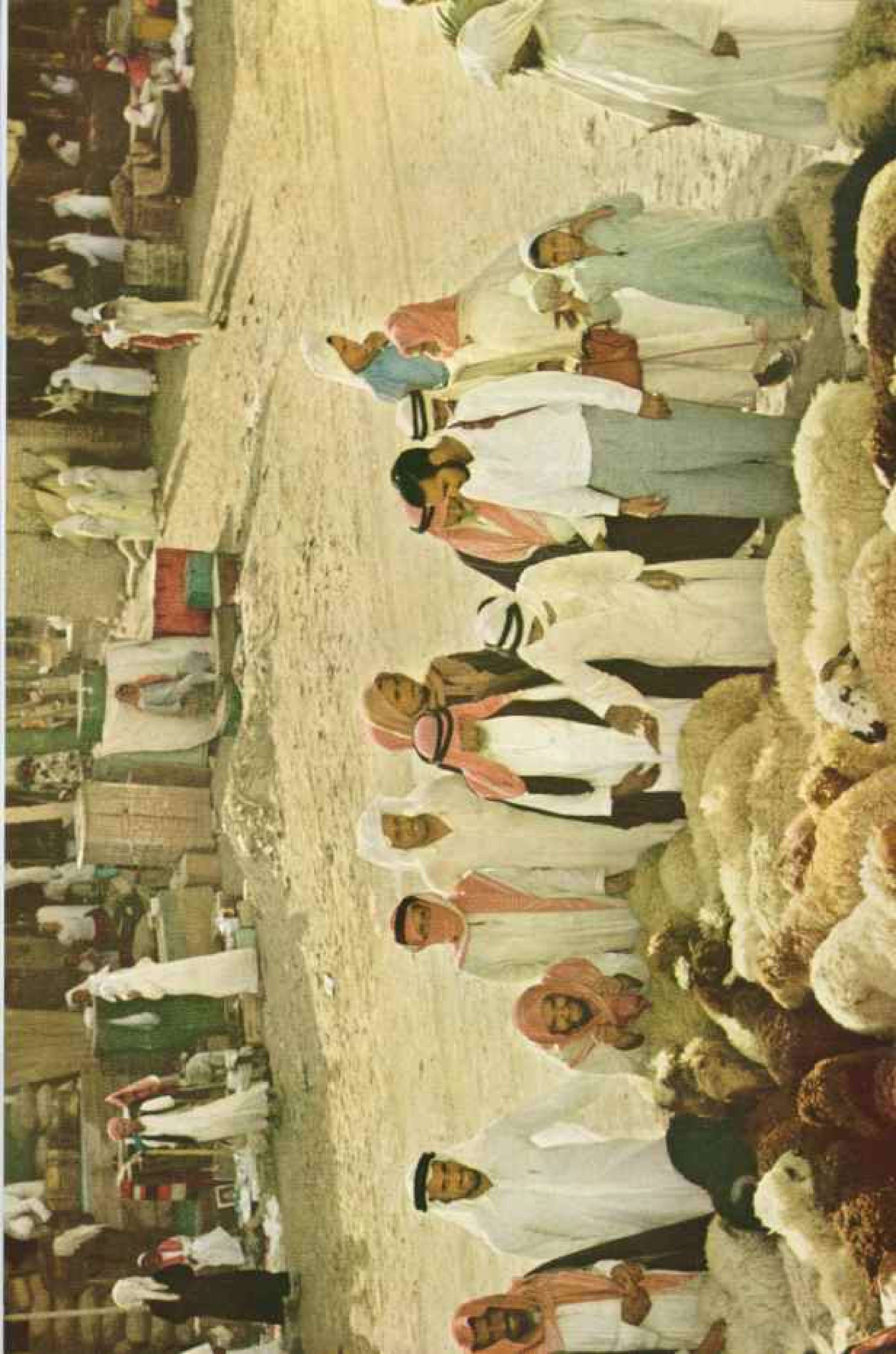
Kodachromes by Abdul Ghafur Sheikh

Bus and Car Go to 'Arafa. He Who Walks, Some Pilgrims Believe, Gains More Favor

Most pilgrims prefer to hire a cab or pay the Government's fare for a bus ride along the hot route from Mecca to 'Arafa. These overflow passengers even spread their umbrellas while riding in the baggage rack on top. Camels, once the backbone of pilgrim travel, now plod in small caravans along short cuts through the hills. Traffic jams on the main road are frequent. Arabs last year were delighted to learn that one volunteer trying to untangle a snarl was Prince Faisal (page 35), Viceroy of the Hejaz, indistinguishable in his simple garb from any other pilgrim.

↓ With Pontiac and hookah, these young merchants from Jidda perform their hadj in style.



↑ **Dhahran Offers Sheep for Sale. Here the Author Wears Western Garb**

← A native of Mina returns from the sacrificial field with a burro-load of lamb slaughtered by pilgrims and offered to the poor on the feast of Id al Adha. Dried, the meat will last him all year.

↓ Completion of the stoning rites and sacrifice at Mina entitles a pilgrim to trim his hair, as Mohammed is believed to have done here. This hadji gets his head shaved.

Kodachromes by Abdul Ghafur Sheikh

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Thousands of Sheep and Goats Await the Pilgrim's Knife on the Field of Sacrifice at Mina

An integral part of the hadj, the Feast of Id al Adha is celebrated simultaneously throughout Islam. It commemorates God's sparing Abraham the sacrifice of his son, Ishmael, supposedly near hill at left.

53

Kodachrome by Abdul Ghafur Sheikh

Moslems Must Kill at Least One Animal; They Often Sacrifice More in Expiation of Sins

A pilgrim points the beast's head toward Mecca, chants, "In the name of Allah! God is most great!" and slits its throat. He may eat the better cuts; the rest goes to the poor. Local Bedouins sell animals for the sacrifice.

↑ **Author's Pilgrim Garb Conceals a Camera; His Light Meter Falls Free**

→ Though pilgrims must keep their heads bare beneath the Mount of Mercy, they are permitted to carry umbrellas. Mr. Sheikh, needing both hands for photography, was unable to enjoy such shade. Hilltop pillar commemorates Mohammed's farewell visit to 'Arafa.

↓ **Pilgrims Bow to Mecca; a Camel Turns Away**

Some Arabs explain the camel's surly, patronizing air by saying that, while they know the 99 names of God, only the camel knows the 100th.

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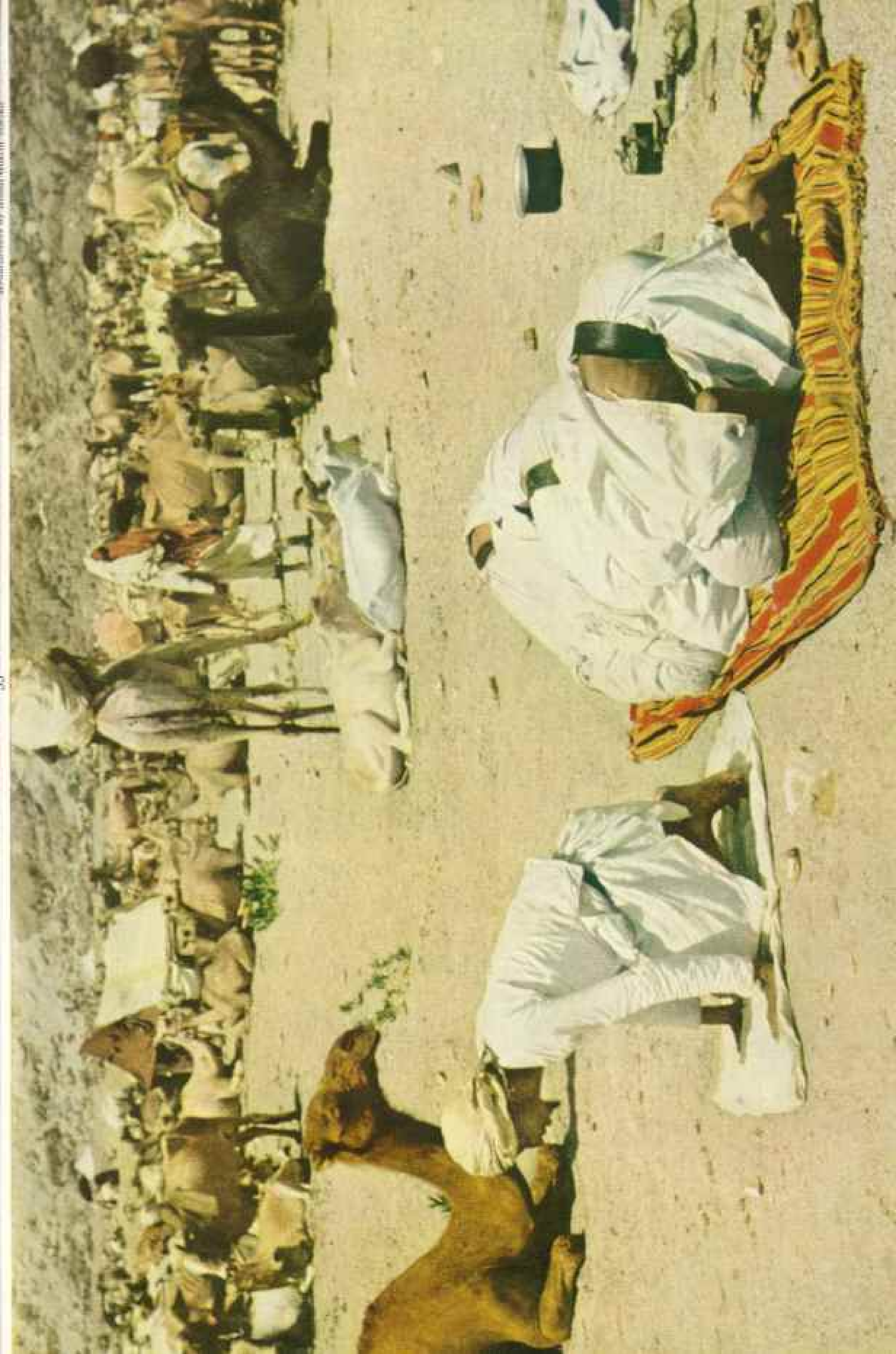
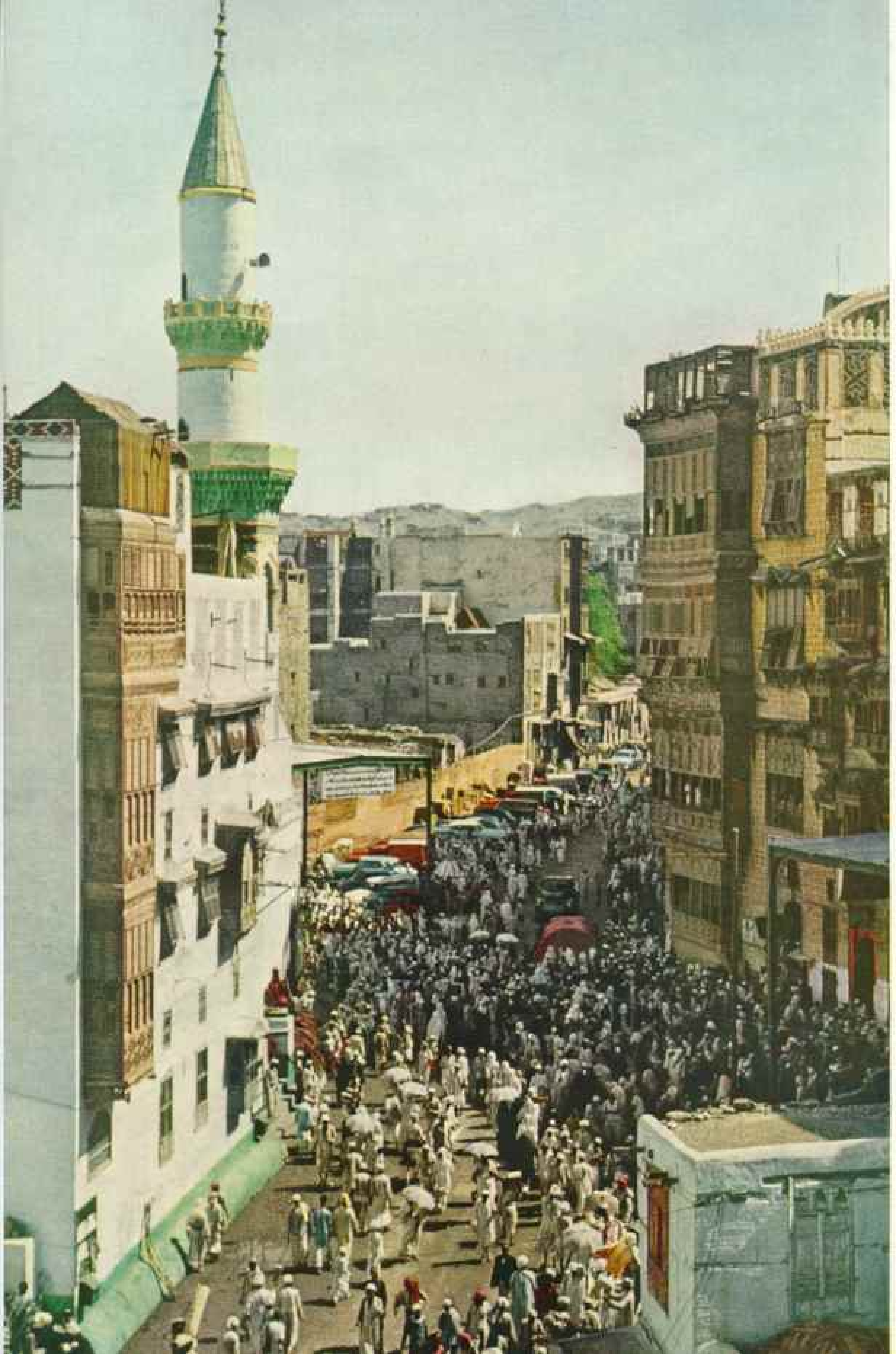
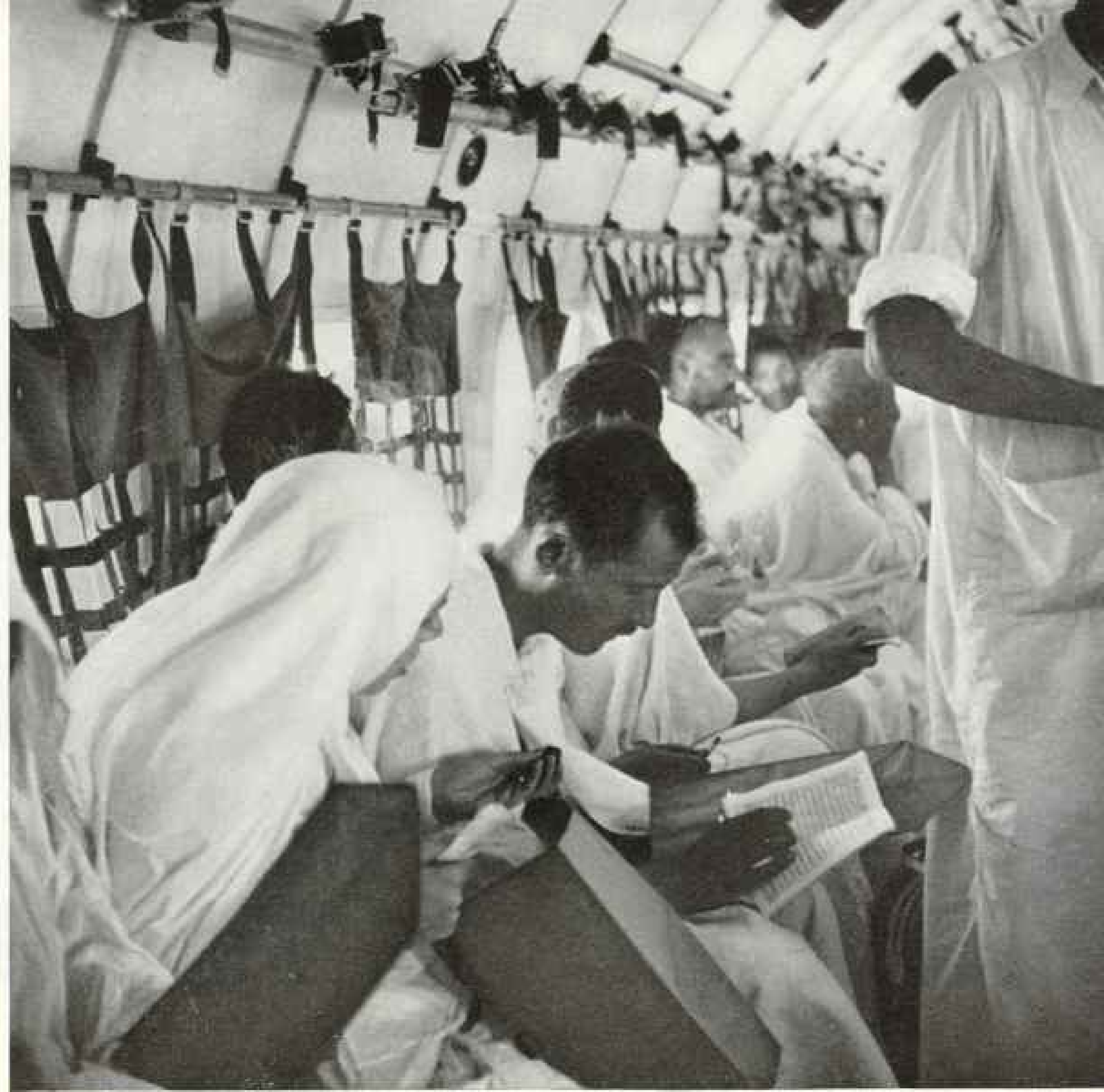






↑ **Hadjis Ride a Magic Carpet with Bucket Seats**

Crowded into a United States Air Force transport, these Mecca-bound Moslems relax after taking off from Beirut, Lebanon. American authorities came to the rescue after pilgrim throngs swamped commercial lines.

While companions chat and read Arabic, one man (left) investigates the lunch of bread, cheese, and fruit provided each passenger by the American Friends of the Middle East.

← **Pilgrims in Farewell to Mecca Pray, "Lord, Accept My Hadj!"**

Streaming along the route of the Safa-Marwa, the crowd passes the Great Mosque (minaret, left). A projecting canopy provides shade. With worship completed, hadjis may put on ordinary clothes, relax, and prepare to go home.

© National Geographic Society Kodachrome by Abdul Ghafur Sheikh

eyes with grave amusement. But we were soon friends again; and he volunteered to accompany me to the tomb of Mohammed, which is situated within the Masjid-al-Nabi, the Mosque of the Prophet (page 34). The mosque, in turn, is built upon the spot where Mohammed's camel first lay down to rest when the Prophet arrived on his flight to Medina.

Mohammed, who made it very plain to his followers that he claimed no divinity but was only a mortal messenger of God, left explicit instructions about his last resting place. "Let not my tomb," he said, "be ever an object of worship."

Were we who made the pilgrimage to his tomb and offered prayers there violating his command? No, for we prayed not *to* the Prophet, but *for* him; and we worshiped not the tomb but felt only that we stood upon a spot loved by God.

For instance, at each of the niches cut into the golden screen around the tomb and angled toward Mecca, I chanted: "O Allah! Bless the last of the Prophets, the seal of prophecy, with blessings in number as the stars of heaven and the waves of the sea." And, as Moslems do, we prayed not for material benefits for ourselves, but gave thanks for those blessings already vouchsafed us and sought the mercy of Allah for those we loved.

A Tale from Long Ago

The actual tomb of Mohammed was screened from us; but my companion told me it lay beneath an egg-shaped mold of metal.

"There is a reason for its protection," he said, "and I shall tell you the story, O my brother, as it was told to me, as God is my witness. A century or two ago there came to Medina two elderly Infidels who posed as learned and holy scholars of Islam. Quietly and unobtrusively they lived in their house near the mosque, and good was their reputation.

"One night, however, the king in his camp upon the desert dreamed a dream, and in that dream the Lord warned him that the Prophet's tomb was endangered. Back he rode to the holy city on his fastest camel, and his army with him. He summoned the governor and instructed him to hold a huge feast and to invite all in the town.

"Then the king stationed himself by the door to the feasting tent and looked into the face of each guest who entered, for in the dream he had seen those who threatened the tomb. But no man came by whom he recognized.

"So he called the governor and said: 'On your head be it. Not all the people have come to the feast.' And the governor, distraught, wandered through Medina until he remembered the two pious scholars. He had invited them, but they had refused anything so frivolous, and he had thought nothing of it.

"The old men were haled from their lodgings, protesting bitterly, and brought before the king. 'These are the men I seek,' said he, and sent soldiers to search their house. In no time they uncovered a tunnel leading under the

Stranded Pilgrims Queue Up for America's Airlift

With the opening of the hadj only a few days off, nearly 4,000 desperate Moslems found themselves in Lebanon last August with air tickets but no reservations. Commercial lines, flooded with applications, could take only a few (page 20).

To help in the emergency, American Ambassador Harold B. Minor asked the United States Air Force to fly 14 C-54's from Libya and Germany. Quickly a shuttle service was set up; in 75 flights 3,763 pilgrims were transported 900 miles from Beirut to Jidda in time to begin their hadj. In gratitude, the Mufti of Lebanon ordered prayers for Americans in all mosques, and King Abdul Aziz al Saud presented Arab robes to 86 airmen.

Upper right: Pilgrims receive flight instructions.

Lower: Best known of those airlifted was Ayatollah Kashani, an Iranian religious leader never noted for his cordiality to Westerners. Because of his prominence, Kashani rode in an upholstered seat. At the end of the flight he kissed the pilot.

The Air Force accepted no money for the pilgrim passages. Fares collected by commercial airlines, for flights they were unable to complete, went to Moslem charity.

street to the mosque itself, and already only a few feet short of the tomb of the Prophet.

"The king gave thanks for God's timely warning, stopped the tunnel with earth, and ordered the tomb enclosed in metals of the hardest degree."

"And what happened to the scholars?" I asked.

"They did not die of old age," said my companion curtly.

Where the Prophet Became a General

From Medina I went out to the battlefields of Badr and Ohod where Mohammed fought the armies of Mecca. Driven into exile by the powerful Koreish tribe that controlled and profited from the idol worship around the Kaaba, Mohammed had sought allies among Medina's citizenry, many of them Jews.

These men became the Prophet's first troops and, after some initial reverses, proved that crusading passion, linked with shrewd generalship, could make a devoted handful the equal of a horde.

I visited the cemetery where many of these companions-in-arms lie buried, and the Kuba mosque, built on what is believed to be the spot where Mohammed received his revelation instructing the faithful to face no longer toward Jerusalem when they prayed, but toward Mecca (pages 39, 41).

I heard about, but did not inspect, the well whose waters the Prophet's prayers changed from bitter to sweet, and the shrine where a bow and arrow supposed to have been his are displayed.

Higher, more temperate in climate than Mecca, Medina is calm, peaceful, almost luxuriant. The dust blows through its streets, yet there is greenery evident everywhere (page 40). Date palms wave over courtyard walls (and the dates are delicious); truck gardens provide an abundance of fresh vegetables; milk can be had, and pomegranates, the fruit of Paradise!

Second Holiest City of Islam

Time means little in Medina; eternity everything. The city seems not merely reconciled to death but half in love with it. For it is reckoned a great blessing to die in Islam's second holiest city; on the Day of Judgment, so legend says, the Prophet will arise, wake his family and the citizens of Medina, and together they will all march down to Mecca to arouse the rest of mankind.

How much this hope is prized became clear to me when I tried to tempt Zeyahodin to visit my family in Africa. I offered him safaris into the bush, a shot at a lion or an elephant, mountains to climb. He only shook his head sadly and said: "But what if, after all these years, I should die outside of Medina?"

I countered: "Would that not be the will of Allah? And do you question His will?"

He smiled ruefully. "I question it not. Yet . . . I cannot go."

Most pilgrims to Medina perform at least 40 prayers. At five a day, these would consume eight days. I left the city after only 10 prayers. This disturbed my friends; but I knew that if I remained longer, it would disturb the Dean of the Harvard Graduate School of Business Administration even more. Already I was quite sure to miss the day of registration.

Mercifully the plane back to Jidda pursued a calmer course than the one on which I had arrived. But on landing I discovered that commercial flights from that city to points outside the country were now subject to six days' quarantine imposed by foreign authorities. In despair I turned again to Aramco.

Obliging as ever, the company promised me space on a plane leaving the next day for Dhahran, whence I could fly home. With several hours to spare, I drove up the long road to Mecca, now relatively deserted, to say farewell to my family; for, true to my expectations, they had never quite made up their minds to join me in Medina.

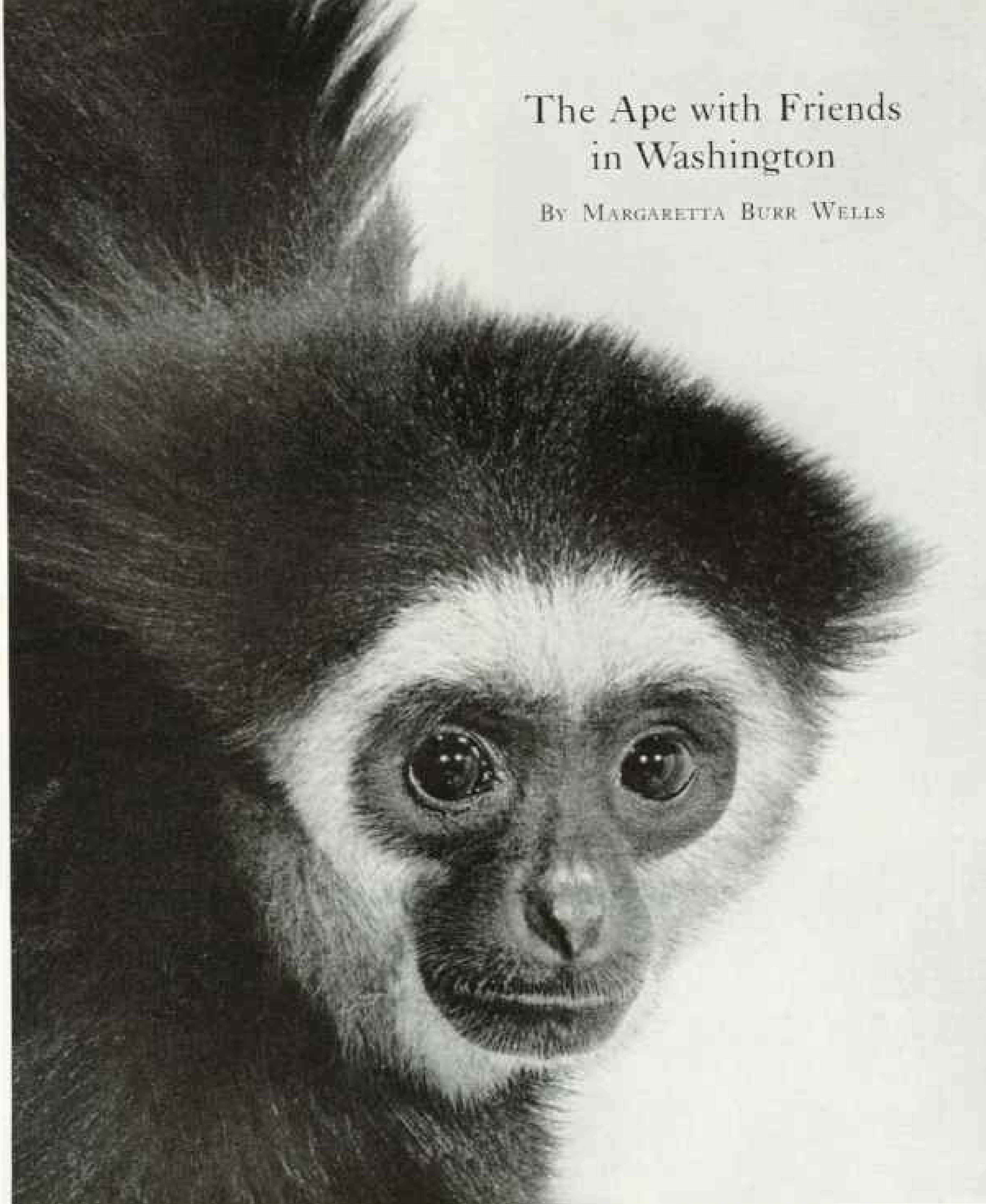
The Pilgrim's Farewell

Most pilgrims making their tawaf of farewell around the Kaaba and bidding goodbye to Mecca know a gentle sorrow. They cannot tell when, if ever, they will lay their eyes again upon the holy city. My regrets stemmed largely from another source.

