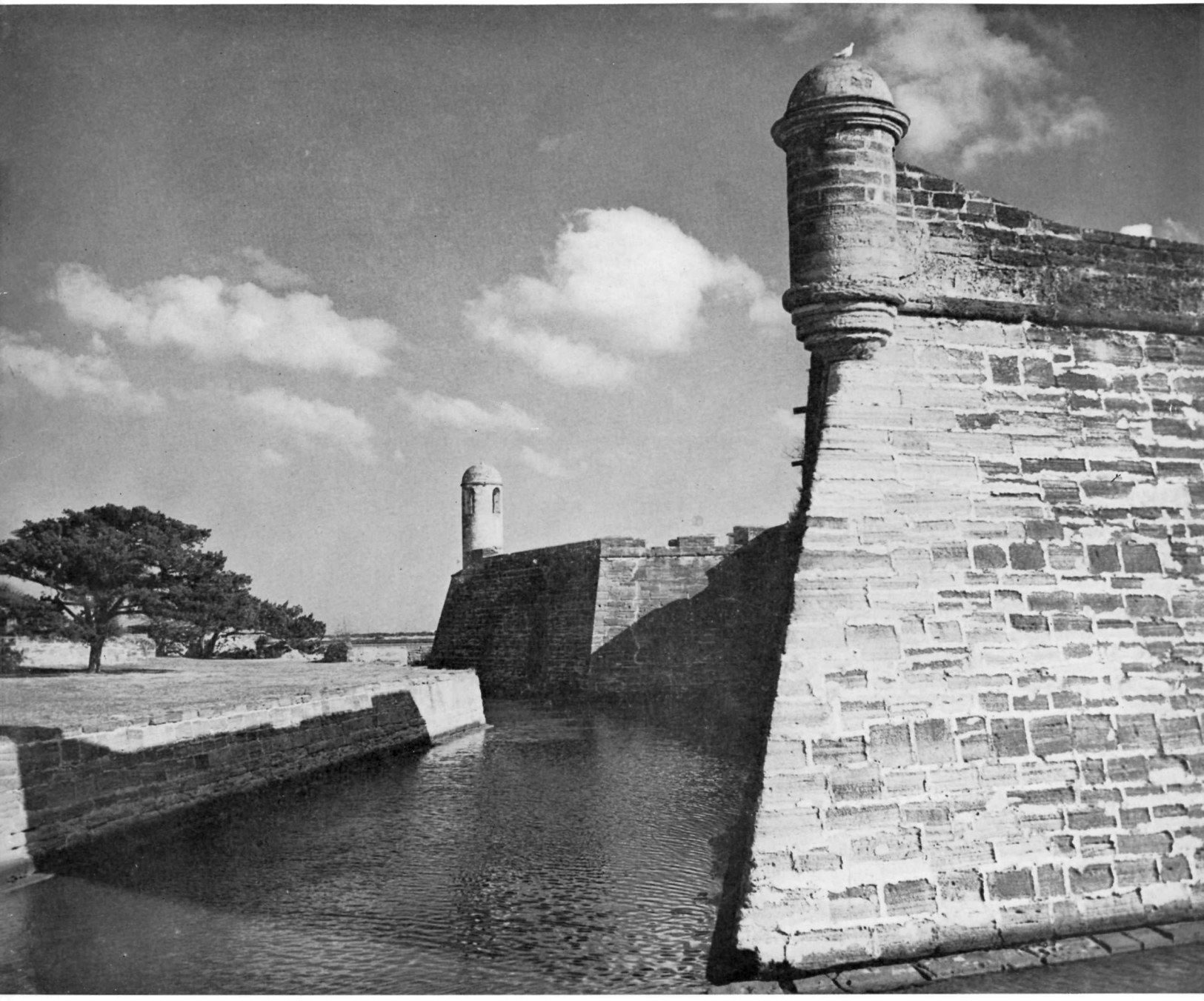
NATIONAL PARKS *Magazine*



Castillo de San Marcos National Monument
Saint Augustine, Florida

August 1960

The Conservation Attitude

By Luna B. Leopold

FORSAKING HIS INHERITANCE and its assurance of a comfortable existence, Gautama Buddha adopted the life of a pauper to seek the intellectual joys of pure contemplation. Under a mulberry tree, it is said, he propounded a 12-point program of ethical conduct stressing the development of a disinterested outlook in each individual. Temples, ritual, and idols he considered distractions from the basic need. He felt that there was a basic need for the development of an attitude.

The Brahmins as well as the lower castes recognized the merits of the system suggested by Buddha, but they molded his teachings into an accessory to existing rituals and dogma. They soon forgot that Gautama wanted no idols and no temples. They forgot his admonition that an attitude was the thing that really counted. Despite his expressed wish, today, Buddha in stone, in bronze, and in gold ponders these things in thousands of temples and hears the prayers of millions who still seek the truth of an ethical life.

Conservation Temples

Today, conservation has its temples. The temples of conservation include hundreds of irrigation reservoirs; it has prayer-sticks in miles of contour plow furrows, and the Buddha of a drop-inlet structure looks down on a conservation pool in myriad detention dams.

Conservation is well established today in the minds of the American public. It seems appropriate to analyze at this time just what it is that is established in the public mind. In what ways have we, too, substituted the temples, the ritual, and the idols for an attitude?

What concept of conservation is established in the minds of Americans? Conservation involves the idea of sustained yield of renewable resources, and prevention of extravagant waste in nonrenewable ones. In a less specific sense, conservation implies the preservation of values, and the use of a resource for the public good through an indefinite future. In a third, and still more subjective sense, conservation connotes natural or wild things, the country and landscape beyond the confines of our own back fence.

