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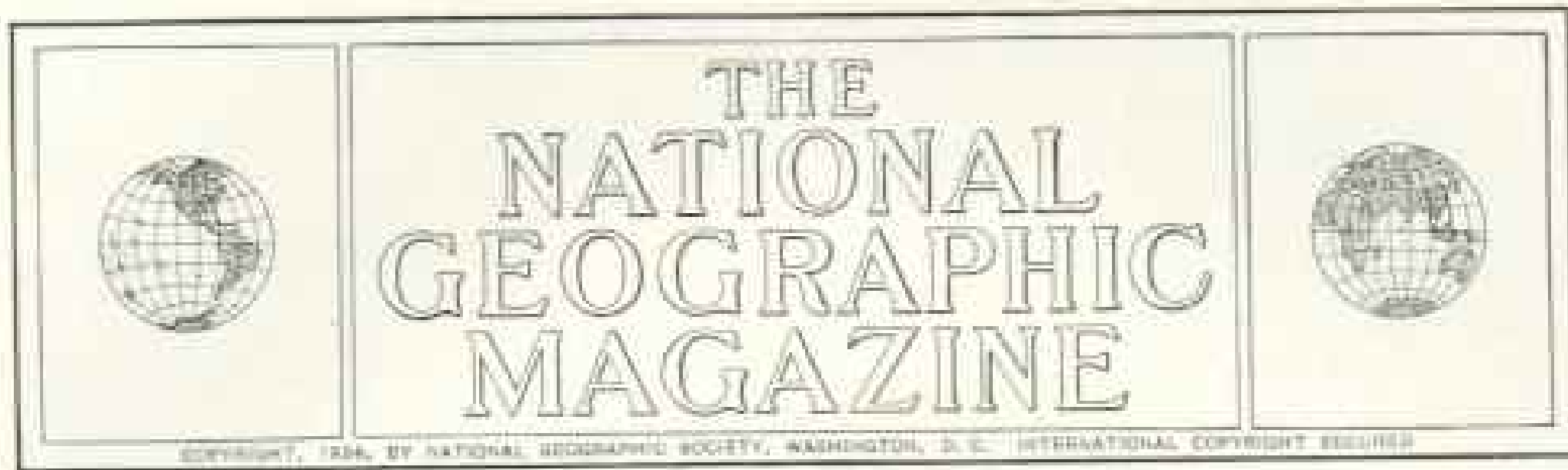
With 21 Illustrations

FREDERICK SIMPICH

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"LAND OF THE FREE" IN ASIA

Siam Has Blended New With Old in Her Progressive March to Modern Statehood in the Family of Nations

BY W. ROBERT MOORE

AUTHOR OF "ALONG THE OLD MANDARIN ROAD OF INDO-CHINA," "AROUND THE HILL-TERRACES OF SUMATRA," "THE GLORY THAT WAS IMPERIAL PEKING," ETC., IN THE NATIONAL GEOGRAPHIC MAGAZINE

With Illustrations from Photographs by the Author

PRESENT-DAY Siam is epitomized by a postage stamp. It is not because the Kingdom's area of approximately 200,000 square miles forms but a tiny colorful spot in the southeast corner of the map of Asia, like a stamp in the wrong corner of a letter. Instead, it is due to a striking air-mail stamp, issued by the Siamese postal department, which bears the winging figure of the Garuda, half man and half bird, that was the mythical steed of Vishnu in Hindu legend.

Undoubtedly one of the quaintest air-mail stamps known to philatelic collections, this stamp effectively portrays the blending of ancient tradition with progressive innovations in the Kingdom.

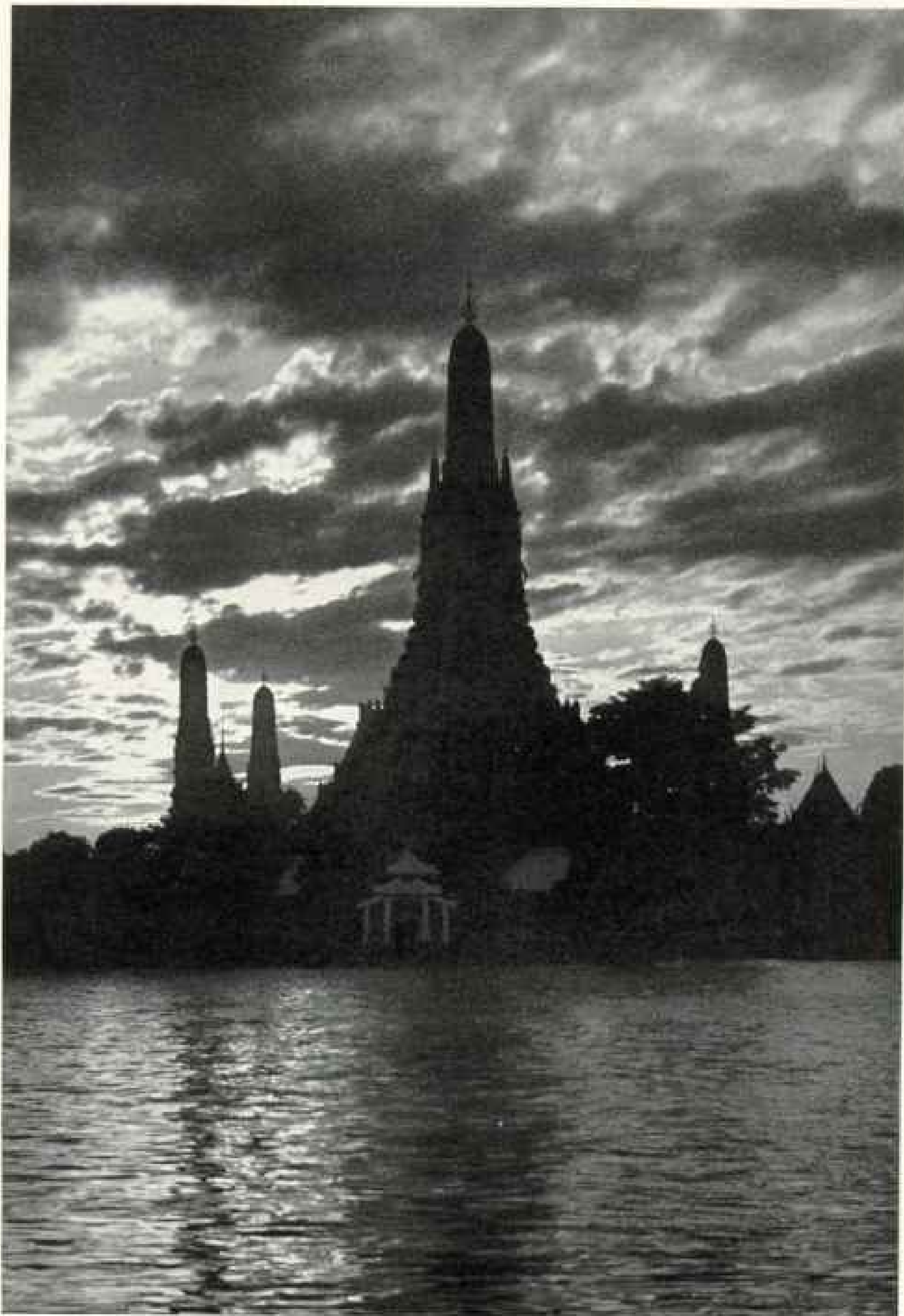
WHERE WEST MEETS EAST AND MINGLES

For seven years Siam was my home. As I traveled through the length and breadth of that fascinating country, I found it oriental still in spirit, but possessing modern occidental appointments of great variety. In assimilating things Western, Siam has maintained its distinctive individuality. As the result, probably few countries offer more startling contrasts.

It is not unusual to see policemen halting motor and street car traffic to make way for some kaleidoscopic medieval pageant. With modern hospitals and dispensaries available, many people still prefer medicinal concoctions made from rhinoceros horns, snake galls, and strange herbs. Slow-moving oxcarts and shuffling elephants vie with motorcars for the right of way on many country roads. Siamese Rebeccas in Bangkok fill their jars (or oil tins) with water at sanitary street hydrants. In some parts of north Siam tiger whiskers are considered much more effective in punishing an enemy than is a police court.

Yet, on the visit of the King and Queen of Siam to the United States in 1931, when King Prajadhipok revealed his keen interest in athletics, radio, and motion pictures, and discussed in excellent English with newspaper correspondents and business leaders such things as free press and democracy, while the Queen played golf, many people were amazed to discover how modern the royal family really was.

Again, through the forthcoming visit of the King for further optical treatment, the "Land of the Free" in Asia will meet our



A TROPICAL SUNSET BURNISHES THE "TEMPLE OF DAWN"

This 242-foot tower and four smaller ones of the riverside Wat Arun Rajavararam (popularly called Wat Chang) are encrusted with scintillant pieces of pottery and tiles. In the evening glow, in the brightness of morning, or by moonlight, it is one of the majestic landmarks of Bangkok (see text, page 542, and Color Plate V).



Drawn by A. E. Holdstock

INDEPENDENT SIAM LIES BETWEEN BRITISH BURMA AND FRENCH INDO-CHINA

For seven years the author made his home in this progressive little kingdom of nearly 12,000,000 people. While Siam is off the main ocean lanes, it has steamer and rail connections with Penang and Singapore, and is linked to Europe by fast air-liners.

United States and mutual appreciation will be increased.

THE AERIAL CROSSROADS OF THE FAR EAST

Siam a Land of the Free? Such is the meaning of *Muang Thai*, the name by which the Siamese have always known their country. Superficially, it might seem somewhat of an anomaly; for, until less than two years ago, when a constitution was born, Siam was the sole remaining absolute monarchy in the Family of Nations.

Yet the name *Muang Thai* has significance. Of all the numerous races and tribal groups who in successive migrations have swept down across southern Asia, only the Siamese have emerged victorious. Against many vicissitudes they have maintained their complete independence and forged for themselves a modern State.

To-day we can step aboard the magic carpets provided by Imperial Airways, K. L. M., and Air-France at London, Amsterdam, or Marseille and be whisked away



A COBRA GIVES HIS VENOM TO FIGHT HIS OWN DEADLINESS

Connected with the Pasteur Institute in Bangkok is a farm in which are kept these deadly fellows, banded kraits, vipers, and other poisonous snakes used for the preparation of antivenins. A few years ago the keeper was given a tical (approximately 40 cents) every time he was bitten. When he learned how successful the treatment was, he fell a victim so often that the officials had to penalize him one tical instead of rewarding him.

to this interesting oriental land in a little over a week, for Siam lies at the aerial cross-roads of the Far East. Or we can go by boat and drop off at Penang, Singapore, or Hong Kong, as Bangkok is linked to Penang by train, to Hong Kong by local steamer, and to Singapore by both (see map, page 533).

Steaming northward over choppy monsoon seas from Singapore to the head of the Gulf of Siam on my first trip, I saw the cobalt-blue waters turn first to green and then take on a brownish hue. Numerous converging lines of fishing stakes, terminating in heart-shaped traps, began to appear above the surface of the water, and in a short time an indistinct band of smoky blue stretched out on the horizon to sever the glassy sea from the superheated tropic sky.

AND THEN A TEMPLE BECKONS

Propellers kicked up a yellow wake as the steamer slid over the shallow bar. The band on the horizon resolved itself into green mangrove swamps and in it an open-

ing eventually became visible—the mouth of the Me Nam Chao Bhraya.

At the very threshold of this river approach is an attractive island temple. Typically Siamese, it strikes a strange, distinctive note in oriental architecture. Multiple roofs of gaily colored tiles rise atop white walls in a quaint overlapping manner; gables are decorated in heavy relief; strange figures, representing the heads of mythical serpents, rear up at all of the many corners of the roofs, and immediately behind the temple building a graceful spire drives its slender wedge into the sky. Siam!

For twenty miles or so the Me Nam Chao Bhraya (literally, Royal Mother of Waters) winds between banks of dense foliage, interspersed here and there with half-concealed bamboo huts standing spiderlike on tall piles beneath fronded coconut and areca palms, before Bangkok is reached.

Tiny canals branch off from the river, and in and out of these dart small boats filled with vegetables, fruits, and sweetmeats of aquatic venders.



PILGRIMS HOLD A FESTIVAL AT SIAM'S LARGEST "PRACHEDI"

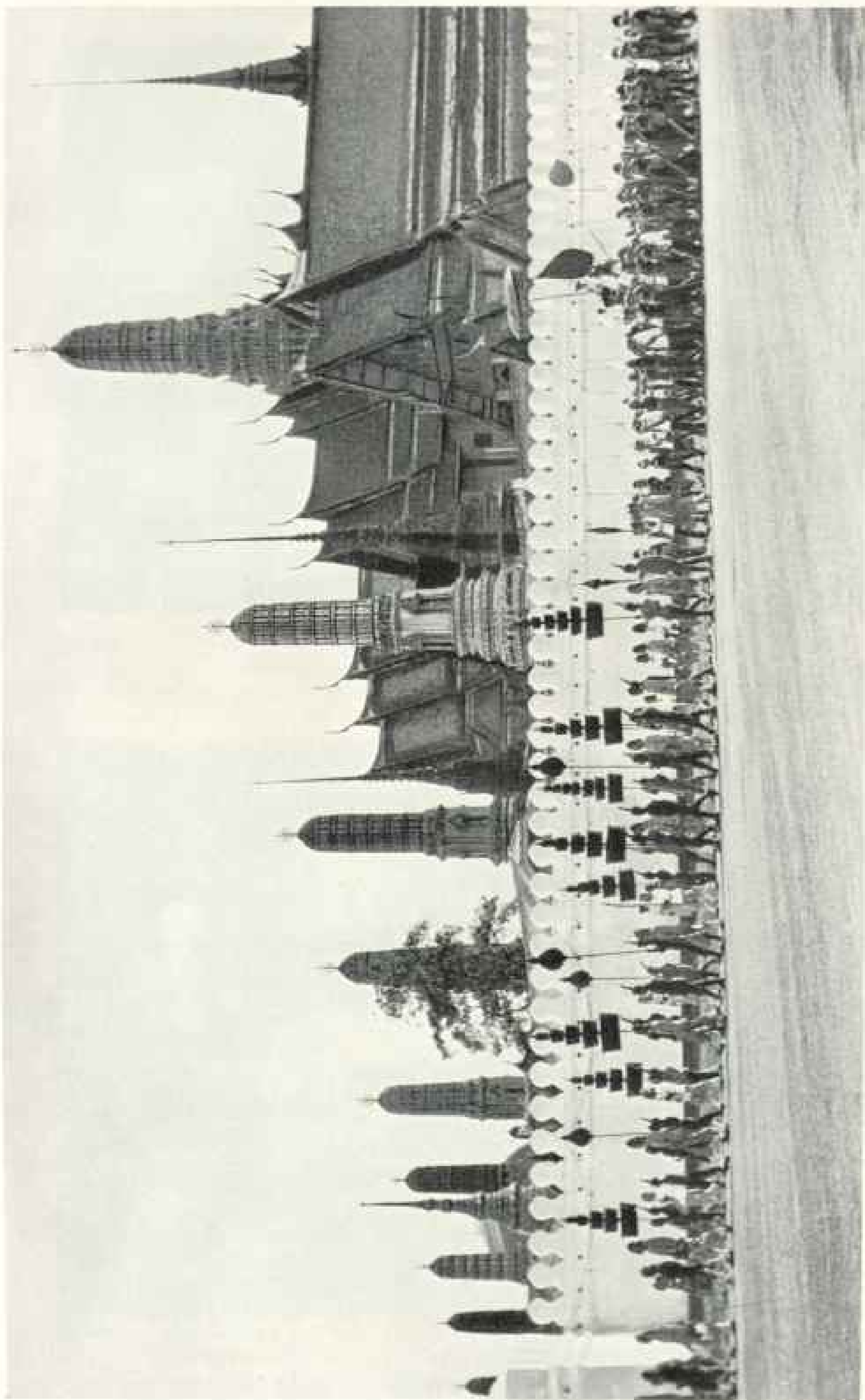
This enormous temple at Nagor Patom, higher than a 30-story skyscraper, is made of brightly polished tiles, which glint in the sun like gold. Trees shading the streets, as in other Siamese cities, are often trimmed to a conical shape.



Photograph by H. C. Cassander

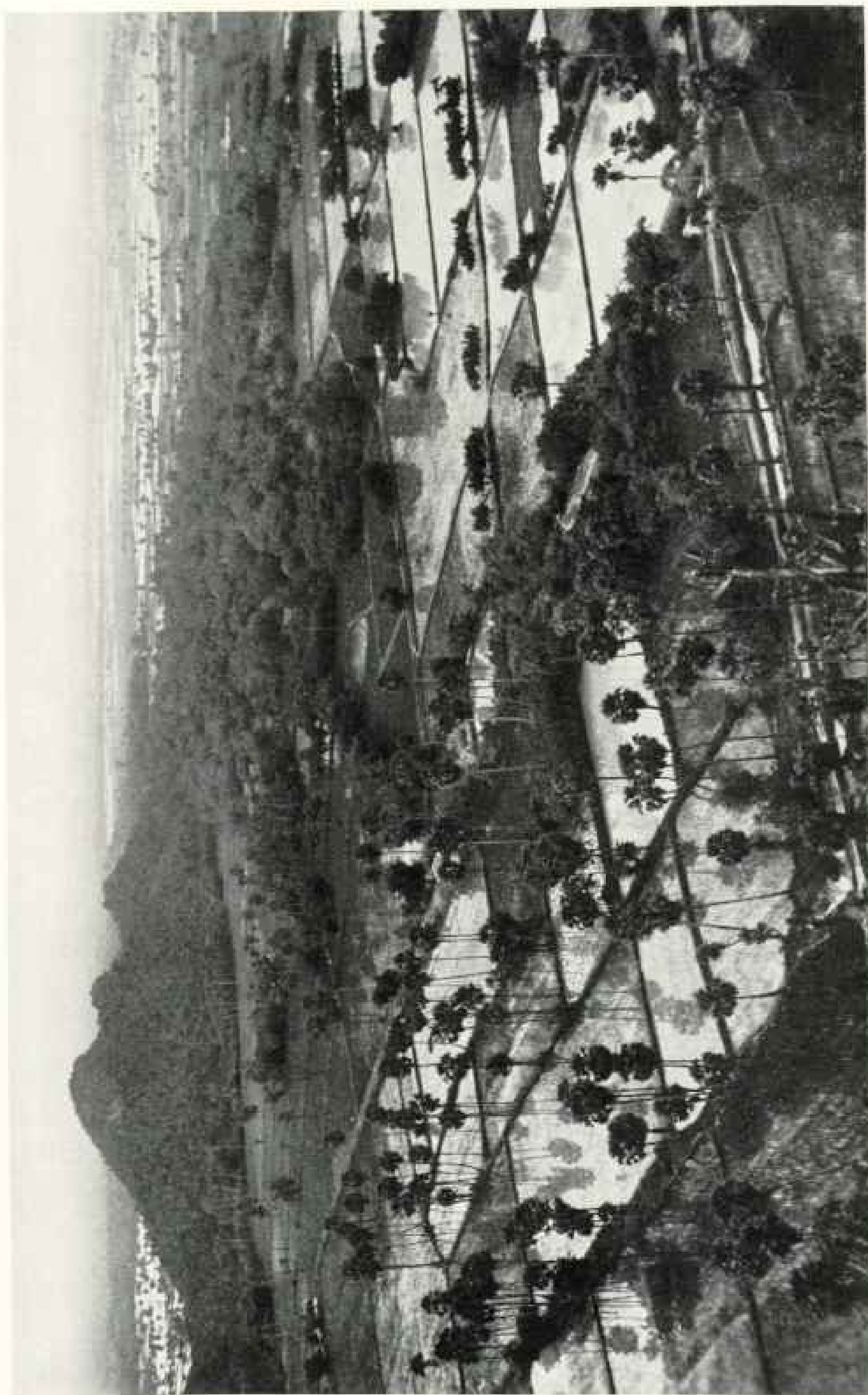
RESIDENTS OF AYUDHYA SHOP BY BOAT AT A FLOATING GROCERY

These customers have stopped at one of the many provision stores that line the river and canals of the one-time capital of Siam. Only a small village remains to-day, but age-blackened ruins and crumbling temples attest the glory of the ancient city, burned and sacked by the Burmese in 1767 (see text, pages 539 and 555).



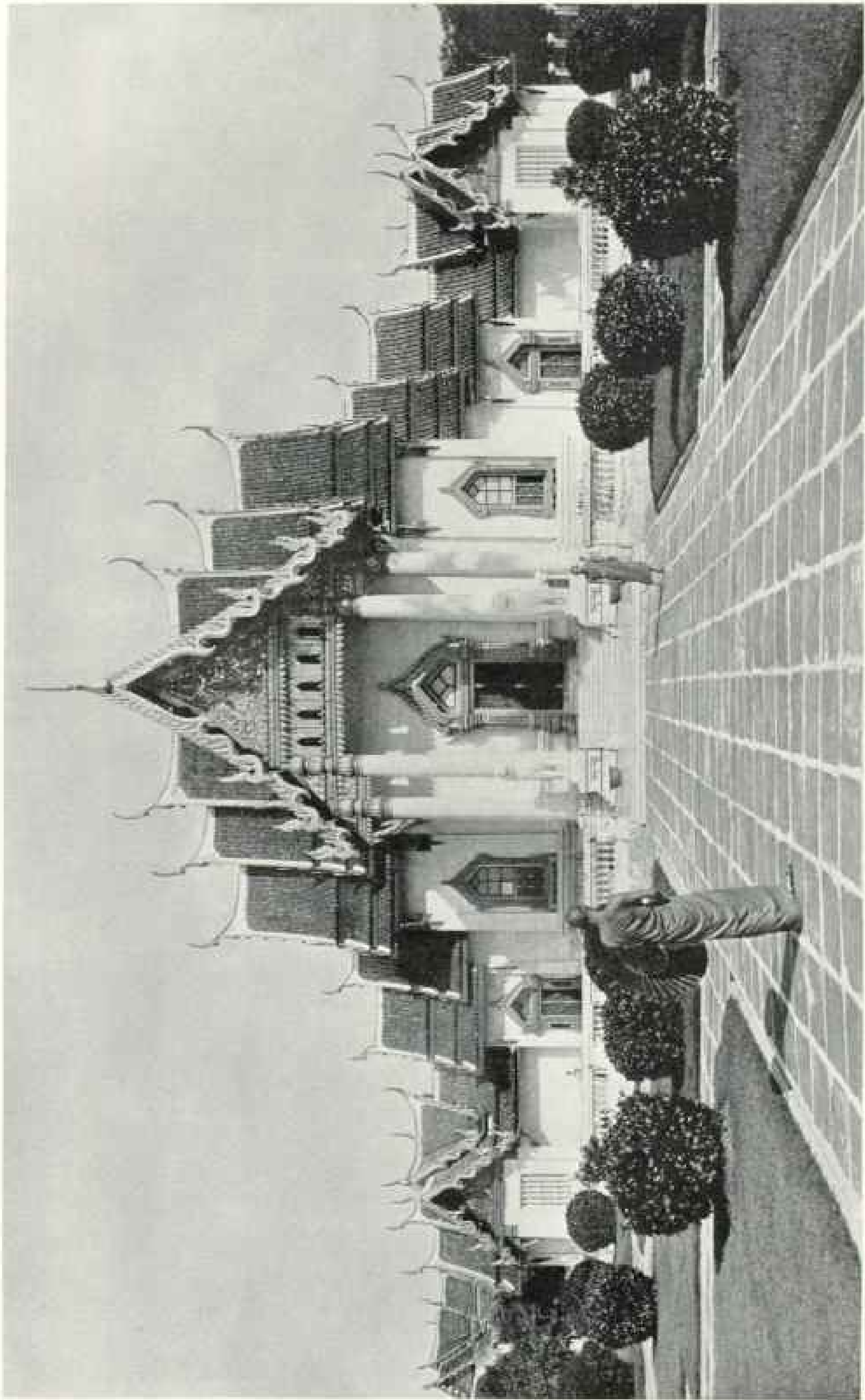
PRECEDED BY STATE UMBRELLAS, THE KING IS CARRIED ON THE ROYAL PALANQUIN TO A BANGKOK TEMPLE

Here the procession is passing Wat Phra Keo, the Royal temple, where state religious ceremonies are held. Eight large pipes, lined up like soldiers, guard the magnificent chapel, within which, aloft on a golden throne, sits a beautiful jade Buddha (see text, page 542, and Color Plate X).



SUGAR PALMS FRINGE THE CHECKERBOARD PADDY FIELDS OF BEJRABURI

Young rice seedlings have been transplanted into some of the flooded plots; others await immediate planting. Sap, tapped from the tops of the palms, is made into crude sugar for local consumption. Because of the extensive inundation of the plains during the six-month rainy season, mosquitoes abound, some of which are malaria carriers.



Photograph from H. T. Cowling.

A MASTERPIECE OF SIAMSE ARCHITECTURE IS A HOUSE OF MANY TIMES SEVEN SERPENTINE GABLES

This magnificent temple, Wat Benjamabopitr, in Bangkok, was built by King Chulalongkorn, father of the present monarch. The distinctive multiple roofs are made of flashing, Imperial yellow tiles, which form a striking contrast to the white walls of Carrara marble. The doorways and windows are heavily gilded, as are also the elaborate gables (see text, pages 541-2, and Color Plate V).

In the long curving sweep of the city's river highway is revealed at once the pageant of Siam's commercial activity. Many of Bangkok's 80 rice mills line the water front. Chinese junks and lighters clutter their wharves, with endless queues of perspiring, bare-backed coolies dumping baskets of rice in their holds. Other boats lift their rough matting sails and slip downstream to the off-coast island of Koh Si Chang, where deep-draft steamers take on cargo.

Down the river, from the far north, also drift unwieldy rafts of valuable teak logs, destined eventually, after they have passed through the mills, to become deckings for ships and sundry other things where waterproof and knotless timber is required.

In and out of the concourse of launches, and chugging tugs hauling strings of cargo boats, weave small, man-sculled sampan ferries carrying passengers across the river and to tramp steamers that lie in midstream.

Nearly 90 per cent of all Siam's foreign trade moves up and down this waterway, accompanied by all the strange smells and cries peculiar to an oriental port.

BANGKOK IS WASHINGTON'S SENIOR BY ONLY A FEW YEARS

As a capital city, Bangkok is not old. It is but a few years senior to Washington, on the Potomac. The new Rama I Bridge, its enormous spans etched sharply against a background of colorful temples and waterfront shops, gives the city its date line. This 475-foot structure, first to link the two portions of the city, was dedicated in April, 1932, in commemoration of the 150th anniversary of the founding of Bangkok and the reign of the present Chakkri dynasty.

Extensive festivities brilliant in oriental splendor attended its dedication. At 6 o'clock in the morning on that April day, after having said prayers and lighted incense before the statue of Rama I, which stands at the approach of the bridge, King Prajadhipok, clad in ancestral garments, cut the thread of silk that barred the entrance. Then, mounting the golden palanquin, surrounded by parasols of state, and accompanied by the princes and high officials, he made the first crossing of the bridge.

A few moments later the double bascules were raised and the royal Garuda-prowed barges filed downstream. Closely following these ancient gilded craft came torpedo

boats and gunboats and, lastly, the *Maha Chakkri*—the royal yacht.

That night, and for three nights following, the people of Bangkok swarmed on and about the bridge. All around the ramps on either side of the river King Carnival held sway, aided by Siamese and Chinese theaters, puppet shows, acrobatics, cinemas, and stalls of sweetmeats. Only a motion picture in color could hope to record even a fraction of that polychromatic pageant.

Until razed by the invading Burmese in 1767, Ayudhya (Ayuthia), farther upriver, was the capital. During the next decade and a half, a deserter general, Phaya Tak-sin, rallied the Siamese armies, severed the cordons of Burmese overlordship, and ruled in Tonburi, opposite Bangkok. Seized with religious madness, he was replaced by another Siamese general, who became Rama I, first of the Chakkri kings and founder of Bangkok, the present capital.

ROADS HAVE REPLACED CANALS IN CAPITAL

In 150 years Bangkok has seen many changes. Up and down beyond the palaces and across the river the city has expanded; to-day it domiciles approximately 550,000 people.

Well within the last half century, however, the river was still Bangkok's main street, and a system of canals formed its cross-streets. "Venice of the Orient," people called the city then. Many of the older buildings continue to face the river, rather than the network of roads that has been cut through the ever-growing city. Most of the floating houses, once a feature along the river banks and canals, now have largely disappeared, and in their stead are numerous two- and three-story buildings lining the streets and alleys.

New Road, the city's main thoroughfare, is an inelegant thing by day. All manner of buildings, from sun- and rain-warped, open-front wooden shops to modern concrete structures, cluster along this narrow avenue of commerce. For miles the road seems to wander aimlessly on, bending first one way and then the other, paralleling the sinuous course of the river. Far too narrow now for all the rickshas, trucks, automobiles, hand-drawn carts, and tides of humanity that surge into it, the street is congested even more by tramcar lines.

My first careering tram ride is associated with a shave. In odd moments between



NOT PERMANENT DISFIGUREMENT—JUST TOO MUCH POWDER.
For the supposed cooling effect, the Siamese generally rub quantities of a chalky cosmetic on their damp bodies after bathing.

collecting fares, the conductor was utilizing his time in removing his sparse beard, one hair at a time, by plucking it out with two coins used as tweezers!

THRONGS OF CHINESE AND MINIATURE INDIAS

Immediately one is impressed by the number of Chinese shops and throngs of Chinese people that are everywhere in Bangkok. On side streets one can step into veritable Chinatowns. Elsewhere one finds miniature Indias centered about the silk goods, gem, and curio trade.

Upon more intimate acquaintance with Siam the answer to this foreign population becomes obvious. For centuries the Siamese have shown little inclination toward busi-

ness, and have left it in the hands of outland peoples. More than 80 per cent of the Siamese are agriculturists and the majority of the others are directly or indirectly connected with Government service. Only slightly more than 2 per cent are engaged in industrial pursuits.

Keen business men and industrious laborers that they are, the Chinese have found Siam a land of glorious opportunity, as they have Malaya and the Philippines. Upwards of half a million of these Celestials, congregating naturally in the cities, have been added to the foreign population of the country.

To-day a Chinese is seen carrying a perambulating store on a pole over his shoulder, to-morrow he is opening a tiny shop in a narrow lane, and surprisingly soon he is moving into a New Road store, or is expanding his old place of business. By such

means the Chinese have worked their way into Siam's commercial life. The comparatively high immigration tax imposed recently, however, has greatly reduced the tide of incoming Chinese.

Several European business houses, marketing an incredible variety of goods, also do a thriving trade in cosmopolitan Bangkok.

WOMEN BARGAIN AT MORNING MARKETS

Of course, there are many Siamese stores, a few large, many small; with the latter, the womenfolk often act as proprietors. It is sheer joy to go to a morning market to watch groups of Siamese women bargaining over prices of household commodities.

If Bangkok's business thoroughfares seem too narrow and congested, the same cannot

be said of her outlying residential roads, for they are wide avenues of asphalt or crushed rock, bordered with delightful canals. "Flame of the forest" trees, ablaze with red blooms from April to June, or majestic rain trees canopied overhead form stately Gothic arches for mile after mile.

TEMPLES A RIOT OF COLOR

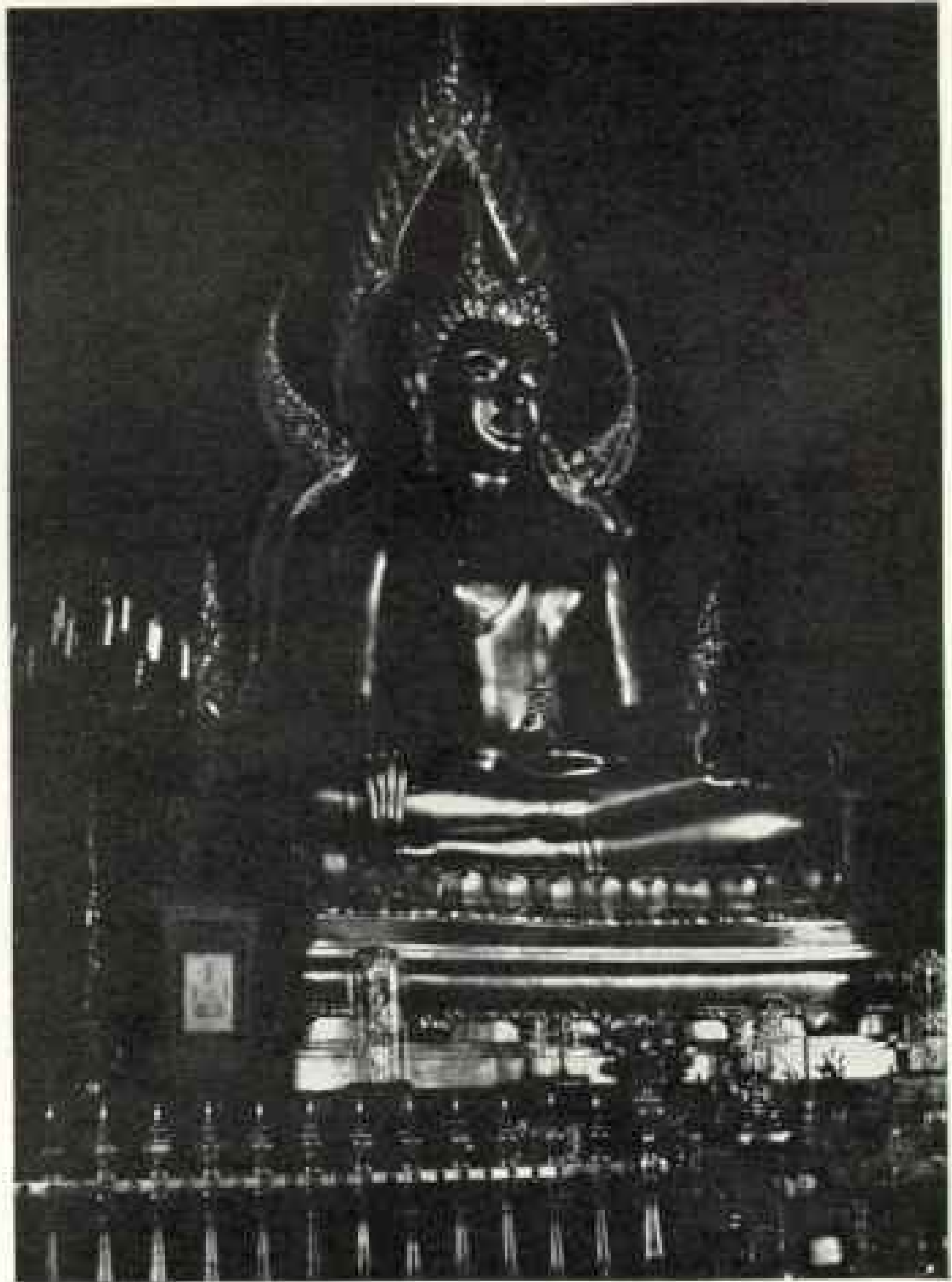
What Bangkok's main street also lacks in interest, beyond the ebb and flow of its contrasting traffic, is more than recompensed for by her gorgeous *wats*, or temples. Within the walled-in enclosures of the temple areas the Siamese have poured out the abundance of their artistic skill and found expression for their love of colors.

Week-end after week-end and on countless holidays I went "watting." Time after time I returned with color lens to explore new angles of temples already visited, or set out to discover new ones (see Color Plates I and V).

With Siam the purest Buddhist country to-day and the King the official head of the Buddhist Church, the country has a plethora of temples. According to official count, Siam has more than 16,500 temples and 127,000 Buddhist priests. It is said that one-fifth of the area of Bangkok is devoted to her more than 300 temple grounds.

Peiping has the golden roofs of her Imperial Forbidden City and lake pavilions; Bangkok, with her palaces and temples, exceeds these acres of Imperial yellow tiles and has bordered them with bands of blue, red, and green tiling.

Many of the side walls are of elaborate mosaics; beautifully wrought gables are



IN THE DIM LIGHT OF A BANGKOK TEMPLE A BUDDHA MEDITATES

This beautifully executed image is a copy of one of the most famous bronzes in Siam, the Phra Buddha Jinaraj, of Pitsanulok.

heavily gilded and encrusted with scintillant bits of glass; and countless votive spires, or *prachedis*, run the gamut of the spectrum in flowered porcelains. In many cases, too, surprising designs are achieved through the use of pieces of broken porcelain and pottery, which are most effective when seen at a distance.

Around many of the courtyards extend long galleries of Buddhas, placed there by the pious. Frescoes on the interior walls of the temples and some of these galleries depict scenes from the life of Buddha and from the epic of "Ramayana," the Indian "Iliad."

Mosaic pilasters, tinkling bells suspended from the eaves, and exquisite pearl-inlay



Photograph by Edward Burton MacDowell

A CHINESE BUTCHER OF BANGKOK WEIGHS HIS POUND OF FLESH

On account of their adherence to the Buddhist faith and its commandment, "Do not take life," the Siamese eat little meat. This chap and his fellows have no such compunctions, however, and do a thriving business both from boats and from stalls on land.

doors contribute to the bewildering fairy-land spectacle.

Each of the temples has a distinctive charm. It may be in the sacred Emerald Buddha that rests aloft on a golden throne, as at Wat Phra Keo, the Royal temple; in the imposing majesty of a 242-foot tower, as at Wat Arun (Temple of Dawn); or, again, it may be in the matchless beauty of golden roofs above walls of pure marble, as at the modern Wat Benjamabopitr (see illustrations, pages 532, 536, and 538).

In sharp contrast to the elaborately dec-

orated temples are the severely plain monastic quarters where the hundreds of divines live and meditate. Simplicity is a prime requisite of a Buddhist priest.

MOST SIAMESE MEN ENTER PRIESTHOOD

Joining the Buddhist priesthood does not mean that the person has cloistered himself in a monastery, for vows may be renounced at any time. While practically every Siamese young man expects sooner or later to enter the priesthood, comparatively few devote their lives to the calling. The monas-

tery is rather a temporary training place, teaching the higher ethics of life. At one time, too, before the present educational system was established, it was where the Siamese were schooled in their "three R's."

To these monasteries come thousands of Siamese youths to don the togalike yellow robes of the Buddha. For those coming from high rank or low the robe is the same; it is the great leveler, the badge of humility, as is the begging bowl with which every priest must go forth and collect his daily alms of food. As much merit is gained by feeding the priests, none go hungry.

A picturesque sight in early morning is to see these yellow-robed priests in the streets and along the canals receiving their bowls of rice and condiments (see illustration, page 560). In a five-minute ride by ricksha I have counted as many as 75 priests along the roadway.

KING'S VISIT TO TEMPLES A GORGEOUS SPECTACLE

No less colorful than the temples themselves are the religious festivals of the Buddhist calendar. Of these ceremonies, the Tot Kathin is outstanding. Each year, in late October or early November, the King visits several of the chief temples to present gifts to the priests. On the days when he appears, all Bangkok turns out in festive array, filling the temple precincts and crowding the streets.

One day His Majesty goes by motorcar; another day by coach and four, with companies of blue-uniformed lancers escorting the royal carriage. On another tour he is borne on a gilded palanquin carried by red-clad porters (see Color Plate VII). One page holds a scarlet umbrella over his head, another carries a wide sunshade alongside, while a third fans him with a gilded fan. In front and rear of the palanquin are carried the five- and seven-tiered ceremonial umbrellas of state. Preceding and following this royal cortège, with bands playing and banners flying, march detachments of the Royal bodyguards and other troops.

Even more striking in its brilliancy is the procession by water, when dozens of the ancient barges parade the river. The King is seated in a golden pavilion in the center of a long, serpent-prowed state barge painted in gilt and red. Sixty red-clad oarsmen man the royal craft, their gilded paddles first dipping in the water and then flashing upward in the sunlight to the

rhythmic accompaniment of an ancient chant. Against its background of coruscant temples and palaces, it is a pageant that beggars descriptive adjectives.

THRONE HALL IS ITALIAN WORKMANSHIP

Despite the beauty of Siamese architecture, the Throne Hall in Bangkok is Italian in design, materials, and workmanship. It is so majestic, however, that one is inclined to forgive the fact that it would look better in sunny Italy than under the tropical skies of Siam (see illustration, page 545).

"This building cost 8,000,000 ticals (approximately \$3,500,000), and it floats," explains our guide. Floats? During the course of construction it was found that the enormous weight of the structure was causing it to sink in the soft alluvial soil; consequently, air-filled concrete pontoons had to be placed under the foundations. So now this massive pile of masonry literally floats on the muddy subsoil of Bangkok, which is so near sea level that the daily tides fill and empty the canals.

Walk through the red and golden interior and look at the wall paintings. Before one flashes a news reel of Siamese events for the past century and a half. On the vaulted ceiling in one place is a large painting showing Rama I seated on a war elephant, directing the foundation of Bangkok. In another space is portrayed Rama II sitting on his royal palanquin, surrounded by his courtiers and architects, witnessing the construction of Wat Arun (see page 532).

At the far end, beneath a beautiful painting of the Buddha, is pictured Maha Mongkut (Rama IV) declaring the liberty of religion in Siam to a group of Christian, Buddhist, Chinese, and Mohammedan ecclesiastics. Not only did this philosopher-astronomer king grant religious freedom, but he negotiated new commercial treaties with foreign powers. His treaty with the United States was the second one that we had negotiated with Siam; our first, signed in 1833, was also our first commercial treaty in the Far East.

FOREIGNERS ONCE CALLED OUT OF BED TO COACH KING IN ENGLISH

Amusing stories are told how King Mongkut used to call American missionaries (and even once a British consul) out of bed late at night to come to his assistance when he was grappling with some problem in grammar while seeking to perfect his English!



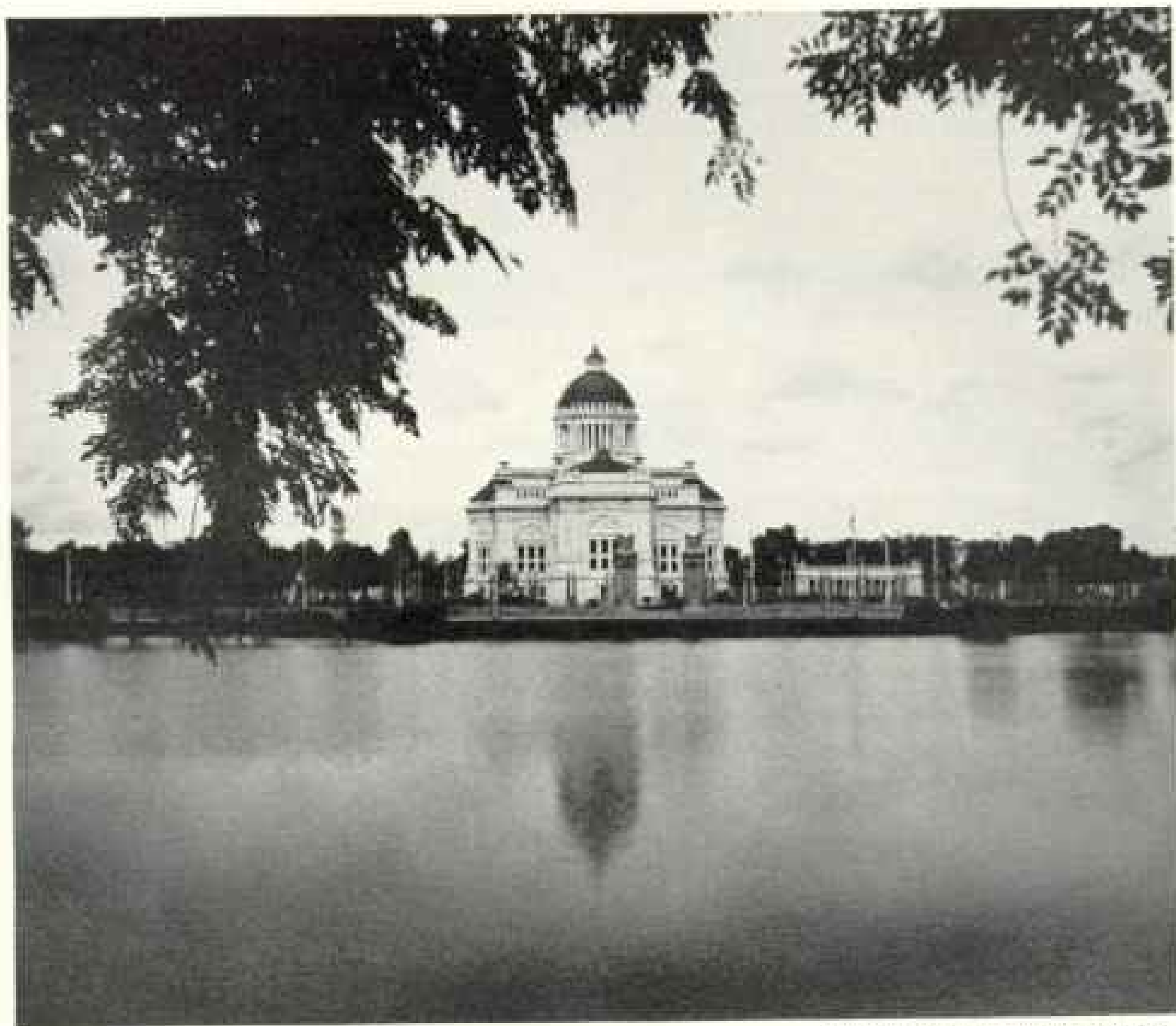
PROJECTING ROOFS IDENTIFY THE CARTS OF EASTERN SIAM

Until the recent extension of the railway into the plateau region adjacent to French Indo-China, the Siamese peasants had to rely entirely on these conveyances and cattle caravans to send their produce to marketing centers. During the summer's rainy season the trails become quagmires.



DISHPAN HATS SHELTER WORKERS DRYING FISH IN THE SUN

This task and salt-packing fall almost entirely to the women; the men spend their time repairing nets, weaving traps, and making ready the boats to start out for the evening catch. Along the Gulf of Siam are many heart-shaped traps in which are caught and netted quantities of finny spoil, not only for local consumption but for export.



Photograph from Maurice P. Dunlap

SIAM'S THRONE HALL, LIKE THE TAJ MAHAL, IS SET OFF BY A REFLECTING POOL.

This Italian Renaissance structure in Dusit Park is considered one of the finest modern buildings in the Far East. While under construction the hall was found to be settling in the low, soft earth, and air-filled concrete pontoons had to be installed to support its enormous weight (see Color Plate VIII).

In still another vaulted area is shown King Chulalongkorn in the act of liberating the slaves. In the background of this painting is the busy life of the port of Bangkok and the partially completed Throne Hall, signifying the spirit of a new era.

In King Chulalongkorn's beneficent reign of 42 years, Siam underwent a sweeping transformation and modernization, reforms that were extended and consolidated by Rama VI, half-brother of the present ruler. A departmental government and suitable courts of justice were established, a postal and telegraph service adopted, railways built, and gambling abolished.

Even to-day, however, the Siamese are lovers of any game of chance. Fighting the tiny pugnacious fish (*Betta splendens*), native to Siam and well known to toy fish

aquariums, is a popular pastime.* Kite-flying is also a favorite sport with young and old. On the royal plaza in front of the Grand Palace, where military tournaments and the elaborate royal cremations are held, hundreds of people gather daily in the spring months to watch and wager on spectacular kite battles.

Alongside this extensive plaza is the National Library and Museum, wherein are kept the valuable old palm-leaf manuscripts, stone tablets, bronzes, and other historical Siamese treasures. The Museum is quartered in the palaces of the former Second King.

During the reigns of the first four Chakkri

* See "Tropical Toy Fishes," by Ida Mellen, in the NATIONAL GEOGRAPHIC MAGAZINE for March, 1931.

rulers Siam had the unusual institution of a secondary king, who acted more or less as the generalissimo of the Siamese armies. The last person to occupy this position was George Washington! Of course, it was not the soldier-statesman who fathered our American Republic, but one of his namesakes—a man whose royal father so admired the American leader that he decided that his son should bear that name.

HOW AMERICA HAS TOUCHED SIAM

America has touched Siam in many ways. Through American missionaries modern medicine was first practiced and progressive schools developed in the country. Americans brought the first printing presses and also adapted the 44 consonants and 20 vowel and tonal marks of the Siamese written language to the keyboard of a typewriter.

Aided by American advisers of foreign affairs, Siam, in 1925, secured the abrogation of outgrown extraterritorial treaties and won her complete sovereignty.

Originating in the mission schools, the physical-training idea has spread rapidly throughout the land. The late king himself was Scout Chief for the Wild Tiger Corps. Although that organization has since ceased to function, its spirit is carried on in a Boy Scout organization known as the Wild Tiger Cubs.

Education has become compulsory. More than 86 per cent of local schools and 50 per cent of Government schools are situated in monasteries or are modern outgrowths of the old temple schools. In Bangkok, too, is a well-functioning University and Medical School.

PITFALLS OF THE SPOKEN LANGUAGE

While I taught science in a Bangkok college I was also a student, if such you might call my efforts to fathom the intricacies of the Siamese tongue. With my first teacher always talking over a quid of betel nut (chewing of betel is a universal habit in Siam), I carefully watched her black teeth and blood-red lips and with difficulty sorted out the five tonal renderings of the vocabulary (see Color Plate II). The word *hao*, for instance, through its many variations, may mean "news," "mountain," "white," "rice," "he," "knee," or "enter." Obviously, the language has its pitfalls!