There is a saying among Arabs: "On the first hadj, one sees the House of the Lord only; on the second, one sees the House and the Lord; on the third, the Lord only." This was my third hadj, and I asked myself the sharp question: Had I reversed this order of spiritual progress, so that, distracted by my photographic mission, I had focused solely upon the House and missed the Host?

With Allah lay the answer. I walked for the last time up the muddy streets (wet with water sloshed on them by merchants fighting the dust); stepped past the divans where men lounged and called languidly to the *gahwa-wallahs*, "Coffee, I pray!"; and wheeled about for one lingering look at the mosque's high walls and slim, aspiring minarets.

Then to myself I murmured the prayer all pilgrims pray on their homeward course: "Lord, accept my hadj." And I turned and strode to the waiting car and drove toward Jidda and the plane which would take me to Dhahran and a flight westward to complete in New York my airborne pilgrimage.



The Ape with Friends in Washington

By Margaretta Burr Wells

"THIS picture looks like Bimbo," said Dad, holding up the morning paper and pointing to an article about a new inmate of the National Zoological Park in Washington, D. C.

"It is!" exclaimed our 18-year-old daughter Roberta. "No other gibbon looks like Bimbo."

But we had left Bimbo in northern Thailand, scampering along a bamboo pole and keeping a watchful eye on the boys of The Prince Royal's College. She was a campus flirt and a tomboy, joining in the students' play when released and accepting their hand-outs of sweets with just the right amount of appreciation. When not free to join them in the classrooms, she had rattled her light chain from the top of a post and emitted distracting "whoo-whoo's" at errant stragglers.

"Well, there is one chance in a thousand that it is . . ."

We had lived in Thailand for four years while my husband, Kenneth E. Wells, served as headmaster of Prince Royal's, an American mission school maintained by the Presbyterian Church. During that time Bimbo was practically a member of the family. But in 1951 we gave our pet to friends and returned to America, making Washington, D. C., our home. The children felt heartsick at parting with the lovable creature, although they agreed that she would be better off if left behind.

None of us had thought to see Bimbo again—until Dad chanced upon that picture in the Washington Post.

← Pre-zoo Days: Bimbo and Roberta Wells Go for a Stroll

For four years the gibbon was the romping, mischievous pet of the Welbes, an American missionary family in Thailand. Returning to the United States, the family left Bimbo with friends. They often thought of the ape, but held no hope of ever seeing her again.

Fifteen months later, in Washington, D. C., a familiar black face rimmed with white peered at the Welbes from a newspaper photograph. Could it be Bimbo?

Bimbo it was. There was a joyous reunion at the National Zoological Park (pages 64 and 67), which had acquired the gibbon from an animal dealer.

↓ At the market place in Chiang Mai, winter home of the Wells family, Thailanders sell eggs, fish, and vegetables in the shade of paper umbrellas.

Kenneth E. Wells; W. Robert Moore, National Geographic Staff

Henry R. O'Brien

Boatmen from Chiang Mai Prepare to Pole Down the Ping

Dawn mist swirls among distant Thailand hills (background), near where Bimbo was captured. The upswept prow of this long, bamboo-covered river craft gives the boatman an elevated position, an advantage in shooting more than 40 turbulent rapids below Chiang Mai. With restoration of railroads since World War II, such cargo boats are vanishing from the Ping and other Thailand rivers.

Sunday found us at the zoo. We circled the Small Mammal House and located three gibbons—a big burly white one, a blotchy nondescript one, and a smaller black one with white hands and feet and a fringe of white about its face.

Is the Gibbon Bimbo?

"It *is* Bimbo, I know it," said Roberta exultingly.

"Call to her," urged our son, 16-year-old Kenneth.

Roberta sent forth a soft call used by Thailand gibbons, this one pitched in the manner she had always used in attracting Bimbo.

"Louder; she can't hear you," said Kenneth.

Roberta called more loudly. The curious glances and audible comments of the crowd of onlookers had made her feel a bit conspicuous.

The black gibbon, looking over the heads of curious spectators, made a few lonesome calls which set the big white gibbon off with raucous whoops.

"Oh, that bruiser and his beery voice! Every time the black one opens her mouth he shouts her down," stormed Roberta.

"We'll have to come early some morning, when there is no crowd around," said Dad. The next day he telephoned Mr. Ernest P. Walker, the zoo's assistant director.

"Can you tell me where you got that black gibbon?" he asked.

"From an animal dealer in Bangkok; we don't know where he got it. Do you wish to buy one?"

"No. You see, she looks like a pet we had in Chiang Mai. We're wondering if we could be allowed up close to her to find out."

"Yes, indeed. I'm very much interested in the memory of apes. How about Friday morning, before the crowds come? . . . Good, I'll be there at 8:30."

Gifts for Bimbo's Sweet Tooth

It had been 15 months since Bimbo had seen Roberta and Kenneth, half the world away, in a different and tropical setting. Even if the black gibbon was Bimbo, would she recognize them?

Friday morning Roberta put on a blue dress,

National Geographic Photographers Volkmar Wentzel and Donald McBain

Bimbo Remembers: a Hug for Kenneth, a Kiss for Roberta

When the Wells youngsters went to the Washington zoo to see if a newly acquired gibbon was their former pet of Thailand days, the result was a literally touching reunion. The ape recognized the friends she had last seen 15 months earlier, 8,500 miles away.

Ernest P. Walker, assistant director of the zoo, said the animal's behavior left no doubt that she was indeed Bimbo. Gibbons and other apes, he added, are noted for their memory.

Here Bimbo puts a friendly headlock on Kenneth and gets ready to receive Roberta's greeting.

Bimbo Holds Still Long Enough for a Primping

Having old friends in Washington made Bimbo an ape of distinction. Other residents of the zoo's gibbon cage watched enviously when the Wellses came to call, bringing the special English chocolates which Bimbo likes above all others.

Whether in cages or in households, gibbons seem to like people almost as much as they do other gibbons. In Thailand, Bimbo's circle of friends came to include most of the 1,000 boys attending The Prince Royal's College, Chiang Mai, where the author's husband was headmaster.

Right: Mrs. Wells admires Bimbo, and vice versa.

National Geographic Photographers Volkmar Wentzel and Donald McBain

Ernest P. Walker

Always Ready to Frolic, Bimbo Pushes a Hand in Roberta's Face and Nips Her Thumb

Though eager for roughhousing with Roberta, Bimbo knew instinctively that infants were special and needed care. With a neighbor's baby in Thailand she was all gentle protectiveness (page 70). The neighbor's dog, however, inspired Bimbo to mischief. She pulled its tail—an appendage Bimbo envied because she has none—and bestowed hearty pats on its back.

similar to one she had worn in Chiang Mai, and set out with us for the interview, carrying a tin of pineapple—Bimbo's favorite fruit—and a box of expensive British chocolates of the kind she liked best.

"Don't be disappointed if it isn't Bimbo," said Dad as he stopped the car near the Small Mammal House. "After all, Thailand is full of black gibbons."

Mr. Walker, courteous but dubious, met us as we approached the cage, pineapple and chocolates in hand, ready for the experiment. He lured the two larger gibbons away into another cage, leaving the small black one alone on the topmost bar. Without looking for a gate I climbed the outer fence with the children.

"Mother was born out West," explained Kenneth somewhat lamely when he saw the zoo official's surprised look.

Mr. Walker opened the outer safety screen of wire netting, thus letting Roberta up to the iron bars of the inner cage. She called.

The morose bundle turned her head and listened. Roberta called again.

The black gibbon unfolded, came down the bars hand over hand, squatted on the floor beside Roberta, looked intently, and then smiled—a wide tooth-paste ad smile. She answered in soft monosyllables and put her long arms out through the bars and around Roberta. It was indeed Bimbo!

Delighted Gibbon Accepts Candy

Petting her and talking to her as of old, Roberta gave her the pineapple. Bimbo took this up to the first bar to eat, just as she had always eaten on the bamboo pole by her feeding tray. Then down she came again and was offered a chocolate. With a look of delight she seized it and at once made the familiar high-pitched noises of intense enjoyment and approval that she reserved almost exclusively for expensive sweets.

"I must say," said Mr. Walker, "that this is the first time I have ever seen a gibbon

enjoying chocolate creams. She is yours without a doubt."

"She usually has waffles and syrup for Sunday-morning breakfast," observed Kenneth.

"That I'm afraid we can't manage," said Mr. Walker regretfully.

"Do let me get into the cage with her," begged Roberta.

"You'll have to do it at your own risk," warned an assistant standing by.

"Oh, yes, please! It will be all right."

Old Friends Enjoy a Good Cry

The iron bars were opened and Roberta stepped in. She stood at the far end of the cage, held up her hand, and called in a tone that told of palm trees, flame-of-the-forest, and frangipani blossoms.

With a whoop of joy Bimbo threw herself into Roberta's arms, and girl and gibbon hugged each other, crying unrestrainedly. For some time Bimbo refused to be put down, but clung fast and protested in a hurt little voice. She allowed her nose to be rubbed, and the spot between her eyes, and her eyebrows, and she stretched her neck as a cat does in order to be rubbed under the chin.

Since an animal ordinarily shies away from anything near the eyes, Mr. Walker was more convinced than ever that Bimbo was with her own family.

The morning crowds were beginning to come to the zoo and to flow past the Small Mammal House. The somewhat incongruous sight of a girl in the gibbon cage stopped them in their tracks. Reluctantly Roberta left the cage, giving Bimbo a second chocolate as a parting gift.

Roberta Receives a Scolding

"We must have pictures of this," declared Mr. Walker. "Can you come back on Wednesday?"

We did. The two larger gibbons had again been decoyed away and the cage cleaned. Bimbo watched with interest and offered comments while Mr. Walker set up his camera. She took the proffered pineapple and chocolates as her due; then, waiting until Roberta stepped into the cage, she greeted her with delight.

Finally Bimbo sat down on the floor and turned her back on Roberta, saying "woup, woup, woup," softly and reproachfully.

"She's pouting," explained Roberta, "and asking why we stayed away again after finding her."

Dr. William M. Mann, for 28 years the director of the zoo, wagged his head as if he had now seen everything.*

Roberta soothed Bimbo's ruffled feelings in apologetic tones, whereupon our pet brightened up and became her usual cheery self. She was ready to pick up life where she had left it in Chiang Mai, 15 months before. She made prodigious leaps while giving coy glances asking for pursuit. She tugged at Roberta's skirt and ran away, then returned to snatch at her hair, roughhousing as she used to do on the big veranda (opposite page).

Bimbo would never roughhouse with me, but would sit on my lap to be brushed and to have her head stroked and her feet rubbed. During this process she would stretch out and doze, purring gently like a cat, until with something like a snore she would drop off to sleep.

"Get into the cage and see if she remembers you, Dad," suggested Kenneth.

"She may not forgive me for walking out on her—and for my teasing."

He referred to the times when he would stand near her feeding tray and eat a banana without offering her any. After feigning indignation at this outrage and using very bad gibbon language, she would then extend a long arm around him for the other banana hidden behind his back.

On this occasion Bimbo did remember him and forgave all, and after a big smile and a hug she thumped him on the chest with both feet and darted away to show that they were back on the same old footing.

Bimbo Grew Up with Humans

Now just over six years old, Bimbo was a baby when we got her, and small enough to fit into a shoe box, long arms and all. She came from the fantastically beautiful Doi Chiang Dao, the Mountain of the City of the Stars, or, as some say, the Mountain as High as the Stars, which is 42 miles north of Chiang Mai. There, in a lush glen, wild gibbons feed on tropical fruits and drink from a crystal stream flowing from a limestone cave where tiers of golden Buddhas sit in endless meditation.

In the poinciana tree in our back yard we built Bimbo a small house, and in front of it placed horizontally a thick bamboo pole which extended about 20 feet to a post on which was mounted a feeding tray. She was tethered to the pole by a light chain and a sliding ring. She quickly learned to hang from the pole and swing along, hand over hand, with surprising ease and speed, and, as an alternative, to run along the top holding the chain in one hand.

From the beginning her outstanding traits were affection and mischief. Her mischief was

* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Man's Closest Counterparts," August, 1940, and "Monkey Folk," May, 1938, both by William M. Mann.

← "Take a Drink," Urges the Author, but Bimbo Isn't Thirsty

Mrs. Wells proffers a bowl of water while Roberta holds her excited friend. When thirsty, Bimbo dips long fingers in water, then lifts them up and lets drops trickle into her mouth.

Bimbo's jungle origin explains this habit. Gibbons, tireless trapezists of upland forests, find water in tree cavities and vaselike leaf-tips of pitcher plants.

Gibbons are the smallest of the great apes; others are orangutans, chimpanzees, and gorillas. Bimbo is a white-handed gibbon (*Hylobates lar*), found in Thailand and Sumatra.

↓ Some Stunts Are More Fun than a Barrel of People

Photographers patiently posed Bimbo with Roberta for a genteel luncheon scene. Suddenly the gibbon leaped to a chairback and assumed a show-off stance, as if to say: "Wouldn't this make a better picture?"

National Geographic Photographers Volkmar Wentzel and Donald McBain

not malicious, but a form of teasing to attract attention or to take advantage of a situation for the fun it promised. She exhibited a variety of moods—often pure pretense—such as disdain, coyness, jealousy, indignation, hauteur, and greed, and sometimes she would giggle.

Bimbo was an early riser and each morning literally watched for the dawn. A Thai legend says that the gibbon's cry of "poo-a" (*pua*, husband) at the first touch of red in the sky is an expression of remorse. A fickle wife, folklore relates, helped a handsome brigand slay her husband. Highly displeased, the god Indra turned her into a gibbon. Since then the sight of a red dawn reminds a gibbon of the foul deed and sets her to wailing "poo-a."

On some mornings Bimbo would omit the cry and come quietly out of her tree house, do a few pull-ups on the pole, and then perch on the feeding post and watch Moon, the cook, start a fire in the stove.

Friday was her night out—she was turned loose then; so on Saturday mornings she would swoop down from the giant rain tree in front of the house and run along the railing of the upstairs veranda to see if anyone was awake, particularly Roberta.

Sometimes Roberta would unlatch the screen door to her bedroom and then jump back into bed. Bimbo would cautiously push the door open and come in. The four-poster beds within were ideal for aerial tag, and as Bimbo swung about their tops her squeaks of delight were mingled with Roberta's "Sh-h-h, Mother will hear us!"

Gibbon Feuds with Dog and Cat

Bimbo was jealous of Archie, our mottled cat, which had the freedom of the house. Archie would lie by the screen door to get the tropic breeze, and Bimbo, seeing him, would come up bristling with irritation. Archie would then yawn and switch his tail, safe behind the screen, whereupon the gibbon would fly into a tantrum.

Being herself tailless, Bimbo seemed to carry on a crusade against the tails of all cats, dogs, chickens, turkeys, and peacocks that came within reach. In a rough-and-tumble game with Sambo, a neighbor's puppy, Bimbo found that when she dragged him by the tail he was helpless. Thereafter their game developed into "tag the puppy's tail" until Sambo became exhausted and lay panting under the house, resting up for another go at it. In any game of tag Bimbo's speed and dexterity exceeded that of dogs and men.

With little Danny Marvin, Sambo's owner, Bimbo was all gentleness and affection. From the time the boy was a month old she knew that he was to be loved and protected. She would sit beside him while he wriggled about on a blanket on the floor, touch him caressingly, and even kiss him.

As Danny grew to her height, she preferred him to all others and at every opportunity would sit on the edge of his chair and put her arm around him.

Three-year-old Dottie, another neighbor, could pick Bimbo up awkwardly and lug her around without a struggle, a liberty denied adults.

Only one child aroused her dislike, a boy who tormented her when she was tied up. Dad found her fuming and agitated, and to solace her he unhooked her chain. She gave him a quick hug of appreciation, then loped around the corner of the house, making most unusual cries. She located the boy, promptly went up and bit him, then scampered away, doubtless feeling revenged.

Bimbo Romps with Schoolboys

It was Bimbo's fondness for schoolboys that necessitated tethering her during school days. When free she would often hide in a fruit tree until students came by, then dart out after them. They would retreat, laughing; then Bimbo would turn somersaults to show that it was a game and scamper back to her tree. Once more the boys would advance; down would come Bimbo like a small black hurricane and put them to flight again.

When thoroughly enjoying herself, she would leap up and turn backward somersaults in mid-air.

Occasionally Bimbo's chain became unsnapped. Thereupon she would come rattling along the veranda, holding the chain in one hand, much as a lady does a long skirt, seeking the family. At 2 o'clock one morning we were awakened by her cries from a point above the house.

"Bimbo is caught!" wailed Roberta.

We rushed downstairs and outside. It was a still tropical night with a full moon lighting up all the countryside, and every twig and flower was silhouetted against the luminous sky. There was Bimbo near the top of the 100-foot rain tree, her chain caught on some branches. We could get no help until morning, by which time she might be hanging lifeless; sadly we turned and went indoors.

At daylight we were awakened by the familiar sound of the chain. There was Bimbo, running along the veranda to see who was awake.

Serenade to the Moon

On another night, when free of her chain, she became bewitched by a full moon. She awakened us at midnight, calling from the very top of the rain tree and looking toward

Doi Sutep, showing darkly in the northwest. She seemed under a spell, as if her long-drawn, far-carrying "whoo-ee-e" were involuntary on her part, a heritage she had received from her tribe under the pinnacles of Chiang Dao, an instinctive expression of the dark wonder and the richness of the jungle.

It was then that the children decided that our pet should be free; they had often discussed her future. Twice we had offered her freedom, but she would have none of it.

On these occasions we were vacationing on the mile-high mountain of Doi Sutep, in whose wooded ravines leopards prowled and wild gibbons whooped. On our first trip Roberta was carried in a wicker chair by four men who slowly picked their way over rocks and fallen trees, through narrow defiles overhung with bushes, and up steep ridges. Perhaps Bimbo would prefer riding on the arm of her chair to sitting caged in a basket? Roberta seated her on the chair arm and held the 10-foot chain.

It didn't work. The toiling carriers excited the gibbon, and the low-hanging vines and bamboo clumps enticed her. Progress was made only by pulling her forcibly from one branch after another. Reluctantly we put her into a basket carried at the end of a pole.

A Bird's-eye View of Opium Runners and Mahouts

Arriving at the mountain cottage, we immediately selected an adjacent tree for Bimbo's home. Casting about for a rain shelter, we found a discarded box and put it up in the tree, nine feet from the ground. Thereafter Bimbo spent many happy hours leaning on one elbow while she gazed out of the window cut in the side of the box and whoo-whooed to passing opium runners or mahouts taking work elephants to cooler pastures.

As a pastime she hunted insects among the tree leaves: white spiders, red ants, and various kinds of walking sticks camouflaged to match their background—practically invisible to us but not to her.

Daily we turned her loose, hoping she would join the wild gibbons that called from the near-by jungle,

71 Ernest P. Walker

"Look How She's Grown!" Exclaims Roberta

During the 15-month separation between Roberta and Bimbo, the ape reached maturity (attained when 5 years old). As a youngster she had declined to play with an adult male gibbon, choosing instead a female of her own age.

select a fine upstanding young mate, and enjoy the freedom of her kind. But she utterly ignored them and answered only to our calls.

If we started out for a walk, down she would come from some treetop and run along the path after us, complaining the while of our duplicity in trying to give her the slip. If we remained indoors, she would leave the trees and appear upon the veranda railing, calling for cookies.

One afternoon we heard plaintive cries from far up the slope.

"Bimbo is lost!" I said.

"Nonsense," declared the others.

I went out and called. As soon as she heard me, she changed her cries and came hurtling from branch to branch to the cottage and her family. She had indeed lost sight of the cottage and was frantic.

Bimbo Warns of a Vicious Prowler

Early one morning she seemed too agitated to eat, but tried to tell us something while looking anxiously into the woods and climbing upwards the length of her chain. Evidently she had been frightened during the night.

That afternoon Bimbo stayed nearer home than usual, while we stayed indoors to play our new 3-o'clock game of "Hush." This consisted of reading quietly while keeping one eye on an open window. Presently our pet hen would appear, gaze about to see that all was still, then hop down into the bedroom, go over to an open basket, lay her daily egg, and fly out cackling as only an agile Asiatic hen can do.

That night, as usual, we put the hen in a strong basket under the house. The next morning Bimbo was even more distraught. We looked around for a reason. Our pet hen, basket and all, was gone, and in the dust under the house were the four-inch paw marks of a leopard!

Acrobatics in the Treetops

Back on the mission school campus after vacation, Bimbo would make her rounds of favorite trees, hunting insects and sampling the hearts of any new flowers that appeared. She would take 10- and 20-foot leaps through the giant rain tree, apparently sliding down the wind, and seemed to coast down the slippery fronds of the palm trees.

On dull Saturday afternoons she would appear at an open window of the school office, sit humped on the ledge, and watch the headmaster trying to catch up on desk work. But not for long. Seeing that he paid no attention to her coy murmurings, she would slip up behind him, give him a slap on the back, and dart for the window.

If this was ineffective she would return, pick up a paper off the desk, and make off with it, dropping it, however, inside the room. As a rule, she never molested objects on dressing tables and desks after the manner of an inquisitive monkey.

Each day a small class of American children met on the upper veranda for school, with me as their teacher. Bimbo loved the bustle and the moving of chairs into a circle for English recitations and the piling of books on desks. For the most part she sat quietly in my lap as the children wrote, but protested when I would get up to inspect the work or to put something on the blackboard.

If Latin nouns or French verbs were reviewed orally, she took exception to the use of such strange languages. Having sat still as long as she could, she would leap from my lap and put on her "drunken sailor" act to distract the children and get a laugh. Seizing a table runner or a towel, she would stagger around the veranda with her eyes closed, bumping against the railing, the cloth draped over her.

But try to catch her! She was off like a flash. The only successful strategy was to seize one end of the cloth and then, in the ensuing tug of war, grab her from behind.

Peeping Tom Frightens a Guest

When running loose, Bimbo knew that before breakfast members of the family were apt to be in the bathroom. In our house the bathrooms were large and almost as much a social center as the village well. Bimbo loved the sound of splashing water as the children bathed around the big clay jars, and the sight of laundry being piled and sorted for the wash girl. All this she took in by peering over the half curtains that covered only the lower portion of the bathroom windows.

One morning, while waiting on the veranda for a guest to dress, we heard a muffled exclamation of alarm from his room. The children dissolved into silent laughter.

"I'll bet Bimbo is looking into our guest's bathroom," said Kenneth.

"Are there wild animals around here?" asked the New York visitor in a guarded voice at breakfast.

"Oh, yes," answered Kenneth. "The jungle is just a little way out of town."

"Is that so? Do you know, while brushing my teeth this morning I was startled by a most unusual animal, black and hairy, staring at me through the window."

At that moment Bimbo appeared at the dining-room window to call for a piece of papaya.

"There it is again!" exclaimed the guest.

"I'll lure it away," said Roberta, picking up half of her fruit which she had left for

 National Geographic Photographers Volkmar Wentzel and Donald McBain

Swinging by Powerful Arms, Bimbo Looks for a Familiar Face Outside Her Cage

this purpose. Out she went through the latticed breezeway and kitchen, with Bimbo swinging along the eaves outside, following her with customary murmurs.

On Sundays, in the absence of the houseboy, we usually ate lunch in this breezeway. Clinging to the lattice, Bimbo would peer through to inspect the menu and make her selections. If we offered her a banana, she would turn away with a look of patient suffering or disdain. Sliced pineapple was more to her liking; cake with icing was still better, and she ate the icing first. Chocolate creams really evoked gurgles of delight and set her to vibrating with joy.

Twice Bimbo was nearly electrocuted by

National Geographic Photographers Volkmar Wentzel and Donald McBain

Just Like Old Times: Bimbo Sits Down to Waffles with the Family

This was a special feast at the zoo to celebrate the reunion. Back home in Thailand, Bimbo easily managed the business of eating waffles, but syrup streaming down her front posed a problem. She often took two days to lick it off. This and other niceties gave her a reputation for being neat and clean. Bimbo's efforts at grooming got a weekly assist with brush and comb from the Wells family (page 65).

swinging from a tree to parallel electric wires along the road. Grasping a wire in each hand, she seemed unable to let go and howled pitifully. On the second occasion she finally slumped into a bush and then fell into Roberta's waiting arms, where she lay exhausted for an hour.

Roberta Nurses Bimbo to Health

The next day her burnt hands were cracked and in dreadful shape. A physician gave us a sulfa powder, which Roberta sprinkled into Bimbo's hands at intervals until, in a surprisingly short time, they were healed. Bimbo was a good patient and talked in low tones, sitting quietly, while being treated.

We were unable to take Bimbo with us when we left Chiang Mai, so we put her in the care of friends and gave them permission to pass her on to someone else if they could not give her a permanent home. We haven't heard how she got from the northern mountains of Thailand to the seacoast.

"We bought two gibbons from the Bangkok dealer," said Dr. Mann, "but one died on the trip to America. Your gibbon was accustomed to humans, tinned food, and a certain amount of captivity; that accounts for her survival, I'm sure."

Bimbo is contented in the zoo, now that she knows friends are near, and she finds a new interest in scanning the crowds for a tall girl with blue eyes. She gets bits of pineapple occasionally, but, with the exception of our reunion party (above), she has had to forego such treats as British chocolates and waffles and syrup for Sunday breakfast. The other gibbons might not understand.

Gloucester Blesses Its Portuguese Fleet

With Prayer and Pageantry, Venturesome Deepwater Fishermen Ask the Protection of Our Lady of Good Voyage

By Luis Marden

With Color Photographs by the Author

"LET him who knows not how to pray go to sea."

Devout Portuguese fishermen of New England's old port of Gloucester, Massachusetts, who daily face the dangers of deep water, well know the truth of that old proverb. These men who wrest a hard living from the sea rely on Our Lady of Good Voyage, as well as chart and compass. And once a year, in early June, the vessels of Gloucester's Portuguese fleet gather at the State Fish Pier to be blessed (page 80).

Our Lady, a patroness of seafarers and travelers, has her own church, of Azorean style, built high on a hill. Between twin cupolas stands an 18-foot statue of the Virgin (page 79). Homeward-bound fishermen, approaching by night, often radiotelephone to shore and ask that the statue be lighted; then the crew crowds the rail to catch its glow on the horizon, first landfall as they stand in for Gloucester (page 84).

A smaller figure of the Virgin—a woodcarving from Portugal—goes to the annual Blessing of the Fleet on the shoulders of proud fishermen (page 77). Four men from each vessel's crew take turns carrying the beautiful figure to the water front as the church's carillon rings out.

A Model Ship with Silver Spars

Gloucester's first Blessing of the Fleet took place in 1945. Three years later the present statue, which had been carved from Brazilian cedar in Pôrto, arrived from Portugal aboard the hospital ship *Gil Eanes*. Like all carvings of Our Lady of Good Voyage, she carried a fishing vessel in one hand.

Portugal's Ambassador to the United States at the time, Dr. Pedro Teotonio Pereira, himself a lover of the sea, noticed that the little silver vessel was of Portuguese, rather than Gloucester, rig. Sending plans of a Gloucester schooner to Portugal, he ordered a new wooden model with silver spars and rigging. This is the one the figure now holds.

Portuguese settled in Gloucester as early as 1842, but long before Columbus the Portuguese, then as now among the world's most skilled seamen, fished as far away as Iceland, and some think they reached the Grand Banks off Newfoundland. If they did, then the Portuguese, and not the English ancestors of New England Yankees, were the true pioneers on the world's richest codfishing grounds.*

Some early Portuguese settlers came from the mainland, but most came from the Azores. Even today there are many in Gloucester's Portuguese colony who hail directly from the Azorean island of Pico.