A moment's contemplation of these concepts makes it immediately apparent that the concepts in the first definition, sustained yield and extravagant waste, are relatively objective things which can be measured and studied. Five loaves and two fishes can be weighed, tagged, and price-marked. They can be rung up on a cash register. The prevention of waste can be measured, in a way, in twelve baskets gathered full.

In the second concept of conservation, a preservation of values implies that worth must be evaluated. Use for the public good means that there should be some way of determining what is in the public interest, and what is not. This is where the conservationist begins to have trouble. There is an immediate tendency to express value in the ordinary, daily-life measure, dollars.

The $2 Mallard

Therefore there is pressure to express one mallard as equivalent to $2.00 or to say that one goose equals $6.00. This leads to an even more spurious equation—that the value of a park is measured by the dollars spent by park visitors in the local stores. Surely a park has a far greater value than that, but expression of this greater value is not simple. In any event, the matter becomes confused when the public good is measured strictly by the number of people using a resource.

An important element in the present-day conservation movement is the idea of the wilderness reserve. The reserve system means setting aside specific areas as wilderness and keeping these areas free from the encroachment of roads, as well as other types of development. Following an initial suggestion that wilderness reserves be designated in areas of Federal forest land, a system of such tracts was delineated by the Forest Service beginning with the Gila reserve in New Mexico and Arizona. Later the wilderness reserve concept was extended to particularize different kinds of tracks, differentiating wilderness, primitive areas, and other classes of reserves.

The wilderness concept is closely allied to the concept of national parks. The park system involves two kinds of uses; so-called recreational development and, separately, areas preserved as wilderness—both within the confines of a single national park. The park system is characterized by complete protection from hunting and from the cutting or transplanting of vegetation. At the same time, the park system implies the development of roads, access trails and, in the most accessible areas, concessions, as well as camp grounds and picnic areas.

Road development and concession areas are for the express purpose of drawing the public, opening up such areas to recreational use. This contrasts sharply with the idea of wilderness protection, where access is limited to those traveling by foot, by pack train, or by canoe. This paradox in the administration of parks exemplifies the conflict between alternative uses of a resource, each competing use being justified by its classification as conservation. Can conservation mean all these things?

Wildness Essential

This line of thought leads directly into the third and most subjective concept involved in conservation. The idea of natural, wild things is, no matter how thin you slice it, an essential element in what people think of when they speak of conservation. Sports in the woods or wilds require at least a semblance of naturalness in the setting. A natural setting contributes materially to the esthetic pleasure. Furthermore, the aspect of sportsmanship under wild conditions connotes an ethical exercise in which conscience and self-discipline play a part.

As one deals with those concepts which are far enough down the scale of objectivity to defy simple monetary evaluation, he is increasingly pressed to substitute visible symbols which in themselves may not be any direct measure of conservation value, but which by a round-about reasoning are felt to be indicative of such value. These are the idols and the prayer sticks, the temples and the trappings. If we who consider ourselves conservationists are worthy of that name, it is not too early to analyze our own attitudes critically, to ask ourselves whether the idols and the prayer sticks, to which we point with pride, have become substituted in our minds for conservation.—*Luna B. Leopold*, Chief Hydraulic Engineer, U. S. Geological Survey. (Adapted from USGS Circular 414-C.)

NATIONAL PARKS MAGAZINE

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AUGUST 1960 Vol. 35, No. 155

Paul M. Tilden, Editor

CONTENTS

OUR AUGUST COVER

The Castillo de San Marcos, at Saint Augustine, Florida—preserved as a national monument in the nation's park system—was part of the defense system built by the Spanish to protect their vast Caribbean empire of the sixteenth and seventeenth centuries. Behind the massive coquina, or shellstone, walls of the fortress, which measure from nine to twelve feet thick, there are living quarters for a garrison, storerooms, a council chamber, dungeons, guardrooms, and a chapel. At each corner of the Castillo is a bastion, with its sentry-box or watchtower.

Photograph by J. Carver Harris, for the National Park Service

THE NATIONAL PARKS AND YOU

Few people realize that ever since the first national parks and monuments were established, various commercial interests have been trying to invade them for personal gain. The national parks and monuments were not intended for such purposes. They are established as inviolate nature sanctuaries to preserve permanently outstanding examples of the once primeval continent, with no marring of landscapes except for reasonable access by road and trail, and facilities for visitor comfort. The Association, since its founding in 1919, has worked to create an ever-growing informed public on this matter in defense of the parks.

The Board of Trustees urges you to help protect this magnificent national heritage by joining forces with the Association now. As a member you will be kept informed, through NATIONAL PARKS MAGAZINE, on current threats and other park matters.

Dues are $5 annual, $8 supporting, $15 sustaining, $25 contributing, $150 life with no further dues, and $1000 patron with no further dues. Bequests, too, are needed to help carry on this park protection work. Dues and contributions are deductible from your federal taxable income, and bequests are deductible for federal estate tax purposes. As an organization receiving such gifts, the Association is precluded by relevant laws and regulations from advocating or opposing legislation to any substantial extent; insofar as our authors may touch on legislation, they write as individuals. Send your check today, or write for further information, to the National Parks Association, 1300 New Hampshire Avenue, N.W., Washington 6. D.C.

