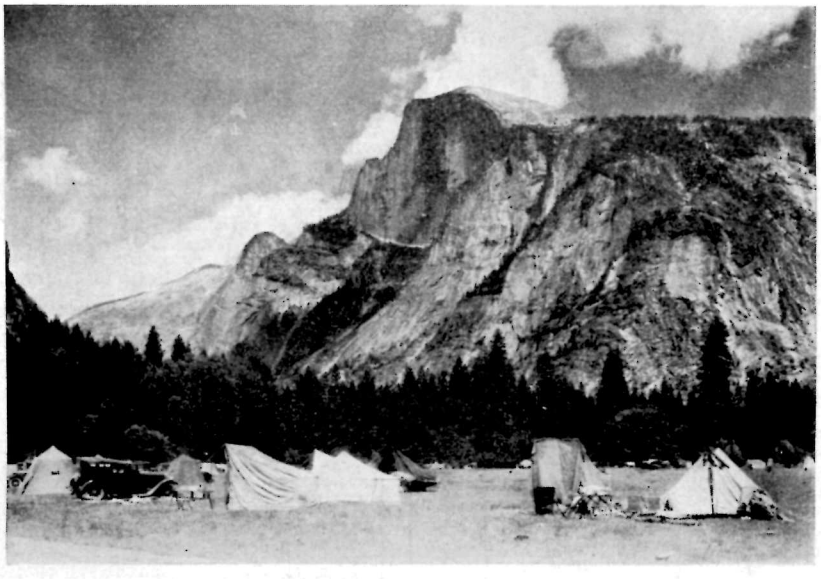
UNITED STATES
DEPARTMENT OF THE INTERIOR
HUBERT WORK, SECRETARY
NATIONAL PARK SERVICE
STEPHEN T. MATHER, DIRECTOR

GLIMPSES
of our
NATIONAL PARKS



CAMPING SCENE, YOSEMITE NATIONAL PARK

UNITED STATES
GOVERNMENT PRINTING OFFICE
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THE NATIONAL PARKS AT A GLANCE

[Number, 19; total area, 11,804 square miles]

National parks in order of creation	Location	Area in square miles	Distinctive characteristics
Hot Springs 1832	Middle Arkansas	1½	46 hot springs possessing curative properties—Many hotels and boarding houses—19 bathhouses under Government supervision.
Yellowstone 1872	Northwestern Wyoming.	3,348	More geysers than in all rest of world together—Boiling springs—Mud volcanoes—Petrified forests—Grand Canyon of the Yellowstone, remarkable for gorgeous coloring—Large lakes—Many large streams and waterfalls—Vast wilderness, greatest wild bird and animal preserve in world—Exceptional trout fishing.
Sequoia 1890	Middle eastern California.	604	The Big Tree National Park—Scores of sequoia trees 20 to 30 feet in diameter; thousands over 10 feet in diameter—Towering mountain ranges—Startling precipices—Includes Mount Whitney, highest peak in continental United States, and Kern River Canyon.
Yosemite 1890	Middle eastern California.	1,125	Valley of world-famed beauty—Lofty cliffs—Romantic vistas—Many waterfalls of extraordinary height—3 groves of big trees—High Sierra—Waterwheel Falls—Good trout fishing.
General Grant 1890	Middle eastern California.	4	Created to preserve the celebrated General Grant Tree, 35 feet in diameter—6 miles from Sequoia National Park.
Mount Rainier 1899	West central Washington.	325	Largest accessible single-peak glacier system—28 glaciers, some of large size—48 square miles of glacier, 50 to 500 feet thick—Wonderful subalpine wild flower fields.
Crater Lake 1902	Southwestern Oregon.	249	Lake of extraordinary blue in crater of extinct volcano—Sides 1,000 feet high—Interesting lava formations—Fine fishing.
Platt 1902	Southern Oklahoma.	1⅓	Many sulphur and other springs possessing medicinal value.
Wind Cave 1903	South Dakota	17	Cavern having several miles of galleries and numerous chambers containing peculiar formations.
Sullys Hill 1904	North Dakota	1⅕	Small park with woods, streams, and a lake; is an important wild-animal preserve.
Mesa Verde 1906	Southwestern Colorado.	77	Most notable and best preserved prehistoric cliff dwellings in United States, if not in the world.
Glacier 1910	Northwestern Montana.	1,534	Rugged mountain region of unsurpassed Alpine character—250 glacier-fed lakes of romantic beauty—60 small glaciers—Precipices thousands of feet deep—Almost sensational scenery of marked individuality—Fine trout fishing.
Rocky Mountain 1915	North middle Colorado.	378	Heart of the Rockies—Snowy range, peaks 11,000 to 14,255 feet altitude—Remarkable records of glacial period.
Hawaii 1916	Hawaii	242	Three separate areas—Kilauea and Mauna Loa on Hawaii; Haleakala on Maui.
Lassen Volcanic 1916	Northern California	124	Only active volcano in United States proper—Lassen Peak 10,460 feet—Cinder Cone 6,907 feet—Hot springs—Mud geysers.
Mount McKinley 1917	South central Alaska	2,645	Highest mountain in North America—Rises higher above surrounding country than any other mountain in the world.
Grand Canyon 1919	North central Arizona	996	The greatest example of erosion and the most sublime spectacle in the world.
Lafayette 1919	Maine coast	12	The group of granite mountains upon Mount Desert Island.
Zion 1919	Southwestern Utah	120	Magnificent gorge (Zion Canyon), depth from 1,500 to 2,500 feet, with precipitous walls—Of great beauty and scenic interest.

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A publication similar to this, entitled "Glimpses of Our National Monuments," may be obtained free of charge upon application to the Director of the National Park Service, Interior Department, Washington, D. C. This publication contains 74 pages, including 34 illustrations.

Another interesting publication on the national parks and national monuments is the National Parks Portfolio, which contains nine chapters descriptive each of a national park, and one larger chapter devoted to other parks and monuments. This publication, which contains 270 pages, including 310 illustrations, is bound securely in cloth. It is sold by the Superintendent of Documents, Government Printing Office, for $1 a copy.

DEPARTMENT OF THE INTERIOR

HUBERT WORK, Secretary

NATIONAL PARK SERVICE

STEPHEN T. MATHER, Director

GLIMPSES OF OUR NATIONAL PARKS

I

THE NATIONAL PARKS

THE national parks are areas which Congress has set apart, because of extraordinary scenic beauty, remarkable phenomena, or other unusual qualification, for the use and enjoyment of the people for all time. They are administered by the National Park Service.

These are not parks in the common meaning of the word. They are not beautiful tracts of cultivated country with smooth lawns and winding paths like Central Park in New York, or Lincoln Park in Chicago, or Golden Gate Park in San Francisco. They are, on the contrary, large areas which nature, not man, has made beautiful and which the hand of man alters only enough to provide roads to enter them, trails to penetrate their fastnesses, and hotels and camps to live in.

The official definition of a national park was compiled by Secretary Work and is quoted here from his reply to an inquiry by Senator Fletcher, of Florida, January 14, 1924:

> Under the theory and practice of the United States Government since 1872, when Yellowstone National Park was created, our national park system is made up of areas inclosing scenery of quality so unusual and impressive, or natural features so extraordinary, as to possess national interest and importance as contradistinguished from local interest. Such outstanding examples of typical world architecture as the Grand Canyon, exemplifying in unequalled grandeur the highest accomplishment of stream erosion, or the rugged portions of Mount Desert Island, in Maine, which are incorporated in the Lafayette National Park, exemplifying unique rock forms in association with quite extraordinary eastern forests, compelled immediate recognition of national park values.
>
> The national parks, therefore, must not be lowered in standard, dignity, and prestige by the inclusion of areas which express in less than the highest terms the particular class or type of exhibit which they represent.

(This circular was prepared by Robert Sterling Yard while editor National Park Service.)

Size is not important so long as the proposed park includes within its boundaries those scenic elements that meet established standards, but the area must be susceptible of effective development to make it accessible to the people, and of convenient administration and control. Duplication of exhibits already in the national park system must be carefully avoided in order that the individuality of the members of the system may be maintained.

And, when once established by the Congress along well-studied boundary lines, they must be conserved in their natural state, untouched by the inroads of modern civilization, so that coming generations, as well as the people of our own time, may be assured their use for the purposes of recreation, education, and scientific research.

There are 19 national parks. Every person living in the United States ought to know about his national parks and visit them when possible, for considered together, they contain more features of conspicuous grandeur than are readily accessible in all the rest of the world together; while, considered individually, there are few, if any, celebrated scenic places within easy reach abroad which are not equaled or excelled in America; even the far-famed Swiss Alps are equaled, and, some travelers believe, far excelled, by the scenery of several of our own national parks.

SCENERY OF THE FIRST ORDER

At the same time there are many features of American scenery which are not to be found anywhere else, or, if found, are unequaled abroad in sublimity or beauty. There are more geysers of large size in our Yellowstone National Park, for instance, than in all the rest of the world together, the nearest approach being the geyser fields of Iceland and far New Zealand. Again, it is conceded the world over that there is no valley in existence so strikingly beautiful as our Yosemite Valley, and nowhere else can be found a canyon of such stupendous size and exquisite coloring as our Grand Canyon of the Colorado. In the Sequoia National Park grow trees so huge and old that none quite compare with them. Mount McKinley, in Alaska, rises 17,000 feet from the ground on which the observer stands to its ice-clad summit among the clouds. These are well-known facts with which every Amerian ought to be familiar.

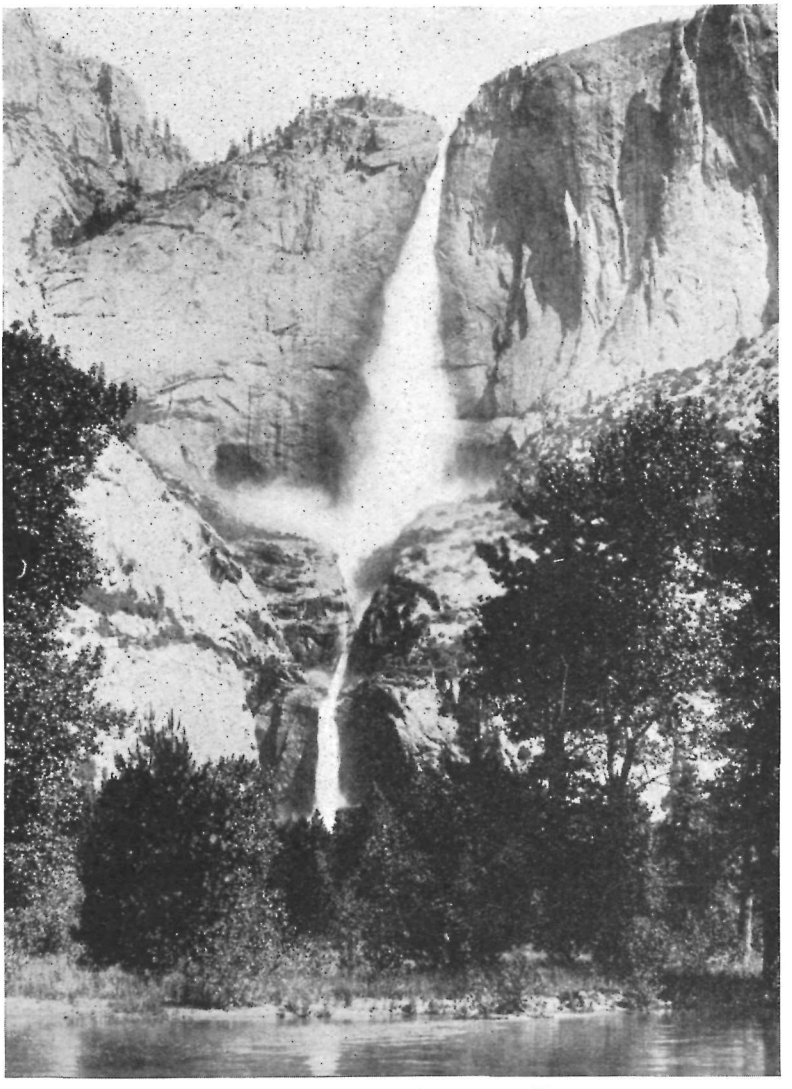
EACH A PERSONALITY OF ITS OWN

One of the striking and interesting features of the national parks of our country is that each one of them is quite different from all the others; each has a marked personality of its own.

Mount Rainier, in Washington, for example, is an extinct volcano, down the sides of which flow 28 glaciers, or rivers of ice.

Crater Lake, in Oregon, fills with water of astonishing blue the hole left when the top of Mount Mazama, another volcano in the same chain as Mount Rainier, was swallowed up in some far distant past.

The Yosemite National Park, in California, in addition to its celebrated Yosemite Valley and lofty waterfalls, has in the north a river called the Tuolumne which spouts wheels of water 20 feet and more into the air. It has great areas of snow-topped mountains.



Photograph by Pillsbury

THE HIGHEST WATERFALL IN THE WORLD, YOSEMITE NATIONAL PARK

The Upper Yosemite Fall drops 1,430 feet sheer, nearly as high as 9 Niagaras piled one above the other. The Lower Yosemite Fall drops 320 feet. Their combined height, including intermediate cascades and rapids, is half a mile.

The Sequoia National Park, also in California, contains great numbers of sequoia trees, of which scores are from 25 to 36 feet in diameter and thousands over 10 feet. Measure 36 feet on the sidewalk and see what that means. Some of these trees are older than human history. The General Grant Park preserves the celebrated General Grant tree.

The Glacier National Park, in Montana, was made by the earth cracking in some far-distant time and one side thrusting up and overlapping the other. It has cliffs several thousand feet high, and more than 60 glaciers feed hundreds of lakes. One lake floats icebergs all summer.

The Yellowstone National Park, in Wyoming, besides its geysers, has many hot springs which build glistening plateaus of highly colored mineral deposits. It has a canyon gorgeous with all the colors and shades of the rainbow, and it is literally the greatest wild animal sanctuary.

The Rocky Mountain National Park, in Colorado, straddles the Continental Divide at a lofty height, with snow-capped mountains extending from end to end. Its glacier records are remarkable.

The Mesa Verde National Park, in Colorado, hides in its deep-cut canyons the well-preserved ruins of a civilization which passed out of existence so many centuries ago that not even tradition recalls its people.

The Mount McKinley National Park, in Alaska, incloses a mountain higher above the near observer than any other mountain in the world; its caribou run in herds of a thousand or more.

The Hawaii National Park, Hawaiian Islands, besides its three volcano peaks, possesses a lake of boiling lava which may be photographed at night by its own light.

The Grand Canyon National Park, in Arizona, exhibits the mightiest chasm by far in the world. It is one of the world's great wonders.

The Lafayette National Park, in Maine, exhibits some of the oldest granite mountains in America. It is remarkable for its exquisite beauty, combining sea and land, and for its remarkable variety and luxuriance of trees and shrubs.

The Lassen Volcanic National Park, in California, includes Lassen Peak, the only active volcano in Continental United States.

The Hot Springs National Park, in Arkansas, contains 46 hot springs, the power of whose waters to alleviate certain bodily ills has been recognized for many generations. It is the Spa of America.

The Zion National Park, in Utah, exhibits in Zion Canyon a canyon of vivid coloring not dissimilar in conformation to the Yosemite Valley. It is in truth the Rainbow of the Desert.

The Wind Cave National Park, with its limestone cavern of large size and interesting decorations, is one of the notable attractions of the Black Hills of South Dakota.

The Platt National Park contains southern Oklahoma's famous curative springs.

The Sullys Hill National Park, in North Dakota, contains a wood, a stream, and a lake. It is an important wild animal preserve.

It will be seen that one may visit a new national park each year for more than a decade and see something quite new and remarkable at each visit.

AN ECONOMIC ASSET

It is plain that our national parks, with very few exceptions, have a quality so unusual that they are destined some day to become more celebrated internationally than the Swiss Alps are to-day. When that time comes they will constitute an economic asset of incalculable value; they will become a maker of much good business in many lines of industry besides transportation, and a source of enormous national income; they already are entering this era. The Alps exhibit only granite scenery, while our national parks show the full range of granitic, volcanic, and sedimentary scenery in world-famous examples.

HOTELS AND CAMPS

The map on the inside back cover will show where the national parks are located. All of those in the United States proper are upon lines of railways and are easily reached by automobile over good roads from any part of the country. Each of them is in charge of a resident superintendent, who has under his charge enough park rangers to protect the forests from fire, the wild animals from hunters, and the visitors from harm. There are good roads in most of the parks, and hotels or permanent camps or both where visitors may stay to enjoy the scenery and study nature. Free camp grounds are provided for motorists and others who bring their own camp equipment. Trails are built to the waterfalls, up the highest mountains, and, in short, wherever especially fine views may be found. Over these trails visitors may walk or ride on horseback as they prefer.

Many of the hotels are fine ones where every luxury may be had by those who insist upon luxuries even in the wilderness. There are often cheaper hotels also, and in the permanent camps visitors may live very comfortably indeed and quite economically. One may go to these camps just as to a hotel, only he is assigned a comfortable

tent or cabin instead of a room, and eats his meals in a big central building, which also serves as a general living room. At night a camp fire is built, and all gather around it to sing and tell stories. Many persons who can easily afford the luxury of hotels live in the camps because they prefer doing so.

The National Park Service, which has all the national parks in its care, is trying to make them popular and comfortable and available for people of all degrees of income.

Not only are these parks the best and most fully patronized health and pleasure resorts in the United States but they are becoming great centers of nature study. In the national parks only is nature most carefully conserved exactly as designed. No trees are cut down for lumber, as in the national forests outside the parks, but are allowed to reach their utmost size and age. No animals are killed except mountain lions and other predatory beasts which destroy the deer and young elk. Here, then, the student and the lover of nature may study nature in her pristine beauty and under conditions which elsewhere exist only in the few remote lands not yet invaded by man.