"What do you eat in Siam? Rice and curry? That's the chief Siamese food, isn't it?" many people have questioned.

I can think of no better answer than the one that a returning missionary gave. Looking over his hostess's table, he replied:

"We have everything on our tables that you have, except a butter knife. Our butter comes out of tins and is usually too soft for such an instrument."

With several commercial ice factories and many home electric refrigerators now operating in the cities, even the butter knife has come into its own!

The extensive fruit and vegetable gardens in the region around Bangkok produce a bountiful variety of foodstuffs; foreign timed goods, even to canned "hot dogs," can be had.

Because of its youth, the history of Bangkok is not the story of Siam, although many people say Bangkok is Siam, because of the strong centralization of government that exists in the capital. Despite this statement, the hinterland is of vital importance.

The country falls into four natural divisions. In the east, bordering on French Indo-China, is a wide mountain-encircled plateau, 300 feet to 500 feet above sea level and tilted slightly to the east, so that it drains into the mighty Mekong (see map, page 533).

PROSPERITY WILL FOLLOW RAILWAYS

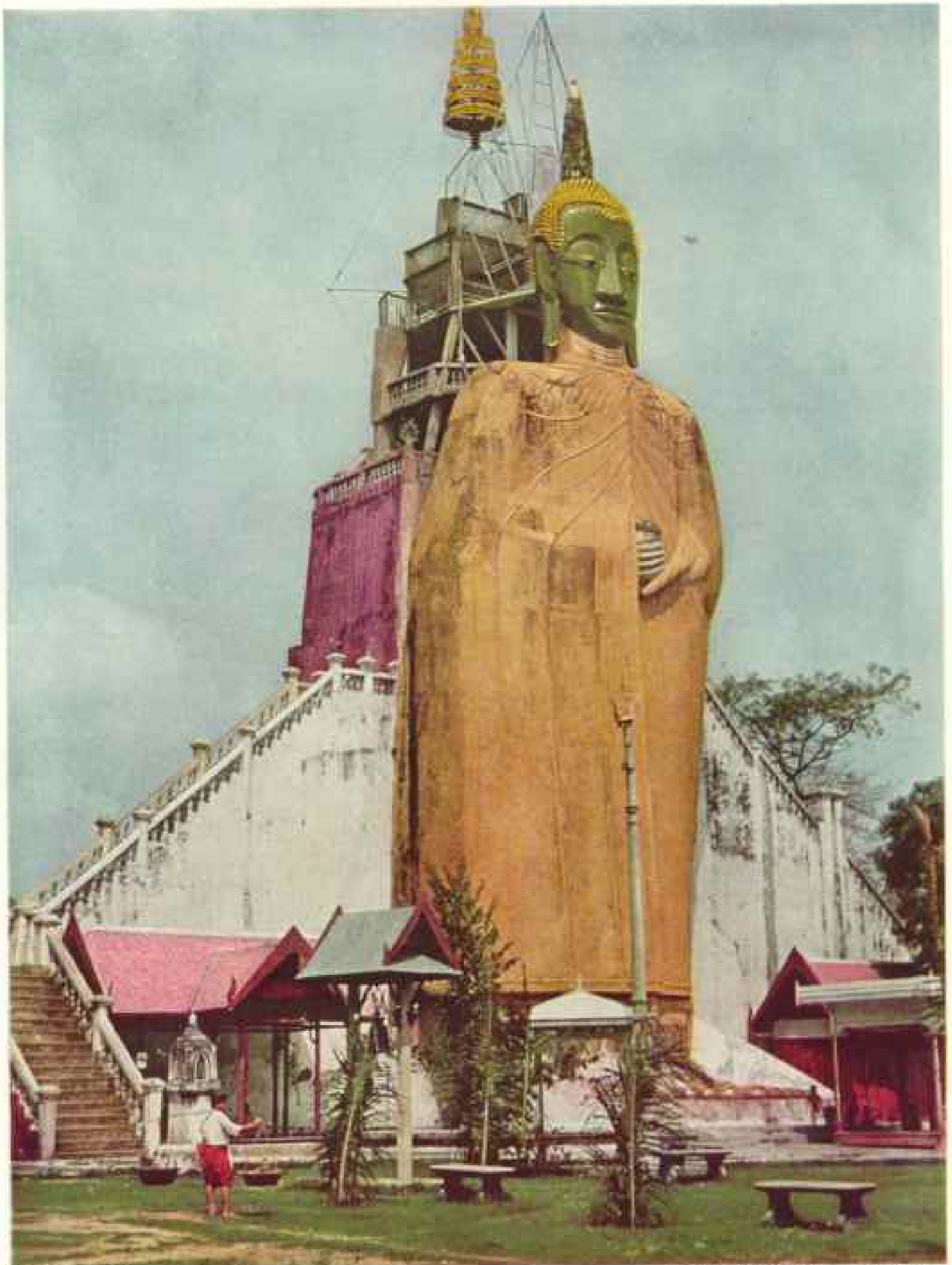
During the six-month dry season this territory is very arid, and during the rains it is often heavily flooded; consequently it is the poorest section in Siam, and the people often have difficulty in securing a comfortable livelihood.

Until recently, when the railway was extended beyond Nagor Rajasima (Korat) to Ubol Rajadhani, the people were severely handicapped in getting their produce out to market centers. Considerable wealth, however, lies in the redwood and other forests located in the mountains. These and other resources will be developed because railroads and highways are being extended into the region.

Over this area, too, lie the ruins of a number of lost, forgotten Khmer cities that sprang up during the days when an extensive civilization flourished at Angkor, whose majestic walls and temples alone remain to tell the tale of splendor of eight centuries gone.*

* See "Four Faces of Siva," by Robert J. Casey, and "Along the Old Mandarin Road of Indo-China," by W. Robert Moore, in the NATIONAL GEOGRAPHIC MAGAZINE for September, 1928, and August, 1931, respectively.

TEMPLES AND CEREMONIES OF KALEIDOSCOPIC BANGKOK



© National Geographic Society

Field Photograph by Amos Burg

A COLOSSAL BUDDHA TOWERS BENIGNLY ABOVE A BANGKOK TEMPLE

Visitors and pilgrims climb the steep stairs to the platform behind his gilded headress, where unfolds a splendid view of the capital's slender spires and brightly colored roofs. Because so many of her men expect to don the yellow garments of priesthood sometime during their lives, Siam has been called "The Kingdom of the Yellow Robe."



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Natural Color Photograph by Gervain Courteflamont

A SIAMESE GIRL SITS BEFORE HER BETEL-NUT OUTFIT

Until recently, virtually all Siamese chewed the mixture composed of an astringent betel leaf, a nut from the areca palm, a bit of lime, and tobacco. Since the habit blackens the teeth, some Bangkok dentists insert black false teeth in dental plates. A large water jar, brightly glazed, stands in the corner.



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Natural Color Photograph by W. Robert Moore

THE SACRED LOTUS BLOOMS IN A BANGKOK CANAL

To Buddhists this flower is a symbol of purity and perfection because it grows out of mud and is not defiled. It is a motif in religious architecture; Buddha is usually represented as seated on a lotus.



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Natural Color Photograph by W. Robert Moore.

A BANGKOK STALL DISPLAYS MANY STRANGE FRUITS

The large spiny durian, called by the Siamese "king of fruits," has a pungent odor, but possesses a nutlike flavor. The purple mangosteen, "queen of fruits," has a delicious white center. The red hairy fruit is the rambutan; beside it to the left is the salat. At upper right are areca palm nuts.



© National Geographic Society

Natural Color Photograph by Gervais Costellesmunt

A "STILL LIFE" OF TROPICAL FRUITS

The large green pomeloes (left center), the "grapefruit of the Orient," have been introduced into Florida, but do not thrive as well there as in their native soil, the wet, salty gardens around Bangkok.



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LAST RITES FOR A ROYAL PRINCE

The priest at the right is praying before the golden urn containing the body, upright within. Afterwards, the urn is pushed up the ramp and placed in the funeral car. The scarlet-clad men then pull it to a specially constructed pavilion on the Royal Plaza, where the King and high officials ignite the pyre.

Natural Color Photograph by W. Robert Moore



© National Geographic Society

Natural Color Photograph by W. Robert Moore

WILD GIANTS, OR "YAKS," GUARD THE ENTRANCE OF WAT ARUN, BANGKOK

Scarcely less fantastic than these strange figures of Indian mythology are the grotesquely trimmed trees and the floral designs on the facade and spire, made from bits of broken porcelain. Along the gable edges of the multiple roofs are plaster serpents, with heads rearing up at the eaves corners and tails forming a pointed horn on the roof's ridge.



A PAGE FROM SIAM'S MILITARY PAST.

At a recent historical parade in Bangkok, these cavalymen appeared in the brilliant costumes and strange saddles of long ago. Elephants were decked in ancient trappings of war, oxcarts bore hide shields and spears, and infantrymen displayed tridents and long swords.



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Natural Color Photographs by W. Robert Moore

HEAVYWEIGHTS OF THE SIAMESE SQUARED RING

A soft cotton cord bound around hand and forearms takes the place of padded gloves. Contestants may strike with fists or elbows and kick any part of the opponent's body. A bout is opened with considerable ceremony. Most of the boxing matches, however, are now conducted under occidental rules.



A MOCK "KING" RULES A BRAHMAN FESTIVAL

The rice-planting season and harvest time are celebrated by age-old rites; for which the King of Siam appoints a deputy. The blue, bloomerlike *panung* and white coat, worn by the attendants, are the regulation uniform of Government employees.



© National Geographic Society

Natural Color Photographs by W. Robert Moore

THE KING OF SIAM'S GOLD PALANQUIN

Red-clad porters await the arrival of King Prajadhipok, upon his visit to a Bangkok temple, where annually he presents gifts to the Buddhist priests. The small figures of the mythical *Garuda*, half man and half bird, on the palanquin's sides, are as emblematic in Siam as is the eagle in the United States.



© National Geographic Society

Natural Color Photograph by W. Robert Moore

IN THIS MAGNIFICENT HALL THE KING OF SIAM HOLDS COURT

The wide throne, surmounted by a nine-tiered royal umbrella and flanked by two seven-tiered ones, is distinctly Siamese. The Throne Hall, officially called Phra Tinang Ananda Samakom, is Italian in design, materials, and workmanship. It reflects the strong influence that the West has had in the country.

Chandaburi Province, lying to the south of this plateau and bordering the Gulf of Siam, finds prosperity in its forested hills, in pepper, coffee, and in ruby, sapphire, and zircon mines.

South Siam, the second division, embodies about one-half of the elongated Malay Peninsula, with its population gradually shading into almost pure Malay. Like lower Malaya, it is rich in minerals, especially tin, and also produces considerable quantities of rubber. In normal times an average of nine million dollars' worth of tin annually goes into foreign marts from these mines.

Eastward, westward, and northward from Bangkok stretches the vast alluvial plain of central Siam, level as a table top—the rice granary of the country. It is the heart of the Kingdom and the source of nine-tenths of its wealth. An area of roughly 50,000 square miles is enclosed between the high mountain backbone that extends along the Burma border and the battlements that face the Korat plateau.

What the Nile is to Egypt the Me Nam Chao Bhraya is to this fertile valley. Every year during the summer rainy season the river overflows its banks and stretches out through its network of canals and distributaries, depositing rich silt and providing the required water for the rice lands.

Nearly two-thirds of all Siam's export trade consists of rice. Most of the people devote their lives to its cultivation, and it forms the chief food for both people and domestic animals.

RICE SEASON HAS A REAL INAUGURATION

In late April or early May the rice season is still begun officially in Bangkok by an age-old Brahman ceremony, the Raak Na, or First Plowing. The King attends the rite; the Minister of Agriculture, dressed in ancient court robes, guides the plow, which is drawn by two gaily caparisoned oxen; Brahman priests sprinkle the soil with holy water, and court ladies scatter the first grains of rice. Soothsayers read the auguries from the length of the minister's robes and from what the oxen choose to eat.

As soon as the ceremony is ended, thousands of peasants scramble to collect a few seeds, feeling confident that their presence in the fields will insure a better yield.

Because of the wetness of the plain, primitive methods of agriculture are still em-

ployed. Farmers, whacking clumsy water buffaloes, scratch the soil with plows, a method old as the Pharaohs. Most of the irrigation of the rice plots is done with primitive ladles or foot pumps. Both men and women work all day long under the tropical sun, transplanting rice seedlings from nursery beds into a nearly knee-deep ooze. Harvesting, thrashing, and winnowing of the grain likewise are hand operations (see illustrations, pages 558 and 574).

North Siam, serrated by a series of parallel mountain ranges, in whose narrow ravines and valleys is born and cradled the Me Nam Chao Bhraya, abounds in valuable teak and other forests.

It is a delightful 470-mile journey northward through the length of the checker-boarded rice plain into these forested mountains from Bangkok to Chiangmai, chief city of the north. On the way the route skirts several of the centers of earlier Siamese culture. An express train leaves Bangkok twice weekly, and on the days of its departure people with bundles and baskets and cases throng the railway terminus. A gong clangs thrice, the engine toots, people scramble aboard or hurriedly pile off, and the train starts.

At Don Muang, twenty miles out of Bangkok, is the airdrome. Here, besides providing a landing field for international commercial planes, the Siamese build and assemble their own planes, with the exception of the motors. They have taken naturally to the air, and during the World War numbers of Siamese troops sent abroad served efficiently as aviation mechanics. For many years Siamese pilots have been carrying mails and passengers to outlying districts of the country where land communications have not yet penetrated.

Seen at a distance across the plain, sail boats appear to be crossing dry land. They are riding on the irrigation and transportation canals that lace the rice lands. Life-giver though it be, the Me Nam has had to be assisted and controlled by a series of these ditches and by irrigation works.

Within two hours after leaving Bangkok, the broken, age-blackened temple spires of Ayudhya come into sight. For 417 years Ayudhya was capital of Siam. Time and again it was besieged, or in turn was sending its armies against the Peguans, Burmese, or Cambodians.



Photograph by Henry R. O'Brien.

A WATER WHEEL IN THE MAKING

When completed, bamboo cups are attached around the rim to dip up the water and empty it into troughs as the current of the river turns the wheel. Hundreds of these simple devices throughout north Siam make possible irrigation of riverside gardens during the dry season, from November to May.



EVEN FATHER AND MOTHER EAT WITH THEIR FINGERS

Sticky rice, the main course of all meals of the Lao in north Siam, is pressed into balls with the fingers, dipped in a common bowl of fiery curries, and then eaten, usually with tidbits of fish.

In its heyday few cities had more glorious temples than did Ayudhya. Here, at the beginning of the 1500's, came the first European traders, after having beaten their way around the Cape of Good Hope, to find new horizons in the Orient. During the 17th century, because of the activity of the trader adventurers, Ayudhya became a hotbed of intrigue. English, Dutch, Portuguese, Japanese, Indians, and Chinese all sought special trade privileges with the King, who was also chief merchant in Siam.

There is the story of one hard-bitten trader who explained away the absence of 500 chests of Japanese copper by saying that it had been destroyed by white ants! Rivalry eventually became so intense that the foreign merchants were expelled.

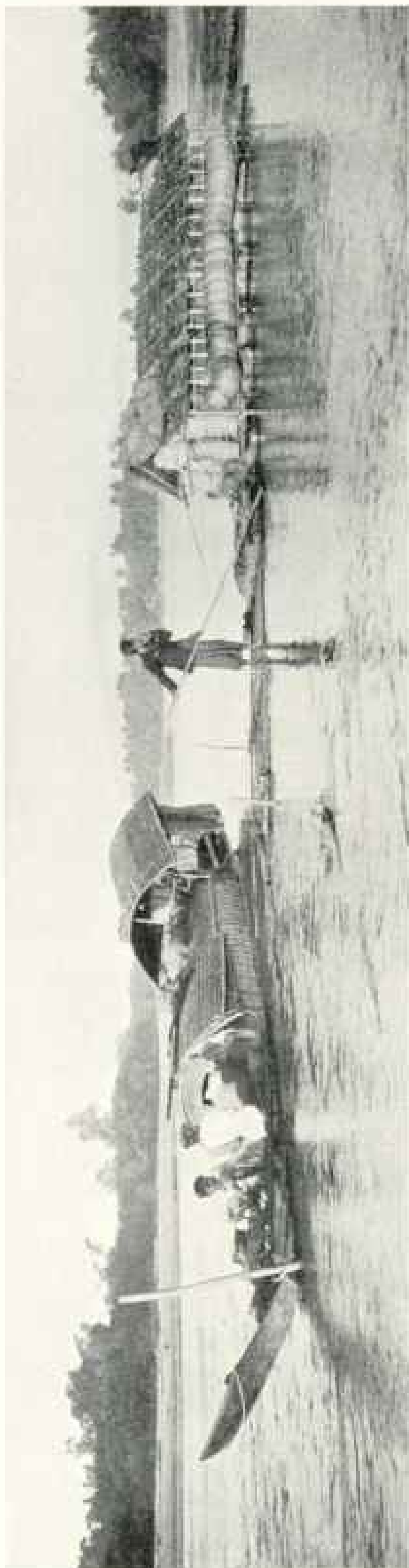
YALE PROPOSED A WAR AGAINST SIAM

Some years later the French and English attempted the resumption of trade relations, but their efforts met with little success. Along toward the close of the century the Boston-born, English-reared governor of the East India Company's fort at Madras thought something should be done about it.

He proposed a private subscription war against Siam. That man was Elihu Yale, for whom Yale University was named!

It was a Burmese siege, however, not Yale's personal hostility, that rang down the curtain on the Ayudhya stage. They laid the city in complete waste, and while the leaping flames crackled and licked greedily at the splendid temples and palaces, the victory-drunk armies began their homeward march, bearing rich loot and driving before them thousands of unhappy captives. Ayudhya's curtain never rose again. To-day only a small shoe-string village exists along the silted waterways (see illustration, page 535).

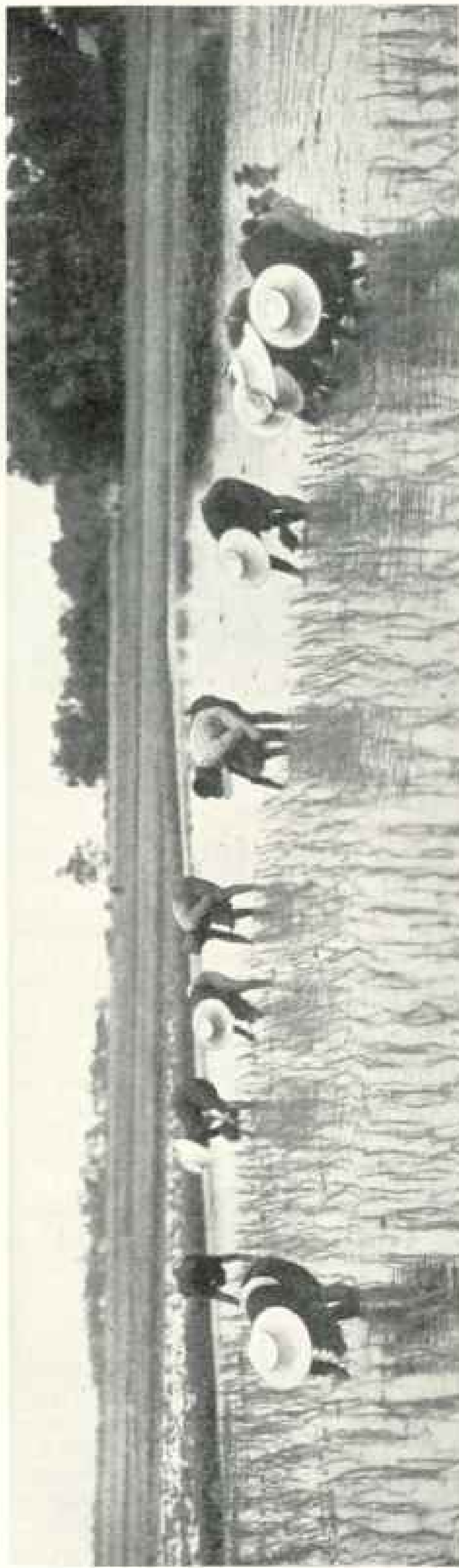
Although night has already fallen when the express reaches Lopburi, Praprang Sam Yawt (Temple of the Three Towers), hard by the railway tracks, can be seen looming up in the darkness. This striking old sandstone pile speaks of the days, nine centuries ago, when the Cambodians held sway over this land. Lopburi was on the old grand trunk road that once extended from Angkor to Sukotai, a city farther to the north. There the first historical Siamese dynasty



Photograph by Henry R. O'Brien

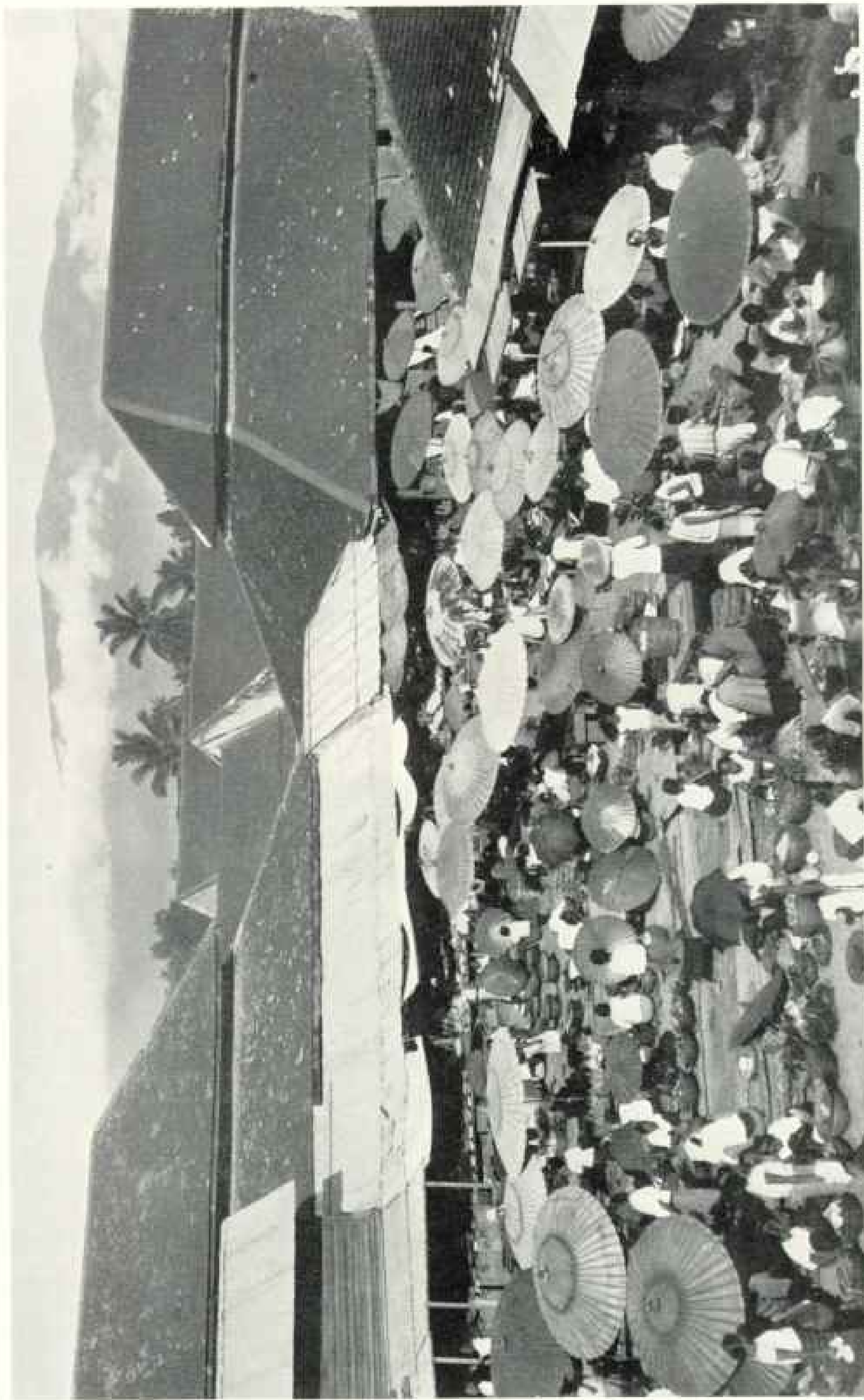
POINTED PROWS OF ME PING CRAFT SERVE A USEFUL PURPOSE

So swift and twisting are the upper reaches of the river that a poleman is stationed in the overhanging "pulpit" to push off when the heavily laden boat gets out of control and threatens to run aground. Four men in the cockpit, where the natives are resting, are the motive power, and normally the helmsman steers from the pooplike passenger cabin in the stern. New railways in northern Siam have reduced the numbers of these curious carriers.



SETTING OUT RICE RESEMBLES A COMMUNITY "BEE"

The men and women of many rural localities club together when transplanting the seedlings from nursery beds to flooded fields, and again when harvesting the ripened grain. Certain varieties of rice are sown broadcast.



Photograph by Henry R. O'Brien

WOMEN PREDOMINATE IN CHIENGMAI'S EARLY MORNING MARKET

As soon as the sun peeps above the roofs, brilliant parasols are put up to ward off the heat, while townspeople and villagers bargain for the country produce (see text, page 561). Within the buildings are cloth and meat markets. Partly shrouded by clouds, Doi Sutop, a 5,500-foot mountain, rises above the palm tops in the background.



PEACE BLESSES EVENING CAMP ON THE ME PING

In this river boat the author, accompanied by the photographer, voyaged down the gorges from Chiengmai to Paknampo. Here the boat is anchored beside the red cliffs of Fa Man, near one of the forty-odd rapids. Above the awning fly side by side the Siamese flag and the Stars and Stripes.



Photographs by Henry R. O'Brien

THE BEGGING BOWL IS A BADGE OF HUMILITY

Every morning the Buddhist priests have to take their rice receptacles and go out to secure their gifts of food from the pious (see text, page 543). By the tenets of their religion they cannot eat after midday, but are limited to chewing betel nut and drinking tea.



CATTLE CARAVANS ARE STILL THE MARKET CARRIERS OF NORTH SIAM

With improved roads, motor trucks are replacing beasts of burden. Produce is carried on the backs of pack animals in panniers, or in baskets slung on bamboo shoulder yokes and borne by porters. Each man at the left trudges along with a 50-pound load of the author's traveling equipment.

was established about 1257 under Rama Khamheng, the mighty Phra Ruang, whose deeds are still told in story and classical stage drama, and whose own words, found on a stone inscription, proclaim that he was the first to write in the Siamese language.

Many other Cambodian ruins strew the town of Lopburi, as do the crumbling palaces and temples of her second golden period. Around these latter decaying structures are clustered the memories of a shipwrecked Greek sailor, Constantine Phaulcon, who gained the confidence of and became minister to King Phra Narai in the latter half of the 17th century.

Under Phaulcon's direction beautiful summer palaces and courts rose; ambassadors were dispatched to the court of Louis XIV. But when Phaulcon tried to mix religion with pepper and politics, he brought about his own death rather than the King's conversion to Catholicism. Even to-day, Phaulcon is not forgotten; one of Lopburi's streets bears his Siamese title, and in the outlying woods people still place offerings to the "foreign spirit" on the supposed spot where he was executed.

All night long the train speeds across the plain, past Paknampo, where the three watercourses of north Siam are gathered together in the Me Nam Chao Bhraya, and past Bisanulok (Pitsanulok), which, in the times when capitals were transient, held glory for a day.

In the morning a fairer people are gathered at the stations. All of the women are wearing *pasims*, or skirted garments, instead of the Siamese bloomerlike *panungs*. Their hair, instead of being cropped in short pompadour, as is that of the older Siamese women, is long and sleeked back with coconut oil. In their gay chatter and cries, as they hawk rice and fruits, are many unfamiliar words and pronunciations.

COUNTRY COUSINS OF THE SIAMESE

They are the Lao, whose ancestors migrated southward much later than those who peopled central Siam; and, while coming from the same parent stock, they are often considered by the Siamese in the same light as a country cousin is regarded by his more sophisticated relatives.

Den Jaya, near where the train swings abruptly to the left into the mountains, is the land gateway to historic Nagor Nan, whose tiger-infested territory is familiar to GEOGRAPHIC readers through Merian C.

Cooper's story.* Only a few years ago I made the trip to Nagor Nan by carrier and pony in five days, having to ford more than a hundred stream crossings; to-day the route is open to motorcars.

From Nagor Lampang, the next important stop after climbing through the hills, roads have likewise threaded the north country to Chiengrai and on into Burma. Wearisome travel and laborious transport have thus been reduced to the minimum; days have been shorn to hours.

CHIENGMAI, SECOND CITY OF SIAM

Swinging around precipitous jungle-clad mountains, vaulting deep ravines, and burrowing through tunnels, the train comes at last to Chiengmai, one-time Lao capital of the north. The city was founded in the 11th century, and subsequently gained ascendancy over the neighboring principalities. Because of its importance, it long sat on the fence between Burma and Siam and was pulled first one way and then the other, according to which rival sought by force of arms to claim its allegiance.

To-day Chiengmai, in importance if not in size, is still the second city in Siam. It is attractively located on the Me Ping, one of the chief tributaries of the Me Nam Chao Bhraya. Beyond it stretches a rice plain backed by the imposing 5,500-foot mountain of Doi Sutep.

An old brick wall, lovely in its decay, and a moat now choked with fragrant lotus blooms lend charming touches of antiquity to the city. Within these old confines loom several temples with exquisitely carved teakwood and gilded façades. Bullock carts, with bells tinkling above the creaking of ungreased axles, bring loads of produce into town. Circuslike to the newcomer are the numbers of elephants that shuffle along the streets.

Chiengmai's unsophistication is her chief charm. There are no hotels; only a railway resthouse. Visitors usually stay with friends. I shall always associate Chiengmai with Lao saleswomen. They come and sit on your veranda for hours, displaying beautiful handwork specimens of antique and modern silver, bronze, silk, and lacquer ware which few can see and resist.

Activity in the early morning is centered in the village market. Here hundreds of

* See "Warfare of the Jungle Folk," by Merian C. Cooper, in the NATIONAL GEOGRAPHIC MAGAZINE for February, 1928.

AMONG THE PLAINS AND HILL PEOPLE OF SIAM



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Natural Color Photograph by W. Robert Moore

THE "TEMPLE OF SEVEN PRAKS" IS LOSING ITS BATTLE WITH THE ELEMENTS

Since royalty and wealthy citizens once gained religious merit by erecting Buddhist temples, but not by keeping them in repair, many of the elaborate buildings throughout Siam have fallen into decay. The pyramid towers of Wat Jet Yot, near Chiang Mai, are fast crumbling, as are the Buddhas that adorn its walls.



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DRAGONS WRITHE ON TEMPLE BALUSTRADES

Throughout Siam and Cambodia the *naga*, or serpent, decorates temples, roof gables, and bridges. The Buddha is often portrayed sitting on the coils of a seven-headed cobra and shaded beneath its wide-spreading hood.



Natural Color Photograph by W. Robert Moore

ATTENDANTS IN A ROYAL PROCESSION IN BANGKOK

Both five- and seven-tiered umbrellas, such as this, are carried before and back of the King's palangpin. The men wearing helmets are employees in the Ministry of Royal Household; both speak excellent English.



© National Geographic Society

ACROBATIC ACTING KAIBES-A THIRST

The Siamese drama and dance are a series of complicated gesture-postures which require great skill in execution. Grace is acquired only by most rigid training while the actor is young. These three young girls, aged six to twelve years, belong to a junior troupe.



Natural Color Photograph by Germaine Coustouillemist

FEATHER FANS ARE SOUVENIR FAVORITES

Spade-shaped fans of duck, goose, and chicken feathers, dyed in bright colors, are bought by visitors to Ayudhya, formerly capital of Siam. This woman has short-cropped hair, once common, but now being displaced by modern styles.



SIAMESE DANCERS STRIKE A POSE IN A TEMPLE COURTYARD

All have assumed postures characteristic of their particular rôles. The Siamese version of the Ramayana, the Indian "Iliad," and incidents in the life of Phra Ruang, the versatile Siamese hero, comprise the main themes of the plays. The player in the center is a *yak*, or giant (see Color Plate V).



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Natural Color Photographs by W. Robert Moore

TWELVE LITTLE MAIDS FROM SCHOOL

They attend a mission school in Bangkok which includes among its graduates many wives of high Government officials. The skirtlike garment which the girls are wearing has largely replaced the bloomerlike *panung*, formerly worn by both men and women.

AMONG THE PLAINS AND HILL PEOPLE OF SIAM



SHY MESSU VILLAGERS FACE A CAMERA FOR THE FIRST TIME

As with the other nomadic tribespeople who dwell in the hills of northern Siam, the women's costumes are more colorful than those of the men. The silver ornaments worn by the girls are family heirlooms. The notched pole serves as steps to the veranda. The small boy guards his crossbow.



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Natural Color Photographs by W. Robert Moore

LACQUERWARE MAKING IS A HOME INDUSTRY IN CHIENGMAI

All of these pieces, except the low serving stand (right), are made with a closely woven bamboo base, over which several coats of lacquer have been applied. The final coating is then tooled or covered with an intricate design in gold leaf.



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HE PIPES HIS WAY TO WORK

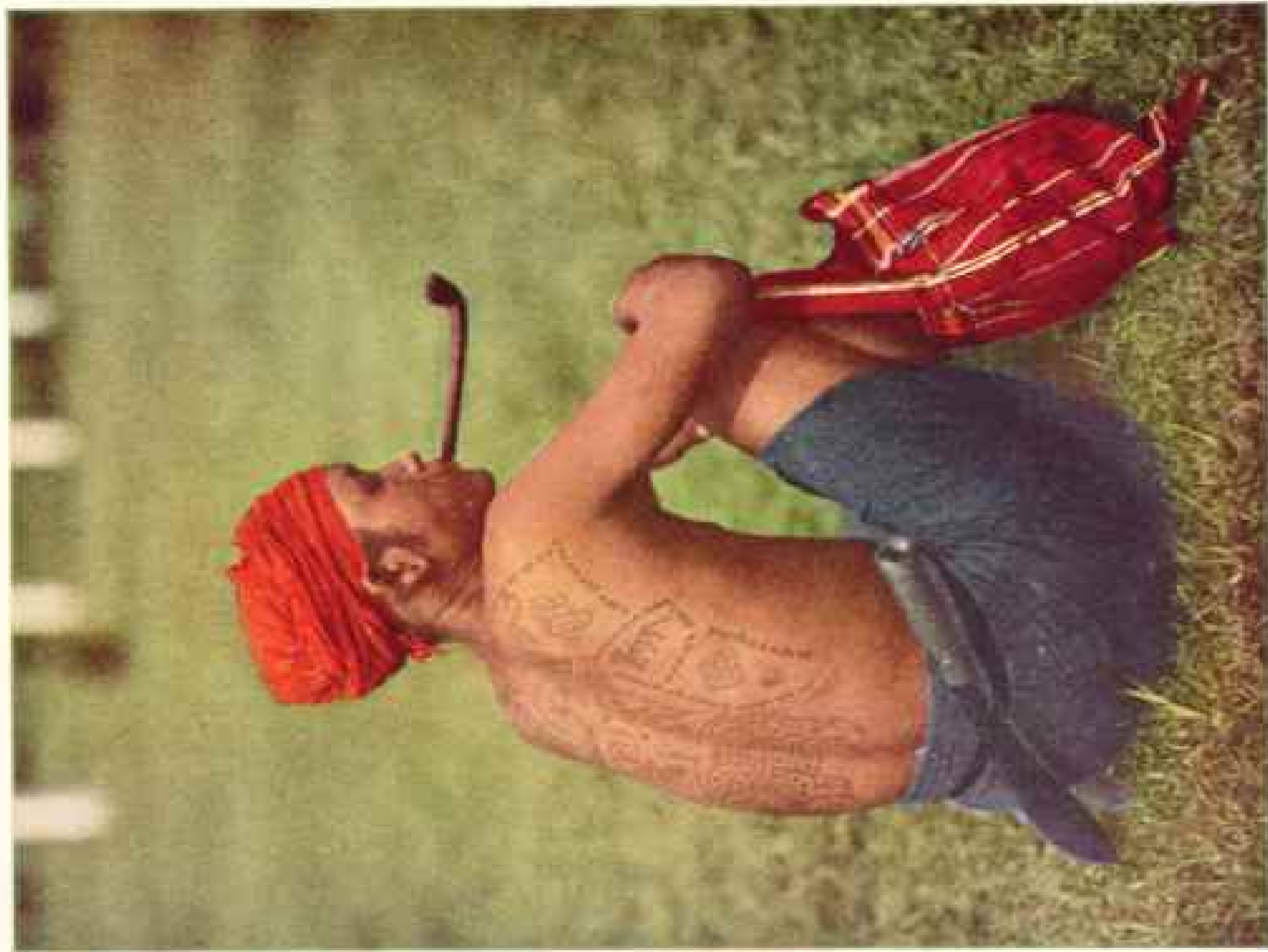
Climbing up and down the steep mountain paths to his fields, this Miao tribesman blows strange airs on a bamboo *kan*. The young woman at the left displays on her waist her dowsy of silver coins.



Natural Color Photograph by W. Robert Moore

A YAO GIRL SELDOM OUTGROWS HER COSTUME

Because of the labor required to weave and embroider cross-stitched clothes, they are made large to last several years. The Yao is one of the various primitive tribes which migrated from China into north Siam.



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TATTOOING IS A BADGE OF MANHOOD

The young Kalimé, whose tribe lives in northeastern Siam and in the hills of French Indo-China, is proud of the animals and other designs tattooed on his back, which serve as good-luck charms.



Natural Color Photographs by W. Robert Moore

A LISSU BELLE-LOCKES HER TURBAN TRIBE

Strung between the ear lobes, heavy pendants of silver dangle below the chin. A silver neck-ring, coins, shells, and the large flat clasps which fasten the blouse in front, also indicate her tribal rank.



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Natural Color Photograph by W. Robert Monte

A LAO WOMAN ON HER WAY TO THE MORNING MARKET: CHIENGRAI

While the men work in the fields and gardens, the women of Siam do most of the family shopping for vegetables, fruits, and fish. The only men usually seen in the market stalls are the Chinese vegetable dealers and the Indian cloth merchants. Many of the country women walk miles to a village with their baskets of produce slung at either end of a flexible bamboo pole.

women squat among their baskets of vegetables, curries, and fish, parceling out such portions as the cooks require for the day's use (see illustration, page 559).

HIGH FINANCE IN A MORNING MARKET

So small are the individual purchases that the payments usually amount to but a few satangs (a copper coin equivalent to less than one-half cent); consequently small change is much in demand. Local money-changers, cornering the supply, do a thriving business. I photographed one of these old Shylocks who was exacting a commission of 11 satangs out of every hundred when he changed a tical.

The story is told that one foreign resident in Siam, aware of this exorbitant charge and knowing that he was soon to be transferred to Chiangmai, accumulated a large box of satangs with the idea that he, for one, was not going to help fill the coffers of any money-changer. At the time of his transfer, however, the weighty box of coppers inadvertently was not included among his goods, which were shipped, by the way, at his organization's expense. As soon as he was aware of the loss, he telegraphed back to have located and forwarded "one box of family silver." He received in due course only a check covering the value of the contents. The plebeian actuality of the "family silver" had been discovered, and the organization had not felt obligated to pay the costly express rates on it!

The staffs of several teak companies and of the missionary schools and hospitals comprise the principal foreign population in Chiangmai. One of the most outstanding missionary enterprises in the city is the asylum for lepers. Many of these unfortunates are made comfortable in the excellent cottages that have been provided for them. They are treated with the esters of chaulmoogra oil, and in many cases the disease is arrested, if not completely cured.* So effective has been this work that the Government now grants an annual subsidy toward its upkeep.

In the fastness of the northern forests axes ring, trees crash, logs thunder down mountain skidways, mahouts shout, and elephants trumpet—the voices of a teaking camp.

* See "Hunting the Chaulmoogra Tree," by J. F. Rock, in the NATIONAL GEOGRAPHIC MAGAZINE for March, 1922.

Teak trees of required girth are first girdled and then allowed to stand for two years to season before they are felled, because heavy timber will float only when it is dry. The logs are later skidded or hauled to the nearest stream, where the next high water will set them drifting down to the mills. From stump to mill requires from two to seven years.

Each year approximately 100,000 teak logs go down the river to Bangkok, 23,000 are routed by the Salween River to Burma, and another 8,000 ride the turbulent waters of the Mekong to Indo-China.

ELEPHANTS A-PILING TEAK

In the teaking forests the elephant comes into its own. Hundreds of the powerful pachyderms are used to skid the logs to the streams. Companies of elephants patrol the rivers to roll stranded logs back into watercourses and to break up jams.

One of the most fascinating spectacles in the teaking industry is the manner in which the elephants attack the difficult and often hazardous job of "ounging," or breaking up, a heavy log jam. With almost uncanny reasoning powers some of them will cast around trying to find the key log that is holding the jam, and then gingerly work it loose with their powerful trunks. Some even refuse to do the mahout's bidding when their intuition tells them that it is not the right log to work on (see illustrations, pages 572 and 573).

No mention of elephants in Siam can omit the famous "white elephants" with which Siam has always been associated. Like Bangkok hats that were never made in Bangkok and the famous Siamese twins who, although from Siam, were of Chinese parentage, the white elephant has little foundation in fact. Actually, this animal, once used as a symbol of Siam's national flag, is in the flesh not white, but albino. Furthermore, he is not so sacred as he is often pictured, but is considered an omen of good luck.

In 1927 one of these baby albinos was born in one of the teaking companies' herds, and because it was the first in several years it was presented to the King and later shipped to Bangkok amid much celebration. The last time I saw him, in a pavilion near the Throne Hall, he was growing rapidly on bunches of grass and sticks of sugar cane handed him by foreign and Siamese



Photograph by Frank S. Williams

HERE THE ELEPHANT HAS NO EQUAL

In a heavy jam, where machinery would be useless, mahouts set these mighty animals to breaking up the mass of teak. In this often hazardous task some of the beasts show uncanny aptitude in picking the key log, which they pull and push with their trunks and tusks (see text, page 571).



A QUICK-LUNCH COUNTER FOR CRISP RICE CAKES

A Lao woman puffs a heavy cheroot while she waits for customers to buy from her wayside stall in north Siam. The cereal is also popped and covered with palm sugar and prepared in a variety of other ways as a sweetmeat.



Photograph by Frank S. Williams

ONE MAN GUIDES THREE TONS OF TROUBLE PREVENTION

Whenever log jams begin to form they are broken up as quickly as possible with elephants. On several occasions rising water and masses of teak have threatened the safety of this modern span at Nagor Lampang.

visitors. No food appeared on golden platters, as many romantic copy hunters have stated. A white monkey and a white crow also claim part of the attention in the pavilion.

PRIMITIVE INVADERS OF NORTH SIAM

On the inaccessible mountain crests through the northern part of Siam live many picturesque hill tribes who have migrated south from China. Their presence is readily evident by patches of jungle clearings on the precipitous jungle-enveloped mountain sides. They ruthlessly slash down the virgin timber and burn it off to provide fields in which to grow their hill rice, corn, potatoes, and opium poppies. As soon as the first flush of fertility is gone they move on to some new location, often many miles distant.

To climb to the villages of these primitive invaders is to enter a new world. I spent many weeks visiting them and picturing their polychromatic costumes. I have stood on one trail that tops one of the mountain ranges and counted five villages on the hillsides which represented three

different tribes—Miao, Yao, and Lissu—and five minutes' travel beyond that point brought a Messu (Muhso) village into sight. Each of the tribal groups has its distinctive language, customs, and dress. The garments of the women are especially striking in their display of color (see Color Plates XIV, XV, and XVI).

Hiking the trails from mountain to mountain on the overgrown bypaths is no easy task at best. In many places my carriers had to cut away the heavy tangle of jungle to get their baskets through. The tribesmen, however, swing along easily on the precipitous paths with their baskets slung on their backs—and do it to music! Across the hills one can hear the music of the *kan* as the men play it going to and from work in the fields (see Color Plate XIV).

The *kan* is a small piped instrument made from a few bamboo tubes of various lengths, fastened into a gourd or hollow pipe. It is manipulated by running the fingers over the holes in the tubes while blowing into the long mouthpiece. It produces weird airs that are most pleasing to travelers in these mountain byways.



RICE POUNDERS THUMP AN EARLY MORNING

The Lao woman at the left, pushing down with her foot on the short end of the lever, raises the pestle. Then, allowing it to drop into the rice-filled hollow log, the grain is husked and polished. Afterwards the girl in the center winnows the rice by tossing it up and down on the bamboo tray she holds.



CHIENGMAI THRESHING SAVES LABOR AND WASTE

Clubbing sheaves of rice in a mammoth plaited bamboo basket is peculiar to the northern Province of Bayap. Elsewhere the grain is trodden out on floors by water buffaloes or on platforms by the farmers.



A PIT SOLVES THE PROBLEM OF SAWING HEAVY TEAK LOGS

The man below, however, has to work against the handicap of a constant barrage of sawdust. This wood is used extensively throughout Siam for building purposes, since it is not attacked by termites, or "white ants," as are other varieties (see text, page 571).

In the villages I found the music also used as accompaniment to still stranger dancing, where the tribespeople perform a variety of turns, dips, and dizzy whirls in cadence with the queer, plaintive tunes.

A SIAMESE VERSION OF AN ECLIPSE

My first trip into the mountains started off with a bang—in fact, there were a good many bangs! I was staying in a Buddhist temple in a little Lao village at the foot of the hills when early in the evening pandemonium broke loose. Everyone in the whole village began beating gongs, clanging cymbals, and pounding anything that would make a noise. The priests started thudding the 6-foot temple drums, and the reverberations of the buffalo-hide heads sent booms echoing far down the valley.

"Phra Rahoo is in encounter with Phra Chan," answered one of my carriers, when I asked him what all the noise was about. He then explained further by pointing to the moon. It was just going into eclipse.

It is a common tale throughout Siam that an eclipse is caused by a mythical angry Phra Rahoo smiting Phra Chan (the moon) in the face. Phra Rahoo, they explain, is always invisibly chasing his two brothers, Phra Chan and Phra Athit (the sun), throughout the length of the sky, because long ago they stole a portion of his inheritance at the time of the death of their father.

Declaring eternal enmity, he periodically buffets them and attempts to humiliate them before the world. Some day, it is believed, he will be successful in extinguishing their lights and everything will be left in darkness, so Phra Rahoo must be frightened away. Thus the din that is produced every time there is an eclipse.

WHAT AN UGLY CHILD!

Countless rice fields have their tiny spirit shrines and spirit scares. Small children are called *nu* (rat), so as not to direct the spirit's attention to the youngsters.



Photograph by Henry R. O'Brien

SUNRISE FINDS NETS DRAPED ON THE MASTS TO DRY

After a night spent in fishing in the Gulf of Siam, this vessel has returned to the harbor of Songkla (Singora) with its catch.

One foreign woman in Bangkok, taking her small daughter for a walk, was quite upset when a Siamese woman rushed up and fondled the child and then remarked, "Maa, na gleeat!" (My, what an ugly one!) Later the mother learned that the woman had paid high compliment to the child; the attention of the evil spirits would certainly have been aroused if the child had been called pretty!

Far more delightful than the train ride from Chiengmai to Bangkok is the trip by river in one of the long river boats that are now rapidly disappearing since the railway has been completed.

The river journey takes one through

narrow defiles and beautifully colored rock gorges. In the short distance of about fifty miles within these gorges the boat has to negotiate more than 40 turbulent rapids, some of which are sufficiently hazardous to set even the most blasé nerves tingling with excitement (see illustration, page 560).

On this down-river trip one also gets intimate acquaintance with Siam's "Mother of Waters," about which almost the entire prosperity of the country is centered. It is such integral part of this oriental Land of the Free that well the Siamese may say: "Who has drunk the waters of the Me Nam Chao Bhraya will always come back to them."

WINGED DENIZENS OF WOODLAND, STREAM, AND MARSH

BY ALEXANDER WETMORE

ASSISTANT SECRETARY, SMITHSONIAN INSTITUTION

THE GEOGRAPHIC presents in the following pages 35 additional exquisite paintings of Common North American Birds by Major Allan Brooks, and another charming article by Dr. Alexander Wetmore.

This is the seventh in the important series which THE GEOGRAPHIC has arranged to depict for the members of the National Geographic Society the marvelously interesting bird families of North America.

As our members are well aware, few sections of the world have such an abundance and variety of bird life and so many melodious songsters as this continent.

When the series of approximately 500 portraits in colors is completed, the readers of THE GEOGRAPHIC will possess a more comprehensive gallery of United States and Canadian birds than has been previously

published. THE GEOGRAPHIC plan of picturing side by side Eastern and Western varieties specially appeals to bird lovers, who can now for the first time easily compare the differing types.

The eighth article in this series will appear in an early number.

Copies of previously published articles, One to Six, may be obtained by addressing The Secretary, National Geographic Society, Washington, D. C., and enclosing 50 cents for each number desired. July, 1932, twenty-six Humming Birds and Swifts; October, 1932, nineteen Herons, Ibises, and Flamingos; January, 1933, seventeen Crows, Jays, and Magpies; April, 1933, twenty-five Woodpeckers; July, 1933, thirty Eagles, Hawks, and Vultures; March, 1934, seventeen Pelicans, Loons, and Grebes.—EDITOR.