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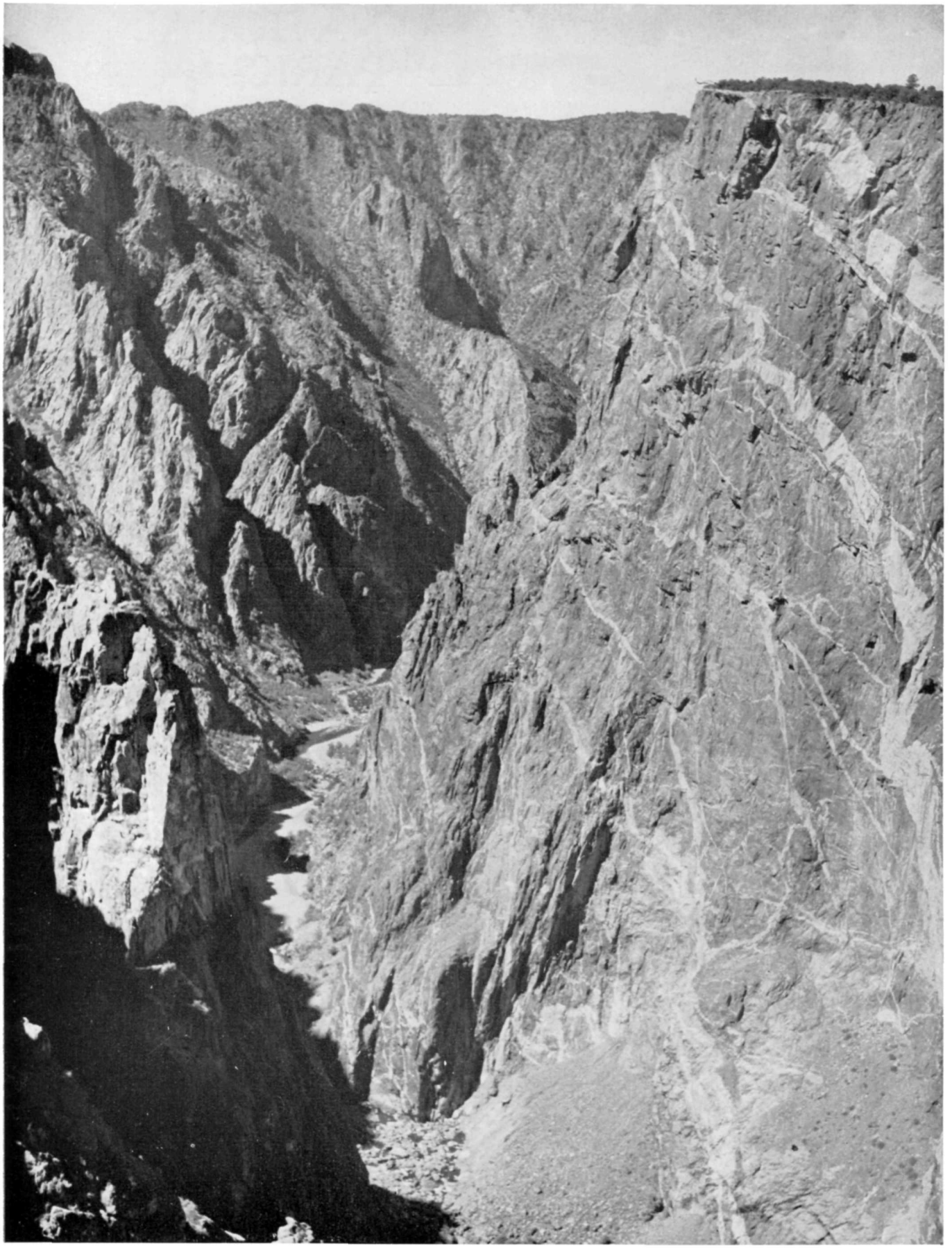

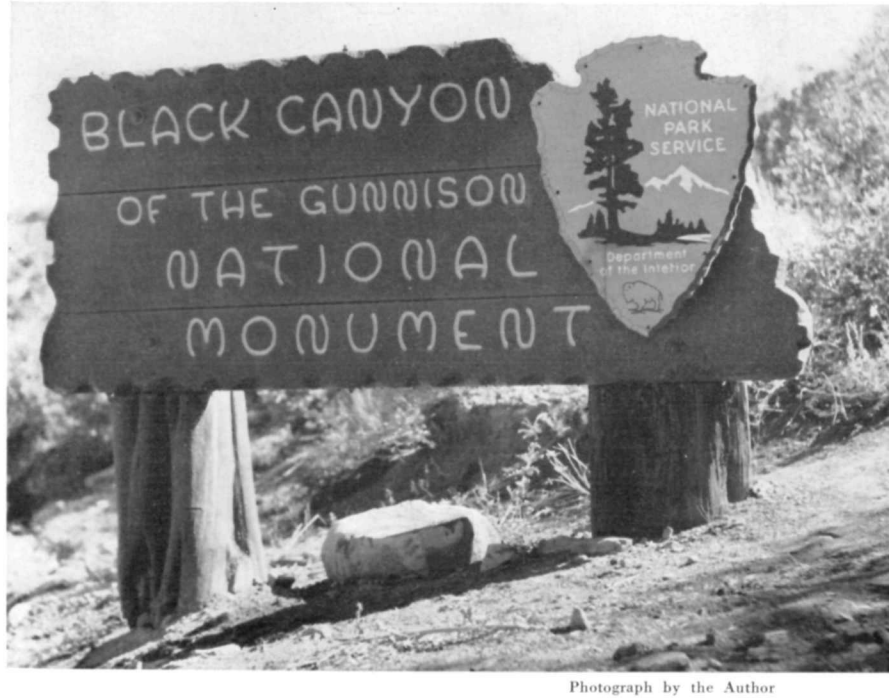

Photograph by the Author

In Colorado's San Juan Mountain region, the swift Gunnison River has trenched deeply into the ancient gneisses and schists of the area to produce a ragged and gloomy gorge, ten miles of which are preserved in the Black Canyon of the Gunnison National Monument.

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The Black Canyon—place of

"High Rocks and Much Water"

By Robert B. McCoy

TO LOOK INTO IT SUDDENLY is to draw back in sharp disbelief; for the Black Canyon of the Gunnison River in western Colorado is a sight that staggers the imagination. From end to end for as far as the eye can see—from any viewpoint on either rim—this spectacular gorge ranges from 1730 to 2425 feet in depth. Sheer, perpendicular walls approach within 1300 feet of each other; and, except at high noon, the incredible chasm is shrouded in gloomy twilight or shadowed darkness.