To these national parks, then, the National Park Service invites students, amateur and professional alike.

NATIONAL PARKS AND NATIONAL FORESTS

One must not confuse the national forests with the national parks. The national forests aggregate many times the area of the national parks. They were created to administer lumbering and grazing interests for the people; the lumbering, instead of being done by private interests often ruthlessly for private profit, as in the past, is now done under regulations which conserve the public interest. The trees are cut in accordance with the principles of scientific forestry, which conserve the smaller trees until they grow to a certain size, thus perpetuating the forests. Sheep, horses, or cattle graze in all pastures under governmental regulation, while in national parks cattle may be admitted only where not detrimental to the enjoyment and preservation of the scenery. Regular hunting is permitted in season in the national forests, but never in the national parks. In short, the national parks, unlike the national forests, are not properties in a commercial sense, but natural preserves for the rest, recreation, and education of the people. They remain under nature's own chosen conditions. They alone maintain "the forest primeval." The national forests are administered by the Forest Service of the Department of Agriculture. Congress has placed the national parks and national forests under the control of different executive bureaus in order that two services dealing with areas so similar in kind and location may the more surely maintain their individualities and often widely different points of view.

THE NATIONAL MONUMENTS

Besides the national parks there are many reservations called "national monuments." They are created by presidential proclamation under the American antiquities act because they are "historic landmarks" or "prehistoric structures," or because they possess "historic or scientific interest."

The difference between a national park and a national monument is not always easy to state. A national park is created only by Congress, with the presumption that it will be developed for the use of the people. The presumption in regard to a national monument is that it will be conserved and protected only. Both presumptions have exceptions, some of them important. Most of the national monuments are under the jurisdiction of the Department of the Interior, although some are in charge of the Agriculture and War Departments.

HUNTING WITH THE CAMERA

Lovers of sport also find their national parks rich fields of pleasure, provided they do their hunting only with the camera. This is encouraged, and there are no other places in the world where wild animals may be approached so closely. In the Yellowstone, where shooting has been strictly prohibited since 1894, one may with reasonable care and precaution photograph deer at close quarters, and approach elk and antelope, and even moose and bison, near enough for good pictures.

BIRDS AND WILD ANIMALS

The lesson of the Yellowstone is that wild animals greatly fear man only when man is cruel and murderous. Another lesson from national parks' experience is that no wild animal will injure human beings except in self-defense. The monster cat of our rock fastnesses—the mountain lion—big enough and powerful enough to drag down a full-grown elk, is one of the most timid of all the beasts in the national parks, flying at great speed at the first sight or scent of man.

The national parks cover a great area, 7,554,560 acres in all. If all were put together it would mean an area of 11,804 square miles.

EDUCATIONAL AND INSPIRATIONAL VALUE

It will be apparent that our national parks serve other and far nobler purposes than merely to contribute importantly to the recreational opportunity of the people. Of course, they are playgrounds of high order—the highest order, in fact. But also, and more importantly, they are museums of the mighty past of the earth's mak-

ing; exhibits upon an enormous scale of the operation of the titanic forces which shaped and still are shaping this land; areas for the conservation of the native wild life, animal and vegetable, of America; and, because of these functions, and of their attributes of majesty and sublimity besides, they are fountains of inspiration alike to education, patriotism, and the impulses to art and literature. Men return from our mountain tops better shopkeepers and tailors, as well as better teachers, lawyers, and painters.

One's enjoyment of the national parks, and in fact of all natural scenery, depends to some extent on one's knowledge of the elementary facts of geology. Nothing is more easily and pleasantly acquired, for what most persons suppose is the dullest of sciences is, in its simplified outlines, one of the most interesting to study and facinating to apply to nature's tremendous examples.

THE ANATOMY OF SCENERY

Geology is the anatomy of scenery. It is as necessary for the comprehension and appreciation of scenery as a general knowledge of anatomy is to the painter of the human figure in action and to the critic of his painting. Therefore take with you to your national parks some knowledge of the great forces which nature uses in world making and how she applies them to the shaping of the several great classes into which scenery is divided, and your enjoyment will be increased many fold. Consider this knowledge as a necessary part of your equipment, to be carefully acquired in advance, as your shoes and khaki and contour map.

CONTOUR MAPS

The United States Geological Survey has made an admirable contour map of nearly all of the national parks within the borders of the United States. It is easy to learn to read these maps. Every mountain, lake, and stream which has an authoritative name is there named and the contour lines conform accurately with the surface, enabling the traveler instantly to reckon any altitude for himself. The contour-map habit is easy to acquire and is the source of keen enjoyment and of intimate knowledge which may be obtained in no other way.

This map may be had from the superintendent of the park, but it will save time and trouble to write in advance for it to the United States Geological Survey, at Washington, D. C. There is a small charge.

RULES AND REGULATIONS PAMPHLETS

The following descriptions of our national parks are not intended to be exhaustive. In each, those characteristics are emphasized

which individualize the park, distinguishing it from others. Any person who wishes to know more about any national park than is here available, who wishes, for instance, to know the particular traveling and living facilities in each and the expense of a visit therein, should write to the Director, National Park Service, Washington, D. C., for the rules and regulations pamphlet of the particular national park in which he is interested. It will be sent free.

Those who want information about reaching the national parks by rail, fares, etc., should apply to local railroad ticket offices or to any tourist agency. Those wanting information about reaching the parks by automobile should apply to national, State, or local automobile associations.

II

THE YELLOWSTONE NATIONAL PARK

Special Characteristics: Geysers and Hot Springs; Wonderfully Colored Canyon; Largest Wild Bird and Animal Refuge

THE Yellowstone National Park, which lies principally in Wyoming, is the most widely celebrated of all our national parks because it contains more and greater geysers than all the rest of the world together. The geyser fields next in size are in Iceland and New Zealand. The rest are inconspicuous.

To comprehend the Yellowstone we must begin with its making. The entire region is of volcanic origin. The mountains around it on both sides and the mountains within it are products or remainders of great volcanoes of the far past; and the great plateaus, from which spring its geysers and hot springs and through whose forests now roam so many wild animals, are composed of the ash and disintegrated lavas which were once ejected from these volcanoes.

One peculiarly fascinating glimpse of Yellowstone's tempestuous past is afforded in the petrified forest of the Specimen Ridge neighborhood, where many levels of upright petrified trunks may be found alternating, like the layers in a cake, with levels of lava; which plainly shows that after the first forest grew on the volcano's slope and was engulfed by a fresh run of lava, enough time elapsed for a second forest to grow upon that level, and that this in turn was engulfed with new lava to make the level for another forest, and so on. There is a cliff 2,000 feet high composed wholly of these alternate levels of engulfed forests and the lavas which engulfed them.

THE GEYSERS

Geysers are, roughly speaking, water volcanoes. They occur only at places where the internal heat of the earth approaches close to the surface. Their action, for so many years unexplained and even now

regarded with wonder by so many, is simple. Water from the surface trickling through cracks in the rocks, or water from subterranean springs collecting in the bottom of the geyser's crater, down among the strata of intense heat, becomes itself intensely heated and gives off steam, which expands and forces upward the cooler water that lies above it. This makes room for the more rapid formation of steam which immediately gathers under enormous pressure.

It is then that the water at the surface of the geyser begins to bubble and give off clouds of steam, the sign to the watchers above that the geyser is about to play.

At last the water in the bottom reaches so great an expansion under continued heat that the less heated water above can no longer weigh it down, so it bursts upward with great violence, rising many feet in the air and continuing to play until practically all the water in the crater has been expelled. Spring water, or the same water cooled and falling back to the ground, again seeps through the surface to gather as before in the crater's depth, and in a greater or less time, according to difficulties in the way of its return, becomes reheated to the bursting point, when the geyser spouts again.

THE HOT-WATER PHENOMENA

Nearly the entire Yellowstone region, covering an area of about 3,300 square miles, is remarkable for its hot-water phenomena. The more important geysers are confined to three basins lying near each other in the middle west side of the park, but other hot-water manifestations occur at more widely separated points. Marvelously colored hot springs, mud volcanoes, and other strange phenomena are frequent. At Mammoth Hot Springs the hot water has brought to the surface quantities of white mineral deposits which build terraces of beautifully incrusted basins high up into the air, often engulfing trees of considerable size. Over the edges of these carved basins pours the hot water. Microscopic plants called algæ grow on the edges and sides of these basins, assisting the deposition of the mineral matter and painting them hues of red and pink and bluish gray. At many other points lesser hot springs occur, introducing strange, almost uncanny, elements into wooded and otherwise quite normal landscapes.

A tour of these hot-water formations and spouting geysers is an experience never to be forgotten. Some of the geysers play at quite regular intervals. The celebrated Old Faithful, the tourists' friend, plays often and with regularity. It had the honor of welcoming the first explorer, and never since that day has it failed any tourist. Some of the largest geysers play at irregular intervals of days, weeks, or months. Some very small ones play every few minutes. Many

bubbling hot springs, which throw water 2 or 3 feet into the air once or twice a minute, are really small, imperfectly formed geysers.

The hot-spring terraces are also a rather awe-inspiring spectacle when seen for the first time. The visitor may climb upon them and pick his way around among the steaming pools. In certain lights the surface of these pools appears vividly colored. The deeper hot pools are often intensely green. The incrustations are often beautifully crystallized. Clumps of grass, and even flowers, which have been submerged in the charged waters become exquisitely plated, as if with frosted silver.

But the geysers and hot-water formations are by no means the only wonders in the Yellowstone. Indeed, the entire park is a wonderland. The Grand Canyon of the Yellowstone affords a spectacle worthy of a national park were there no geysers. But you must not confuse your grand canyons, of which there are several in our wonderful western country. Of these, by far the largest and most impressive is the Grand Canyon of the Colorado River, in the Grand Canyon National Park, Ariz. That is the one always meant when people speak of visiting "the Grand Canyon," without designating a location. It is the giant of canyons.

GRAND CANYON OF THE YELLOWSTONE

The Grand Canyon of the Yellowstone is altogether different. What makes it a scenic feature of the first order is its marvelously variegated volcanic coloring. It is the cameo of canyons.

Standing upon Inspiration Point, which pushes out almost to the center of the canyon, one looks almost vertically down upon the foaming Yellowstone River. To the south a waterfall nearly twice the height of Niagara rushes seemingly out of the pine-clad hills and pours downward to be lost again in green.

From that point 2 or 3 miles to where you stand and beneath you widens out a glorious kaleidoscope of color. The steep slopes dropping on either side a thousand feet and more from the pine-topped levels above are wondrously carved and fretted by the frost and the erosion of the ages. Sometimes they lie in straight lines at easy angles, from which jut high rock prominences. Sometimes they lie in huge hollows carved from the side walls. Here and there jagged rocky needles rise perpendicularly for hundreds of feet like groups of gothic spires.

And the whole is colored as brokenly and vividly as the field of a kaleidoscope. The whole is streaked and spotted and stratified in every shade from the deepest orange to the faintest lemon, from deep crimson through all the brick shades to the softest pink, from black

through all the grays and pearls to glistening white. The greens are furnished by the dark pines above, the lighter shades of growth caught here and there in soft masses on the gentler slopes and the foaming green of the plunging river so far below. The blues, ever changing, are found in the dome of the sky overhead.

It is a spectacle which one looks upon in silence.

There are several spots from which fine partial views may be had, but no person can say he has seen the canyon who has not stood upon Inspiration Point. Remember this when you visit the Yellowstone.

Photograph by Hillers

GRAND CANYON OF THE YELLOWSTONE

WILD ANIMALS LIVING NATURALLY

Another interesting feature of the Yellowstone National Park is its wild-animal life. It is one of the largest and most successful preserves in the world. Its 3,300 square miles of mountains and valleys remain nearly as nature made them, for the 300 miles of roads and the four hotels and five camps are as nothing in this immense wilderness. No tree has been cut except when absolutely necessary for road or trail or camp. No herds invade its valleys. No rifle has been fired at a wild animal since 1894, except by occasional poachers along the border and by the official destroyers of predatory beasts.

Visitors for the most part keep to the beaten road, and the wild animals have learned in the years that they mean them no harm. To be sure they are not always seen by the people filling the long trains of stages which travel from point to point daily during the season; but the quiet watcher on the trails may see deer and bear and elk and antelope to his heart's content, and he may even see mountain sheep, moose, and bison by journeying on foot or by horseback into their distant retreats. In the fall and spring, when the crowds are absent, wild deer gather in great numbers at the hotel clearings to

Photograph by Cribbs

YOUNG MULE DEER IN YELLOWSTONE NATIONAL PARK SO TAME THEY EAT FROM THE HAND OF A CHILD

crop the grass. One of the diversions at the road builders' camps in the wilderness is cultivating the acquaintance of the animals.

Thus one of the most interesting lessons from the Yellowstone is that wild animals are fearful and dangerous only when men treat them as game or as enemies.

BEARS, ELK, MOOSE, DEER, ANTELOPE, AND BISON

The grizzly bear, for instance, is one of the shiest of wild animals, and may be seen only with difficulty. It lives principally on roots, berries, nuts, and honey—when honey may be had. It can not climb trees like the brown bears. Its little ones are born in caves where

bears hibernate through the winters and are little larger than squirrels when they first come into the world.

The brown, cinnamon, and black bears, which, by the way, are the same species only differently colored—the blondes and brunettes, so to speak, of the same bear family—are quite different. They are playful, comparatively fearless, sometimes even friendly. They are greedy fellows and steal camp supplies whenever they can.

This wild animal paradise contains from 10,000 to 20,000 elk, several hundred moose, innumerable deer, many antelope, and a large and increasing herd of wild bison.

It is an excellent bird preserve also; 200 species live natural, undisturbed lives. Eagles abound among the crags. Wild geese and ducks are plentiful. Many thousands of large white pelicans add to the picturesqueness of Yellowstone Lake.

TROUT FISHING

Trout fishing in Yellowstone waters is unexcelled. All three drainage basins abound in trout, which often attain large size. Yellowstone Lake is the home of large trout, which are freely taken, and the Yellowstone River and its tributaries yield excellent catches to the skillful angler. There is good fishing in the other rivers and also in many lesser lakes. Park waters are restocked each year.

A CLIMAX IN GRANITE

In magnificent contrast with the volcanic plateau and its border of volcanic mountains there rises from the plains, 30 miles to the south, one of the most abrupt and stupendous outcroppings of granite in the Western Hemisphere. From the western shore of Jackson Lake the Teton Mountains lift their spired peaks 7,000 feet in apparent perpendicular. Many glaciers rest upon their shoulders. Their climax is the Grand Teton, whose altitude is 13,747 feet.

Thus does the Yellowstone run the scenic gamut.

Once Jackson's Hole, as this region is still popularly called, was the refuge for the hunted desperado of mountain, plain, and city. In the recesses of these granite monsters he was safe from pursuit, and the elk herds of the plains provided him food. But that picturesque period of American life has passed with the warring Indians who also here found temporary safe retreat.

DISCOVERY OF THE YELLOWSTONE

The first recorded visit to the Yellowstone was made by John Colter in 1810. He was returning home alone from the Lewis and Clark expedition and took refuge there from hostile Indians. His story of its wonders was discredited.

The next recorded visit was by a trapper named Joseph Meek in 1829, who described it as "a country smoking with vapor from boiling springs and burning with gases issuing from small craters." From some of these craters, he said, "issued blue flame and molten brimstone," which, of course, was not true, though doubtless Meek fully believed it to be the truth.

Between 1830 and 1840 Warren Angus Ferris, a clerk in the American Fur Co., wrote the first description of the Firehole Geyser Basin, but it was not until 1852 that the geyser district was actually defined and the geysers precisely located. This was done by Father De Smet, the famous Jesuit missionary, who drew much of his information about the Yellowstone country from Capt. James Bridger, the famous frontiersman whose strange yarns of the marvels he had there beheld remained discredited or tabooed by other writers as late as 1860.

The first Government expedition was sent out in 1859 under command of Capt. W. F. Raynolds, but yielded little of accurate information about the central glories of the Yellowstone. Several private explorers followed, but so great was public incredulity as to the marvels they described that they did not dare tell their experiences before any general audiences, for several lecturers had been stoned in the streets as impostors. The large exploring expedition under Henry D. Washburn and N. P. Langford, in 1870, finally established the facts to the public belief and led to the creation of the Yellowstone National Park.

III

THE YOSEMITE NATIONAL PARK

Special Characteristics: Sensationally Beautiful Valley, Spectacular Waterfalls, and an Outlying Granite Wilderness of Marvelous Beauty

THE Yosemite National Park lies west of the crest of the Sierra Nevada Mountains in middle eastern California. The famous Yosemite Valley is a small part of this extraordinary holiday garden—a mere crack 7 or 8 miles long by less than 1 mile wide in 1,125 miles of scenic wilderness so beautiful and varied that adequate description reads like romance.

The irregular eastern boundary is the crest of the Sierra, a rampart of tremendous granite peaks buttressed by pinnacled spurs of nature's noblest gothic, spattered by snow fields and mimic glaciers, a mountain barrier uncrossable by road except at one point, lofty Tioga Pass. Westward from the perpetual snows of this stupendous wall flow a million streams, which converge in two river systems watering

and beautifying the inimitable pleasure ground. One of these streams passes through that gorge of great celebrity, the Hetch Hetchy Valley; the other flows through that gorge of greatest celebrity, the Yosemite Valley.