THE path through the river woods was hidden by leaves that came drifting slowly down through the cool October air. For a space there was quiet except for the rustling underfoot, and then a low bird call, *chick-a-dee-dee-dee*, announced a little gray and white bird with black crown and black throat, swinging back downward at the tip of a slender twig while it searched in the roll of a curling leaf for hidden insects.

Other chickadees came quickly through the branches, flitting from perch to perch, and soon the little birds were all about me, calling softly to maintain contact in a loosely organized flock.

As I watched them, a scratching sound brought to attention another gray and white bird with a blackish crown, of slightly larger size, that came headforemost down a tree trunk, examining crevices in the bark for food. This was the white-breasted nuthatch. An instant later a brown creeper and some tufted titmice came into view, accompanied by a tiny ruby-crowned kinglet, easily told by its quickly flitting wings.

The little group of birds moved rapidly through the trees, convoyed by the chickadees, and in a moment had passed beyond my view, their low notes lost in the rattling of the leaves.

Through much of the year these little companies of woodland birds are a regular feature of our bird life. The nucleus of the mixed flock, which may contain a dozen

species or more, is the group of chickadees which has its regular range and does not depart far from its limits. The nuthatches and the downy woodpecker or two that accompany the bands also ordinarily do not migrate. In late summer and fall small migrants of similar habit of life, vireos and some of the warblers, tarry briefly in the company and then pass on.

The observant bird lover soon learns to follow up the notes of the chickadees to see what other interesting species may be in their company.

CHICKADEES AND TITMICE ARE RELATIVES OF THE CROWS AND JAYS

The family of titmice (Paridae) to which the chickadees belong is widespread in the world, its more than 200 forms being all of small or tiny dimensions. Representatives of the group are found everywhere on the large continents except in Central and South America. They are also lacking in the Pacific islands. In spite of small size, they include some of the hardiest of our birds, chickadees ranging to the limits of forest growth in the far North, where they may remain throughout the coldest winters. The family is nearly related to the much larger crows and jays.

Although titmice are common in North America, in western Europe more varieties are found.

Walking out one pleasant May morning in the foothills of the Cantabrian Moun-

tains, in northern Spain, I came to a little valley with a grove of gnarled and twisted trees bordering an orchard and a meadow. A small gray and white bird that was feeding through the tips of the branches proved to be a marsh titmouse, closely similar to our black-capped chickadee. This was interesting, but a moment later I was delighted to catch a glimpse of the delicately tinted back of the blue titmouse, followed soon after by a view of the greater titmouse, a noisy species as large as a small sparrow, strikingly marked with yellow, blue, and black.

In the same woodland I found the small, gray, crested titmouse and an occasional long-tailed tit, with tiny body, greatly elongated tail, and a wash of pink along the sides.

In all, I saw five species of this family in a comparatively short space of time. Against a background of snow-capped mountains, cloud-dotted blue sky, and the clear green of spring vegetation, meeting with these birds, all new to me in life, was a very pleasant experience.

Tufted Titmouse

(*Baeolophus bicolor*)

In a family of gentle, friendly birds the tufted titmouse seems more active and aggressive than others, an appearance heightened by the jaunty tilt of its erect crest.

The tufted titmouse, the "tomtit" of the South, is one of those sympathetic birds that comes at any disturbance to peer with raised crest and scolding notes that attract all other small birds in the neighborhood. In winter a screech owl or a cat, or in summer a snake, is certain to rouse their ire, though in their vituperation of the enemy they take good care to keep out of danger's reach (see Plate I).

This is one of the species that are sure to be attracted by "squeaking," a kissing sound made by placing the lips against the fingers, used by bird students to draw birds from cover so that they may be seen. A friend once had a tomtit become so exasperated and agitated at this call that the bird clung to the side of his trousers to reach over and nip his hand with its bill.

It frequents groves and woodlands and is social, so that several are found in company except during the nesting season. It comes fearlessly to feeding shelves in our yards, returning daily and scolding with saucy calls when food is not ready.

In spring this titmouse has a clear double-noted whistle of *peter peter peter* that rings through the tree tops and is continued through the nesting season. Its ordinary calls are harsh and chattering.

The nesting season extends from April to June, one brood being reared. The homes are located in hollows in trees, sometimes in bird boxes, which are filled with dead leaves and other rubbish, in which is placed the nest of moss and leaves lined with soft substances. The eggs number from five to eight, being white or cream color spotted with reddish brown. They are carefully covered over when the bird leaves the nest.

This titmouse feeds on insects, nuts, and starchy seeds of many kinds and is one of our beneficial species.

It ranges from Nebraska, Ohio, and New Jersey to central Texas and southern Florida. In recent years it has extended into Wisconsin and Michigan.

Bridled Titmouse

(*Baeolophus wollweberi annexus*)

The notes and songs of the bridled titmouse have a general resemblance to those of the more widely known chickadees, but are higher in pitch, the call notes at times suggesting those of kinglets.

It is found from the mountains of southwestern New Mexico and southern Arizona south into Sonora and Chihuahua.

Black-Crested Titmouse

(*Baeolophus atricristatus*)

This handsome bird is distinguished from the tufted titmouse by the black color of the crest, which attracts the eye instantly. Of limited range, this species has been studied by comparatively few naturalists.

In fall and winter it is fond of pecans and starchy seeds of various kinds, which are held in one foot against a branch and are broken open by sharp blows of the bill.

The scolding calls of this titmouse are like those of the eastern form, and it also has a whistled song like that bird.

The black-crested titmouse (*Baeolophus atricristatus atricristatus*) is found from the Rio Grande Valley in Texas south into eastern Mexico as far as northern Veracruz.

Plain Titmouse

(*Baeolophus inornatus*)

The sprightly and vivacious plain titmouse lives in open groves and thickets;

BLITHE BIRDS OF DOORYARD, BUSH, AND BRAKE



© National Geographic Society

Approximately three-eighths natural size.

THE SAUCY TITMOUSE PLAYS MANY A PRANK

Snatching hairs from a man's head for nest lining is not too bold a trick for the tufted titmouse, or "tomtit," of the Southern and Middle States (upper left). Its crest, raised or lowered, is a barometer of its mood. No less pert are the Southwest's handsome black-crested and bridled titmice (upper right and lower left, respectively), and a cousin from the Pacific regions, the plain titmouse (lower right).

finding the oaks of mountain slopes particularly suited to its needs.

In the foothills of the Greenhorn Mountains in California I found them tame and unsuspecting, while in junipers of the San Francisco Mountain region they were at times shy and wary. Their calls are like those of other crested titmice, but have sufficient individuality to identify the birds.

The plain titmouse nests in holes, sometimes occupying bird boxes, making a warmly felted nest of soft materials. The six to eight eggs are plain white, occasionally with a few small spots of brown.

Six geographic forms, differing in slight degree of size and color, are recognized, the species as a whole ranging from Oregon and southwestern Wyoming to southern Baja California and western Texas.

Black-Capped Chickadee

(*Penthestes atricapillus*)

Named from its clearly enunciated call note, the gentle little chickadee is a welcome friend wherever it is known. Among the birds that come to the food spread to attract them about our homes, this is the most trusting and the least pugnacious, feeding in amity with its kind and giving way without argument to bullies of all sizes and descriptions, returning unobtrusively when the way is clear (see Plate II).

In addition to its ordinary calls, with the approach of spring the chickadee whistles a plaintive song in a high-pitched tone, and has another harsher effort that can also be called a song.

The nest is excavated in the soft wood of a partly decayed dead limb or tree trunk, the cavity being of good size, or the birds utilize openings already prepared. The hole is lined with soft materials to form a nest that contains from five to eight white eggs closely spotted with light reddish brown. One or two broods are reared each season, nesting coming in early spring.

The chickadee is among our most beneficial birds and fortunately is a species that can hold its own about the homes of man.

Four forms of the black-capped chickadee are found from central Quebec, Nova Scotia, and northern Alaska, south to New Jersey, Kansas, northern New Mexico, and northwestern California. The closely related Carolina chickadee (*Penthestes carolinensis*), with similar habits, which is only slightly smaller and duller in color, has

three forms that extend from central New Jersey and Missouri to the Gulf coast and Florida.

Hudsonian Chickadee

(*Penthestes hudsonicus*)

Occasionally along the northern border of the United States a sprightly, active little chickadee appears that has the cap brown instead of black and the markings of the flanks brighter. This is the Hudsonian chickadee, a species especially partial to coniferous trees (see Plate II).

The true Hudsonian chickadee (*Penthestes hudsonicus hudsonicus*) nests from the Kobuk Valley, Alaska, and northern Manitoba, south to Ontario and northern Michigan. Its relative, the Acadian chickadee (*Penthestes h. littoralis*), breeds from Labrador to Nova Scotia, Maine, Vermont, and the Adirondack Mountains of New York, and is found casually in winter from New England to New Jersey.

Mountain Chickadee

(*Penthestes gambeli*)

This mountain inhabitant of the Western States is distinguished by lines of white on either side of the crown. It is found among the pines and spruces of the higher slopes, but in fall it wanders to some extent and may then be seen in willows and cottonwoods along streams in open valleys.

The calls of the mountain chickadee are closely similar to those of the blackcap species, but are uttered in a slightly slower, drawling tone, so that the notes of the two may be distinguished by a practiced ear.

Six forms of the mountain chickadee are known in the region from northern British Columbia and Montana to northern Baja California and western Texas.

The Mexican chickadee (*Penthestes sclateri eidos*), colored like the blackcap but with more black on the chest and the sides gray instead of buffy, occurs from the mountains of southern Arizona into Mexico.

Chestnut-Backed Chickadee

(*Penthestes rufescens*)

The chestnut-backed chickadee inhabits the depths of somber forests in whose shades it is entirely inconspicuous. Growths of redwood are a favorite haunt and the bird is one that lives in large part remote from human settlements (see Plate II).

J. H. Bowles describes the habit of the incubating bird of fluttering up with a loud hiss when the dark nest cavity is examined, a performance so unexpected that it never fails to startle.

Three forms of the chestnut-backed chickadee have been described, ranging in the Pacific coast region from Prince William Sound, Alaska, to near Monterey Bay, California, and east to western Montana.

Bush-Tit

(*Psaltriparus minimus*)

In a family of birds which are small in size the bush-tit is the tiniest of all, being only slightly larger in body than the ordinary humming birds. Bush-tits are found in regions of oaks, piñons, or junipers, usually in hilly or mountainous country. They range in small flocks that feed among the leaves and smaller branches, maintaining a loose group formation through soft calls constantly repeated. They are active birds, clambering about or swinging from leaves or twigs, seldom resting for any length of time. Their gray coloration merges with the gray-green leaves among which they feed, and they would be seen with difficulty if they were not constantly in motion.

In March and April the flocks break up into pairs for breeding. The nest is a pendent structure swung from slender twigs, with a small entrance at one side near the top. It is constructed of such soft material as moss, plant downs, and spider web compactly woven together, and measures from 8 to 11 inches in length by 3 or 4 inches in diameter. It holds from five to eight white eggs. Two broods may be reared in a season.

Six forms of the bush-tit are recognized, two of these being represented on Plate III. Lloyd's bush-tit (*Psaltriparus m. lloydi*) is distinguished by the dark markings of the side of the head.

Bush-tits as a species range from British Columbia and western Wyoming to western Texas and Baja California.

Brown Creeper

(*Certhia familiaris*)

Meek and unobtrusive among our woodland birds, the brown creeper easily escapes detection except by those of keen eyes and quick perceptions (see Plate III).

To be inconspicuous seems to be the aim of this curious bird, in which effort it is aided by its softly colored, streaked plum-

age. The brown creeper spends its days in climbing actively with long claws and bracing tail up the rough bark of trees, ascending the larger branches and then flying to the base of another tree trunk to begin again the steady upward ascent. The birds feed on tiny insects and insect eggs hidden in crevices of bark, and drag them out with their slenderly curved bills to be eaten without pause in their climbing movements.

It seems nearsighted, as its eyes, small at best, are so obscured by the markings about them that they appear as inconspicuous as those of a mole.

Vision in the creeper, however, is equal to that of any of its companion birds, as it can detect insect eggs or a spider an inch away and can at the same time recognize enemies or some tree trunk desirable as a hunting ground at a distance of a hundred yards.

The power of accommodation in the vision of all birds is truly remarkable.

Creepers are found in forests, usually in heavy timber, though in migration they come through the shade trees of our lawns and streets.

The call notes are thin and high-pitched and the birds also utter a warbling song that is suggestive of a wren.

The nest is placed ordinarily behind a loose flake of bark, and is constructed of twigs, bark, and moss, lined with softer materials. The five to nine eggs are white, spotted with brown.

Except in the nesting season, creepers are solitary birds whose only indication of social instinct is their association in casual flocks with chickadees and other small birds. Though several creepers may be found in the same woodland, they move about with little reference to one another.

Five forms of the brown creeper are found in North America north of Mexico. They nest in northern or mountain forests and spread widely in migration.

Creepers are found nearly everywhere in continental areas in the warmer regions, with the exception of South America and New Zealand.

The majority of the nearly 50 forms of creepers (family Certhiidae) resemble our common brown creeper rather closely, being small, slender birds with brownish-streaked backs and white underparts. The slender bill is long and curved, the tail is stiff with pointed feathers that serve as braces in climbing, and the strong feet are armed



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Approximately three-eighths natural size

A HAPPY-GO-LUCKY LITTLE LEADER IN THE CHICKADEE

This optimist greets winter with all the zest of a boy with a new sled. Other small birds follow trustfully as it flits about, consuming countless insects and calling its own name in a voice which Burroughs described as "full of unspeakable tenderness and fidelity." Unlike the familiar black-capped chickadee (upper left) and the West's mountain (upper right) and chestnut-backed forms (lower right), the Hudsonian chickadee (lower left) sports a "brown derby."

BLITHE BIRDS OF DOORVARD, BUSH, AND BRAKE



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Approximately three-eighths natural size.

THE CHICKADEE'S TINIEST COUSINS LIVE IN THE WEST

The bustling, businesslike bush-tits (upper left) are a little smaller than a man's thumb, but they build elaborate bird mansions of moss, fibers, lichens, and feathers. The dark-cheeked midget is a Lloyd's bush-tit. A happy little desert dweller is the verdin (upper right). Below are the monotonously busy brown creeper (left), and the wren-tit (right), which is of a distinct Pacific coast family, resembling both titmouse and wren.

with long, curved claws that, in spite of their delicate form, afford a firm grip on the bark of the tree trunks up which the bird climbs with such ease and rapidity. Several are so closely similar to our common brown creeper as to be distinguished only by an expert in identifying birds.

There is another group of the creeper family that has soft-pointed tail feathers and more variegated colors in the plumage. These climb about more like nuthatches. The wall creeper (*Tichodroma muraria*), widely distributed in Europe, Asia, and northeastern Africa, is one of the most striking of these, being gray and white with crimson markings on the wings. This species creeps over cliffs and rocks and may on occasion be found clambering over the rock walls of some of the ancient castles of central Europe.

Verdin

(*Auriparus flaviceps*)

A true desert dweller, the tiny verdin seemingly is indifferent to heat and must not feel thirst, since it often lives in areas far from any regular water supply. Enter its haunts and it scolds with chattering notes, and the bird itself will soon be seen hopping about in some thorny shrub.

The nest of the verdin is so placed among the spiny branches of some bush that it is inaccessible without severe lacerations to any exploring hand reaching toward it. Within this safe protection is a lining of leaves and stems felted together with spider web and lined thickly with feathers. The four or five eggs are bluish or greenish white marked with reddish brown (see Plate III).

The old nests, or new ones made for the purpose, serve as warm roosts during the cold nights of the desert winter. The birds are pugnacious and peck viciously at an intruding finger in their warm quarters.

The common verdin (*Auriparus flaviceps flaviceps*) is found from southern California and southwestern Utah to southern Texas and Mexico.

Wren-Tit

(*Chamaea fasciata*)

The wren-tit belongs to the only family of birds peculiar to North America. It lives in dense growths of chaparral, lowland thickets, or other cover, where its presence is announced by its peculiar song of staccato, insistent notes that intrude on

the senses as imperatively as the ring of the telephone bell. It comes regularly into cultivated shrubbery and, in the dense coverts that it affects, patience is necessary actually to see the bird. Pursuit in the dense tangles in which it lives ordinarily is useless (see Plate III).

The birds climb actively about, appearing like wrens, but with more ease and dignity of movement. They make short flights across little openings with quickly tilting flight and pumping tail, but do not attempt to fly for any distance. The light-colored eye is one of their striking features.

The nest is a cup of grasses, weed stems, and similar materials, lined with horsehair and hidden in some thicket only a few feet from the ground. The eggs, three to five in number, are pale green without markings.

Wren-tits feed on insects of various kinds and on wild fruits, being beneficial in their habits.

Five forms of this bird are recognized, varying in depth of color and size. They range from the Columbia River in Oregon south through California into Baja California. The birds are sedentary and do not make regular migrations.

THE WREN-TIT IS FOUND ONLY IN NORTH AMERICA

To some, wren-tits resemble the titmice, while to others they appear more nearly like the wrens. Modern bird students have placed them in a separate family, which has the distinction of being the only family of birds restricted in range to North America and occurring nowhere else in the world. Although obscure, the wren-tit is thus among our most interesting birds. It is curiously suggestive of some of the Old World birds called "babblers," whose species are multitudinous.

White-Breasted Nuthatch

(*Sitta carolinensis*)

The white-breasted nuthatch is often a friendly visitor to our dooryards, where it comes to feeding shelves for nut meats, sunflower seeds, and suet. It may even nest where bird boxes covered with bark are provided. These birds divide into pairs in late summer as soon as grown, and male and female remain together through the fall and winter (see Plate IV).

The nuthatch climbs incessantly and is noted for its ability in running head down-

ward on tree trunks, in this differing from all our other tree-climbing birds. The ordinary call is a low *yané yané* like that of no other bird. In early spring it sings a pleasantly modulated, whistled song.

Nuthatches eat insects, spiders, insect eggs, and similar fare. They are also partial to starchy seeds and nuts, which they carry to some suitable crevice in a dead limb or the rough bark of a tree, where they wedge them in securely. With repeated blows of the bill, delivered with the utmost force of which they are capable, they then split them open to get the food within. It is this habit that has given the group the common name of "nuthatch."

THE NUTHATCH IS THRIFTY

Nuthatches also store seeds and small nuts by wedging them in cracks and crevices, so that they may preserve a supply for periods when food is less abundant. At my feeding shelf in a suburb of Washington, as at hundreds of others, the nuthatches work busily all day long carrying off sunflower seeds and hiding them under shingles and in the stucco walls of near-by houses, regardless of the fact that the supply is renewed daily. Probably most of this food is eaten by other birds, so that the labor of nuthatches goes for nothing except for the satisfaction of this instinct.

In the West nuthatches feed extensively on the sweet-meated nuts of the piñon pine. In many regions they eat the meat of acorns, particularly of those kinds of small size. Hard-shelled nuts like the hazelnut are also eaten.

Eight geographic forms of this nuthatch are recognized, ranging, wherever there is suitable tree growth, from British Columbia, Alberta, and Quebec to Florida, southern Mexico, and Baja California.

Nuthatches are related to titmice and creepers, differing in their long, straight bills and short tails, which they do not use as braces in climbing, depending entirely upon their strong feet to cling to the surfaces over which they clamber. They are stocky, heavy-bodied little birds.

About 60 kinds of nuthatches are known, representatives of the family being widely distributed except in South America and Central America and the central and southern parts of Africa. Some of the tropical forms of the Old World are brightly colored.

Most nuthatches nest in holes in trees, building warmly felted nests of feathers,

hair, and soft vegetable materials in which they place their brown-spotted eggs. Some of the foreign species use mud to close the cavity except for the small entrance hole. The rock nuthatch, which ranges from Greece to Persia, carries this practice a step farther, as it makes a cone-shaped nest entirely of mud, placing it against a rock. The usual softly felted nest is built inside this structure.

Red-Breasted Nuthatch

(*Sitta canadensis*)

The redbreast has the usual nuthatch customs of searching for food over the trunks of trees and also flies out to capture insects in the air, an infrequent habit in the other species. It is especially fond of the seeds of pines, and in the eastern United States it is found abundantly in those years when pines produce quantities of seeds (see Plate IV).

The nest is excavated in some dead stub or limb, being sometimes 10 or 12 inches deep. Occasionally the birds will occupy bird boxes. They usually smear pitch about the entrance to the nest, a habit for which no explanation has been offered. The eggs number from four to eight and are white in color, spotted with reddish brown.

The call of this species is high-pitched and nasal, suggestive in tone of the sound of a penny trumpet. In the vicinity of Washington the red-breasted nuthatch is always common when the Virginia pines produce an abundant crop of seed.

The red-breasted nuthatch breeds from Nova Scotia, Quebec, and Alaska south in the mountains to North Carolina, California, and New Mexico. In migration it reaches the Gulf coast and northern Florida.

The red-breasted nuthatch has close relatives in the Old World, which, in spite of their distant homes, are sometimes considered geographic races of the American bird rather than distinct species. One of them is found in the mountains of Corsica, and the other occurs in northern and northwestern China. Like our bird, both inhabit forests, usually of conifers, and, besides their similarity in color, they are said to resemble the American redbreast in habits and in notes. The relationship between the three is highly interesting, in view of the great distances that separate their ranges.



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Approximately three-eighths natural size

THE NUTHATCH IS A TOPSY-TURVY BIRD

Up or down trees it runs, often clinging to the bark upside down. The habit of opening nuts with its sharp bill, to vary an insect menu, won for it the common name. Most familiar to bird lovers is the white-breasted form (lower left, female and male). Above are the brown-headed (left) and pygmy nuthatches (right). The red-breasted nuthatch (center) ranges south in numbers from Canada and the Northern States in years when pine seeds are abundant.

BLITHE BIRDS OF DOORYARD, BUSH, AND BRAKE



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Approximately three-eighths natural size

WRENS ENLIVEN THE SOLITUDES

These shy members of a numerous clan are westerners, except the rather widely distributed Carolina wren (upper right), found in southern woodlands. Like the cañon wren (lower right), it floods its haunts with song. The rock wren (lower left) paves the entrance to its crevice nest with chips of stone, and the overgrown-appearing cactus wren (upper left) builds amid thorns (see Color Plate VI).

Brown-Headed Nuthatch

(*Sitta pusilla*)

These nuthatches are found principally in open forests of pine, sometimes low down near the ground and again in the summits of the tallest pines. They travel in little flocks, being social except during the nesting season (see Plate IV).

Their chattering calls attract attention when they would otherwise be overlooked, and they often scold vociferously at intruders from some perch high in the air. If really alarmed, they hide by remaining motionless against the bark that they match so closely in color. Then it is difficult, if not impossible, to locate them.

The brown-headed nuthatch digs a nest hole in a dead stub or stump, a telephone pole, or a fence post. Nesting in the South begins early, so that the birds are earnestly at work on their nest cavities in February.

The true brown-headed nuthatch (*Sitta pusilla pusilla*) is found from eastern Arkansas and southern Delaware to the Gulf coast and eastern Texas. It has been taken casually in New York and Ohio.

Pygmy Nuthatch

(*Sitta pygmaea*)

The pygmy nuthatch, except in the breeding season, is often seen in flocks that may contain 40, 50, or even 100 individuals. These travel actively through the pine forests, calling constantly with chattering notes and scolding vigorously at any disturbance. The open growths of yellow pine in the western mountains are especially attractive to them (see Plate IV).

Except when freshly grown, the feathers of the breast are often worn by rubbing against the rough surfaces over which they clamber, and often the birds become smeared with sticky pitch exuding from the pines.

Three forms of this nuthatch are recognized at present in the region from southern British Columbia and northern Idaho south into Baja California and southern Mexico.

The Wrens

Color Plates V, VI, VII

Though the eagle has been recognized as the king of birds, the same title is given in many languages to the tiny wren. According to the ancient fable, the birds decided to choose for their ruler the one with the strongest pinions, that would enable it to rise highest from the earth. In the com-

petition the great eagle mounted steadily upward until he had outdistanced all the others. As the other birds were about to acclaim him king, from his back came a burst of song from the wren, which had concealed itself among the eagle's feathers. Having been borne so far aloft without labor, while all the other birds, including the eagle, were tired out, the wren easily won the competition and by this trick became the ruler.

Many other folk stories and curious beliefs center in this widely known little bird.

"JENNY WREN" IN THE RÔLE OF A GOSSIP

The wren of popular fancy and fable is the species of western Europe, which is closely allied to the winter wren of North America. Early settlers in our country, familiar with the common birds in their Old World home, recognized the relationship of this bird to the bird we know as the house wren and bestowed on it the familiar name of their former residence. The "jenny wren" thus was transplanted to America in name if not in fact, and the appellation has persisted, the bird being widely known.

Among the Cherokee Indians the wren was considered a busybody who slipped about learning everyone's business and reporting it to the birds' council. When a baby was born the wren brought the news. If it was a boy the birds were sorrowful, since they knew that as the boy grew he would become a hunter who would destroy birds. If a girl, they were glad, as they would be able later to feed in the leavings from her food grinder.

The wrens (family Troglodytidae) include more than 250 forms, being most abundant in tropical America but ranging into colder regions in Alaska, Labrador, and Patagonia. A few species of wrens are found in Europe and the temperate parts of Asia.

The various species of wrens vary from small to medium in size. They have the tail short or abbreviated, the wings rounded, the plumage soft and fluffy, and the bill slender and curved. Gray or brown is their prevailing color. They are most nearly allied to the mocking birds and thrashers and have by some been united with that family.

Wrens as a whole present traits of timidity, curiosity, and aggressiveness in somewhat anomalous combination. As a rule, they inhabit thickets, vines, weeds, and other dense growths where they may have

secure hiding places. From these shelters they appear to chatter at intruders or to sing, but at any alarm they dash back to cover. One group, the marsh wrens, inhabits rush-grown swamps and marshy growths of grasses and sedges. Representatives of this section of the family range widely through North America, going far north into Canada, and in South America they penetrate into Patagonia and the highlands of the Andes, where they are found at high altitudes.

The dense vegetation of the Tropics is particularly favorable to wrens, and here the birds are found in abundance, particularly in Mexico and Central America. One branch of the family, including the rock wrens and cañon wrens, has become adapted for life about cliffs, rock exposures, and stony ground in general. Here they utilize crevices and crannies among the rocks and scanty growths of bushes for cover. The cactus wrens are inhabitants of the thorny thickets of cactuses, catclaw, and other nearly impenetrable thickets that grow in arid sections.

THE CAÑON WREN BROADCASTS IN BELL-LIKE TONES

As songsters, wrens rank high among their kindred. Descend the steep trails that lead into the Grand Canyon of the Colorado River in Arizona, and if your ears are attuned to the notes of birds you may hear from the cliffs above or below a clear, whistled song with notes that descend the musical scale in measured cadence. This comes from the cañon wren, whose attractive song expresses in sound the wild and untamed freedom of the tremendous gorge that it inhabits. Clear and sweet, the notes are so enchanting to the ear that one is moved to wait again and again for their repetition. Their ringing tone is highly pleasing from near at hand, and at the same time it has tremendous carrying power, so that it comes clearly from cliffs a quarter of a mile distant.

The bubbling music of the house wren, with its notes tumbling from the vibrating throat of the songster, and the clear, ringing song of the Carolina wren are other examples of the music of this highly gifted family. Even the chattering efforts of the marsh wren and the staccato notes of the rock wrens, while less musical, are pleasing for their emphasis and for the evident delight in life of the tiny musicians, if for no other reason. Some of the wrens of tropi-

cal America rank high as songsters, and it must be regretted that their notes are known to few persons.

Cactus Wren

(*Heleodytes brunneicapillus*)

The cactus wren is one of the characteristic birds of our southwestern deserts. Though normally living in cactus and mesquite thickets and other dense growths, with the coming of our civilization it often has found congenial shelter in palms and shrubbery in towns. The white markings of the long tail are very conspicuous when the bird is in flight (see Plate V).

Like various other resident wrens, the cactus wren sings constantly through the year.

The cactus wren ranges from southern California, Utah, and Texas south into Mexico.

Rock Wren

(*Salpinctes obsoletus*)

In crossing the arid wastes of open mountain slope, mesa, or arroyo in the West, a harshly metallic note may draw attention to a grayish-brown bird that, with tilting body, appears on a stone. This is the rock wren (see Plate V).

The rock wren (*Salpinctes o. obsoletus*) breeds from southern British Columbia and central Saskatchewan to Baja California and northern Mexico. It winters in the southern part of the breeding range and in Mexico.

Carolina Wren

(*Thryothorus ludovicianus*)

The Carolina wren lives in brushy growths, being found in heavy woods where there is suitable cover. It is sedentary without definite migrations, though before and after the breeding season it may wander in search of congenial haunts. Throughout the year it remains in pairs that travel about together (see Plate V).

The nest is a large structure of grasses, weed stems, and similar rubbish, lined with feathers, fur, and soft vegetable matter. It may be placed in holes in trees, beneath banks, or in accumulations of brushwood. Sometimes it is found in nooks about buildings or in bird houses. The four to six eggs are white or buff spotted with reddish brown.

The Carolina wren (*Thryothorus l. ludovicianus*) ranges from Nebraska and Connecticut to northern Florida and the Gulf



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Approximately three-eighths natural size

IN THE WRENS NATURE NEARLY ACHIEVES PERPETUAL MOTION

They seem forever bobbing, bowing, and flirting their ludicrous tail feathers. Singing, they quiver with melody. Less familiar than the bubbling music of the eastern and western house wrens (upper, left and right) are the "wild, sweet, rhythmical cadence" of the tiny winter wren (lower left) and the clear song of the Bewick's wren (lower right).

BLITHE BIRDS OF DOORYARD, BUSH, AND BRAKE



© National Geographic Society

Approximately three-eighths natural size

THE DIPPER CAN "FLY" UNDER WATER.

This curious, wrenlike western bird (lower), also called the water ouzel, when submerged and hunting aquatic insects or small fish, propels itself with its wings or walks on the bottom. Long- and short-billed marsh wrens (upper, left and right) build dummy nests which make it difficult for enemies to find the right one. The short-billed form often creeps through grass and sedge like a mouse.

coast. The Florida wren (*Thryothorus l. miamiensis*), which is darker, is found through Florida.

Cañon Wren

(*Catherpes mexicanus*)

True to its name, this handsome songster is found about cliffs and rock ledges in cañons, gulches, and steep-walled mountain valleys, usually, but not always, in the vicinity of water. Though it may appear about ranch buildings, it is more usually found in wilder areas, away from human dwellings (see Plate V).

Three forms of the cañon wren are found from southern British Columbia, Washington, Idaho, and northern Colorado to Baja California and northern Mexico. The birds are resident when found (see page 589).

House Wren

(*Troglodytes aëdon*)

The house wren is found from the roadside tangles of honeysuckle along eastern roadways to the quaking aspen groves of our western mountains. Adaptable to changing conditions, it enjoys the shrubbery of our gardens, where it makes itself thoroughly at home exploring flower beds, porches, and the edges of lawns for its food of insects and spiders (see Plate VI).

The bird comes without hesitation to the humblest of bird houses. Wrens have been known to build in a tin can, in the brain case of a horse skull hung in a tree, in the pocket of a coat, and in other unusual locations.

A male house wren arriving in a neighborhood proceeds industriously to fill all available cavities with twigs and sticks. When a mate appears, one of the pre-empted sites is selected and a nest lining of softer materials is added to contain the eggs. These range from four to nine in number and are white, thickly spotted with reddish brown and lilac. Two or three broods may be reared in a season. On occasion a male has been known to take two mates in rapid succession and thus to rear two families almost simultaneously.

Although the house wren is an attractive, vivacious little midget, its presence is not always an unmixed blessing for its bird neighbors. On occasion it slips slyly into their nests and with its sharply pointed bill proceeds to puncture the eggs and so destroy them.

The house wren has been the subject of

prolonged and detailed study, particularly during the nesting season, by Mr. S. Prentiss Baldwin and his assistants on a country estate at Gates Mills, near Cleveland, Ohio. By means of numbered bands of aluminum Mr. Baldwin has marked the abundant house wrens, so that it has been possible to keep record of many of their activities as individuals. Dozens of nesting boxes have been placed for them, and the work has been extended from year to year until it has covered a wide scope of observations.

THE HOUSE WREN IS A PHILANDERER

It has been popular belief that many birds mate for life and return each year to rear their young in the same neighborhood. In the house wren, however, this proves far from the case, as it was found that though one pair may remain mated for a summer, often they mate with different birds on succeeding years and also change mates frequently for second and third broods of the same season.

The eastern house wren (*Troglodytes a. aëdon*) is found from Michigan, southern Quebec, and New Brunswick to Virginia, North Carolina, and Kentucky. It winters from the Southeastern States to Texas and Tamaulipas. The western house wren (*Troglodytes a. parkmani*) ranges from southern British Columbia and northern Wisconsin south to northern Baja California, southern Arizona, western Texas, and southwestern Kentucky, being casual in Florida and Illinois. It winters from California and Texas to Mexico.

Winter Wren

(*Nannus hiemalis*)

The winter wren, with short tail held at an entirely absurd angle over the back, is seen ordinarily as it bobs up and down nervously on a low perch for an instant before disappearing behind some log, stump, or other cover (see Plate VI).

Its song is a beautifully modulated warble of sweet and pleasing tones. Fortunate, indeed, is the day when this may be heard during migration, and still more fortunate is he who may hear these birds regularly on their breeding grounds.

The winter wren breeds from the forests of Canada south to the northern United States. In migration it travels south throughout the country. It is the close counterpart of the wren of Old World literature.

Bewick's Wren*(Thryomanes bewicki)*

This species suggests the house wren, from which it is easily distinguished by the long tail, with its contrasted light and dark markings, and the prominent light line over the eye. Bewick's wren lives in thickets, tangles of vines, growths of weeds, and similar cover, in which at times it is difficult to discover, so closely does it keep concealed. It is widely adaptable, since it ranges in both arid and humid regions (see Plate VI).

The call notes of this wren are harsh, as is usual in the family. The song is beautifully modulated and striking, being given in loud, clear tones that advertise the presence of the bird for a long distance. It is uttered from a more or less elevated perch where the bird rests with hanging tail like a thrasher.

This wren nests in cavities ranging from a hole in a stump to a tin can, the pocket of an old coat, or a pair of overalls hung in a barn. The structure is composed of twigs, weed stems, grass, and rootlets, lined with softer materials. The eggs range from four to seven, occasionally more, and are white, spotted with reddish brown and lilac.

Seventeen forms of this wren are recognized at present, all but three of which are found in the United States and Baja California. The birds range widely from the North Central States and southern British Columbia southward, being casual in occurrence in the northeastern section.

Long-Billed Marsh Wren*(Telmatoodytes palustris)*

Enter almost any cat-tail marsh and you will be greeted by clicking notes resembling the sound made by striking pebbles together. Watch and there will appear a tiny, long-billed bird that clings to the rushes with rapidly bobbing body and tail drawn forward so far over its back that the free end almost seems to touch the head. This is the long-billed marsh wren, whose name is almost longer than the bird itself.

The nest is a ball of rush stems and other vegetable matter, lined with plant downs, soft fibers and feathers, with an opening in one side near the top barely large enough to admit one's finger. Not content with one nest, several are built in close proximity, one being finally selected to house the eggs. The rapidity with which the nests may be constructed is truly remarkable, the bird working with a nervous activity

that enables it to tug into place masses of vegetation that seem impossibly heavy for it. The eggs number from five to ten and vary from pale brown to dark chocolate, sometimes spotted with darker (Plate VII).

Nine geographic forms are recognized, ranging from New England and Canada to California, the Gulf coast, and Florida. In migration, marsh wrens are found south into Mexico.

Short-Billed Marsh Wren*(Cistothorus stellaris)*

This species prefers wet meadows, where it lives in rank growths of grass and sedges. It is more shy than its relative and few persons become familiar with it (Plate VII).

This wren also delights in constructing dummy nests that are unused, these being at times so numerous that it is difficult to find those that are actually occupied. The nests are balls of grass and weed stems, with a small hole in one side, suspended in the tops of grass and sedges. The eggs number from four to ten and are pure white.

Like the long-billed marsh wren, it lives on insects of various kinds and spiders.

This wren nests from southeastern Saskatchewan, southern Ontario, and southern Maine to eastern Kansas and northern Delaware. It winters from southern Illinois and southern New Jersey to Florida and the Gulf coast. It has been found accidentally in Colorado and Wyoming.

Dipper*(Cinclus mexicanus unicolor)*

The dipper, or water ouzel, finds its chosen haunt about the swift waters of mountain streams, its main requirements being that the water be clear, cold, and unpolluted. Cascades and waterfalls are attractive to it. Though it is usually found along rivers and creeks of fair size, it lives occasionally along little brooks so heavily overhung with bushes that the water is screened from view (see Plate VII).

In appearance this curious bird resembles a large wren, as it has a heavy body, large feet, and a short tail, usually carried at an angle above the back.

Follow the streams that form the haunts of the dipper, wading if the current is not too rough and turbulent, and you will soon hear a sharp call that attracts the eye to a gray bird bobbing up and down on some stone. Watch quietly, and if the bird is not alarmed it will continue its feeding.



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Approximately three-eighths natural size

BRIGHT CROWNS HAVE EARNED FOR THE KINGLETS THEIR ROYAL NAME

The male ruby-crown (upper left), of sweet song, displays a brilliant head-patch, perhaps to charm the unadorned female below. In the golden-crowned form (upper right, male above, female below) the lord has no such monopoly of color. Perched on twigs below are southern and western relatives of the kinglets, the gnatcatchers. Left to right are the blue-gray and the black-tailed (males) and the plumbeous (male above, female below). Males often sing their faint but melodious songs while taking their turn on the eggs.

It may walk calmly into the water of shallow pools to pick up aquatic larvæ beneath three feet of water, remaining beneath the surface for half a minute to bob up finally and swim ashore like a little duck; or it may clamber down a boulder in midstream into the swiftest water to emerge a little later either up- or down-stream, apparently unmindful of the swiftest current.

The ouzel's secret in this seemingly miraculous under-water progression is in its understanding of the physical laws that govern currents. Through them the bird takes advantage of eddies and projecting stones and logs, in whose shelter it finds quietly moving water.

The plumage is heavy and the ouzel has an abundant coat of under down that acts as a waterproof covering to keep it dry. It flies beneath the surface as readily as in the air and may progress in this manner for fifteen or twenty feet.

Added to these lively and interesting habits, the bird has a clear, ringing song that is pleasing and attractive. The ouzel lives through the winter along its chosen streams so long as they are not entirely closed by ice, zero weather not affecting its singing or its diving, since the bird seems impervious to cold. The birds may be seen at times diving fearlessly to feed beneath the ice of small pools when there is swift, open water above and below.

In its food the ouzel eats aquatic insects and larvæ, and small fish.

The nest of the dipper is built of moss, rootlets, and other vegetation, usually placed on a ledge or among roots, where it is kept moist by the beating spray of cascades and waterfalls. The pure-white eggs number from three to five.

The dipper ranges from Alaska to western Alberta, southern California, and southern New Mexico. It has been found accidentally in South Dakota and Nebraska.

The dippers (family *Cinclidae*) are among the most peculiar of the great order of perching birds. In affinities the group seems near the thrushes and also shows some indication of relationship to the wrens. About 30 forms are known, ranging in Asia and Europe and from the mountains of western North America south through Central America to Argentina. All are closely similar in general form and appearance, though those of the Old World have young with spotted plumage like young thrushes, while in the forms of America the young are plain.

Ruby-Crowned Kinglet

(*Corthylio calendula*)

A small, olive-green bird, like a warbler in form, that works through leaves and smaller branches with a constant fluttering of the wings, indicates one of our two species of kinglets. The ruby-crowned kinglet and the golden-crown are among the smallest of the perching birds. By most persons they are seen principally during the migration periods or in winter, as then they are widely distributed and come more frequently under observation. In the nesting season they retire to mountain areas or the great forests of the North (see Plate VIII).

The ruby-crowned kinglet is solitary in habit, associating with others of its kind only when thrown with them during migration flights or when food is abundant.

The song is a rapidly uttered warble with surprising clarity and beauty of tone and a volume astonishing in so small a bird. Its pleasant melody is one of the features of spring migration.

Four forms of this kinglet are recognized, ranging from northwestern Alaska and northern Canada southward. In migration they are found throughout the United States and southward into Central America.

Golden-Crowned Kinglet

(*Regulus satrapa*)

This kinglet is more social than the ruby-crown, several often being found together in winter. Attention is often drawn to it by its notes, which are so high in pitch that many persons cannot detect them. The song also is high-pitched, ending in a series of warbling notes (see Plate VIII).

Both kinglets feed on insects and spiders which they glean from leaves and twigs in an expert manner. They are considered entirely beneficial. Although tiny, the golden-crown can endure winter cold to a considerable degree, so that it does not migrate so far south as the related species.

The globular nest of the golden-crown is suspended in the twigs of a pine or other coniferous tree. It is made of green moss, soft bark, and rootlets, covered with lichens and lined with feathers. The eggs number from eight to ten and are whitish or cream color, spotted with pale brown and lavender.

The eastern golden-crown (*Regulus satrapa satrapa*) nests from central Alberta and southern Quebec to Minnesota, Massachusetts, and the Appalachian Mountains of North Carolina. It winters from Iowa and New Brunswick to Florida and Tamaulipas.

The western golden-crown (*Regulus s. olivaceus*), smaller and brighter colored, nests from Kodiak Island and the Kenai Peninsula, Alaska, to southern California and New Mexico. It winters from Alaska to the highlands of Mexico and Guatemala.

The ruby-crown is peculiar to North America, but a number of species allied to the golden-crowned kinglet are found in Europe, Asia, and northern Africa. The two best known of the foreign species are the goldcrest (*Regulus regulus*) and the firecrest (*Regulus ignicapillus*), which, like the American species, derive their names from the brilliant spot of red or orange found in the crown in males.

In May, in the Cantabrian Mountains of northern Spain, I climbed up one mountain pass, over slopes dotted with color from masses of jonquils and violets, to a forest of moss-covered beeches with snow still banked beneath them.

Among the budding branches overhead tiny birds were fluttering, uttering high-pitched notes or low songs as they searched for food or selected sites for future nests. A glint of color from their heads identified them as goldcrests, a counterpart in appearance and actions of the golden-crowned kinglets that I knew so well at home. They had the same fluttering motion of the wings and their calls and songs were closely like those of our American species.

The kinglets are placed in the family of warblers (Sylviidae), with which are grouped also the gnatcatchers of America.

Blue-Gray Gnatcatcher

(*Polioptila caerulea*)

Gnatcatchers as a group are active and vivacious little birds that move rapidly through the branches, jerking the long tail and drooping the wings in a jaunty, debonair manner. They live in woodlands, sometimes in open groves or thickets, where their small size and soft notes render them inconspicuous (see Plate VIII).

The song of the gnatcatcher is remarkably pleasing and attractive, but is so low in tone that to the sharpest human ears it is audible only at a few yards, and many cannot hear the notes at all.

The bird often occurs in fair numbers in localities where it has been entirely overlooked, as it is necessary to know its calls and habits to find it.

The nest of the gnatcatcher is a beautiful

cup saddled on a limb, often in a pine tree. It is large for the size of the bird and is made of plant downs, shreds of bark, and soft fibers of various kinds, with the exterior decorated beautifully with lichens, so that it resembles a knot on the limb on which it rests. The four or five eggs are a pale greenish white, spotted with reddish brown.

Three forms of this gnatcatcher are found nesting in the area from southern New Jersey, Ontario, Nebraska, and northern California south to the Gulf coast and Mexico. The birds winter in Mexico, Cuba, and the Bahamas, and have been recorded frequently in New England.

Plumbeous and Black-Tailed Gnatcatchers

The black-tailed gnatcatchers (*Polioptila melanura californica*) inhabit southern California and northern Baja California.

The plumbeous gnatcatcher (*Polioptila melanura melanura*) is found from southeastern California, southern Nevada, southern Arizona, and the Rio Grande Valley south into Mexico (see Plate VIII).

About 20 forms of gnatcatchers are known, ranging from the United States south into Argentina. All are tiny-bodied birds with long, slender tails and narrow black bills. The plumage is softly tinted in gray and white, sometimes with markings of black about the head. In habits and appearance all are closely similar.

The family of true warblers (Sylviidae) to which these birds belong, contains about 600 species, displaying even more variety in color and form than the wood warblers of the New World. Most are insect-feeding forms that live in thickets of shrubbery and open forests, but there are also species specialized for life in marshes and green meadows.

The curious tailor-birds (*Orthotomus*) of India, Ceylon, and Burma are members of this family. These birds make remarkable nests by fastening together the edges of a large leaf or several small ones to form a cornucopia that contains the nest. The bird punctures the margin of the leaf with its sharp bill, fastens one end of a bit of vegetable floss through the opening from the inside, and then attaches the other end to the opposite side in a similar manner. This continues until the encircling leaves have been bound together so that they will contain the nest.

THE OKEFINOKEE WILDERNESS

Exploring the Mystery Land of the Suwannee River
Reveals Natural Wonders and Fascinating Folklore

BY FRANCIS HARPER

With Illustrations from Photographs by the Author

WHEN I first set out to explore Okefinokee Swamp, in May, 1912, that southeastern Georgia wilderness was a virtually unknown area, almost as virgin a field for the modern biologist as a hidden valley in the Andes or a far-away isle of the South Seas. Mystery enshrouded it and dread and darksome figments of popular fancy skulked within its purlieus; yet, though it half frightened, it wholly fascinated me.

"How are the varmints now?" I inquired of John M. Hopkins, who had spent many years in examining the timber resources of the Okefinokee.

"Right in their prime," he assured me with a quiet smile, and proceeded to arrange for David Lee, a 19-year-old bear hunter, to guide me into the heart of the swamp.

Suwannee Creek, a northwestern tributary of the Okefinokee Swamp, had offered the Thompson brothers, Maurice and Will Henry, a means of entrance just after the Civil War; but now, choked with logs, it defeated our efforts to penetrate the interior.

LONG WAY AROUND TO WONDERLAND

We made a long detour and set out two days later from Cowhouse Island, at the northern end of the swamp. After twelve hours of paddling our boat through dim passages among the cypresses and poling it over wide "prairies," we arrived at midnight at Dave's home on Billys Island, to begin a fortnight's adventure that has had few, if any, equals in all my subsequent experience as a field naturalist in various lands.

From the time I first imbibed the coffee-colored waters of the swamp and gazed upon its glories of moss-hung cypresses and sunlit, piney woods, I have felt irresistibly drawn to it. I have returned again and again until I have passed close to 400 days under its spell. Biological interests that were largely restricted at first to the birds have widened to include more or less intensive

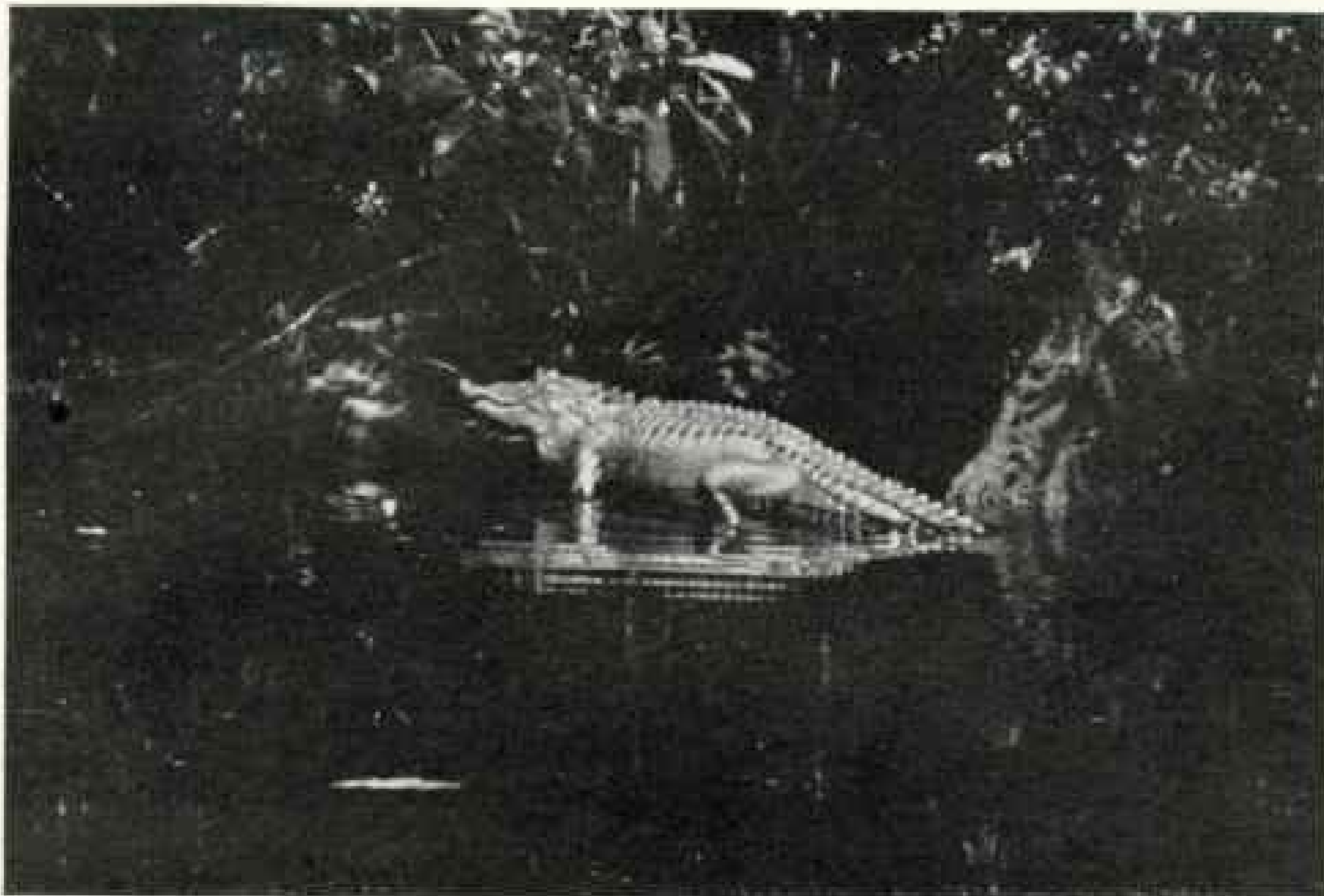
studies of the mammals, reptiles, amphibians, fishes, and plants.