The Ute Indians, who lived roundabout in prehistoric times, held the great gash in the earth to be the abode of evil spirits. They called it "a place of high rocks and much water." But the canyon was there a long time before the Ute Indians, or any other humans, for that matter, and description by word somehow seems strange and meaningless.

A scientist might say that the Colorado Plateau commenced forming more than 100 million years ago; truly a meaningless figure to the layman. For many millennia the area was alternately a tropical forest and a restless sea. In this continual ebb and flow of creation, the land naturally formed in accumulating layers. Presently the whole of it was lifted upward by some vast upheaval that made high mountains and deep gorges that would live for further millennia. It may be that The Great Designer of All Such Things, with a tilt and a touch, carved out the whole Black Canyon as recently as 800,000 centuries ago.

Created in 1933

President Herbert Hoover created the Black Canyon National Monument by executive order on March 2, 1933. The government entity comprises 13,176 acres, but it includes only ten miles of the fifty-mile gorge. At its widest, outside the monument, the canyon is 3300 feet from rim to rim. The gorge cannot be traversed by boat, but it has been traveled by foot.

The first white man to mention the Black Canyon was a Spanish gold prospector named Don Juan Maria de Rivera. He and a party of Mexican Indians found the mouth of the gorge, near the present site of Cimarron, in 1761. But none of the explorers apparently had the stomach to creep far up into the gloomy depths.

Five years later another party led by two Franciscan priests, named Francisco Escalante and Antacio Dominguez, came to the canyon and started in. After penetrating the canyon for a few miles, however, the

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Mr. McCoy, journalist and photographer with a particular interest in nature and the out-of-doors, is presently managing editor of the Educational Book Division of the J. B. Lippincott publishing firm.

Photograph by the Author

The Black Canyon may be a place of danger for the untrained or careless. A ranger should be consulted before descent of gorge is made.

party turned back. Escalante called the unnamed stream the Rio de San Xavier, and thus it was marked on maps for many years.

But in 1853, when Jefferson Davis was United States Secretary of War, he sent Captain John W. Gunnison to explore the country for a practical railroad route across the mountains. Gunnison and his party found the canyon, as had the earlier Spaniards—but like them, he, too, turned back without entering the awful portals. But at least he named the river, for it has been called the Gunnison ever since.

Twelve Rough Days

The Black Canyon was not actually traversed until 1881, when a Denver and Rio Grande Western engineer named Byron H. Bryant took a small party through in twelve terrible days. "It was like feeling one's way blindfolded through an interminable Inferno," he wrote later. The river was so confined, the bare uprearing walls so harshly amplifying, that the noise of the rushing water and falling rocks was magnified almost beyond endurance. Only by shouting into each other's ears could they make themselves heard.

The explorers deep in the gorge found their greatest danger to be from falling boulders and rockslides. From end to end the canyon walls, the precipices, the pinnacles were studded with giant slabs and enormous rocks so delicately balanced or hanging that a sudden sound would shock them loose to shatter in a deadly avalanche.

Whether from nearby or far away, the sound of a rockslide or fall would rebound from canyon wall to canyon wall with a bone-chilling hint of death to the unfortunate. This was an ever-present danger that could neither be averted nor coped with—nor prepared for. "It was, all in all, a dreadful journey and one I would never undertake a second time," Bryant concluded.

Not for twenty years was the Black Canyon violated again; but in 1901, A. L. Fellows of the Bureau of Reclamation, and W. W. Torrence, a guide from nearby Montrose, tried it—and made it—after repeated narrow brushes with death. "The river at the bottom," reported Fellows, "is icy, wild and raging, filled with rocks and sucks like no other river I have ever seen. There are only two hours a day, at best, when vision is unimpaired. During the afternoon the canyon fills with a chilling mist that doesn't dissipate entirely until sunshine time the next day—and if it be a cloudy day, the mist stays on." It took fourteen days for Fellows and Torrence to traverse the fifty-mile gorge, and both vowed never to do it again.

The National Park Service reports that several people and parties have tried to "make" the full course of the Black Canyon since 1901, but none are known to have been successful, and several have met an untimely end in this valley of the shadow of death. One ranger remarked recently, half-jokingly, that the canyon is deadly now where it used to be only dangerous. "Tourists," he said wryly, "like to throw things over the rim."

The Black Canyon has fauna—deer, antelope, bear, fox, puma, coyote and all sorts of small life. It is also a stronghold of the Rocky Mountain bighorn sheep. These wary, surefooted animals can be spotted now and then with a keen naked eye, and often with searching binoculars. The handsome sheep cling to precarious footholds, or leap from ledge to ledge, with no apparent concern for the empty reaches below. But none ever seem to misgage a jump or slip on a slick rock—not even the kids.

Stand of Old Pinyons

The Monument's trees are of unusual interest. At about 8300 feet, on both rims, the familiar pinyon-juniper forest gives way to a remarkable stand of rugged pinyon patriarchs. These are distinguished from other pinyons by their comparatively smooth, flaky bark of light-brown silver.

In 1940, the United States Forest Service took some borings from the heart of five of the Old Men of the Mountains. Their ages ranged from 550 to 750 years—patriarchs, indeed, but youngsters compared to their ancient cousins the sequoias and the bristlecones.

Both rims of the canyon within the Monument can be reached by auto from early spring to late autumn. From Montrose, the distance to the south rim is about twenty miles. The north rim is reached from Colorado Route 92, just east of Crawford, by a fourteen-mile gravel road that is one of the most hazardous drives in the

State. On this route, the most likely trouble would be large rocks falling from the rimrock high above the narrow shelf road.

