

U.S. National Parks Magnificent Schools

General Science

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The National Parks of the United States are something more than the greatest system of scenic wonders in the world, something greater than a far-flung group of recreational areas. The person of discerning mind may indeed exclaim in wonder at the towering geysers of the Yellowstone or the awful abyss of the Grand Canyon, he may enjoy hiking over the trails of the Yosemite or fishing in the lakes of Glacier Park; but he does more. He learns. Whether he travels alone or with a university party or follows a local guide, he receives instruction every foot of the way; and that more from the rocks and trees and birds and beasts than from the voice of any human mentor. The National Parks constitute a magnificent national university.

To qualify as a department in this university, a natural feature must, of course, come up to the standards that have been set by the history and traditions of the system. And these, from the very beginning, have been of the highest. The national park idea was born in what is now Yellowstone National Park, and areas candidate for admission to fellowship with it have so far offered natural marvels of their own which have not had to shrink from comparison with so exacting a standard.

Courses of Study

The various departments in this great national university of ours, with the courses of study they offer, may be listed more or less in college catalog fashion:

YELLOWSTONE (Wyoming): Geysers, hot springs and other geothermal phenomena; remarkable development of volcanic and extrusive rocks, geyserite and travertine; origin of rivers flowing to North Pacific, Gulf of California and Gulf of Mexico; Grand Canyon of the Yellowstone, with its magnificent double waterfall; Yellowstone Lake, highest large lake in North America; animals, especially elk, bear, bison, pronghorn, beaver and Yellowstone moose; plants ranging from semi-desert to alpine species, with many interesting ecological situations due to thermal and chemical effects of hot water and steam; birds, including pelicans, sea gulls, ospreys and eagles; many introduced species of trout.

GLACIER (Montana): Splendid display of living glaciers and of glacial work, cirques, ice-eroded canyons, glacial lakes, etc.; stratigraphic phenomena of all kinds, especially the famous Lewis overthrust; animals, especially mountain goats, elk and white-tailed deer; forested valleys, mountain meadows

and the peculiar flora that grows under the edges of glaciers.

MT. RAINIER (Washington): Tremendous extinct volcano, bearing the largest accessible single-peak glacier system; alpine meadows offering probably the richest floral display to be found on this continent.

CRATER LAKE (Oregon): Extinct volcano with crater filled by a lake six miles in diameter, walled in by brilliantly colored lava slides rising 1,000 to 2,000 feet above its surface; many fish in the lake.

LASSEN VOLCANIC (California): The only volcano within the United States proper known to be active; most recent authentically recorded eruption was in 1917, but hot spring and mud geyser activities are more or less continuous.

YOSEMITE (California): A great valley carved by glaciers vanished many millenia ago, and finished by water; now filled with splendid forests and fields of flowers, featuring especially the famous giant Sequoias; bears very numerous, many deer and other animals; above the valley the park runs back into the high Sierras.

SEQUOIA, and GENERAL GRANT (California): Groves of the great *Sequoia gigantea*, largest and oldest of living things. General Grant National Park is a small area (only four square miles) set aside especially to preserve the famous General Grant tree and its companions.

GRAND CANYON (Arizona): The most impressive single spectacle on this planet, a monument of unimaginable grandeur to the power of the weakest thing in the world—water. The Colorado River, flowing through a slowly rising plain for many ages, has cut its channel an inch deeper for every inch the plateau has risen, until it now flows at the bottom of a gorge a mile deep and from seven to thirty miles broad, the walls of which present a cross-section of the geological history of the world clear back to the Archæan.

ZION (Utah): One of the newer parks. An erosional region combining some degree of the magnitude of the Grand Canyon of Arizona with the delicacy of color of the Grand Canyon of the Yellowstone. Unusually fine plant ecology, ranging from southwestern desert to arctic-alpine conditions.

MESA VERDE (Colorado): An abandoned metropolis of the cliff-dwelling Indians, in a region of fantastic beauty; of especial interest to archaeologists.