During a midwinter month of 1916-17 I accompanied trappers and hunters on their long boat rounds in quest of bears, otters, wildcats, and raccoons, sharing their primitive camps and absorbing a great deal of their swamp lore. The summers of 1921 and 1922, given over largely to studies of amphibians, yielded hundreds of photographs of frogs and toads in every stage from egg to adult. I have succeeded in photographing by nocturnal flashlight the extremely interesting vocal performances of 17 of the 20 local species. On these and subsequent trips I have constantly sought those parts of the swamp that are still unspoiled by man, in order to obtain as complete a record as possible of the natural history of a primeval wilderness.

OKEFINOKEE NIGHTS' ENTERTAINMENTS

I love to recall the tremendous bellowing of an alligator on the Big Water one May night long ago, and in 1929 the actual sight of this marvelous performance at Suwannee Lake: the first record of a southern soft-shelled turtle at its egg-laying; the swallow-tailed kite in matchless flight over Billys Bay; the exhilarating trumpet calls of a band of Florida cranes taking wing from the piney woods of Honey Island; the demoniacal guffaws of courting barred owls during January nights on Floyd Island; the pine-woods sparrow chanting its vespers; the golden mouse in its nest of Spanish moss in the hammock on Chesser Island; the spider dragging off a living cricket frog on Chesser Prairie.

I remember the prothonotary warbler, within reach of my arm, fearlessly feeding its brood in a hollow cypress knee at Suwannee Lake; the southern toad on Chesser Island, in panic at the approach of a wriggling stick, emulating the frog of Æsop's fable in swelling into a bloated caricature of itself (see page 605); and the discovery that what the swamp folk called "the black



"BELLOWER" BASKS ON A LOG THRONE

For nearly a century and a half naturalists regarded tales of the alligator's vocal performance as greatly exaggerated; but the author caught this 10-foot specimen in the act on Suwannee Lake. The individual is probably a female.

snake's hollerin' " was merely the elfin piping of the tiny oak toad.

But best of all things in the Okefinokee for me has been friendship with such men as Allen and Sam Chesser, Hamp Mizell, and Lone Thrift—to mention only a few. By the hour I have sat at their feet, a zealous disciple, conversing with them in the Okefinokee vernacular and drinking in their accounts of animal life, their tales of folkways and folksongs in the simple days of old, their choice bits of homely philosophy.

"THE PRAIRIES" A BOTANIST'S DELIGHT

The Okefinokee owes a great measure of its unique charm to its "prairies"—wide, unspoiled expanses filled in large part with a tropical abundance of aquatic plants and flanked with dense "bays" of stately cypress. On these one may delight his soul amid scenes of unearthly loveliness that have changed virtually not at all since the Seminole warriors poled their dugouts over them. The Okefinokee prairies are not land, but water!

In these morasses are many areas of open water, varying from lakes a quarter of a mile in diameter to "alligator holes" a

rod in width. They are also dotted here and there with wooded islets—the so-called prairie "heads"—of cypress, slash pine, "seeny" (*Ilex cassine*), sweetbay, and other trees, the taller ones hoary with moss.

The snowy blossoms of the white water-lily gladden many acres of the deeper water, and the golden, globular flowers of yellow pond-lilies, or "bonnets," glow in a setting of huge green leaves. In the shallows yellow-eyed grass, its tall stems swaying, forms a sea of pleasant color. Blue-flowered pickerelweed decorates the borders of the lakes and gator holes. The small purple blossoms of watershield project above the wide-spread masses of its rounded, floating leaves, and the dainty white display of floatingheart nods over its own reflection in the water (see page 604). "Paintroot" occurs as tall single stalks or in dense beds, its cream-colored flowers making a fine show in June.

The small pitcherplant is hardly true to its name on the Okefinokee prairies, for its spotted greenish tubes reach a yard into the air—a height unheard of elsewhere; the parasol-like flowers of greenish gold, each on a separate scape, stand a little below the



HAMP MIZELL'S "HOLLERIN'" SETS WILD ECHOES FLYING ON SUWANNEE CREEK

Folk music, unspoiled and original, and as yet unknown to the general public, is this genuine American "yodeling," practiced by men, women, and children in the Okefinokee (see text, page 624).

summit of the leaves. The swamp boatman amuses himself by pushing the dark-green blades of the bog torch beneath the water and watching them emerge to justify their local name of "never-wets" (see page 607).

Another plant, though lacking in floral distinction, deserves mention because of its massed green abundance and because of the part it plays in the economy of certain forms of animal life. This is "maiden cane," which forms dense, yard-high beds. Among its sheltering stems and leaves the least bittern, the swamp rice rat, and the Florida water rat build their nests. In late summer, as a boat pushes by a bed of maiden cane, a host of katydids will fly out and astound the newcomer by plunging into the water and disappearing. These diving katydids belong to a peculiar species first described from the Okefinokee.

SWAMP PERILS FROM DIFFERENT VIEWPOINTS

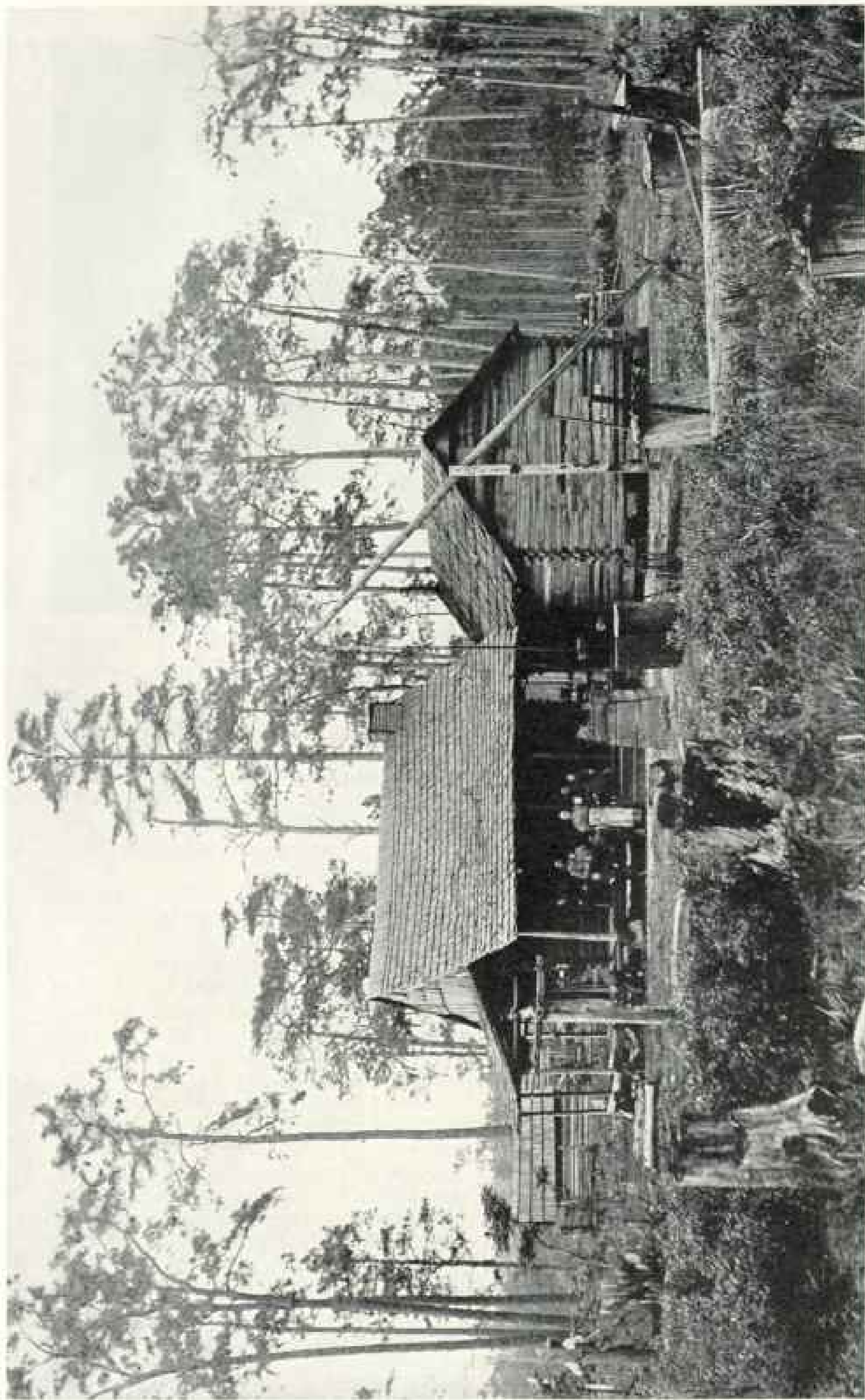
For generations swamp hunters have pushed over these prairie waters, standing up in their slight boats and bending rhythmically with graceful thrusts of their long poles. The skilled boatman is able to make better progress over the prairies than the

bear he chases. Old hunters knew well how to drive a deer out of a prairie head in the direction of a waiting companion. In winter the trapper camps for weeks at a time in these heads, tending his line of traps and taking the pelts of raccoon, otter, wildcat, and opossum.

Late one summer the inviting green expanse of Grand Prairie lured me away for a week's sojourn in solitude, and while I was loading my boat for departure from Chesser Island my venerable friend, Allen Chesser, admonished me from his 50 years of experience: "Now, Francis, if yer meet up with a bear out yonder in them perairie heads, *stand up ter 'im!*"

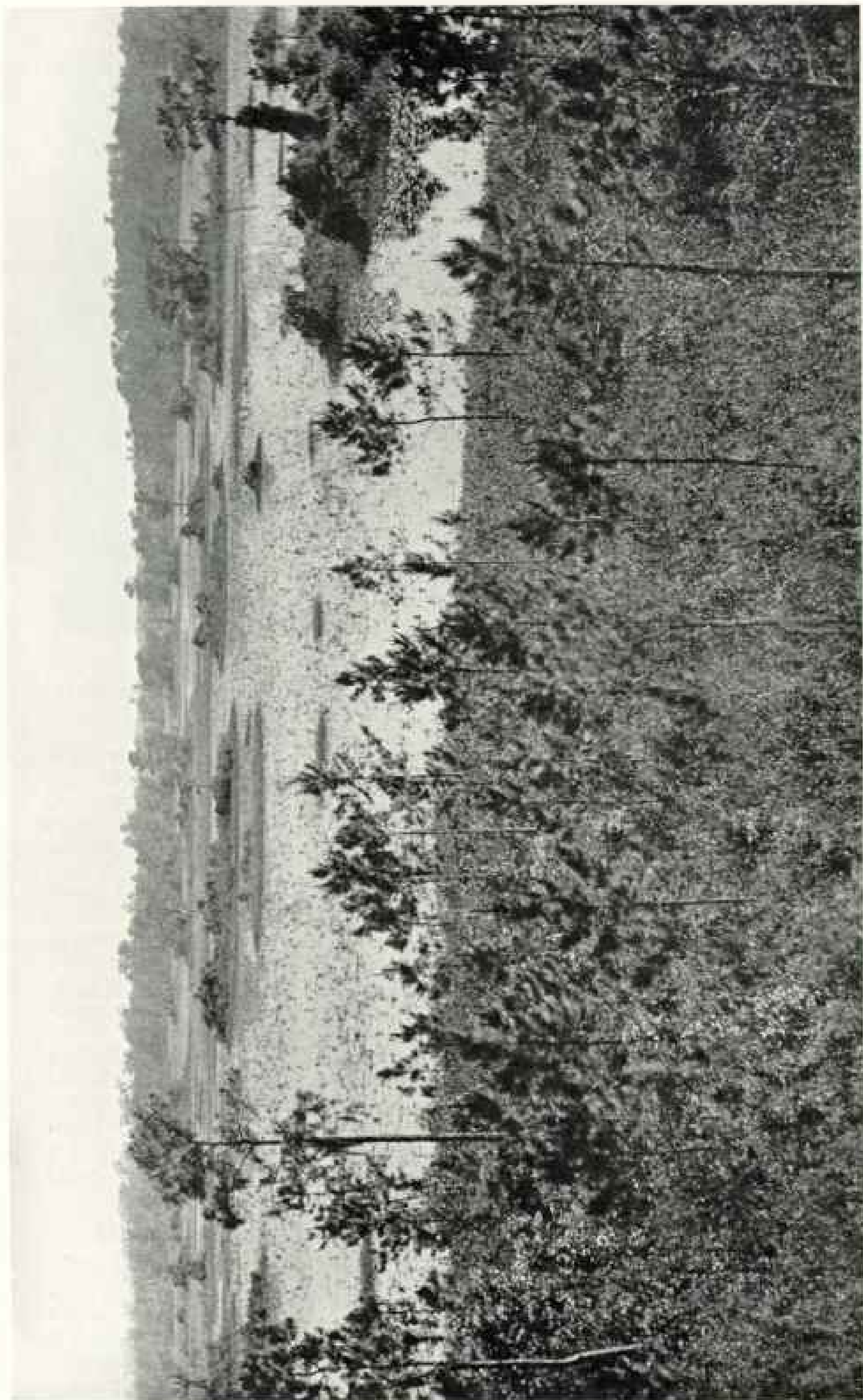
While I did not happen to meet the bear, a host of other wild things thronged the head where I pitched camp, as well as the surrounding prairie, and the days passed all too quickly in fascinating experiences and observations. Meanwhile the owls, cranes, herons, frogs, and alligators, to mention only a few of my swamp neighbors, serenaded me day and night with their music, each kind distinctive and memorable, whether hooting, trumpeting, croaking, or bellowing.

Another local friend—not one of the swamp folk—greeted me on my return with,



HOME LIFE WAS SIMPLE "WAY DOWN UPON THE SUWANNEE"

When the author first visited the Chefinoker, in 1912, this was one of the two hand-hewn log houses on Billys Island. Beside it stood a well sweep. In later years a lumber camp came and went, and the island is now deserted.



MOSSY ISLETS DOT THE WATERY WORLD OF CHASE PRAIRIE.

A tree-top view discloses the characteristics of the swamp: shallow ponds, or "prairies," with a tropical tangle of vegetation; shiplike island "heads" covered with sphagnum and flying the flags of slash pines; and dense cypress bays in the distance, shutting in the open space like a wall (see text, page 598).



LE CONTE'S CHORUS FROG TRILLS WITH HIS OWN BAGPIPE

But it is hard to take a picture of him in the act. Less than an inch and a quarter long, he is one of the most elusive species in the swamp.

"Look a-hyere, I don' know whut ter make er you—whether yer jes' got good grit er don' know no better—spendin' a week out yonder on the prairie by yerself. I wouldn' stay out there like that fer a thousand dollars, among all them moccasins an' things. No, sirree!"

To pass from the sparkling sunshine of the prairies into the gloom of the adjoining cypress bays is a striking experience. The huge trees, buttressed by "knees," stand in close ranks in a foot or so of water. Their green crowns, 80 feet or more overhead, shut out all but a few stray beams of sunshine, causing even at midday a sort of twilight.

Here and there a winding channel or "run" permits the hunter to push his tiny boat between the tree trunks; but in the greater part of the cypress bays there is tall, dense undergrowth that makes even foot travel a slow and arduous undertaking. The "hoorah bushes," sweet gallberries, and other shrubs are interlaced with the thorny vines of "bamboo" or smilax. The bear, having the double advantage of bulky strength and a tough hide, is the only large animal that can readily and rapidly break through such a tangle.

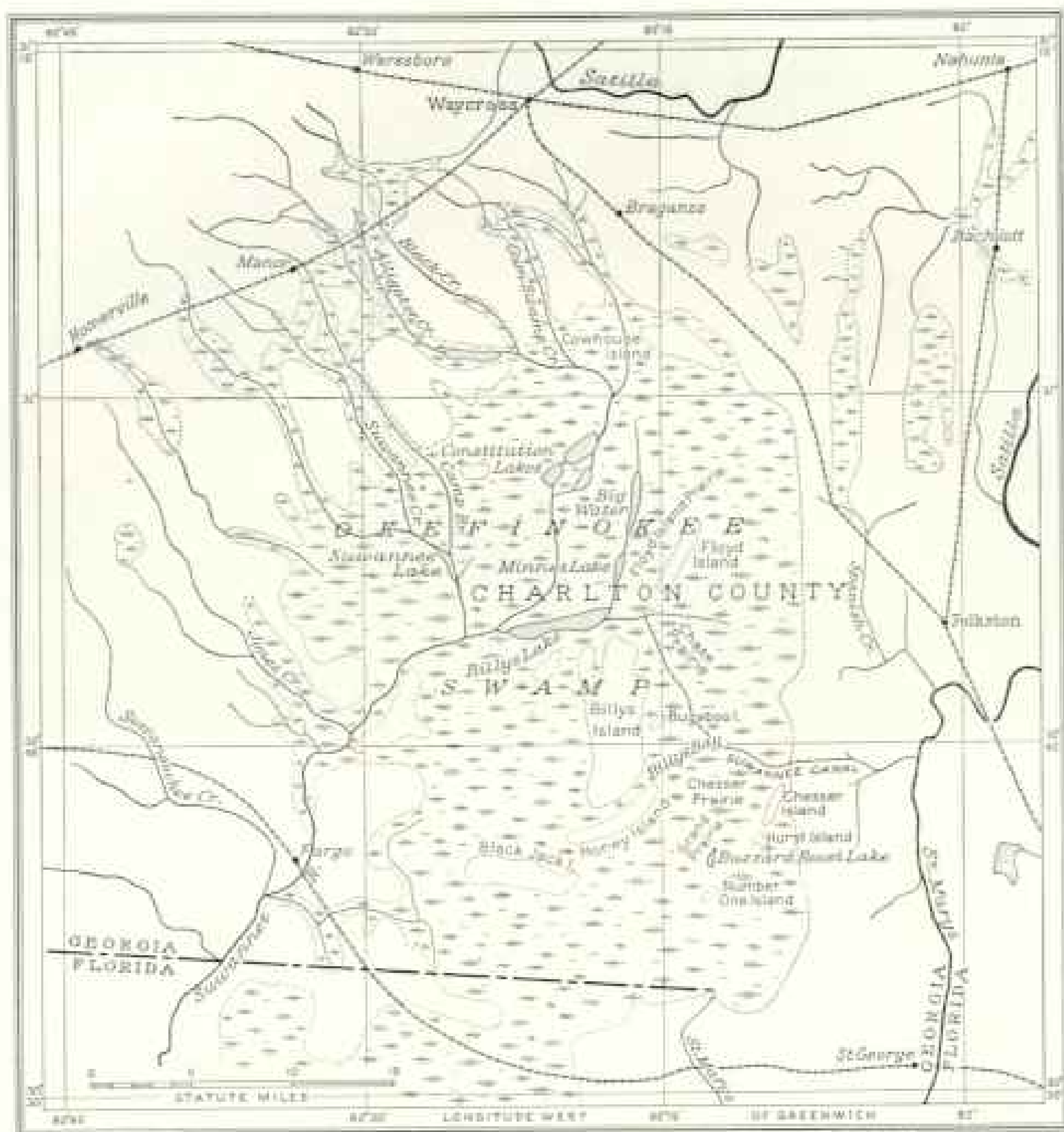
The cardinal, the prothonotary warbler, and the Carolina wren sing blithely enough, as if unaffected by somber surroundings. The vibrant song of the white-eyed vireo and the oft-repeated notes of the Acadian flycatcher are heard in the shady depths, while the Florida red-shouldered hawk screams from above the tree tops. At any hour of the day or night the deep voice of the Florida barred owl may fill the air. The lordly pileated woodpecker issues its high-pitched challenge, one of the most characteristic of the diurnal bird calls.

Its imperial cousin, the ivorybill, long found a refuge in this cypress wilderness and may even yet be represented by a few survivors. Seventeen winters ago I heard what I believe was its call, suggestive of a toy trumpet, but the bird itself has eluded all recent search by naturalists.*

FISH ABOUND IN HIDDEN LAKES

Welcome rifts in the cypress bays in the heart of the swamp are formed by long, narrow lakes, most important of which are Billys Lake, Minnes Lake, and the Big Water. Though each of these is several

* See "Woodpeckers, Friends of Our Forests," NATIONAL GEOGRAPHIC MAGAZINE, April, 1933.



Drawn by Newman Dumstred

BIRDS AND BEASTS AND CREEPING THINGS POPULATE THE OKEFINOKEE

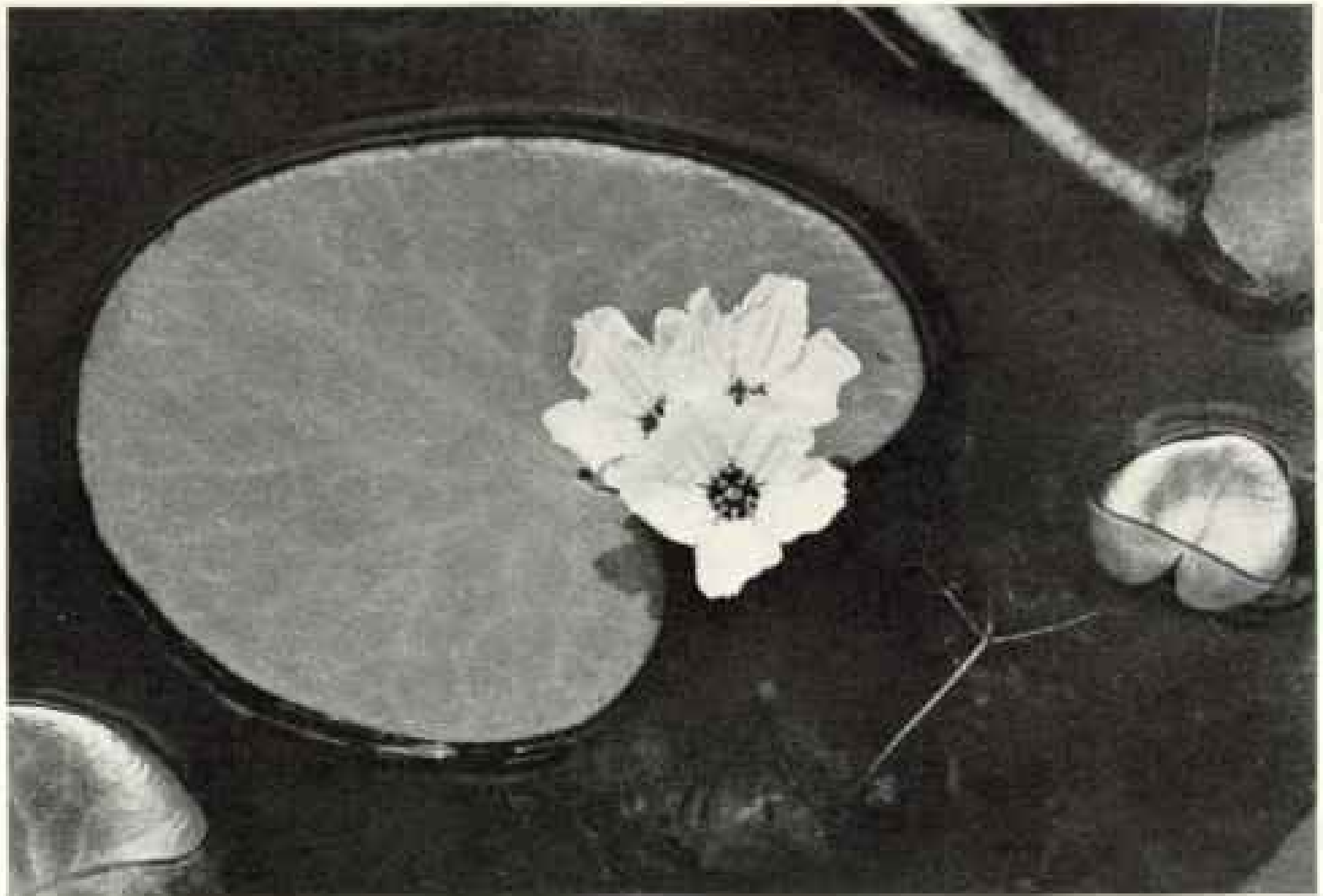
In the southeastern corner of Georgia, extending across the border into northern Florida, lies a land of mystery, where watery expanses, flower-spangled, are known as "prairies," and are dotted with tiny islands, called "heads"; where many lakes teem with fish, giant alligators bask in the sun, and the Florida bear roams at will. The vast swamp is the home of a people whose speech keeps alive many expressions of Elizabethan times (see page 622).

miles in length, their width averages scarcely 50 yards. They are merely expansions of "runs" on the headwaters of the far-famed Suwannee River. On entering one of these lakes the swamp boatman lays aside his push-pole and takes up the paddle. He is also apt to cast out his fish line, for the waters shelter multitudes of warmouths, large-mouthed bass, and other toothsome fishes.

The lakes are walled in by close ranks of tall cypress, with hoary festoons of Spanish

moss suspended from every limb. The bases of the trees are mostly hidden by tall green shrubbery. Here the "hardwood" makes a showy display when its tiny flowers burst forth into white masses during the warm May days. At this season, also, one may go a-berrying by boat and pluck appetizing "high-bush huckleberries" where they overhang the water.

Along the lake borders are many beds of broad-leaved "bonnets," with their golden blossoms. A frequent sight is the plated



NATURE'S ARTISTRY DISPLAYS THE FLOATINGHEART ON A PALETTE

Delicate white flowers against the background of green pads brighten many a spot on the watery prairies (see text, page 598). The plant is common in ponds and streams in the eastern United States.

top of an alligator's head furrowing the dark waters, for the lakes are a much-favored haunt of the species.

It is unfortunately necessary to speak in the past tense of the pine forests of most of the Okefinokee islands, including the four largest and finest ones in the heart of the swamp—Floyd, Billys, Honey, and Black Jack. These forests have been laid low within the past 15 years; their pristine glory is but a precious memory. However, on Chesser, Hurst, and Number One Islands, in the eastern part of the swamp, a fine growth of pine timber still stands. The first of these has been turpented in recent years; the other two have been safeguarded by comparative inaccessibility.

FROG CHORUSES AMONG THE PINES

Especially interesting to the naturalist wandering in the pine lands are numerous cypress ponds—shallow depressions, generally filled with a foot or two of water and supporting typical swamp trees, such as cypress, black gum, slash pine, yaupon, and sweetbay. Most of the frog and toad species of the region resort to these ponds

for breeding, and their varied voices resound mightily during the rainy nights of summer.* Although some of the ponds dry up completely during exceptionally dry seasons, they become repopulated whenever floods permit the tiny killifish, bass, and other small fry to swim overland from the nearest swamp.

On some of the islands there are "hammocks"—patches of rather dense forest quite distinct from the piney woods. The trees are mainly live oaks and water oaks, with some magnolias, pines, and hollies. The live oaks, with their wide-spreading limbs, evergreen foliage, and picturesque streamers of Spanish moss, are of the same kind that Sidney Lanier so justly celebrated in "The Marshes of Glynn."

More than thirty species of fishes inhabit the Okefinokee. Persons who love simple pan-fishing, with an old-fashioned reed pole, find here their heart's content. At Suwannee Lake this sort of angling surpasses anything that I have seen elsewhere.

* See "Our Friend, the Frog," by Doris M. Cochran, with 24 illustrations in color, in the NATIONAL GEOGRAPHIC MAGAZINE for May, 1932.



LIKE A WHISTLING TOY BALLOON, THE SOUTHERN TOAD ROARS LUSTILY

No place for a person who demands quiet for sleep is Chesser Island after rain has left puddles in the cultivated fields. This little fellow made a noise at 10 p. m. out of all proportion to his size.

When one considers that the lake is barely a quarter of a mile long, with an average width of perhaps 30 yards, a year's catch of more than 40,000 fish (recorded in 1925) is astounding. Such a catch, repeated year after year, seems possible only through constant replenishment from the wide-spread waters of the swamp.

HOOK-AND-LINE FISHERMEN IN LUCK

Men, women, and children, mostly from near-by farms and towns, flock to the lake with homely tackle. A "fish fry," topped off with a feast of watermelon, is one of the principal enjoyments of life for these Georgia country folk.

Farther within the swamp, at Billys, Minnes, and Buzzard Roost Lakes, or on the Big Water or the Suwannee Canal, there is likewise rare fishing. The bulk of a day's catch with hook and line is made up of such basses as the warmouth, the "stump-knocker," and the "sand-flirter," with a goodly proportion of mudfish and catfish.

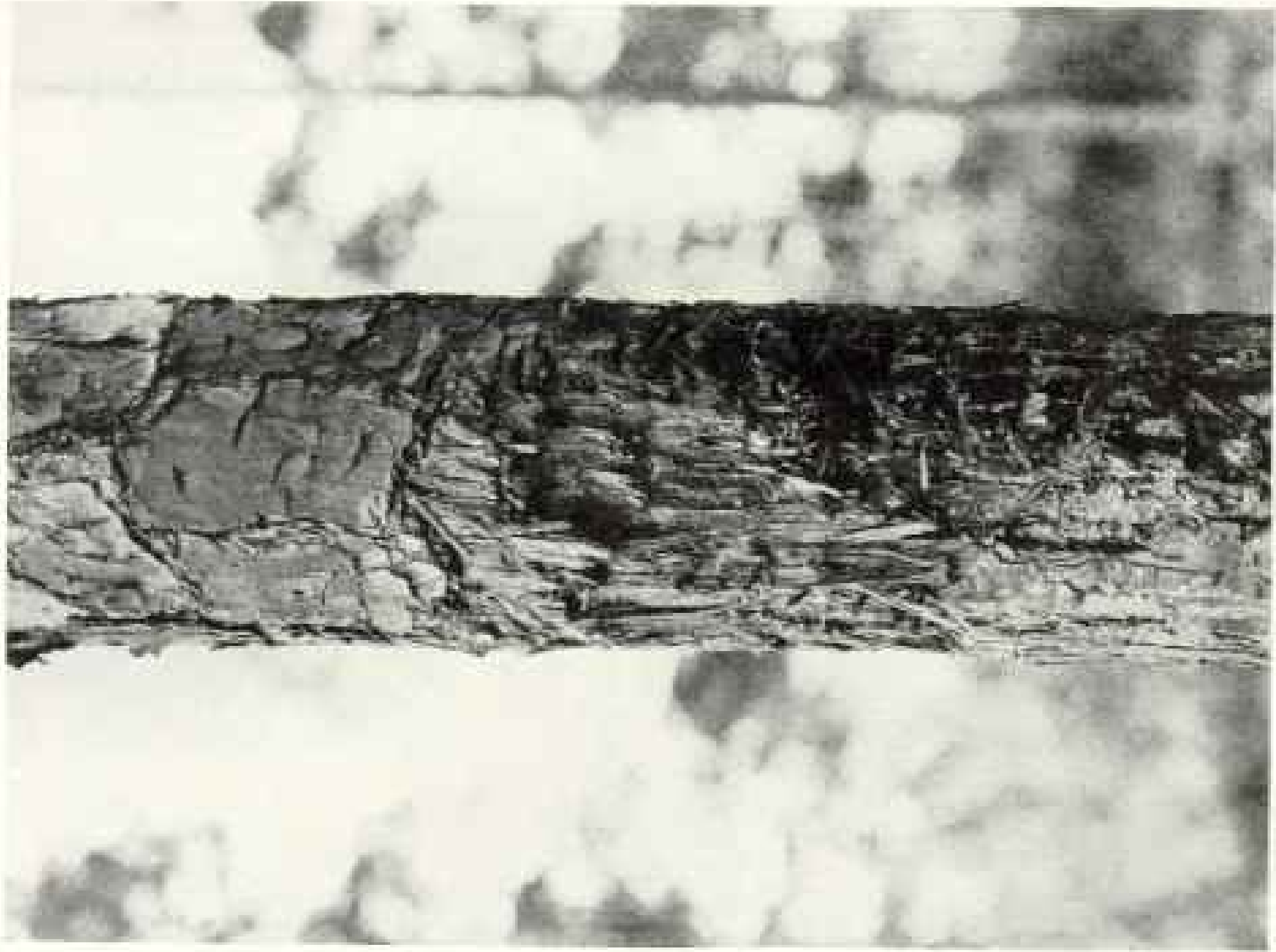
Those who elect trolling are more apt to land jackfish and large-mouthed bass (here called "trout"). Of the latter I have seen

a 12-pound specimen. Now and then a jackfish will make a startling leap into one's boat, especially if a light is carried in it at night.

The Okefinokee shelters one of the tiniest fishes in the world—the rain-water fish, *Leptolucania ommata*. At full size it is close to an inch in length and very slender. It was formerly known only in Florida and was considered rare there; but it exists in untold thousands in the coffee-colored waters of the Okefinokee.

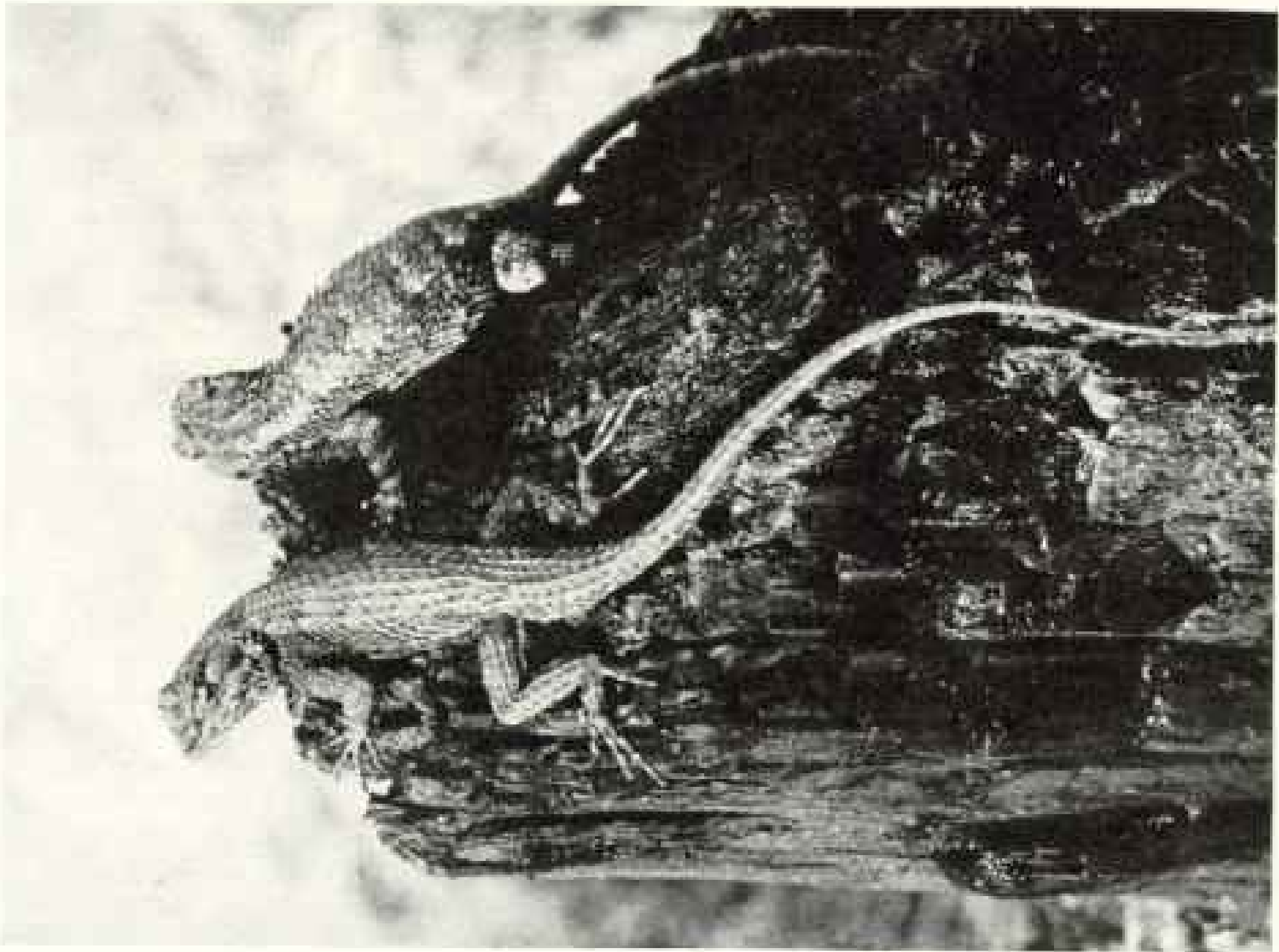
With it are found a number of other dainty species that would grace any aquarium: the pygmy sunfish; the black-banded sunfish, formerly known no farther south than North Carolina; the spotted sunfish, the green killy, and the star-headed minnow. Some of the smaller species are particularly common in the shallow waters of the prairies and in the numerous cypress ponds on islands and mainland.

The great State of Texas can boast of 50 species of frogs and toads; the Okefinokee region, with one-two-hundredths the area of Texas, has 20. With varied habitats to suit the requirements of different



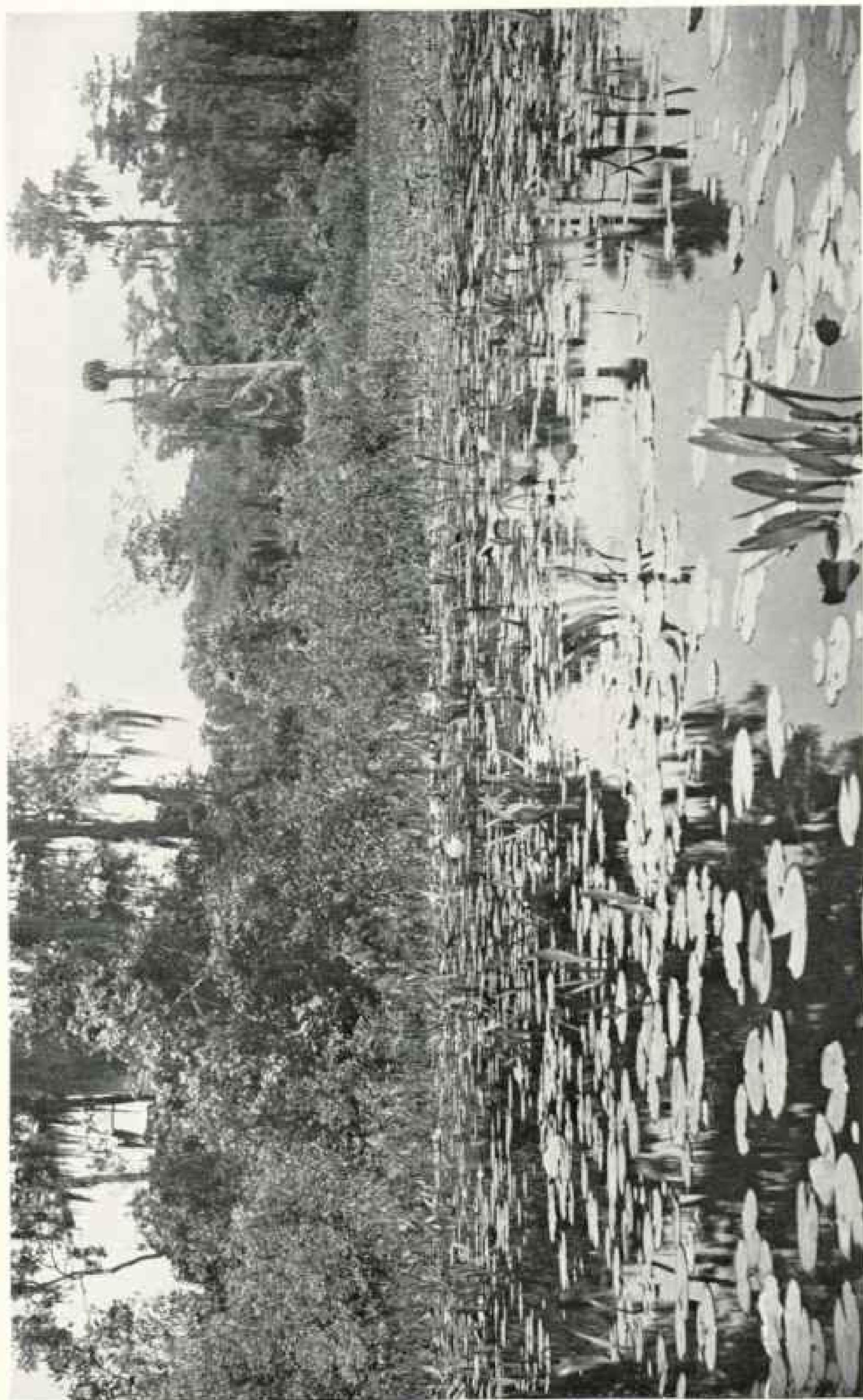
BRUIN LEAVES TOOTHMARKS ON THE BEAR TREE

Trunks of slash pines and other species are often scarred thus at a height of five or six feet. These marks may serve as blotting cards for the bears, but some swamp hunters maintain that the animals' object is to obtain gum for rubbing on their fur.



FATHER AND MOTHER FENCE LIZARD RECONNOITER

What are they looking for, as they pose characteristically atop a charred stump in the piney woods at Suwannee Lake (see text, page 669)? Perhaps an Okemokee philosopher could answer with an ingenious tale. The male, left; the female, right.



CHICAGO PRAIRIE "NEVER-WETS" STAND GUARD AMONG WHITE WATERLILIES.

Submerge one of these bayonetlike green blades and it will bob up again instantly (see text, page 599). Having built his nest atop the dead cypress on the "head," or tiny island, in the background, a fish hawk has an eyrie from which to circle and swoop down upon the fony prey that lurks among the stems of the luxuriant swamp plants.



VIRGINIA DEER RESPOND TO A CALL IN THE WILD

Living in a large inclosure at Suwannee Lake, they willingly come to feed from the hand of one they recognize as a friend.

species; with unlimited breeding places in the cypress ponds, cypress bays, and prairies; with abundant rains in normal years, and with a warm and humid climate, the Okefinokee is a veritable frog paradise.

WHERE ANY FROG "MAY A-WOOING GO"

A generation ago many people knew of the Okefinokee only through the nursery rhyme about a frog that "lived . . . on the banks of Lake Okeefinokee" and "sang all day long . . . 'Croakety, croakety, croaky'."*

Let copious showers fall during a warm summer's day and by nightfall the bedlam of amphibian voices arising from the swamp waters and their tangled margins is beyond description. The field herpetologist's trained ear picks out of the din the shrill peeping of the oak toad, the droning roar of the southern toad, the plainly uttered *giks* of the cricket frog, the insectlike chirp

* From "Sketches and Scraps," by Laura E. Richards, republished in 1932, under title of "Tirra Lirra."

of the little chorus frog, the machine-gun-like barks of the pine-woods tree frog, the hogshead-thumping notes of the Florida tree frog, the deep, hollow roll of the gopher frog, the *chung* of the green frog, the pig-like grunts of the southern bullfrog, the clattering chorus of the southern leopard frog, the hammer strokes of the carpenter frog, and the lamb's bleating of the narrow-mouthed toad. All these, and even more, might easily be heard on a July night on Chesser Island.

To search out the individual vocalists, to observe each species' particular method of inflating its vocal sac (or sacs), to note its rate of calling, and to obtain a record of the performance by means of flashlight photographs, is rare sport indeed. This is true in spite of certain minor annoyances, such as the insistent attention of mosquitoes and an occasional encounter with a cottonmouth moccasin, abroad on a frog hunt of its own (see illustrations, pages 602, 605).

Men still living can speak of the times when it appeared as if "a feller could walk



ON A DITCH "ROAD" OX-BOATS HAUL TURPENTINE

For a mile stretch through a bog, these oddly mixed carriers transport the spoil of the pine trees from Bugaboo Island to the Suwannee Canal.

across Billys Lake on gator backs." To this day the Okefinokee remains perhaps the best stronghold of our famous corrugated saurian. Suwannee Lake in particular, where the alligators are protected by Hamp Mizell, provides unequalled opportunities for making intimate studies of the bellowing and other habits of wild individuals (see page 598).

Of the alligator's lesser relatives, the lizards, seven species are known in the Okefinokee region. The blue-tailed skink, or red-headed scorpion, is common, especially on old logs in hammocks and cypress bays. Among most residents it is wrongly charged with being highly poisonous and even credited with the ability to bark.

The fence lizard, or scalyback, is a familiar sight about old cabins and on pine or oak trunks and logs, where its rough, grayish upper parts enable it to simulate a dead stick. No other local lizard is so confiding in man. During the mating season the male is fond of displaying its brilliant blue and black underparts, and in

order to do so to the best advantage it bobs up and down in a comical way, rising as high as possible on its front limbs (see pages 606 and 615).

The analogous display of the green lizard, or "chameleon," is less energetic, but calls forth even greater admiration. In a leaf-green livery, with white bib and tucker, the male pauses now and then in its agile movements among the swamp shrubbery and makes a few solemn bows, meanwhile expanding a knife-thin throat fan whose bright pink fairly outshines that of the ladyslipper.

SNAKES CAUSE LITTLE TROUBLE

The limbless "glass snake," a lizard with extreme readiness to allow its brittle tail to fall asunder in several pieces, is endowed, according to folklore, with the ability to assemble and join the pieces together again. Other species are the ground lizard, the orange-tailed skink, and the six-lined lizard, the last well deserving the local name of "race nag."



WHITE NOSE, BLACK FACE, AND GRAY COAT
MAKE A BEAUTY IN SQUIRRELDOM

Though a captive, this half-grown fox squirrel of the Suwannee Lake country tries to hide by crouching on the top of a post, his handsome, bushy tail dropped inconspicuously.

Of the approximately 28 species of snakes known in this region, all but a few are non-poisonous. The majority of them are terrestrial, finding a favorable habitat in the piney woods and the hammocks. Among them are the "possum-playing" spreading adder, the speedy black snake and its near ally, the coachwhip; the attenuated, egg-stealing chicken snake, the beautiful indigo snake, and the uncommon pine snake.

A rare sight is that of a valiant king snake, with its viselike coils thrown about some other large snake, slowly crushing out its victim's life and preparing it for an inglorious descent into its own stomach.

I have yet to encounter in the region a live adult diamond-back rattler, and the two or three timber or Seminole rattlers I have seen were found by others. The small ground rattler is perhaps more frequently met with, but the amount of venom it secretes is so limited that its bite generally has no very serious results. The dangerous cottonmouth moccasin is probably more numerous than all three species of rattlesnakes combined, although I have

seldom seen more than two or three individuals in the course of a month.

The turtle fauna of the swamp, comprising a dozen species, compares favorably in richness with that of the frogs and toads. The terrestrial and the aquatic species are about equal in number. Those with aquatic preferences range in size from the musk turtle, with a carapace between three and four inches in length, to the mighty 75-pound alligator terrapin, with a head practically as large as a man's. Those of us who go swimming in Billys Lake are more apprehensive of this formidable creature than of the alligators themselves.

TURTLE CAMOUFLAGE

A very common inhabitant of the swamp waters is the southern soft-shelled turtle, distinguished by its flattened body, leathery integument, and sharp-pointed snout. I have seen individuals in the Suwannee Canal with a carapace length probably between one-and-a-half and two feet.

Some years ago I came upon one of the turtles in the piney woods of Chesser Island, just as it was excavating a hole in the sandy soil for the reception of its eggs. After accomplishing this with alternate scoops of its clawed and webbed hind feet, it dropped the eggs and covered them carefully with some of the excavated soil without ever looking at them.

Presently the creature started on its return journey to its more congenial environment in the water, but had gone only a few rods when it paused to scratch vigorously with its forelegs and make a visible disturbance on the surface of the ground. A couple of yards farther on the performance was repeated.

Was this, I wondered, a clever move to mislead such devourers of its eggs as the bear, raccoon, skunk, and fish crow into seeking for them at *that* spot rather than at the real nest site, which had been made all but indistinguishable from its surroundings?

I soon learned that the swamp hunters were familiar with this trick of "scufflin'," as they call it, and that they were positive in their interpretation of it as a device to baffle the predacious animals that seek the turtle's eggs. A similar need seems to have developed a similar reaction in the marine green turtle.*

* See "The Great Barrier Reef and Its Isles," by Charles Barrett, in the NATIONAL GEOGRAPHIC MAGAZINE for September, 1930.



NO NEED TO SAY "OPEN WIDE"

Flashing in her bright yellow-and-blue-gray livery through the dark recesses of the swamp, the prothonotary warbler brings welcome tidbits to her nestful of gaping young in the hollow top of a cypress knee at Suwannee Lake.