Hotel and motel accommodations are available in nearby towns. Campgrounds and picnic grounds, with drinking water, are maintained on both the north and south rims within the Monument. The views from the north rim are by far the most spectacular.

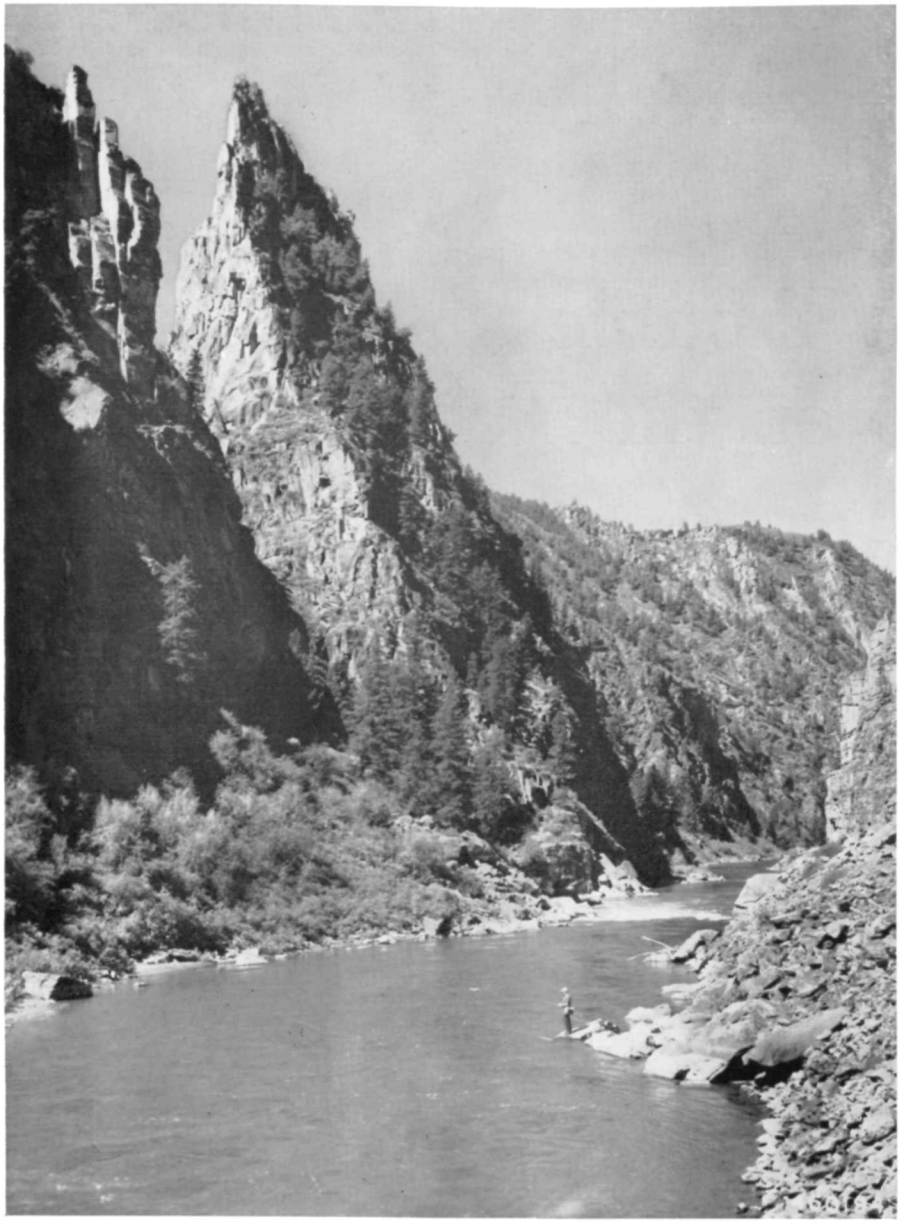
In spite of the notoriety of the Black Canyon, in wintertime it is a fantasy etched in dark hues and white—a poem, after a fashion, in three-dimensional light and shadow. The snow clings to ledges and protrusions on the great black walls, forming with drifts and humps a breathtaking collage. Through the brilliant contrasts moves foraging wildlife, undisturbed. Across the glowering depths wing the winter birds, on soft feathers hunting, and on hard feathers escaping. The owls and the hawks obey the "first law of Nature" from a vast parade of lofty crags and pinnacles.

In spring, summer and fall, the Black Canyon is a flamboyant profusion of color. Sunshine brings out the whites, pinks, reds and blacks of the sheer granite walls. Seams and large flakes of flashing mica are found along the canyon rims, together with veins of pastel-colored feldspar and quartz. The folds, veins and seams of the canyon walls vary in thickness, texture, color and direction; some are horizontal, others vertical; but all are warped and curved like some vast spiderweb painted by a giant.

After autumn frosts, the Black Canyon is particularly bright with color. The red dwarf oak and mountain mahogany turn scarlet, to shine brightly against the background of dark pine, spruce and shadowed walls. Everywhere are accents of lemon-yellow aspen and willow. Over the whole, like some splendid canopy, hangs the golden blue sky that is so peculiar to Colorado.

In the photograph below, the reader looks into the Black Canyon of the Gunnison from the north canyon rim, in the Gunnison National Forest. Towering above the fisherman is Curecanti Needle.

U. S. Forest Service Photograph



A Measure of Time

The late Hendrik Willem Van Loon once wrote that, in a far country, there was a mighty mountain of solid granite, and that once every thousand years a small bird came to polish its beak on the shining stone. By the time the small bird had done this often enough to wear the mighty mountain down to a smooth plain, then a single day had passed into eternity.