ROCKY MOUNTAIN (Colorado): Offers a survey of the choicest section of the Colorado Rockies, culminating in Long's Peak; all phases of glacial geology; excellent opportunities for the study of trees at timberline and the flora of alpine meadows; bighorn sheep and other animals; excellent fishing.

HOT SPRINGS (Arkansas): In one sense the oldest national park, having been set aside as permanent public property in 1832; formally designated as a national park in 1921. Hot Springs National Park, as well as the smaller but similar **PLATT** National Park (Oklahoma), is of interest chiefly as a health resort.

WIND CAVE (South Dakota): Cavern having many miles of galleries and numerous chambers containing peculiar formations.

SULLY'S HILL (North Dakota): The

smallest national park, containing only 1 1/5 square miles; a wild-animal preserve.

LAFAYETTE (Maine): On Mt. Desert Island; combines granite peaks of Western ruggedness with an excellent display of Eastern flora and fauna; the only national park east of the Mississippi.

GREAT SMOKY MOUNTAINS (North Carolina-Tennessee): Not yet a part of the national park system, but will probably be acquired shortly; unequaled development of the Southern Appalachian flora on mountains lower but much older than the Rockies.

MR. MCKINLEY (Alaska): Remote and relatively inaccessible, but worth the struggle if one has the time; loftiest mountain in North America, 20,300 feet high; an extinct volcano; immense glaciers; herds of caribou and mountain sheep.

HAWAII (Territory of Hawaii): Three separate areas preserve the world's most impressive volcanic areas; Kilauea and Mauna Loa on the island of Hawaii, Haleakala on Maui; also the unique Hawaiian flora and bird population.

A Few Practical Hints

The University of the National Parks is not an institution for capped and gowned dons. Nature, upon intimate contact, is always a bit rough, in spite of the effusions of old-time romantic poets. Stout shoes and old clothes, therefore, are *de rigueur* on this campus. "Sports" clothes are all right for tourists, but on students in good standing close-kneed breeches and snug leggings are both more appropriate and useful than "plus-fours." It is best to come prepared for a variety of weathers, for on mountain heights one day may be warm and the next uncomfortably chilly. Dress as for October, and carry a good sweater-coat or lumber jacket or the like, is perhaps the best summary on the clothes question.

By long odds the best way to travel in the national parks is in your own car. Most of the roads are good, and while some of the grades are steep they are surmounted daily by hundreds of flivvers of a most reverend vintage. It is well to remember, however, that you are often only as safe as your brakebands will keep you. Competent garage service can be had in all of the larger parks.

However, if time does not permit automobile touring, the scientifically inclined visitor can still accomplish a good deal in his one or two weeks by taking one of the railroad-and-bus tours, getting acquainted with the naturalist-ranger he is sure to meet acting as a guide or giving lectures at some point or other, and from him (*Turn to next page*)

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learning where short hikes will carry him into the most advantageous regions available. If one goes out by rail and undertakes to go through an entire park on foot—a most worthy way to travel, if you really want to see things—two things must be borne in mind: First, don't carry too much equipment, and what you do carry, organize into a back-pack, leaving your shoulders and arms free. Second, have sufficient money in your pocket to assure you of supplies, and of a bed indoors in case of a heavy rain or snowstorm. The National Park Service regards empty-pocketed wanderers, who may think it a lark to depend on others for food and a bed, as hoboes—and they are right.

Automobile tourists also should hold bedding and tentage down to a minimum. About a third of the things one considers necessary at first can be dispensed with. One article, however, may very advantageously be added, even though it is not indispensable. That is a portable gasoline stove. In many of the more frequented camps in the parks firewood is provided, but sometimes the supply runs short. And when it rains, a wood fire is decidedly the opposite of the cheerful creature we usually conjure up in its name. Moreover, use of such a stove will reduce the forest fire risk, for which the rangers will call you blessed.