PERIL HAS PASSED THIS WAY

The Florida bobcat, though not so numerous as in former days, still preys on the smaller livestock. His tracks betray his presence when drought has reduced Chesser Prairie to a field of mud.



WHAT A CATCH FOR A TWELVE-YEAR OLD!

Flights of fancy of the youngster who angles in the creek with a best pin hardly transcend the luck that this Okefinokee boy has realized in two and a half hours of fishing in Suwannee Lake—twenty-nine warmouths (see text, page 604).

The Florida terrapin, known in the local vernacular as the "hard-backed cooter," is the species most frequently seen basking on logs projecting above the water. This and various other turtles resort in great numbers to the banks of the Suwannee Canal during May and June for the purpose of depositing their eggs in the soft earth. In places the banks are literally torn up at this season, not so much by the turtles themselves as by the bears and raccoons that come to feast and fatten on the hidden stores. Some of the Florida terrapins also play a sort of cuckoo's rôle in depositing their eggs in the nests that the alligators have constructed for their own

use by scraping the vegetation and muck of the prairie into heaps about six feet in diameter and half as high (see illustrations, page 616).

ONE TURTLE KEEPS A LODGING HOUSE

In the dry pine barrens along the eastern border of the swamp the gopher turtle constructs its burrows and becomes host to numerous animal guests, some temporary, but others more or less permanent. The gopher frog finds this ready-made home so indispensable that its geographical range is apparently limited to that of the turtle. I have found as many as three of the frogs inhabiting a single burrow. The southern toad also enjoys the comforts of this subterranean clubhouse, but is by no means restricted to it (see illustration, page 618).

Of invertebrates, the gopher-hole cricket is perhaps the most characteristic and abundant inhabitant, though spiders and red-eyed flies are numerous.

There is also a direct parasite, a tick which attaches itself to the turtle's skin.

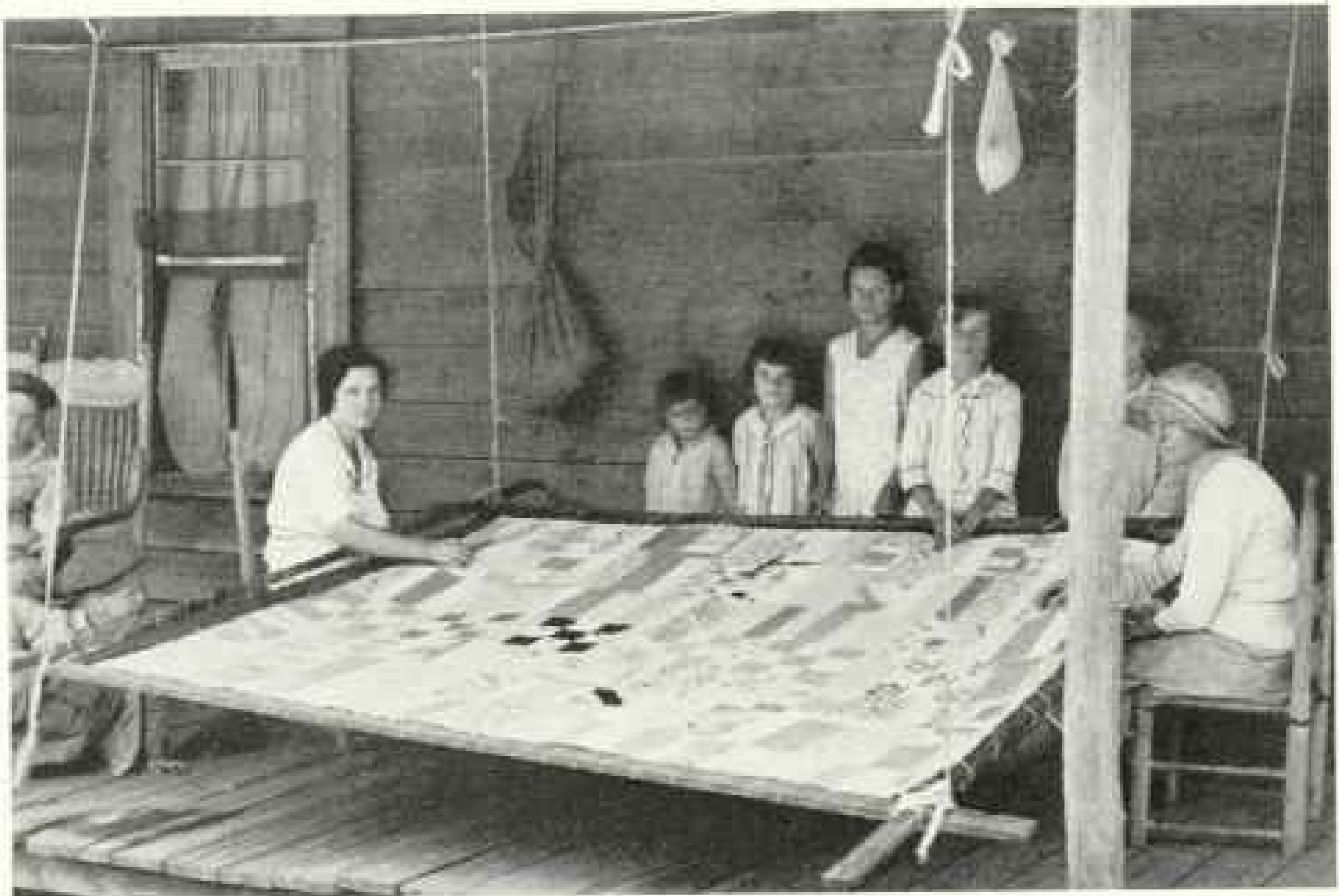
Of temporary guests, I have noted the cottontail rabbit, the six-lined lizard, the coachwhip, and the pine snake. There are also local records of the skunk, gray fox, opossum, and indigo snake. The interrelations of the gopher turtle and its associates form an extraordinarily interesting study.

Of the approximately 180 species of birds recorded in the Okefinokee region, scarcely one-half remain during the summer and breed. While some of these summer residents move southward with the approach of cool weather in the autumn, their places



"THREE HAN'S UP, BIRD IN THE CAGE; BIRD SWING OUT, CROW SWING IN; ON
YER THE RIGHT AN' GOIN' AGIN"

The old-fashioned square dance has its devotees throughout the Okefinokee. To lively strains of fiddle and banjo, young and old join in the "frolic." Usually the merrymaking takes place indoors, but a group at Suwannee Lake obligingly performed out of doors in order that the author might obtain a picture. Will Cox, the tall young man at the right, is "calling the set" for four couples (see text, page 624).



QUILTING "KIVEBS" IS AN ART AND A SOCIAL INSTITUTION

Originality finds expression not only in the patchwork pattern of the top, but in the designs formed by the stitching when the coverlid is finished.



INDIANS OF A BYGONE AGE SLEEP IN MOUNDS AMONG THE SLASH PINES

Bugaboo Island, like practically all its sisters of the Okefinokee Swamp, has its repositories of relics of the tribes that once peopled the region.



THE SOUTHERN TOAD SWELLS WITH RAGE

Mistaking the stick thrust toward him for a snake, he puffs his body, rears up to the length of his legs, and even butts angrily at the offending object. (see page 605).



BOATING ON CHESSEBROUGH PRAIRIE REQUIRES ROPE WALKERS' SKILL

Swamp hunters stand upright and pole their narrow craft through thick vegetation faster than a bear can flounder over the boggy prairie (see page 399). A ducking is almost unheard of.



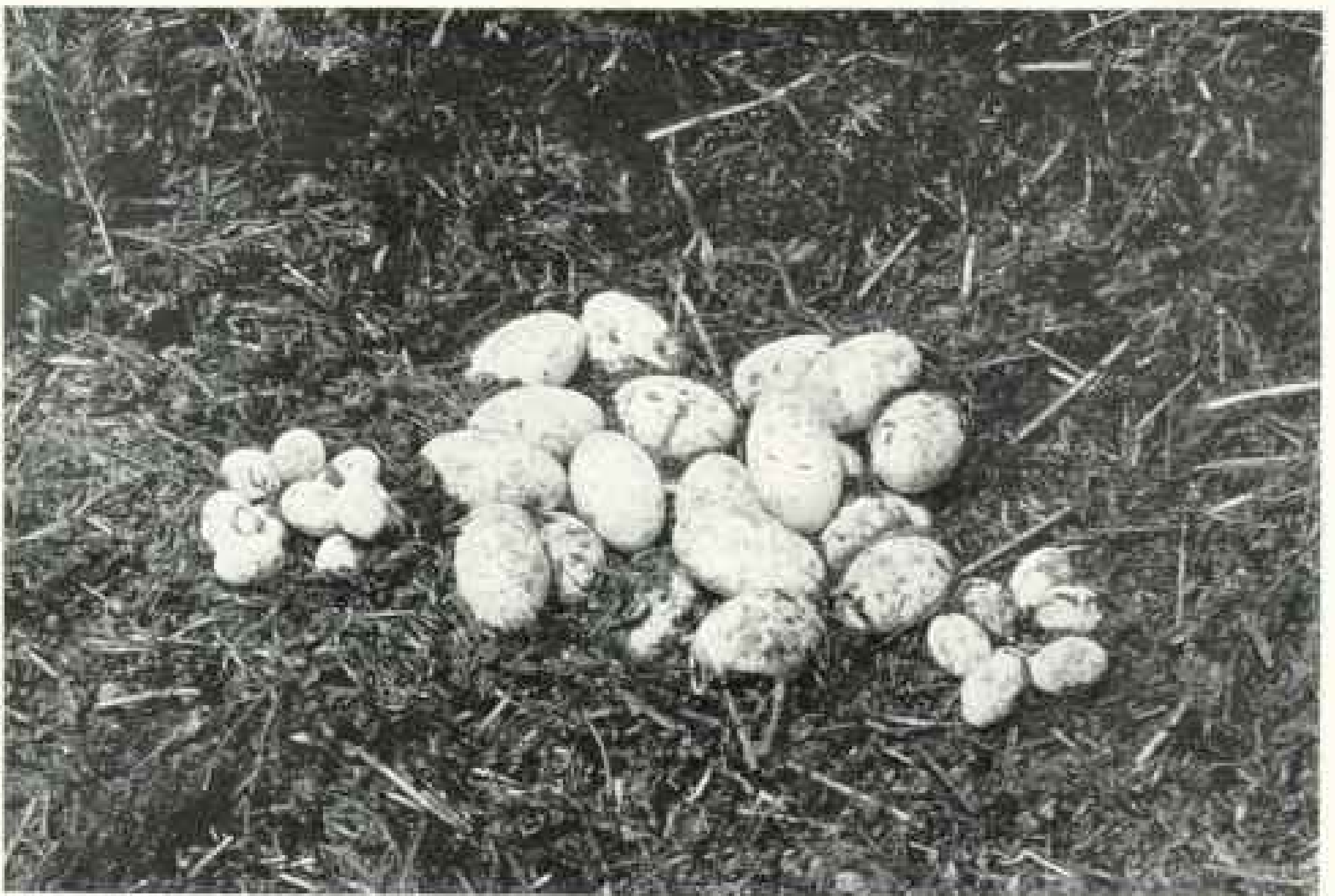
THE FENCE LIZARD "PLAYS POSSUM"

Turned on its back in one's open hand, it remains quiet for minutes. Being a female, this specimen does not have the brilliant blue and black underparts of the male (see page 609).



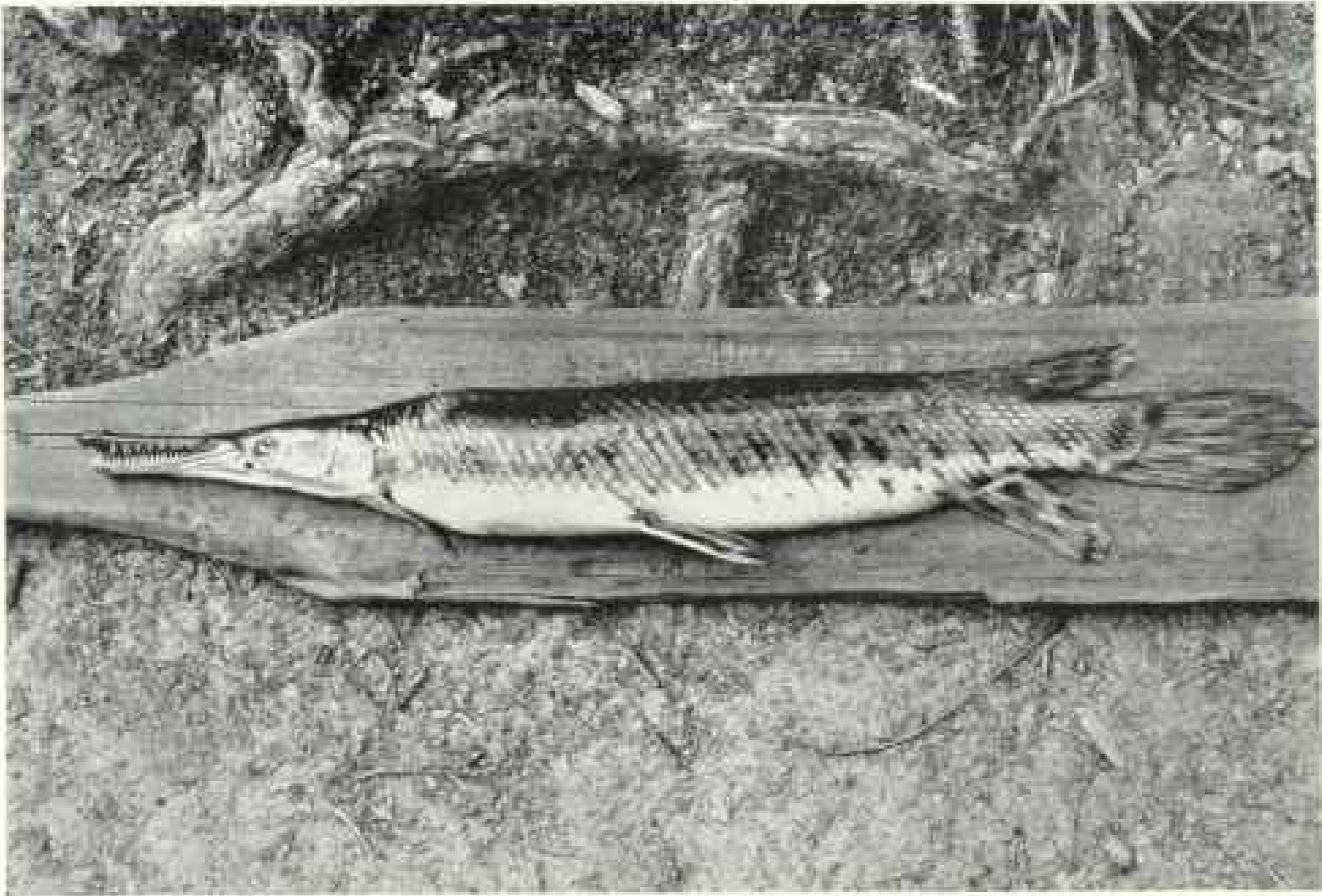
THE ALLIGATOR BUILDS A HUGE NEST

Heaping muck and vegetation into a circular mound, the giant reptilian prepares a place for depositing its eggs, to be hatched by the sun, thereby saving labor for the lazy Florida terrapin, which shares the shelter.



THE CUCKOLD OF TURTLES LEAVES ITS EGGS WITH THE ALLIGATOR'S

The Florida terrapin, often too lazy to build a nest of its own, has invaded the lair of the alligator and deposited two sets—one of seven and one of eleven eggs—beside the huge creature's clutch of thirty-two (see text, page 612).



THE SHORT-NOSED GAR LOOKS VICIOUS.

With needle-sharp teeth and armor of bony scales, this 21-inch specimen may well have been a terror among less militant fishes. The Okefinokee harbors more than thirty species of fishes (see text, page 604).



BLAZING FAGOTS, SIZZLING SKILLET, AND TALL TALK MAKE LIFE WORTH WHILE

Literature knows no finer, more sincere simplicity than that of the folk legends and wood lore drawled about the camp fires by the hunters and trappers of the Okefinokee (see text, page 611).



OPENING THE GOPHER TURTLE'S "LODGING HOUSE" TAKES HARD DIGGING

So popular a host is the burrower held by the man seated at the left that his home becomes a sort of club for frogs, toads, lizards, and even occasionally rabbits and other larger animals (see text, page 612). There were two branches of this Y-shaped tunnel, nine and thirteen feet long, respectively.

are more than filled by hardier species coming from the Northern States and Canada to find a congenial winter home in the swamp and its environs.

LISTEN TO THE MOCKING BIRD

Among the feathered musicians of the region, the mocking bird easily holds first place. Not content with its own song and the notes of many other birds of the region, the mocker will even reproduce quite faithfully the cracked voice of the pine-woods tree frog. It is so full of music that frequently it does not desist from pouring out its melody while flying from perch to perch. It loves to rear its young in proximity to man's habitations, and there are few homesteads in the piney woods and the hammocks that are not favored with a pair or two of mockers. It is natural that such a bird should figure in the local folklore.

"Did yer ever hear er mockin' eggs bein' good fer stutterin'?" a man of Okefinokee asked me one day. "Well, when I uz a little feller, erbout the size er Jesse yonder, I stuttered so bad I jest couldn't hardly talk. Then one time somebody come ter

our house, an' they said mockin' eggs 'd cure me. So nex' time I found one er their nesties I taken some er the eggs an' eat 'em, an' after that I could talk all right."

Certainly he showed not the slightest inclination to stutter during all the years I knew him!

The list of 45 species of mammals so far recorded from the region of Okefinokee Swamp and the St. Marys River includes one opossum, two moles, four shrews, seven bats, ten carnivores, three squirrels, four pocket gophers, one beaver, ten mice and rats, two rabbits, and one deer.

By far the largest mammal of the swamp, and perhaps the most interesting, is the Florida bear. From early times it has attracted the swamp hunters—not so much because of any particular value of its hide and flesh as by reason of the thrill that comes from matching wits and strength with so formidable an animal.

An additional reason for the pursuit of the bear is its numerous depredations on the hogs (largely of the razorback variety) that range through the piney woods and the swamp borders. At a hog's prolonged



BRUIN HAS STOLEN A SQUEALING PIG; THE HUNTING HORN CALLS THE DOGS

Robbers of the swamps, bears prey on the barnyard livestock, and the Okefinokee men are always ready to take down the gun from its pegs on the wall and go on a chase (see text, page 618).

squealing the residents become instantly alert, for it generally means that a bear has seized the animal and is making off with it toward the depths of the swamp.

BEAR HUNTS FURNISH REAL SPORT

Guns are hurriedly lifted from pegs on the cabin walls, the dogs are called together with the hunting horn, and the chase is on. Sometimes, when the bear attacks at night and temporarily eludes pursuit, the owner of the hogs may go and summon his neighbors for miles around to join in a communal hunt beginning at daybreak. Each brings with him whatever bear hounds he can muster.

While most of the hunters have a wholesome respect for the bear, certain intrepid spirits of olden days, such as Carr Thrift and Peter Griffin, seemed ready to tackle one on almost any terms. Some of the older hunters, beginning in early youth, would kill from 100 to 200 of these animals in the course of a lifetime. Many a stirring tale of bear fights may be heard about an Okefinokee camp fire.

The Florida raccoon naturally abounds in the Okefinokee, living high on frogs,

fishes, turtle eggs, and wild fruit and berries, not to mention the "roas'n' ears" it occasionally pilfers from the cornfields. By reason of its numbers the raccoon is the most important fur-bearing animal of the swamp, though the individual skins are far exceeded in value by those of the less common otter.

The discovery of the Florida water rat in 1884 was a noteworthy event in the annals of American mammalogy, for the animal represents a distinct genus as well as species. It might be looked upon as a muskrat in miniature, with a rounded instead of a compressed tail.

From the time of its first description by Dr. F. W. True, it remained zoologically unknown outside of Florida until 1917, when I obtained specimens in the Okefinokee—apparently its northernmost outpost.

Its nests, which may be seen by hundreds, if not by thousands, are globular masses of dried prairie vegetation, a foot or two in diameter, resting usually on a bed of sphagnum just above the water level. No entrance is visible from the exterior, but if one of the nests is opened a central



AFTER "POUNDER PULLING" COME SHUCKING AND SHELLING

No mass-production methods have taken the place of human labor on Chesser Island. Women and children, as in pioneer days, help husk the corn and start it on its way to becoming hoecake.



THE HOUSEWIFE CHASES DIRT WITH THE "BATTLIN'" STICK

This time-honored method of laundering is practiced in the shade of the "syrup shelter" on Chesser Island. It is not so hard on buttons as beating on stones, favored in some countries.



LUCKY HE WHO PHOTOGRAPHS THE SWAMP RICE RAT

Hiding in a water rat's nest, these timid rodents were snapped, perhaps for the first time, when the top was lifted. The mother hid her head and the two youngsters half submerged themselves.



ALL ABOARD ON THE A&SOP EXPRESS!

Perhaps this Charlton County youngster remembers the fable of the hare and the tortoise, as he attempts a ride on the back of a 10-inch gopher turtle (see illustration, page 618).



A RESTFUL NOON HOUR ON CHESSER ISLAND

Three young people are playing "fox and geese" with kernels of corn at the corner of the porch.

chamber is revealed. This is invariably provided with two exits in the form of water-filled tunnels extending down into the muck of the prairie. The water rat is so sby and elusive that, in spite of its abundance, it has been seen alive by few of the swamp hunters.

RELICS OF ELIZABETHAN TIMES

For generations the sturdy, self-sufficient, and gifted people of the Okefinokee have led a rather isolated and primitive existence, some of them on islands within the swamp and others along its borders. They represent some of the purest Anglo-Saxon stock left in our country, though a few of the families have a slight mixture of French Huguenot and even Seminole Indian blood.

In ancestry, speech, folksongs, and general social ways there is a marked affinity between the residents of the Okefinokee and those of the Appalachian Mountains. In each case there has been comparative isolation, tending to preserve the cultural heritage from Britain of several centuries ago.

But Nature seems more genial and bountiful in the swamp region than in the mountains, and the difference is reflected in the two divisions of the common racial stock. The abundance of game and fish available, as well as the ease of raising crops in this flat country, have enabled the swamp folks to live more care-free and more comfortable lives than the mountaineers.

The picturesque regional vernacular contains various elements representing survivals from the Elizabethan age that have dropped out of general American usage.* To hear such words as *fixment*, *passel*, *rookus*, *scoggin*, *gammet*, *muzog*, *Mistress* (for Mrs.), *gower*, *progue*, *finder*, *hassle*, *holp*, *betwixt*, *fitified*, *tabbied*, *pyert*, and *blowey* employed naturally in everyday speech is a delightful experience. Many of the local names of animals and plants are particularly interesting and distinctive, some of them being apparently restricted to a certain island or family.

* See "A Bit of Elizabethan England in America," by Blanch Nettleton Epler, in the NATIONAL GEOGRAPHIC MAGAZINE for December, 1933.



PLANTING IS PLEASANT WORK IN APRIL

The "young uns" go along for a lark as the seeds are dropped by hand in the furrow and the cultivator covers them up.

With a general scarcity of printed literature in the old-time Okefinokee homes, story-telling became a highly developed art, and wondrous tales are still heard about the firesides and camps, especially from the older hunters. Rare bits of both humor and philosophy are interspersed through these stories. Witness a remark of Lone Thrift, of Suwannee Lake: "Each feller has a trade uv 'is own, if it's nuthin' but loafin'."

Ballad-singing is another cultural asset that still survives in the region. Such traditional ballads as "Barbara Allen" and "Little Mohea" are sung in many a home, chiefly by the women. On the other hand, there are still more interesting ballads of Okefinokee origin, composed by and about persons who are still remembered.

These local ballads, in contrast to the more sentimental traditional type, are composed and sung by the men, who not only have wider experience than the women, but also enjoy far greater leisure for the cultivation of hobbies. While a few penciled

copies of the traditional ballads may be found here and there, the local songs are transmitted for the most part only by word of mouth.

The ballad of "The Piney Woods Boys" briefly epitomizes the primitive life of this region. In one form or another, it appears to be rather widely current in the Southeast. Of two versions heard in the Okefinokee, the following was given me by Hamp Mizell, of Suwannee Lake:

Come all ye sandy girls an' listen ter my noise;
Don't be controled by the piney woods boys;
For if you do, yo'r po'tion will be,
It's cawnbread an' bacon is all you'll see.

When yer go ter the cowpen, you will milk in a
gourd;
Set it in the corner, kiver it with a board.
That is the way of the piney woods race,
For I have lived in the piney woods myself.

When yer go a-courtin', they'll set you a chair,
An' fust thing they say is, "Daddy killed a de'r."
With their ol' sock legs all druggin' on the groon',
An' the ol' cotton hat more rim than crown.

Say, an' don' let the johnnycake bake too brown.



THIS "OTTER HOUND" HAS A KEEN NOSE FOR HIS QUARRY

Fortunate, indeed, was David Lee on his rounds near the Big Water, for he had trained his dog to leap overboard at the scent of an otter and attack it in the water. He obtained more of the animals in this way than by trapping.

The old-fashioned square dance, or "frolic," still holds sway here as a leading form of social recreation. The fiddle, the handclap, the foot-beat, and the "calling of the set" by the leader all lend their aid to the rhythmic performance. Doubtless as far back as Robin Hood's time the ancestors of these very people were enjoying similar folk dances on many a village green in Merry Old England. The late fall days—the season of "hog-killin' an' cane-grindin'"—see these social expressions at their height (see page 613).

The fiddlers whose services are in demand at the frolics also love to play by themselves or with a small audience. One such artist of the past generation (Rob Mizell) had the reputation of being able to play all day long without repeating a tune. The fiddlers are self-taught and play by ear.

Among the local favorites are such "fiddle pieces" as "Sally Goodin," "Cotton-eyed Joe," "Molly Put the Kittle On," and "Raccoon on the Rail." The banjo also has its place beside the fiddle, some of the instruments of former years even being homemade. Representative "banjo pieces" are "Down the Valley," "Catfish," and "Goin' Back ter Tennessee."

By far the finest of all the musical gifts is the "hollerin'." This is yodeling at its best—no more to be likened to what is heard on the vaudeville stage than grand opera can be compared with the hurdy-gurdy. It is the grand opera of the Okefinokee, where it is a common possession of man, woman, and child. Often it is an expression of exuberant spirits; or it may be a signal to a hunter's family that he is returning homeward. It is frequently given from a distance of several miles, for the measured cadences of alternating head tones and chest tones have a remarkable carrying power.

Daybreak and sundown are favorite times for "hollerin'." It is an invariable accompaniment of driving the cattle home in the evening. To listen to this melodious sound reverberating through piney woods and cypress bays is even more soul-filling than to hear a hermit thrush's ethereal strains.

Strangely little seems to have appeared in print concerning this unique American music. It is practiced in some measure in the country districts of most of the Southern States, at least from Georgia and Florida to Arkansas and Texas, but I doubt that it has reached anywhere else so high a development as in the Okefinokee region.

THE SOCIETY TAKES PART IN THREE GEOGRAPHIC EXPEDITIONS

THE Board of Trustees of the National Geographic Society has authorized The Society's participation in three important geographic expeditions in addition to the stratosphere flight announced in the April issue of *The Magazine*.*

These explorations involve some of the oldest and also some of the most modern vehicles that man has used in his effort to explore his world—a diving sphere to reach abyssal ocean depths; dog teams to map obscure Alaskan areas, and canoes to help solve mysteries of giant volcano craters; airplanes to fly icy Antarctic wastes, and the mammoth balloon which is expected to attain a record altitude for stratosphere study.

SEEKING NEW DEEP-SEA CREATURES

Because the depths of the ocean offer rich returns in the field of geographic research, the Board has authorized a grant of funds to Dr. William Beebe to enable him to resume deep-sea explorations during the coming summer. The project will be known as the National Geographic Society-William Beebe Expedition.

Dr. Beebe plans to descend to unexplored depths inside the heavy steel ball (the bathysphere) in which he previously made the record descent for a living man—2,200 feet. The unique diving ball is familiar to many members of The Society who saw it on exhibit in the central room of the Hall of Science at the Century of Progress Exposition in Chicago.

The cast-steel sphere is four-and-a-half feet in diameter, with a shell one-and-a-half inches thick, and weighs two tons. It has windows of fused quartz fashioned to withstand the tons of pressure from sea water.

A SPOTLIGHT ON CREATURES OF THE DEEP

Through the windows beams of light will penetrate the water, and thus the strange creatures of the ocean depths will be observed. A steel cable will lower the sphere from a barge at the surface, and rubber-enclosed wires will afford telephone communication and current for electric lights. Dr. Beebe will have a telephone transmitter

* See "Your Society Sponsors an Expedition to Explore the Stratosphere," in the April, 1934, issue of the NATIONAL GEOGRAPHIC MAGAZINE.

held by an arm in front of his mouth and will dictate descriptions of what he sees to an assistant on a barge above.

During Dr. Beebe's descents in 1930 and 1932 many strange creatures were discovered. Some had glowing and flashing light organs which help them in their battle for life in the weird blue-black depths.* The explorer expects to find new oceanic citizens this year. With the aid of additional and new apparatus, it is hoped to prolong the dives to four or five hours, so that detailed observations can be made of the wholly unknown activities and habits of deep-sea creatures off Bermuda.

Dr. Beebe will report the results of his new deep-sea explorations in two articles to appear in the NATIONAL GEOGRAPHIC MAGAZINE.

The Society will also cooperate with Father Bernard R. Hubbard, S. J., in the exploration and mapping of the volcano-torn Alaska Peninsula and the adjacent Aleutian Islands during the summer. The best map of the region is 25 years old and many sizable districts have not been mapped. Some of the greatest volcanic eruptions of historic times have occurred in the area during the past 25 years and have materially altered the relief and the drainage.

EXPLORING CRATERS FOR VOLCANIC SECRETS

The expedition led by Father Hubbard will use an airplane to reconnoiter and make aerial photographs, and will then use pack dogs for work on the ground. Canoes will be taken down into the craters of Katmai and Aniakchak volcanoes, so that soundings and water temperature studies may be made of the lakes that lie in bottoms of the huge pits. Vents in the floors and walls of these and other craters will be observed to collect data bearing upon the cycles of activity in this important volcanic region. These studies may make possible the forecasting of eruptions.

The expedition's plane will fly over and photograph the famous Valley of Ten Thousand Smokes, made known by an expedition which the National Geographic Society sent out in 1916 to study the effects of

* See, by William Beebe, "A Round Trip to Davy Jones's Locker," in the NATIONAL GEOGRAPHIC MAGAZINE for June, 1931; "The Depths of the Sea," January, 1932; and "A Wanderer Under Sea," December, 1932.

the terrific explosion of Mount Katmai in 1912.*

Fifty thousand feet of standard motion-picture film will be exposed and 4,000 still photographs will be taken. By means of a portable army wireless set weekly reports will be sent out. The party will leave for Alaska in May and will return in September. Father Hubbard will write the story of his adventures for *The Magazine*.

To the Antarctic Expedition of Rear Admiral Richard E. Byrd The Society has contributed \$10,000. After carrying on preparatory and reconnaissance work during the summer and fall, Admiral Byrd will winter near the shore of the Ross Sea. When the summer of the Southern Hemisphere approaches, next November, he plans to fly to the South Pole, and he will make geographic explorations by air into other areas on the continent.

Admiral Byrd has a varied program of geographic projects at which his staff of technical assistants will be kept busy. Studies will be made of the aurora australis by photographs and color intensity apparatus. Efforts will be made to learn more about the mysterious cosmic rays. Their intensity has already been noted at intervals during the voyage from the United States, and comparative records will be obtained at Little America, high on the polar plateau, and at a point as near as possible to the South Magnetic Pole.

IS THE SOUTH POLE "AFLOAT" ON A GLACIER?

By using explosives and recording reflected and refracted vibrations, geophysicists of the expedition will probe beneath the thick mantle of ice to find what parts of the Antarctic regions are land and what part "water." It is even considered possible that the vast polar plateau, more than 9,000 feet high, may be a huge stationary glacier, built up through ages in a sea surrounded by mountains.

In the sea near Little America the expedition will work at problems of biology. Wherever outcrops of stone occur, geological investigations will be made, with special effort to collect fossils, from which can be pieced together the story of Antarctica's past. Ice movements will be noted;

* See "Our Greatest National Monument," by Robert F. Griggs, in the *NATIONAL GEOGRAPHIC MAGAZINE* for September, 1921.

and there will be studies of gravity, magnetism, weather conditions, light, meteors, earth vibrations, and radio performance. Equipment of the expedition will be observed to determine the effects of cold on the elasticity of materials.

The first magazine story to be written by Admiral Byrd, recounting his adventures and outlining his discoveries, will be presented to the members of the National Geographic Society in their *Magazine*, as was the narrative of his first Antarctic expedition.*

CAPTAIN STEVENS HONORED FOR HIS ALTITUDE PHOTOGRAPHY

Capt. Albert W. Stevens, of the United States Army Air Corps, has been chosen by the Board of Trustees to receive the Franklin L. Burr Prize of \$1,000 for his accomplishments in the technical field of aerial photography on National Geographic Society expeditions.

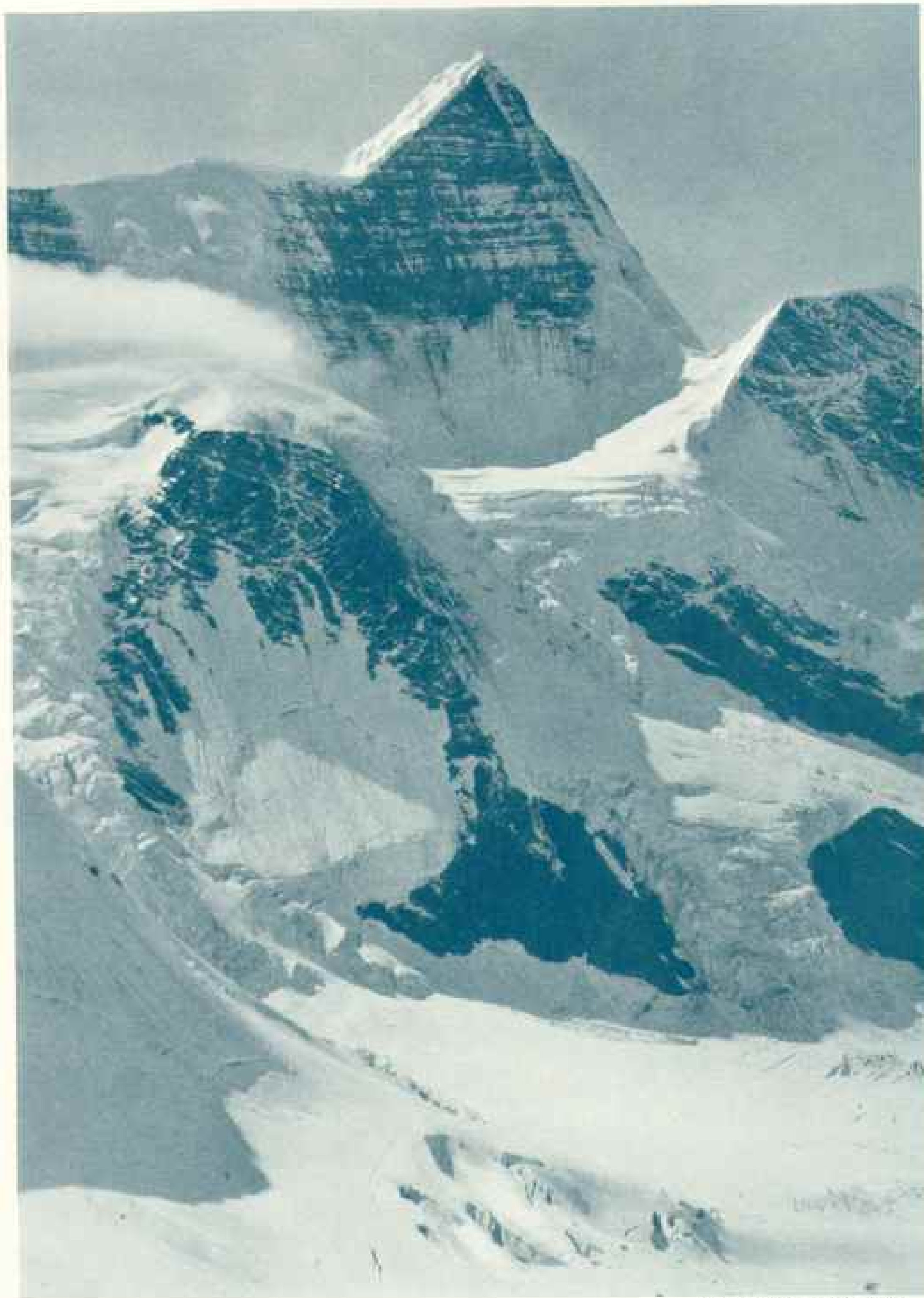
The prize was given particularly for Captain Stevens' achievement in obtaining aerial photographs showing the moon's shadow on the earth. The photographs were made during the eclipse of the sun of August 31, 1932, from an altitude of more than 26,000 feet.†

Another important achievement of Captain Stevens mentioned in the award was the taking from a high altitude of the first photographs showing laterally the curvature of the earth. Both of these unique photographs have been published in the *NATIONAL GEOGRAPHIC MAGAZINE* and enlargements of them are on exhibition in the National Geographic Society Building in Washington.

The Franklin L. Burr Prize was established under the bequest of the late Mary C. Burr, of Hartford, Connecticut, who bequeathed a fund of \$35,000 to the National Geographic Society in memory of her father, the income to be used in the awarding of cash prizes to those members of The Society's expeditions considered by the Board of Trustees to have done especially meritorious work in the field of geographic science.

* See "The Conquest of Antarctica by Air," in the *NATIONAL GEOGRAPHIC MAGAZINE* for August, 1930.

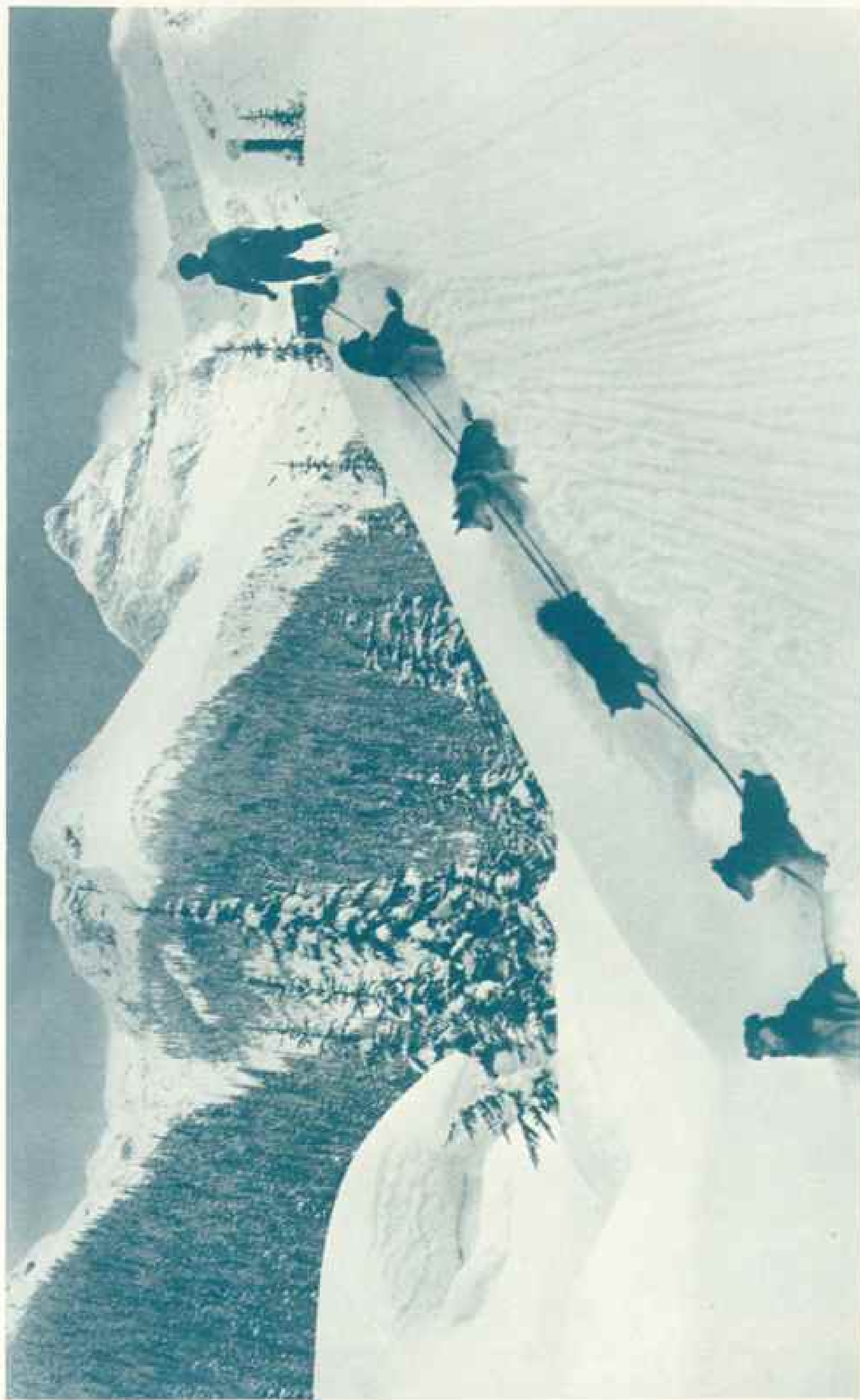
† See "Photographing the Eclipse of 1932 from the Air," by Capt. Albert W. Stevens, in the *NATIONAL GEOGRAPHIC MAGAZINE* for November, 1932.



Photograph by Byron Harmon

THE MONARCH OF THE CANADIAN ROCKIES RULES A RUGGED WORLD

Mount Robson, hung with glaciers and wrapped in ermine snow, rises high above its fellow giants and dominates a magnificent mountain region of big-game sanctuaries, national parks, and resorts. Following the ridge at the left to the shoulder and then chopping hundreds of steps to reach the glittering, icy crest, daring climbers have conquered even this steep, avalanche-scarred eastern face.



Photograph by Byron Hamann.

"MUSH," AND THE TRAPPER'S HUSKIES WILL PLUNGE DOWN A SNOW-CHOKED SLOPE.

Sledge and dog team still constitute the most practical means of cross-country travel, when huge drifts dwarf the fir trees and mantle the rocky peaks of the Selkirk, British Columbia. In the distance Mount Sir Donald rears its craggy head. It is named for Lord Strathcona, who, when he drove the final spike in the rails of the Canadian Pacific Railway in 1885, opened the empire of the Canadian Rockies to the traveler and sportsman.



Photograph by Byron Harrison

ON LONELY WINTER TRAILS, NO COMPANION IS MORE LOYAL THAN THE HUSKY

A musher and his Eskimo dogs pause for a noontime rest while packing supplies into snow-bound Skoki Ski Camp, a few miles north of Lake Louise, Alberta. A long hard climb has brought them to a high mountain pass and the young man doffs his cap to let the wind blow through his damp and tousled hair.



Photograph by Byron Harmon

ALTHOUGH THE MOOSE WEIGHS HALF A TON, HE IS LIGHT-STEPPED AS THE ROE

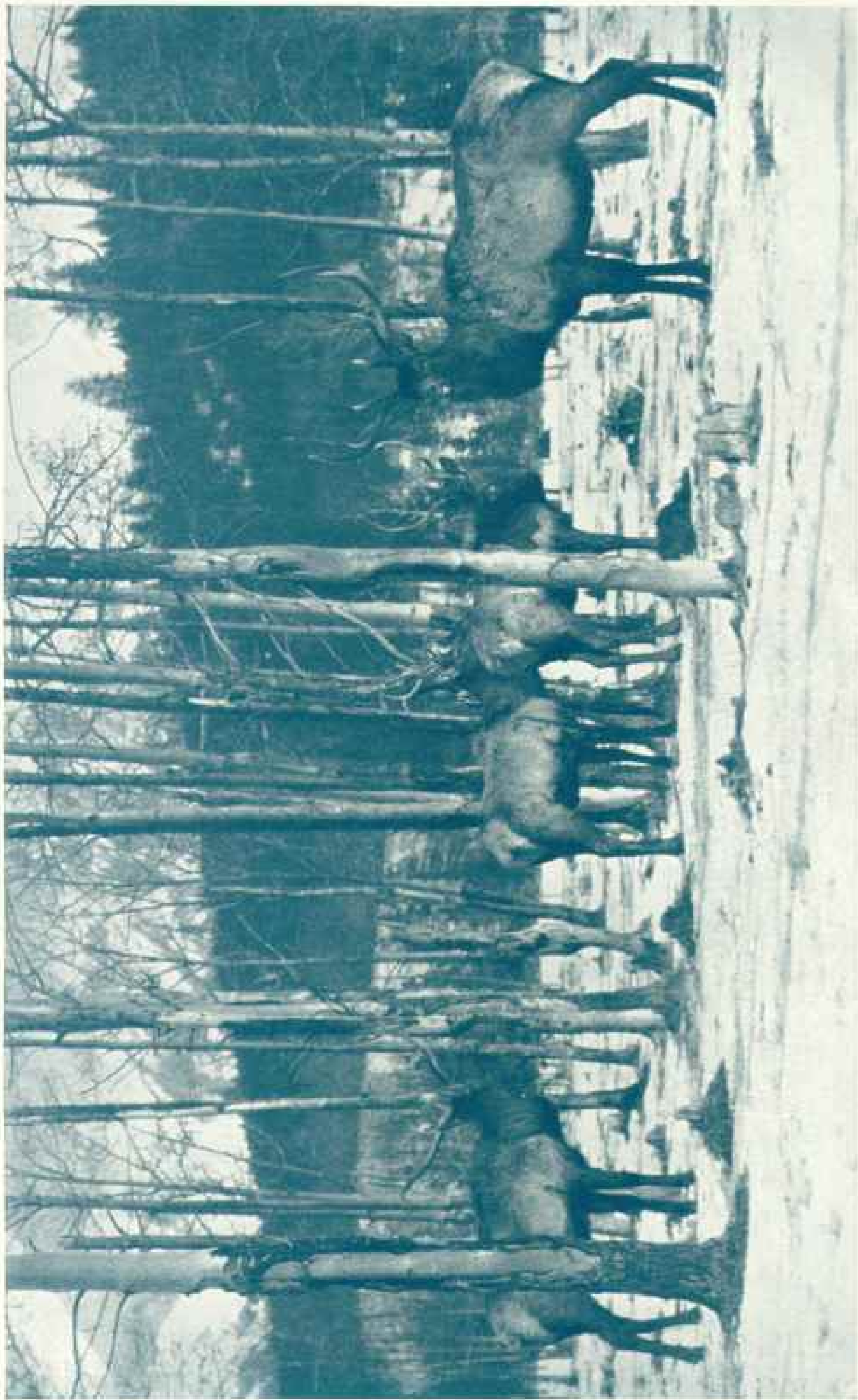
Clansy as he appears, he can stalk through thick undergrowth without the telltale crackling of a twig. These grotesque giants are often seen and chased by motorists on the Banff-Windermere Highway, beside which lies a 90-mile strip of mountain scenery reserved for game.



Photograph by Byron Harbush

BIG EARS, NOT A BALKY DISPOSITION, ACCOUNT FOR THE MULE DEER'S NAME

A debutante and her mother have donned glossy grayish-brown winter coats instead of their summer garb of rich, rusty red. Often, when scared, they "siky hop," or leap several times straight into the air, before racing for cover. The calm boldness they exhibit is the result of the protection they receive in Banff National Park. In winter they become almost as tame as household pets.