The park includes, in John Muir's words, "the headwaters of the Tuolumne and Merced Rivers, two of the most songful streams in the world; innumerable lakes and waterfalls and smooth, silky lawns; the noblest forests, the loftiest granite domes, the deepest ice-sculptured canyons, the brightest crystalline pavements, and snowy mountains soaring into the sky twelve and thirteen thousand feet, arrayed in open ranks and spiry pinnacled groups partially separated by tremendous canyons and amphitheaters; gardens on their sunny brows, avalanches thundering down their long white slopes, cataracts roaring gray and foaming in the crooked rugged gorges, and glaciers in their shadowy recesses working in silence, slowly completing their sculptures; new-born lakes at their feet, blue and green, free or encumbered with drifting icebergs like miniature Arctic Oceans, shining, sparkling, calm as stars."

This land of enchantments is a land of enchanted climate. Its summers are warm, but not too warm; dry, but not too dry; its nights cold and marvelously starry.

THE VALLEY AND ITS WATERFALLS

Most persons, even visitors, know only the Yosemite Valley. And, indeed, were there nothing else, the valley itself, small though it is, would stand in the first rank of national parks. It was discovered in 1851 by mounted volunteers pursuing Indians into their fastnesses. Because of its extraordinary character and quite exceptional beauty, it quickly became celebrated; but it was not until 1874 that a road was built into it. Until then it was approached only by trail.

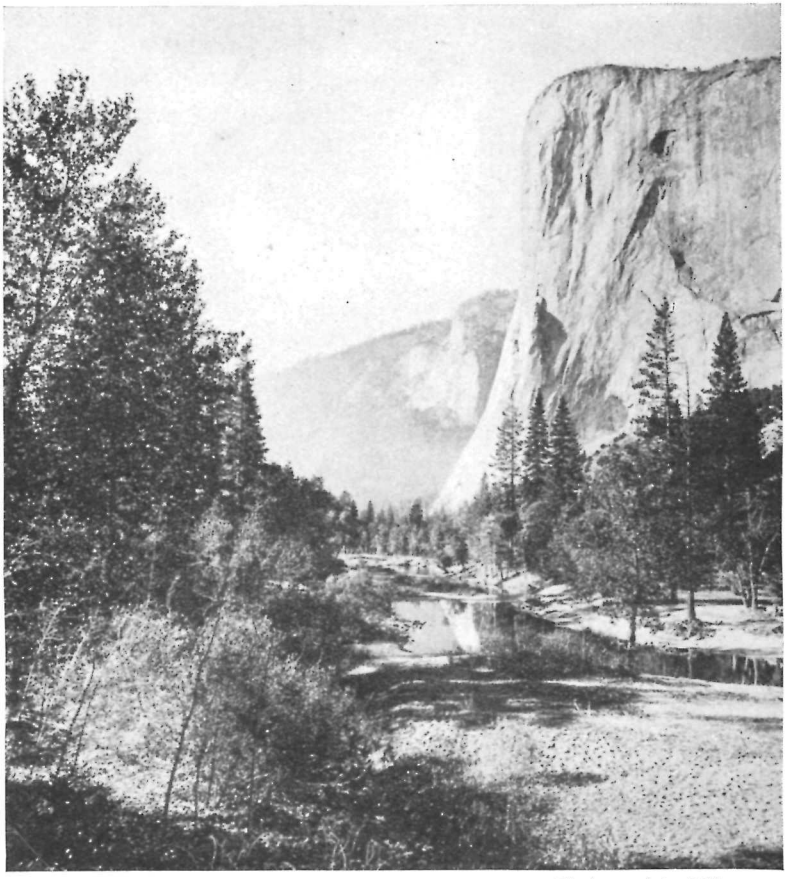
No matter what their expectation, most visitors are delightfully astonished upon entering the Yosemite Valley. The sheer immensity of the precipices on either side of the valley's peaceful floor; the loftiness and the romantic suggestion of the numerous waterfalls; the majesty of the granite walls; and the unreal, almost fairy, quality of the ever-varying whole can not be successfully foretold.

After the visitor has recovered from his first shock of astonishment—for it is no less—at the supreme beauty of the valley, inevitably he wonders how nature made it. However did it happen that walls so enormous rose so nearly perpendicular from so level a floor?

It will not lessen wonder to learn that it was through the slow, persistent wear of running water and glacier ice that the chasm was

formed. Recent investigations by the United States Geological Survey have made clear that the valley was cut by the Merced River to a depth of nearly 3,000 feet before the ice age began, and that the glaciers then added about 700 feet to its depth.

The tremendous amount of work performed by the river was made possible by the torrential speed to which it was again and



Photograph by Hillers

EL CAPITAN, YOSEMITE NATIONAL PARK

again accelerated by the successive uplifts of the Sierra Nevada, which range grew in a relatively short period, as time is reckoned by geologists, from a height of only 2,000 feet to its present height of 14,000 feet. The great width of the chasm and the remarkable verticality of its walls, on the other hand, are distinctly the work of the glaciers. The ancient Yosemite Glacier, as it forced its way slowly through the narrow, stream-worn gorge, quarried away and steepened the sides, thereby producing towering cliffs and trans-

forming the cascades that poured from the mouths of the lofty hanging valleys to leaping waterfalls.

The manner of its making explains the extreme loftiness of the waterfalls which pour over the rim into the valley.

The Yosemite Fall, for instance, drops 1,430 feet in one sheer fall, a height equal to 9 Niagara Falls piled one on top of the other. The Lower Yosemite Fall, immediately below, has a drop of 320 feet, or 2 Niagaras more. Vernal Fall has the same height, while Illilouette Fall is 50 feet higher. The Nevada Fall drops 594 feet sheer; the celebrated Bridalveil Fall 620 feet, while the Ribbon Fall, highest of all, drops 1,612 feet sheer, a straight fall ten times as great as Niagara. Nowhere else in the world may be had a water spectacle such as this.

Similarly the sheer summits. Cathedral Rocks rise 2,500 feet perpendicular from the valley; El Capitan, 3,604 feet; Sentinel Dome, 4,157 feet; Half Dome, 4,892 feet; Clouds Rest, 5,964 feet.

Among these monsters the Merced sings its winding way.

The falls are at their fullest in May and June while the winter snows are melting. They still have volume in July, but after that they decrease rapidly. But let it not be supposed that their beauty depends upon the amount of water that pours over their brinks. It is true that the rush of water in the Yosemite Falls is even a little appalling in May, that sometimes the ground trembles half a mile away. But it is equally true that in September when, in specially dry seasons, much of the water of the great fall reaches the bottom in the shape of mist, the spectacle still possesses a filmy grandeur not comparable, perhaps, to any sight on earth. The one inspires wonder by its immensity and power; the other uplifts by its intangible spirit of sheer beauty.

ABOVE THE VALLEY'S RIM

The enormous park area above the valley's rim is less celebrated principally because it is less known. The acquisition and repair by the Government in 1915 of the old Tioga Road across the park and over the Sierra through Tioga Pass made it accessible, and now trails lead from public camps into the fastnesses of the High Sierra, making available to the camper-out hundreds of limpid lakes and rushing trout streams set in a land of delight.

And thus is added to the amazing water spectacle for which the valley is famous still another kind of Yosemite waterfall destined to world-wide celebrity. The Tuolumne River, descending sharply to the head of the Hetch Hetchy Valley, becomes, in John Muir's phrase, "one wild, exulting, onrushing mass of snowy purple bloom spreading over glacial waves of granite without any definite channel, gliding in magnificent silver plumes, dashing and foaming through

huge bowlder dams, leaping high in the air in wheellike whirls, displaying glorious enthusiasm, tossing from side to side, doubling, glinting, singing in exuberance of mountain energy."

The crowning feature of this mad spectacle are the water wheels which rise 20 feet or more into the air when the slanting river strikes obstructions.

In addition to its many other attractions, the Yosemite National Park contains three groves of sequoias, the celebrated "big trees of California." One of these trees, the Grizzly Giant, has a base diameter of 29.6 feet and a height of 204 feet. It is more than 3,000 years old. The automobile road passes through an opening in the trunk of another, the Wawona tree. Still another living tree is hollow from bottom to top, so that one may step within it and, gazing upward, see the sky as through a tube. A few hours in the red silence of the Mariposa Grove is an experience never to be forgotten.

Living in the Yosemite is extremely comfortable. There are three hotels and several permanent lodges and camps. There are camp grounds where thousands of persons camp out. The valley is the northern terminus of the John Muir Trail which California has built southward along the crest of the Sierra as a memorial to her famous man of letters.

IV

THE SEQUOIA AND GENERAL GRANT NATIONAL PARKS

Special Characteristics: Magnificent Conifer Forests and Many Groves of California Big Trees (Sequoia Gigantea); Mountain Ranges with Highest Mountain in the United States Proper, Mount Whitney, 14,502 Feet; Mighty Canyons; Over 300 Lakes

"AND they said, Go to, let us build us a city and a tower whose top may reach into heaven."

Thus is recorded, in the eleventh chapter of Genesis, the building of the Tower of Babel. While this tower was doubtless still standing, and a hundred years or two before the birth of Abraham, a tiny seed in the warm soil of a mountain slope on quite the opposite side of the world thrust into the light of day a slender green spike which was destined, during an existence of some 4,000 years, to become itself a lofty tower; noble in form, "with a physiognomy almost Godlike," as John Muir puts it, pulsating with life to its topmost leaflet more than 300 feet above the ground.

LARGEST OF THE MONSTERS

In the Sequoia National Park, upon the upper slopes of the Sierra Nevada in central California, and in the little General Grant National Park, 6 miles away and under the same management, grow

thousands of sequoia trees, of which several hundred are more than 10 feet in diameter. Some of the others have these base diameters and heights:

General Sherman Tree.—Diameter, 36.5 feet; height, 279.9 feet.
General Grant Tree.—Diameter, 35 feet; height, 264 feet.
Abraham Lincoln Tree.—Diameter, 31 feet; height, 270 feet.
California Tree.—Diameter, 30 feet; height, 260 feet.
George Washington Tree.—Diameter, 29 feet; height, 255 feet.
William McKinley Tree.—Diameter, 28 feet; height, 291 feet.
Dalton Tree.—Diameter, 27 feet; height, 292 feet.

There are sequoia trees of great size in several other parts of California, also, notably in the Yosemite National Park, where three distinct groves are found; but by far the greatest number, and the individual trees of greatest size, are in the Sequoia National Park and its little neighbor. It is scarcely an exaggeration to say that many of the other known groves of big trees might be dropped down into the Sequoia National Park and only the rangers would know the difference. Giant Forest is the only place where the big trees are in an almost pure stand of forest growth.

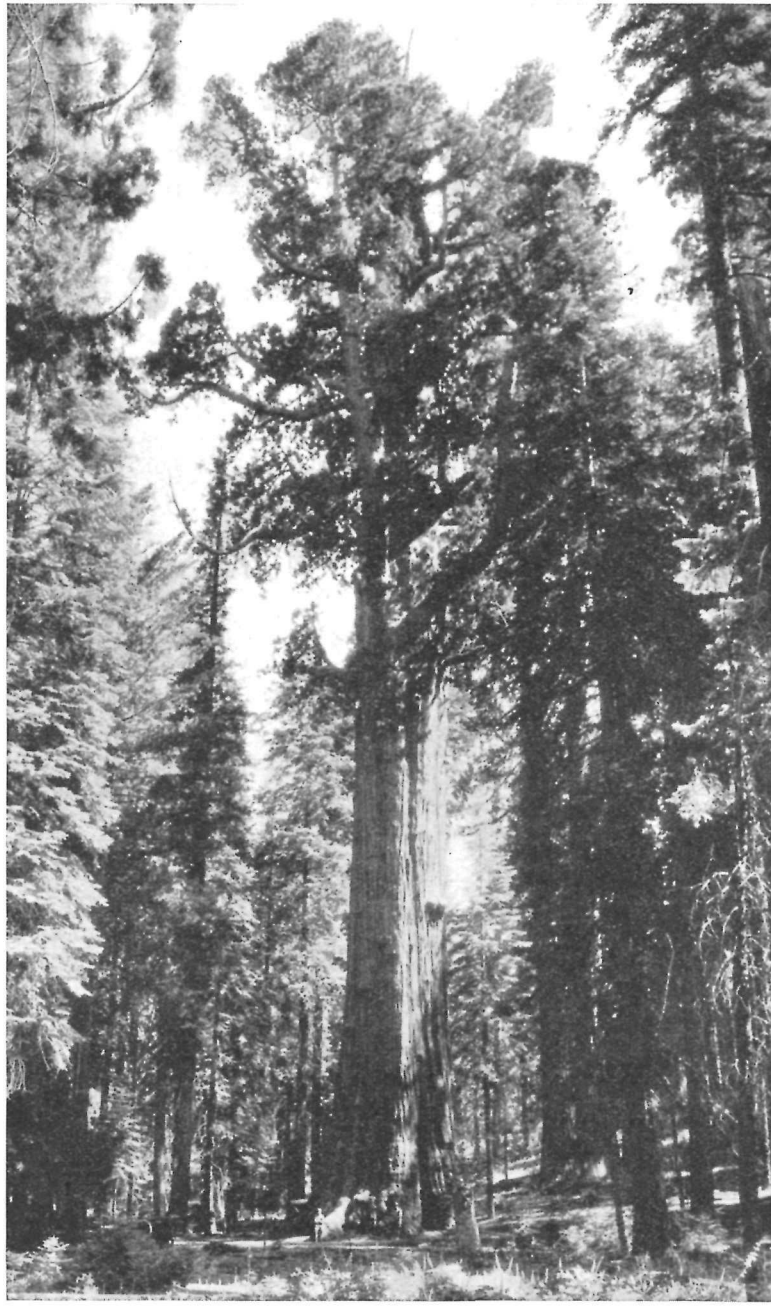
It will help your comprehension of the great size of these trees to know that a box big enough to have easily held the ill-fated ship *Lusitania*, one of the largest ever built, could be made from inch boards sawed from any one of these great sequoias, with boards enough left over to build a dozen houses. Automobiles and six-horse teams have been driven up and down the fallen trunks of several great sequoias, and there are regular wagon roads running through gaps in the trunks of several others in our national parks. Two parallel street car lines might be run through the trunks of several of the very largest.

THE OLDEST LIVING THING

But the age of the sequoia is still more difficult to realize. It is beyond compare the oldest living thing.

Several of the trees now growing in hearty maturity in the Sequoia National Park were vigorous youngsters before the pyramids were built on the Egyptian desert before Babylon reached its prime. Hundreds of them were thriving before the heroic ages of ancient Greece—while, in fact, the rough Indo-Germanic ancestors of the Greeks were still swarming from the north. Hundreds were lusty youths through all the ages of Greek art and Roman wars. Thousands were flourishing trees when Christ was born in Bethlehem.

But with all its vast age the sequoia to-day is the embodiment of serene vigor. No description, says Muir, can give any adequate idea



Photograph by H. W. Gleason

The Largest and Oldest Living Thing in the World—the General Sherman Tree in the Sequoia National Park, Diameter, 36.5 Feet

of its majesty, much less its beauty. He calls it nature's forest masterpiece. He dwells upon its patrician bearing, its suggestion of ancient stock, its strange air of other days, its thoroughbred look inherited from the long ago. "Poised in the fullness of strength and beauty, stern and solemn in mien, it glows with eager enthusiastic life to the tip of every leaf and branch and far-reaching root, calm as a granite dome, the first to feel the touch of the rosy beams of morning, the last to bid the sun good night."

The sequoia is regular and symmetrical in general form. Its powerful, stately trunk is purplish to cinnamon brown and rises without a branch a hundred or a hundred and fifty feet—which is as high or higher than the tops of most forest trees. Its bulky limbs shoot boldly out on every side. Its foliage, the most feathery and delicate of all the conifers, is densely massed. The bright green cones are about 2½ inches long, generating seeds scarcely more than an eighth of an inch across. The wood is almost indestructible, except by fire. Fallen trunks and broken branches lie for centuries almost unaltered.

The sequoias are the glory, as they were the cause, of the Sequoia and General Grant National Parks. Scattered here and there over large areas, they cluster chiefly in 13 separate groves, and it is in these groves that they attain their greatest size and luxuriance.

But the sequoias are by no means the only attractions of the Sequoia Park, which many frequenters declare nature has equipped best of all for the joys and pleasures of mountain living.

MOUNTAIN AREA OF WILD BEAUTY ADDED TO THE PARK

For 35 years lovers of nature, particularly in California, dreamed of a greater Sequoia Park, to include the area of unsurpassed mountain-top scenery lying to the eastward. Up into this high sierra country, with its peaked and castellated granite summits, lead trails, even to the top of Mount Whitney, the highest peak in the United States exclusive of Alaska. Still other trails lead into the valleys of the Kings and Kern Rivers, with their rugged and wild beauty. This was the region proposed for addition to the park. The project was partially realized when in July, 1926, by act of Congress, 352 square miles, including Mount Whitney and the Kern River country were added to the park, thus more than doubling its area. The canyon of the Kings River, with its valleys comparable in beauty only to the Yosemite, still remains outside, but it is hoped that some day, comparatively soon, it, too, will be added to Sequoia National Park, to save its magnificent beauty for all time. Then indeed will the park be complete.

V

THE MOUNT RAINIER NATIONAL PARK

Special Characteristic: Complicated Glacial System Flowing From One Peak

IN THE northwestern corner of the United States rises, from the Cascade Mountains, a series of extinct volcanoes, ice clad the year around. Foremost among them, counting from south to north, are Mount Shasta in California; Mount Hood in Oregon; Mount St. Helens, Mount Adams, Mount Rainier, and Mount Baker in Washington. Once, in the dim ages, when America was making,

MOUNT RAINIER, WITH SOUTH MOWICH GLACIER IN CENTER—AT TIMBERLINE IN SUNSET PARK

they blazed across the sea like huge beacons. To-day, their fires quenched, they suggest a stalwart band of knights of the ages, helmeted in snow, armored in ice, standing at parade upon a carpet patterned gorgeously in forests and wild-flowered meadows.