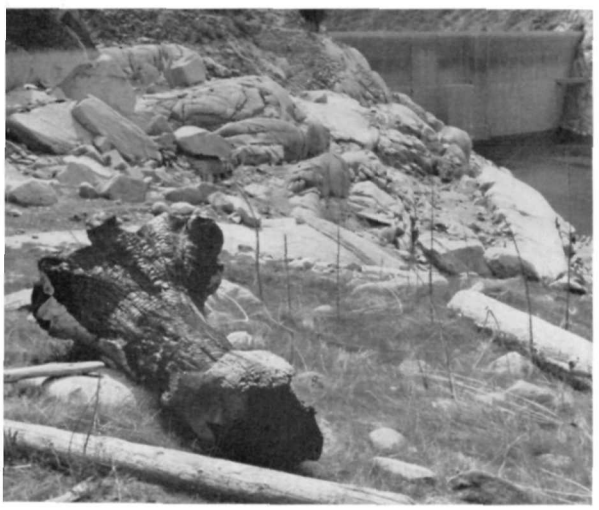
In one way or another, some such unbidden thought comes at the sight of the Black Canyon; for here is a monument to Nature's magnificence that is timeless indeed. The days will pass and night will fall a trillion trillion times perhaps before this canyon will dwindle. Down the corridor of the years men will continue to come in their time and gaze into the awesome depths, seeing, if not recognizing, their own relationship with infinity.

When man is dancing in the dust of epihistory—when he has been displaced by his successors as he himself displaced his predecessors—the Gunnison River of Black Canyon will still be cutting away as patiently as the legendary bird polishing its beak on the granite mountain. ■

Photographs this page by Philip Hyde

Fred Gunsky, an employee of the *San Francisco Chronicle* of San Francisco, California, is a member of the National Parks Association's Yosemite Program Group, and is a frequent contributor to the pages of conservation publications.

More than forty years ago the verdant Hetch Hetchy Valley, in the California Sierra, was converted to a rubble-strewn eyesore to supply water and power to San Francisco. Even today, proponents of such projects—especially when they are likely to affect preserved areas—stress the added beauty to be derived from shimmering waters of impoundments. Additional evidence of the esthetic "treat" to be expected is seen in pictures at left, below.



Trouble on the Tuolumne

By Fred Gunsky

LONG AGO, WHEN JOHN MUIR was glorying in his first summer in the California Sierra, he urged his co-worker, the shepherd Billy, to walk a mile and look over the rim into Yosemite Valley. Billy refused.

"What is Yosemite but a canyon?" he said, "—a lot of rocks —a hole in the ground—a place dangerous to fall into—a d—d good place to keep away from."

The city of San Francisco has taken an attitude a good deal like that of the ignorant shepherd regarding another famous valley of Yosemite National Park, the once-beautiful Hetch Hetchy. In its thirst for the water of the Tuolumne River, rising in the High Sierra some 200 miles from the Golden Gate, San Francisco built a dam that drowned Hetch Hetchy Valley more than forty years ago.

The people of the city have been using Tuolumne water ever since, drinking what they want and selling the surplus. They have also used the falling water to generate electricity, some of it being fed into municipal operations and the rest sold.

Meanwhile, the great Hetch Hetchy above O'Shaughnessy Dam

has stood stark and isolated, a mere rockbound lake where there was once a splendid green-meadowed canyon with a singing stream. The waterfalls that might have awed thousands of vacationers, drawn from the overcrowded Yosemite Valley a few miles away, now spill into the reservoir almost unseen.

Hetch Hetchy is "a hole in the ground" to store San Francisco's water, although expert opinion indicates that a system of dams in other locations would have served water and power needs efficiently without impairing the values of the National Park System.

A Desert Canyon

Now the city has its eye on another part of the canyon. After sitting for forty years on its "rights" to additional power development of the river just below O'Shaughnessy Dam, it seeks to build a new tunnel aqueduct, penstock and powerhouse. The proposed plan would make twelve miles of the Tuolumne—seven of them inside the boundaries of Yosemite National Park—into a desert canyon, "a d—d good place to keep away from."

The stretch of the river between the dam and Early Intake, a hydroelectric installation in Stanislaus National Forest, is fishermen's country. Within a year or two, if the drastic reduction of water flow proposed by the city is not carried out, there will be public camping facilities with a capacity of 350 units, 1500 people at a time, already planned for development by the United States Forest Service.

The National Parks Association has protested the new San Francisco grab in a strong letter to the Director of the Bureau of Land Management, who has before him an application for a land use permit. (See *National Parks Magazine*, June, 1960 "Your NPA at Work"). In effect, the Association has joined the National Park Service, the United States Forest Service, the Bureau of Fisheries and Wildlife, and the California State Department of Fish and Game in demanding an adequate flow of water to sustain existing fishing, wildlife and recreational resources, and to protect the scenery on the Tuolumne.

More important, from the point of view of integrity of the national parks and forests, is the Association's stand that the city of San Francisco appears to have abandoned its rights to the development of facilities on this twelve-mile reach of the river. The Canyon Power Project as authorized is not identical with the new proposal. In any case, the city slept on the idea for more than four decades during which vast economic and population changes took place.

Hetch Hetchy Project

This is the situation: In 1913, Congress, under extreme political pressure, passed the Raker Act, which gave San Francisco the right to construct and maintain the Hetch Hetchy project in Yosemite National Park and Stanislaus National Forest. The extent of the project was to be defined by maps to be filed within three years and approved by the Secretary of the Interior. Later changes of rights-of-way could be made, but would not be valid without approval by the Secretary. In case of changes of location within the National Forest, the Secretary of Agriculture's approval was to be required.