Photograph by Byron Harman

SAPLINGS SUFFER WHERE AMERICAN ELKS CONGREGATE

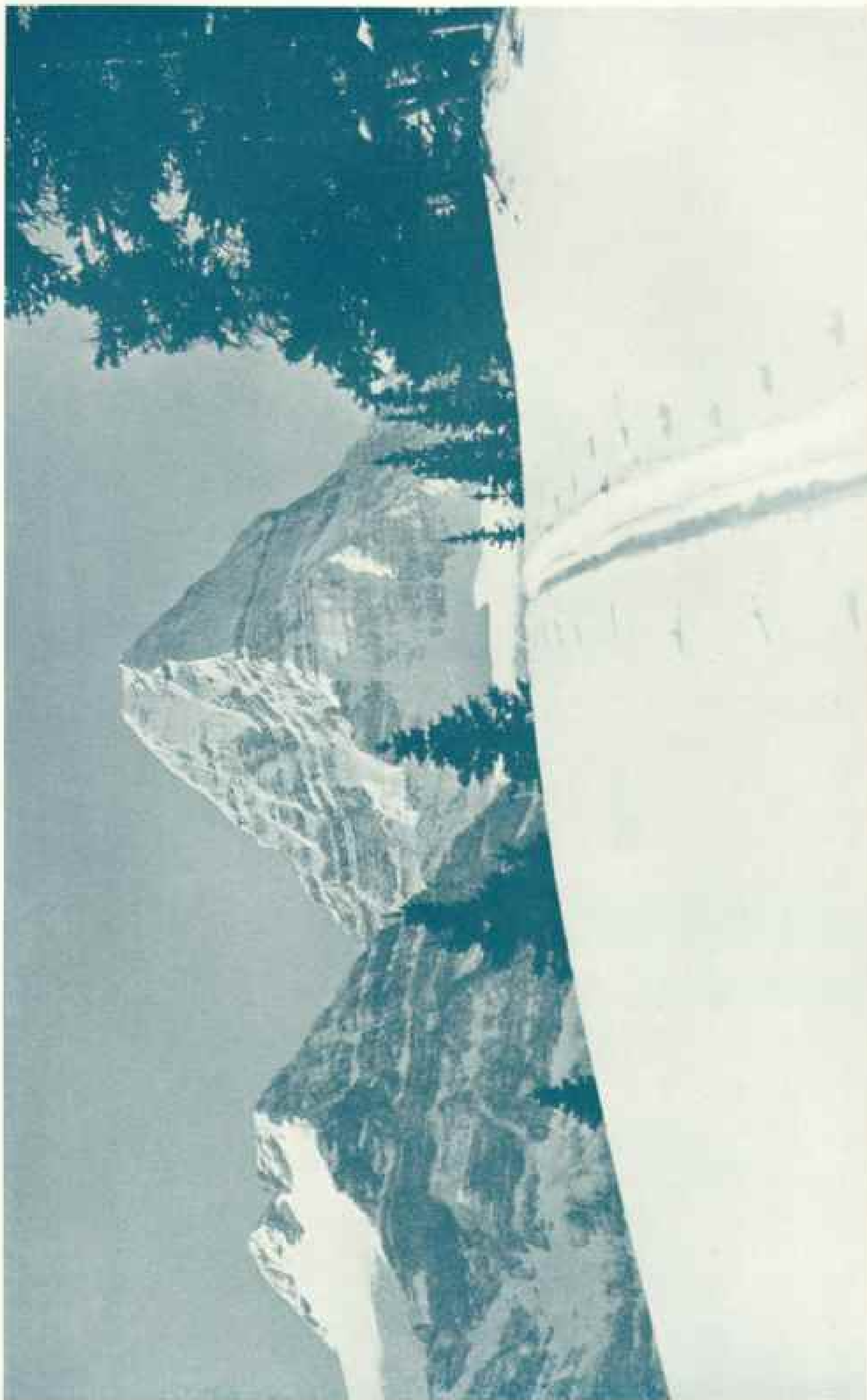
Before ground forage is free from snow, the tender bark of young trees furnishes tempting food, and the limitless trunks make convenient rubbing posts to remove "velvet" from antlers. These handsome relatives of the European stag live in herds, each male in the mating season winning by combat a small following of cows. They are plentiful near Banff, their numbers having greatly increased as a result of years of protection. In the deer family they are surpassed in size only by the moose.



Photograph by Byron Harrison

HIGHHORNS COME DOWN TO THE HIGHWAY FOR A TASTE OF SALT

Flocks of intrepid mountaineers bound about the lower slopes, open ridges, and rugged places near Banff. In springy grass these Rocky Mountain sheep exceed the sure-footed goats which live on the dizzy ledges above them (see page 635). In mating season, massive-horned rams like the old fellow in the left background fight by charging and furiously crashing their heads together.



Photograph by Clifford White

THE "CANADIAN MATTHEIORN" WAS ONCE INVINCIBLE.

First to plant the foot of conquest upon Mount Assiniboine's towering crest was the late Sir James Outram, in 1901. In a blinding storm a guide insisted the party had reached the main summit. Outram, doubting, shouted into the dense cloud banks and, hearing an echo, decided a higher peak rose above them. The climbers retreated and in better weather the next day toiled to triumph. The region is a focal point of an extensive skiing country.



Photograph by Byron Harmin

THREE WISE GOATS LOOK BEFORE THEY LEAP

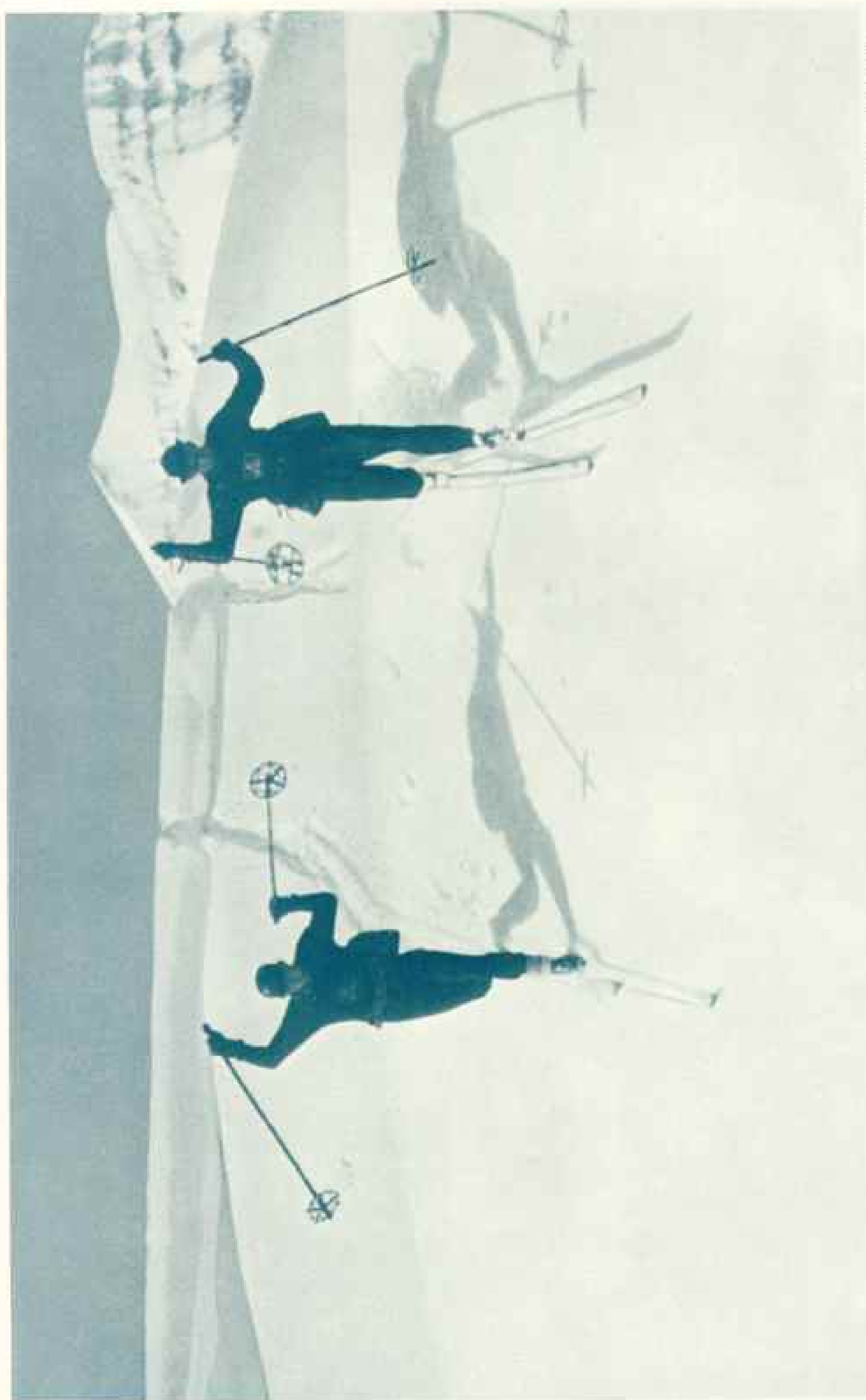
With long faces lending a sad appearance, the browbearded trio paused to study the photographer; then in a flash they were mounting toward the clouds up Cascade Mountain. The Rocky Mountain goat, a dweller among inaccessible cliffs, calmly climbs an 80-degree precipice or jags across the face of a 300-foot wall on barely discernible footing. When cornered, it wields its skewer-sharp horns with deadly effect, jumping about like a boxer and thrusting at the enemy's abdomen.



Photograph by Clifford White

SEVEN-LEAGUE BOOTS WHISK ONE INTO THE SUNSET OVER THE ALPINE UPLANDS

Because of the ideal snow conditions and the unlimited area of skiing country near Banff, this region is rapidly becoming a mecca for devotees of the sport. Mountain slopes of every degree of steepness offer opportunity for thrilling descents and challenge the skill of expert and novice.



Photograph by Clifford White

LIKE AN EAGLE'S SWOOP IS A PLUNGE ON SKIS.

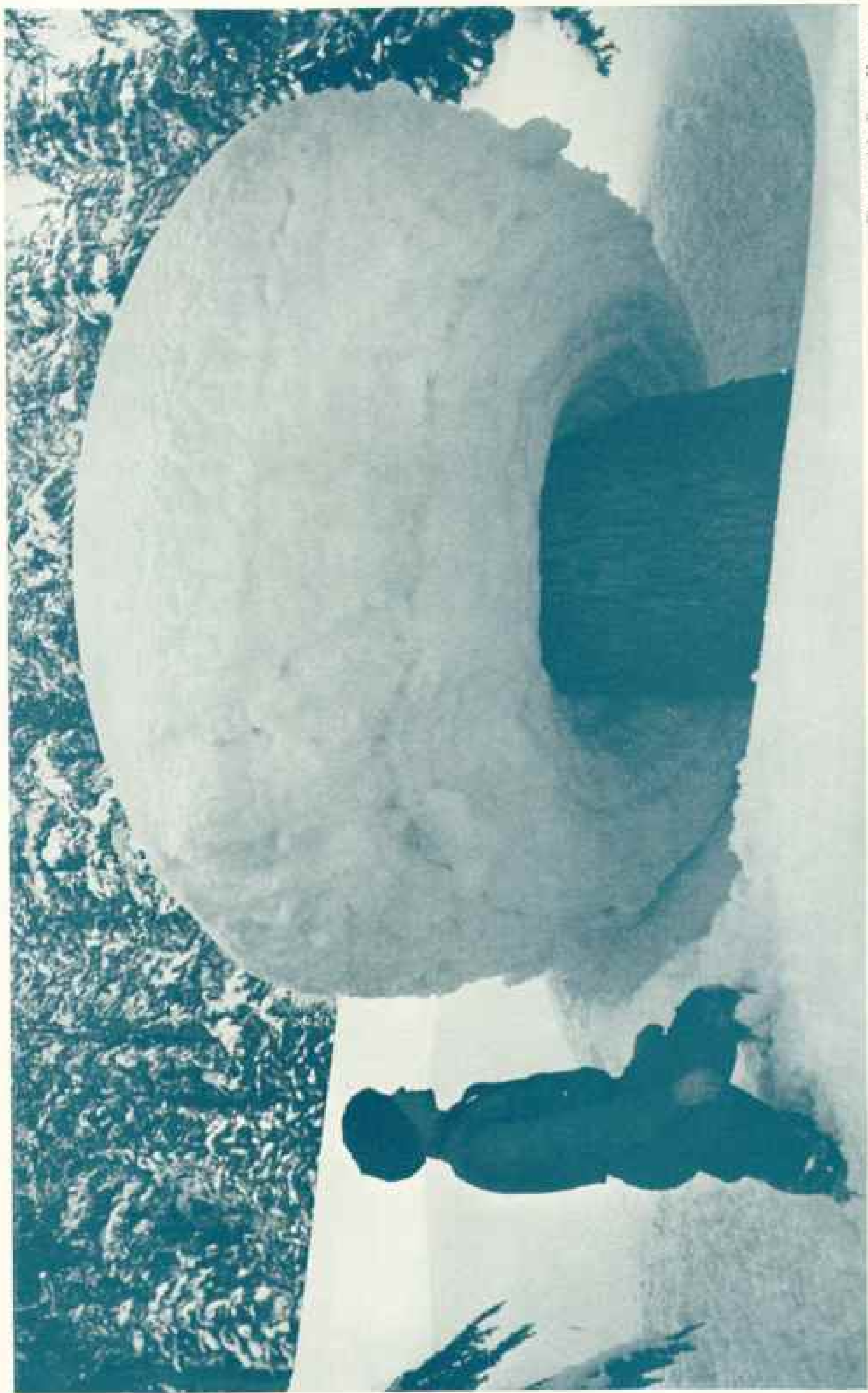
Unless one has a cool head and the balancing ability of a tight-rope walker, the sport on the slopes of Parmigan Peak, northeast of Lake Louise, means many a spill.



Photograph by Byron Harcourt

NEW SNOW VEILS ASULKAN GLACIER'S TREACHEROUS CREVASSES

A slowly retreating remnant of the Ice Age hangs poised at the head of this valley in the Selkirks. The name is Indian for "wild goat," numbers of which have been seen on the pass near by. In summer the green floor is dotted with bright wild flowers in contrast to this wintry scene.



Photograph by Byron Harritt

WHIMSICAL WINTER GROWS A "SNOW MUSHROOM"

A heavy snowfall buried a stump. Then came a thaw. The level of the white blanket fell, but around the top of the tree-stub a little clump to the wood. A cold snap froze it there. Finally another load of feathery flakes emphasized and delicately rounded its contours until it seems that a master must have sculptured it in cold white marble there in the woods of the Spelkirk Mountains.



Photograph by Byron Hartman

ONE WAY TO COOL AN OVERHEATED ENGINE

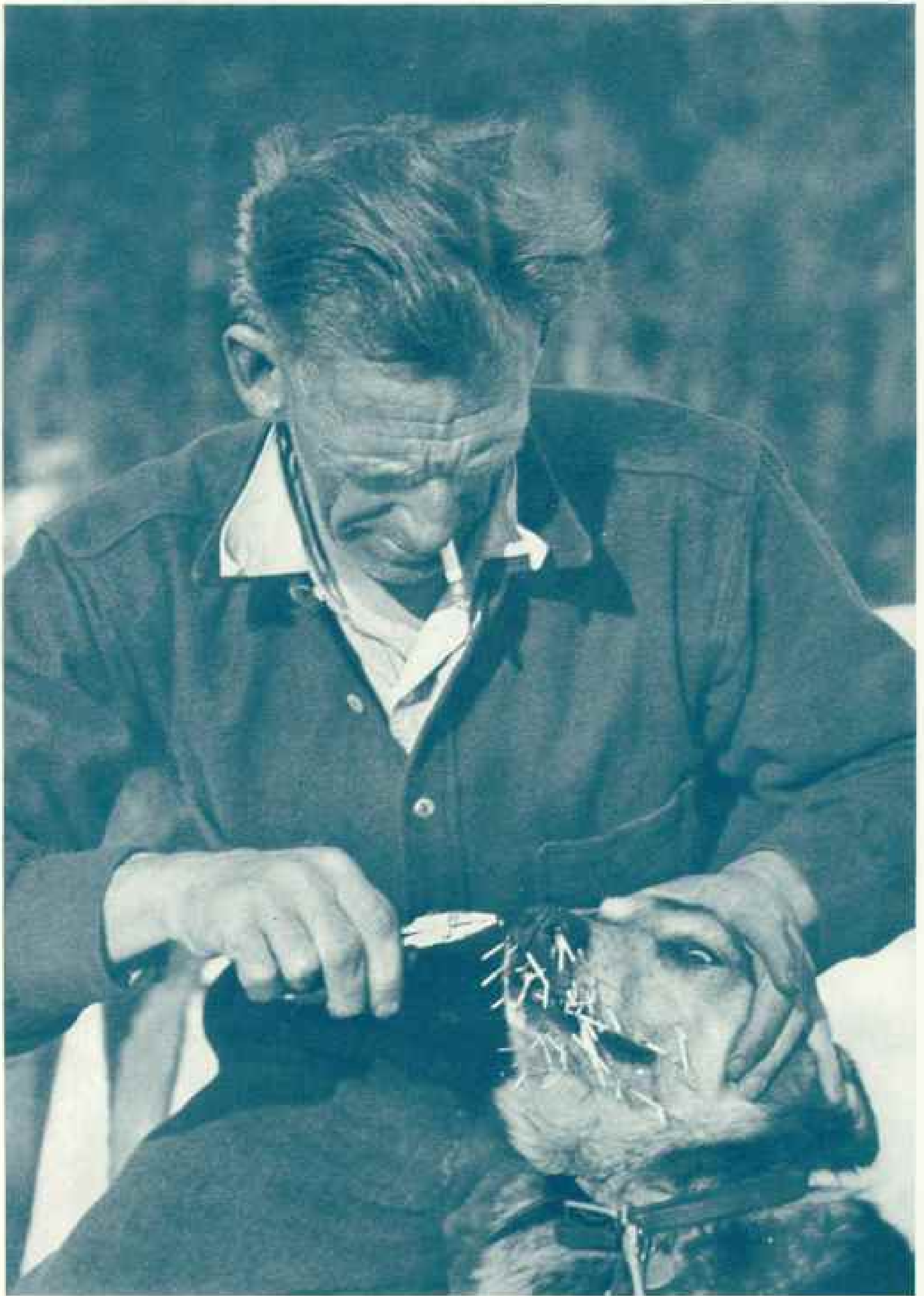
In some places 40-foot snow banks bordered the road to Takakkaw Falls, in Yoho National Park, British Columbia, in July, when this photograph was taken. According to legend, when Indians spied the beauties of the region they uttered an exclamation of wonder and delight, "Yoho!" and Yoho it became.



Photograph by Byron Harpman

THE REWARD OF HIKERS ON SULPHUR MOUNTAIN IS A VIEW AND BATH

At the end of the winding snowshoe trail is a memorable panorama of snow-capped peaks massed along the Continental Divide, the wavelike formation of the eastern ridges, and the wide, far-stretching valley of the Bow. Hot sulphur springs at the base invite a plunge into a warm open-air pool with sides fringed with icicles and snowdrifts.



Photograph by Byron Hansen

HE STUCK HIS NOSE INTO ANOTHER'S BUSINESS

"Coyote," one of the two novices of the dog team, has just had his first encounter with a porcupine. This husky knows how to take his medicine, but his partner in the attack had to be "hog-tied" for the operation.

YOUTH EXPLORES ITS WORLD

BY FREDERICK SIMPICH

AUTHOR OF "MEN AND GOLD," "PIECES OF SILVER," "ONTARIO, NEXT DOOR," ETC., IN THE NATIONAL GEOGRAPHIC MAGAZINE

TO THE sound of Indian drums, Scottish bagpipes, Chinese music, Australian yells, and assorted noises made by boys of 56 different nationalities, the Scouts' Fourth World Jamboree opened at Gödöllő, near Budapest, Hungary, in August, 1933.

Few of the visiting boys could even pronounce Gödöllő, much less speak any Hungarian. "I'm glad," said one, "I was born in a country where I can understand the language!"

The mile-long field where these boys camped was once the hunting ground of the Hungarian emperors. Near here, in 1849, the Austrian Prince Windischgrätz was defeated by Görgei, the Hungarian commander. From now on the region will best be known to Hungarian school children because there, in 1933, more than 25,000 boys from all over the world held an international conference.

Symbolizing the fact that the Boy Scout's oath, "Duty to God and to others," is in harmony with every faith, the Scout flags were blessed at an opening ceremony in Protestant, Catholic, Jewish, and Moslem services.

A CAMP OF A MODERN CRUSADE

In one day 70,000 visitors came to see this vast camp of the world's youth; 30,000 peasants paraded in costume. Each boy tried to get acquainted with five other boys from five different countries. They swapped food, badges, uniforms, and yarns—when they could talk together. Outwardly they were Chinese, Filipinos, Japanese, Americans, English, Austrians, Arabs, or French—black, white, yellow, and brown. But under the skin they were just boys, with the common mannerisms of boyhood and a universal language all their own.

Nobody was happier than the Chief Scout, Lord Baden-Powell. With Admiral Horthy, Regent of Hungary, he rode about the Scout lines, then galloped back to the reviewing stand, albeit not so steady in the saddle as when, some 35 years ago, he first got the idea which led to this world-wide movement. It has been a long time since Mafeking.

When it was all over, 25,000 boys massed on the field to lift flags and shout "Brother!" Then, as one observer wrote, the camel that Syrian boys had brought got lazily to his feet for the long walk back home; Texas boys boxed their bull snake, and a 16-year-old North American Indian, who had explained the art of scalping, put his tomahawk back in his belt.

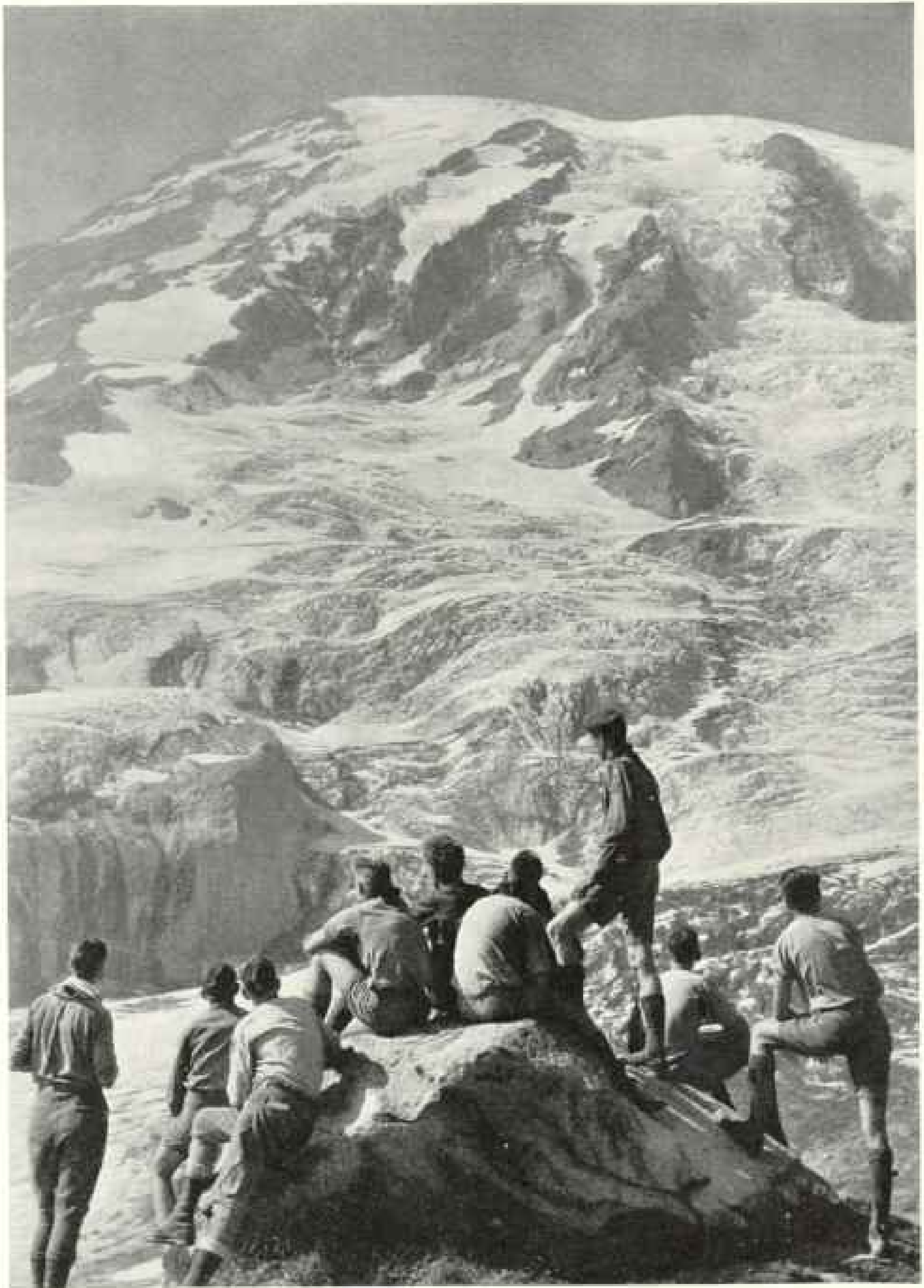
The idea of training boys so they will make useful men is, of course, as old as mankind. You see it even among savages. They fall short of what we teach Boy Scouts about thrift, kind acts, and telling the truth. But, like us, they do teach their boys to swim, jump, make traps, build fires, use the bow and arrow, track wild animals, and to endure hard knocks without whimpering.

Take the Zulu and Swazi tribes in Africa. They never heard of Boy Scouts; yet their sons, before they are taken into the tribe as warriors, get a training in woodcraft and self-reliance which is superb.

Stripped naked, his body painted white by men of the tribe, the Zulu boy at 15 is given a shield and spear and sent into the jungle. He is warned that he will be killed if he allows himself to be caught by any human. It takes about a month for the paint to wear off. During that time, the boy has to kill his own meat with his one spear, skin an animal to make his body covering, and also learn what kinds of wild plants, berries, and leaves are good as food. Failure may mean death at the hands of enemies, wild beasts, or by starvation. But if he succeeds, as he is supposed to by this severe initiation, he returns to the village when the paint has worn off, and with great rejoicing is received into the tribe as a warrior.

ZULUS SING WHILE MARCHING

"Zulus on the march form always a fine sight," writes Lord Baden-Powell, "and I shall never forget the first time I saw a Zulu army on the move. As a matter of fact, I heard it before I saw it. For the moment I thought that a church organ was playing, when the wonderful sound of their singing came to my ears from a neighboring valley.



GLORIOUS PANORAMAS OF NATURE ARE REVEALED TO BOY SCOUT EYES

Pausing at a vantage point along the Skyline Trail, Mount Rainier National Park, Washington, a group of young naturalists contemplate the glacier-masked face of the magnificent peak which the Indians called the "Mountain That Was God." More than 500 kinds of flowers and grasses make the park a happy hunting ground for seekers of a botany merit badge.



UNDER BANNERS OF ALL NATIONS THE SCOUTS GO MARCHING ON

In race, creed, or nationality, Scouting makes no discrimination. The "Grand Rush," or dramatic massing of colors, was the opening event of the Fourth World Jamboree at Gödöllő, Hungary, last year. Despite confusion of tongues, boys from the ends of the earth played games together, and "swapped" knives and other possessions.

"Then three or four long lines of brown warriors appeared moving in single file behind their chiefs, all with the black and white plumes tossing, kilts swaying, *assegais*, or spears, flashing in the sun, and their great piebald ox-hide shields swinging in time together.

"The Ingonyama chorus played on the organ would give you a good idea of their music as it swelled out from four thousand lusty throats. At a given moment every man would bang his shield with his *knob-kerry* (club), and it gave out a noise like a thunderclap.

"At times they would all prance like horses, or give a big bound in the air exactly together. It was a wonderful sight, and their drill was perfect.

"Behind the army came a second army of boys, carrying on their heads the rolled-up grass sleeping mats, wooden pillows, and water gourds of the men.

"These boys, by going on the march and looking on at battles, giving first aid to the wounded, and cooking the men's food, were

all learning how to become good warriors.

"They were the Boy Scouts of their nation."

SCOUTS OF THE EARLY WEST

Our early-day Western scouts, of course, learned much from the Indians. By observation and experience, they came to understand Indian smoke signals, picture writing, what certain sticks meant when laid in patterns on the ground, and the sign language.

Then there was tracking, the art of following a man or animal, not only by footprints, but by such faint signs as a turned-up pebble, bent weeds, or a broken twig by the wayside. A lot of that we got first hand from Indians, and every good cowboy still employs it in finding stray cattle and horses.

Years ago in Missouri I knew an old man who had been a stagecoach driver and Indian fighter. He could examine the country road in front of his house late any afternoon and tell by the horse tracks which of his neighbors had passed that day.



THE PRINCE OF WALES AND LORD BADEN-POWELL IN SCOUT UNIFORM

Here the founder of Scouting, with the heir to the British throne, is inspecting a troop of British Boy Scouts. The Crown Prince, as Chief Scout of Wales, takes an active part in this great youth movement (see text, pages 651 and 661).

One Hindu boy, it is written, walked for several days to get to Simla, climbing on the way a Himalayan pass 15,000 feet high, just to ask if he could join a group forming in northern India to go to the "Jamboree" the year it was held in Birkenhead, England.

But looking back into the annals of youth movements, we see that long "hikes" are nothing new. There was the Children's Crusade, when in 1212 some 50,000 youngsters started from Europe for the Holy Land.

It was Stephen, a shepherd boy of France, who launched this historic youth movement. A German lad named Nicholas, from near

Cologne, also raised an army. The Germans, 20,000 strong, crossed the Alps into Italy. Many perished. Survivors, reaching Brindisi, were for the most part seized and sold as slaves. Their French comrades, 30,000 of them, were led by Stephen to Marseille. Here some were stranded. Many accepted the offer of merchant traders to transport them to Palestine. For years their fate was a mystery, till it was learned that they, too, had fallen among slave traders, some being sold in markets as far away as Baghdad.

The world-wide Boy Scout organization as we know it now is the culmination of age-old training.

The Arab boy who took his camel stick and traced a map in the Iraq sands to show me how to find my way back to Baghdad, years ago, had all the makings of a "Good Scout." So had the Chinese boys I saw fishing with cormorants on the Pei-ho, putting a ring around the hungry bird's neck so he

couldn't swallow any fish for himself till he'd caught a basketful for the boys.

TRAPPING A DEER WITH TANGLED VINES

And there were the naked Igorot boys of Luzon, with whom I went deer hunting. Across the deer path they wove a blind net of leafy vines. Near this two boys, spears in hand, hid with me and waited while others took lean, black dogs up the mountain side to drive the deer down. When the running deer hit the tangle of vines, they fell, and in that instant the boys threw their spears, and we had venison for dinner—with my contribution of a tin of



Photograph by Clinton Adams

IN BOY SLANG THIS NATURALIST'S WORKROOM IS THE "BUG HOUSE"

Nature collections are important projects in Scout camps, and Scouts acquire skill and dexterity as well as knowledge in mounting and displaying their specimens. Often these collections are presented to schools and museums, where they help educate other children and grown-ups as well.



Photograph by Burton Holmes from Gallowsay

THE ROMAN SALUTE OF THE FASCIST "BALILLA"

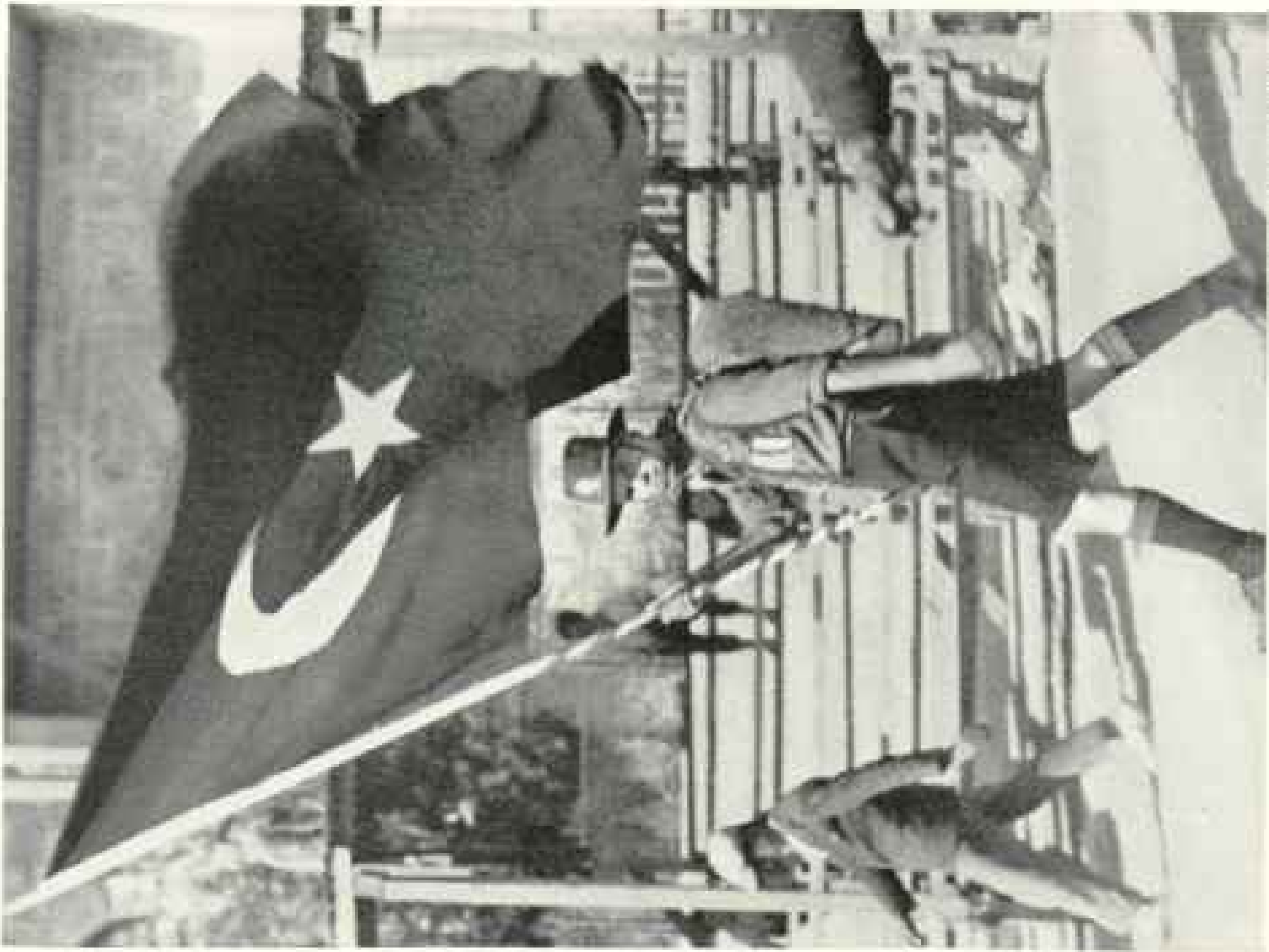
This patriotic body of black-shirted Italian boys and girls between the ages of 8 and 14 is somewhat similar to our Scout organizations, except that it includes military training. For older boys, from 14 to 18 years of age, Italy has organized another institution, known as "Avanguardisti."



Photograph by Clifton Adams

LEARNING TO SAVE OTHERS FROM WATERY GRAVES

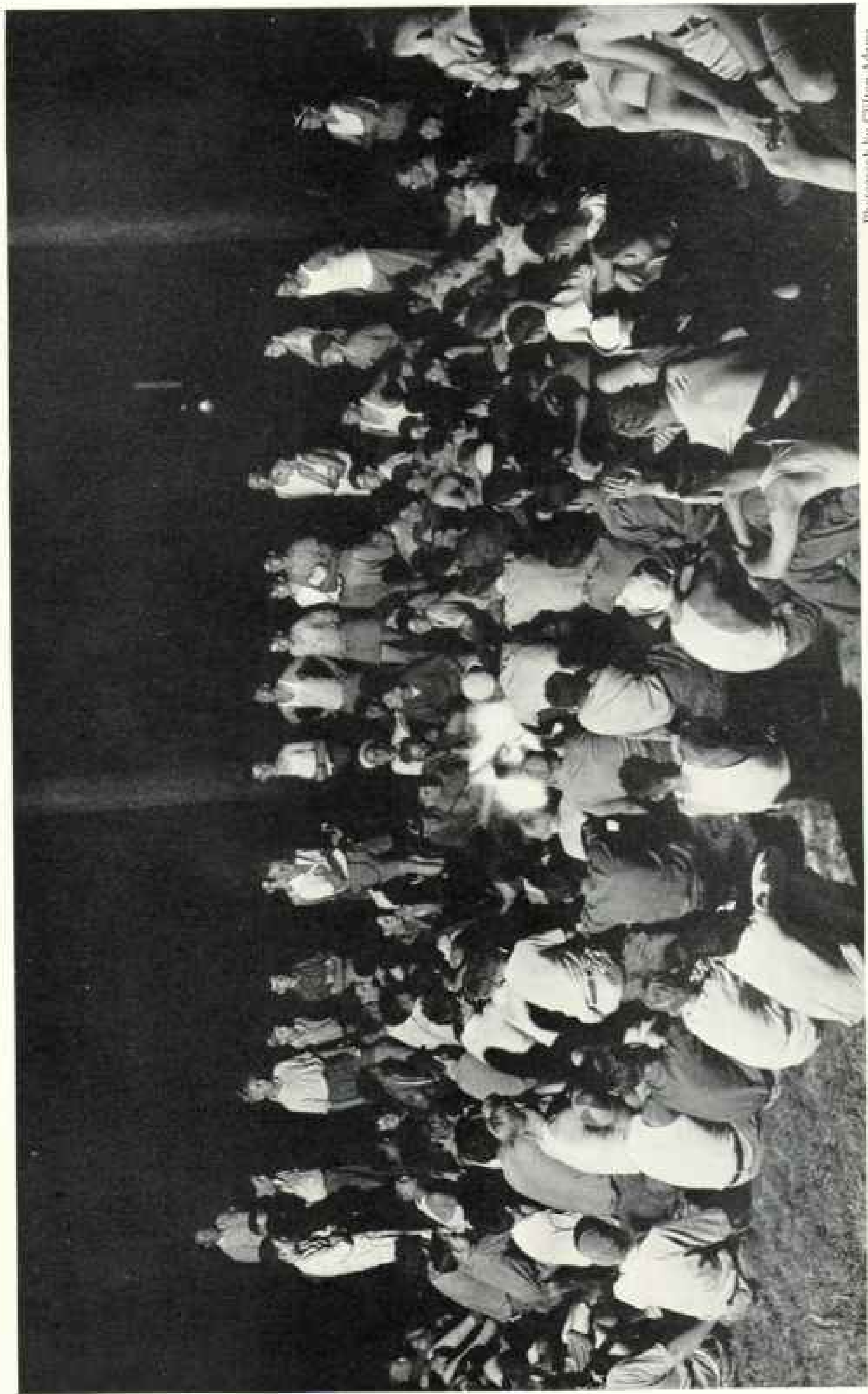
Scouts at Camp Roosevelt, Maryland, demonstrate the hair carry (foreground), where the rescuer has one arm free and tows the drowning person by his hair. In the head carry (above), both of the rescuer's hands grasp the victim's chin and propulsion is with the legs



© Kerr and Margot Liebman

MODERN YOUTH MARCHES IN TURKEY'S NEW CAPITAL

A Turkish color bearer leads his troop of Boy Scouts into Ankara to pay homage to Ghazi Mustafa Kemal Pasha, leader of the New Turkey. Scouting is one of many Western institutions which, with games, clothes, airplanes, and farm implements, have invaded this once remote provincial town.



Photograph by Clifton-Adams

TALL TALES AMONG THE TALL TIMBERS

Like Indians at a powwow, Scouts sit in rapt silence as the story-teller weaves his spell. One night a tale of adventure is told, the next a yarn of the sea or a ghost thriller, and the third night a local legend, all accompanied by solemn ceremonies. No part of camp life is appreciated more than the council fire under the stars. "Call to Quarters" and "Taps" come all too soon.



AT WORLD JAMBOREES SCOUT DELEGATIONS FROM VARIOUS NATIONS MARCH UNDER THEIR RESPECTIVE FLAGS

Fifty thousand Boy Scouts took part in the Third World Jamboree, held in Birkenhead, England, in 1929. An airplane view shows the opening ceremonies and the massing of boys of 73 nationalities. As the delegations marched in alphabetical order, American Scouts led the procession, followed by the Australians (see text, page 659).

American apple butter, a "good deed" hailed with happy Igorot grunts.

How Lord Baden-Powell, then a colonel in the British Army, conceived the Boy Scout idea in the South African War of 1899-1902 is an oft-told tale. One of his officers, Lord Cecil, organized the boys of Mafeking as a scout corps. This trial proved that if their training could be made to appeal to them, boys could be led to assume much responsibility—but *only if they were trusted*.

It was Baden-Powell, or "B. P.," as boys all over the world now call him, who in 1901 raised the South African Constabulary. Troops in this were small units, so that a commander could deal with each scout from personal knowledge of him. The human side was appealed to, and scouts trusted on their honor to do their duty. Their uniform for fieldwork was the cowboy hat, shirt, green tie, and shorts. Badges were given for good work.

LORD BADEN-POWELL, CHIEF SCOUT OF THE WORLD

Returning to England in 1903, Colonel Baden-Powell found that certain teachers there had adopted his "Aids to Scouting" as a textbook for training boys. His own first trial camp for scout training was set up at Brownsea Island, England, in 1907. That was the formal start of a movement now spread over the whole world, involving more than 2,000,000 boys.

"To arouse the boys and meet their spirit of adventure," writes Baden-Powell, "I held up backwoodsmen and knights, adventurers, and explorers as heroes for them to follow."

In the actual careers of famous adventurers, and all they had to do with boats, camp life, horses, hunting, and wild life, Baden-Powell found exactly the lessons he taught his boys. He trained them, just as he had trained the army scouts in South Africa, "with some adaptation," he says, "to make the training suitable for boys, following the principles adopted by the Zulus and other African tribes, which reflected some of the ideas of Epictetus, the Spartans, and the ancient British and Irish for training *their* boys." The Bushido of the Japanese, as well as the ideas of Maj. Frederick Burnham, an American famous as Chief of Scouts for Lord Roberts in South Africa; Sir William Smith, Dan Beard, John Rounds, and other prominent students of boy life, were also drawn on.

By 1910 the Boy Scout movement had grown so large that Baden-Powell left the British Army to give his whole time to this work. He visited the United States to promote Scouting. A national office was opened, and Dr. James E. West became Chief Scout Executive.

Now Scouting covers the earth.

Including England, it is organized in 73 different nations and colonies, and under the guidance of an international committee of nine. Two are from the British Empire, two are from the United States, and the rest from other countries.

It is 24 years since this movement reached the United States, where to-day it involves annually more than 1,300,000 boys and men.

Arrangements now are being made for a national jamboree of American Boy Scouts to be held in Washington, D. C., in August, 1935. It is estimated that some 30,000 boys, chosen for achievement in every State, will attend.

Men prominent now in the Nation's work were Boy Scouts 20 years ago.

One late count showed that 58 per cent of university football captains were former Scouts. When Grantland Rice picked his first All-American Eleven, eight were ex-Scouts. In a choice of Rhodes Scholars for 1933, 71 per cent were former Scouts.

In Sing Sing, says Warden Lawes, it is rare to find a prisoner who was ever a Scout.

Like the American Red Cross and the American Legion, the Boy Scouts of America form an organization chartered by Congress. President Taft was its first honorary president; every succeeding President has likewise served.

BOYS AID IN FLOOD RELIEF

I was on the lower Rio Grande when floods inundated many homes. I saw there what quick, effective aid Scouts can give to people in trouble—even when working in muddy water up to their necks! The Red Cross, the Forestry Service, the fish and game agents of the Government, all get aid from Boy Scouts in emergencies. In civic affairs Scouts take an ever-growing part, as in school fire drills, flag raisings, supervision of playground activities, and Memorial Day exercises.

In towns wrecked by tornadoes or wasted by fire, Scouts acting under the Red Cross, the police, or the sheriff have done men's work. Within an hour after a cyclone hit St. Louis 4,000 Scouts had mobilized to help the authorities.



Photograph by Paul Parker.

A CAMP CAN BE MADE COMFORTABLE, EVEN IN BAD WEATHER, IF YOU KNOW HOW!

Bacon sizzling in the pan, "taters" in the coals, the pungent odor of wood smoke, and a snug tent to keep out wintry blasts—little wonder that the part of a Boy Scout's training which enables him to take care of himself under adverse conditions is quickly and willingly fulfilled.

Men of strong character guide these boys. To-day more than 250,000 men in America and many in other lands give their time and energy to this training.

Exalting the pet hobbies of boyhood gives Scouting a world-wide appeal.

"These hobbies not only stir up the energies of boys, but they form memory's background for most normal men," writes O. E. McMeans. "Swimming will ever come first in any list of boy hobbies, as it is the first of the twelve 'tests' for the First-Class Scout. Next, perhaps, in any land in any time, must come kiteflying. That man who has not as a boy watched a kite of his own workmanship rise steadily as a balloon from the ground, then tug like a thing of life on the swaying line reaching up toward it in the depths of the blue, has missed one of the supreme triumphs of boyhood. The mystery of code signaling holds a deep charm for the average boy. To be able to 'talk' with the flags across the valley, or with the whistle in the forest—indeed, with anything anywhere that will carry a signal by motion or sound—is no mean accomplishment."

One would think the Boy Scouts of the Netherlands would specialize in tricks with tulips, or toy windmills, or go in for fancy skating. What they dote on is lasso-throwing!

TWO MILLION SCOUTS ON WORLD MAP

Away up at Cape Prince of Wales, in Alaska, flourishes one of the 30,000 troops of Scouts under the American flag. All its members are Eskimo boys. Their two patrols are the "Reindeers" and the "Polar Bears." They hold contests in spear-throwing, archery, and in wood and ivory carving, when not helping keep their villages clean and safeguarding the water supply.

Through Scandinavia and Germany you see many rest huts built by Scouts for the use of tramping parties. The byways of Europe are thronged every summer by bands of boys; often you meet them, some with guitars and mandolins and singing as they march. Some go on bicycles, or by canoe up and down the rivers. Thousands participate, the cost being only a few cents a day. Many visit the gliding fields and fly their own gliders.



"HAYFOOT! STRAWFOOT! KEEP IN STEP!"

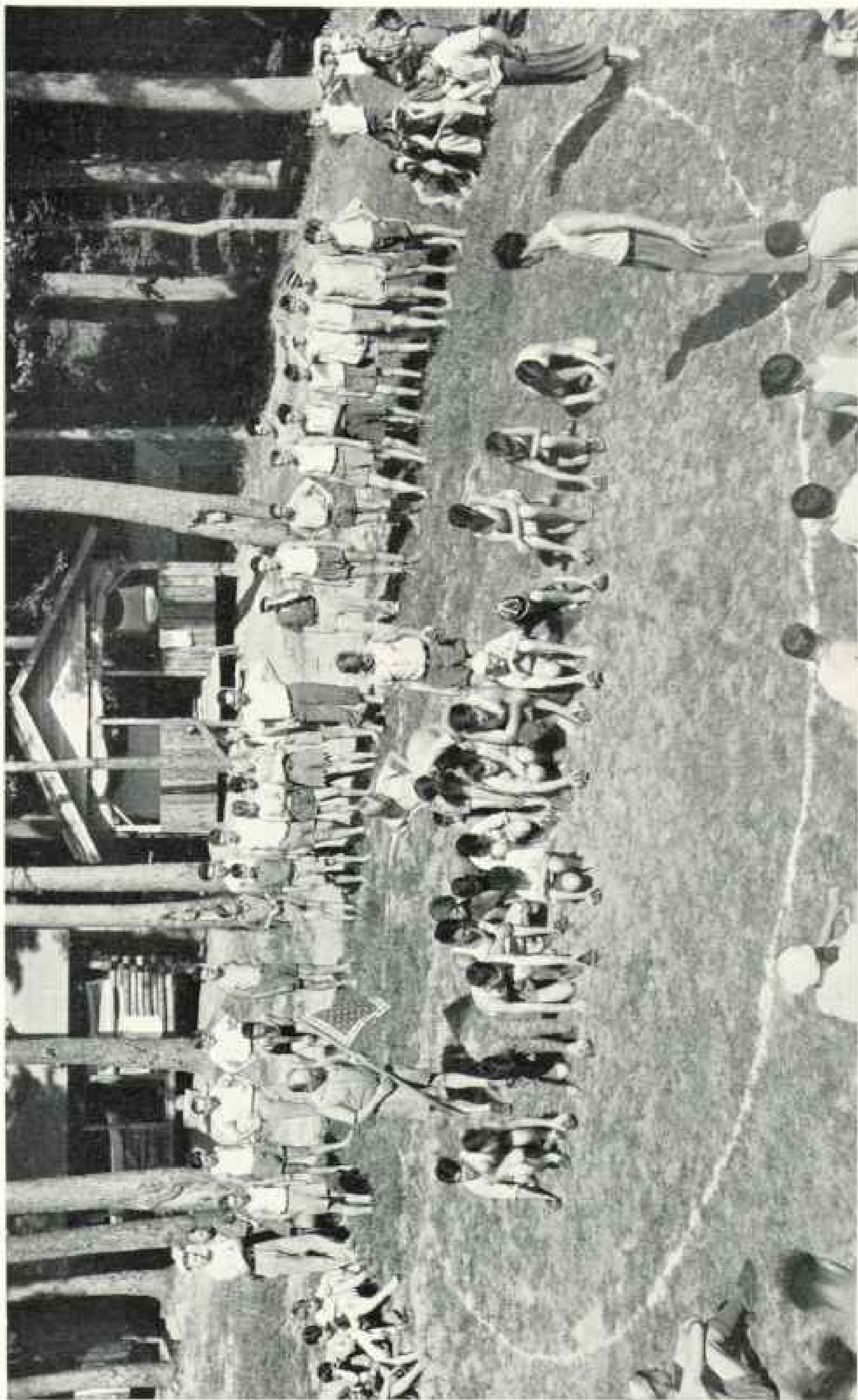
The normal, wholesome "gang instinct" in boys is developed by Scouting. Small patrols, each under its own boy leader, set forth alone for bird-study, bridge-building, pathfinding, or other projects. Later, meeting with adult Scoutmasters, they report upon or demonstrate their findings.



Photograph by Clifton Adams

COULD YOU START A FIRE WITHOUT A MATCH?