American whalers of a century ago used to touch at the Azores to take on a crew. Starvation diet, poor wages, and liberal use of the belaying pin made many of these men go permanently ashore at the home port of New Bedford. From there many made their way to Gloucester to become fishermen.

Sons Prefer a Landlubber's Life

Men have fished out of Gloucester since the 1620's, when the first cargo of salt fish was sent to Bilbao in Spain, but today relatively few of the original Yankee names are heard aboard Gloucestermen. Well before the turn of the century old-timers began to dissuade their sons from going to sea, because of the danger, hard life, and small remuneration. Sons of the men who sailed the famous old schooners came ashore to less arduous and more profitable occupations, leaving the field to foreign-born fishermen.

Of Gloucester's present-day fleet of 202 vessels, not more than 30 still are run by native Yankees. Thirty-two are Portuguese, 100 Italian, and the rest divided among Nova Scotians, Newfoundlanders, Norwegians, Swedes, and Finns.

Ironically, the cycle seems about to complete itself, for today a few Portuguese captains, still erect, "able-bodied seamen" when past 70, are beginning to advise *their* sons not to go to sea. But so far there has been no shortage of willing and able men to work and captain the Portuguese draggers.

Early Gloucester fishing was done from sloops and ketches, but in 1713 a different vessel slid down the ways. Her fore-and-aft rig enabled her to sail fast close to the wind. The story goes that, as the vessel was launched, a man watching cried, "See how she scoons [skims]!" Her builder, Andrew Robinson, heard him, and so called the vessel a "scooner." Except for the spelling, all her

* See "I Sailed with Portugal's Captains Courageous," by Alan Villiers, National Geographic Magazine, May, 1952.

descendants took the original vessel's name.

For two centuries the schooner was supreme, and before the end of the 19th century Gloucester's fleet totaled 500 sail.

The Gloucester schooner reached the peak of design in the *Gertrude L. Thebaud*, built in 1930, which represented the United States in the International Fishermen's Races with the *Bluenose* of Nova Scotia. Her slender black hull heeling to a cloud of canvas was a glorious sight. I sailed in her when Capt. Ben Pine contested the last Fishermen's Races in 1938. In February, 1948, while running cargo in the Caribbean, she broke up on the breakwater of La Guaira, Venezuela.

So passed the last Gloucester schooner to work under sail. All have been lost at sea or converted to power, with diesels in the hold, topmasts removed, and bowsprit cut to a stump, a mere support for the forestay.

So many old schooners were available for conversion that it is only in the last five years that new draggers have been built from the keel up in the Essex yards.

The Gloucester fishery was founded on King Cod and associated groundfish—haddock, hake, cusk, and halibut. When the early shore fishery became depleted, schooners ran out to Georges Bank, and later as far as the Grand Banks off Newfoundland. Once on the banks, fishermen left the anchored parent vessel and fished two in a dory, setting trawls—buoyed and anchored lines more than a mile long, armed with 500 to 1,000 hooks. The trawls, of French origin, were set in water 150 to 200 fathoms deep.

Stout Dories Have Crossed Atlantic

Dories, flat-bottomed, double-ended boats about 16 feet long, have been called the world's most seaworthy small craft. Several times men have rowed and sailed them across the Atlantic.

The advent of the otter trawl, a purselike net fished by dragging along the bottom, helped deplete the shore cod fisheries, because the net took so many fish at one sweep and raked up the bottom, destroying fish food. Incidentally, with the coming of the tin can, eating habits changed, and people ate less salt fish.

But draggers (so called in Gloucester to distinguish them from the early hook-and-line trawlers) use the otter trawl for most of the fishing done out of Gloucester today, though they rarely drag for groundfish. Setting the nets higher for free-swimming school fish, draggers take enormous quantities of ocean perch, or rosefish (*Sebastes marinus*).

Since this small red fish became popular as a foodfish, about 1935, it has been taken in ever-increasing numbers, until today it makes up about 50 percent of the Gloucester catch.

Through long custom, New Englanders still prefer their cod, haddock, or mackerel. But ocean perch find ready markets in the South and Midwest; the smaller fish more nearly resemble fresh-water varieties long eaten in the Midwest, and the small fillets are just right for the popular southern fish fries.

God Shares in the Catch

Portuguese and other Gloucestermen fish on a lay basis, ship and crew sharing proceeds of the catch. At the end of each voyage the crews of Portuguese craft set a certain amount aside as "God's share," to be given to the Church for charitable works.

Early Gloucester skippers sailed by "compass, soundings, and personal judgment" alone. Today the draggers use radiotelephone, radar, depth indicators, and even loran, the long-range electronic navigation system that traces invisible streets and avenues on the ocean's gray wastes. Yet, despite power and modern navigational aids, the sea still exacts a heavy toll.

Few fishing families of Gloucester have not paid tribute to this hard mistress. From Gloucester's beginnings as a fishing port until the present time, more than 1,000 of her vessels and 8,000 of her men have been lost at sea.

Men were washed overboard; schooners went down in northeast gales. Thick white fog took many lives when men in the dories lost sight of the parent vessel and could not find their way back, despite mournful blasts of the schooner's horn. Some lucky few rowed to land, their fingers frozen round the oars.

The danger of anchor cables parting added another hazard to winter fishing on the banks. Men peering through swirling snow would sometimes see the gray ghost of a drifting vessel bearing down on them. Then the man standing by the anchor cable had to swing his sharp ax instantly, for if a drifting schooner crashed into an anchored vessel in rough seas, both were almost certain to go down.

Many fishing vessels were simply never heard from again, victims, perhaps, of a hurricane, the screaming wind that the tough men of Gloucester called an "August breeze."

At a Blessing of the Fleet, the Most Reverend Richard J. Cushing, Archbishop of Boston, said:

"The natural virtues of a fisherman are two—trust in God, and perseverance. Toiling on the sea has taught them both."

And so, despite all hazards, the men of Gloucester will continue to go down to the sea to reap the harvest of its waters. And the sea-knowing Portuguese will be among them.

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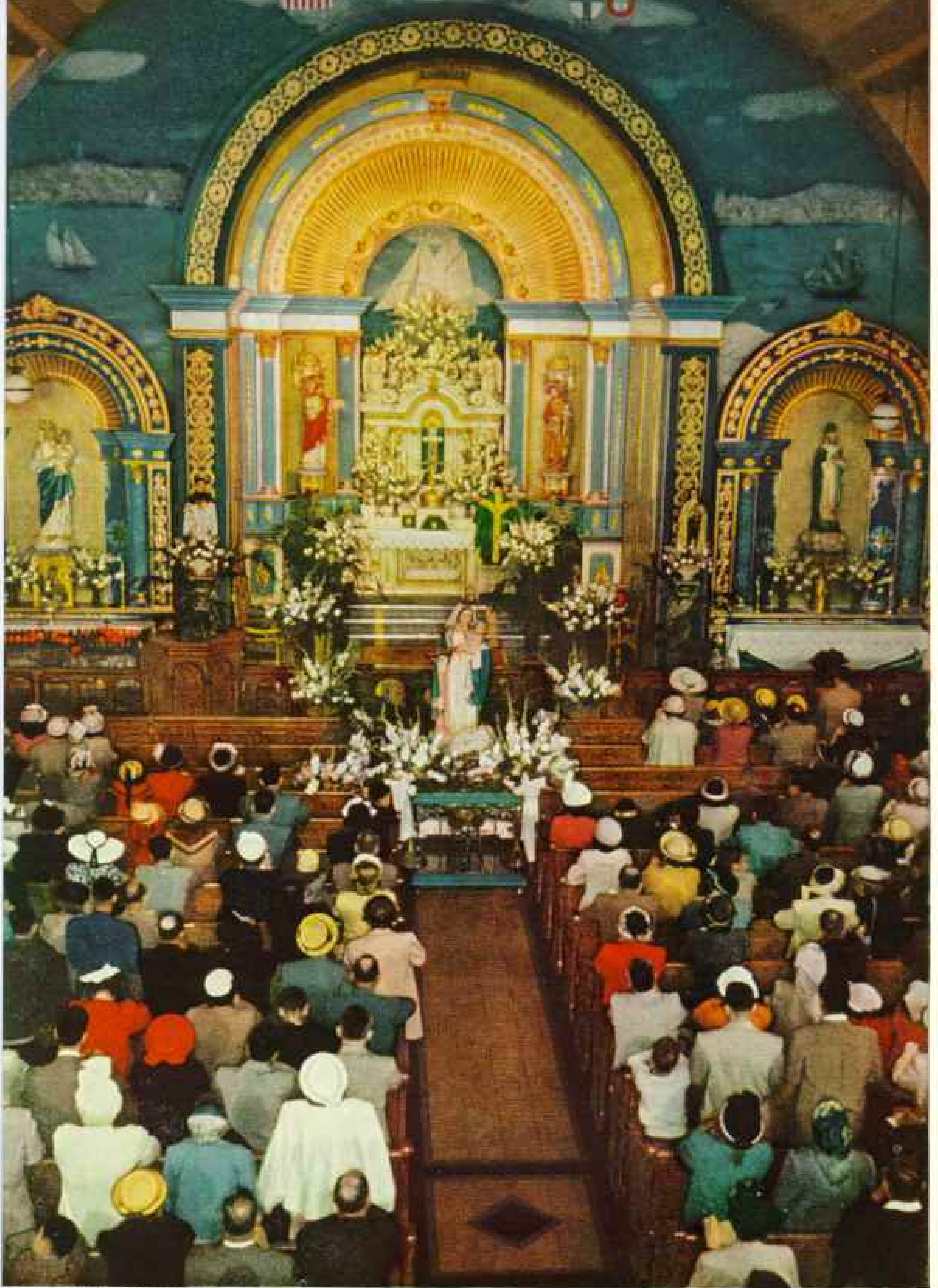
Kodachrome by Luis Marden, National Geographic Staff

Gloucester, Massachusetts, Fishermen Take Turns Carrying Our Lady of Good Voyage

Once a year Portuguese-American fishing crews select teams of four to transport the statue to the water front for the blessing of the fleet (page 80). Chosen ones consider the task a high honor.



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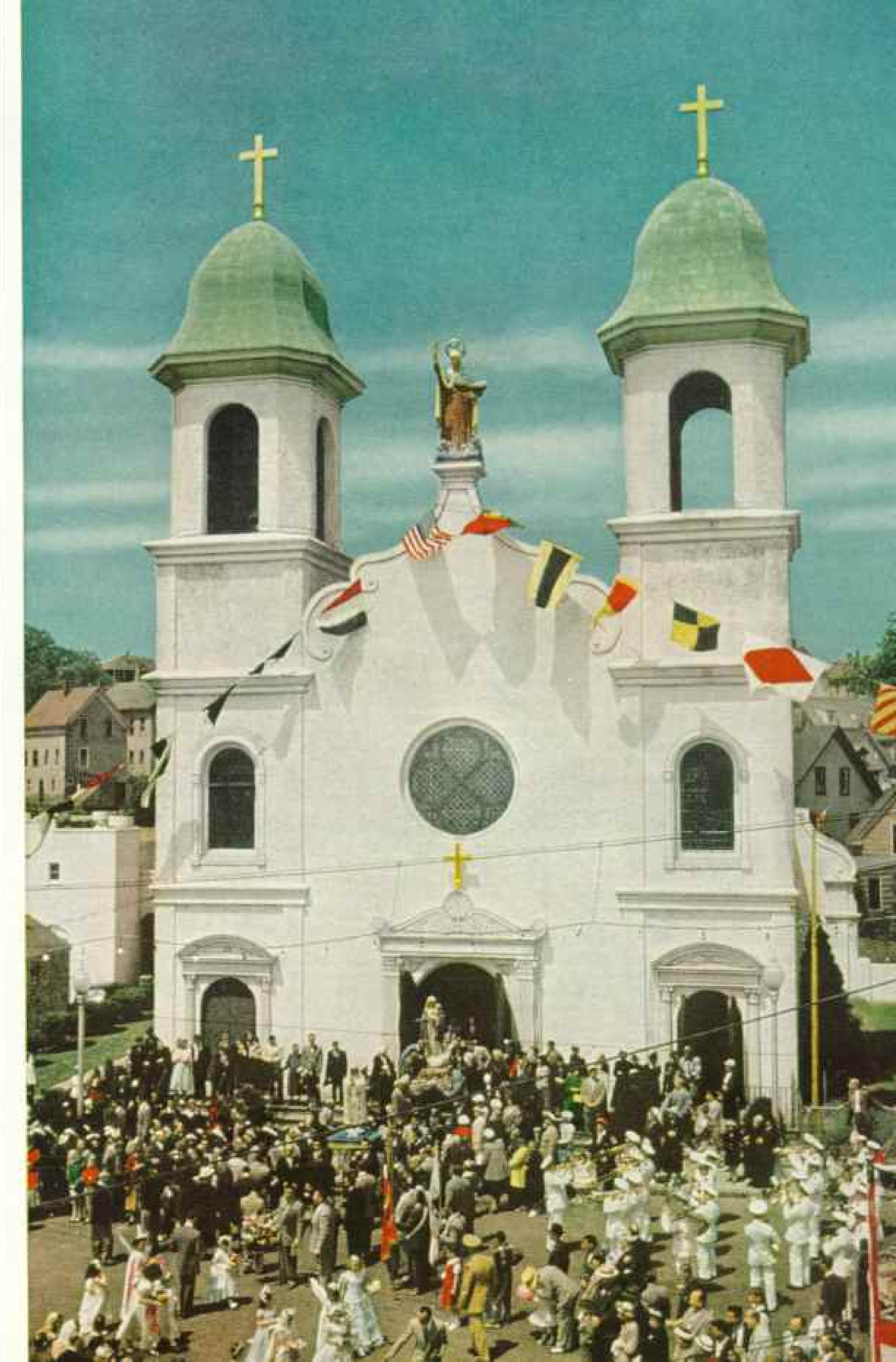
Fishermen and Their Families Hear Mass Before the Yearly Blessing of the Fleet

Carved in Portugal, the Madonna stands in the aisle. Murals depict Gloucester (left) and Lisbon. Right: The statue leaves the Church of Our Lady of Good Voyage for the dockside ceremony.



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A Bishop in Cope and Miter Blesses the Fishing Vessels. Thousands Jam the Water Front

Kodachrome by Luis Marden, National Geographic Staff

Our Lady Visits the Ships That Ask Her Protection. Portugal's Flag Flies Beside America's

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▲ Devout Captains Keep Shrines Above Shipboard Chart Tables

Gloucester draggers, trawling for ocean perch, use navigational aids like loran and sonic depth finders. This triptych holds Our Lady of Good Voyage; Sacred Heart and Virgin; St. Joseph and Child.

▼ Future Fishermen in Sou'westers Ride a Dory on Wheels

These boys move in procession from church to docks to take part in the benediction. Crowned and gowned like Our Lady, the girl holds a schooner model and the Child. Gloucestermen seldom use dories today.

Kodachromes by Luis Marden, National Geographic Staff

Girls in White Strew Carnations on the Ebbing Tide in Memory of Men Lost at Sea

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Kodachrome by Luis Marden, National Geographic Staff

A Ship on Her Arm, an Illuminated Statue of the Virgin Welcomes Fishermen Home

Men who have made an extraordinary catch or have narrowly escaped death radio to shore and ask that the statue be lighted. Their first landfall is the huge figure, which stands on the hilltop church (page 79).

The Yankee Sailor Who Opened Japan

Commodore Perry and His Black Ships Changed the Course of History by Ending Japan's Seclusion a Century Ago This Month

By Ferdinand Kuhn

JUST a hundred years ago, on July 14, 1853, Commodore Matthew Calbraith Perry of the United States Navy opened Japan to the outer world.

He broke through a wall that had hidden Japan from Western eyes for 216 years. In doing so, he changed the course of history.

Other American naval commanders have reshaped the future in a single battle—Dewey at Manila Bay, for example, or Nimitz at Midway. But Perry did it without firing a shot.

His weapon was diplomacy, backed by a willingness to use force if he had to.

Festival Recalls Commodore's Landing

To the terrified Japanese of a century ago, Perry's steam frigates were the "black ships of the evil mien." They spewed black smoke, they moved without oars, and they churned up Japanese waters that were supposed to be inviolable.

But because Perry did his work without bloodshed, because he dealt with the Japanese with dignity and fairness, he is remembered as a stern benefactor of modern Japan. And the arrival of his "black ships" is commemorated in a local festival every summer by the descendants of those frightened Japanese whose country he awakened after a sleep of centuries.

Today, if you stand at Perry's first landing place at Kurihama, 30 miles south of Tokyo, you can span a hundred years of history in a single view (map, page 90).

The surroundings have not changed appreciably since Perry landed. I know they have not changed, for when I went to Kurihama with my son Philip, a student at Harvard, I took with me a contemporary drawing of the beach as Perry saw it a century ago (page 88).

At one end of the crescent beach, to the northeast, is the bold headland behind which Perry's ships first anchored. At the other end the land rises in gentle contours as green as the hills of Ireland.

On the landward side are the tiny rice fields and cottages of Kurihama. And looking out across Uraga Strait, at the southern end of Tokyo Bay, you can see the dim outlines of the mountains of the Boso Peninsula on the opposite shore.

Perry saw this same placid background, but the scene on the beach was vastly different on the morning of his landing. According to the official account he submitted to Congress, the curving beach "was gay with a long stretch of painted screens of cloth, upon which was emblazoned the arms of the Emperor.

"Nine tall standards stood in the centre of an immense number of banners of divers lively colors, which were arranged on either side, until the whole formed a crescent of variously tinted flags, which fluttered brightly in the rays of the morning sun.

"From the tall standards were suspended broad pennons of rich scarlet which swept the ground with their flowing length. On the beach in front of this display were ranged regiments of soldiers, who stood in fixed order, evidently arrayed to give an appearance of martial force. . ."

When I saw Kurihama not long ago there were no "regiments of soldiers." Children were splashing happily in the waves at the water's edge. In place of the scarlet pennons and fluttering flags were rows of one-story teahouses and soft-drink stands. Where a clutter of houses stood in 1853, at the southwest end of the beach, a big ice factory now stands as the only major change in the landscape.

A Monument to Perry Survives War

On the spot where the Emperor's representative received Perry and his retinue, a 33-foot granite shaft honors the great Commodore in a sandy enclosure known as Perry Park.

An inscription in English says: "This monument commemorates the first arrival of Commodore Perry, Ambassador from the United States of America, who landed at this place July 14, 1853. Erected July 14, 1901, by America's Friend Association."

The monument has stood as a symbol of American-Japanese friendship for more than half a century, with only the interruption of the war. It stood through the years of bitter fighting in the Pacific in 1942 and 1943, but in 1944 militant Japanese patriots pulled it down. After the surrender, it was put back on its massive base as a sign that the Commodore was not forgotten.

As I looked out from the monument to the brilliant blue of Uraga Strait, I saw a big merchantman at anchor where Perry's ships guarded the first landing. I read its name through binoculars.

It was the *American Victory*.

Perry's opening of Japan was indeed an

Courtesy, Library of Congress

Japanese Eyes Saw Commodore Perry as Stern and Forbidding

Matthew Calbraith Perry made a profound impression on the course of history when he opened Japan to the outside world just a century ago. He also left a deep impression on the Japanese people, one of whom drew this sketch during the treaty negotiations. Actually, Perry's hair was wavy and so unruly that he spent a long time smoothing it in front of a mirror before landing at Kurihama to deliver President Millard Fillmore's letter to the Emperor's representative. Japanese phonetic syllables identify Perry.

American victory, although world-minded Japanese now regard it as a victory for their own nation as well.

To the United States of those days, and to President Millard Fillmore, who gave Perry his orders, the hermitlike seclusion of Japan had become a nuisance and a menace to peaceful American interests.

Hermit Japan Imprisoned Seamen

The crews of American whalers, shipwrecked on Japanese shores, had been imprisoned. Some had been locked in cages as punishment for landing on Japanese soil. American expeditions had failed to break this seclusion, although they succeeded in rescuing the imprisoned seamen.

Our ships in Pacific waters needed coaling and could not get it; they needed refuge from Pacific typhoons. And in the young America of those days there was a lusty desire for commercial expansion in the Pacific, a stirring that helped to push the Government in Washington to fit out a massive expedition to open Japan.

"Make no use of force," the Secretary of State, Edward Everett, wrote to Perry at the President's insistence, "except in the last resort for defence, if attacked, and self-preservation."

What the President did not know, and could not know, was that Japan was ready to be opened. The Japanese people had fallen on evil days since their feudal rulers, the shoguns, had ordered all foreigners expelled in the early 17th century. The people were hungry and discontented; taxes were oppressive; the walls of isolation were already crumbling.

Japanese scholars, knowing that their country had to rouse itself, learned Dutch, the language of the Hollanders who had been allowed to keep a trading post in Nagasaki harbor during all the hermit years.

From Dutch books in later years the Japanese learned of Western science, of the growth of armies and navies in Europe, of the spread of European empires and the rise of the United States. But in Japan the arts, the theater, the urbane and stylized way of life went on undisturbed, as if in a cocoon.

Thus the island nation was being left behind in a swiftly changing world, and her wisest men knew it.

If someone had to do the delicate job of opening Japan, Matthew Perry was the ideal man. His name alone was enough to give him authority in the Navy. His father, four brothers, and two brothers-in-law had been naval officers.

Perry a Stern Disciplinarian

One of his brothers, who had died long before 1853, was the dashing, charming Oliver Hazard Perry, the hero of the Battle of Lake Erie in the War of 1812, the author of the famous report, "We have met the enemy and they are ours!"

But Matthew Perry was very different from Oliver, in looks and in personality. He was known in the Navy as "Old Matt," and sometimes his men talked of him as "Old Bruin." By 1853 he was almost 60 years old, proud and portly, blunt in speech, and something of a martinet to his men.

The sight of a smudge of dirt on deck would darken his face with anger. His heavy black eyebrows and his thick black hair made him look formidable, especially to the Japanese, who left many impressions of him in their contemporary prints (opposite page).

Courtesy, Library of Congress

Perry's Men Called Him "Old Matt" or "Old Bruin"

Executive ability, enormous capacity for work, and passion for detail earned for Matthew Perry as illustrious a naval record as that of his brother, Oliver Hazard Perry, hero of the War of 1812. Old Matt's jack-tars greatly respected his fairness, though they sometimes complained of his iron methods. In this historic photograph, from Mathew Brady's original glass plate negative, Perry wears a senior captain's uniform; the title of commodore was honorary. Today three stripes denote a commander; two shoulder stars a rear admiral.

Nathaniel Hawthorne described him as "brisk, gentlemanly, off-hand but not rough; unaffected and sensible." He was indeed "sensible," and so businesslike in his preparations for the forthcoming expedition that he read some 40 books on Japan before he sailed. He supplied and trained his expedition as if it were going off to fight a serious war.

With all his sternness, this Yankee sailor from Rhode Island had a soft spot in his heart for children, although he didn't always understand them.

One day he visited the family of his famous brother Oliver, long dead, before sailing for the Far East. He asked his 8-year-old grandnephew, Thomas Sergeant Perry, "How would you like to come to Japan with me?"

Thomas Dashes Off to Pack

The youngster disappeared like a shot, and the Commodore had to go searching for him in the attic. He found the boy packing his belongings in an old sea chest, ready to go at once.

The Commodore hadn't really meant it. But Thomas did go to Japan, decades later, and stayed for three years as professor of

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↑ Kurihama Beach Has Changed Little Since Perry First Saw It in 1853

For two centuries before Perry's voyage, Japan excluded all Westerners except a few Dutch traders cooped up on an island. Americans who came to Japan's shores were fired upon, imprisoned, and brutally mistreated. This angered the young American nation, already bursting with expansionist energy and eager for Pacific bases for trade and whaling. President Fillmore sent Commodore Perry on the ticklish mission of opening Japan's closed doors without using force. Kurihama beach, where the Commodore first landed, looks today (above) much as it did a century ago (below) except for swimmers and white roofs of an ice plant on the opposite shore.

Americans Land on Japan's Forbidden Shore with a Letter for the Emperor

Leaving the *Susquehanna* and *Mississippi* (far left) with guns ready, the Commodore and 300 men and officers landed July 14, 1853, amid considerable pageantry (page 91). While bands played and thousands of Japanese soldiers and villagers watched, Perry marched to the temporary conical-roofed ceremonial hall (background, right). There he delivered to the Emperor's commissioner a costly box containing Fillmore's letter. Then, after reconnoitering Tokyo Bay, he sailed for Hong Kong, leaving word that he would return in the spring for a reply. William Heine, expedition artist, apparently sketched this scene on one of the clear days when Fuji, 55 miles away, is visible.

Courtesy, Library of Congress

Drawn by Irvin E. Alleman

Perry Saw Farms and Huts Where Busy Yokohama Sprawls Today

Here, in Tokyo Bay, Perry secured a treaty promising protection for shipwrecked Americans and opening the ports of Shimoda and Hakodate to American trade (inset). The Commodore's landings were at Kurihama and Yokohama.

English literature at Keio University in Tokyo. And Thomas, in turn, had a charming daughter who became well known in Japan, not only as a Perry but as America's First Lady in Tokyo for 10 years.

She is Mrs. Joseph C. Grew, the wife of the last American Ambassador to Japan before the war.* In her home in Washington not long ago she showed me relics of the Perrys, and Japanese prints of the arrival of the Commodore in his "black ships" a hundred years ago.

A Spy Warns of Perry's Plans

Three steam paddle-wheelers formed the main ships of Perry's squadron. The Commodore knew the value of steam ships; he had pioneered in developing them for the Navy, and his first flagship, the *Susquehanna*, was of respectable size—257 feet long, 69½ feet broad, with an armament of six 8-inch guns.

The *Mississippi*, with the Commodore aboard, steamed alone across the Atlantic to Cape Town, across the Indian Ocean, and north along the coast of China to what is now Okinawa.

From Okinawa a Japanese spy secretly relayed news of the Commodore's plans to Japan, so that the Japanese authorities expected him when he arrived.

But the sight of his ships off Uraga spread consternation. In Yedo, now Tokyo, thousands fled the city, thinking that the great ships with their guns would destroy their homes.

A Ship's Whistle Strikes Terror

Little Japanese guard boats clustered like gnats around Perry's black monsters (page 96), but the Commodore would let no one aboard except persons having official business with the expedition.

Once, when the sloop *Plymouth* blew her whistle, the entire crew of one of the guard boats dived overboard in abject terror. All through the first night Perry's sailors saw beacon fires glowing on the hillsides and heard the tolling of a great bell, which they took to be an alarm signal.

Perry had thought of everything; he had even brought a Dutch interpreter along, suspecting, correctly, that Dutch was the only European language any of the Japanese would know.

He knew that he would find a highly sophisticated society in Japan, but he had a surprise when the leading functionary of Uraga came aboard in a rich silk robe embroidered in a peacock-feather pattern.

Perry's officers showed the official and his aides a globe of the world. The Japanese promptly pointed to Washington as the capital of the United States, and to New York as its business center; and they also identified England, France, Denmark, and other countries of Europe without the slightest hesitation.

With a combination of tact and iron firmness, Perry convinced the Japanese officials that he would insist on delivering a letter

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Japan and the Pacific," by Joseph C. Grew, April, 1944.

A. C. Chinn, Washington Star

A Model of Perry's *Saratoga* Sails the Tidal Basin in Washington, D. C.

Preparing for July's Perry expedition centennial, the Navy League tried out this 25-foot square-rigger during the Capital's Cherry Blossom Festival in April. The Commodore's *Saratoga* was a 147-foot sloop of war, one of two sailing ships which accompanied two steam frigates on Perry's first landing.

from the President to a representative of the Emperor, and to no one else. He said he would do it near Tokyo and not at Nagasaki, where the Japanese had tried to send him.

After six days of cold but courteous bargaining, a landing was arranged on the beach at Kurihama, just around the headland from the squadron's anchorage.