The Canyon Power Project, as approved, was to include an aqueduct on the south side of the Tuolumne. This

Plans for additional power development below O'Shaughnessy Dam (page opposite) would turn this stretch of the Tuolumne River, where the flow of water is now more than 700 cubic feet per second, into another "d—d good place to keep away from," in shepherd Billy's words.

U.S. Forest Service photograph

U.S. Forest Service

Forest Service plans for public camps and picnic grounds along Tuolumne River, as at Preston Meadow, above, would be affected.

U.S. Forest Service

A waterfalls at upper end of Preston Meadow, some three miles above Early Intake, lends charm to the proposed site of camp area.

plan lay in the files for forty years. Recently the engineers pulled it out and made significant alterations. The new proposal is to relocate the entire project on the north side of the river, while increasing its capacity to 700 cubic feet per second.

The Secretary of Agriculture has made conditions for approval. To preserve recreational values, including fishing, camping, and other uses of the river area, he has called for a minimum water release of twenty-five to forty cubic feet per second in dry years, and thirty-five to seventy-five in other years. This amount, less than ideal, is a compromise proposed by the various interested agencies. The city has held fast, agreeing to guarantee a minimum of only thirty cubic feet per second.

As the National Parks Association said in its letter of protest, one of the most injurious practices possible in the river valleys of America is the diversion of water from river beds. The result is extreme damage to fish life, destruction of scenic resources, disturbance of water tables and disruption of the entire ecology of the affected area.

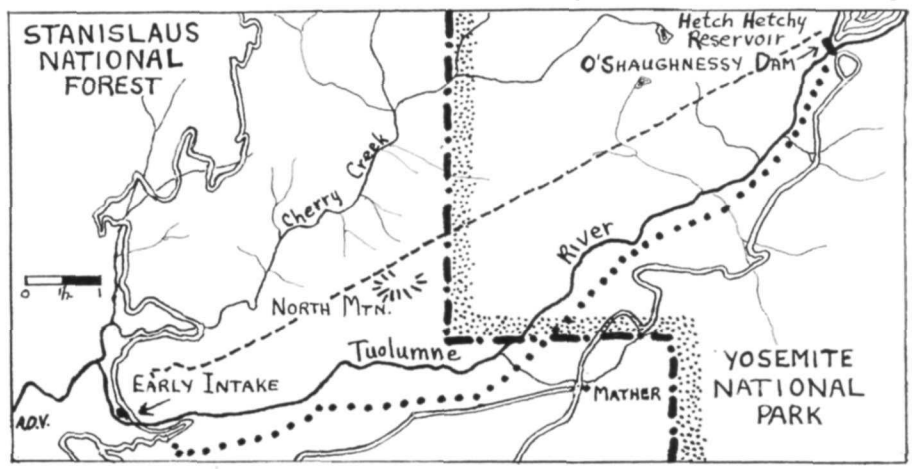
In this case the necessity of such a diversion cannot be shown. San Francisco has its water, and power too. The Canyon Power Project would simply increase the hydroelectric yield. By boosting the capacity of the new installation, the city hopes to gain a bigger profit from power sales.

Friends of the hard-pressed national parks and forests question the priority of San Francisco's rights to this twelve miles of federally-owned land. There are other sources of electric power, but recreational and scenic resources have shrunk drastically while population has zoomed and leisure has grown in economic and human importance. The whole country has a preeminent interest in keeping the river alive and green-bordered below Hetch Hetchy.

San Francisco should never have been allowed to kill John Muir's beloved second Yosemite. Conservationists lost that war on the battlefields of Congress. This is an administrative fight, but the principle is the same. Vigilance is the price of quality in outdoor recreation and scenic protection, whether in Dinosaur, at Rainbow Bridge, or on the Tuolumne! ■

The map below shows the twelve-mile stretch of the Tuolumne River that would be involved by San Francisco's "rights" to additional power development below O'Shaughnessy Dam in the Hetch Hetchy Valley. Original plans called for tunnel aqueduct on south side of river (heavy dots), while new plans would place aqueduct on north side of Tuolumne (dashed line). Because of reduced water flow, Forest Service's projected camp areas on river, in the national forest, would be affected.

Adapted from a U. S. Forest Service drawing.



Such shrubs as are able to exist in the albino desert may be left "high and dry" by the forward movement of the dunes, and may sit atop a column of gypsum stabilized by root-masses.

The Albino Desert

By Natt N. Dodge

CAN YOU IMAGINE yourself lost in a blizzard during mid-summer? Picture a world of swirling white particles, with wind-whipped crystals stinging your face and huge, chalky drifts all about, their crests streaming powdery white plumes—in a temperature of ninety-five degrees Fahrenheit! You may actually experience this if you should visit White Sands National Monument, in south-central New Mexico, during one of its occasional summer windstorms.

Even during clear, sunny weather, as you follow the roadway winding among the silent, gleaming drifts, you may have the uneasy feeling that something is wrong with the thermometer. Rows of crusted scrapings along the roadsides and slushy puddles in low spots give the impression that a grader has just passed, clearing the road of a fresh snowfall. It is hard to believe that you are not traversing a land of immense, frozen snowdrifts, and that the glistening waves are dunes of nearly-pure gypsum, or plaster-of-Paris in the raw.

Park your car at the roadside near the base of a dune and climb its steep northeast face of loose, powdery "sand." Out of breath, you sit on the hard-packed crest, empty the sugar-like grains from your shoes, and survey the remarkable scene that spreads far and wide before you. Like a vast ocean of motionless waves the dune-land stretches away and away in a great white wilderness, the world's largest known surface deposit of gypsum, covering more than 300 square miles of valley floor. You may wonder where the gypsum came from, and why is it here in New Mexico's Tularosa Basin, flanked by the San Andreas Mountains on the west and the Sacramentos on the east.