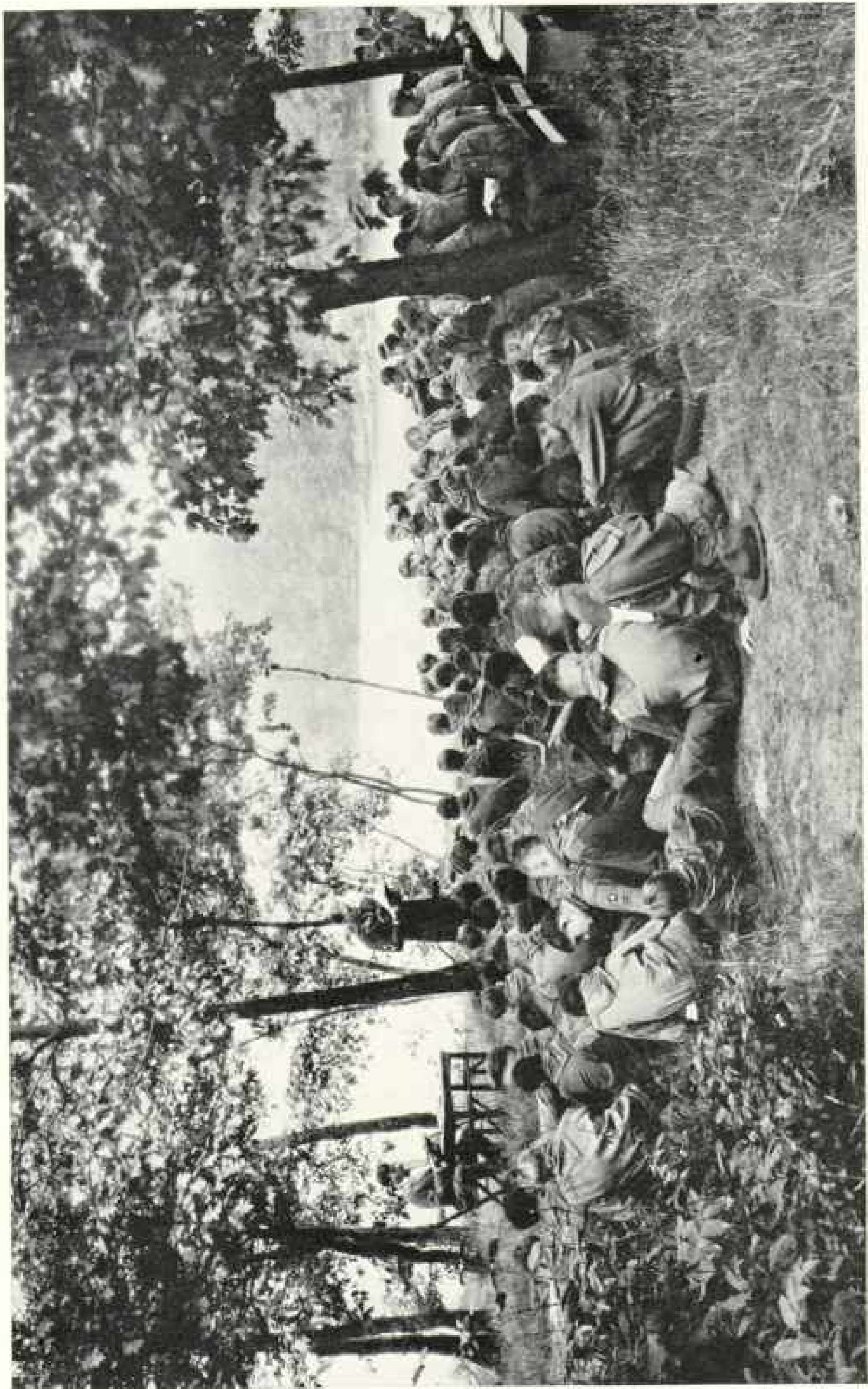
Pioneers used flint and steel. Some primitive men employed friction. With knife and as these boys made this bow. Then they looped a shoestring about a sharp stick; strung their bow, and are pulling it back and forth to twirl the stick against a dry board. This starts a blaze.



Photograph by Clifton Adams

"ON YOUR MARK FOR THE WORLD'S SLOWEST RACE!"

A turtle derby during a Fourth of July celebration at Camp Roosevelt, near Chesapeake Beach, Maryland. In addition to such old favorites as the treasure hunt and prisoners' base, scores of other camp games—slap-jack, canoe tilting, "antelope" racing—always find enthusiastic participants.



REVERENCE FOR THE CREATOR OF ALL THINGS—AN OUTDOOR SCOUT CHAPEL

That a Scout be reverent is the twelfth point of the American Scout Law, and was suggested by Dr. James E. West, Chief Scout Executive. It embodies the principle expressed in the Scout Constitution, that "the recognition of God as the ruling and leading power in the universe . . . is necessary to the best type of citizenship and . . . the education of the growing boy."



DIAGNOSING ONE OF MOTHER NATURE'S "SORE THROATS"

Some boy patrols may hike only a few miles near home; but this group of young naturalists is examining the fiery pit of Irazú Volcano in Costa Rica. Scout explorers have ascended three volcanoes in this Central American republic to obtain data and photographs for the U. S. Geological Survey.

As in China and Japan, so from the West Indies all the way down to Argentina are troops of Boy Scouts. Chile was one of the first of all countries, after England, to advance this plan of boy training. On any holiday now, from Rio de Janeiro around to Valparaiso, you may see the familiar khaki-clad boy, with his long stick, helping police keep crowds back of the ropes.

A BOY'S REPERTOIRE OF SKILL

Many practical things, not taught in schools, must be learned if a boy would work up from Tenderfoot to Eagle Scout. They include first-aid treatment in severe accidents; knowing the difference between sunstroke and heat exhaustion; how to revive drowning persons, or those unconscious from gas, smoke, or electrical contact; how to treat snake and dog bites; how to distinguish between simple and compound fractures, and what splints to use. Also, how to identify birds, especially those that protect trees and plants from insects; how to undress in deep water; to swim 100 yards carrying a person of one's own weight, and how to break a strangle hold in the water.

Because they "hike" so much, these boys,

exploring the hills, woods, swamps, and streams about their home towns, are masters of local geography. Map-making they learn, too; photography and natural history.

"Every task in Scouting," says Dr. James Russell, of Columbia University, "is a man's job cut down to boy's size. The appeal to a boy's interest is not because he is a boy, but because he wants to be a man."

The average boy is in school less than one-fifth of the hours in a year. But in free time he is just as receptive as in school, getting impressions, using ideas, reaching conclusions, forming habits, and organizing his mode of behavior. So habit becomes the basis of all efficiency; otherwise "we should spend our days learning anew the art of lacing our shoes, or holding a pen. Writing, made habitual, becomes so easy that the writer's whole attention may be centered on what he writes."

Camping with some Bedouins along the lower Euphrates, I watched the boys of the tribe at their chores. Without being told, as night approached they went into the licorice brush to drive up the goats, then helped women and girls gather bits of driftwood from along the river bank for cooking. In



Photograph from Wide World.

"TO THE COLOBS!"—AT VALLEY FORGE

Scout standard bearers stand at attention while the bugler's notes ring loud and clear over ground where the Continental Army camped during the bitter winter of 1777-1778. Back of the boys is a reconstructed log hut of the type used by Gen. George Washington's troops.

the morning, again without orders, they went about the routine work of caring for the herds.

This useful work was sheer habit.

STIMULATING INTEREST IN GEOGRAPHY AND EXPLORATION

Inspiring boys to observe birds, plants, and animals, to map new country and build trails, arouses in them the explorer's instinct and a keener understanding of geography. No part of Scout training receives more attention.

Nature study, geography, and geology, whether carried on during hikes or at summer camps (attended in 1933 by more than 300,000 boys), are particularly useful in stimulating the love of outdoor life in the city-bred boy.

Led by adult geologists, small groups of hand-picked Eagle Scouts have made exploring trips into many parts of Arizona, Utah, Nevada, and California. Some studied the shrinking of glaciers and the characteristics of timber lines. Others specialized on the distribution of alpine plants, birds, insects, and animals. One

group, working along the Grand Canyon, found some hitherto-undiscovered footprints of animals made long ago and preserved now in stone.

From Central America a naturalist expedition of American Boy Scouts brought back skeletons of a crocodile, a six-foot iguana, and various monkeys. They also made photographs of the active volcanoes of Irazú and Poas, in Costa Rica (see opposite page). One boy in this party made a fine collection of lichens.

Scouts of Montreal and St. Johns, Canada, worked with the scientists of McGill University in checking the path of the sun's eclipse across Quebec in 1932.

In studying the habits of the beaver, Boy Scouts of northern Idaho made a thorough exploration of the Coeur d'Alene River Valley.

Some newly discovered peaks and glaciers were added to our maps by Seattle Boy Scouts through their recent explorations in the wilderness of the Olympic Peninsula of Washington. One of the peaks found by Scouts was named Mount Coolidge. President Coolidge sent his personal thanks to



THE JAUNTY RED FEZ IS REGULATION HEADRESS FOR SCOUTS ALONG THE NILE

Symbols and designs from days of the Pharaohs decorate tents of the Egyptian boys. The Egyptian Scout organization was founded soon after the establishment of the movement in England, and has been fostered by King Fuad I, who for 10 years has been a member of the National Geographic Society.

the boys for naming this peak for him. The Scouts there said that Mount Coolidge was so named because of its "strong, silent stillness."

Boy Scouts of Great Barrington, Massachusetts, helped build a link in the Appalachian Trail, planned to extend along the crest of the Appalachians from the Canadian border to the extremities of the mountain range in the far south. In this work they joined with the Green Mountain Club, which has built a trail along the crest of the Vermont highlands. Boy Scouts worked on one link in western Massachusetts, stretching from the Vermont line, running over Mount Greylock and other mountains to the New York State border.

Working with the State Forestry Service, Boy Scouts of Waterbury, Connecticut, started cutting fire trails through the Matatuck forest near that city. The work of the Waterbury Boy Scouts is a part of the program in which Boy Scouts throughout Connecticut are working in the formation of patrols to mark trails and then patrol all State forests in order to prevent forest fires. As a result of the work, the Scouts gained

a first-hand knowledge of surveying and general forestry.

While exploring ancient mounds in Ohio, Scouts found many skeletons, pottery, arrowheads, skinning knives, and a grinding pestle.

When Syracuse University sent an expedition to the Andes, it was accompanied by an Eagle Scout, who spent six months there and helped the expedition with its study of rare birds, animals, and reptiles. Boy Scouts of Washington found a deposit of shellfish fossils on the bank of a stream, perfectly preserved since the days when the ocean covered the southwestern part of that State. Scouts went with the East Tennessee Archeological Society when its expedition explored the Little Tennessee River in quest of the ruins of old Indian villages.

More than 1,700 separate camps for Scouts were conducted in the United States in 1933.

Since an average trip to and from camp is about 50 miles, and 300,000 boys attended, they traveled a total distance of 15,000,000 miles. Add to this the many tramps out of camp and back, and the fre-



Photograph by W. Robert Moore

OBSOLETE IS THAT ONCE FAMILIAR PHRASE, "THE CHANGELESS EAST"

Chinese Boy Scouts camp within the shadow of a tile-roofed pagoda in the city park of Amoy, Fukien Province. Girl Scout troops are also found to-day in this land where women, their feet tightly bound, were once denied any part in life outside their homes.

quent hikes made by troops from their home town into the country, and a rough idea is gained of how the boys' knowledge of geography is enhanced.

Finding his direction by the compass; the skillful use of tools in building huts and bridges; how to cook his own food in the open and set up a tent—are all among the practical phases of outdoor life taught to boys.

WHEN 50,000 BOYS MET

No such mass of boys ever assembled as met for the Scout World Jamboree at Birkenhead, England, in 1929, with more than 50,000 present, representing 73 different nationalities.

With the Duke of Connaught, to review the opening parade, was Lord Baden-Powell, who gave the signal by blowing a blast on the kudu horn, the tocsin of Zulu warriors. To the bagpipe music of a Scottish boys' band, the army marched past. As they came in alphabetical order, the Americans marched first, followed by the Australians (see page 650).

"It was the youth of the world that passed," wrote Sir Philip Gibbs.

"Arabs from Palestine, Morocco, and Algeria in white robes, Indians in green turbans, black boys from the Gold Coast and Nigeria, natives of Jamaica, Kenya, Barbados, Ceylon, and other far countries of the British Empire. Latin America was there, with splendid contingents from Brazil and Chile. The old countries of Europe—Spain, France, Holland, Denmark, Norway, Germany—had sent their young manhood, and new nations like Czechoslovakia, Estonia, Latvia, and Lithuania were strongly represented.

"The Danish Sea Rovers came like our own naval boys. The Brazilians were all in blue, except for white caps. The Irish Free State advanced under the green flag and the harp. The sons of former enemies—Bulgarians, Hungarians, Belgians, Austrians, Greeks, Finns, Swedes, Japanese.

"A strange, significant scene in a quiet old English park, above which airplanes were flying low. Surely it has a message to the whole world. It seemed to me, as I



Photograph by Jean Gaberell

OVER A FENCE ON SKIS IS A CLEVER TRICK—IF YOU CAN DO IT!

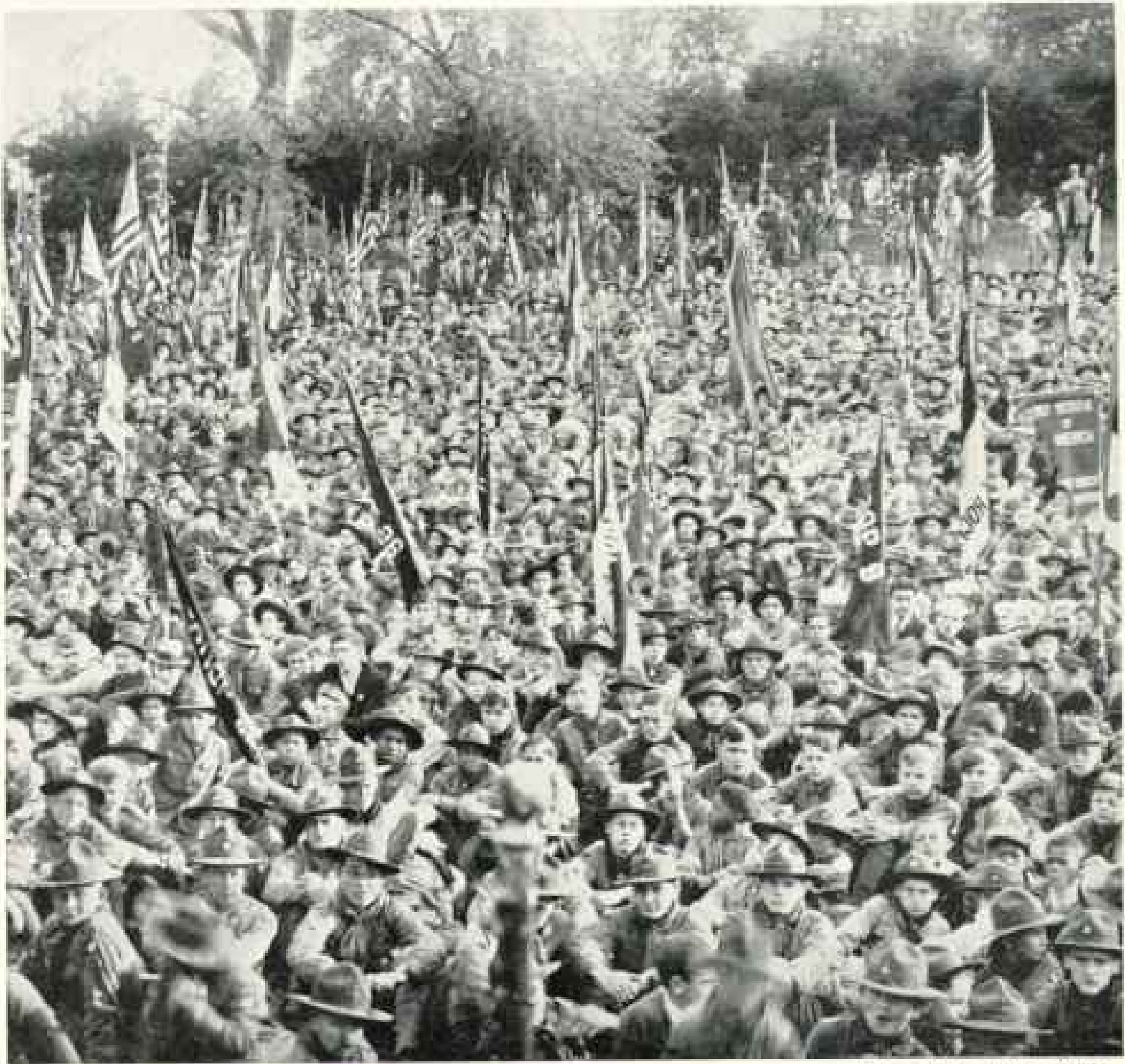
But the little dog seems to ask his master, a Swiss boy competing in an obstacle race, "Why not take the easy path, around the barrier?"



Photograph by Maynard Owen Williams

EVEN IN THE REPUTED "GARDEN OF EDEN" BOY SCOUTS ARE ACTIVE TO-DAY

Wearing a sun-proof headgear designed by the late King Feisal of Iraq, this busload of Baghdad Boy Scouts met the Citroën-Haardt Trans-Asiatic Expedition beside the Euphrates River, historic boundary between West and East.



Photograph from *Wide World*

MASSED SCOUTS HONOR THE MEMORY OF THE "CHIEF SCOUT CITIZEN"

The group above, led by Daniel Carter Beard, is part of a throng of 3,000 boys from New York City, New Jersey, and Connecticut who attended a recent pilgrimage to the grave of former President Theodore Roosevelt at Oyster Bay, Long Island.

stood there watching, that here was the beginning of a new chapter in history."

An unforgettable moment for the American boys was when the Prince of Wales stood at attention to receive their salute.

With His Royal Highness came the Honorable Charles G. Dawes, then American Ambassador at London.

The Prince later inspected the camp, surprising the American boys by entering their camp from the rear while they were massed in front waiting for him.

So great was public interest in the Jamboree that the American boys alone, during the two weeks it lasted, received more than 1,000 letters a day, and 27 boys were given authority to use the transatlantic cables in

sending news to their home papers back in the States.

THE ADVENTUROUS ANNALS OF SCOUTING

On mine sweepers, colliers, and auxiliary ships British Sea Scouts served with distinction in the World War. Some were drafted to the Grand Fleet itself.

When the 47,000-ton hospital ship *Britannic* was torpedoed in the Mediterranean, several Scouts were among her crew. Of their plucky behavior the *Liverpool Courier* said:

"When the *Britannic* was struck the Scouts had gone to their posts. Their quarters were blown in. They were given occupations in attending to lifts and showing

nurses to the boats, while two of them, E. Ireland and J. Price, were deputed to go around with the captain and chief officer and repeat their orders through megaphones. These two boys were singled out by Mr. B. Coe, master-at-arms, for special mention on account of their coolness. They were the last of the Scouts to leave the ship. No more than half a dozen persons were on the *Britannic* when the boys slid down 50 feet of rope into the water and swam fifty yards to a raft.

"The conduct of the boys in such a trying time was exemplary and calls for high commendation. When they were ordered to leave the vessel along with the women nurses, they declined to do so, and the nurses had to go without them. When the Scouts left the *Britannic* she was listing badly. . . .

"The *Britannic* was about six miles from shore when the affair happened. The attempt to beach her had to be abandoned. The Scouts, after being in the open sea for a short time, were taken on board a French cruiser and conveyed to Piræus."

MANY TALES OF YOUTHFUL COURAGE

From all over the Scouting world, year by year, come stories of youthful courage.

In the United States alone, for 1933, the National Court of Honor of the Boy Scouts granted 26 gold medals for life-saving and 49 certificates for heroism.

"Perhaps nowhere in the Scout Program is the Scout motto, 'Be Prepared,' and that part of the oath which bids a Scout 'help other people at all times,' more strikingly exemplified than in these life-saving cases," writes Daniel Carter Beard, National Scout Commissioner. Many boys to whom these honors go are as young as 12, 13, and 14 years. Here are typical examples:

When a Brooklyn garage burned, two men were overcome by smoke. A Scout carried one man out by the "fireman's drag," which he had been taught, and then rescued the other by dragging him out with a belt. He restored both men by giving artificial respiration, also learned in his troop.

A 13-year-old Texas Scout crawled on hands and knees into a burning house and brought out a baby. Another saved a comrade in Kansas who was caught on a live wire while climbing a tree. A California

Scout lost his life trying to save two smaller boys from drowning.

An Italian Boy Scout on New York's East Side saved six people and a dog from a burning house. Quizzed by persistent reporters, he finally said: "Well, I wasn't going to be a coward. I could hear a lot of people howling around at the windows and it looked as if they would be burned to death. There wasn't anything to do but crawl on my stomach and pull 'em out if I could."

Reporters kept asking about the dog.

"I wasn't going to have a dog burned to death, either, no matter what kind of dog he was," said the boy.

Because these *are* tales of conspicuous bravery and sacrifice, they get printed; they are the essence of news. But back of this news, day by day, year by year, goes on that hard, intensive, intelligent training which makes Scouting what it is—"the greatest youth movement in history," to quote Rear Admiral Richard E. Byrd.

Who knows that last year Scouts planted more than 142,600 trees in the United States? And who remembers that they once sold \$200,000,000 worth of war bonds and stamps?

Or that at Jackson, Mississippi, when floods swept the Pearl River Valley, Sea Scouts took a boat and saved 45 persons?

A Tucson aviator crashed on the Arizona desert and broke his leg. A Scout, near where the plane fell, hurried up, put a tourniquet on the leg wound, and set the break with splints.

When a storm hit Alabama, Scouts pitched tents for the homeless, hauled truckloads of food, worked in the hospitals, helped farmers save their livestock, and searched ruins for the injured and the dead.

Such work, by mere boys, shows training—and more. To be a Scout calls for more than donning a uniform and tooting a tin whistle. Even Scouting, effective as it is, can do no miracles with sows' ears. The right human material must exist in the boy himself, which skilled guidance can develop.

David was not a Boy Scout when he slew Goliath. Neither was the Dutch lad who stopped that leak in the dike.

But they had the stuff that Scouts are made of.

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ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

TO carry out the purposes for which it was founded forty-six years ago the National Geographic Society publishes this Magazine monthly. All receipts are invested in the Magazine itself or expended directly to promote geographic knowledge.

ARTICLES and photographs are desired. For material which the Magazine can use, generous remuneration is made. Contributions should be accompanied by addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resulting given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over \$50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the expedition of Admiral Peary, who discovered the North Pole, and contributed \$55,000 to Admiral Byrd's Antarctic Expedition.

NOT long ago The Society granted \$25,000, and in addition \$75,000 was given by individual members to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people.

THE Society's notable expeditions to New Mexico have pushed back the historic horizon of the Southwestern United States to a period nearly eight centuries before Columbus crossed the Atlantic. By dating the ruins of the vast communal dwellings in that region The Society's researches have solved secrets that have puzzled historians for three hundred years. The Society is sponsoring an ornithological survey of Venezuela.

TO further the study of solar radiation in relation to long range weather forecastings, The Society has appropriated \$65,000 to enable the Smithsonian Institution to establish a station for six years on Mt. Brukkaros, in South West Africa.

Nash has built A MILLION CARS



Nash Dealers are Giving a **MILLION DEMONSTRATIONS** *in 30 days!*

★ ★ ★ At the very beginning of Nash Motors, C. W. Nash said, "I will never build a *cheap* motor car."

Today, with more than a million Nash cars upholding that pledge, C. W. Nash repeats, "I will never build a *cheap* motor car." With Nash, it continues to be . . . *Quality first, last and all the time!*

To celebrate the first million cars, to reveal far and near the new heights of quality attained in the 1934 Nash and its companion car, the new LaFayette—Nash dealers are giving a million demonstrations in 30 days!

A million rides. . . . A million revelations of Nash Twin Ignition power and the "jeweled movement" smoothness of LaFayette. . . . A million demonstrations of superior comfort . . . of a real improvement in clear-vision ventilation . . . of easy handling . . . of results that verify the very latest in engineering and the best of workmanship.

We invite you to drive a new Nash or a new LaFayette, or both. Learn first-hand what it means to an automobile when a manufacturer carries out a strict quality policy to the letter, and to the tiniest detail.

Individually-Sprung Front Wheels Optional at Slight Extra Cost

1934 TWIN IGNITION VALVE-IN-HEAD NASH

BIG SIX

116" Wheelbase 88 Horsepower 6 Body Styles

ADVANCED EIGHT

121" Wheelbase 100 Horsepower 6 Body Styles

AMBASSADOR EIGHT

133" Wheelbase 125 Horsepower 2 Body Styles

AMBASSADOR EIGHT

142" Wheelbase 125 Horsepower 3 Body Styles

← New Nash-Built LaFayette, the Fine Car of the Low Price Field, Five Body Styles →

Banff

LAKE LOUISE and EMERALD LAKE *in the* Canadian Rockies



Low Cost All Expense Tours!

Remarkably Inexpensive Way To See
Famous Places of *Glorious* Canadian Rockies

FOR YOU, who are travel-minded—here's an idea that sparkles! You can discover the whole glorious region of Banffland, stop at most famous resorts, see the scenic wonders of two great National Parks of Canada . . .

Have ample opportunity to enjoy the unrivaled facilities for play. Swim in health-giving warm sulphur or clear, cool water pools; fish in well-stocked waters, ride or hike the skyline trails, dance in spacious ballrooms to the music of lilting orchestras . . .

For the usual nominal fees, play the famous golf course at Banff . . .

And do it all so inexpensively, so leisurely, so comfortably!

You receive the best of everything, everywhere, for every detail of the tours is *first class*.

Along with the many advantages of the tours which assure a *complete* coverage of the region, you may stop over and extend your stay at any of the resorts at reduced rates for stays of one week or more.



Pictures from left to right are: From the Lawn at Lake Louise, Banff Springs Hotel and The Bow Valley. In front of Emerald Lake Chateau.

Canadian Pacific Hotels

Apply Tourist Agents—or Mgr. Banff Springs Hotel, BANFF, Alta., Canada—or nearest Canadian Pacific office, including: NEW YORK CHICAGO PHILADELPHIA DETROIT LOS ANGELES CLEVELAND ST. LOUIS BOSTON PITTSBURGH SAN FRANCISCO MILWAUKEE BUFFALO WASHINGTON MINNEAPOLIS CINCINNATI ATLANTA, Ga.

BARGAIN TOURS

4 DAYS . . . 1 day at Banff, 2 days at Lake Louise, 1 day at Emerald Lake. <i>All Expenses</i>	\$50
5 DAYS . . . 1 day at Banff, 2 days at Lake Louise, 2 days at Emerald Lake. <i>All Expenses</i>	\$60
6 DAYS . . . 2 days at Banff, 2 days at Lake Louise, 2 days at Emerald Lake. <i>All Expenses</i>	\$70

TOURS BEGIN AT BANFF OR FIELD

All are first class. All include transportation from Banff to Field (or Field to Banff), lodging, meals, 125 miles of motoring.

Add Rail Fare to Banff (or Field)

Purchase of a Bargain Tour may extend Stop-Overs on payment of following daily rates for Room and Meals—Banff Springs Hotel—\$9.00; Chateau Lake Louise—\$8.00; Emerald Lake Chateau—\$7.00. Tours open June 22 to September 10.

"WHO'S Afraid of Traffic?"



Plymouth's vital features have cured me of "Traffic Nerves"

"I'M NOT a bit nervous driving my new Plymouth. It's so easy to steer! I can shift with my little finger. And with Hydraulic Brakes, I know I can always stop in time."

Lots of other ladies will agree with this one. That's why you see so many more women driving Plymouths today.

For Plymouth is the only low-priced car with Hydraulic Brakes. And there's the extra protection of a safety-steel body—reinforced with steel. Duplate Safety Plate Glass for all win-

dows is optional at low extra cost (only \$10 on the De Luxe Sedan).

You want *comfort* in your next car, too. A simpler, stronger type of Individual Wheel Springing plus Plymouth's Floating Power engine mountings give you a completely smooth, vibrationless ride such as you've never had in a low-priced car before.

Plymouth is the only car in the lowest-price field with all these vital features. Any Dodge, DeSoto or Chrysler dealer will gladly demonstrate Plymouth . . . any time.



AT LEFT is the new De Luxe Plymouth Sedan. Plymouth prices begin at \$495 f. o. b. factory, Detroit, and subject to change without notice. The Plymouth Six Sedan is the lowest-priced Six-Cylinder 4-Door Sedan in America.

IT'S THE
BEST ENGINEERED
LOW-PRICED CAR!

NEW PLYMOUTH \$495 AND UP
F. O. B. FACTORY DETROIT

The Finest Refrigerators General Electric ever built!



- Quiet in operation—you can scarcely hear it.
- Uses less current. Full refrigerating capacity for even unusual demands.
- Sturdy All-Steel cabinets with glistening white enamel exterior, or gleaming porcelain both inside and out.
- Sliding shelves, adjustable in height, giving more conveniently usable storage space.
- Stainless steel freezing chamber, cannot chip or rust, freezes more ice faster.
- Convenient temperature control for fast or slow freezing, refrigeration uninterrupted when defrosting.
- Automatic interior lighting illuminates entire interior when door opens.
- Auxiliary foot-pedal door opener.
- New modern hardware.
- De luxe Monitor Top models completely equipped with covered glass food containers, chiller tray, vegetable pan, etc.

LONG recognized the leaders in performance, G-E refrigerators now capture the admiration of every housewife who appreciates smart styling and modern design. Brilliantly beautiful in their faultless simplicity of line, these new G-E models are the aristocrats of refrigerators... both in appearance and mechanism.

Be sure you see the new 1934 G-E de luxe models before you select a refrigerator for your kitchen. Note the new refinements, new improvements, and the many features only a G-E gives you.

Look at both types: (1) The Monitor Top and its famous sealed-in-steel, attention-free mechanism. It has an unparalleled record for dependable, trouble-free performance at low cost. And, (2) the G-E flat-top with its smart styling, convenience features and performance capacity found in no other popular priced refrigerator.

For your nearest dealer see "Refrigeration Electric" in classified pages of your telephone book. General Electric Specialty Appliance Sales Department, Section R-5, Nela Park, Cleveland, O.

GENERAL  **ELECTRIC**
ALL-STEEL REFRIGERATOR



Let a little springtime in

One of the best ways to enjoy yourself these grand spring days is to have a new General Motors car. Any one you choose will bring the breath of spring in to you — and take stale, stuffy, smoky air out — WITHOUT DRAFTS. General Motors cars have Body by Fisher — and that means thoroughly tested and accurately developed Fisher No Draft Ventilation, which hundreds of thousands of people now know by experience. It also means ROOM — room to stretch out in — luxurious, restful room for arms and legs and shoulders when you ride three to a seat. Have YOU seen the strong, safe, roomy new Fisher Bodies? They're smart as the new spring styles.



on GENERAL MOTORS CARS ONLY: CHEVROLET • OLDSMOBILE • PONTIAC • BUICK • LA SALLE • CADILLAC



Airflow
CHRYSLER

Streamline —

— NOT JUST THE WORD . . . BUT THE FACT

REAL streamline isn't a guess, it's a fact. The wind tunnel shows with scientific accuracy just how a car should be shaped to cleave through the air at top efficiency.

It shows that the front should be rounded like an Airflow* Chrysler's. That the body should taper back . . . not swell from a point. That the rear should be a meeting of sweeping inward curves . . . not a rounded-off box. There must be no valleys between hood and fenders . . . no horns or lamps projecting.

It's no accident that the Airflow Chrysler looks surprisingly like the modern, high-speed train. Both are examples of streamline that means something.

The Airflow Chrysler is balanced like an arrow in flight. Like an arrow, it has its heaviest weight in the

front . . . to steady it as it cleaves through the air.

Passengers ride in the middle of the car . . . the point of minimum up-and-down motion and greatest roominess. The action of the springs is slowed by the new balance of weights . . . so that jolts are lengthened and softened into an easy glide.

If ever a motor car spoke for itself, it is the Airflow Chrysler! You have only to ride in it to know that it is the inevitable car of tomorrow—here today. That it ushers in a new era of transportation—a decidedly better and finer way to travel. Try it for yourself.

Write for the interesting booklet which describes the romantic development of Floating Ride. Address the Chrysler Sales Corporation, 12211 East Jefferson Avenue, Detroit, Michigan.

Four Distinguished 1934 Models Chrysler Airflow Eight . . . 122 horsepower and 121-inch wheelbase. Six-passenger Sedan, Brougham and Town Sedan, five-passenger Coupe. All body types, \$1245. Chrysler Airflow Imperial . . . 130 horsepower . . . 128-inch wheelbase. Six-passenger Sedan and Town Sedan, five-passenger Coupe. All body types, \$1495. Airflow Custom Imperial . . . 130 horsepower . . . 146-inch wheelbase . . . Individualized body types, prices on request. 1934 Chrysler Six . . . *With independently sprung front wheels* . . . for a smooth, cushioned ride . . . 91 horsepower, 7 body types on 117- and 121-inch wheelbase. From \$725 up. Four-door Sedan, \$795. All Prices F. O. B. Factory, Detroit. *Name Copyrighted 1933—Chrysler Corporation.

GENERAL'S NEW *Silent Safety Tread*

ADDS EVEN GREATER MILEAGE TO
THE BLOWOUT-PROOF TIRE

The General Tire has always been famous for long mileage. More important is the fact that the patented low pressure construction makes General's mileage *safe* mileage. In perfecting the new silent safety tread General provides non-skid action in all directions, forward as well as side-wise. In addition to this added safety the new design greatly reduces tread wear. No matter what the weather, sunshine or rain, The Blowout-Proof Tire gives you complete, all around safety. Let the General Tire Dealer explain the change-over plan for new cars as well as old . . . The General Tire & Rubber Company, Akron, Ohio.

TUNE IN General Tire program starring Jack Benny every Friday night, 10:50 E. D. S. T., coast to coast N. B. C.



THE NEW *Silent*
Safety TREAD

The new
GENERAL
DUAL BALLOON
THE BLOWOUT-PROOF TIRE

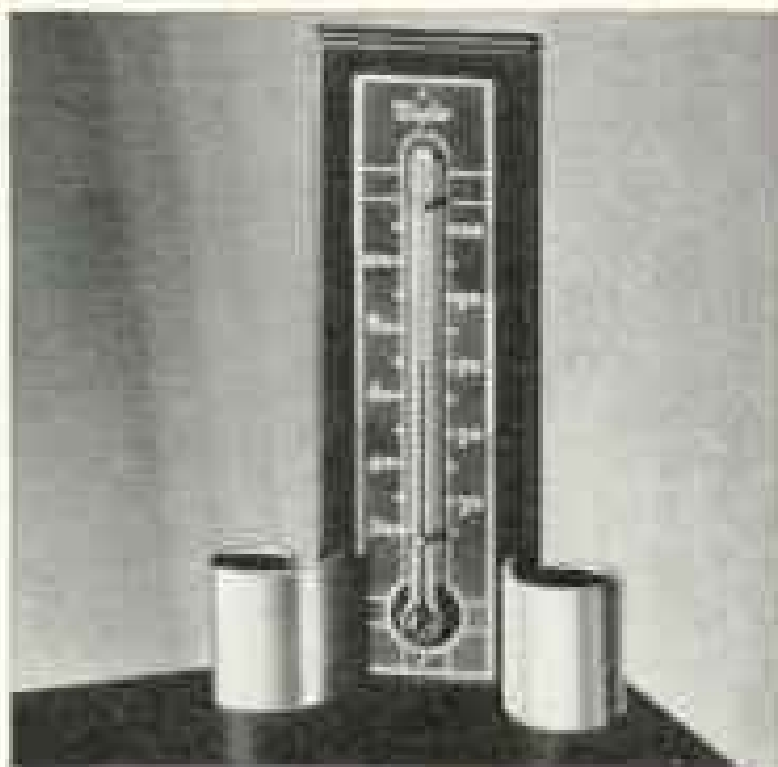
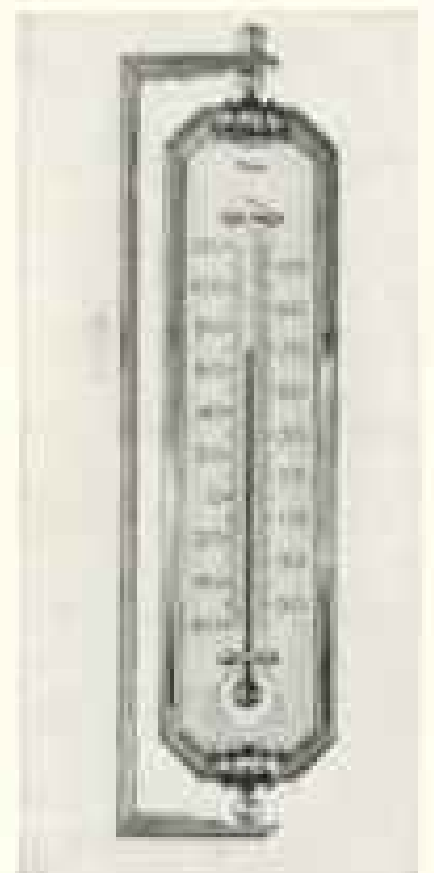
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Here's luck and a fair wind

FOR EVERY GRADUATE AND BRIDE

How could you possibly wish them "Fair weather ahead" in a more appropriate and practical way than with a set of accurate, attractive weather and temperature instruments! Planning a picnic, for instance, is so much easier when a Stormoguide is on hand to predict the weather. Cooking disappointments are less apt to come to the young bride who is supplied with an array of Taylor cooking thermometers... Remember, an undependable instrument is worse than none at all. And any instrument which sells for less than one made by Taylor cannot possibly be as trustworthy. Taylor Instrument Companies, Rochester, New York, and Toronto, Canada.



TAYLOR STANDING THERMOMETER. 5" high, satin black finish, blue lacquered scale with white metal trim, scroll base, indoor temperature range, red Permascolor tube. No. 3358. Price, \$1.75.

TAYLOR STORMOGUIDE. Fairfax model. Easy to read. Tells hours in advance when it will be clear, cool, stormy, windy, etc. In satin black, aluminum dial, chrome trim. Size 6" x 6". No. 2357. Price, \$10.

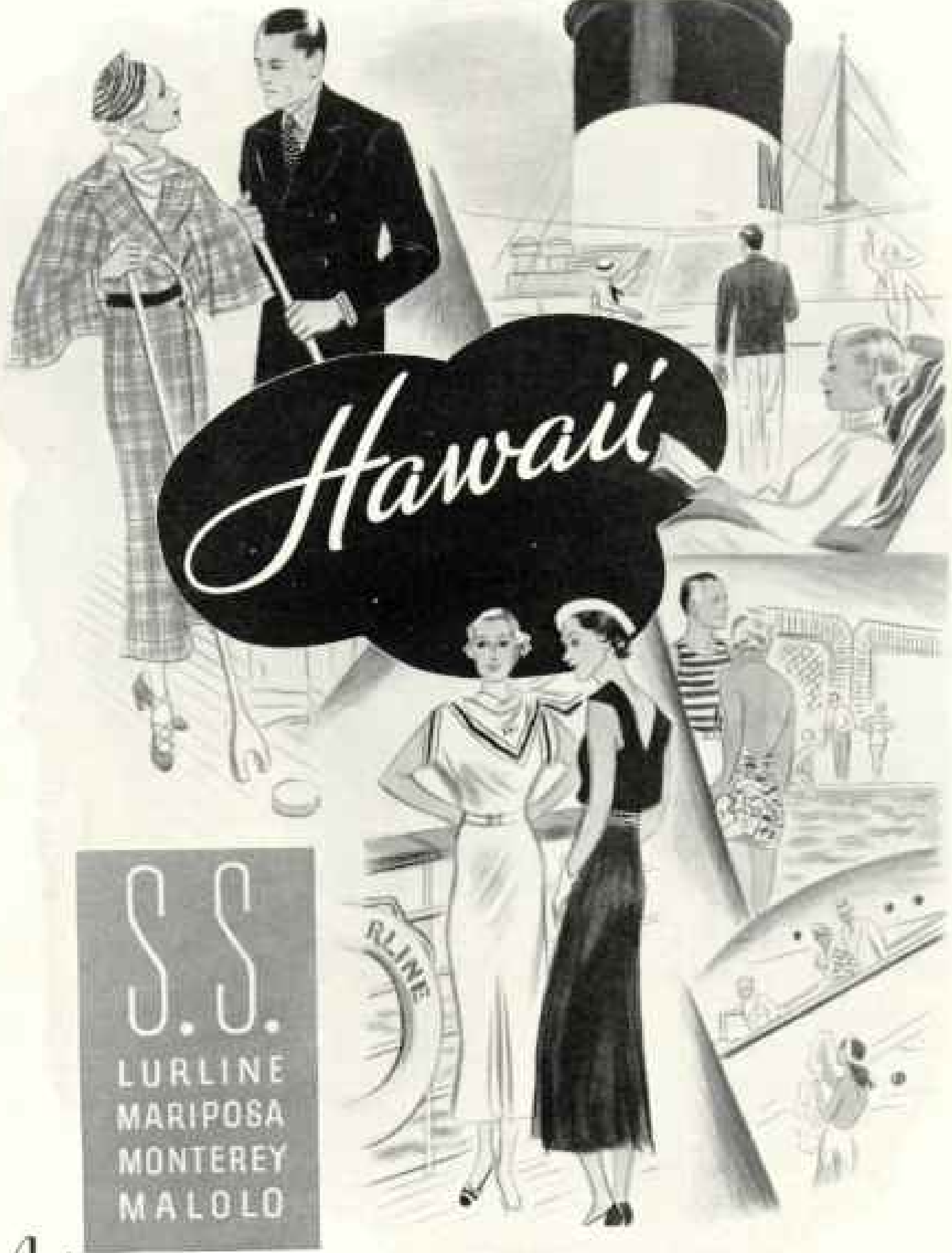
TAYLOR WINDOW THERMOMETER. (above) Consult it each morning and you will know how to dress suitably. 11" overall. Sharp black figures and graduations on white enameled scale, chrome bezel and adjustable frame—weather-resistant—outdoor range, red Permascolor tube. No. 5300. Price, \$2.50.

Prices slightly higher in Canada and west of the Mississippi

Taylor 
INSTRUMENTS

IN INDUSTRY, other types for indicating, recording and controlling temperature, pressure and humidity.

FOR THE BRIDE'S SHOWER—Ask your dealer to show you the Taylor Candy and Jelly Thermometer, Bath Thermometer, Deep-Frying Thermometer, Oven Thermometer, Roast Meat Thermometer. *Perfect as gifts for a bride's shower.*



S.S.
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MONTEREY
MALOLO

Nowhere but in the South Seas can such an array of diversions be compressed into a single summer vacation. Playing, resting, romancing on a Matson-Oceanic ship of sport-and-splendor. Wringing the last drop of pleasure from sun-flooded, sea-crisp days and moon-silvered nights on an opal ocean. Then more days and nights, as active or as lazy as you please, in play-and-languor-loving Hawaii. Only five days from California to its eternal May-time loveliness, forever cooled by fragrant trade breezes. At a low cost that urges "set-sail".

SOUTH SEAS · NEW ZEALAND
AUSTRALIA via Hawaii, Samoa, Fiji
About storied lands of the Southern Cross the "Mariposa" and "Monterey" weave a charmed course. Commanding their superb luxury to speed you to New Zealand in 15 days! In 3 days more to Australia! All-expense (ship and shore) tours at startlingly low fares.

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UNION PACIFIC USES PENNZOIL TO SPEED NEW SUPER-TRAIN!



MORE SPEED WITH COMFORT AND SAFETY

Again America leads the way in fast, modern transportation! The new Union Pacific stream-lined train heralds a new era in land travel... at last makes safe and practical the super-speed engineers have dreamed of.

REGULAR PASSENGER-CAR PENNZOIL USED

This same lubricating oil makes all automobiles go faster—increases pick-up 10 to 25%—saves up to 12% on gasoline

● The new Union Pacific flyer is not just a new train, but a new kind of train. New in design. New in appearance. New in the fueling and lubricating principles that give it the amazing speed of 110 miles per hour!

Nothing but the best!

Every detail, from the trim, tapering lines to the oil that lubricates it, has been selected with an eye to speed and safety. The giant, 12 cylinder engine—burning a safe, low-volatile fuel *distillate*—is lubricated throughout with Pennzoil, the world-record oil that automobile owners everywhere are talking about.

The experience of Union Pacific

with Pennzoil products over the years, coupled with severe preliminary tests on the same equipment, qualified Pennzoil for this exacting assignment.

Makes cars go faster, too

Now this same lubricating oil in your car will increase speed remarkably. As Jenkins in his Pierce-Arrow proved this when he broke the 14 world records from 200 to 3000 miles. Drove steadily at the terrific speed of nearly 2 miles-a-minute for 25½ consecutive hours! No other oil—not even special racing castor oil—had ever stood this blistering test!

And Pennzoil increases pick-up, too... 10 to 25%. Better still, it actually saves money on gasoline—up to 12%. For Pennzoil is 3 times concentrated. It has an amazing tough film and far better lubricating quali-

ties. This cuts down engine drag. Lets your motor run freer, easier, faster.

If you want to increase speed and pick-up—save money on gas—get Pennzoil today—from any bonded Pennzoil dealer.



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Executive Offices: Oil City, Pa.

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TOUGH-FILM PENNZOIL

MAKES CARS GO FASTER... SAVES ON GASOLINE



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REFINERY-SEALED CANS now available. Both cans and bulk Pennzoil are SOLD UNDER BONDS to guard you from substitutes.

BRING SPRING TO THE BREAKFAST TABLE



AREN'T you tired of the monotony of hot, heavy foods? Let's bring a touch of spring to breakfast!

Kellogg's Corn Flakes . . . golden-crisp and fresh, served with bananas, strawberries, or preserved fruit!

Appetites, wearied by the routine of heavy foods, respond doubly to crispness this time of year — and what could be more refreshingly crisp than a bowl of Kellogg's!

Delightful for lunch. Fine for the children's evening meal. Rich in energy, easy to digest.

You save time and trouble with Kellogg's. No cooking or work to serve. Always oven-fresh because protected by the *heat-sealed* WAX-TITE inside bag.

Order a red-and-green package of Kellogg's from your grocer today. Made by Kellogg in Battle Creek.

change to crispness



We speak your language on France-afloat

"I'll have orange juice and ham and eggs for breakfast." ("But certainly, sir," says the steward.)

"A hot bath at six, please," you say. . . . (At six, presto, your bath is ready . . . and hot!)

YES, we speak your language on these French Line ships . . . both literally and figuratively. The stewards not only understand English, but they even anticipate your unspoken wishes. Everything is arranged precisely as you would have it. Everything is comfort and modernity and efficiency.

A trip abroad on France-Afloat is the experience of a well-rounded lifetime. There's plenty of opportunity . . . and space . . . for sport, recreation, or just plain loafing. You whip up a whale of an appetite . . . then satisfy it with the best food in the world. (Have you ever tasted a Chateaubriand steak, two inches thick, prepared as it should be?) To complement this delicious cuisine . . . the finest old wines, at moderate prices. Then always, on a French Line trip, there is the feeling of security inspired by staunch Breton seamanship.

For all its extra pleasures, a passage on France-Afloat costs no more! And shipboard expenses have been adjusted to the value of the dollar. The French Line is a direct route to England (straight to Plymouth, no channel to cross). And the French Line's the logical route to Paris (gateway to all the Continent). Your travel agent will be glad to help plan your trip without charge. . . . French Line, 19 State Street, New York City.

French Line

PARIS (Enlarged, Redecorated Tourist Accommodations), May 19, June 8 and 30, July 21 • ILE DE FRANCE, May 5 and 26, June 16, July 7 • LAFAYETTE, May 16, June 13, July 3 • CHAMPLAIN, May 12, June 2 and 23, July 15





WHAT IS THE SECRET that makes possible today's loveliest watches?

Only in America could it have happened.....this unique partnership between age-old craftsmanship and modern science

● Beauty is a birthright of the new ELGIN watches. Brilliantly they are styled to the modern moment. Their story is unique in watchmaking history . . .

They result from a partnership which ELGIN watchmakers, the most skillful in the world, have labored through three generations to perfect.

Today—in a distinctly American fashion—modern science joins with craftsmanship in a close, unusual union. This brings about watch developments neither scientist nor craftsman alone could achieve.

Why is ELGIN the one to perfect such a union? First, because the entire ELGIN movement is made under a single roof. Scientist and craftsman can collaborate under ideal conditions.

Second, because even under changing business conditions, ELGIN has year after year invested the large sums needed to make such a union most fruitful.

The results are apparent in the new timepieces themselves . . . in their accuracy, their beauty. Each of them, before offered to you, must pass exacting tests

by ELGIN'S research scientists. Their timekeeping ability is checked to the absolute standard of the stars.

There are many new ELGINS from which to choose. See them at your jeweler's now . . . compare them with other makes. Prices range from \$300 to \$19.