The Commodore took no chances. He deployed his ships so that their guns would guard the landing place. He took nearly 300 men ashore with him in 15 launches and cutters; and among them, to add to the impressiveness of the occasion, were 40 bandsmen who tootled lustily on their way to the shore.

Perry himself took great pains to make sure that his own landing would have the greatest possible effect on the Japanese. He spent a long time in front of a mirror, combing his unruly hair and buttoning himself into a stiff full-dress uniform, although it was a hot summer's day.

Then, with all the majesty of an emperor, he went ashore.

With the bands still playing, his men formed a procession that marched up to a temporary building where the Emperor's representative was waiting. Perry did not know that this spokesman, the "Prince of Idzu," was only a minor functionary from Osaka named Toda.

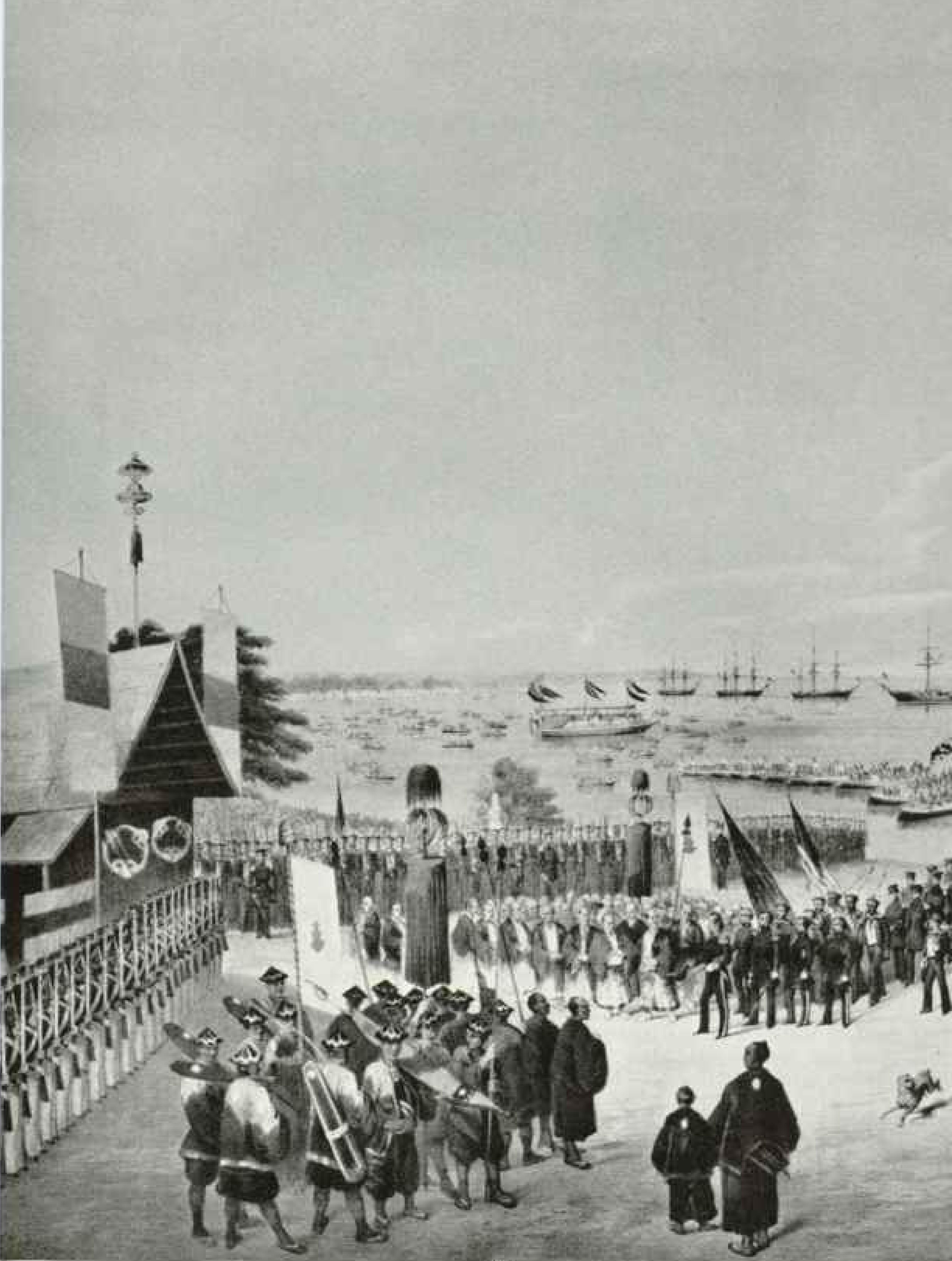
The Japanese had given Toda high rank just for the occasion; they had refused to send anyone of really high station for the distasteful and humiliating task of receiving a letter from the foreign "barbarians."

Golden Casket Guards a Letter

With elaborate ceremonial, Perry delivered the letter in a box of rosewood and gold that had cost $1,000. "Great and Good Friend" was President Fillmore's salutation to the Emperor.

"I have no other object in sending him [Commodore Perry] to Japan," the President wrote, "but to propose . . . that the United States and Japan should live in friendship and have commercial intercourse with each other.

"The Constitution and laws of the United States forbid all interference with the religious



With an Emperor's Dignity, Perry Approaches the Treaty House near Yokohama

Landing March 8, 1854, Perry began three weeks' negotiations to draft a treaty. Here, in artist Heine's drawing, Japanese commissioners greet the American, while bands play and soldiers bearing bows and spears cluster near by.

Courtesy, Library of Congress

Curious Villagers Gape Behind a Wall of Marines While Launches Fire Salutes

Perry, a master showman, staged his landings with impressive display. Here bayonets glitter as smart ranks of Marines in full dress present arms. Perry's squadron stands offshore; pennants whip on a Japanese barge (far left).

or political concerns of other nations. I have particularly charged Commodore Perry to abstain from any act which could possibly disturb the tranquility of your imperial majesty's dominions."

All the President asked was "friendship, commerce, a supply of coal and provisions, and protection for our shipwrecked people." He ended with the prayer, "May the Almighty have your imperial majesty in His great and holy keeping!"

Having delivered the letter, Perry announced that he would sail away and return in the springtime for the Emperor's answer.

He came back in February, earlier than he had promised, for he had heard that a Russian fleet was about to attempt a landing. This time he brought nine ships instead of four, and some 2,000 men aboard his squadron, a sizable expeditionary force for those days.

The green of the hills had gone, replaced by bleak winter coloring. Spray froze on the decks of Perry's side-wheelers as they plowed toward Tokyo Bay.

This time, hopefully, Perry had brought gifts for the Emperor and his dignitaries.

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In keeping with the spirit of his day, he had chosen mechanical wonders instead of examples of art and craftsmanship from the United States.

He included a telegraph instrument, with almost a mile of wire; several clocks; a telescope; firearms of assorted shapes and sizes; a hundred gallons of whisky; and eight books: a four-volume set of Audubon's *Birds of America,* three volumes of Audubon's *Quadrupeds,* and a Noah Webster dictionary.

Telegraph Baffles; Train Delights

All these gifts were solemnly carried onto the beach near Yokohama after Perry's second arrival. The telegraph instrument caused much puzzlement; some who saw it raced from the sender to the receiver and could not understand how messages could travel faster than the fleetest runner.

But nothing created so great a sensation as a miniature railroad train which Perry had brought with him, complete and accurate in every detail. The locomotive was one fourth the size of the tall-stacked engines of those days. With it were a tender, a little passenger car, and 370 feet of circular track.

The train traveled at 20 miles an hour and took aboard any Japanese who wanted to ride it. One of the dignitaries sat on top of the car, since he couldn't squeeze inside. He whirled round and round the circle, his loose robes flying in the wind, his body shaking convulsively with giggles.

Within 20 years the first real railway line in Japan was in full operation over the 18-mile stretch from Yokohama to Tokyo. Today Japan is laced and tunneled by some 17,000 miles of track. The entire system owes its first encouragement to the American Commodore.

Perry soon learned that the Emperor had answered the President's letter and was ready to make a treaty. Another pageant, more splendid than the first one on the Kurihama sands, was arranged for the signing, this time at what is now the busy metropolitan port of Yokohama.

A Crack in the Wall of Isolation

The treaty of March 31, 1854, pried Japan open by at least a crack. It opened the ports of Shimoda, 80 miles southwest of Tokyo, and Hakodate, on the northern island of Hokkaido, to American ships; it permitted limited trade between the two countries, and it authorized the first American consular representation in once-secluded Japan.

Toy Locomotive at Kamakura's Amusement Park Recalls Perry's Gift to the Emperor

Japanese of a century ago were puzzled and delighted by Perry's gifts, familiar tools to Yankees but magical wonders to an isolated people. Toy train (left) zips around on Kamakura's crowded beach, only a few miles from the Yokohama scene (below) where Perry's miniature locomotive and car created a sensation in 1854. Other gifts from America included a scythe, spade, ax, hoe, and grindstone.

Courtesy, Library of Congress

Terrified Japanese Saw Perry's Steamers as Belching Monsters

The Commodore's East India Squadron at its peak included three steam frigates, three sailing sloops of war, one corvette, and three storeships. Perry was especially proud of the sidewheelers, for he had pioneered in developing steam vessels for the Navy.

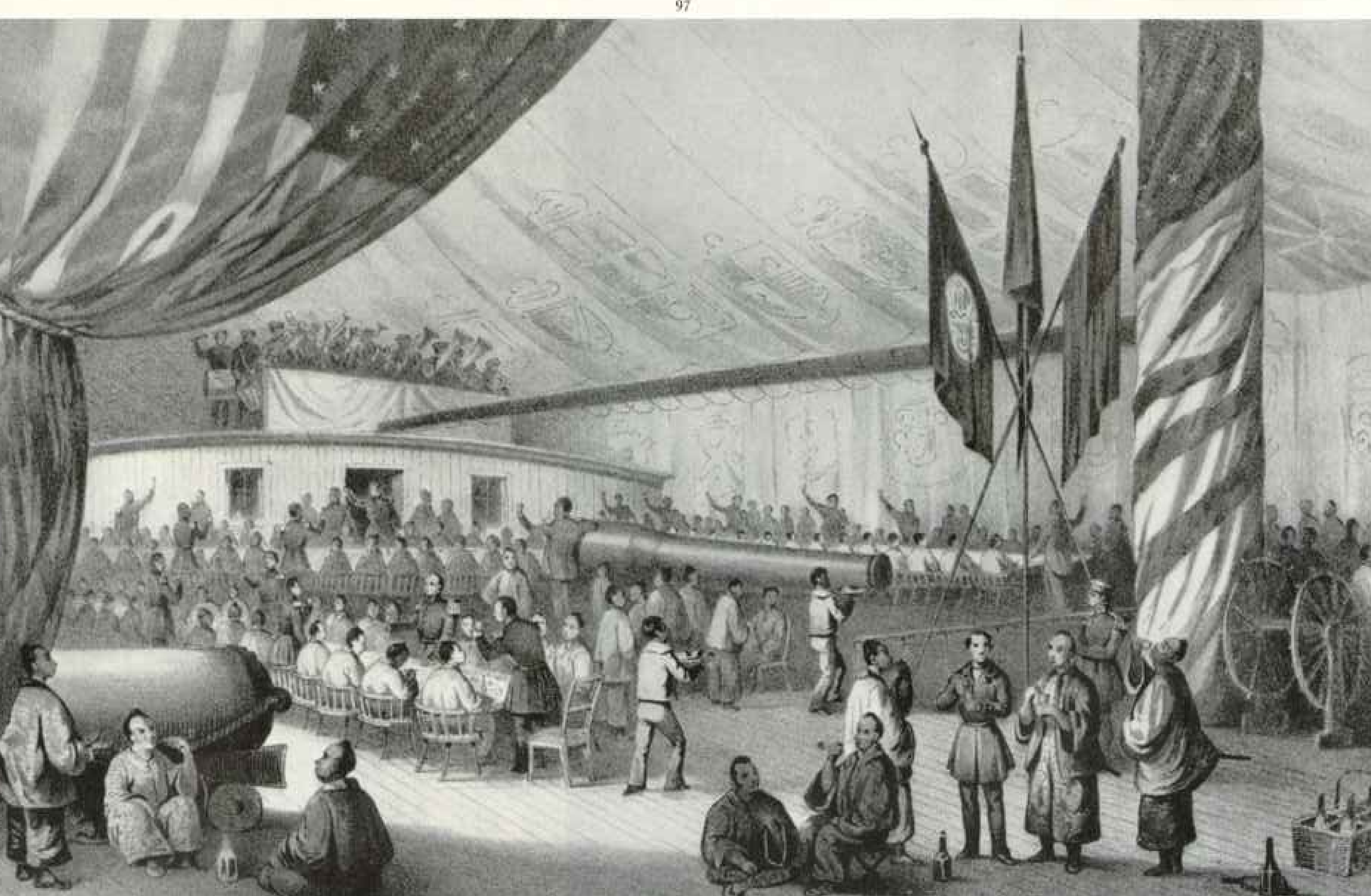
The "black ships of the evil mien" overawed Japanese artists, as this contemporary picture shows. Men in the tiny boat (right) seem to be urging the intruders to go away.

"Iron-made wheels . . . start turning with smoke coming out of the pipe above. She moves like an arrow . . ." Thus reads part of the Japanese inscription, which estimates the ship to be 390 feet long. Actually, Perry's largest vessel, the *Susquehanna*, measured only 257 feet.

▼ Feasting aboard the *Powhatan* celebrated the new treaty. Perry's officers and lower-ranking Japanese banqueted on the canopied deck, pictured here by the expedition artist. The Commodore entertained Japanese dignitaries below deck. Guests ate and drank heartily and astonished their hosts by stowing uneaten food in their capacious sleeves. The party became "uproarious" before it ended, Perry's historian reported.

The *Powhatan's* armament included six 8-inch guns and three 64-pounders.

Naval Historical Foundation
Library of Congress



Phillip Kahn

Great Buddha Meditates Serenely After Seven Centuries of Quake, Tidal Wave, and War

Perry and his men probably never saw Kamakura's Great Buddha, but the 42½-foot bronze figure broods only 12 miles from where their fleet anchored. Japan's natural disasters have leveled near-by cities, while leaving the huge image unscathed. Hotel Buddha (opposite page), a popular rendezvous for Allied servicemen on leave from Korea, stands beyond the tile-roofed postcard stand at right.

Much more work had to be done, in subsequent treaties, to complete the process of reopening the country. But "Old Matt" had succeeded in his mission. He had achieved for the United States what no foreign country had been able to do for more than 200 years.

The way was paved for Japan to make similar treaties with Britain, Russia, and the Netherlands, and to start her astoundingly swift rise to the status of a modern power.

Gifts of Buttons Delight Japanese

When his own treaty negotiations were almost finished and the document was ready for signature, the old Commodore was willing to relax. He allowed Japanese laborers as well as officials to visit his ships, and he found them intrigued by everything they saw, especially by Western clothing.

The official narrative of the expedition recorded that the Japanese "eagerly sought to possess themselves of anything that pertained to the dress of their visitors, and showed a peculiar passion for buttons.

"They would again and again ask for a button," the report said, "and when presented with the cheap gift, they appeared immediately gratified, and stowed it away as if it were of the greatest value."

The reason, of course, was that the Japanese people used only strings or sashes to hold their kimonos and other clothes together.

To show friendliness, the Japanese provided entertainment in the form of contests between pairs of wrestlers. Perry's men were disgusted by the monstrous bodies of these super-heavyweights and by the brutal heaving and shoving of their traditional sport.

A few days later the Americans reciprocated with a feast on board the *Powhatan.* Below deck, a table was set for the Commodore, his captains, and the high commissioners of Japan. Outdoors, on the 45-foot-wide deck, long tables were set for Perry's subordinate officers and the lesser functionaries (page 97).

The Commodore had taken good care to make it a lavish feast. The tables were loaded with beef, lamb, and poultry, fish, vegetables, and fruits, and with ample supplies of fine wines. The Japanese, according to Perry's official report, drank "unnumbered glasses" of champagne and maraschino, and the party was uproarious before the dinner ended.

Leftovers Go Inside Sleeves

One of the observant Americans at the dinner was Edward Yorke McCauley, a Perry sailor who later became a rear admiral. In his diary McCauley wrote that a new phase of the banquet began when the eating had ended.

All the Japanese except the interpreters, he wrote, "left their seats and commenced pocketing all the edibles they could lay their hands on, wrapping each piece of pie, slice of beef, leg of chicken &c in a piece of paper, depositing it in the bag of their capacious sleeves."

Who could blame them? The American food was new and strange, and, besides, they were simply following a polite Japanese custom of those days—a custom which the Commodore and his men were asked to follow when they, in turn, were offered a dinner of fish soup, raw and cooked fish, rice cakes, and *sake* on shore.

After the banquet on the *Powhatan* the Americans put on an old-fashioned minstrel show. Bones and Sambo, in blackface, went through their usual antics, and even the chief Japanese negotiator, Prince Hayashi, the Lord Rector of the university in Tokyo and the Chief Confucian Adviser to the Shogun, shook his stately sides with laughter.

A Parting Embrace for Perry

The champagne must have been effective; for, as the Japanese were about to leave the ship, one of them threw his arms around Perry's neck, crushing a new pair of epaulets in his embrace and saying, in fervent Japanese, "Nippon and America, all the same heart!" Then, according to the official account, he "went toddling into his boat" while a salute of 17 guns boomed from the *Saratoga.*

Because the Japanese authorities kept them within strict limits, Perry and his men could see little of the country. From their ships the Americans could hear the bells of Tokyo, and once they saw, dimly in the distance, the crowded wooden houses of the capital city. On land they were limited to a circuit of only a few miles.

Their walks ashore were enough to show them the beauty of the scenery, the neatness of the villages, the skillful cultivation of the tiny fields, the courtesy and friendliness of the people. Strictly off limits to them, apparently, was the most picturesque place in the entire neighborhood of their anchorage: the ancient capital city of Kamakura, with its 65 temples and 19 shrines, and its wondrous relics of medieval Japan.

One of Perry's ships, the *Macedonian,* went aground off Kamakura on the second voyage. The Commodore anchored there during the refloating operations, but he knew the place only as a dangerously exposed anchorage, open to the winds of the western Pacific.

Of its shrines, the most famous is the contemplative Daibutsu, or Great Buddha, 42½ feet high, a hallmark of Japan as familiar now as Big Ben in London or the Eiffel Tower in Paris. There is no record that any of Perry's men ever saw it, although it is only six miles from the shore of Tokyo Bay.

Today Allied soldiers on leave from Korea and sailors from the Yokosuka naval base visit the Great Buddha in droves. Its serene repose seems to cast a spell over them, for they show it immaculate respect as a shrine.

Buddha Echoes to "Alouette"

When I was there I heard something, coming from among the trees near the statue, that would have horrified Perry. It was boogie-woogie echoing from behind a sign that advertised the Hotel Buddha. A Japanese band was trying to master the rhythms of Harlem and was having trouble doing it.

The band gave up when a lusty platoon of French-Canadian soldiers in berets invaded the Hotel Buddha, singing "Alouette" at the top of their voices. They palavered politely with the band leader and asked if they might borrow his instruments.

Soon the *Canadiens* were blaring and shouting their cheerful song so loudly that the Buddha itself almost clenched its palms in anguish:

> Alouet-te, gentille Alouet-te,
> Alouet-te, je te plumerai . . .

The soldiers were men of the Royal Twenty-second Regiment, a unit made up almost entirely of French Canadians and known from Ontario to the Maritime Provinces as the Vingt-deuxième—pronounced in French Canada as the "Vandooz."

To millions of present-day Japanese in the Tokyo area Kamakura means not only the site

Philip Kuhn

Bearded Ainu, Survivor of Japan's Prehistoric People, Sits Proudly Among His Trophies

Perry's men, visiting Hakodate in 1854, saw descendants of Japan's original inhabitants, the Ainus. Today only a few thousand of these hairy, primitive people remain in Japan. Here an Ainu patriarch and his wife wear ceremonial costumes; he reaches for his formal straw hat. Prized lacquer jars along the wall were given to his ancestors by feudal lords in payment for bearskins. Mustachelike tattooing decorates the lips of the woman; additional tattoo markings encircle her wrists.

of the fabulous Buddha but also the beach which, more than any other, is the Coney Island of Japan. On hot week ends as many as 200,000 in a single day pour into Kamakura for swimming and sunshine.

The narrow streets are alive with men in white sport shirts, women and girls in neat white cotton dresses. Many of them stop on the way to the beach to play *pachinko*, a kind of vertical pinball game which is the craze of contemporary Japan.

From the dunes behind the beach you can hardly see the sand. The crowds, covering every inch, are a microcosm of the population problem in a country where 85 millions live in an area smaller than California. Bathers in the choppy sea are as thick as sea birds on a Pacific island.

The amusement park at Kamakura is as popular as the sea itself, but, unlike ours, it is built right on the sand. When I was there, a 30-foot Ferris wheel was giving Japanese youngsters the thrill of their lives. The most popular of all the beach attractions was a toy train which was taking children on a ride around an oval track behind a tiny streamlined engine (page 94).

This toy train at Kamakura was a direct descendant of the miniature train which Perry gave the Emperor a hundred years ago, on another beach only a few miles away.

Before Perry started the long voyage home, his ships steamed out of Tokyo Bay to visit Shimoda, at the southern end of the beautiful Izu Peninsula. This was one of the two ports opened by Perry's treaty.

East-West

Medieval Mummers and Geishas Welcome Visitors to Shimoda's Black Ship Festival

Japanese fetes this year and next celebrate the centennial of Perry's visits. Although the expedition frightened many Japanese, the island people today regard the Commodore as a benefactor. Besides Shimoda's annual affair, Kurihama, Hakodate, Tokyo, and Yokohama are holding festivals, and an exposition ship will tour the islands. In the United States, libraries and museums offer Perry exhibits; a Perry Centennial stamp comes out in July, and miniatures of four of Perry's ships float in Washington's Tidal Basin.

The peninsula is as picturesque as the Amalfi coast of Italy. Terraced cliffs rise steeply from the sea, and pretty islands dot the coastline. Perry's men were charmed with Shimoda, with its temples and cottages, but they professed to be shocked by some of the Japanese customs, notably the nude bathing by men and women in the public bath.

First Consul Promoted Good Will

Today Shimoda, with its 9,000 people, is an American shrine second only to the first landing place at Kurihama. For this is where Townsend Harris, the first American consul in Japan, lived more than a year in 1856 and 1857. Harris negotiated a full-fledged commercial treaty in spite of exasperating difficulties.

By his example of kindliness, patience, and tact, Harris, more than any other man, including Perry, laid foundations for American-Japanese friendship which outlasted even the Pacific war.

From Shimoda some of Perry's ships wallowed northward on a stormy, rain-soaked voyage to Hakodate, the second of the treaty ports, on the southern end of the great island of Hokkaido. The Americans found Hokkaido bleaker, grander, and more austere than the green and pleasant land they had seen around Tokyo Bay and Shimoda.

In those days Hokkaido was like a foreign country to the Japanese, a cold frontier land of forests, bears, and volcanoes. Perry's sailors called Hakodate "Hack Your Daddy," and found it a clean but dreary town built chiefly

along a single main street. Today it is a busy port of almost a quarter-million people and the terminus of the rail ferry that links the 4¼ million on Hokkaido with their countrymen on the main island of Honshu.

One of Perry's armed storeships, the *Southampton*, paid a visit to Volcano Bay (Uchiura Bay), ringed by several volcanoes, two of them belching smoke at the time. There the sailors found some of the true curiosities of Hokkaido—the Ainus, the primitive people who were living in Japan before the ancestors of the present-day Japanese arrived.*

Ainus a Vanishing Race

One student estimated that in the 17th century there were 200,000 Ainus on Hokkaido. In Perry's day there may have been only between 20,000 and 30,000, chiefly because a smallpox epidemic had almost wiped them out a century before.

The *Southampton's* commander described them as short "but well-proportioned, with intelligent features," and noted their "very black, coarse hair."

Today only a handful of pure-blooded Ainus survive in Japan. My son and I visited two survivors of this departing race in their log house at Shiraoi, on the southern coast of Hokkaido (page 100).

They had taken Japanese names—Mr. and Mrs. Inosuke Miyamoto—and of course they spoke Japanese. The man, at least, had the high cheekbones and other features of a Russian peasant. Their eyes were deep-set under bushy brows that reflected the mild and friendly disposition for which the Ainus have always been known.

Mr. Miyamoto had a long white beard; his wife had tattooing like a mustache around her lips. The old couple was seated on the floor, facing a half-circle of Japanese schoolchildren who were watching with as much wonder as our children would show for a full-blooded Indian chief.

With a soft and gentle voice, Mr. Miyamoto described his exploits in hunting bears, which from time immemorial has been a major occupation of Ainu men and the mainstay of Ainu folklore. The old man pointed proudly to the precious lacquer jars which the feudal lords of old Japan had given his father and grandfather in payment for bearskins.

What if Perry had not opened Japan? Would it have been better, for Japan and for the rest of the world, if the lacquer curtain had not been pierced a century ago?

The questions are misleading; Japan would have been opened anyway, even if Perry had not gone there. Great Britain or Russia surely would have done it.

Perry himself foresaw an eventual conflict between America and Russia which, he said, would determine "the freedom or the slavery of the world." His official report to Congress in 1856 noted that Russia had pursued its expansionist aims "noiselessly" but persistently, with the hope of controlling both shores of the northern Pacific Ocean.

"If she possessed Japan," the Commodore reported, "she would have an abundance of harbors, unrivalled in the world for excellency, and with her resources would control the commerce of the Pacific. It is not, therefore, the interest of any part of the commercial world that Russia should ever own Japan."

If any foreign nation had to open Japan by the threat of force, probably it was fortunate that it was the United States. Neither the old Commodore nor his Government ever sought to "own" Japan or to take possession of an inch of its soil for the United States.

Perry wanted only to open the country to trade and friendship and to what he honestly believed were the blessings of Western civilization.

I have often talked to Japanese friends about Perry. They knew the details of his expedition; they had learned about it in school. In the old days, many Japanese looked upon it as a national humiliation, for the Japan of Perry's time was defenseless and woefully asleep to its own best interests.

Japan Quick to Learn Western Ways

Yet intelligent Japanese now honor Perry as the initiator of 50 years of dazzling progress. In the half-century from the signing of Perry's treaty to the start of the exhausting war with Russia in 1904, Japan amazed the Western World by transforming herself into a modern state.

She developed a banking system, a railway network, a merchant marine, and industries; she absorbed the technology of the West and at least the forms of Western political institutions as well. It was only in the second half-century after Perry that Japan took a wrong turning which led her to the disaster of militarism, war, and defeat.