Easily chief of this knightly band is Mount Rainier, a giant towering 14,408 feet above tidewater in Puget Sound. Home-bound sailors far at sea mend their courses from his silver summit. Travelers overland catch the sun glint from his shining sides at a distance of more than 150 miles.

This mountain has a glacier system far exceeding in size and impressive beauty that of any other in the United States. From its

summit and cirques 28 named rivers of ice pour slowly down its sides. There are others unnamed. Seen upon the map, as if from an airplane, one thinks of it as an enormous frozen octopus stretching icy tentacles down upon every side among the rich gardens of wild flowers and splendid forests of fir and cedars below.

BIRTH OF THE GLACIERS

Every winter the moisture-laden winds from the Pacific, suddenly cooled against its summit, deposit upon its top and sides enormous snows. These, settling in the mile-wide crater which was left after a great explosion in some prehistoric age, carried away perhaps 2,000 feet of the volcano's former height, press with overwhelming weight down the mountain's sloping sides.

Thus are born the glaciers, for the snow under its own pressure quickly hardens into ice. Through 28 valleys, self-carved in the solid rock, flow these rivers of ice, as they may be roughly called, now turning, as rivers of waters turn, to avoid the harder rock strata, now roaring over precipices like congealed waterfalls, now rippling, like water currents, over rough bottoms, pushing, pouring relentlessly on until they reach those parts of their courses where warmer air turns them into rivers of water.

There are 48 square miles of these glaciers, ranging in width from 500 feet to a full mile, and in thickness from 50 feet to many hundreds, perhaps even more than a thousand feet.

ONCE WAS 2,000 FEET HIGHER

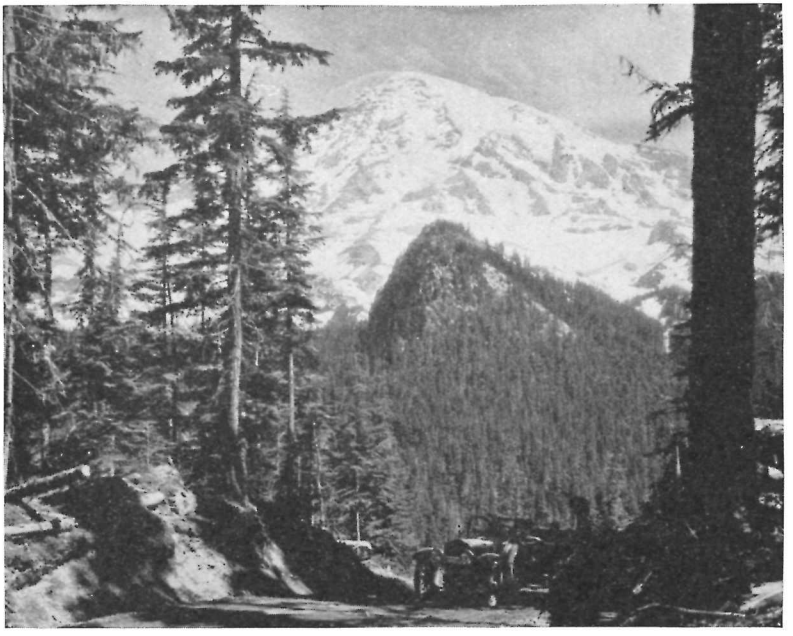
Mount Rainier is nearly 3 miles high, measured from sea level. It rises nearly 2 miles above its immediate base. Once it was a complete cone like the famous Fujiyama, the sacred mountain of Japan. Then it was probably 16,000 feet high. "Then," says Matthes, "a great explosion followed that destroyed the top part of the mountain and reduced its height by some 2,000 feet. The volcano was left beheaded."

Indian legends tell of a great eruption.

The national park, which incloses Mount Rainier, is about 18 miles square, containing 324 square miles. It is easily reached by railroad and automobile from neighboring cities. An automobile road enables stages to bring visitors to beautiful Paradise Valley, whose flowered slopes are bordered by the great Nisqually, Paradise, and Stevens Glaciers. One may reach this point in four hours from Tacoma and return the same day. But it is a spot where the visitor may well spend weeks. A road recently completed opens up the northwest section in the Carbon Glacier region.

The Nisqually Glacier is the best known, though by no means the largest of the glaciers. It is 5 miles long and at Paradise Valley is half a mile wide. Glistening white and fairly smooth at its shining source on the mountain's summit, its surface here is soiled with dust and broken stone and squeezed and rent by terrible pressure into fantastic shapes. Innumerable crevasses or cracks many feet deep break across it, caused by the more rapid movement of the glacier's middle than its edges; for glaciers, again like rivers of water, develop swifter currents nearer midstream.

Professor Le Conte tells us that the movement of Nisqually Glacier in summer averages, at midstream, about 16 inches a day. It is far



AUTOMOBILE ROAD AT BASE OF MOUNT RAINIER

less at the margins, its speed being retarded by the friction of the sides.

It is one of the great pleasures of a visit to Mount Rainier National Park to wander over the fields of snow and climb out on the Nisqually Glacier and explore its crevasses and ice caves.

Like all glaciers, the Nisqually gathers on its surface masses of rock with which it strews its sides, just as rivers of water strew their banks with logs and floating débris. These are called lateral moraines, or side moraines. Sometimes glaciers build lateral moraines miles long and many feet high, as you will see when you visit the Mount Rainier National Park.

The rocks which are carried in midstream to the end of the glacier and dropped when the ice melts form a terminal moraine.

The end, or snout, of the glacier thus always lies among a great mass of rocks and stones. The Nisqually River flows from a cave in the end of the Nisqually Glacier's snout, for the melting begins miles upstream under the glacier. The river is the color of the rock when it first appears, because it carries sediment and powdered rock, which, however, it deposits in time, becoming quite clear.

There are many glaciers as large and larger than the Nisqually, but they are little known because so hard to reach. The National Park Service has now completed trails around the great ice mountain and all of these glaciers are now accessible.

CREATURES LIVING IN THE ICE

Many interesting things might be told of these glaciers were there space. For example, several species of minute insects live in the ice, hopping about like tiny fleas. They are harder to see than the so-called sand fleas at the seashore because much smaller. Slender, dark-brown worms live in countless millions in the surface ice. Microscopic rose-colored plants also thrive in such great numbers that they tint the surface here and there, making what is commonly called "red snow."

GORGEOUS CARPETING OF FLOWERS

But this brief picture of the Mount Rainier National Park would miss its loveliest touch without some notice of the wild-flower parks lying at the base, and often reaching far up betwen the icy fingers of Mount Rainier. Paradise Valley, Indian Henrys Hunting Ground, Spray Park, Summerland—such are the names given to some of these beauty spots.

Let John Muir, the celebrated naturalist, describe them here.

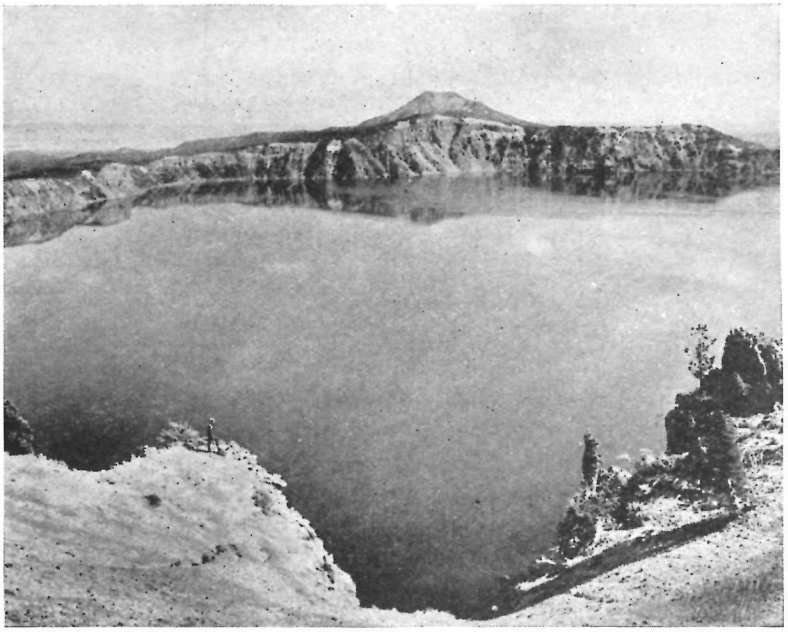
"Above the forests," he writes, "there is a zone of the loveliest flowers, 50 miles in circuit and nearly 2 miles wide, so closely planted and luxuriant that it seems as if nature, glad to make an open space between woods so dense and ice so deep, were economizing the precious ground and trying to see how many of her darlings she can get together in one mountain wreath—daisies, anemones, geraniums, columbine, erythroniums, larkspurs, etc., among which we wade knee-deep and waist-deep, the bright corollas in myriads touching petal to petal. All together this is the richest subalpine garden I have ever found, a perfect floral elysium."

VI

THE CRATER LAKE NATIONAL PARK

Special Characteristic: Lake of Great Depth Filling Collapsed Volcanic Crater

IN THE heart of the Cascade Mountains of our Northwest, whose volcanoes were in constant eruption in the ages before history, and now, extinct and ice plated, shine like huge diamonds in the sunlight, there lies, jewel-like in a setting of lava, a lake of unbe-



Photograph by Scenic America Co.

CRATER LAKE EAST FROM LLAO ROCK

lievable blue. The visitor who comes suddenly upon it stands silent with emotion, overcome by its quite extraordinary beauty and by a strange sense of mystery which even the uninmaginative feel keenly and which increases rather than decreases with familiarity.

This is Crater Lake.

One of the very largest of these ancient volcanoes was Mount Mazama. It stood in the southern central part of what is now Oregon, 200 miles south of Mount Rainier and nearly as lofty. It was about the height of Mount Shasta, in plain sight of which it rose nearly a hundred miles to its north.

But this was ages ago. No human eyes ever saw Mount Mazama. Long before man came the entire upper part of it in some titanic cataclysm fell in upon itself as if swallowed by a subterranean cavern, leaving its craterlike lava sides cut sharply downward into the central abyss.

What a spectacle that must have been!

The first awful depth of this vast hole no man can guess. But the volcano was not quenched; it burst up through the collapsed lavas in three places, making lesser cones within the greater, but none so high as the surrounding rim.

Then the fires ceased and gradually, as the years passed, springs percolated into the vast basin and filled it with water within a thousand feet of its rim. As you see it to-day one of these cones emerges a few hundred feet from the surface. The lake is 2,000 feet deep in places. It has no inlet of any sort nor is there any stream running out of it; but the water is supposed to escape by underground channels and to reappear in the Klamath River, a few miles away.

Geologists find Crater Lake of special interest because of the way nature made it. Many volcanoes have had their tops blown off. Mount Rainier was one of these. But no other in the United States has fallen into itself, like Mount Mazama.

The evidence of this process is quite conclusive. The lava found on the slopes that remain was not blown there from an exploding summit but ran, hot and fluid, from a crater many thousands of feet higher. The pitch of these outer slopes enables the scientist to tell with reasonable probability how high the volcano originally was.

ROMANTIC INDIAN LEGENDS

The Indians believed that Crater Lake was the home of a great spirit whom they called Llao. The blue waters teemed with giant crawfish, his servants, some of them so large that they could reach great claws to the top of the cliffs and seize venturesome visitors. Another great spirit chieftain, whom they called Skell, was supposed to live in the Klamath Marsh near by and to have many servants who could take at will the forms of eagles and antelopes.

War broke out, so the Indian legend says, between Llao and Skell and Skell was captured. The monster from the lake tore out his heart and played ball with it, tossing it back and forth from mountain top to mountain top. But it was caught in the air by one of Skell's eagles and by him passed to one of Skell's antelopes, and by him passed to others who finally escaped with it.

Skell's body miraculously grew again around his heart and, in time, he captured Llao and tore his body into fragments, which he tossed into the lake. The giant crawfish, thinking them fragments

of Skell's body, devoured them greedily. But when, last of all, Llao's head was thrown in, the monsters recognized it and would not eat it.

The remains of Llao's head remain to-day sticking out of the water of Crater Lake. Some Indians still look upon it with awe, but scientists recognize it as the little cone described above. Its name is Wizard Island.

But finally Llao had his revenge. His monsters seized the brave who first ventured, bore him to the highest part of the rim, and tore his body into small pieces. The spot where this was done is to-day called Llao Rock.

PHANTOM SHIP AND WIZARD ISLAND

Crater Lake is one of the most beautiful spots in America. The gray lava rim is remarkably sculptured. The water is remarkably blue, a lovely turquoise along the edges, and, in the deep parts, seen from above, extremely dark. The contrast on a sunny day between the unreal, fairylike rim across the lake and the fantastic sculptures at one's feet, and, in the lake between, the myriad gradations from faintest turquoise to deepest Prussian blue, dwells long in the memory.

Unforgettable also are the twisted and contorted lava formations of the inner rim. A boat ride along the edge of the lake reveals these in a thousand changes. At one point near shore a mass of curiously carved lava is called the Phantom Ship, because, seen at a distance, it suggests a ship under full sail. The illusion at dusk or by moonlight is striking. In certain slants of light the Phantom Ship suddenly disappears—a phantom, indeed.

Another experience full of interest is a visit to Wizard Island. One can climb its sides and descend into its little crater.

VII

THE MESA VERDE NATIONAL PARK

Special Characteristic: Prehistoric Cliff Dwellings

WHERE did the Indians come from? That is one of the innumerable questions which anthropologists have not yet solved. Some suggest that they came from Asia by way of Alaska, because the Eskimo seems somewhat to resemble Mongolians. Others think they came from Europe by way of Greenland; others that they came from the South Sea islands by way of South America.

Perhaps all these theorists are right. In one thing only do they agree, and that is that, from the Arctic to the Antarctic no matter

what their tribal or other differences due to varying conditions of climate and surroundings, all American Indians are of one physical type with similar mental characteristics and cultural tendencies.

The highest civilization undoubtedly developed in Peru, Central America, and southern Mexico, where architectural ruins of quite astonishing beauty are to-day crumbling under the jungle. This civilization was ruthlessly destroyed during the Spanish conquest following the discovery of America.

The next highest prehistoric civilization was in our own Southwest, and the remains of its highest special development are the cliff dwellings of the Mesa Verde in southwestern Colorado, to preserve which Congress has set apart the Mesa Verde National Park.

When one speaks of the Pueblo Indians he does not mean an Indian stock or tribe, but merely Indians, possibly of various stocks and many tribes, who used to live, and a few of whose modern descendants still live, in pueblos or community houses of many rooms holding entire tribes or villages under one roof. The builders of Mesa Verde's prehistoric dwellings were of the pueblo type.

BURROWING INTO THE MESAS

Those who have traveled through our Southwestern States have seen from the car window innumerable mesas or isolated plateaus rising abruptly for hundreds of feet from the bare and often arid plains. The word mesa is Spanish for table, and indeed many of these mesas when seen at a distance may suggest tables to the imaginative mind.

Once the level of these mesa tops was the level of all of this vast southwestern country, but the rains and floods of centuries have washed away all the softer earth down to its present level, leaving standing only the rocky spots or those so covered with surface rocks that the rains could not reach the softer gravel underneath.

All have heard of the Enchanted Mesa in New Mexico which the Indians of recent times considered sacred. The Mesa Verde, or green mesa (because it is covered with stunted cedar and pinyon trees in a land where trees are few), is the next most widely known.

The Mesa Verde is one of the largest mesas. It is 15 miles long and 8 miles wide. At its foot are masses of broken rocks rising from 300 to 500 feet above the bare plains. These are called the talus. Above the talus yellow sandstone walls rise precipitously two or three hundred feet higher to the mesa's top.

It stands on the right bank of the Mancos River, down to which a number of small, rough canyons, once beds of streams, slope from the top of the mesa. It is in the sides of these small canyons that the most wonderful and best preserved cliff dwellings in America, if not in the world, are found to-day.

LIVING HARD IN PREHISTORIC TIMES

In prehistoric times a large human population lived in these cliff dwellings, seeking a home there for protection. They obtained their livelihood by agriculture on the forbidding tops of the mesa, cultivating scanty farms which yielded them small crops of corn.

Life must have been hard in this dry country, when the Mesa Verde communities flourished in the side of these sandstone cliffs. Game was scarce and hunting arduous. The Mancos yielded a few fishes. The earth contributed berries or nuts. At that time, as at present, water was rare and found only in sequestered places near the heads of the canyons, but notwithstanding these difficulties the

Photograph by Jesse L. Nusbaum

CLIFF PALACE IN WINTER, MESA VERDE NATIONAL PARK

inhabitants cultivated their farms and raised their corn, which they ground on flat stones called metates, and baked their bread on a flat stone griddle. They boiled their meat in well-made vessels, some of which were artistically decorated.

Their life was hard, but so confidently did they believe that they were dependant upon the gods to make the rain fall and the corn grow that they were a religious people who worshipped the sun as the father of all, and the earth as the mother who brought them all their material blessings. They possessed no written language, and could only record their thoughts by a few symbols which they painted on their earthenware jars or scratched on the sides of the cliffs adjoining their habitations.

As their sense of beauty was keen, their art, though primitive, was true; rarely realistic, generally symbolic. Their decoration of cotton fabrics and ceramic work might be called beautiful, even when judged by the highly developed taste of to-day. They fashioned axes, spear points, and rude tools of stone; they wove brightly patterned sandals and made attractive basketry.