★ 17 jewel baguette with solid gold case. Black figure dial. Cord attachment. Model 2608 in white gold, model 2609 in natural gold. Price \$22

★ Semi-baguette with 17 jewels. Solid white gold case. Inlaid dial. Model 2616—price \$22

★ 15 jewel model in gold filled case with gold filled band. Model 1113, white gold filled, model 1114, natural gold filled. Price \$22

Prices slightly higher in Canada



★ ELGIN ★

MARK OF AMERICAN LEADERSHIP SINCE 1865



*His BETTER JUDGMENT
advises him:*

"NEXT TIME GET ETHYL"

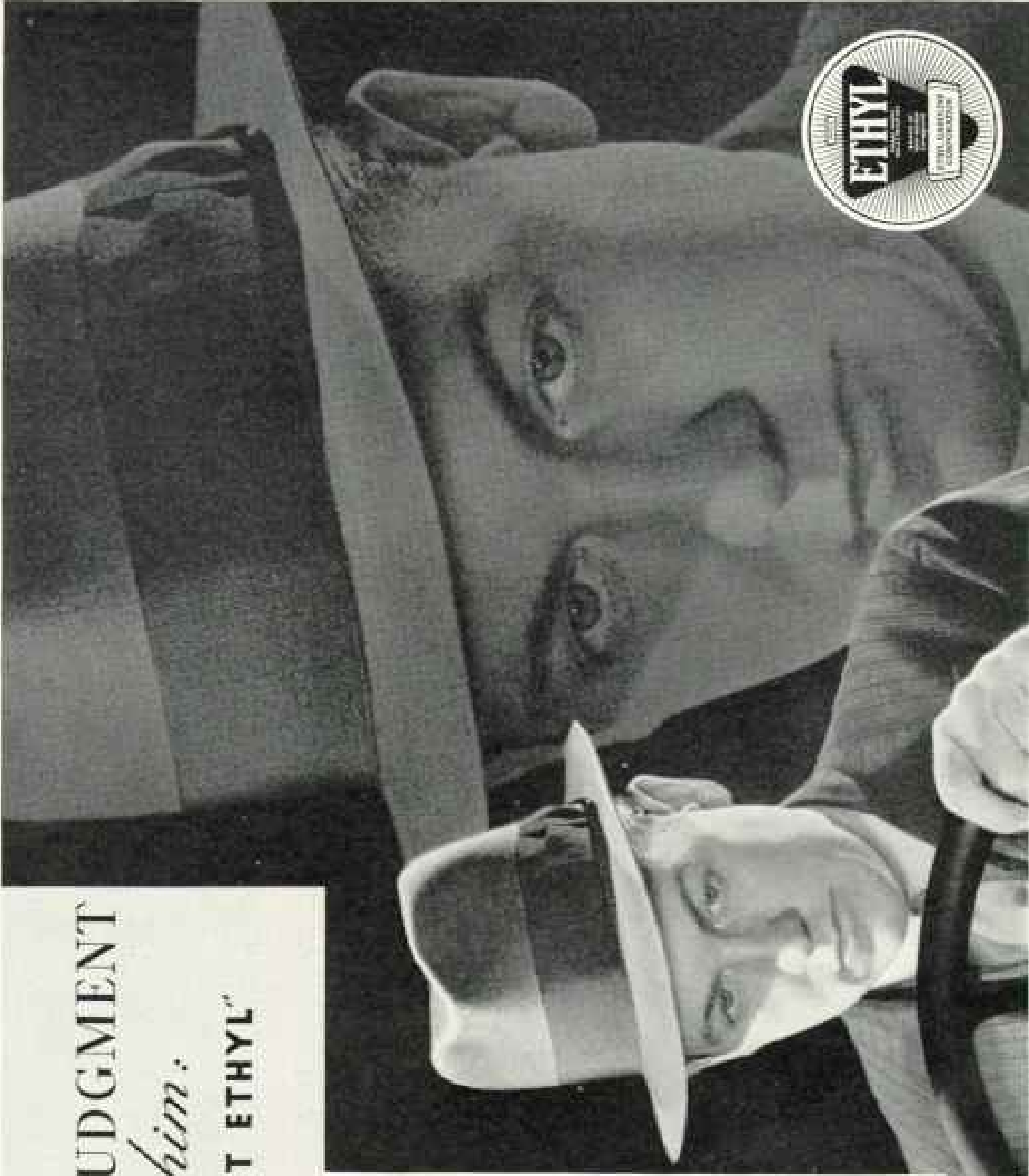
HE KNOWS that in business it's an invariable fact: "You get just what you pay for—no more and no less." And now as he drives his car along, his *Better Judgment* reminds him: "The same holds true of gasoline. You can't get Ethyl quality at regular price."

Whether you paid \$500 or \$5000 for your car, isn't it sound economy to make the most of that investment, every minute and every mile that you drive? Particularly, when Ethyl costs only 2¢ a gallon over regular gasoline. Less, on the average, than 5¢ a month! Ethyl Gasoline Corporation, New York City.



© U. G. C., 1934

Ethyl contains sufficient lead tetraethyl to make it the world's quality motor fuel.



THEM DAYS IS GONE FOREVER

BY POSEN



GOOD MORNING, MR. ROBINSON, AND WHY THE CHEERFUL PHIZ?

I'VE SWITCHED TO INGRAM'S, GENTLEMEN, THE COOLEST SHAVE THERE IS!



DO YOU RECALL THOSE NICKS AND CUTS UPON THAT FACE OF HIS?

THEM DAYS IS GONE FOREVER!



SWITCHING TO **INGRAM'S SHAVING CREAM** IS A GOOD MOVE FOR ANY SHAVER WHO ENJOYS COMFORT! **INGRAM'S** TAKES THE TUG OUT OF WHISKERS, AND ITS THREE SPECIAL INGREDIENTS KEEP THE FACE COOL, SOOTHED, UNSCUFFED. TRY A TUBE OR JAR! **INGRAM'S** IS NOW ONLY **35¢**



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order as you would at
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You've had your cocktail before coming down. Now pick up the menu—and a delightful ceremony begins! Your table-steward stands at your elbow, the wine-steward waits his turn. The Italian Line is about to entertain you at dinner.

Order without constraint. The chefs are prepared with delicious, imaginative dishes competing frankly with celebrated restaurants ashore.

That's an important reason why you'll appreciate the Southern Route! The Lido life is another . . . the service . . . the background . . . and the 1,000 miles or more of cruising "east of Gibraltar" at no extra cost. Go on the REX, fastest liner afloat, or the Conte di SAVOIA, only gyro-stabilized liner—if you want a speedy crossing. For a more leisurely voyage, choose the ROMA or the AUGUSTUS, the original "Lido vessels"—or the Cosulich liners SATURNIA or VULCANIA, each with a whole deck of private verandah suites.

ITALIAN LINE

It's Somebody's MONEY...

... *that's* SCALING OFF!

{ Two paint jobs in the same Indiana town. The "cheap" job cost \$148 to put on. Now, after 1½ years, the scaled paint must be burned off, at an added cost of \$90. Total, \$238, or \$158 per year... and still more for a new priming coat. But the Dutch Boy job, after 3 years, has cost only \$15 a year up to now, and is still good for a lot of wear. }



JUST look at that paint. "Maybe I shouldn't say 'paint'; maybe a better name for it is 'remains'... it's now such a *dead loss*."



"And yet I run up against jobs like this time and time again. I dread them, too. For I'm the one who has to break the bad news to the owner. I'm the one who has to point out the mistake he made... how he now has to *unpaint* before he can repaint."

"This owner, for instance. He faces a bill for \$90 to take off what's left of his 'cheap' paint that he paid \$148 to have put on. And after it's off he'll have to pay for a new priming coat... still more bad news!"

"Now take a look at the Dutch Boy job. There's no money scaling off of that!"

Dutch Boy White-Lead does not crack and scale. Instead it *resists* the weather. And wears down stubbornly by gradual chalking, which leaves a perfect surface for new paint. When you use Dutch Boy, no burning and scraping are needed at repaint time. And there will be no need for a new priming coat.

Don't risk *your* "money's scaling off". When your house needs repainting... see a Dutch Boy painter. He mixes Dutch Boy to meet the requirements of your job and tints his paint to the exact color you specify. No one knows paint like a painter.



Dutch Boy does not crack and scale; it resists the weather.

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Good Paint's Other Name

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MOST STYLES \$ **8** ^{SOME} _{STYLES \$10} 75

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A BLOW-OUT! WILL IT BE YOUR TURN NEXT?

Play Safe with Goodrich Silvertowns, the only Tires with the Life-Saver Golden Ply

UNFORTUNATELY, the only warning a blow-out gives is BANG! Then it's much too late. Neither your steering wheel nor your emergency brake can save you. All you can do is hope for the best. For a nice, soft spot to land.

At today's high speeds, the heat generated *inside* the tire is terrific. Rubber and fabric begin to separate. A tiny blister forms. And grows—until BANG! A blow-out! But the Life-Saver Golden Ply resists heat. Blisters don't form. The great, unseen cause of blow-outs is prevented before it begins.

Racing daredevils tested the Golden Ply out at breakneck speeds. On the world's fastest track. *Not one blow-out.* Similar tires *without* the Life-Saver Golden Ply failed at one-third the distance the Golden Ply Silvertowns were run.

Enjoy the priceless feeling of security every time you sit behind the wheel. Get more mileage than you ever got out of tires before. See your Goodrich dealer today about a set of Golden Ply Silvertowns for your car. *They cost not a penny more than other standard tires.*



Goodrich *Safety* Silvertown
Copyright, 1934, The B. F. Goodrich Rubber Co. **WITH LIFE-SAVER GOLDEN PLY**

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What a wonderful sleep! I'm certainly glad now I chose a BIG ship. Size makes such a difference. This Big Three liner is so smooth and steady.



This sun deck is BIG enough for all sorts of sport. Shuffleboard, deck tennis, croquet—they're all much more fun with loads of room on a BIG deck.



These Panama Pacific ships are even bigger than I thought! BIG enough for two outdoor pools built right in the deck. That takes huge size!



May I have the next dance? Moonlight, glistening stars, soft music, wonderful companions. And dancing on BIG decks is so much more enjoyable!

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his fuel cost is only \$80 a year

● Many people look forward to the time when they can afford to satisfy their desire for automatic home heating. They are under the impression that the luxury of automatically regulated home temperatures means added fuel expense.

Nothing could be further from the truth insofar as Iron Fireman is concerned. Iron Fireman does the surprising, unexpected thing—it actually cuts fuel costs while providing the luxury of automatic coal heating.

Mr. Foy's experience is typical of thousands of home owners who have changed to Iron Fireman. For the first 30 months of Iron Fireman operation his fuel bill totaled \$100—or \$80 a year. This covers the cost of domestic hot water as well as house heating.

Why don't you change over to Iron Fireman? You'll have lots of company for there is a very definite swing to Iron Fireman in residential heating. Once installed, Iron Fireman will render an efficient, economical firing service that will add immeasurably to the comfort and convenience of your family. Write for literature, or ask your dealer for a free fuel cost survey. Use the coupon. Iron Fireman Manufacturing Company, Portland, Cleveland, Toronto. Dealers everywhere.

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"This **SOUTHERN CALIFORNIA**
vacation is just what you needed, Bob"



HELEN: Isn't the Pacific blue? And such beaches. You'll go back looking like a life-guard.

BOB: Wait till you try the surfboard. There's a thrill for you—that and the deep-sea fishing.



BOB: This night life is certainly a liberal education—I never saw so many celebrities anywhere.

HELEN: And everybody's been so nice to us... I'm positively surfeited with entertainment.



HELEN: How could anybody be satisfied with an ordinary, hum-drum vacation when you can do all this in 2 weeks—

BOB: For no more money. Boy, this mountain air has me on top of the world all right!



HELEN: I don't know what's been the most fun... Malibu, Santa Monica, Beverly Hills, Long Beach, Pasadena, Glendale, Pomona, Hollywood, Los Angeles... they're all marvelous.

BOB: Let's come again next year!

You can do it in 2 weeks

YOU need more than an ordinary vacation this summer. Use your precious vacation hours to get clear away—see new horizons—regain your perspective. Southern California's cool summer nights and rainless days can send you back a brand new person!

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Going to the Sun Mt.,
on Logan Pass Detour,
Glacier National Park.

I just put MY Foot down

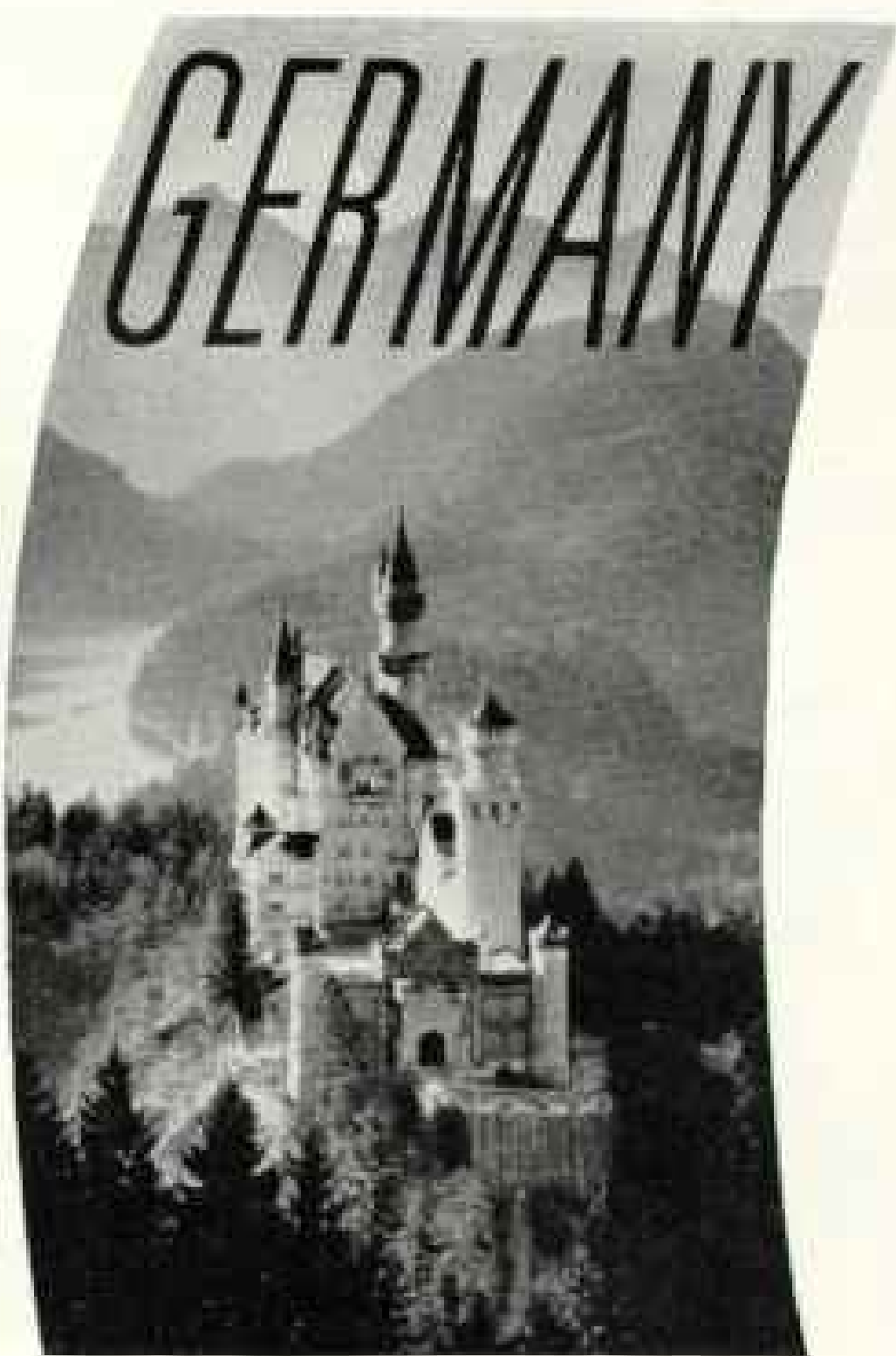
• My husband hasn't left his business in four solid years. Think of it! But this summer he's promised to show me the Pacific Northwest—Spokane, Seattle, Tacoma and Portland, with visits to Mt. Rainier National Park and Mt. Baker National Forest. We'll go on the Empire Builder and make the Logan Pass Detour through Glacier National Park on our way west.

Take that Western trip this summer... never so cheap
Write A. J. Dickinson, P. T. M., Room 711, Great Northern Building, St. Paul, for particulars of low rail and Pullman fares to Glacier Park, Pacific Northwest, California, Alaska. Also low cost all-expense tours, if interested.



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Greatly reduced prices give you practically the same dollar buying value as before in Germany. Write for Booklet No. 19.

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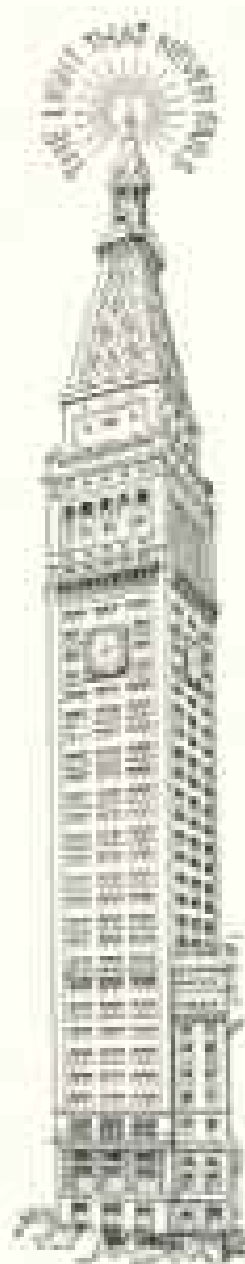


Before the Stork Arrives

MOTHERHOOD richly deserves the most skillful medical care to be had. But, far too often, safeguards which can be provided are neglected. As a rule, when proper preparations for childbirth are made, prospective mothers have little cause for anxiety.

Having the right physician is a great comfort. It means as much to the husband as to his wife to be entirely satisfied with the experience and skill of the doctor who may be called in attendance.

Long before the stork arrives, the doctor will advise about diet, proper rest and exercise, and will make periodic examinations. At regular intervals the doctor studies and records blood pressure, urinalyses, temperature, weight, heart and lung action, and possibly makes tests of the blood. Suggestions about mental attitude may also be given.



When there are no abnormal or disturbing conditions, Nature's processes should not be interfered with. But without hurrying Nature, expert obstetricians can often smooth the way for the modern mother by methods unavailable to her grandmother's physician.

With vigilant and unremitting care on the part of her physician and with her own complete cooperation, the period of waiting should be one of happiness and serenity for the expectant mother.

In many localities clinics give free service to those who cannot afford to employ the regular attendance of a doctor. Maternity Centers and other Health Centers give valuable advice and information without charge. The Metropolitan will send on request its free booklet, "Information for Expectant Mothers." Address Booklet Department 534-N.

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BUICK this year is widening the tremendous favor it holds with people who live in the modern manner. Its beauty, its luxury, its quiet sophistication, are in their language, as its sturdy dependability and mighty performance are in the universal language of motoring.

Buick engineering creates a different and finer kind of motoring—the Buick kind. It adapts Knee-Action wheels to Buick's own requirements for the gliding ride. But it doesn't stop there. It goes

all the way to the gliding ride as only Buick gives it. It builds in a new balance of weight and springing, and a new ride stabilizer; it equips with new air-cushion tires. Then it provides center-point steering for your greater surety of control; vacuum-power brakes for your greater safety; automatic starting and other operations for your greater convenience and ease, and your car's increased efficiency.

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FROM COAST TO COAST



TEXACO *FIRE-CHIEF* GASOLINE



2 NEW
CAMPBELL'S SOUPS
to grace the finest tables!



NOODLE ^{WITH} CHICKEN SOUP

...with hearty egg noodles...rich chicken broth...tender chicken meat

Noodle Soup — glorified, transformed, immeasurably bettered by the skill of the great soup-chef! Isn't that an alluring prospect? The moment you taste Campbell's Noodle Soup, with its extraordinary chicken richness, you will sense a distinct and original creation — an old favorite lifted to a fresh, high deliciousness.

Here is Noodle Soup so richly chicken that the appetite is supremely gratified. The finest egg noodles, in substantial quantity, are steeped in chicken broth of extra strength and flavorful goodness. Tender morsels of chicken meat, white and dark, from the choicest parts, offer a tempting garnish.

The price — just the same as other Campbell's Soups!

CREAM *of* MUSHROOM

containing sweet double thick cream

Open your next luncheon or dinner party with this new soup de luxe — Campbell's Cream of Mushroom!

Never have you served on your own table choicer mushrooms than are used in Campbell's. Fresh, whole, cultivated mushrooms are richly puréed and blended with sweet, fresh cream — cream so thick it will hardly pour. Delectable tidbits of mushroom are the liberal garnish.

The cream is double-thick. So that when an equal quantity of water is added in your kitchen, the soup is a genuinely rich Cream of Mushroom — of enticing smoothness and mushroom goodness.

The price — just the same as other Campbell's Soups!



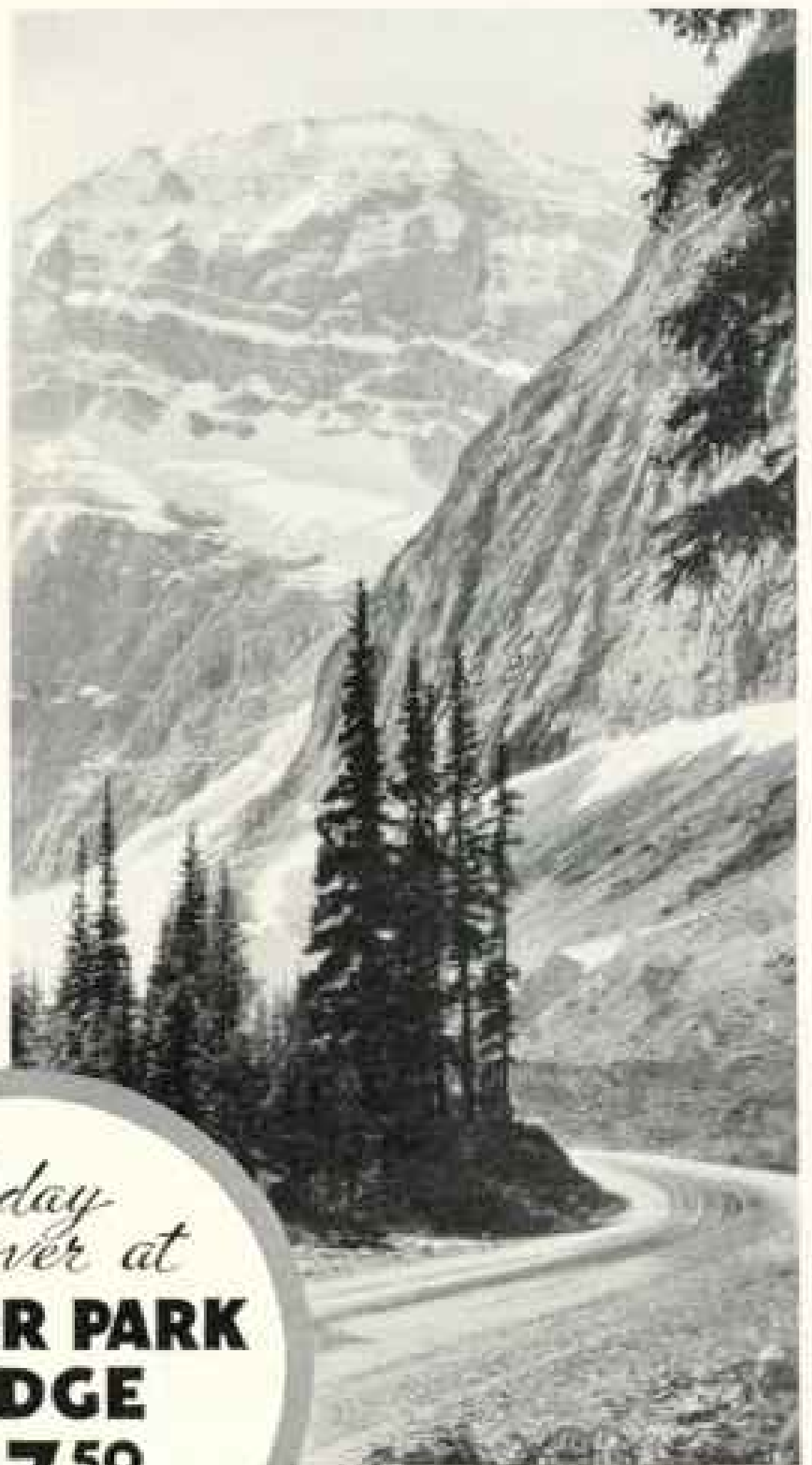
LOOK FOR THE RED-AND-WHITE LABEL

Magnificent Jasper Park

in the heart of the
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FOLLOW the "cool route" across the continent this summer and come out to Jasper National Park. Make your vacation headquarters Jasper Park Lodge in the very heart of the Canadian Rockies.

One deep breath of the tonic mountain air and you're ready for anything. To scale peaks that rival the Alps themselves. To ride. To swim. To golf on the championship course at Jasper Park Lodge — (the famous Totem Pole Tournament is Aug. 26-Sept. 1). To motor through country of unimagined splendor. (The new Sunwapta Drive gives a breathtaking panorama of the Athabaska Valley.) To discover the finest speckled trout fishing on the American continent . . . and enjoy the comforts and social life at the Lodge itself. Season, June 15 to Sept. 23.



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\$47⁵⁰
SPECIAL PREPAID
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IT'S NOT EXPENSIVE. Rates at Jasper Park Lodge as low as \$7.00 a day, including room and meals — discount for extended stay. Take advantage of low rail fares and continue on to the Pacific Coast and Alaska. Come in or write for illustrated booklets and details. Ask, too, about Canadian National vacations in Eastern Canada.



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"YOU'RE CONNECTED!"

SMILING, the installer takes his leave. He's been courteous, careful, quick. He knew just where the telephone should go. Just how to place it so that nothing should be marred. And now—"You're connected!"

A few days ago, having a telephone in this house was only an idea. A husband talked it over with his wife. They decided to go ahead. Now the telephone is a reality — tangible, delightful, vitally important to the family that lives here. Tonight Mother can visit with her friends, talk to relatives miles away, call the doctor should he be needed.

A new neighbor has been linked with the millions of other telephone equipped homes that make America one neighborhood. Another household has discovered the security and convenience brought by the Bell System's unified service of communication.

BELL TELEPHONE SYSTEM



America treats

ALL THE WAY TO EUROPE



YOUR OWN SHIPS

*give you what you want—
when you want it*

LEAVE it to Americans to give their fellow-travelers exactly what they want in roomy cabins, large and beautiful public rooms, modern American comforts and luxuries—of which the air-conditioned dining rooms and indoor tiled swimming pool are typical.

No wonder Uncle Sam's great new liners, the *Manhattan* and *Washington*, are so popular on the Atlantic! World's fastest cabin liners—largest ships ever built in America.

The *Manhattan* and *Washington*, with their running mates the *President Harding* and *President Roosevelt*, offer weekly service to Cobh, Plymouth, Havre and Hamburg.

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One Way Round Trip

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S.S. MANHATTAN

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Rates for sailings between June 11 and July 9
are slightly higher

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**"It's a fact—
our movies
of the trip
cost less
than the
deck chairs."**



Makes movies for 10¢ a "shot"

In the movie studios in Hollywood, a shot is one continuous scene of a picture story. The Eight makes 20 to 30 such scenes—each as long as those in the average news reel—on a roll of film costing \$2.25, finished, ready to show.

WHEREVER you go this summer—at home or abroad, a movie record of your experiences will double the joys of the trip.

CINÉ-KODAK EIGHT, Eastman's increasingly popular movie camera, costs only \$34.50, and works on a new principle. It gives you *finished* movies—ready to show on your own home screen—for less than 10¢ a "shot."

The Eight is compact, sturdy, made to last a lifetime. Using it is as easy as making snapshots. But see it—and the movies it makes—at your dealer's. Don't let another summer's memories escape you—save it all in movies! Eastman Kodak Company, Rochester, N. Y.

If it isn't an Eastman, it isn't a Kodak.



Ciné-Kodak EIGHT

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FOR A VACATION?



come to NEW ENGLAND

THIS SUMMER, take time enough to visit all those quaint, historic places you have always wanted to see. Breathe in the salty, tar smell at old whaling ports. Relax on the gleaming sand, listening to the rumble of waves on the beach. Drive through the mountains, where jagged cliffs stand bold against the sky, by lakes reflecting the cool green of trees. You will find brooks inviting your campfire, and soon there will be the smell of coffee and bacon cooking. Tired? Let us help you plan the best, most varied vacation you have yet had.

Write now for the New England Council booklet. Plan early! Send for this valuable vacation aid. Includes handy road map, names of excellent hotels and much more useful information. Fully illustrated. Send the coupon today.

*This year VISIT ALL
NEW ENGLAND*



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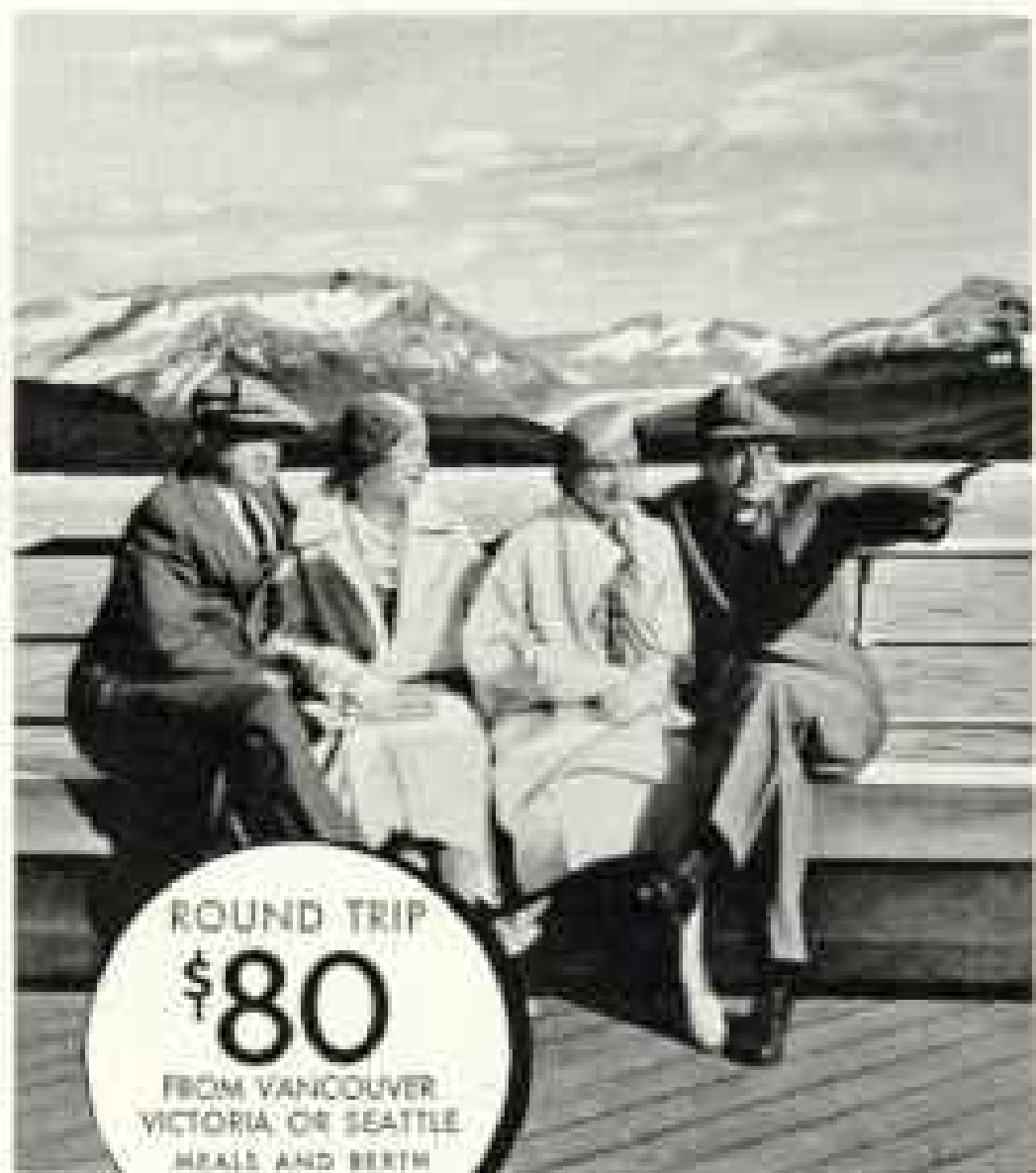
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MEALS AND BERTH
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9 DAYS of smooth sailing — and scenery all the way! Sky-piercing mountains. Wooded islands. The thrilling glaciers that line the northern waters of the Inside Passage of the Pacific. The entire trip from Vancouver to Skagway is a never-ending procession of scenic wonders and fascinating ports of call. Ketchikan and Wrangell with their grotesque totems. The famed Taku Glacier. Juneau with its mines and the nearby Mendenhall Glacier. Skagway where you can follow the "Trail of '98" to Lake Bennett, Atlin and the Yukon. Write for booklets.

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And Offices and Agencies throughout the United States

When you plan
your boy's future

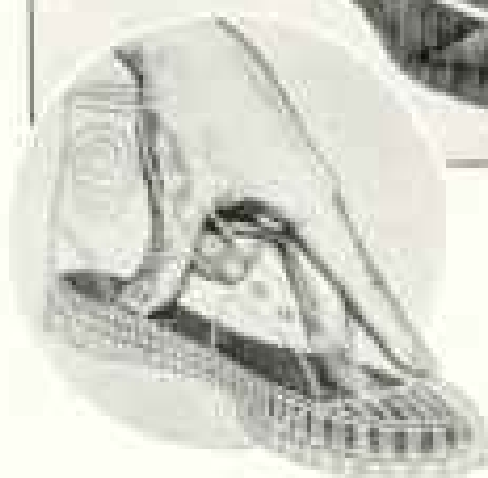
the place to begin is right here



As conscientiously as that son of yours plans his fun, you can plan his future. For his active hours provide him with shoes that give him every opportunity for normal, healthy foot development... For a pair of poor feet can be a life-long misfortune—a source of physical and mental discomfort that may be a definite handicap to success. See that your boy gets the protection—the comfort—and the all-round foot-health of America's most perfectly fitted canvas shoes, the

NEW SCIENTIFICALLY LASTED

Keds

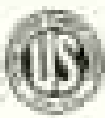


In the new Keds, feet are cushioned by an air-filled carpet of buoyant sponge rubber—the new Keds Shockproof Insole. It puts new life and energy in foot action, lessens fatigue and absorbs shocks and blows. You actually walk on air!

To appreciate with what thorough care the new Keds have been designed, compare the new Keds sole with the imprint of a normal foot, illustrated below. Note how faithfully the shoe follows natural outlines—an encouragement to good posture, correct tread and general healthful foot growth. Moreover, the same skill is seen in the design of the upper. The instep is fitted

with tailored trimness, the ankle is everywhere smooth and snug... Without question, the new Keds are the most thoroughly satisfactory canvas shoes ever made. Make certain your boy enjoys all the advantages of genuine Keds. Ask your shoe dealer about the new Keds Scientific Last, the new Keds Shockproof Insole and the many other famous Keds superiorities.



United States  Rubber Company

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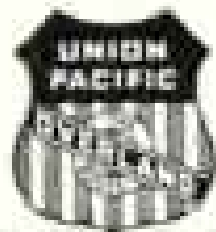


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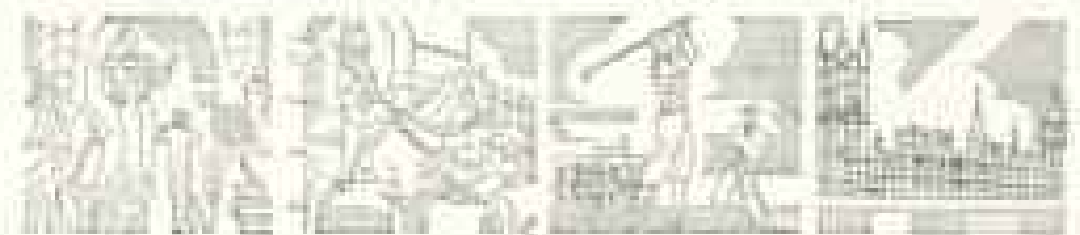
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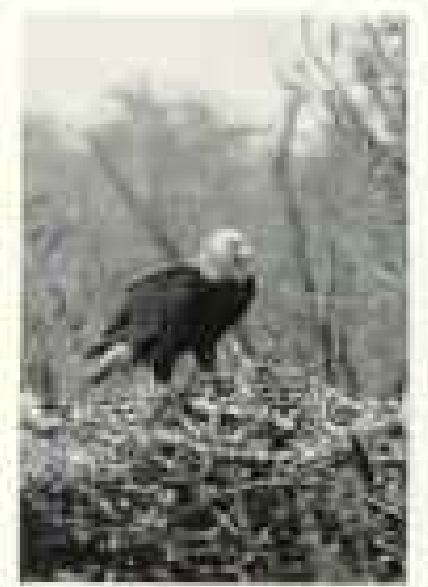
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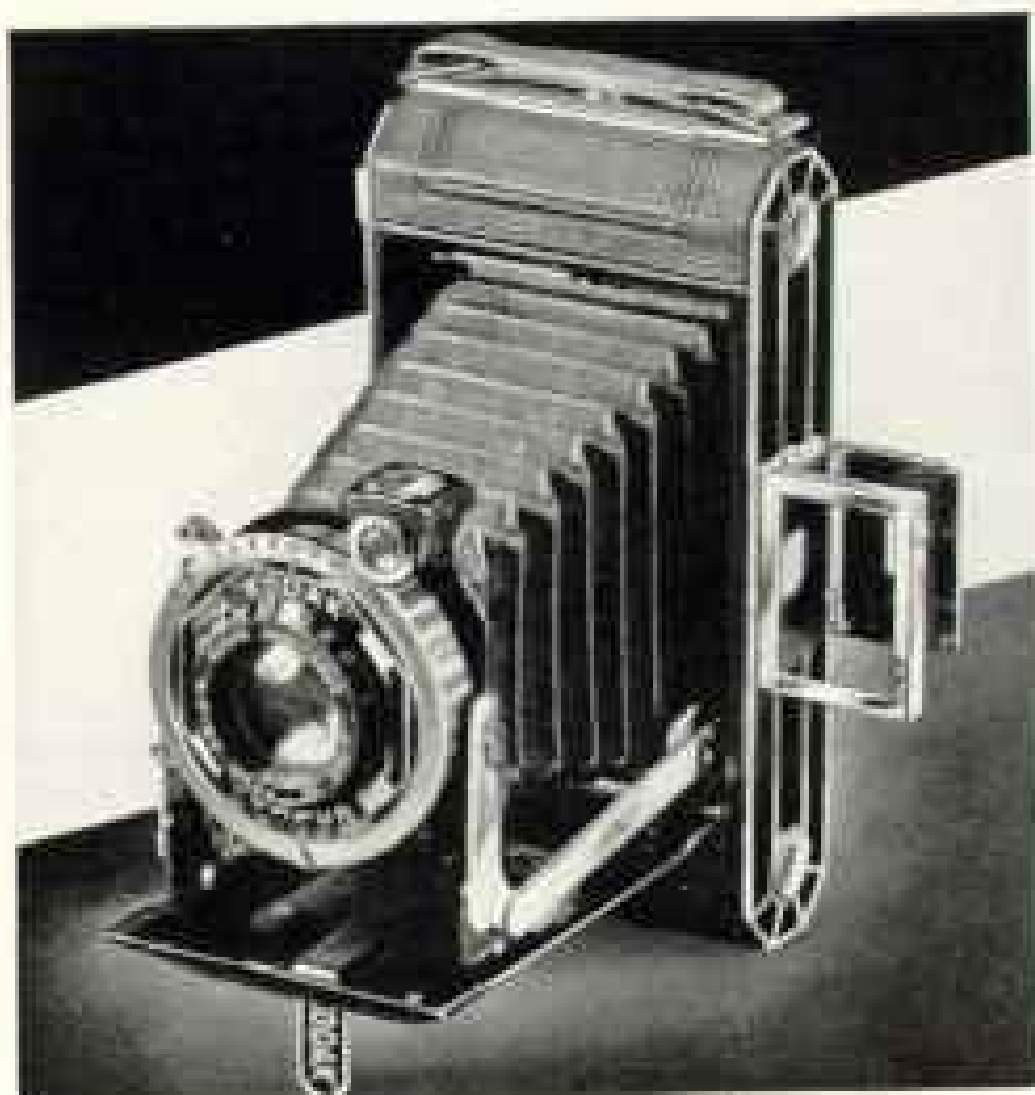
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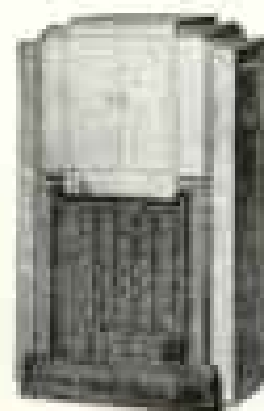
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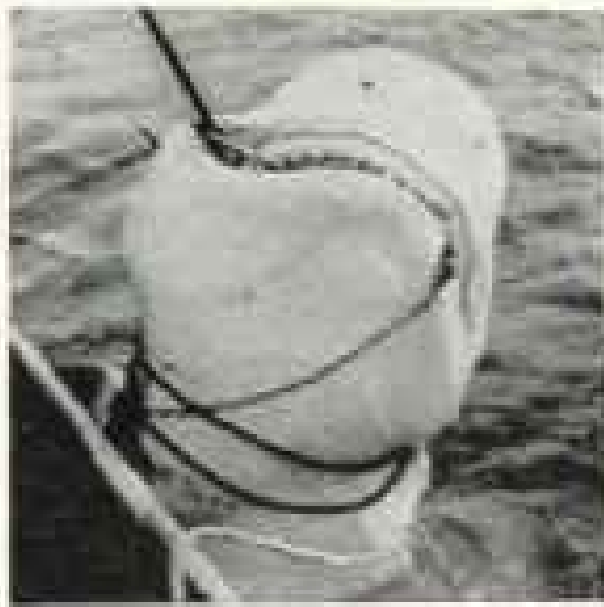
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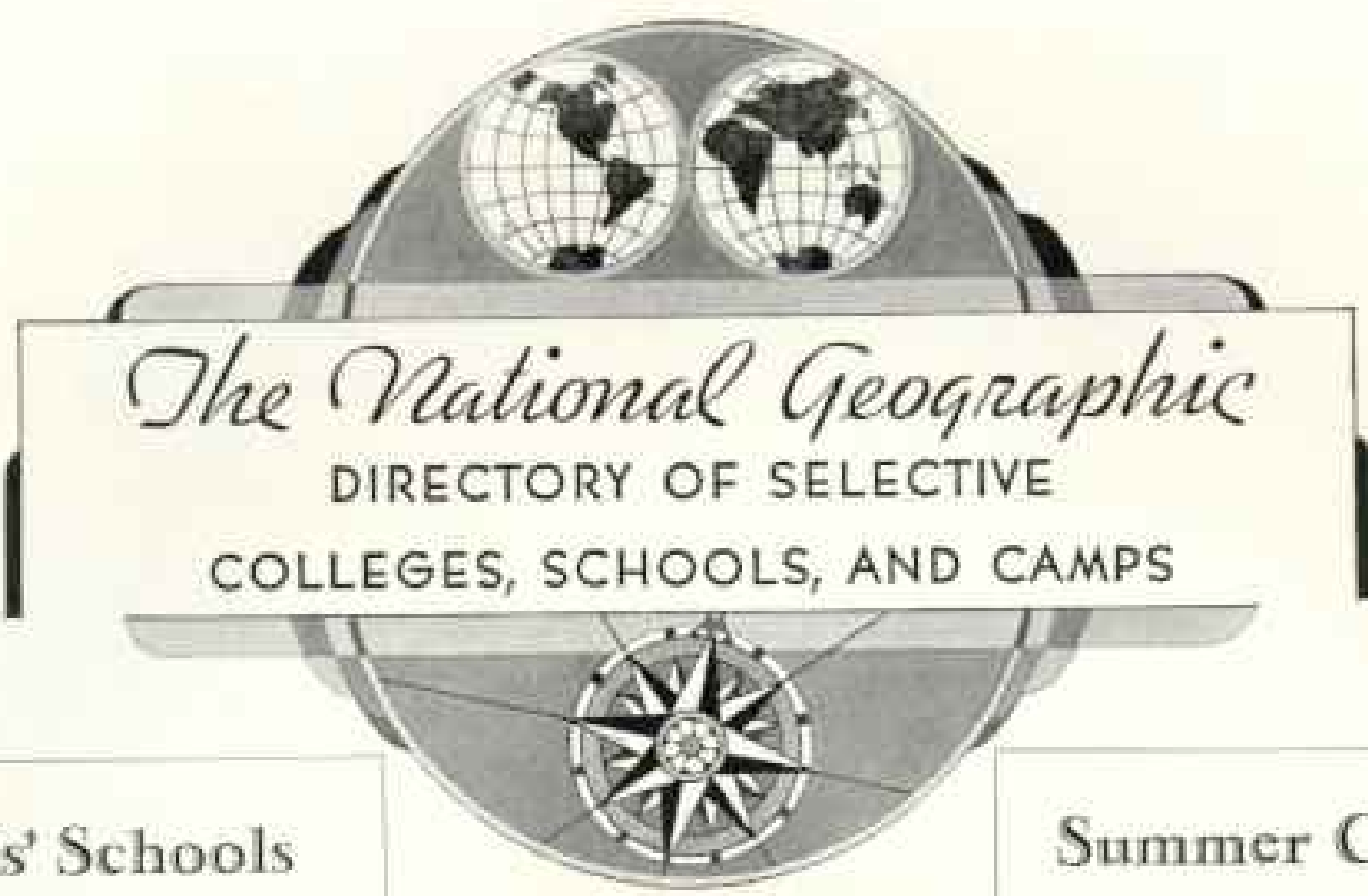
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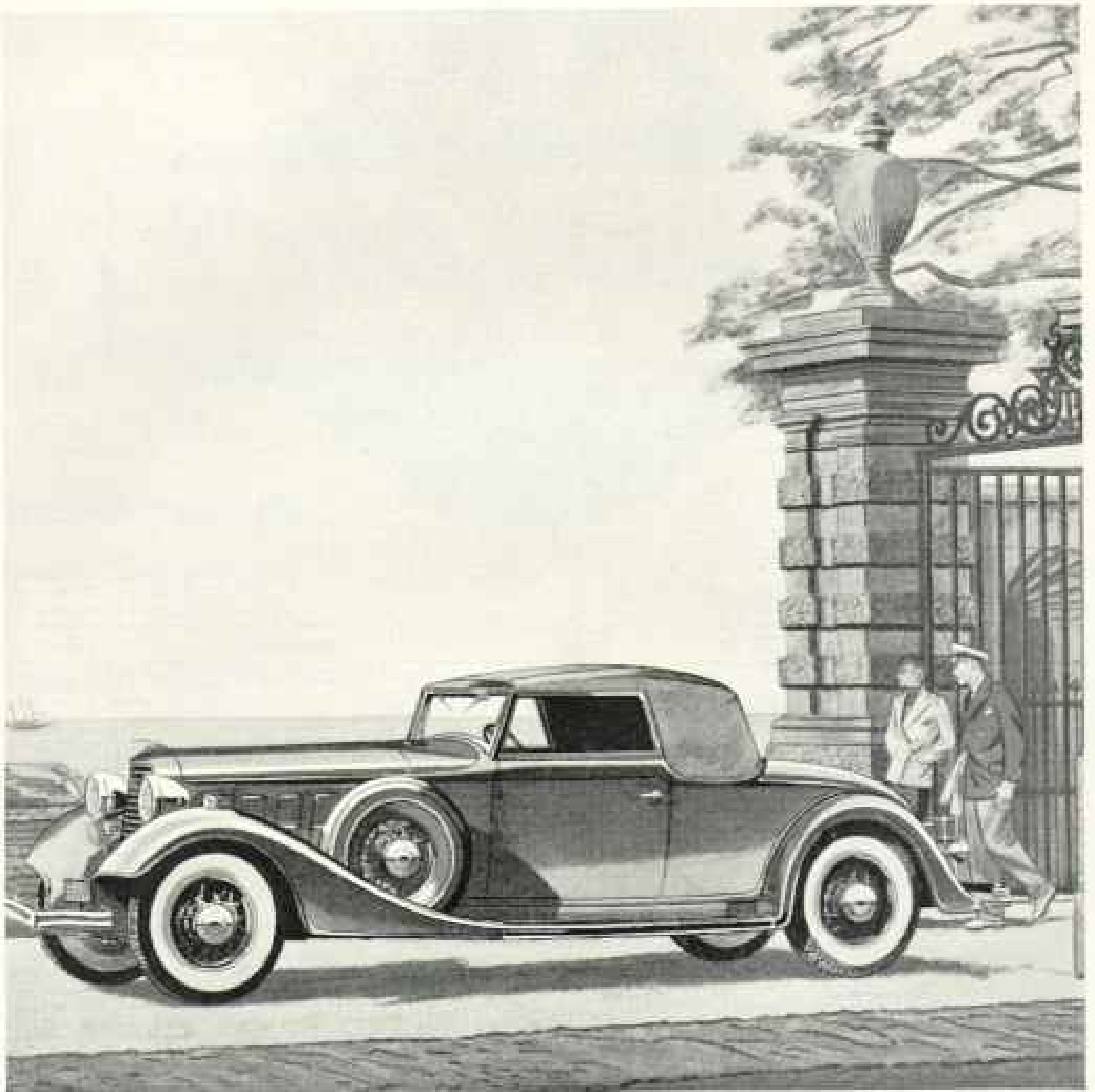
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