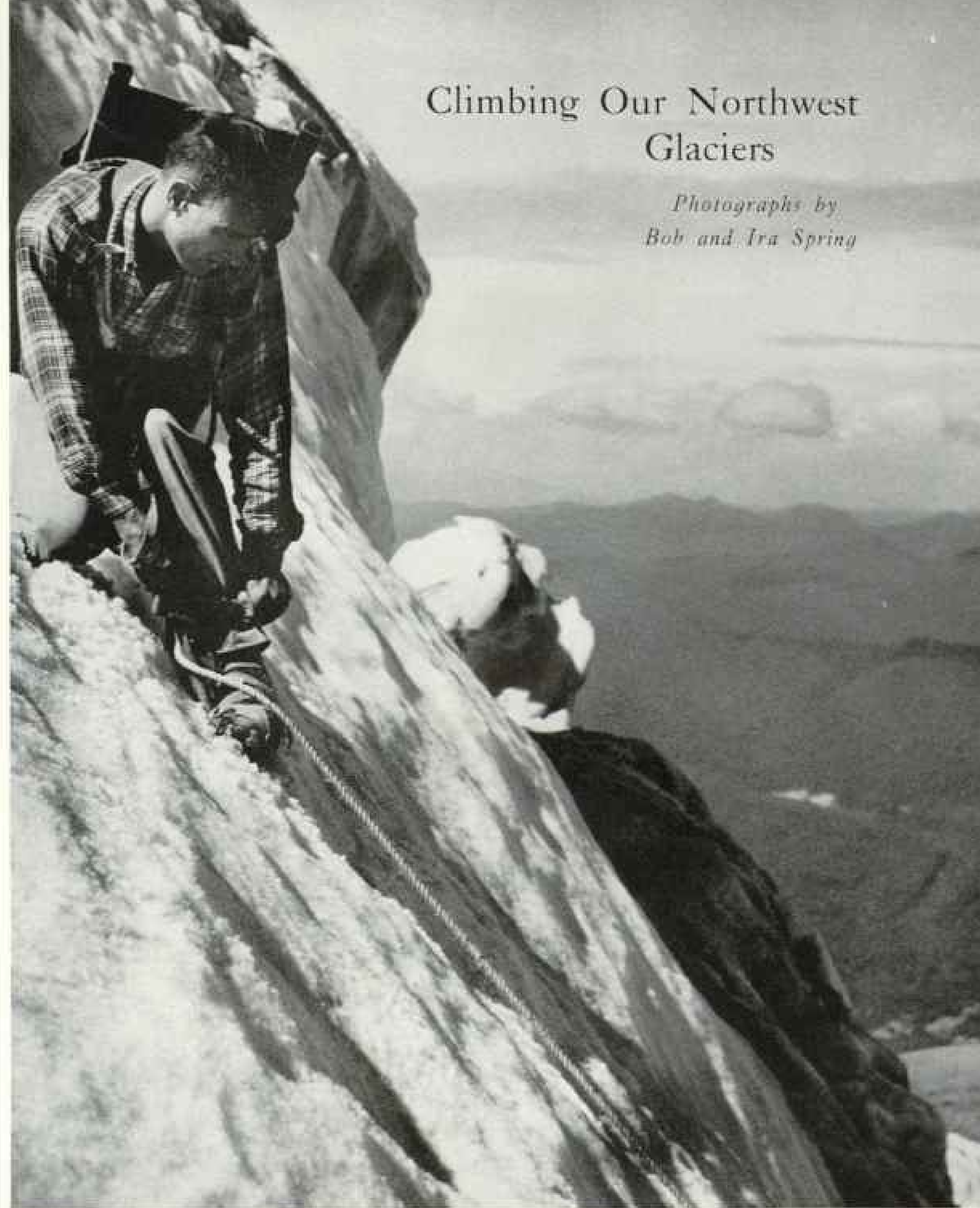
Today her thoughtful leaders wish their country had continued on the course of peaceful progress that Perry started.† In Japan as in the United States, the thickset figure of the Commodore looms larger with the passing years; and his "black ships," once so menacing, are remembered as the agents of a national liberation.

* See, in the National Geographic Magazine, "Friendly Journeys in Japan," by John Patric, April, 1936.

† See, in the National Geographic Magazine, "Japan Tries Freedom's Road," by Frederick G. Vosburgh, May, 1950.

Climbing Our Northwest Glaciers

Photographs by Bob and Ira Spring

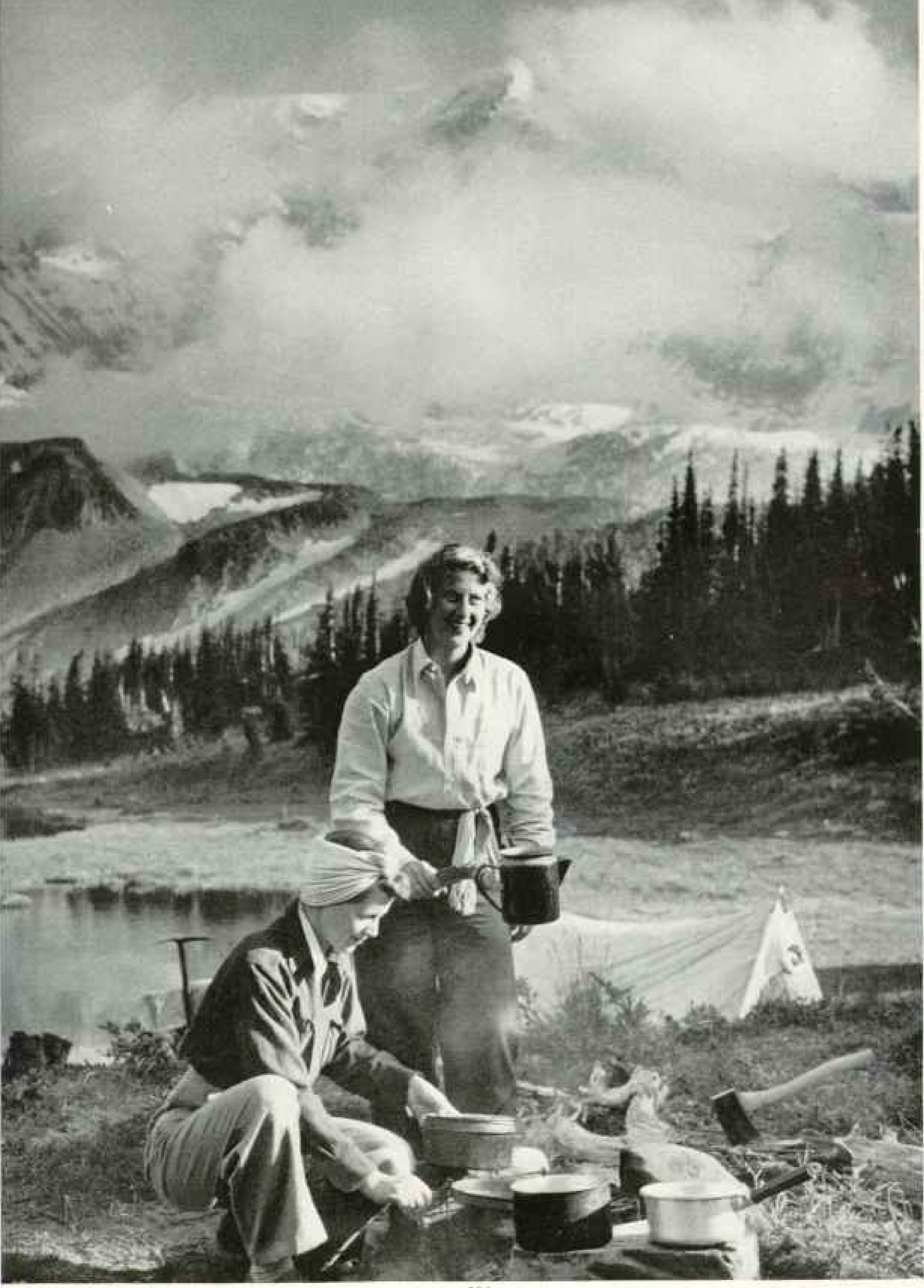


Ira Snubs a Rope Around His Anchored Ice Ax to Support Climbers Below

Climbing season, June to October, brings thousands of enthusiasts to the Pacific Northwest in search of high-altitude adventure. Here some of North America's tallest peaks offer alpine sport and breath-taking views. From lofty campsites climbers look down on lakes, rivers, and roads spread out as on a huge relief map. At night they watch the twinkling lights of distant cities, some 100 miles away.

Most popular of Northwest mountains is 14,408-foot Mount Rainier, 60 miles from Seattle and 40 from Tacoma. Icy fingers of 26 glaciers cling to it. Other favorite ascents in Washington include Mount Baker, Glacier Peak, and Mount Olympus (map, page 105).

Bob and Ira Spring, twins, combine mountaineering with professional photography. Ira, on a dizzy perch, uses a belay to help companions. His rope will support a pull of several times a man's weight.



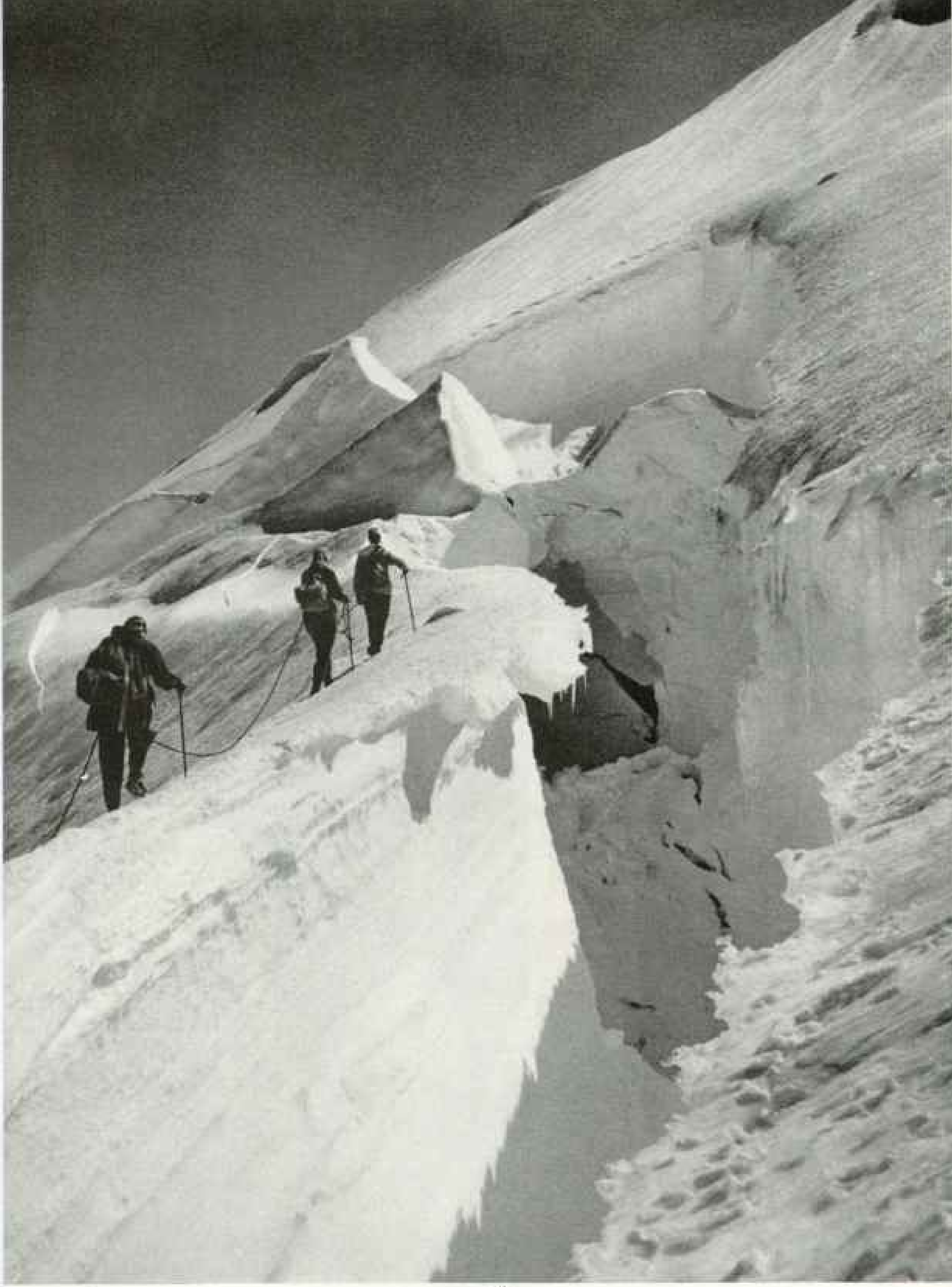
Mount Rainier Campers Prepare a Trailside Supper Below Cloud-swept Carbon Glacier

"Come and Get 'Em!" Pancakes Hot Off the Griddle

▲ Luxuries stay behind for high ascents. Packs, reduced to a minimum, weigh no more than 50 pounds. Some climbers carry lightweight tents, for mountain weather may suddenly change clear skies into blinding snow. Cook Walter Gonnason here flips a pancake for a fellow camper at Glacier Peak.

➤ Dense stands of fir and hemlock provide ample firewood on lower slopes. Above timber line, mountaineers depend on gasoline heaters. Dee Molenaar uses a Coleman stove to melt snow for tea.

▼ Northwest's lofty peaks ring Puget Sound.

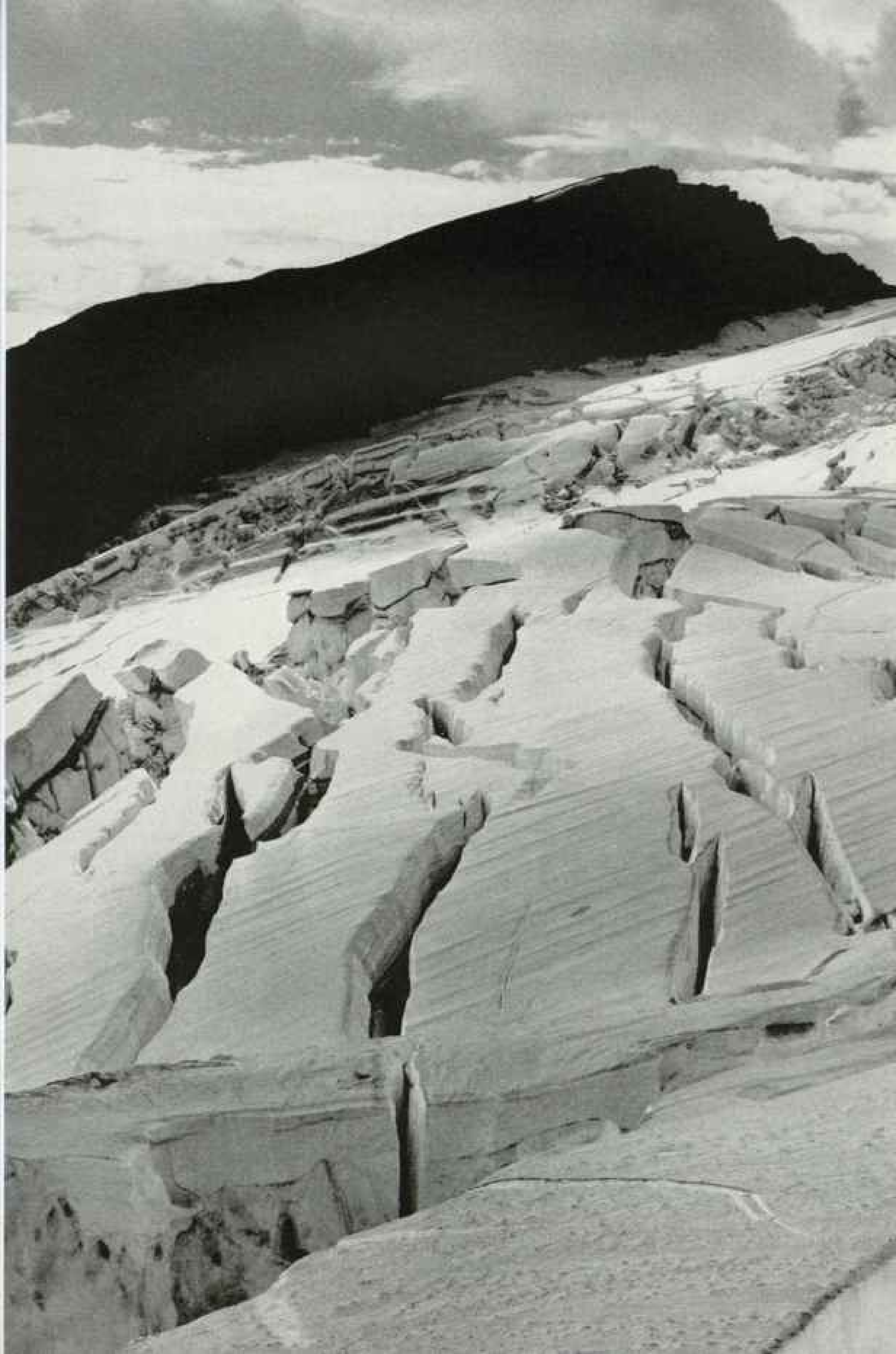


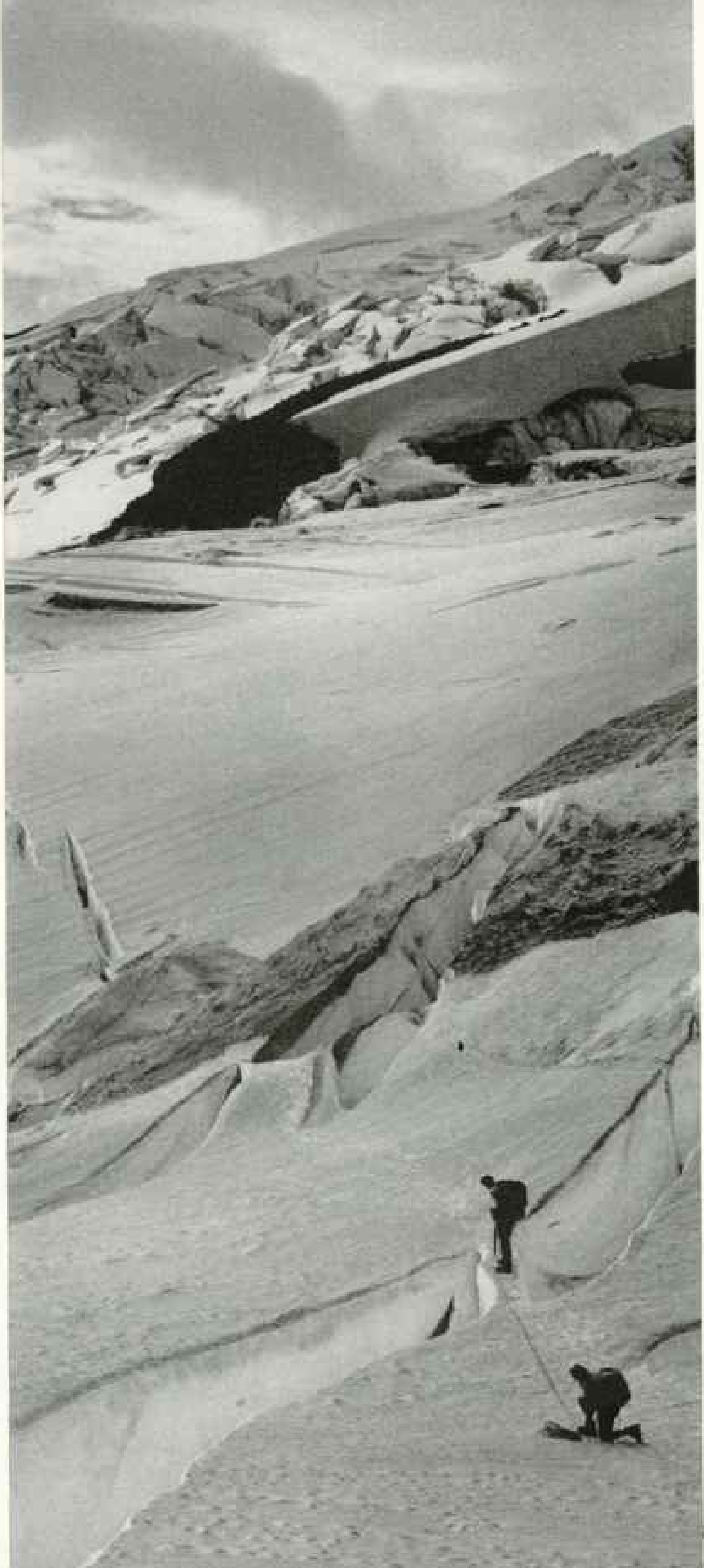
Roped Climbers, Near Mount Rainier's Top, Skirt an Icicle-fringed Crevasse

Deeply entrenched Emmons Glacier plunges from Rainier's summit to base. Some of its yawning fissures could swallow a large hotel. These alpinists, making a wearisome detour, test an overhanging ledge with their ice axes.

Crossing a Glacial Snow Bridge on Mount Olympus, a Misstep Could Mean Disaster

Although snow spans provide the shortest route across glacial cracks, they are often unsafe. Some, exposed to intense sunrays, turn to slush within hours. Others become progressively weaker with each crossing.





Dwarfed Adventurers Thread a Maze of Tortuous Chasms

Difficult ascents require careful preparation. Mountaineers must check every inch of climbing rope, for sharp rocks may weaken nylon strands. All housekeeping essentials must be crammed into compact knapsacks. Lightweight foods are packed in waterproof containers.

As soon as the climbing party reaches the glacier, teams of two to four rope together. On the ice sheet, reflected sunrays can cause bad burns within half an hour. Water is scarce, despite a wealth of snow and ice. Oranges and small cans of juice replenish body fluids. Some climbers prefer fruitade made from candy drops and melted snow.

These high-altitude travelers use a rhythmic "rest step," a pace geared to thin air. With each step they pause about three seconds, the time required for a full breath.

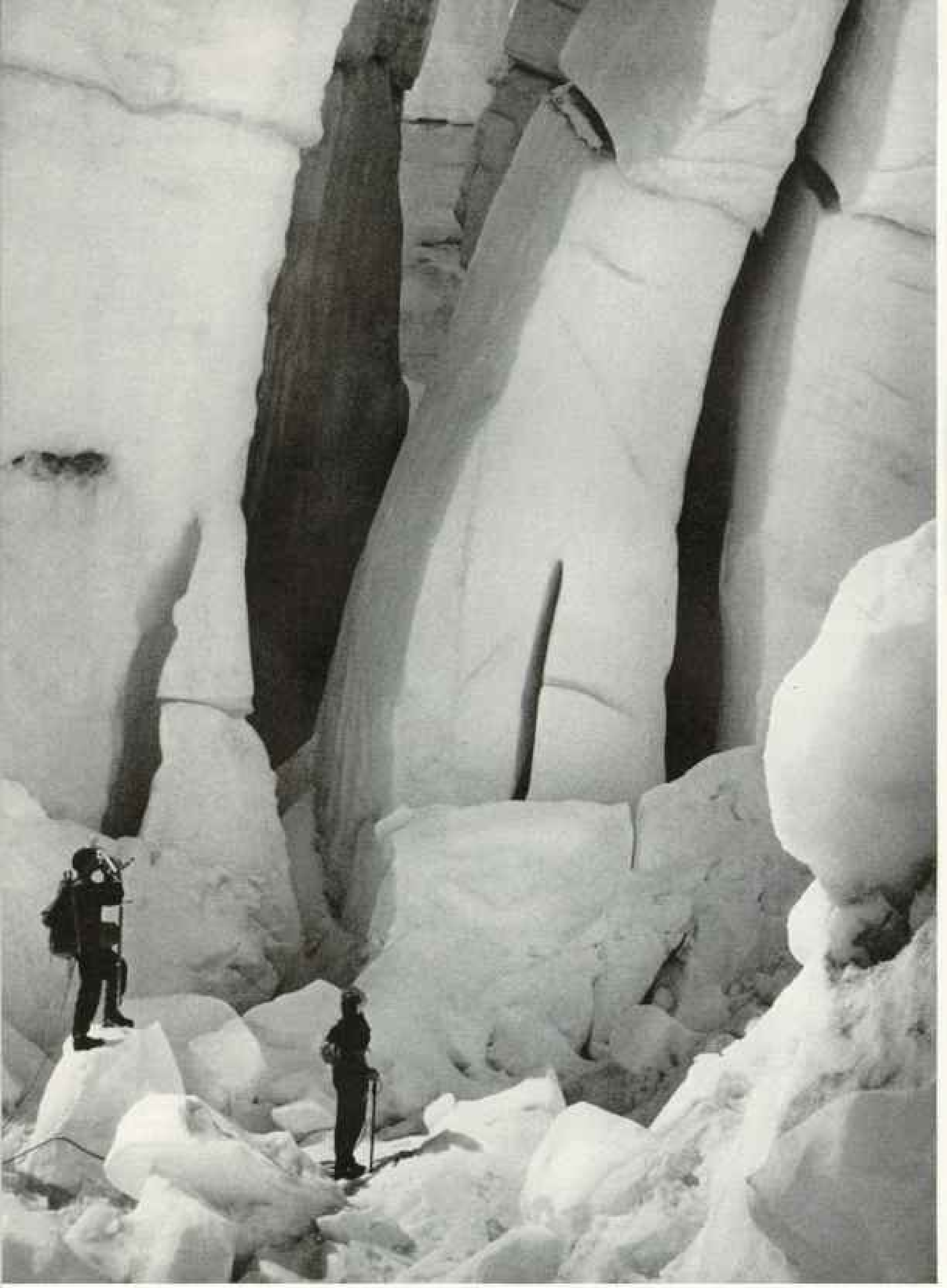
Here on Mount Rainier independent parties with qualified leaders may try for the summit. All members must register with a park ranger before starting and upon returning. They must give evidence of physical capability, proper equipment, and climbing experience.

Rainier's 40 square miles of glaciers constitute the largest single-peak glacier system in the United States. Some of its ice tongues may have extended into the Puget Sound area ages ago (map, page 105).

Crevasse floors provide fair shelter in extreme cold because interior temperatures of glaciers remain around 32°. On the summit, caverns melted out by volcanic steam offer refuge.

Reaching the top of major peaks, climbers sign registration books kept in waterproof containers.

These men cross a snow bridge on Winthrop Glacier, one of six ice rivers originating at Mount Rainier's summit. They head for camp at Steamboat Prow, the jagged edge of the black rock mass (left). The mass itself, known as the Wedge, splits the ice sheet into the Emmons and Winthrop Glaciers.



Tall Pillars of Ice Curve Upward from the Crumbled Floor of a Glacial Fissure

As gravity pulls the icy streams over Mount Rainier's resistant rocks, huge columns break away from the brittle mass. Ira Spring and his companion here explore the shattered walls of a deep crevasse in Winthrop Glacier.

Only a Few Feet of Packed Snow Separate Carolyn Craig from an 80-foot Plunge

Shadow of the frozen span on the crevasse wall shows its narrowness. Ice within the fissure glows with a faint blue tinge that darkens with depth. Horizontal lines denote Nisqually Glacier's yearly accumulation of ice.

Cradled in a Sliding Loop, Louise Ingalls Rappels Down a 100-foot Cliff

With this double-rope sling she quickly descends ice faces that require hours to climb. By keeping tension on the ropes, she eases down with little effort. Crampons give her a foothold on the ice.