A Few Don'ts

Don't take any chances with fire! Rangers, whether National Park, Forest Service, or State, are convinced believers in Hell. Many of them have seen it. Don't just throw your cigarette butt down and grind your heel on it; unroll it and rub out every spark with your fingers. Don't throw away a burned match until it is dead cold; the rangers' rule is to break every match in *three* pieces. Best swear off smoking altogether while you are in the woods if you can stand it. Don't build a fire on "duff," or where there are any roots around; bare sand or earth or bald rock are the only suitable places for fires. Don't leave your camp until at least a half hour after you are sure the fire is completely out. Drench it with buckets of water, or if water is not available, bury it under plenty of dirt.

Don't carry any firearms. They'll only be sealed at the park entrance, and you lose the gun and a stiffish fine besides if you tamper with the seal.

Don't bring your dog. Loose dogs would chase the native animals; and if one of the animals happened to be a bear you might be minus a dog. Park rules, therefore, require all dogs to be kept on a leash during every minute of their stay, and for a decent dog that's a dog's life. So leave him at home.

Don't fraternize with bears. Most of the bears are quite amiable and harmless—if you toss your candy or other tidbit to a safe distance. Bears, as a rule, mean no mischief, but they are exceedingly stupid and gigantically strong, and a mere gesture of impatience on their part can easily cripple or kill a man.

Don't call a National Park Ranger a Forest Ranger, or *vice versa*. They are two quite distinct services, and each man is proud of his own "outfit," like the U. S. Army and the U. S. Marines.

Reading Up on the Parks

A literature of considerable size has grown up around our national park system, and it will be profitable for the prospective visitor to acquaint himself with such parts of it as have to do with the particular parks he intends to visit. The U. S. National Park Service issues a booklet about each of the parks. These are formally styled *Rules and Regulations*, but in reality are brief guides and general information books as well as compendiums of the rules governing the parks. They are distributed free of charge. To obtain the desired copies, one writes to The National Park Service, Department of the Interior, Washington, D. C., naming the parks one intends to visit and requesting copies of *Rules and Regulations* for those particular parks. Each of these Rules and Regulations booklets contains, in its back pages, a complete bibliography of the literature on its own particular park as well as on the national parks in general, listing both government and privately printed books and articles.

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A "Little Yellowstone"

Volcanology

The geysers of an almost unknown "Little Yellowstone" are wasting their spouting on the desert air of Nevada, according to Mrs. Beirne B. Brues of Boston. In company with her husband, Prof. C. T. Brues of Harvard University, Mrs. Brues last summer motored over much of the desert and semi-arid country in Utah, Nevada and California, and in the course of their travels they came upon this little patch of erupting hot springs, which she states resemble the geysers of Yellowstone National Park in their action and in the geological formation of their craters.

The geyser area lies a little distance off the Victory Highway (U. S. 40) between Salt Lake City and Reno. Leaving the highway at Dunphy, Nevada, a small railroad section station 56 miles west of Elko, Nevada, one travels south for a few miles along the Humboldt river to the town of Beowawe, Nevada. The geysers are situated a few miles south of that town, on a shelf on a mountain side. The white patch made by their deposits is visible from Emigrant Pass, 35 miles west of Elko, and remains in sight practically all the rest of the way to Beowawe.

The geyser shelf on the mountain-side is part of a private ranch, but visitors are welcome. The formation totals about half a mile in length. In the course of half an hour several of them will erupt, some to a considerable height.

So far as is known, these are the only geysers in the United States outside of Yellowstone National Park, which contains more active geysers than all the rest of the world put together. Other famous geyser regions are found in Iceland, where these peculiar erupting hot springs received their name, and in New Zealand.

Science News-Letter, April 14, 1928

A newspaper printed in the native language of Hawaii since 1861 is now about to be discontinued.

The return of salmon to their home waters can be predicted almost to a day for years in advance.

Chicago's new aquarium is to have salt water sent from the sea for its salt-water fishes to swim in.

Beaver liver is almost as good for eating purposes as the liver of chickens, a biologist states.