They were not content with rude buildings, and had long outgrown caves or earth homes that satisfied less civilized Indians farther north and south of them. They shaped stones into regular forms, ornamented them with designs, and laid them one on another. Their masonry resisted destructive forces of centuries of rain and snow beating upon them.

The Mesa Verde tribes probably had little culture when they first climbed these precipitous rocks and found shelter, like animals, in the natural caves under the overhanging floor of the mesa. These caves were shelters not only from the storm of winter and the burning sun of summer, but from rapacious human enemies as well; for there are evidences of determined warfare among the prehistoric tribes of our southwest lands.

But with the generations, perhaps the centuries, they made forward strides. Ladders were substituted for zigzag trails, making their retreats more inaccessible, adobe supplemented caves, brick and stone succeeded adobe, culture succeeded savagery.

DISCOVERY OF THE SUN TEMPLE

A great mound on the top of the mesa which Doctor Fewkes unearthed in the summer of 1915 shows that, probably about 1300 A. D., they had begun to emerge from the caves to build upon the surface, still a further advance in civilization. It is significant that this building is partially sculptured and architecturally ambitious. It is still more significant that it was not a house for temporal needs nor a fortress, but a religious structure. It was a temple to their god, the sun.

The following year Doctor Fewkes unearthed another great building on the surface in what is known as the Mummy Lake region of the park. This was a pueblo, or community living house, and apparently belongs to the period of Sun Temple. This is called Farview House, because of its commanding situation. There are other similar mounds.

The remains of this advanced civilization, of quality so greatly beyond its neighbors, may be seen and studied by all who choose to visit the Mesa Verde National Park. It is an experience full of interest and pleasure. There are many canyons, and many ruins in

each canyon. There are ruins yet unexplored. There are several mounds, like that under which Sun Temple was discovered, yet unearthed.

EXPLORATION OF THE MESA VERDE

Two herdsmen, Richard and Alfred Wetherill, while hunting lost cattle one December day in 1888, discovered these ruins. Coming to the edge of a small canyon, they saw under the overreaching cliffs of the opposite side, apparently hanging above a great precipice, what they thought was a city with towers and walls. They were astonished beyond measure—and, indeed, even the expectant visitor of to-day involuntarily exclaims over the beauty of the spectacle.

Later they explored it and called it Cliff Palace—an unfortunate name, for it was not a palace at all, but a village with 200 rooms for family living, with 22 kivas, or sacred rooms, for worship. Later on they found another similar community dwelling, which once sheltered 350 inhabitants. This they called Spruce Tree House, because a large spruce tree grew near it. These names have remained.

Other explorers followed and many other ruins were found. This is not the place to name or describe them, but it may be said that here may be seen the oldest and most fully realized civic-center scheme in America. City planning, of which we hear so much now, as if it were a new idea, began in America five or six centuries ago under the cliffs of the Mesa Verde.

Antiquities are not the only attractions in the Mesa Verde National Park. Its natural beauties should not be overlooked. In winter it is inaccessible on account of the deep snows; in some months it is dry and parched, but in June and July, when rains come, vegetation is in full bloom, the plants flower, and the grass grows high in the glades; the trees put forth their new green leaves. The Mesa Verde is attractive and full of interest for those who love the unusual and picturesque of mountain scenery.

VIII

THE GLACIER NATIONAL PARK

Special Characteristics: Unsurpassed Romantic Scenery; 250 Lakes of Particular Beauty

THE Glacier National Park is so named because in the hollow of its rugged mountain tops lie more than 60 small glaciers, the remainders of ancient monsters which once covered all but the highest mountain peaks. It is in northwestern Montana right up against the Canadian boundary line, from which, on the map, it appears to

hang down like a boy's pocket full of the sort of things boys usually carry there. It is a richly colored land of gigantic cirques, ruggedly modeled mountains, enormous twisting glacier-scooped valleys, precipices thousands of feet high, innumerable rushing streams, and hundreds of lakes of unusual romantic beauty. Though all the other national parks have these general features in addition to others which differentiate each from the other, the Glacier National Park possesses them in unusual abundance and especially happy combination. In fact, the almost sensational massing of these scenic features is one of the elements of its marked individuality.

Its geological history is identical with that of the Canadian Rockies, but the region lies in a much older rock formation. There is

PHOTOGRAPH BY KISER

LAKE MCDONALD, GLACIER NATIONAL PARK

no other scenic area in the world to compare it with except the far less colorful, much snowier, and much less accessible Canadian Rockies. In richness of beauty it stands alone.

A ROMANCE OF GEOLOGY

How nature made this remarkable area far back in the dim ages long before man is a stirring story.

In an age of the earth's making which some geologists estimate at 80,000,000 years ago, before the Continent of North America had emerged in its present outlines from the sea, the shales which now loom so loftily in Glacier National Park were deposited as sediments in the waters. Over these muds thick beds of ooze solidified into limestones, and over the limestones more sediments deposited and turned to shales. It is these very strata, now hardened into rocks, that streak so picturesquely the sides of Glacier precipices thousands

of feet above us. The story of their elevation from deep-sea bottoms to these giddy heights is a romantic chapter in the making of America.

The earth has assumed its present proportions through the settling of its masses, and this settling caused great internal pressures.

Often the earth's skin has broken as the skin of the squeezed orange breaks; and that is what must have happened where Glacier National Park now lies. The bottom of the sea, under the enormous pressure against its sides and from below, gradually rose and became dry land.

Then the land at this point, probably because it was pushed hard by the contracting land masses on both sides of it, rose in long irregular wavelike masses, forming mountains. Then, when the rock could no longer stand the awful strain, it cracked, and one edge was thrust upward and over the other edge and settled into its present position.

The edge that was thrust over the other was thousands of feet thick. It crumbled into peaks, precipices, and gorges.

Upon these mountains and precipices the snows and the rains of uncounted centuries have since fallen, and the ice and the waters have worn and carved them into the area of distinguished beauty that is to-day the Glacier National Park.

But mark this: When the western edge of the earth's cracked skin overthrust the eastern edge, it brought its bottom surface over and on top of the eastern edge; and this bottom surface was the oldest sedimentary rock known, the very same strata of mud and limestone ooze which were deposited in the sea 80,000,000 years ago. And mark this also, that the erosion of the years following has washed away all the deposits of the later geological ages that lay on the top of these strata, so that this ancient rock here lies fully exposed in all the glory of its greens and reds and grays, and all the fantastic carvings of the countless years. Of course, the pressures which made the earth's skin rise and buckle and break made the Rocky Mountains, which at this point carry the Continental Divide. It is the same process which has made most of the mountain systems throughout the world, though there are few overthrusts so great as Glacier's.

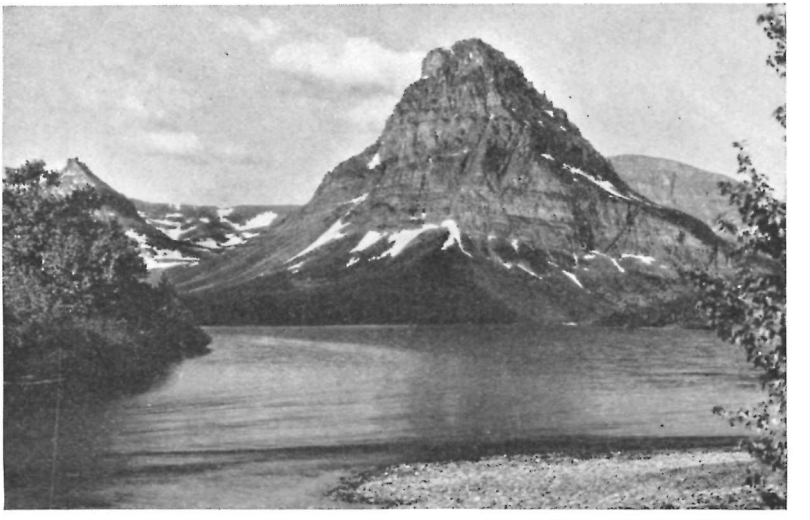
The fantastic carving of Glacier National Park was principally the work of glaciers in the soft rock. Three times did great ice sheets, wooed south by falling temperatures, descend upon this region to dig the mighty cirques and scoop the immense valleys, and, between these visitations and since the last, frost and rain have chipped and washed and polished. Eating backward into the rocks from both sides, the glaciers nearly met a thousand times, leaving a

land of enormous hollows separated by gigantic walls twisting and winding in all directions.

By these processes during uncountable years nature has created and decorated this marvelously beautiful region for our enjoyment to-day.

SCENES OF EXQUISITE BEAUTY

To picture to yourselves this region, imagine a chain of very lofty mountains twisting about like a worm, spotted everywhere with snow fields and bearing glistening glaciers in 60 or more hollows. Imagine these mountains crumbled and broken on their east sides into precipices sometimes three or four thousand feet deep and flanked everywhere by castellated walls, lesser peaks, and tumbled



Photograph by Hileman

TWO MEDICINE LAKE FROM OUTLET GLACIER NATIONAL PARK

mountain masses of smaller size in whose hollows lie the most beautiful lakes you have ever dreamed of.

Down from the Continental Divide descend 19 principal valleys, 7 on the east side and 12 on the west. Of course there are very many smaller valleys tributary to each of these larger valleys. Through these valleys run the rivers from the glaciers far up on the mountains.

PURCHASED FROM THE INDIANS

Many of these valleys are not yet thoroughly known. It is possible that some of them have never been even entered unless by Indians. The great Blackfeet Indian Reservation, one of the many tracts of land set apart for the Indians still remaining in this country, adjoins

the Glacier National Park on the east. Northward the park adjoins the Waterton Lakes Park in Canada.

There are 250 known lakes. There may be small ones in the wilder parts which white men have not yet even seen.

This region was not visited by white men till 1853, when a Government engineer, exploring for a route to the Pacific Ocean, ascended one of the creeks by mistake and returned when he found that no railroad could be built there. The next explorers were engineers who went in to establish the Canadian boundary line in 1861.

In 1890 copper was found and there was a rush of prospectors. In 1896 Congress bought the land east of the Continental Divide from the Blackfeet Indians, but there was not enough copper to pay for the mining. Since then few persons went there but big game hunters till 1910, when it was made a national park.

There are now several excellent hotels and several chalets on the east side. The west side is wonderfully beautiful, too, and a hotel and chalets are found there also.

There are a few good roads for automobiles and many miles of trail for walking and horseback riding. A railroad touches its southern boundary.

IX

THE ROCKY MOUNTAIN NATIONAL PARK

Special Characteristic: Readable Records of Glacial Period

THE Rocky Mountain National Park is in Colorado, about 70 miles by road or rail northwest of Denver. Find Longs Peak on a good map and you will have the center of the 400 square miles of snow-topped mountains which constitute the park.

These mountains are part of the Continental Divide, which is the name given to the irregular line of highest land running north and south through North America which divides the waters flowing eastward into the Atlantic Ocean from those flowing westward into the Pacific. For this reason the people of Colorado call their mountains the top of the world. They are scarcely that, for the Himalaya Mountains in Asia and the Andes in South America are, among others, much higher; but for the United States this picturesque figure of speech is sufficiently near the truth.

This national park is certainly very high up in the air. The summer visitors who live at the base of the great mountains, principally at the beautiful eastern gateway, a litle valley town of many hotels, which is called Estes Park, are 8,000 feet, or more than a mile and a half, above the level of the sea; while the mountains rise precipitously nearly a mile, and sometimes more than a mile, higher still.

Longs Peak, the biggest of them all, rises 14,255 feet above sea level, and most of the other mountains in the snowy range, as it is sometimes called, are more than 12,000 feet high; several are nearly as high as Longs Peak.

AT TIMBER LINE

The valleys on both sides of this range and those which penetrate into its recesses are dotted with lovely parklike glades clothed in a profusion of glowing wild flowers and watered with cold streams from the mountain snows and glaciers. Forests of pine and silver-

Photograph by F. J. Francis

UPPER END OF LAKE MILLS, ROCKY MOUNTAIN NATIONAL PARK

stemmed aspen separate them. Timber line is more than 11,000 feet above sea level, and up to that point the slopes are covered thick and close with spruce and fir, growing very straight and very tall.

Just at timber line, where the winter temperature and the fierce icy winds make it impossible for trees to grow tall, the spruces lie flat on the ground like vines, and presently give place to low birches which in their turn give place to small piney growths and finally to tough straggling grass, hardy mosses, and tiny Alpine flowers. Grass grows in sheltered spots even on the highest peaks, which is fortunate for the large curve-horned mountain sheep which seek these high open places to escape their special enemies, the mountain lions.

Even at the highest altitude gorgeously colored wild flowers grow in glory and profusion in sheltered gorges. Even in late September large and beautiful columbines are found in the lee of protecting masses of snow banks and glaciers.

Above timber line the bare mountain masses rise from 1,000 to 3,000 feet, often in sheer precipices. Covered with snow in fall, winter, and spring, and plentifully spattered with snow all summer long, the vast, bare granite masses, from which, in fact, the Rocky Mountains got their name, are beautiful beyond description. They are rosy at sunrise and sunset. During fair and sunny days they show all shades of translucent grays and mauves and blues. In some lights they are almost fairylike in their exquisite delicacy. But on stormy days they are cold and dark and forbidding, burying their heads in gloomy clouds, from which sometimes they emerge covered with snow.

Often one can see a thunderstorm born on the square granite head of Longs Peak. First, out of the blue sky a slight mist seems to gather. In a few moments, while you watch, it becomes a tiny cloud. This grows with great rapidity. In five minutes, perhaps, the mountain top is hidden. Then, out of nothing apparently, the cloud swells and sweeps over the sky. Sometimes in 15 minutes after the first tiny fleck of mist appears it is raining in the valley and possibly snowing on the mountain. In half an hour more it has cleared.

Standing on the summits of these mountains the climber is often enveloped in these brief-lived clouds. It is an impressive experience to look down upon the top of an ocean of cloud from which the greater peaks emerge at intervals. Sometimes the sun is shining on the observer upon the heights while it is raining in the valleys below it. It is startling to see lightning below you.

ACCESSIBILITY

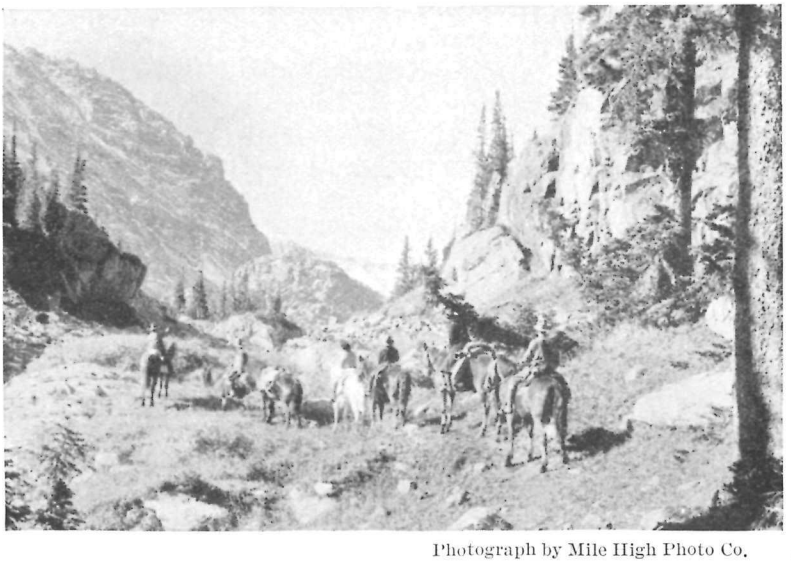
One of the striking features of the Rocky Mountain National Park is the easy accessibility of these mountain tops. One may mount a horse after early breakfast in the valley, ride up Flattop to enjoy one of the great views of the world, and be back for late luncheon. The hardy foot traveler may make better time than the horse on these mountain trails. One may cross the Continental Divide from the hotels of one side to the hotels of the other between early breakfast and late dinner, or motor between these points via the Fall River Road in four hours.

In fact, for all-round accessibility there surely is no high mountain resort of the first order that will quite compare with the Rocky

Mountain National Park. Three railroads to Denver skirt its sides, and Denver is only 30 hours from St. Louis and Chicago.

ROCKY MOUNTAIN SHEEP

This range was once a famous hunting ground for large game. Lord Dunraven, the English sportman, visited it yearly to shoot its deer, bear, and bighorn sheep, and acquired large holdings by purchase of homesteading and squatters' claims, much of which was reduced in the contests that followed. Now that the Government has made it a national park, the protection offered its wild animals is making it a successful wild-animal refuge.



Photograph by Mile High Photo Co.

PARTY FOLLOWING THE TRAIL IN WILD BASIN, ROCKY MOUNTAIN NATIONAL PARK

These lofty rocks are the natural home of the celebrated Rocky Mountain sheep or bighorn. This animal is much larger than any domestic sheep. It is powerful and wonderfully agile. When fleeing from enemies these sheep, even the lambs, make remarkable descents down seemingly impossibe slopes. They do not land on their curved horns, as many persons declare, but upon their four feet held close together. Landing on some nearby ledge, which breaks their fall they immediately plunge again downward to another ledge, and so on till they reach good footing in the valley below. They ascend slopes surprisingly steep. They are more agile even than the celebrated chamois of the Swiss Alps, and are larger, more

powerful, and much handsomer. It is something not to be forgotten to see a dozen or 20 mountain sheep making their way along the volcanic flow which constitutes Specimen Mountain in the Rocky Mountain National Park.