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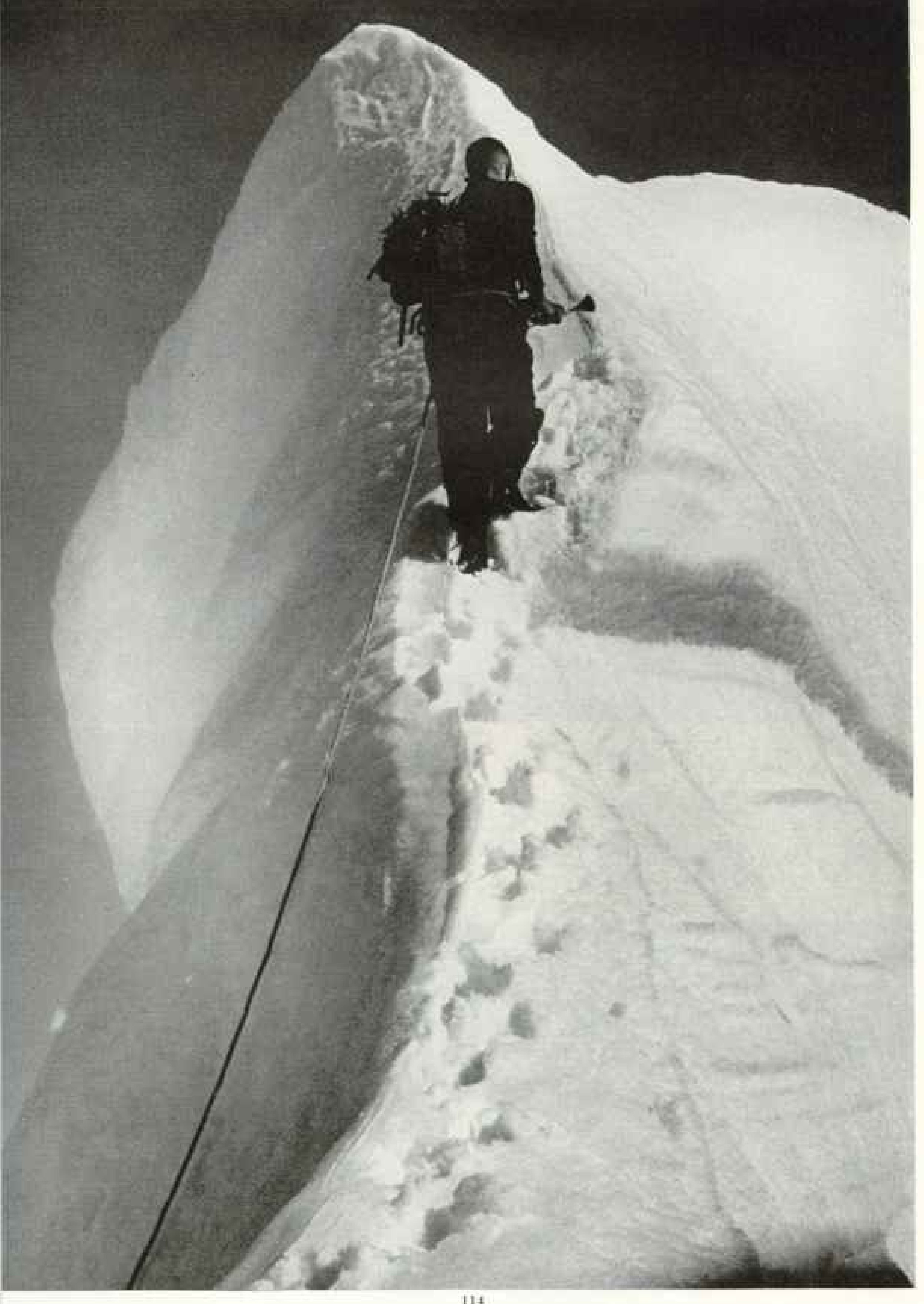
↑ Ax and Spikes Provide Firm Footing

Lee Molenaar safeguards her husband's precarious crossings by anchoring his climbing rope around her braced ax handle. Lower right: He secures the rope's other end around his waist and shoulder with a bowline on a bight knot. Below: Straps bind spike-studded metal frames, or crampons, to climbing boots.



Step by Step a Climber Chops Frosty Footholds Up a Towering Spire on Mount Baker

Dublin's Historic Horse Show

Horse Lovers on Both Sides of the Atlantic Hail This Annual Event on Ireland's Green Old Sod

By Maynard Owen Williams

With Color Photographs by the Author

In nearly any company of horse lovers, from Virginia or the Argentine to Singapore, Horse Show Week in Dublin evokes a cherished memory or a strong hope. To thousands of Irish horse enthusiasts the competition every August in the flower-bordered, green-turfed enclosure of the Royal Dublin Society is the mecca of their dreams.

If the famous horse show itself, like a tall hunter or fine filly, could have a pedigree, it might read "Social Event," by "Royal Dublin," out of "National Pride."

As early as 1867 the Royal Dublin Society, pledged to "improve the Husbandry, Manufactures, and other useful Arts" of Ireland, called the attention of Parliament to the need for more and better sires. A direct result was the first Dublin Horse Show under the society's auspices the following year.

Horsemen Treasure a Dublin Rosette

Today the prestige of winning at Dublin is world-wide. Cash prizes are offered, but the real reward is the red, or red, white, and blue rosette of victory, which a winner carries in his mouth past admiring thousands while his horse dances as if for the joy of it all (page 124). The big event is the Grand International Jumping Competition for the Aga Khan Challenge Trophy.

During five busy days more than a thousand horses compete. Class, not cash, is the keynote. When two high-stepping harness mares from England, seemingly cut from the same black satin, strut to the applause of horse lovers, everyone knows that these exquisite equines are working for sheer pride in their prowess, not for money.

In the Bloodstock Sale Paddock, across Merrion Road from the show grounds at Ball's Bridge, nearly a thousand thoroughbreds are sold at auction.

On the first day some untried yearling, but future winner, may bring only a few hundred pounds.

On the second and third days prices may be higher. For example, a chestnut colt by Royal Charger, out of Four in Hand, sold for about $10,000.

Horses in training and untried thoroughbreds are sold on the fourth day.

On the final day, horses entered in the show classes change hands. I photographed one horse that was withdrawn when bids were only $11,000.

With an Irish companion I walked along in front of the diplomatic boxes for a preview of the jumping enclosure. A neat hedge of alternate green and gold privet enclosed a half-mile oval of greensward.

In the wide enclosure were the six permanent jumps: bank and ditch, single bank, stone wall, hurdle, double bank, and water. For some events as many as 10 fly fences are added. These additional barriers deliberately test skill as well as power. Riders sometimes lose their way and are disqualified.

Time Counts in Case of Ties

Ordinarily, speed counts no more in jumping than in golf. But an automatic timer is the deciding factor when several horses triumph over 15 or 16 barriers without a single fault for a "clear" round. In the final, and timed, round of one jumping event I witnessed, six horses had faultless rounds and finished within a time difference of eight seconds; the fastest won.

Opening day two years ago, Tuesday, August 7, dawned dark, with drizzling rain, but when I arrived, soon after 9, grooms and handlers had been at work for hours, giving an extra polish to a shapely flank or braiding a mane (page 122).

In four rings at once the judging of nearly 100 heavyweight hunters, 100 medium-weight hunters, 138 lightweight hunters, and many 3-year-olds, 2-year-olds, and yearlings began. In the jumping enclosure thoroughbred stallions, yearlings, brood mares, and foals were parading on velvet turf while judges appraised each entry.

On that first day 110 jumpers competed, and I saw such master riders as Capt. Kevin Barry of Ireland, Lt. Col. Harry M. Llewellyn of England, and Dublin's own Iris P. Kellett in action (page 117).

One headline for Wednesday was "Rain Puts Damper on Horse Show." That was true for the crowd. But the interest of the experts remained at full heat. Judges rode one beautiful horse after another, risking their spines as well as their reputations.

On Friday the sun appeared for the most important hour of the whole show, the Grand International Jumping Competition for teams

of four horses. I stood on a small cement platform between the diplomatic boxes and the western end of the grandstands. Diagonally across the oval, 250 yards away, crowds packed the roofless bleachers. To the northeast the view was closed by Anglesea Stand, with every seat filled. Judges and announcer occupied a glass-walled box in front. At the left end, the members' stand filled a corner beyond a row of second-story diplomatic boxes.

Off my right shoulder stretched the grandstands, packed to capacity. In front of them a tremendous crowd hugged the rails.

The President of the Irish Republic, Seán Tomás Ó Ceallaigh ("Sean T. O'Kelly" in the Dublin newspapers), was escorted to his seat amid thunderous acclaim.

Sixteen splendid horses, 10 of them bred in Ireland, represented Spain, England, Italy, and Ireland (page 120).

Preceded by two bands, they passed the Presidential box, showed their left flanks to diplomatic row, passed the members' stand, and met the full-throated cheers from the towering Anglesea Stand. Both brass and kiltie bands were playing *The Wearing of the Green*, but the atmosphere was *Pomp and Circumstance*.

Jumping for International Honors

Then the vast enclosure was empty except for a lone horse and rider, a tiny pattern on the huge velvet oval. Spain's Lt. Col. Joaquin Nogueras, on Mister B., was starting the first of two rounds.

This contest between England's civilian team and three army teams was for the Aga Khan Challenge Trophy. The contestants must clear the six permanent jumps, as well as 10 extra jumps such as Railway Gate, Rustic Gate, Road-Closed Gate, Brick Wall and Pole, and, most popular for the general public, the "in and out"—Triple Hedges and Poles, only a few strides apart and counting as three.

All contestants knew the course, but the arrangement of the barriers had been changed. Irish-bred Aherlow, England's second starter, took the wrong course and was eliminated. Since only the three best scores for each team are counted, this did not mean disaster.

Italy's Briacone, bred in Germany, lost his way, but the crowd shouted a warning in time, as it did to another Italian entry, Giua, bred in Italy.

The time allowance for the course proved generous, but since both England's Foxhunter and Ireland's Glengariff were tied, with only two faults out of a possible 128 for jumps alone, Foxhunter, "the best known jumping horse in the world," won on time.

At one moment Ireland's chances seemed excellent, for Ormonde had a "clear" first round, except for a misstep at the single bank.

England's team won this 1951 event with a total of 30 faults, including only two by Foxhunter. Ireland was second; Spain, third; and Italy, fourth.

President O'Kelly, in dark coat and gray topper, came onto the field and presented the two-gallon gold cup to the pink-coated English team, led by Lieutenant Colonel Llewellyn, while the bands played Great Britain's national anthem.

Unfortunately, the 1952 show followed so soon after the Olympic Games that riders competing at Helsinki could not ship their mounts to Dublin in time for entry. As a result, the coveted Aga Khan Trophy was not offered.

Horsemen representing France, the United States, England, Italy, Ireland, and the Netherlands did match skills in a stirring unofficial team competition, won by England. The results of several other traditional contests also were unofficial last year.

Show Ends with Bargain Day

Having watched the big 1951 show, with smiling skies, for more than two hours, some visitors drifted away to tea garden or flower exhibition. But tens of thousands stayed on to see nearly 50 horses in the Consolation Competition. Appropriately named, the winner was Happy, and the big day was done.

Saturday is bargain day. For 14 cents anyone can enter the grounds. For 14 cents more, he can enter the grandstand enclosure. Those who braved the rain saw two of the finest events of the show.

Ballyblack, a sturdy veteran of many a year, broke the course record with a high jump of 6 feet 3 inches on his sixth jump. His owner, Mrs. R. G. Garland, of Newry, in Northern Ireland, is an American.

The other outstanding event, the International Jumping Competition for the World Cup, or Irish Trophy, was won by Hack On, an Irish horse.

The big show was over. Irish horse lovers had had their day. I boarded my plane and came home. At the New York International Airport there was nothing to remind me of the preceding week's glamour.

"Too bad," I thought. "Americans really should know more about the Dublin Horse Show."

The customs inspector greeted me: "How long were you abroad?"

"Only three weeks—at the Dublin Horse Show," I told him.

"What a vacation! How did Foxhunter look?"

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Kodachrome by Maynard Owen Williams, National Geographic Staff

Pride of the Irish: Iris Kellett and Rusty, Her 18-year-old Jumper

Miss Kellett is Ireland's foremost horsewoman. She and Rusty have won many trophies in international jumping competition, including London's Princess Elizabeth Cup in 1949 and 1951 and Dublin's World Cup in 1948.

Heroic Statues Line Dublin's Spacious O'Connell Street

Once called Sackville Street, Dublin's handsome main thoroughfare was renamed in honor of statesman Daniel O'Connell, known as the Liberator, who in 1829 won emancipation for Ireland's Catholics, including the right to vote and hold office.

The street was badly damaged during the uprisings of 1916 and subsequent years, but today it is one of the finest in Europe.

A memorial to O'Connell overlooks this intersection. In the distance looms the Nelson Pillar, 134 feet high, honoring the hero of Trafalgar. Lesser statues, with cars parked at their base, stand in line between the two large memorials.

A few days later, in Horse Show Week, O'Connell Street was jammed with bumper-to-bumper traffic bound for the show grounds at Ball's Bridge. Throngs milled at intersections, waiting to board big omnibuses. Many merchants closed their shops and joined the crowd. In the evening thousands of visitors promenaded along the sidewalks.

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Coach Passengers Embark for the Lakes of Killarney

Many a foreign visitor to Ireland goes to see Killarney's storied lakes. An all-day tour, beginning at the town of Killarney, takes these sight-seers by "brake" to Kate Kearney's Cottage (page 131). From that point they will ride small carts or ponies through rugged, boulder-strewn Gap of Dunloe to reach the lakes, traversed by boat.

Fed by tumbling streams, the lakes lie in a luxuriant valley ringed by dark mountains (page 132). Each shimmering blue mirror is rich in Celtic lore and legend.

There are three major bodies of water in the valley—Upper Lake, Middle, or Muckross Lake, and Lower Lake, or Lough Leane. Lower Lake, five miles long and two miles wide, is the largest. All are interconnected.

Kodachromes by Maynard Owen Williams, National Geographic Staff

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Jumping Teams of Four Nations Pass in Review at the Dublin Horse Show

An international jumping competition for the *Aga Khan Challenge Trophy* highlights the annual show. Here riders and mounts parade before the contest. Ireland leads, followed by Italy, England, and Spain.

Kodachrome by Maynard Owen Williams, National Geographic Staff

English Riders in Hunting Pinks Won the Last Aga Khan Trophy Competition

This review preceded the contest. Ireland was second; Spain, third; and Italy, fourth. Spectators from all over the world jam boxes, grandstands, bleachers, and standing-room space.

Admirers Prepare a Children's Pony for the Judging Ring

Irish grass is far-famed as a maker of champion horses and ponies. The "old sod" is ever green, and its calcium content, drawn from the limestone subsoil, strengthens the animals' bones.

But the development of fine bloodlines is due largely to the work of the Royal Dublin Society, a scientific and cultural organization established in 1731. Through its research programs and its sponsorship of the annual horse show, the society has raised Irish horse breeding to world prominence.

The first Dublin Horse Show was held in 1868 in the courtyard of the society's headquarters, Leinster House, now the seat of Ireland's Parliament. Over the years the event grew in size and importance. In 1879 the society acquired its present spacious show grounds at Ball's Bridge.

Today the Dublin Horse Show is internationally celebrated. More than 1,000 horses compete during the five-day August meeting.

Here the owner (wearing hat) and friends give last-minute grooming touches to Inter-Party, a mare bred as a child's mount.

© National Geographic Society

Matronly Mares with Foals at Foot Circle a Velvet Lawn. Bowler-hatted Officials Judge the Competing Horseflesh

A triumph in one of the competitions pays handsomely in both prestige and money. Though cash prizes are modest, a winning horse commands a good sales price. Owners sell nearly 1,000 fine animals, including many show entries, during the five-day program. These mares are hunters.

Kodachrome by Maynard Owen Williams, National Geographic Staff

← A Colleen in Formal Riding Attire Awaits Her Turn Before the Judges

In Ireland no other sports event compares in social importance with Dublin's classic horse show. Thousands of visitors crowd the capital during show week. Hotels are booked solid months in advance. Results of the various competitions monopolize front pages.

Ireland's President presents the Aga Khan Trophy to the winner of the international team jumping competition (page 120). Diplomats of many nations view the colorful ceremony.

Tradition governs the classic. It would be quite unthinkable for this young lady, entered in a sidesaddle jumping contest, to appear in anything but faultlessly cut riding habit and correctly tied hunting stock. White gloves, top hat, boutonniere, and veil complete her costume.

↓ Clenched Teeth Hold Coveted Awards

Dublin winners receive colored rosettes for display in a victory parade after each contest. Traditionally the awards are carried in the mouth, leaving hands free for crop and reins. These children won prizes in a pony competition. A red rosette (left) symbolizes first prize. Boys (center) display identical blue rosettes, indicating they tied for second.

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Kodachromes by Maynard Owen Williams, National Geographic Staff

↑ A Thatched Roof Shields the Cottage of These Sisters in Adare

Ancient Adare, with its straw-roofed cottages and lichened medieval churches, has been called Ireland's prettiest village. The late tenor John McCormack sang *The Rose of Tralee* in front of this home for a Hollywood film. Roses brighten the walled yard.

↓ Thomas Moore Composed Songs at This Pianoforte

Moore wrote music for some of his verses; at times he adapted words to Irish folk tunes. His instrument is preserved in the Royal Dublin Society headquarters. Here Eithne Coldrick plays a beloved Moore song, *Believe Me, If All Those Endearing Young Charms.*

© National Geographic Society

A Farmer Drives His Cart Across Historic Thomond Bridge Spanning the River Shannon at Limerick

In 1691 nearly 800 Irish infantrymen died on Thomond Bridge defending Limerick against troops of William of Orange. The span was then a drawbridge. The famous Treaty Stone, where townsmen are believed to have signed their armistice with William's commander, stands near by.

↓ **Dublin's Baby Elephant Takes Three Admirers for a Ride**

Wooded Phœnix Park, the capital's 1,760-acre public playground, was once a deer preserve owned by the British Crown. It now contains gardens, a race track, football and cricket fields, and the municipal zoo. This little elephant, only two and a half years old, is one of the zoo's most popular inhabitants. Here it ambles about with three blond sisters, all older than the elephant.

← Sneezy and Doc, young giraffes, greet a zoo visitor.

Kodachromes by Maynard Owen Williams, National Geographic Staff

Sunset Gilds the Stone Chimneys of Old Galway

For centuries seaside Galway traded extensively with Spain. Eventually the Iberian influence was reflected in the architecture of the city. Still standing are several old merchant houses built Spanish-style around a patio.

Possibly as a result of this relationship with Spain, Galway tradition maintains that Christopher Columbus visited the city on his voyage of discovery to America. He attended mass at St. Nicholas Church, so the story goes, before sailing into the unknown west. There is no evidence of such a visit, but some residents believe a Galway man did accompany Columbus on his epic voyage.

Today the city, though no longer a major port, is famed as the gateway to Connemara, one of Ireland's finest scenic areas.

Here the rays of a dying sun, breaking through rain clouds, bathe with mellow light the weathered homes near Eyre Square.

© National Geographic Society

A Flotilla of Swans Sails Past the Dublin Custom House

Like many other public buildings in Dublin, the Custom House fell victim to the uprisings which preceded Ireland's independence. The structure was damaged in 1916, and five years later Republican forces burned it to a shell.

Dublin faithfully restored the building, considered the finest in the capital. Today it looks much as it did when completed in 1791.

Cargo ships, plying the River Liffey, dock in the very dooryard of the Custom House. Beyond that point river traffic is limited to small boats and barges.

A figure of Hope stands atop the graceful dome of the Custom House. Ireland's arms surmount entrances at either end of the building.

Hundreds of swans nest along the Liffey. Relatively tame, they move like miniature sailboats among the busy river craft.

Kodachromes by Maynard Owen Williams, National Geographic Staff

↑ A Cart Track Hugs the Shore of Killarney's Black Lough. Here, Legend Says, St. Patrick Drowned Erin's Last Snake

↓ Visitors to the Killarney lake region arrive at Kate Kearney's Cottage (right). Here they engage ponies or jaunting cars for the trip through the Gap of Dunloe to the lakes. Kate Kearney was a famous beauty and tavernkeeper of the early 19th century. The cottage replaces her old establishment.

Kodachromes by Maynard Owen Williams, National Geographic Staff

← Young and Old Erin Pause for Rest by a Connemara Road

Connemara, the region northwest of Galway, is a beautiful but silent land of peat bogs, mountains, overhanging clouds, and sudden rain. There the ancient customs and traditions of Ireland survive. Many residents cling to Gaelic speech; some do not understand English.

This woman and boy were walking to market when the author chanced upon them. Shy and speaking only Gaelic, the woman consented to a photograph because she had relatives in the United States.

Her wool shawl, close-woven and very heavy, is not only warm but almost rainproof.

↓ After riding through Gap of Dunloe, sight-seers crowd into rowboats for the trip through Killarney's three major lakes.

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Kodachromes by Maynard Owen Williams, National Geographic Staff

Rip Van Winkle of the Underground

North America's Much Misunderstood Insect, the Periodical Cicada, Emerges After 17 Years in the Earth for a Fling in the Sun

By Kenneth F. Weaver

National Geographic Magazine Staff

ONLY a few weeks ago, on a warm night in May, a mysterious signal crossed the land. Citizens going about their chores heard no sound and felt no apprehension. But an invading host, waiting underground, heard and acted.

At a multitude of spots between the Atlantic Ocean and the Mississippi River the invaders began rising by night from their hiding places, fanning out to take possession of forest, wood lot, and orchard. Startled citizens, facing millions of uninvited visitors, were roused by curiosity and alarm.

A "W" Marks the Coat of Arms

The woodland occupants wore uniforms of black with orange trim, and shiny cloaks emblazoned with the letter W. Their gargoyle faces and gleaming red eyes stared unblinkingly at passers-by. Discarded armor hung from every tree and fence post. From dawn to dusk drummers filled the air with a harsh and mournful din.

Invaders from Mars or from some alien land? No, these creatures are as American as basketball or buffalo nickels. They are the periodical cicadas, known to almost everybody but entomologists as 17-year locusts.

In June these same cicadas were at their prime in many places east of the Mississippi, enjoying a brief and noisy fling in the sunshine after 17 winters of subterranean darkness. The apprehension that recently met their appearance has given way to varying degrees of annoyance.

By the middle of July the periodical cicada and his keening cry will be only a memory. Then the very air would hang in limp relief were it not for the dog-day cicada, or harvest fly, whose rasp makes drowsy the late summer afternoons. But a myriad drying corpses and empty shells will continue to remind us of the summer's visitation (page 142).

Life Cycle Began in 1936

When this summer's crop of periodical cicadas began its life cycle 17 years ago, the United States was recovering from depression, Edward of Windsor was sitting on England's throne, and Hitler was gaining strength in Germany. If anyone mentioned war, he likely meant the civil war in Spain.

That was 1936. In that July and August tiny antlike creatures wriggled from nests in furrowed twigs. They scampered briefly on bark and leaves, then tumbled to earth. There they quickly burrowed into the protective soil, to be seen no more until 1953.

A foot or so below the surface (some have been reputed to dig 10 feet) the cicadas hollowed out tiny clay cells. There they sank beaks into tender roots and settled down in quiet darkness for almost their entire lives.

Seasons passed. Depression ended and war spread around the globe. Wood lots fell to the lumberman's ax. Towns appeared; cities grew. But the hidden cicada was oblivious to all these things, except as the death of woods or orchard destroyed the nourishing roots on which he sucked. He seldom moved except to shed his clothes and enlarge his chamber as increasing size demanded.

Out of the Burrows, into the Sky!

But as last winter drew to a close, the solitary earth dwellers sensed that an important change was due. During late winter and early spring they gradually tunneled upward until their excavations touched the surface. Some, caught in leaf-covered or wet areas, built mud turrets above the ground as temporary shelters—exactly why, nobody knows. There they awaited Nature's mysterious announcement that sends them scurrying aloft by the millions to take part in the swift cycle of courtship, propagation, and death.

What strange telepathy must govern these small creatures! Each individual is isolated nearly 17 years; yet he senses instinctively and simultaneously with his fellows that his "resurrection day" has arrived. A few come out ahead of time, others straggle; but the big emergence in any locality takes place en masse on several consecutive nights.

In some areas the ground may be peppered with half-inch holes, as many as 40,000 under a large tree (page 136). Small wonder if some awakening sleepers feel that an invading host has taken over during the night!

Thirty years ago the *New York Times* reported that no one had ever seen a periodical cicada nymph emerging; many writers have repeated the assertion. It is true that the creatures scuttle warily from their tunnels, usually under cover of darkness. Yet in more recent years observers with powerful lights and considerable patience have watched the fantastic emergence (page 137).

Lobsterlike Claws Serve Rip Van Winkle While Underground

This summer, woods in many parts of the eastern United States echo with the shrill wail of the periodical cicada, mistakenly called the 17-year locust. A few of the insects appear every year, but 1953 sees emergence of the largest and most widespread group, Brood X.

This year's brood was born in 1936 and went underground immediately. For 17 years the slowly maturing nymphs lived quietly in earthen cells, sucking sap from roots.

Now, as if by a secret signal, the homely earth dwellers have swarmed in myriads to the surface. Transforming overnight into ornate winged adults, they flit briefly but loudly in the sunshine, to mate and lay eggs before they die.

This nymph, just out of the ground, waves formidable digging claws. Enlargement (below) shows how these powerful tools combine pick, rake, and mallet with which the cicada tamps freshly dug soil into burrow walls. Digging claws give way to ordinary forelegs in the adult insect.

Moody Institute of Science

The homely milk-and-coffee-colored nymph with glaring blood-red eyes resembles a small crayfish as he lumbers unaccustomedly across the ground. His oversized front claws, so useful for tunneling, he now puts to a different use. With single-minded intent, the cicada nymph heads for a near-by tree or post. Climbing part way up, he anchors his claws into bark or leaves, repeatedly testing his toe hold.

Spectral Shells Sway in the Breeze

Now his back arches; he contorts vigorously. Suddenly a split shoots up the back of his shell. As the convulsions continue and the split widens, a creamy-white specter slowly pulls itself free, leaving the empty chitinous husk clinging to the support (pages 138, 139, and 142).

This is the adult. Baleful red eyes and velvet-black shoulder patches stand out against the white. Curved claws like a lobster's, no longer needed for digging, have given way to slender forelegs.

Microphone and Tape Record the Roar of Cicada Drums

Female cicadas are silent, but their mates are the loudest of insects. From daybreak to sunset they fill the air with strident whirring and burring, like the sound of buzz saws or grindstones going full tilt. Photographer Edwin Udey (above) picks up these sounds for a forthcoming Moody Institute of Science film.

➤ Source of the cicada's racket is a pair of corrugated drumheads on either side of his body, vibrated by powerful muscles. Here, greatly magnified, a ribbed drum (center) lies between wing (left) and segmented abdomen (right). The opposite drum shows less distinctly (lower right). Sounding boards below the drums can produce a ventriloquistic effect, so that a shrilling cicada at one's elbow may sound far away.

 Moody Institute of Science

Moody Institute of Science

Emerging Cicada Nymphs Pepper the Earth with Half-inch Holes

Periodical cicadas spend most of their lives a foot or so below ground. In their 17th spring they tunnel upward, stopping just below the surface. Occasionally, when the ground is wet or leaf-covered, they build mud turrets. There they await Maytime's mysterious call. Upon emerging, they honeycomb the earth with exit holes, as many as 84 to the square foot. Heavily infested areas may contain a million cicadas per acre.

In this stage the cicada, like the shedding crab, is completely defenseless. His outer skeleton is soft and flabby, and his thick wing nubs have no power of flight (page 138).

But this condition changes overnight. Almost as you watch, the wing sacs expand into a three-inch spread of fragile thinness (page 139). Creamy white turns to gray or brown, then to glossy brownish black as the outer shell hardens. Orange red suffuses the margins and veins of each mica-shiny wing, while a dark W shows up near each wing tip.

By morning a new insect flits high in the treetops. Most of the time you hear rather than see him, this bumblebee-size creature with the fiery-red head lamps.

Pilgrim Fathers Called Them "Locusts"

An entomologist shudders when he hears the cicada called a locust. Yet the misnomer is easy to understand. It goes back to 1634, when Cape Cod Pilgrims took fright at the emergence of vast swarms. Indians knew the cicadas; they roasted and ate them, although they regarded the sudden appearance as an omen of pestilence.

But to the Pilgrims the insects were an eerie phenomenon. They concluded that the vast and noisy forest company must be locusts, the ancient plague of Egypt. Their illusion was heightened by the fact that the insect seemed to call, "Pha-a-a-a-a-a-a-raoh!"

I went to Louise M. Russell, the United States Department of Agriculture's authority on cicadas, for clarification of the cicada-locust confusion (page 140).

"Locusts and cicadas have little in common, although some people may think they look alike," Miss Russell told me. "The locust, a member of the order Orthoptera, is a migratory grasshopper. He has strong jaws which can strip vegetation to the roots, and he is well known for his incalculable damage in the Middle East and Africa. He often migrates in vast swarms for hundreds of miles.*

"Cicadas belong to the order Hemiptera, insects whose mouth parts are developed for piercing and sucking rather than for chewing. They live on sap from trees and shrubs and

* See "Report from the Locust Wars," by Tony and Dickey Chappelle, NATIONAL GEOGRAPHIC MAGAZINE, April, 1953.

are related to other sucking insects such as aphids, scales, and leaf hoppers. Cicadas do not migrate; each dies within a few hundred yards of his burrow."

Few Insects Live As Long

Not only does the cicada insist on the right to his own name, but he lays claim to certain distinctions. For an insect, he has a staggering life span.

Man has catalogued more than two-thirds of a million insect species. Most live a year or less. Many exist only a few days or weeks.

By comparison the periodical cicada is a Methuselah. As his Latin name implies, *Magicicada septendecim* takes 17 years to mature. A southern race requires 13 years. These creatures hold virtually the longest record known for insect longevity. (Some scientists believe the family Cicadidae may include a longer lived variety.)

Moody Institute of Science

A Nymph Reconnoiters Before Entering an Unfriendly World

Instinct speaks to millions of solitary cicadas as one. Thus the creatures in any locality emerge simultaneously during several successive nights, to the astonishment of unsuspecting citizens. Here powerful lights and the camera's eye catch the rare sight of a nymph poking head and shoulders aloft.

Cicadas, periodical and otherwise, are notable as the loudest insects, and their sound apparatus is one of Nature's most complicated.

Only males possess this equipment, a fact which led the ancient Greek Xenarchus to quip about the European variety:

> Happy are cicadas' lives,
> For they all have silent wives.

No one who has heard the periodical cicada in full chorus will forget the sound. The woods ring as if a hundred buzz saws were ripping through oak knots—a shrill discordant wail whose monotonous rise and fall leaves the listener unnerved and melancholy. A dwarf form of the insect makes a different sound, like the hissing of escaping steam.

Some insects sound their call by stroking filelike sections of legs or wings. But the cicada is a drummer. On his abdomen, behind the back legs, each male carries two corrugated membranes which tireless muscles vibrate rapidly (page 135). Sounding boards below the drums reflect and amplify the sound. These can be muffled to produce a ventriloquistic effect, so that a shrilling cicada almost at one's elbow may sound as if he were yards away.

R. E. Snodgrass, one of the world's foremost insect anatomists, drew on his extensive research to describe the cicada's music for me.

Insect Orchestra Tunes Up

"The periodical cicada utters at least four different sounds, all characterized by a sharp burr. None resembles the screech so commonly heard from the dog-day cicada. One effect is a prolonged burring, with individual notes becoming lost in the hum of the multitude.

"Another sound is the so-called 'Pharaoh' note, which, with imagination's aid, sounds like the ancient rulers' title, sustained for about five seconds on the first syllable and dropping abruptly on the last. It is repeated indefinitely at intervals of two to five seconds.

"A third note is a soft, one-syllable purr, often heard from the insect sitting low in the bushes. The remaining note is a loud, rough burr uttered as a squawk of surprise or fright."

Is the cicada's drumming a mating call? Scientists don't know. For years they said

the female could not hear; recently they have found ears on her belly. But the purpose of the dismal drumming remains a mystery.

Where cicadas abound, the racket may make daytime hours uncomfortable. Reports tell of schools being dismissed because youngsters could not study; of travelers who, upon entering infested areas, stopped their cars to see what was wrong with the motors; of conversation on village streets made impossible by the incessant roar.

Yet so localized is the cicada's appearance that while one town may be hideous with noise, a near-by community may be virtually free.

17 Broods—One for Each Year

Periodical cicadas appear somewhere in the United States every year, for there presumably are 17 broods of the 17-year race, each numbered in the order of its appearance. Some are small and scattered: Brood XI, due next year, has been recorded chiefly in the Connecticut River Valley, and it has been much reduced in numbers, possibly to the point of extinction.

This year's crop, Brood X, is the largest and most widespread. Records since 1715 show it appearing from Vermont to central Georgia and from the eastern seaboard to the Mississippi, with an additional small colony on the Iowa-Nebraska border.

This brood emerges most thickly in three well-defined regions: a group in Indiana and Ohio; one in New Jersey, eastern Pennsylvania, Delaware, and Maryland; and a third covering the southern Appalachians in northern Georgia, Tennessee, and North Carolina.

We know by counting backward that Brood XIV is the one seen by the Cape Cod settlers in 1634; it next appears in 1957.

Brood IV, the most westerly group, concentrates around the Kansas-Missouri-Iowa border region.

Theoretically, there are 13 broods of the 13-year cicadas, one for each year, but only two are of notable size. This race appears chiefly in the Deep South, especially in the Mississippi Valley.

Records show the broods, whether 17- or 13-year, appearing only in the United States and only in its eastern half. Thus the periodical cicada is a North American insect—an American institution, if you will—although its steadily weakening numbers foretell a possible fate like that of another American, the passenger pigeon.

Cicadas mate a week or ten days after emerging. Within a few days the female begins to lay eggs beneath the soft bark of twigs or plant stems.

She prefers deciduous plants and rarely attacks conifers. Oak, hickory, apple, and peach are favorites.

Winged Cicada Springs Wraithlike from a Drab Husk

Once above ground, the cicada nymph climbs the nearest tree, post, or shrub and anchors claws tightly. Suddenly the back arches, a split shoots down the shell, and a pale, damp creature with red eyes and black shoulder patches pulls itself slowly from the confining shroud (opposite page).

Exhausted from unaccustomed struggling, the insect may sink back to rest (above). Discarded linings of breathing tubes float threadlike from the shell. Then, as strength returns, the insect wriggles free, leaving the torn husk clinging to the bark (right).

Few sights are more impressive than a moonlit wood filled with transforming cicadas. As crumpled wings expand into shiny gossamer, the trees glisten with countless spectral ornaments.

By morning mature cicadas flit through the air. Soft white bodies have hardened into glossy black, and orange red decorates the margins and veins of each micalike wing.

Moody Institute of Science

National Geographic Photographer Bates Littlehales

Louise Russell, Insect Authority, Exhibits Her Collection of Cicadas

The 17-year cicada has two close relatives: a 13-year race in the Deep South and a dwarf form found in both North and South. A black W marks the wings of all three forms; folk belief has it that the letter stands for "war, want, and woe." Here Miss Russell, an entomologist in the United States Department of Agriculture, shows specimens to Washington school children. She points to the W on one wing tip.

For her egg layer she uses a horny stiletto with two sawtooth ends sheathed against her lower abdomen. Driving this instrument repeatedly into the bark, she chisels a series of parenthesislike pockets, thus ( ).

These twin slits, carved end to end, sometimes form a gash three or four inches long. Into each splintered pocket the female pumps a dozen or so eggs. Before she dies, exhausted, she may deposit as many as 600 (opposite page).

Cicadas Stick to a Liquid Diet

Cicadas apparently inflict little damage by their long years of sap sucking, either as burrowing nymphs or as winged adults. Such injury as they may cause to trees results from egg laying. They never attack fruit, flowers, gardens, or farm crops.

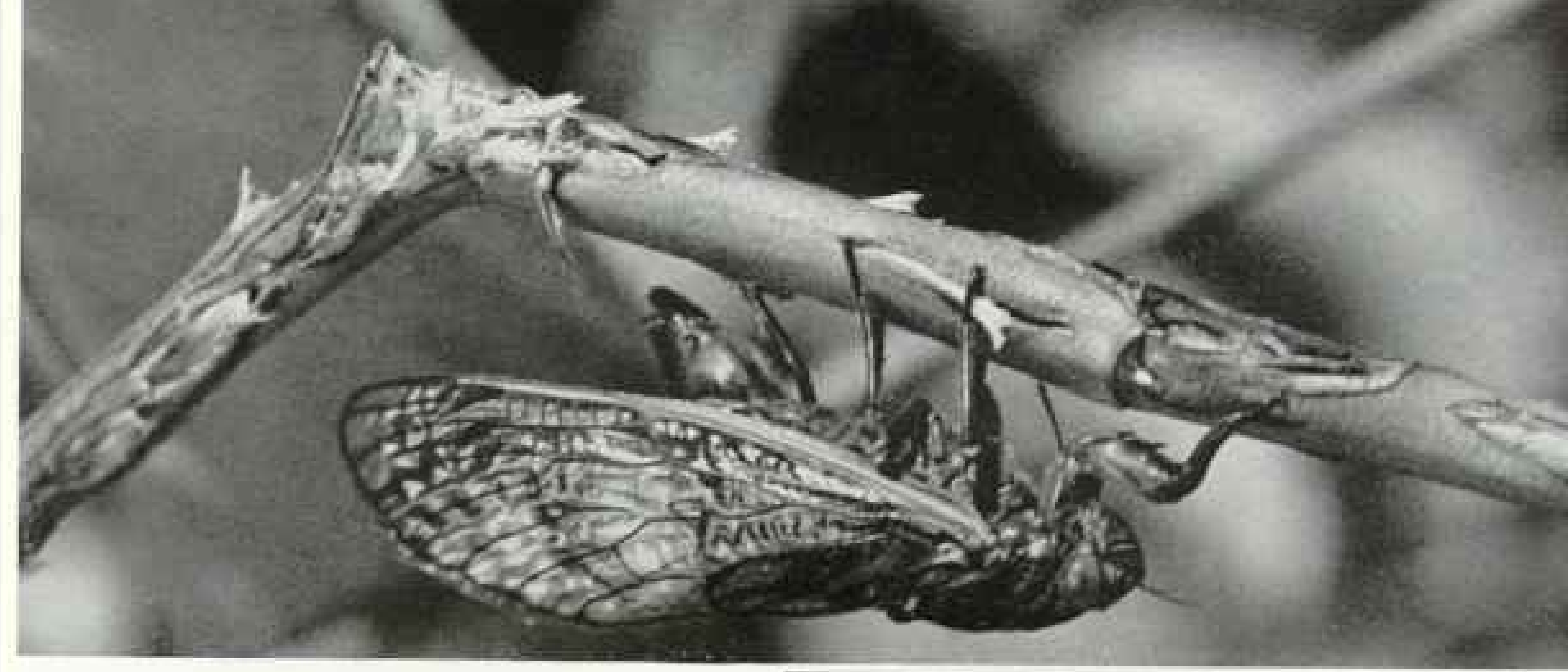
Young nursery and orchard stock sometimes dies from the repeated slashing of branches. Recently planted shrubs and trees on city lots are also especially vulnerable. But healthy woodland suffers no hurt beyond the loss of weakened twigs and premature browning of outer leaves. One 33-foot oak sustained 5,505 punctures.

This July and August, a few weeks after the last cicada echo has been stilled and the last egg has been laid, millions of tiny pale creatures will struggle from confining embryonic skins to seek the light. These will be minuscule versions of the nymphs that broke from earthly prison a few weeks before.

Slipping on the trees' smooth bark, they will soon fall or be blown earthward. And so a new generation will burrow into the ground and a new cycle begin, a cycle that will not end until 1970.

As usual, this year's heavy emergence brought a flood of queries to agriculture experiment stations, county agents, and newspapers. Sometimes it has not been easy to convince alarmed inquirers that the periodical cicada is relatively harmless.

Many farmers fear for their crops, assuming that the cicada possesses the locust's ravenous appetite. Superstitious persons interpret the black W on each wing as an omen of "war, want, and woe." The fact that pe-



Busy Female with a Sawtooth Chisel Carves Furrowed Nests in Twigs

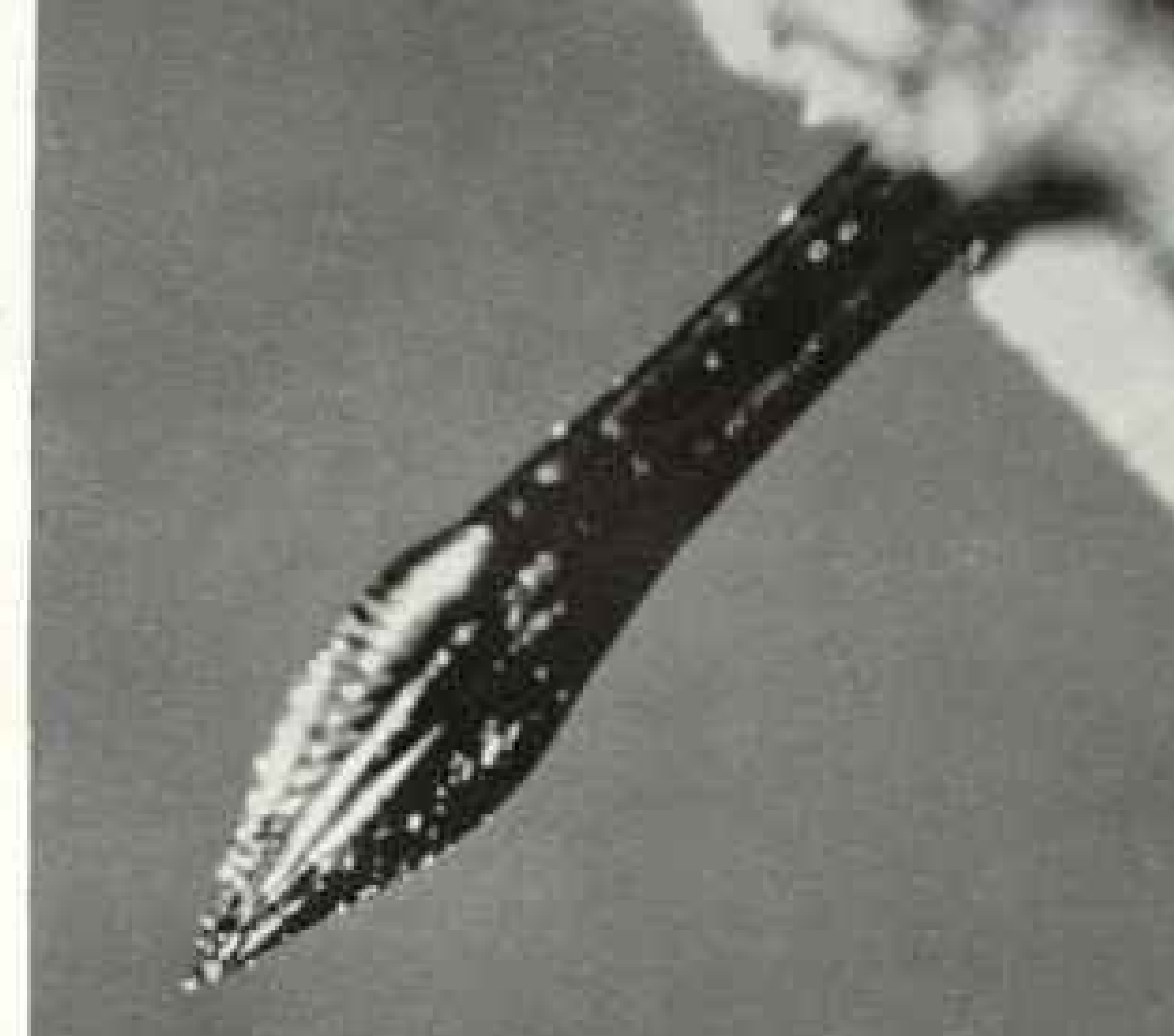
Cape Cod Pilgrims, terrified by emerging cicadas in 1634, remembered the plague of Egypt and called the intruders "locusta." The misnomer sticks.

Actually, locusts are migratory grasshoppers whose ravenous appetites and strong jaws devastate crops. Cicadas are sucking insects which can neither bite nor chew, and which never migrate.

Although they do not damage crops or harm people, cicadas can injure young trees by egg laying. Sheathed against her abdomen the female carries a horny dagger which she drives repeatedly into the bark of young twigs (above). Sawtooth blades (right), sliding alternately along either side of the egg layer, carve rows of twin pockets. Into each of these ragged slits the insect pumps eggs through the organ's hollow center. A female may lay up to 600 eggs, leaving many splintered and weakened twigs to break in the wind. Young, hatching a few weeks later, drop to the ground and dig in for a 17-year stay.

A probe (below) lifts the half-inch stiletto. It is used only for egg laying and does not sting.

Moody Institute of Science



Moody Institute of Science

Owners Have Departed; Hollow Housings Cling to Horse Chestnut Leaves

Two invading hordes confront awakening citizens on the morning after a cicada emergence: a throng of winged insects and a silent army of shells. The bewildered observer at first assumes the shells to be complete insects and marvels that so many could have appeared and died within one night's passing. Then he discovers the truth: the ghostly husks are deserted. A slit along each back betrays the exit of the winged cicada. Shells grip tightly enough to withstand convulsions of emerging adults, but later give way in the wind and strew the ground with a chitinous carpet. Oak, hickory, apple, and peach are favorite trees for egg laying.

riodical cicadas bearing the sign of the W appear somewhere in the eastern United States almost every year, regardless of war or peace, dims the cicada's luster as a prophet.

Hearsay gives the insect a venomous sting. Actually it would be very difficult for the cicada to puncture human skin with beak or ovipositor. All authenticated cases of stinging are accounted for by the cicada-killer wasp, occasionally picked up by accident with its prey.*

Only orchardists are likely to suffer extensively from cicada damage. DDT gives no relief, but a newly proved weapon is now available—tetraethyl pyrophosphate. This insecticide, commonly known as TEPP, is successful when properly applied, but it is toxic to man and must be handled carefully. The ordinary homeowner in areas of heavy infestation had better protect his shrubs and young ornamental trees with cheesecloth.

The fisherman has some cause for complaint during cicada season. His usual lures may prove ineffectual when fish can satisfy their hunger with a bountiful supply of the large insects. Indeed, while "locusts" are available, country people often use nothing else for bait.

However, there's a rewarding compensation for the angler. He may have to work harder to get a strike, but his prize is the richer when he takes it. Trout that have fed for a month on cicadas are much stronger and heavier than usual; their flesh is firm and highly colored.

A clumsy flyer, the cicada falls easy prey to enemies. A fungus disease often decimates the hordes. Pigs root deep for the nymphs. Squirrels, barnyard fowl, skunks, dogs, fish, and wild birds fatten on a cicada diet. In some places gluttonous English sparrows have almost wiped out the insect.

As the Woods Vanish, So Do Cicadas

But man, unwittingly, is cicadadom's greatest enemy. Wherever he cuts down trees and lays concrete and asphalt, the cicada is doomed. Millions coming from the ground in recent weeks found their woodland homes gone. For them the line was broken; they were a lost generation. In their playgrounds the Pharaoh note will be heard no more.

Since cicadas do not migrate, the map of cicadaland constantly diminishes. Noisy the 17-year visitor may be, but he is a unique and fascinating creature, and the American scene will seem the poorer for his passing.

* See "Potent Personalities—Wasps and Hornets," by Austin H. Clark, NATIONAL GEOGRAPHIC MAGAZINE, July, 1937.

Current Scientific Projects of the National Geographic Society

SIX major scientific undertakings, which range from mapping the distant reaches of the universe to exploring the bottom of the sea, are being carried out by the National Geographic Society and cooperating institutions during 1953.

The projects are: the National Geographic Society-Palomar Observatory Sky Survey; The Society-*Calypso* Marine Archeological Expedition; development of an "Aquascope" for coastal underwater photography; The Society-Smithsonian Institution 12th Archeological Expedition to Middle America; a continuing investigation into the lives of ocean fish conducted with the University of Miami, Coral Gables, Florida; and The Society-Bartol Research Foundation Cosmic Ray Expedition to India.

A long-range undertaking now about half finished, the Sky Survey will prove of inestimable help to astronomers the world over, providing them with a comprehensive atlas of approximately three-fourths of the heavens. The Survey photographs heavenly bodies to a distance of more than 600,000,000 light-years from the earth.

Sky Survey Finds New Worlds

Already plates made with the remarkable 48-inch "Big Schmidt" telescope at California Institute of Technology's Palomar Observatory have disclosed thousands of heretofore unknown galaxies, vast "islands" of stars and gas in outer space.

Dr. Walter Baade, distinguished Palomar astronomer, proved in a revolutionary discovery earlier this year that the most distant visible galaxies are two billion light-years away, rather than one billion as previously believed. The discovery expands the volume of the observable universe eight times and places its age at four billion years rather than two billion.

When completed, the Sky Survey's celestial atlas will provide about 1,700 photographs of that part of the universe visible from Palomar Mountain. Each sky area is photographed with two plates, one sensitive to blue light, the other to red, so that details not captured by one will be shown on the other.

One of the most important archeological discoveries of recent years has been made by the National Geographic Society-*Calypso* Marine Archeological Expedition, headed by Commandant Jacques-Yves Cousteau of the French Navy. On the bottom of the Mediterranean off the southern coast of France expedition divers discovered the oldest known cargo ship in the world, a Greco-Roman vessel that sank in the third century B. C.

Exploring Undersea by Television

Commandant Cousteau plans to raise the ship so archeologists can examine it in detail. In the meantime they watch television pictures flashed from a special camera exploring the galley and its cargo of ancient wine and oil jars 120 feet under water.

"We are seeing the galley at ease in the cabin of *Calypso*, our workship, with now and then a thought of pity for the frozen divers below," reports the Commandant.

For several years the National Geographic Society and the Marine Laboratory of the University of Miami, Florida, have cooperated in a study of plankton, the minute life that abounds in all the world's seas. Recently plankton nets in the Gulf Stream have trapped numerous larvae of important deep-sea fish.

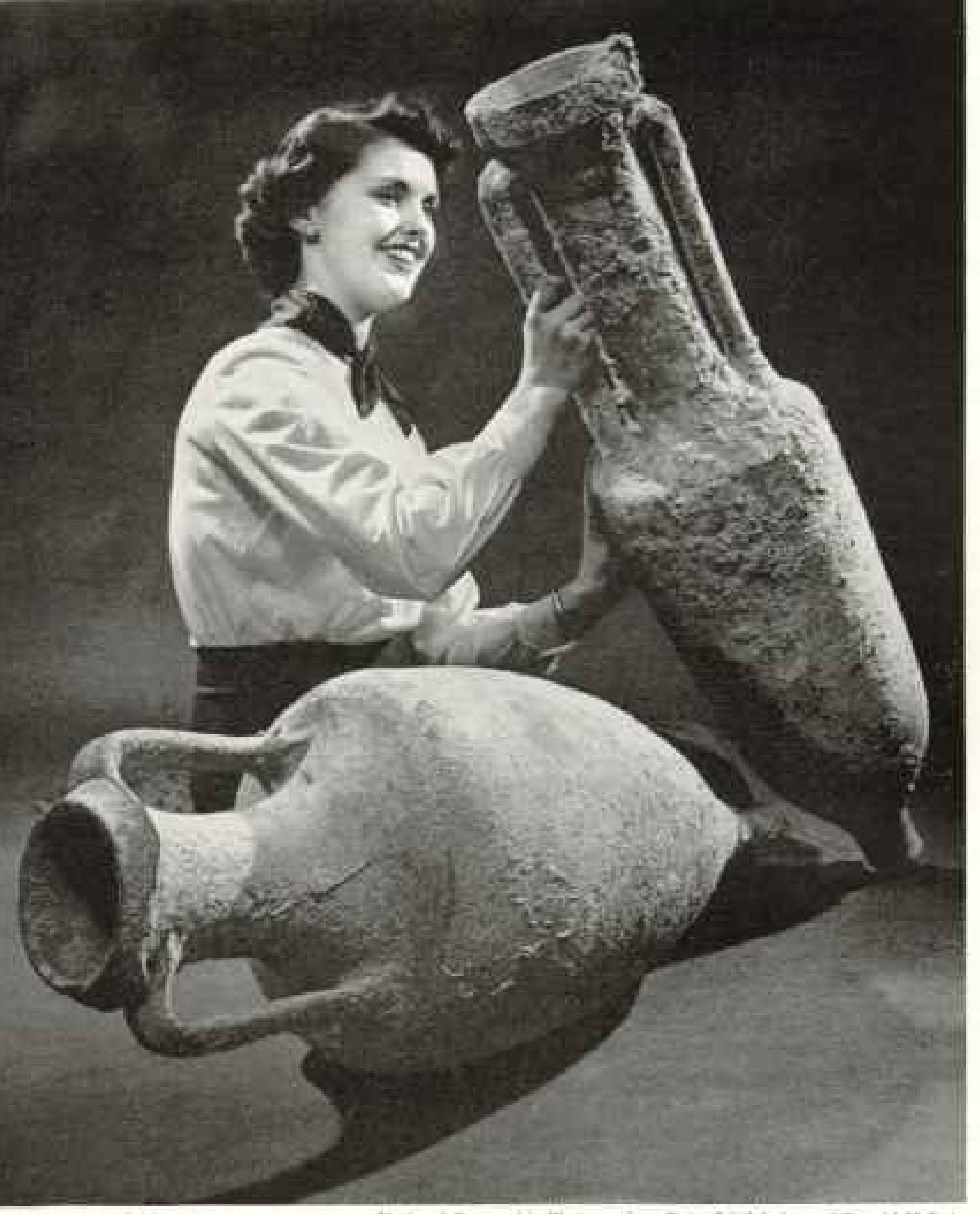
Little is known of the lives of these creatures from the larval to adult stages, and a new, long-range study of their entire existence has been started. Results of this National Geographic-sponsored research may someday help increase man's food supply from the sea.

Fish in the waters of Chesapeake Bay recently saw a strange object lowered to the bay floor. It was the National Geographic Society's "Aquascope," a unique 2,700-pound steel tank with a wide plastic window. Inside were two men, a biologist observer and a staff cameraman; outside was equipment to provide brilliant light for high-speed photography.

Aquascope Photographs Marine Home Life

Lowered in 30 to 50 feet of water, the rectangular Aquascope rests on the bottom as if it were part of the underwater scenery. Marine life takes its normal course, allowing the photographer, lying prone in the tank, to take pictures of fish undisturbed in their natural setting. The Aquascope was designed and built by Gilbert C. Klingel of Randallstown, Maryland, a noted marine biologist.

Dr. Harold E. Edgerton, inventor of the electronic flashlight for ultra-high-speed photography, has worked with all three underwater projects on the lighting problems of



National Geographic Photographers Bates Littlehales and Donald McBain

Mediterranean Depths Give Up Ancient Greek Wine Jars

Some 2,100 years ago a Greco-Roman galley loaded with these amphorae sank off southern France. This oldest known cargo vessel in the world has yielded several thousand such jars and other rare objects to its discoverers, the Aqualung-equipped divers of the National Geographic Society-*Calypso* Marine Archeological Expedition. The ship itself will be raised.

marine photography. This summer he joins Commandant Cousteau in the Mediterranean to test electronic flash equipment he has developed for use with cameras held by free-swimming Aqualung divers.

Hunting Prehistory in Panama

In the jungles of Panama Dr. Matthew W. Stirling of the Smithsonian Institution has continued the long-term investigation by The Society and the Institution into the past civilizations of Central American peoples. Dr. Stirling will recount his latest experiences hunting prehistory there in the next issue of THE MAGAZINE.

The National Geographic Society and the Bartol Research Foundation of the Franklin Institute at Philadelphia have worked together since 1935 to solve mysteries of cosmic rays, the atomic particles from outer space that bombard the earth and are particularly active in the outer atmosphere. Dr. Martin A. Pomerantz, who has led two expeditions to the Hudson Bay country to send his balloon-carried Geiger counters to heights of more than 100,000 feet, is continuing his high-altitude research in India.

The Society and the American Museum of Natural History, New York, are sending E. Thomas Gilliard, of the museum staff, back to New Guinea to continue studying and photographing the island's strange birdlife and Stone Age natives.

Continuing, under National Geographic auspices, is the long-term research of Dr. Carl W. Gartlein, of Cornell University, into the mysteries of the aurora borealis.

Last winter The Society sponsored an investigation by Dr. Paul A. Zahl, of Haskins Laboratories, New York, into bizarre sea life thrown to the surface from vast depths by seasonal convulsions of the Strait of Messina, between Sicily and Italy. Dr. Zahl's story and extraordinary color photographs will appear in THE MAGAZINE.

As usual, National Geographic staff writers and photographers are on assignment in every continent to bring members articles and photographs of lasting value.

For background and details concerning most of these projects see, in the NATIONAL GEOGRAPHIC MAGAZINE: "Our Universe Unfolds New Wonders," by Albert G. Wilson, February, 1952; "Mapping the Unknown Universe," by F. Barrows Colton, September, 1950; "Fish Men Explore a New World Undersea," by Commandant Jacques-Yves Cousteau, October, 1952; "Trailing Cosmic Rays in Canada's North," by Martin A. Pomerantz, January, 1953; "Strange Babies of the Sea," by Hilary B. Moore, July, 1952; and "New Guinea's Rare Birds and Stone Age Men," by E. Thomas Gilliard, April, 1953.