LONGS PEAK AND THE GLACIER RECORDS

The prominent central feature of the Rocky Mountain National Park is Longs Peak. It rears a square-cornered, boxlike head well above the tumbled sea of surrounding mountain tops. It has, unlike most great mountains, a distinct architectural form. Standing well to the east of the range at about its center, it suggests the captain of a white-helmeted company; the giant leader of a giant band. It is supported on four sides by mountain buttresses, suggesting the stone buttresses of a central cathedral spire. From every side it looks the same, yet remarkably different. One does not know Longs Peak until he has seen it from every side, and then it becomes to him not a mountain mass but an architectural creation.

For many years Longs Peak was considered unclimbable. But at last a way was found through an opening in perpendicular rocks called, from its shape, the Keyhole, out upon a steep slope leading from near its summit far down to a precipice upon its west side. The east side of Longs Peak is a nearly sheer precipice almost 2,000 feet from the extreme top down to Chasm Lake, which was the starting point of a gigantic glacier in times long before man. Chasm Lake, which is not difficult to reach from the valley, is one of the wildest lakes in nature. It is frozen 11 months of the year.

There is no region in America where glacial records of such prominence are more numerous and more easily reached and studied than in the Rocky Mountain National Park. The whole country has been fantastically cut and carved by gigantic glaciers of the prehistoric past. Their ancient beds, now grown with forests, their huge moraines, their cirques, or starting places, are, next to the vast mountains themselves, the most prominent features of the region.

A new automobile trip, a grand circuit of Colorado's beauties, that forms one of the most attractive and impressive of the scenic trips of our country, is now possible since the completion of the Fall River road crossing the Continental Divide within the Rocky Mountain National Park.

The trip starts from Denver, goes through the Rocky Mountain National Park, crosses the Continental Divide, reaches Grand Lake, crosses the Continental Divide again at Berthoud Pass, traverses the Denver Mountain Parks, and returns to Denver, having completed without any duplication 236 miles of comfortable travel through magnificent country, full of interest and variety.

X

THE HAWAII NATIONAL PARK

Characteristics: Large Volcanoes, Two Active, Including the Kilauea Lake of Fire

THE Hawaiian Islands are a land of coral reefs, tropical palms and flowers, pineapples and sugar cane, midday siestas, rainbows, music, earthquakes and volcanic violence. They have a history which is a romance. Their very mention evokes visions of girls dancing under tropical stars to the ukulele. They possess the fourth largest volcanic crater in the world, the largest active volcano in the world, and a lake of turbulent sulphurous fire, which fills the beholder with awe.

It was not the gentle poetic aspects of the Hawaiian Islands which led Congress to create a national park there, though these form its romantic contrasted setting. It was the extraordinary volcanic exhibit, that combination of thrilling spectacles of Nature's colossal power, which for years has drawn travelers from the four quarters of the earth. The Hawaii National Park includes the summits of three volcanoes of world celebrity—Haleakala, on the island of Maui, and Mauna Loa and Kilauea, on the island of Hawaii.

There are 12 islands in all, 8 of which are hospitable enough for habitation. They rose from the ocean's bottom in a series of submarine eruptions. Coral growths have enlarged and enriched them since. Kauii was the first island to develop habitable conditions, and those to its southeast followed in order. Hawaii, the youngest, is still in the building. Dead Haleakala on the island of Maui has been inactive for centuries.

HALEAKALA

The popular translation of the name Haleakala is "The House of the Sun"; literally the word means "The house built by the sun." The volcano is a monster of more than 10,000 feet, which bears upon its summit a crater of a size and beauty that makes it one of the world's show places. This crater is 8 miles long by 3 miles wide. Its surrounding walls rise 2,000 feet. Its broad, rolling, rainless, sandy floor is decorated with plants famous under the name of silver swords; yucca like shrubs 3 or 4 feet high, whose drooping filaments of bloom gleam like polished stilettos. From this great gray floor within its lava rim rise, to a height of several hundred feet, 13 volcanic cones. "It must have been awe inspiring," writes Castle, "when its cones were spouting fire, and rivers of scarlet molten lava crawled along the floor." That the crater was left in all its beauty

is due to the fact that enormous side vents drained the fires from below.

Sunrise and sunset are the magic hours when the immense bowl and its cratered cones catch a hundred fleeting tints to mingle with their silver. Midnight and moonlight parties climb the mountain to see the sunrise glories, or make the trip in the afternoon in order to have the additional enjoyment of the wonder of the sunset. Visitors return loquacious with the myriad charms of the islands, but silent about Haleakala's morning and evening splendor; it baffles speech. Sometimes at the sunset hour is seen the broken specter. The lowering sun throws upon the rising mists the shadow of the watcher upon the rim and encircles it with a rainbow frame.

MAUNA LOA

Upon the island of Hawaii, across 60 miles of water from Maui, another section of the national park incloses Mauna Loa, greatest of living volcanoes, and Kilauea's celebrated lake of fire. These are different volcanoes, but so huge has grown Mauna Loa, the greater and the younger, that Kilauea has been nearly absorbed in his spreading flank.

Mauna Loa soars 13,675 feet. Its snowy dome shares with Mauna Kea, which rises even higher, the summit honors of the islands. From Hilo, the principal port of the island of Hawaii, Mauna Loa suggests the back of a leviathan, its body hidden in the mists. The way up, through forests of ancient mahogany and tangles of giant tree fern, then up brilliantly colored lava slopes, is one of the inspiring tours in the mountain world. The summit crater, Mokuaweoweo, 3 miles long by 1½ miles wide, is as spectacular in action as that of Kilauea.

This enormous volcanic mass has grown of its own output in comparatively a short time. For many decades it has been extraordinarily frequent in eruption. Every 5 or 10 years it gets into action with violence, sometimes at the summit, oftener of recent years since the central vent has lengthened, at weakened places on its sides. Few volcanoes have been so regularly and systematically studied.

KILAUEA

The most spectacular exhibit of the Hawaii National Park is the lake of fire in the crater of Kilauea, although at times this lake has disappeared.

Kilauea is unusual among volcanoes. It follows few of the popular conceptions. Older than the towering Mauna Loa, its height is only 4,000 feet. Its lavas have found vents through its flanks, which

they have broadened and flattened; doubtless its own lavas have helped Mauna Loa's to merge the two mountains into one. Its crater is not bowl shaped. From the middle of a broad flat plain, which really is what is left of the ancient great crater, drops a pit with vertical sides within which boil its lavas. This pit, the lake of fire, is Halemaumau, commonly translated "The House of Everlasting Fire." Since 1790, when it destroyed a native army, until 1924, it ejected neither rocks nor ashes. In September, 1923, the lake of lava suddenly disappeared, but it gradually returned until by December the pit contained a 50-acre lake of seething lava. Lava geysers traveling across its surface sent up incandescent sprays 150 feet into the air. This brilliant display continued for two months,

Photograph by Tai Sing Loo

HALEMAUMAU, THE FIRE-PIT OF KILAUEA CRATER, HAWAII NATIONAL PARK

and then, with the crater nearly full, a large dome slowly formed on the lake. This dome burst with a roar, sending large sheets of lava many feet into the air. The lake again disappeared and crumbling masses of rock fell into the smoking pit, choking the vents through which the volcanic gases had escaped. A few months later, when the volcanic gases unexpectedly returned, the vents were cleared by tremendous explosions hurling ashes for miles into the air, and red-hot bowlders weighing many tons were hurled over a mile away. During the three-week period of explosive eruptions the crater enlarged to four times its former size, the opening now being 200 acres in area and 1,500 feet deep.

Six weeks later, when all was again normal, a roaring geyser appeared at the bottom of the pit, sending up a steady spray of lava 200 feet high, building up a small cinder cone, and forming a 10-acre

lava lake on the floor of the pit. After two weeks' brilliant display this fountain weakened, and now the volcano is again dormant, with only a glowing crack seen now and then at night in the surface of the black lake. Immense columns of steam, however, rise continually out of the pit and in the bright sunlight are most impressive to the beholder.

Two miles and a little more from Halemaumau, on a part of the ancient crater wall, stands the Hawaiian Volcano Observatory, which is maintained by the Department of the Interior. One may approach the fiery pit through forests of mahogany, sandalwood, and giant tree fern; then across long stretches of hard lava congealed in ropes and ripples and strange contortions. Then the pit. The traveler reaches it suddenly. From its rim he looks perpendicularly down hundreds of feet into a cavity 1,000 by 1,200 feet in area. The spectacle is weird beyond description.

"The lake of fire," writes William R. Castle, "is a greenish yellow, cut with ragged cracks of red that look like pale streaks of stationary lightning across its surface. It is restless, breathing rapidly, bubbling up at one point and sinking down in another; throwing up sudden fountains of scarlet molten lava that play a few minutes and subside, leaving shimmering mounds which gradually settle to the level surface of the lake, turning brown and yellow as they sink."

It is an appalling spectacle at night.

One can descend the sides and approach surprisingly close to the flaming surface, the temperature of which, by the way, is 1,750° F.

Such is "The House of Everlasting Fire" to-day. But who can say what it will be a year or a decade hence? A clogging or a shifting of the vents 10,000 feet below sea level, and Kilauea's lake of fire may become again explosive. Who will deny that Kilauea may yet soar even above Mauna Loa? Stranger things have happened before this in the Islands of Surprise.

XI

THE LASSEN VOLCANIC NATIONAL PARK

Special Characteristic: Volcano in Semiaction

ONE of the greatest fields of former volcanic activity in the world lies in the northwestern corner of the United States; its lavas cover a quarter of a million square miles and include large areas of the States of Washington and Oregon and portions of California, Nevada, Idaho, Montana, and Wyoming. Most of this great region now, of course, blooms with forest and prairie. The origin of its soil foundations is apparent only to the eye of the geologist except where the ice-clad cones of monster volcanoes rise from the Cascade Range, where Lassen Peak still vomits smoke and steam, and where

remnants of twisted lavas emerge, as on Mount Washburn, above the forests of Yellowstone.

To-day Lassen Peak only is aggressive, and for this reason Congress has set it apart as a national park. Here alone within the borders of the United States may be seen and studied the phenomena of volcanic activity.

Lassen Peak is in northern California at the southern end of the Cascade Range. It had been quiet for 200 years. Then, at the end of May, 1914, as if precursor of the cataclysm of war so soon to follow, an explosion from its summit ushered in a new period of eruption which, feeble as compared with those of its violent past,

LASSEN PEAK, LASSEN VOLCANIC NATIONAL PARK

was magnificent as a spectacle and educationally typical of volcanism.

From the first explosion to the end of January, 1916, Lassen remained in more or less constant eruption. Within that period occurred 220 explosions, between which the volcano emitted day and night enormous quantities of smoke and steam.

The greatest of the explosions occurred May 22, 1915, nearly a year after the eruptions began. It was ushered in by the rising of a mushroom-shaped cloud of smoke to a height of 4 miles. Another interesting phenomenon of this explosion was the superheated gas blast which rushed down Lost Creek and Hot Creek Valleys during its continuance. For 10 miles it withered or destroyed every living thing in its path. Large trees were uprooted. Forests were scorched

to a cinder, spreading fires. Large snow fields were instantly turned to water and flooded the lower valleys in rushing tides. Fortunately summer visitors had been well warned.

Examination showed that this explosion had opened a new fissure extending 1,000 feet from the summit down the slope toward Chaos Crags, the old and the new craters, now joined in one of irregular shape, filled to the brim with lava, forming what geologists call a lid. After this great explosion activity declined rapidly.

The national park has great natural charm as well as scientific interest. The lava forms, ancient as well as modern, are fantastic and striking. Its fumaroles, its very hot springs, its lofty ragged peak, and twisted crater, its extremely interesting Cinder Cone, its minor vents, all have also a strange, almost uncanny, beauty. And these volcanic exhibits are set in an area of forests and ice-cold lakes and rushing trout streams, which add the enchantment of vivid contrasts.

XII

THE MOUNT McKINLEY NATIONAL PARK

Characteristic: A Snow-Clad Mountain More Than 20,000 Feet High Rising From a Rolling Plateau, Peopled With Caribou and Mountain Sheep

THE highest mountain in North America, scenically speaking the highest in the world, together with an enormous expanse of rolling plateau on its north and west, was made a national park in 1917. Mount McKinley rises from the great Alaska range 20,300 feet above sea level. Down its southern and eastern slopes through a region of arctic sublimity flow glaciers of enormous size, but north and west its sides abruptly drop to grassy valleys only 3,000 feet in altitude. From these valleys, some of which also have impressive glaciers, visitors to the national park may look up 17,000 feet of mountain, a spectacle greater by far than greets the eyes of those who climb into the lofty valleys of the Himalayas to see the several mountains there whose heights measured from sea level exceed McKinley's.

The caribou, with its enormous antlers, is a most picturesque animal, the American representative of the reindeer family. Herds of 1,000 to 1,500 roam the great plateau. Bands of mountain sheep varying from 20 to 100 are seen in the hills along the trail. Moose also frequently invade the region from the Tanana lowlands on the north, and the great Alaska brown bear is not infrequently met, even within the belt of perpetual snow.

It is this great treeless plateau, with its rich mosses and grasses, its sudden prominences rising like islands, its sweeping ranges of low hills, its lakes, its innumerable rushing streams, its fertile flow-

ered valleys and friendly animals, its long winding approachable glaciers, and its background of the Alaska Range and Master Mountain, which is the Mount McKinley National Park. It is an area unlike any other national park; its charm and inspiration are all its own.

Mount McKinley is two-headed. It is the South Peak which is the summit. From the North and the South Peaks, supporting them like ice buttresses, descend northward long ridges which merge in the foothills, and between these ridges flow from the divide between

Photograph by Alaska Railroad

MOUNT MCKINLEY, THE HIGHEST MOUNTAIN IN NORTH AMERICA AND, SCENICALLY SPEAKING, THE HIGHEST IN THE WORLD

the peaks a series of great glaciers which constitute the only known passage to the summit.

Various attempts have been made to climb McKinley, but only two have been successful. Judge Wickersham, of Alaska, was the pioneer in 1903, but he so wholly underestimated the magnitude of the undertaking that his equipment served to carry him little farther than its base. In 1912 Professor Parker and Belmore Brown made the ascent, and the following spring Archdeacon Stuck and Harry P. Karstens ascended the glaciers of the north side and reached the summit on that rarest of occasions with McKinley, a perfect day.

One other ascent must be mentioned to complete the record, that of the North Peak in 1910 by a party of adventurous prospectors headed by Thomas Lloyd; but Lloyd himself did not go all the way.

It is probable that trying for the summit will not be one of the popular amusements of the McKinley National Park, but when roads, trails, and public camps make this wonderland comfortably accessible, many will find unique pleasure and inspiration in trips part way up the glaciers into the white land of the avalanche.

XIII

THE GRAND CANYON NATIONAL PARK

Special Characteristic: A Highly Colored Gorge 1 Mile Deep and 4 to 14 Miles Across

THE rain falling in the plowed field forms rivulets in the furrows. The rivulets unite in a muddy torrent in the roadside gutter. With succeeding showers the gutter wears an ever-deepening channel in the soft soil. With the passing season the gutter becomes a gully. Here and there, in places, its banks undermine and fall in. Here and there the rivulets from the field wear tiny tributary gullies. Between the breaks in the banks and the tributaries, irregular masses of earth remain standing, sometimes resembling mimic cliffs, sometimes washed and worn into mimic peaks and spires.

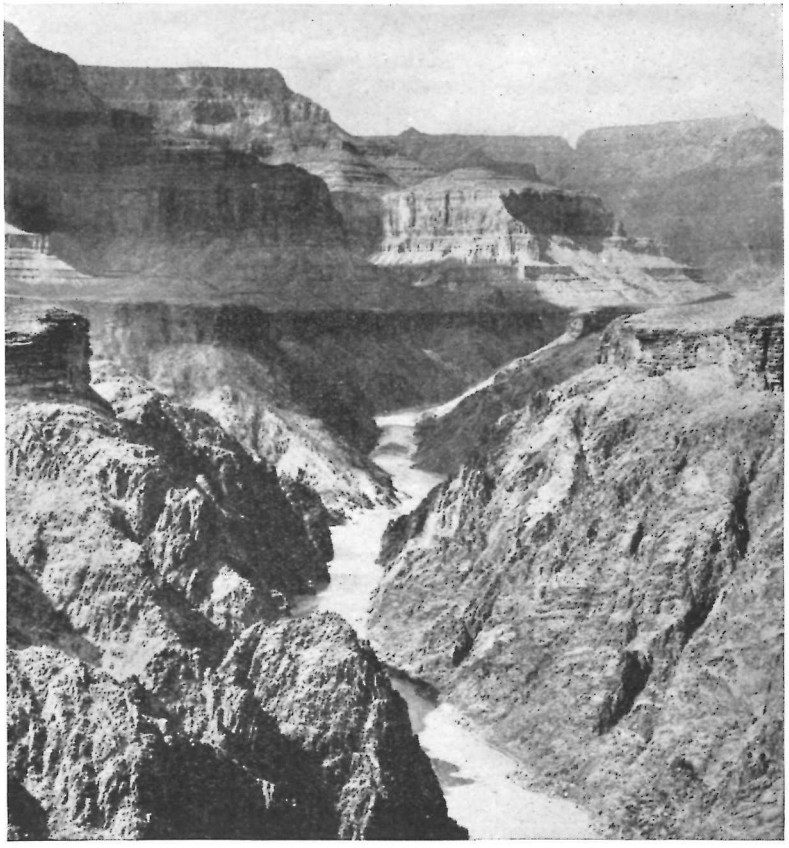
Such roadside erosion is familiar to us all. A hundred times we have idly noted the fantastic water-carved walls and minaretted slopes of these ditches. But seldom, perhaps, have we realized that the muddy roadside ditch and the world famous Grand Canyon of the Colorado are, from nature's standpoint, identical; that they differ only in soil and size.

The arid States of our great Southwest constitute an enormous plateau or table-land from four to eight thousand feet above sea level. It is plateau of sun-baked conglomerate and loose soils from which emerge occasional mountain masses of more or less solid rock. Rain seldom falls, but in winter the snows lie heavy in the mountains. In the spring the snows melt and torrents of water wear temporary beds in the loose soils.

In ages before history the Colorado River probably flowed upon the surface of this lofty table-land. But, like the roadside ditch, it gradually wore an ever-deepening channel. In time, as with the roadside ditch, the banks caved in and the current carried the soil away. The ever-busy chisels of the untiring winds have carved and polished through untold centuries.

AN UNPARALLELED SPECTACLE

To-day the Colorado flows through a series of self-dug canyons hundreds of miles long, a mile deep, and in some places a dozen miles across the top. The sides of these canyons are carved and fretted beyond description, almost beyond belief; and the strata of rock and soil exposed by the river's excavations are marvelously colored. The blues and grays and mauves and reds are second in



Photograph by A. J. Baker

THE COLORADO RIVER, GRAND CANYON NATIONAL PARK

glory only to the canyon's size and sculpture. The colors change with every changing hour. The morning and the evening shadows play magician's tricks.

That portion of the canyon which affords the finest spectacle was created a national park in February, 1919. It is situated in northeastern Arizona and is called the Grand Canyon National Park. It constitutes one of the most astonishing phenomena in nature and one of the stupendous sights of the world.

The Colorado River is joined, in southern Utah, by the Green River. The Colorado drains the western Rockies in Colorado. The Green rises in northern Utah and drains also a corner of Wyoming. Together they gather the waters of 300,000 square miles of mountains. "Ten million cascade brooks," writes J. W. Powell, "unite to form a hundred rivers beset with cataracts; a hundred roaring rivers unite to form the Colorado, a mad, turbid stream."

Southwest from Utah, the Colorado passes into Arizona through the noble Marble Canyon and swings west between the mile-high walls of the mighty Grand Canyon. Thence, emerging into more open country, it skirts Nevada and California, cuts through Mexico, and deposits its vast burden of mud in the Gulf of California.

MOSAIC OF DESCRIPTION

Who can describe the Grand Canyon?

"More mysterious in its depth than the Himalayas in their height," writes John C. Van Dyke, "the Grand Canyon remains not the eighth but the *first* wonder of the world. There is nothing like it."

"Looking down more than half a mile into this 15-by-218-mile paint pot," writes Joaquin Miller, "I continually ask: Is any 50 miles of Mother Earth that I have known as fearful, or any part as fearful, as full of glory, as full of God?"

"To the eye educated to any other," writes Charles Dudley Warner, "it may be shocking, grotesque, incomprehensible; but those who have long and carefully studied the Grand Canyon do not hesitate to pronounce it by far the most sublime of all earthly spectacles."

"The Grand Canyon of Arizona fills me with awe," writes Theodore Roosevelt. "It is beyond comparison—beyond description; absolutely unparalleled throughout the wide world."

"A pageant of ghastly desolation and yet of frightful vitality, such as neither Dante nor Milton in their most sublime conceptions ever even approached," writes William Winter. "Your heart is moved with feeling that is far too deep for words."

"It has a thousand different moods," writes Hamlin Garland. "No one can know it for what it is who has not lived with it every day of the year. It is like a mountain range—a cloud to-day, a wall of marble to-morrow. When the light falls into it, harsh, direct, and searching, it is great, but not beautiful. The lines are chaotic, disturbing—but wait! The clouds and the sunset, the moonrise and the storm will transform it into a splendor no mountain range can surpass. Peaks will shift and glow, walls darken, crags take fire, and gray-green mesas, dimly seen, take on the gleam of opalescent lakes of mountain water."

"It seems a gigantic statement for even nature to make all in one mighty stone word," writes John Muir. "Wildness so Godful,

cosmic, primeval, bestows a new sense of earth's beauty and size * * * But the *colors*, the living, rejoicing *colors*, chanting, morning and evening, in chorus to heaven! Whose brush or pencil, however lovingly inspired, can give us these? In the supreme flaming glory of sunset the whole canyon is transfigured, as if all the life and light of centuries of sunshine stored up in the rocks was now being poured forth as from one glorious fountain, flooding both earth and sky."

DIFFICULT TO COMPREHEND

Even the most superficial description of this enormous spectacle may not be put in words. The wanderer upon the rim overlooks a thousand square miles of pyramids and minarets carved from the painted depths. Many miles away and more than a mile below the level of his feet he sees a tiny silver thread which he knows is the giant Colorado. He is numbed by the spectacle. At first he can not comprehend it. There is no measure, nothing which the eye can grasp, the mind fathom.

It may be hours before he can even slightly adjust himself to the titanic spectacle, before it ceases to be utter chaos, and not until then does he begin to exclaim in rapture. And he never wholly adjusts himself, for with dawning appreciation comes growing wonder. Comprehension lies always just beyond his reach. But it will help to descend one of these trails which zigzag down the precipitous cliffs to the river's muddy edge.

The Grand Canyon was first reported to the civilized world by the early Spanish explorers in 1540. It was first described in 1851 by the Sitgreaves Expedition. The War Department explored the navigable waters from the south in 1858, but stopped at the foot of the canyons.

MAJOR POWELL'S FIRST EXPLORATION

No exploration of the Grand Canyon was made until 1869, when Maj. J. W. Powell, who afterwards became Director of the United States Geological Survey, made a perilous passage with a party of nine men in four small boats. This exploration constitutes one of the most romantic adventures in American history. Until then it was unknown.

"Yet enough had been seen to foment rumor," Major Powell wrote in his report to the Smithsonian Institution, "and many wonderful stories have been told in the hunter's cabin and prospector's camp. Stories were related of parties entering the gorge in boats and being carried down with fearful velocity into whirlpools, where all were overwhelmed in the abyss of waters; others, of underground passages

for the great river, into which boats had passed never to be seen again. It was currently believed that the river was lost under the rocks for several hundred miles. There were other accounts of great falls whose roaring music could be heard on distant mountain summits."

The passage, while it developed none of these reported dangers, was sufficiently perilous. Boats were repeatedly upset in the rapids, food was nearly exhausted, and the adventurers many times barely escaped destruction. Three men who deserted the party, terrified, climbed the walls only to be killed by Indians on the rim.

XIV

THE LAFAYETTE NATIONAL PARK

Special Characteristic: A Group of Granite Mountains Rising From An Island on the Atlantic Coast

THE first national park in the East is an area of 12 square miles on Mount Desert Island, Me. It includes a group of low granite mountains abutting the sea, the only prominent elevation along the entire Atlantic coast of the United States.

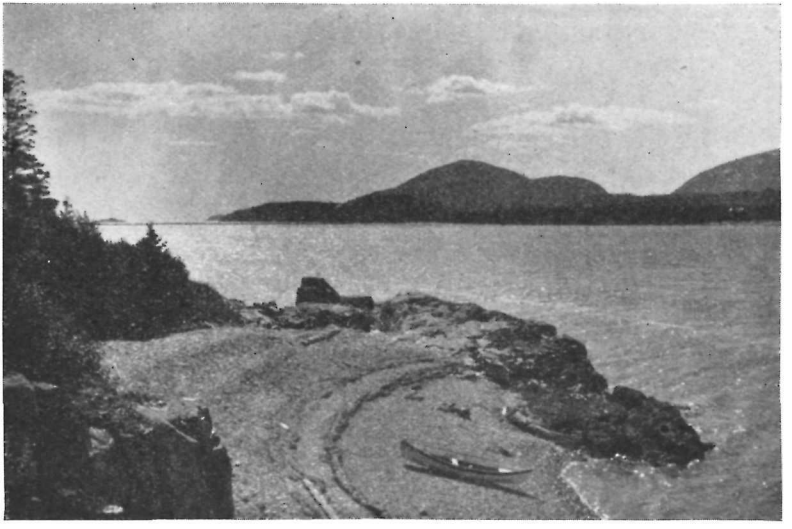
The Lafayette National Park is not only a varied and beautiful exhibit of seacoast, mountain, and eastern forest—it is a monument to the public spirit of New England. These mountains, surrounded by thriving seashore resorts, had been in private ownership for centuries. The day was fast approaching when they would be utilized for summer homes. Foreseeing this, George B. Dorr, of Bar Harbor, Me., determined to acquire them as a gift to the people of the United States. He created a holding organization, to which he and Charles W. Eliot contributed their holdings, and set about to persuade other owners to do the same.

It took a dozen years of ceaseless effort to collect 5,000 acres, much of it by gift, some of it by purchase from funds collected from public-spirited persons. Then they presented it to the Nation, and it was made the Sieur de Monts National Monument. This was in 1915. Other contributions have been offered the Government, and it is believed that ultimately the area of the park will be about 20,000 acres. Hardly a year passes without deeds to additional tracts of land for inclusion in the park being accepted by the United States.

Compared with the huge bristling peaks of the Rockies and the Sierra, the mountains of the Lafayette National Park are low indeed. But they are no less beautiful, and they are characteristic of our East, as the Rocky Mountain and Sierran national parks are characteristic of our West. There are more than a dozen mountains

in the group, which is cut into two parts by a fine fiord called Somes Sound. Fresh-water lakes lie in the hollows. Forests of coast pines, cedars, and deciduous trees of many kinds border the lakes and mount the gray sides of the mountains. Innumerable shrubs and flowering plants decorate the forest aisles. The region is a wilderness typical of the noblest woodlands of the East.

Chief of all is the mingling of mountain and sea. The waves lash their abrupt rock-bound heights, beating hollows in their foundations, undermining the granite. From the mountain tops gorgeous views are revealed of sea and sound, island and wooded mainland. The air is now fragrant with the breath of the forest, now



Photograph by Herbert W. Gleason

VIEW ACROSS FRENCHMAN'S BAY, LAFAYETTE NATIONAL PARK

charged with the savor of the sea. The visitor has his choice of many pleasures. He may vary his days on the mountains with salt-water bathing, boating, sailing, and fishing. He may walk and motor; the park is surrounded by a fine waterside drive; roads cross it along the shores of Somes Sound. There are many hotels in Bar Harbor and other neighborhood resorts.

Besides nature's rich endowment, history adds its charm. This was the first land within the United States which was reached by Champlain; it was in 1604. The first European settlement in America north of the Gulf of Mexico was here. The mountains bear names which memoralize its French and English occupations and its many associations with the romance of early days.

XV

THE HOT SPRINGS NATIONAL PARK

Special Characteristic: Curative Hot Springs

AS DIFFERENT, almost, as possible from the great scenic national parks which we have been considering, but in its own particular way as extraordinary as any of them, the Hot Springs National Park in the Ozark Mountains of Arkansas must be accorded a distinguished place among American resorts of national character and ownership. The park is in one sense the oldest national park, having been created a special reservation in 1832, 40 years before the wonders of the Yellowstone first inspired Congress with the idea that scenery was a national asset deserving of preservation for the use and enjoyment of succeeding generations. It was named a national park in 1921.

No esthetic consideration was involved in this early act of national conservation. Congress was inspired only by the undoubted, but at that time inexplicable, power of these waters to alleviate certain bodily ills. The motive was to retain these unique waters in public possession in order that they should be available to all persons for all time at a minimum, even a nominal, cost.

The low, irregular mountain masses known as the Ozarks cover the greater part of southern Missouri and overlap northern Arkansas, where, in marked contrast with the surrounding plains, they become higher, more rugged, and heavily timbered.

The country is one of much beauty. Hot Springs Mountain, from whose sides flow the cleansing waters, is about 50 miles west by south from Little Rock. Here, as early as 1804, began the settlement which has developed into the handsome prosperous city known as Hot Springs. It is a resort city, made wealthy from the many thousands of visitors seeking health from the adjacent Government springs and pleasure in the high and beautiful neighborhood country with its excellent drives and woodland paths, its mountain and river views, its social gayeties, and its exceptional golf.

Adjoining the borders of the city at the mountain's foot lies the park, a tract of 912 acres inclosing all the 46 hot springs. Nine bathhouses are in the reservation and 10 more in the city, all under Government regulation. There are also cold-water springs of curative value. In the city are many hotels and boarding houses with rates ranging from lowest to highest. The Department of the Interior has spent altogether more than a million dollars on the de-

velopment of the park. The park contains, also, an Army and Navy hospital.

Tradition has it that the curative properties of the hot springs were known to the Indians long before the Spanish invasion. It is probable that they were known to De Soto, who died in 1542 less than a hundred miles away. It is tradition that Indian tribes warred for

Photograph by Eckler

ENTRANCE TO HOT SPRINGS NATIONAL PARK

their possession but that finally a truce was made which enabled all tribes to avail alike of their waters.

Government analyses of the waters disclose more than 20 chemical constituents, and it is these or their combination to which is principally attributed the water's efficacy in many diseased conditions.

XVI

THE ZION NATIONAL PARK

Special Characteristic: Vividly Colored and Fantastically Carved Sandstone Cliffs Bordering a Deep Valley

NOT many miles north of the Grand Canyon National Park the desert of southern Utah finds its most gorgeous expression in a deep canyon between sandstone cliffs of great height and vivid color. Here the famous Vermilion Cliff, whose brilliant red precipice brightens more than a hundred desert miles, joins the glistening White Cliff, another desert feature of celebrity, the white overlying the red. Here, too, sandstones and shales of many other hues unite in dazzling combination. The canyon of Mukuntuweap River, cutting vertically down 2,500 feet, displays these colors in many majestic and fantastically modeled masses.

This valley has been known to the Mormons since the late fifties, and Brigham Young named it Little Zion Canyon in 1861. A few years later it was explored and described by Government geologists and a few years afterwards reserved for scientific reasons under the title of Mukuntuweap National Monument. It was not until 1916 that its amazing scenic splendor was made known to the public, and since then it has been entered by an automobile road and has become the resort of tourists. In 1918 President Wilson enlarged its boundaries and renamed it the Zion National Monument. On November 19, 1919, Congress elevated it to national park status as the Zion National Park.

This gorgeous valley has about the same dimensions as the famous Yosemite Valley. Extraordinary as are the sandstone forms, the color is what most amazes. The gorgeous red of the Vermilion Cliff is the prevailing tint. Two-thirds the way up these marvelous walls and temples are painted gorgeous reds; then above the reds they rise in startling white. Sometimes the white is surmounted by a cap of vivid red, remains of another red stratum which once overlay all. The other colors are many and brilliant. The Vermilion Cliff rests upon 350 feet of even a more insistant red relieved by mauve and purple shale. That in turn rests upon a hundred feet of other variegated strata.

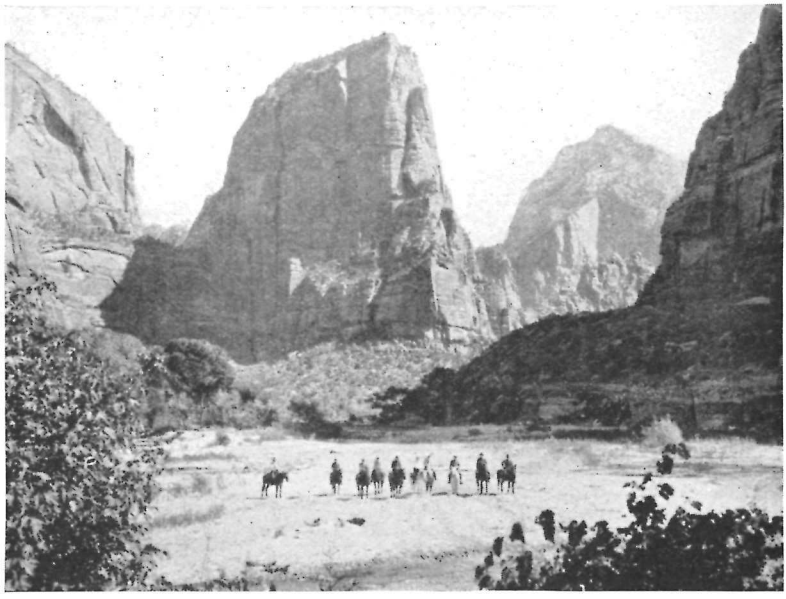
Through these successive layers of sands and shales and limestones, colored like a Roman sash, glowing in the sun like a rainbow, the Mukuntuweap River has cut its amazing valley.

Zion National Park is reached by an automobile ride of 70 miles from the railroad through a vividly colored sandstone country.

The entrance is between two gigantic stone masses of complicated architectural proportions which are appropriately named the Eastern and the Western Temple.

The Western Temple is seen from a foreground of river. From a stairway of many colors it springs abruptly 4,000 feet. Its body is brilliant red. Its upper third is white. The Eastern Temple, which rises directly opposite and 2 miles back from the rim is a thousand feet higher.

Passing the gates the traveler stands in a canyon of nearly perpendicular sides more than half a mile deep, half a mile wide at the bottom, a mile wide from crest to crest, whose walls blaze with color.



Photograph by George L. Beam

A Horseback Party in Zion National Park, Angel's Landing in the Distance

On the west the Streaked Wall, carved from the Vermilion Cliff, is wonderfully eroded. Opposite is the Brown Wall, rich of hue, supporting three stupendous structures of gorgeous color, known as the Sentinels. Opposite these rise on the west the Three Patriarchs, Yosemitelike in form, height, and bulk but not in personality or color.

A mile beyond stands El Gobernador, the most remarkable monolith of the region. This mighty rock, sometimes called the Great White Throne, is a colossal truncated dome, mostly white or gray in color, with streaks of red throughout. The white crown is heavily marked in two directions, suggesting the web and woof of drapery.