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Articles and photographs are desired. For material The Magazine uses, generous remuneration is made.

In addition to the editorial and photographic surveys constantly being made, The Society has sponsored more than 100 scientific expeditions, some of which required years of field work to achieve their objectives.

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 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 the first sky atlas for observatories all over the world.

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 2,100 years ago was found and raised in 1953 by the National Geographic Society-*Calypso* Marine Expedition led by Commandant 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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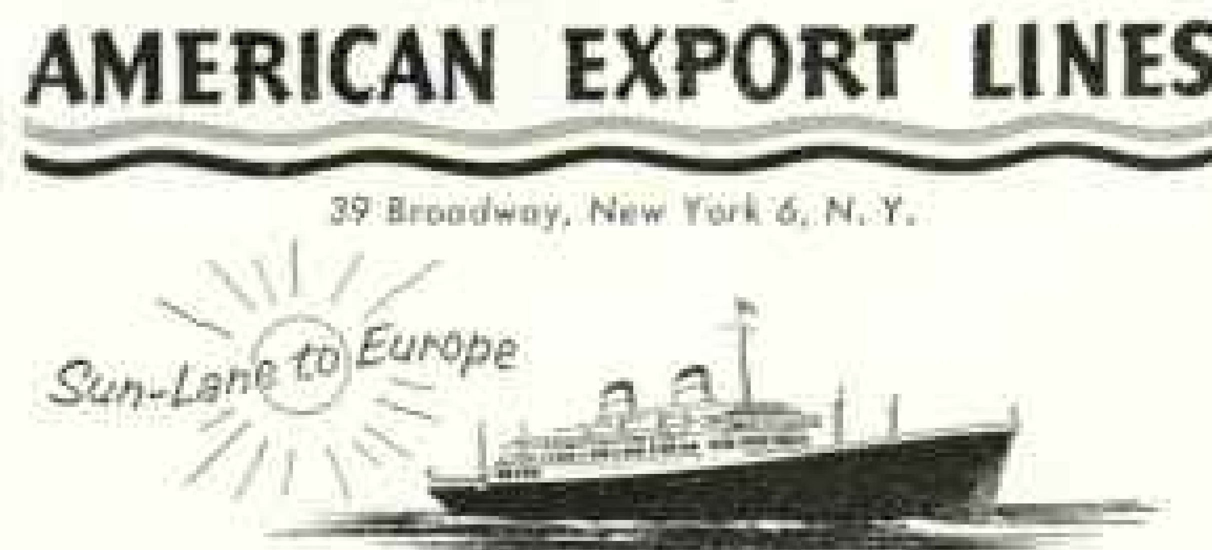

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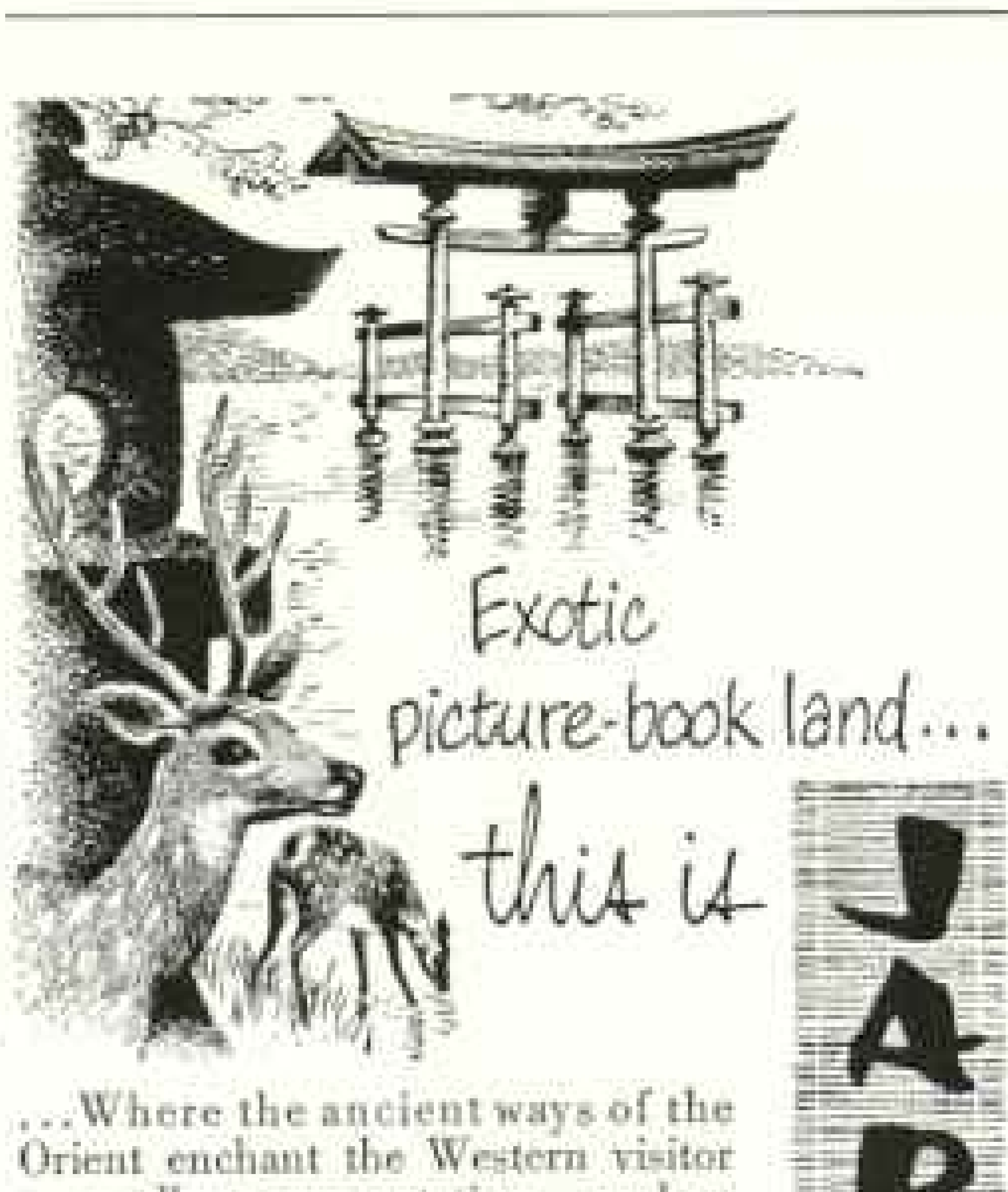

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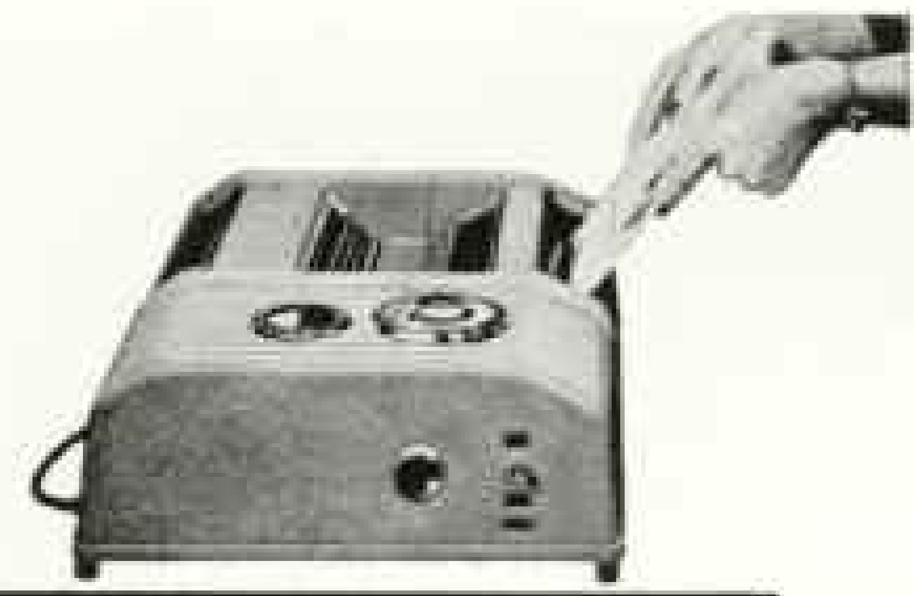

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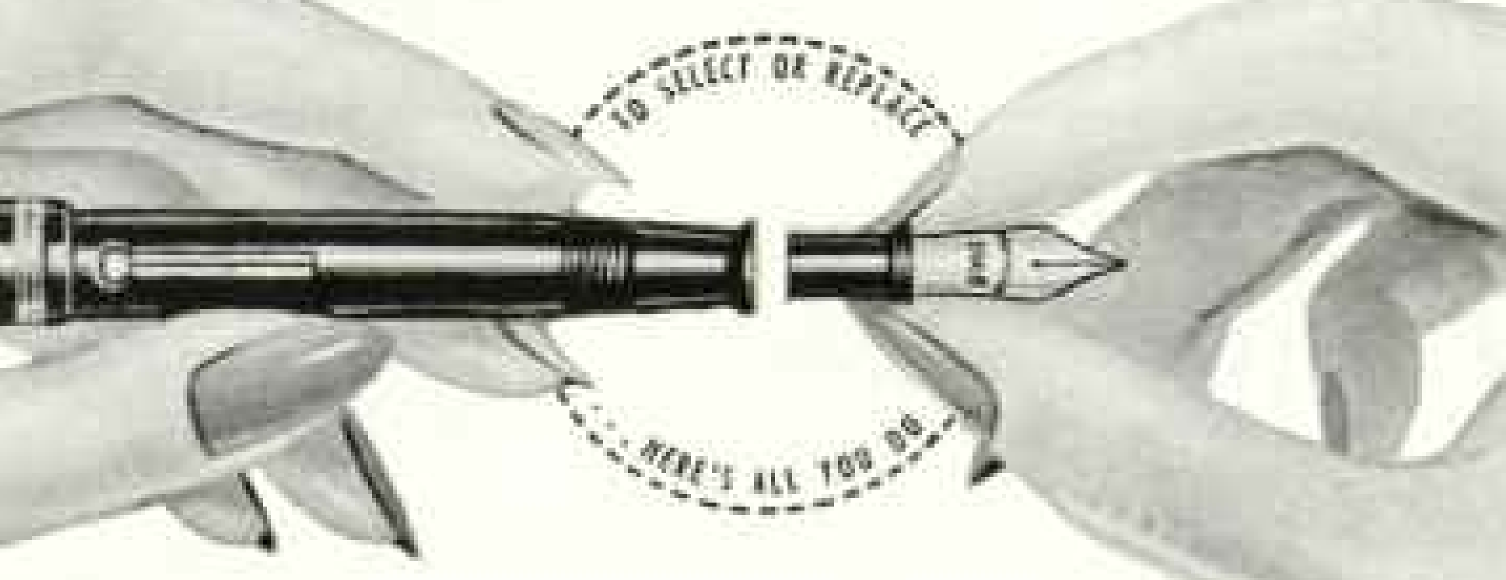

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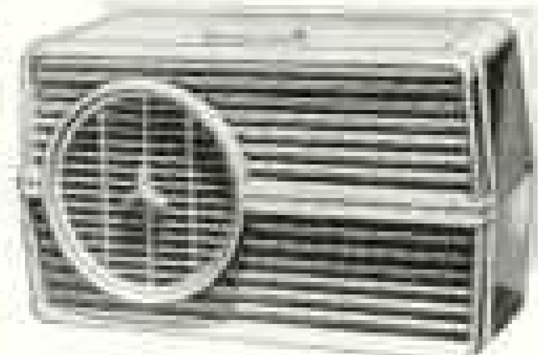

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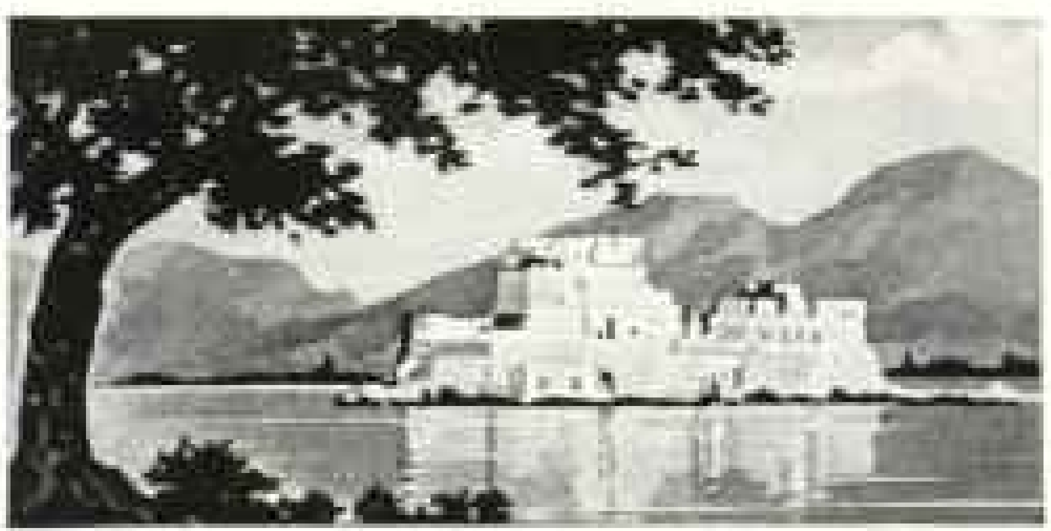

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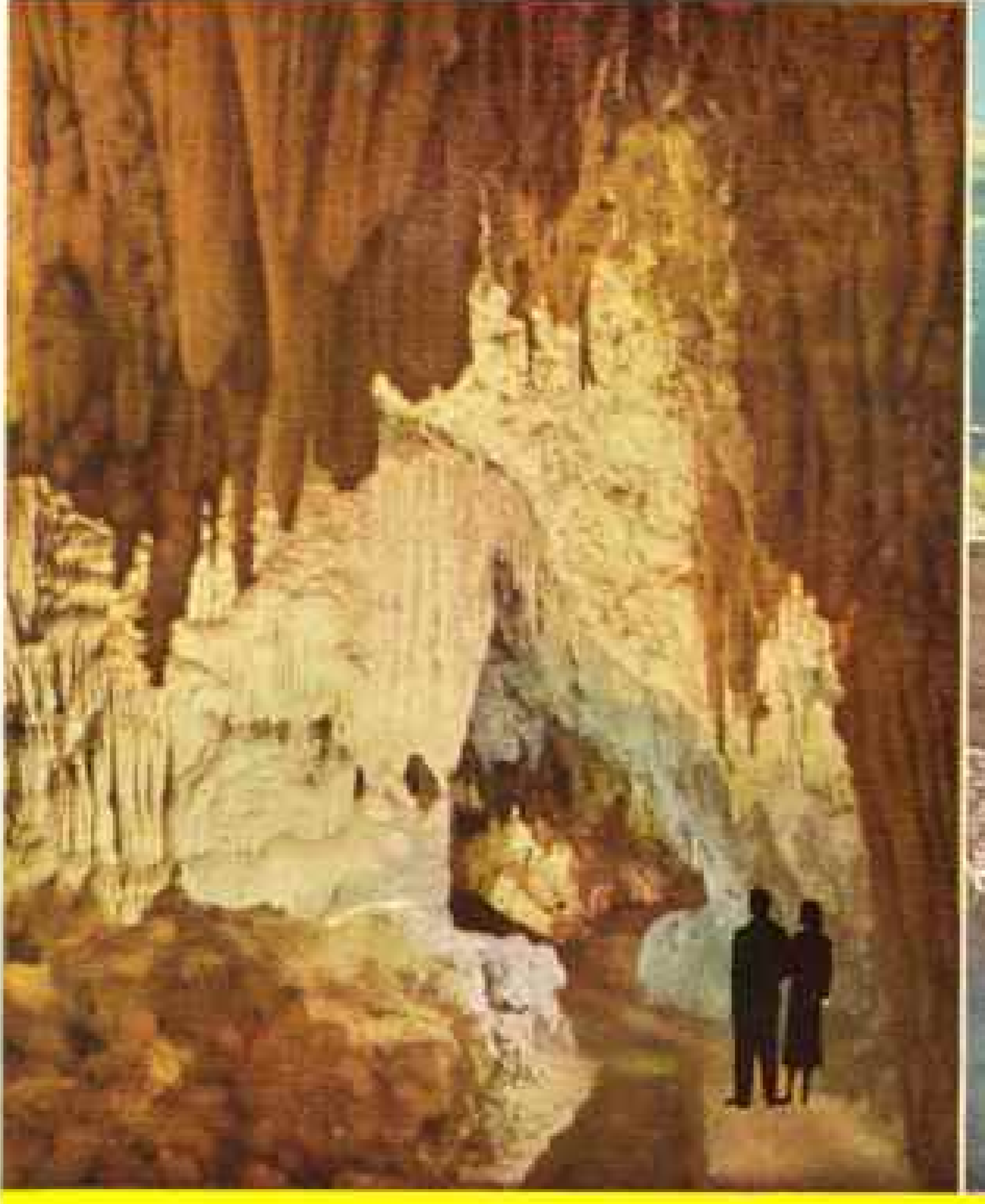

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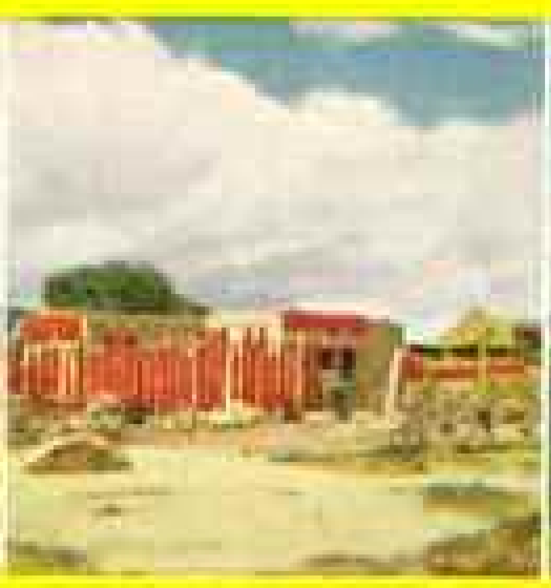

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In "Alice in Wonderland," Alice and the Dormouse were talking.

"Once upon a time there were three little sisters," the Dormouse began in a great hurry, "and their names were Elsie, Lacie, and Tillie; and they lived at the bottom of a well—."

"What did they live on?" said Alice.

"They lived on treacle," said the Dormouse.

"They couldn't have done that, you know," Alice remarked gently, "they'd have been ill."

Alice had the right idea about <u>nutrition</u>

ALICE KNEW that no one could live on treacle (molasses) alone, or any other single food. Indeed, she had the right idea about good nutrition.

Even today, unfounded claims are made about the "magic powers" of particular foods. Such claims should be disregarded. Authorities have proved that good health depends largely on eating *a wide variety of properly chosen and properly prepared foods.* These include meat, eggs, milk, fruits, vegetables, enriched and whole-grain bread and cereals.

How much and what kinds of foods you should eat to maintain health and *desirable weight* depends on your age, your physical condition and the kind of work you do. An older person, for example, who is not physically active needs less of the foods that produce energy. He should have generous amounts of the foods that furnish protein, vitamins, and minerals essential to the upkeep and repair of the body.

Your meals, if well-balanced, will supply these and other necessary elements in the proper amounts. Protein, for example, is needed to build and repair the tissues of the body. The vitamins and minerals are necessary because they affect or take part in many chemical processes in the body. Proteins, vitamins and minerals are found in many foods. Good nutrition depends upon eating a *variety* of such foods.

There is more to good eating habits, however, than simply *what* you eat. So, to help you get the full benefit from your food, here are some suggestions that you may follow:

Have your meals at regular hours.

Eat slowly and in a relaxed atmosphere.

Avoid strenuous exercise just before and immediately after eating.

See the doctor if you have frequent digestive upsets.

Have dental defects repaired promptly.

Follow your doctor's suggestions about reducing diets.

The *immediate* function of your food is to provide your body with the energy you need for daily activities. Metropolitan's free booklet, "Food for the Family," discusses the essential nutritive elements, tells why you need them and what foods supply them. By following sensible rules about diet you may have longer life and greater ability to enjoy it.

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Snapshots are wonderful, of course. But if you want to capture *all* the fun and action of your vacations and holidays . . . to keep your family *exactly* as they *are* . . . then movies are for you!

Take your children, for instance. Did you ever know them to hold *still?* Of course not! Happy youngsters are always on the go. You can't do them full justice in "still" pictures . . . you can't capture *all* of the happy times in your life together as a family—in "still" pictures, alone. Life just won't stand still!

"So movies are wonderful," you say. "But aren't they hard to make?"

Not a bit of it! Movies are simple as snapshots. There's an exposure guide on every Kodak movie camera. Some models don't even have to be focused. You can focus the others, if you like, or you can use a convenient all-purpose setting that gives you crisp movies at almost any distance.

A fine, fast lens does a perfect job under varying light. It has a built-in sunshade, too, so you can follow action almost right into the sun.

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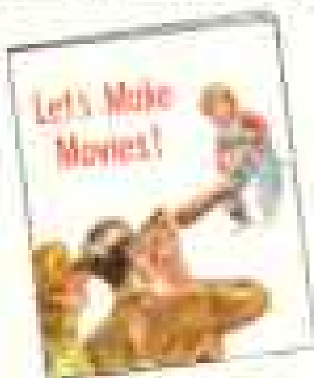

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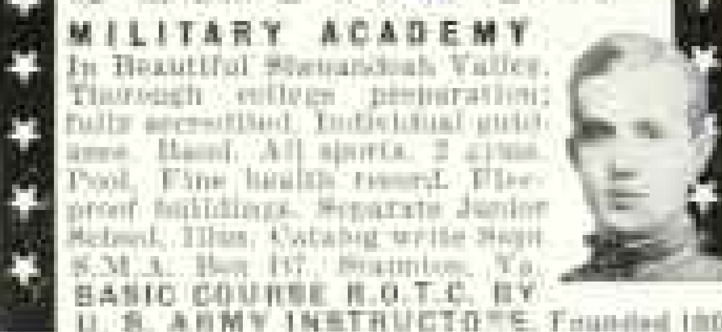

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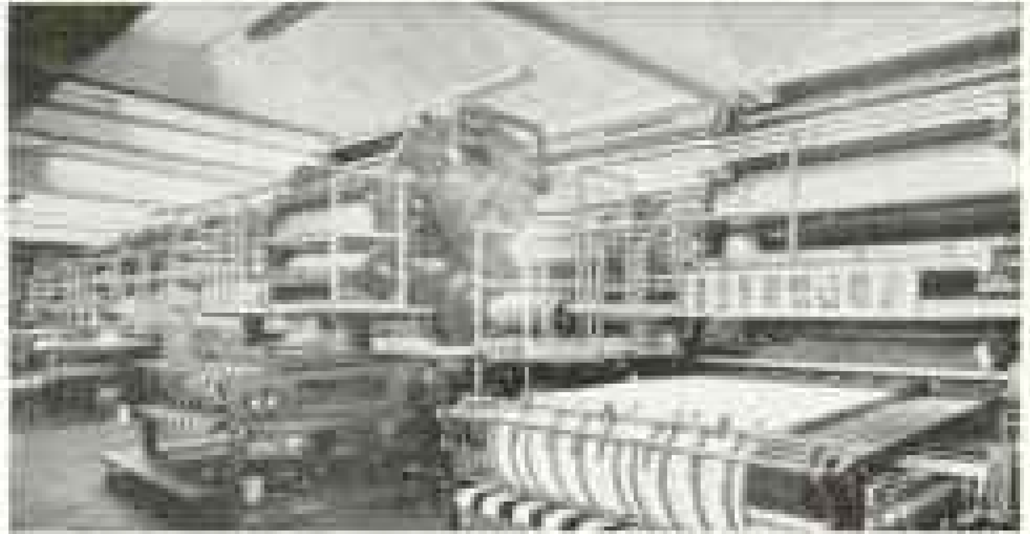

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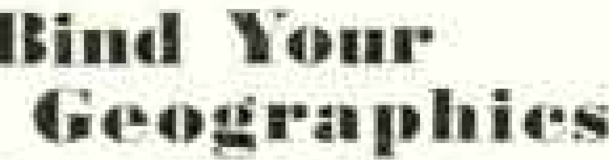

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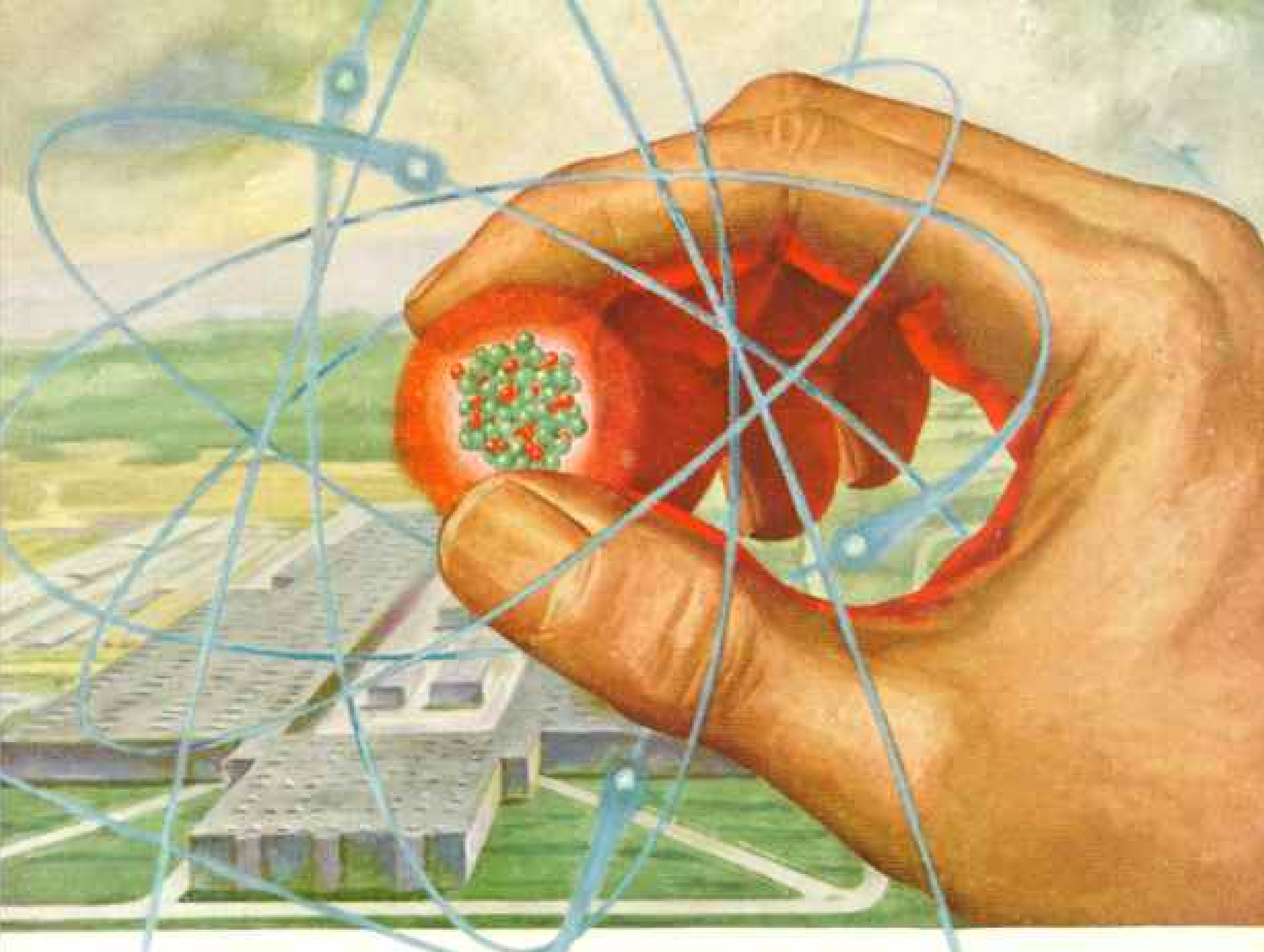

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