Directly opposite, a lesser monolith, nevertheless gigantic, is called Angel's Landing. A natural bridge which is still in nature's workshop is one of the interesting spectacles of this vicinity. Its splendid arch is fully formed, but the wall against which it rests its full length remains, broken through in one spot only.

XVII

OTHER NATIONAL PARKS

THREE further national parks may be briefly mentioned.

PLATT NATIONAL PARK

Sulphur and other beneficent springs, hot and cold, which gush plentifully from an area of 1½ square miles in southern Oklahoma, was the reason for the creation of the Platt National Park in 1902. It lies in a high country of great beauty and delightful climate and is extremely popular. Thousands of persons visit these springs annually.

WIND CAVE NATIONAL PARK

The following year Congress made a national park of a remarkable limestone cavern in the Black Hills of southwestern South Dakota, not far from one of Custer's famous battle fields. Its name, Wind Cave, comes from a current of air which passes in and out of its mouth intermittently. The walls, ceilings, and floors of the many large and involved passages and chambers are elaborately and magnificently decorated with the fantastic formations usual in limestone caves.

The park has a surface area of 16 square miles, a part of which is maintained as a national game preserve for bison, elk, and antelope.

SULLY'S HILL NATIONAL PARK

Local demand for national parks during this period resulted also in the establishment of a national reservation in North Dakota under the name of Sully's Hill National Park. It is a rugged, picturesque forested tract bordering a lake. It is a wild-animal preserve and has historic associations.

THE NATIONAL MONUMENTS AT A GLANCE

Administered by National Park Service, Department of the Interior

[Number, 32; total area, 3,681 square miles, or 2,356,036.81 acres; chronologically in order of creation]

Name	Location	Area (acres)	Special characteristics
Devils Tower 1906	Wyoming	1,152	Remarkable natural rock tower, of volcanic origin, 1,200 feet in height.
Montezuma Castle. 1906	Arizona	[1] 160	Prehistoric cliff-dweller ruin of unusual size situated in a niche in face of a vertical cliff. Of scenic and ethnologic interest.
El Morro 1906	New Mexico	240	Enormous sandstone cliff eroded in form of a castle, upon which inscriptions have been placed by early Spanish explorers. Contains open ruins on top of El Morro. Of great historic, scenic, and ethnologic interest.
Petrified Forest 1906	Arizona	25,625	Abundance of petrified coniferous trees, one of which forms a small natural bridge. Is of great scientific interest.
Chaco Canyon (chä'kō). 1907	New Mexico	[1] 20,629	Many large pueblos or communal houses, in good condition and of great interest. Considerable excavation done on several of the ruins.
Muir Woods [2] (mūr). 1908	California	426.43	One of the most noted redwood groves in California, and was donated by Hon. William Kent, ex-Member of Congress. Located 7 miles from San Francisco.
Pinnacles 1908	do	2,980.26	Many spirelike rock formations, 600 to 1,000 feet high, visible many miles; also numerous caves and other formations.
Natural Bridges 1908	Utah	[1] 2,740	Three natural bridges, among largest examples of their kind. Largest bridge is 222 feet high, 65 feet thick at top of arch; arch is 28 feet wide; span, 261 feet; height of span, 157 feet. Other two slightly smaller.
Lewis and Clark Cavern.[2] 1908	Montana	160	Immense limestone cavern of great scientific interest, magnificently decorated with stalactite formations. Now closed to public because of depredations by vandals.
Tumacacori (tū-mä-kä'-kō-rē). 1908	Arizona	10	Ruin of Franciscan mission dating from seventeenth century. Being restored by National Park Service as rapidly as funds permit.
Navajo (năv'á-hō). 1909	do	[1] 360	Numerous pueblo, or cliff-dweller ruins, in good preservation.
Shoshone Cavern (shō-shō'nē). 1909	Wyoming	210	Cavern of considerable extent, near Cody.
Gran Quivira (grän kē-vē'rä). 1909	New Mexico	[1] 560	One of the most important of earliest Spanish mission ruins in the Southwest. Monument also contains pueblo ruins.
Sitka 1910	Alaska	[1] 57	Park of great natural beauty and historic interest as scene of massacre of Russians by Indians. Contains 16 totem poles of best native workmanship.
Rainbow Bridge 1910	Utah	160	Unique natural bridge of great scientific interest and symmetry. Height 309 feet above water, and span 278 feet, in shape of rainbow.
Colorado 1911	Colorado	13,883	Many lofty monoliths, and is wonderful example of erosion, and of great scenic beauty and interest.
Papago Saguaro (pä'pä-gō ság-wä'rō). 1914	Arizona	1,940.43	Splendid collection of characteristic desert flora and numerous pictographs. Interesting rock forms due to erosion.
Dinosaur (dī'nō-sôr). 1915	Utah	80	Deposits of fossil remains of prehistoric animal life of great scientific interest.
Capulin Mountain (kăpū'lin). 1916	New Mexico	681	Huge cinder cone of geologically recent formation.
Verendrye (vér-rōn-drē). 1917	North Dakota	253.04	Includes Crowhigh Butte; high butte from which Explorer Verendrye first beheld territory beyond Missouri River.
Casa Grande (kä' sä grän'dā). 1918 [3]	Arizona	472.5	These ruins are one of the most noteworthy relics of a prehistoric age and people within the limits of the United States. Discovered in ruined condition in 1694.
Katmai (kăt'mī) 1918	Alaska	[1] 1,087,990	Wonderland of great scientific interest as example of volcanism on a scale of great magnitude. Includes "Valley of Ten Thousand Smokes."

[1] Estimated.
[2] Donated to the United States.
[3] From June 22, 1892, until Aug. 3, 1918, classified as a national park.

The national monuments at a glance—Continued

Name	Location	Area (acres)	Special characteristics
Scotts Bluff 1919	Nebraska	1,893.83	Region of historic and scientific interest. Many famous old trails traversed by the early pioneers in the winning of the West passed over and through this monument.
Yucca House[1] (yŭc-cä). 1919	Colorado	9.6	Located on eastern slope of Sleeping Ute Mountain. Ruins of great archeological value; relic of prehistoric inhabitants.
Fossil Cycad 1922	South Dakota	320	Area containing deposits of plant fossils.
Aztec Ruin[1] 1923	New Mexico	4.6	Prehistoric ruin of pueblo type containing 500 rooms.
Hovenweep 1923	Utah-Colorado	285.8	Four groups of prehistoric towers, pueblos, and cliff dwellings.
Pipe Spring 1923	Arizona	40	Old stone fort and spring of pure water in desert region serves as memorial to early western pioneer life.
Carlsbad Cave 1923	New Mexico	719.22	Limestone caverns of extraordinary size and of unusual beauty.
Craters of the Moon. 1924	Idaho	24,960	Weird volcanic region containing remarkable fissure eruption together with its associated volcanic cones, craters, lava flows, caves, natural bridges, and other phenomena.
Wupatki 1924	Arizona	2,234.10	Prehistoric dwellings of ancestors of Hopi Indians.
Glacier Bay 1925	Alaska	1,164,800	Contains tidewater glaciers of first rank.

[1] Donated to the United States.

ADMINISTERED BY THE DEPARTMENT OF AGRICULTURE

[Number, 15; total area, 601 square miles or 384,833.33 acres; chronologically in order of creation]

Name	Location	Area (acres)	Special characteristics
Gila Cliff Dwellings (he'lä). 1907	New Mexico	160	Numerous cliff-dweller ruins of much interest and in good preservation.
Tonto 1907	Arizona	[1] 640	Do.
Jewel Cave 1908	South Dakota	[1] 1,280	Limestone cavern of much beauty and considerable extent, limits of which are as yet unknown.
Wheeler 1908	Colorado	300	Of much interest from geological standpoint as example of eccentric erosion and extinct volcanic action. Of much scenic beauty.
Mount Olympus 1909	Washington	299,370	Contains many objects of great and unusual scientific interest, including many glaciers. Is summer range and breeding ground of the Olympic elk.
Oregon Caves 1909	Oregon	480	Extensive caves in limestone formation of much beauty; magnitude not entirely ascertained.
Devil Postpile 1911	California	800	Spectacular mass of hexagonal basaltic columns, like an immense pile of posts. Said to rank with famous Giant's Causeway in Ireland.
Walnut Canyon 1915	Arizona	960	Contains cliff dwellings of much scientific and popular interest.
Bandelier (Băn-dĕ-lĕr). 1916	New Mexico	22,075	Vast number of cliff-dweller ruins, with artificial caves, stone sculpture, and other relics of prehistoric life.
Old Kasaan (kä-săn). 1916	Alaska	38.3	Abandoned Indian village in which there are numerous remarkable totem poles and other objects of historical interest.
Lehman Caves 1922	Nevada	593.03	Limestone caverns of much beauty and of scientific interest and importance.
Timpanogos Cave 1922	Utah	250	Limestone cavern.
Bryce Canyon 1923	----do	7,440	Box canyon filled with countless array of fantastically eroded pinnacles. Best exhibit of vivid coloring of earth's materials.
Chiricahua 1924	Arizona	4,480	Natural formations known as the "Pinnacles," within Coronado National Forest.
Lava Beds 1925	California	45,967	Ice caves and battleground Modoc Indian War 1873.

[1] Estimated.

The national monuments at a glance—Continued

ADMINISTERED BY THE WAR DEPARTMENT

[Number, 9; total area, 158.09 acres; chronologically in order of creation]

Big Hole Battle Field.[1] 1910	Montana	5	Site of battlefield on which battle was fought Aug. 9, 1877, between a small force of United States troops and a much larger force of Nez Perce Indians, resulting in a rout for the Indians.
Cabrillo (kä-brél'-yo). 1913	California	1	Of historic interest because of discovery of the territory now partly embraced in the State of California by Juan Rodriguez Cabrillo, who at this point first sighted land on Sept. 28, 1542.
Mound City Group. 1923	Ohio	57	Famous group of prehistoric mounds in Camp Sherman Military Reservation.
Fort Wood 1924	New York	2.5	Site of the Statue of Liberty.
Castle Pinckney 1924	South Carolina	3.5	Fortification built in 1810 to replace a Revolutionary fort.
Fort Pulaski 1924	Georgia	20	Built in 1810 to replace Fort Greene of the Revolution.
Fort Marion 1924	Florida	18.09	Fort built by Spaniards in 1656.
Fort Matanzas 1924	do	1	Relic of Spanish Invasion.
Meriwether Lewis 1925	Tennessee	50	Contains grave of Captain Lewis of the Lewis and Clark expedition.

[1] Set aside by Executive order.

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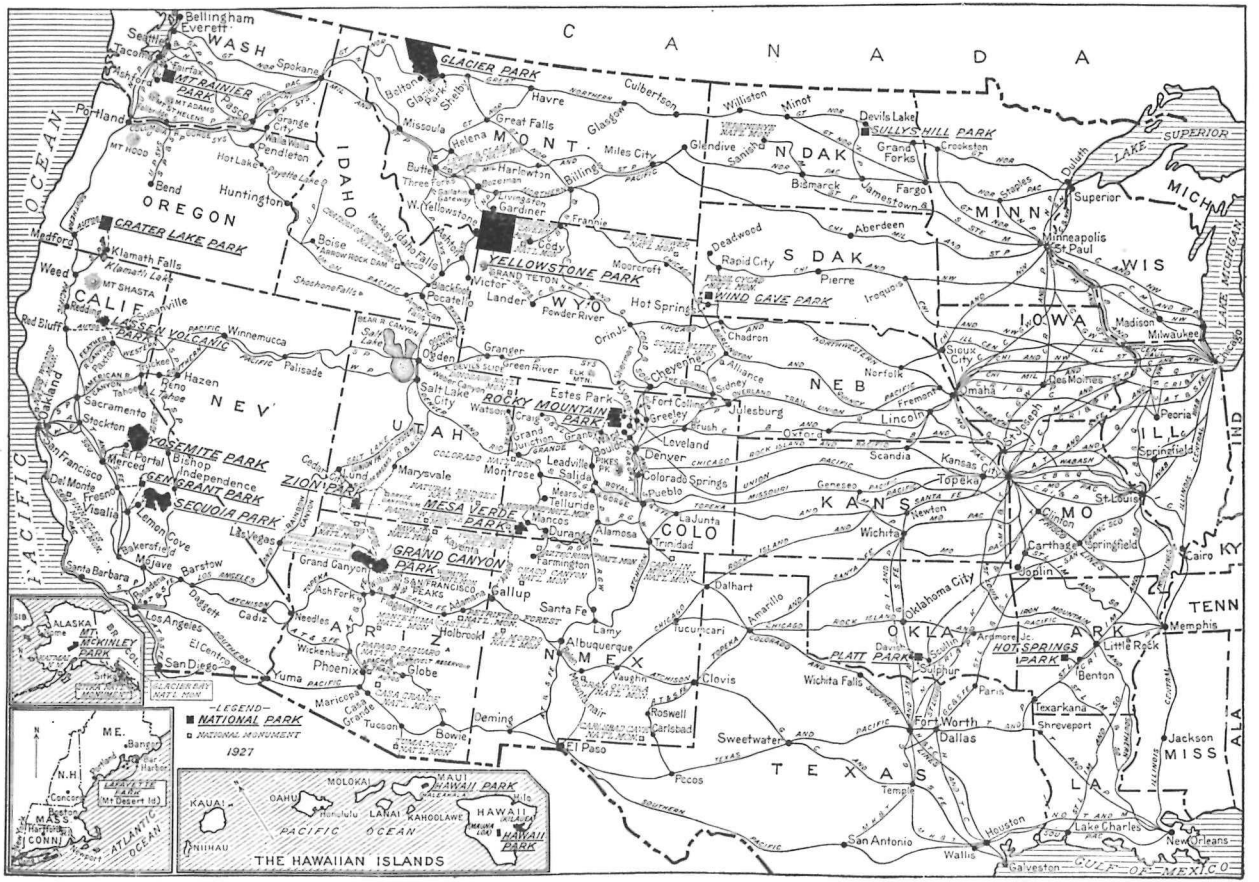
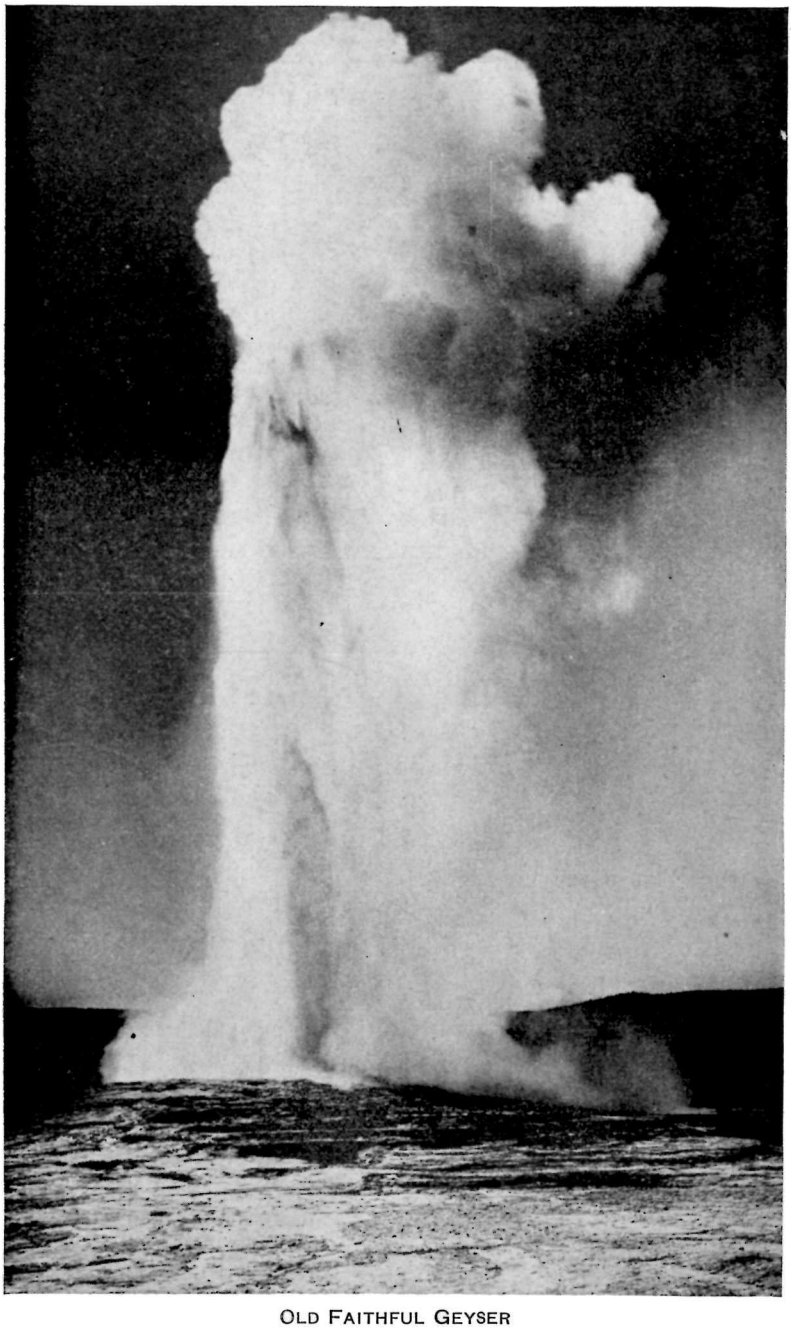


Nineteen national parks, containing 11,804 square miles, or 7,554,560 acres; 32 national monuments containing 3,681.32 square miles, or 2,356,036.81 acres. Administered by the National Park Service



OLD FAITHFUL GEYSER
YELLOWSTONE NATIONAL PARK