Geologists point out that these parallel mountain ranges are remnants of a once-high plateau. Tremendous earth movements during the geologic past caused a huge section of the plateau to settle, eventually forming the sunken Tularosa Basin and leaving broken edges as mountains along both sides. Through ensuing milleniums the forces of erosion cut valleys in the mountains and carried vast quantities of debris into the lowlands. Completely surrounded by higher lands, its hundred-mile-long floor sloping gently southward, the lower end of the Basin became a shallow lake.

Buried deeply beneath the floor of the Tularosa Basin, thick beds of gypsum saturated the ground water with dissolved calcium sulphate, and ephemeral streams from the north brought additional quantities of the mineral into Lake Lucero. When wet weather prevailed, the gypsum-impregnated waters spread far out over the southwestern end of the valley. During long dry periods, evaporation caused the lake to shrink in size, and the resulting concentration of the gypsum solu-

While visitation at White Sands National Monument is nearly a half million persons a year, the silence of the rippled dunelands is only a short walk from the picnic area.

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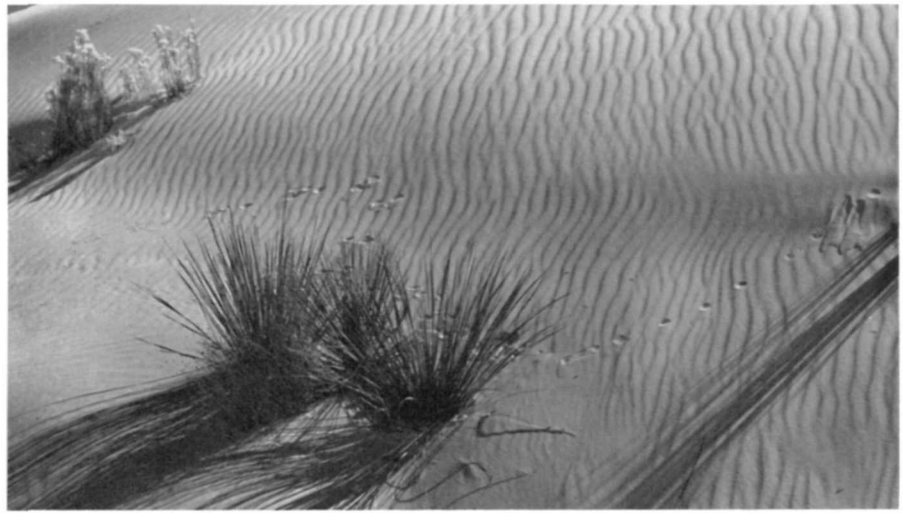
The animal inhabitants of the dunelands are largely nocturnal, except for insects and an occasional bird; in the early morning hours, tracks of small mammals may often be seen.

Photographs by courtesy National Park Service



tion formed masses of selenite crystals in spectacular beds along the margins of the alkaline lake. The fragile crystals crumbled readily under the attack of wind and weather, the resulting particles of gypsum being bounced along by the prevailing southwesterly winds and piled into gradually-growing dunes. In the vast expanse of alkali flats north of Lake Lucero, capillary action brought gypsum-saturated moisture to the surface of the ground, where evaporation released more particles to be whirled away and added to the dunes. For unknown hundreds of years this process of refining and stockpiling gypsum has continued, and probably will continue for many centuries to come. The dune area now is about twenty-eight miles long and from ten to twelve miles wide.

Within its 140,227 acres, White Sands National Monument protects this great natural gypsum refinery. It preserves the most spectacular portion of the duneland as our nation's "backyard sandpile" for the enjoyment and education of future generations of Americans. The dunelands and alkali flats extend far beyond the boundaries of the monument, however.

The Fight for Survival

Few environments are as hostile to plant and animal life as sand dunes. Exposed to the direct rays of the sun, the loose surface constantly shifting under the vagaries of the wind, without soil, humus, or the nitrogen, potassium, and phosphorus essential for plant nutrition, it is difficult to envision a more forbidding habitat. Nevertheless, a considerable number of plant species have gained a foothold among the less active peripheral dunes, and a few have established beachheads on the open spaces between dunes in the heart of the alabaster wilderness. Even in the barren stretch of alkali flats that lies along the eastern base of the San Andreas Mountains, between the mountains and the dunes themselves, clumps of pickleweed or iodinebush somehow manage to survive.

Although to the casual observer the huge dunes appear to be solid and immovable, all of them are actually marching northeastward, irresistibly if imperceptibly, in harmony with the prevailing winds. Consequently, the sparse ground cover of plants—principally sand verbena and rice grass—that gains a foothold on the small patches of soil between the dunes, will have only a brief existence. As each dune inches forward because of the sand that is swept up its sloping back and poured down in a series of "slumps," over its steep leeward face, it overwhelms everything in its path. Thus the few plants that become established on a flat in the wake of one dune await certain burial by the advancing front of the next.

The New Mexico gypsum desert differs from many sand dune areas in that there is ground water only three or four feet below its surface. This water is actually an underground extension of Lake Lucero. It is saturated with calcium sulfate, and hence unavailable to most plants. Of the few species that are able to use gypsum-impregnated water, several have the ability to escape burial by elongating

their stems. Once established on an interdunal flat, a cottonwood tree, *Populus wislizini;* soapweed, *Yucca elata;* or a squawbush, *Rhus trilobata*, is inevitably in the path of a slowly advancing dune. As the sand begins to pile up around its base, the shrub puts on a burst of growth. Although the struggling plant may be completely buried during windstorms, it "stretches its neck," so to speak, and manages to get its head above the deepening drift again. Eventually its leafy crown rises triumphant on the dune's crest. Yucca plants—seemingly small but with buried stems nearly forty feet long—have been measured by scientists.

Stranded Plants

During the years that the leafy crown of the plant remains on the dune, its elongated stem puts out a network of adventitious roots that penetrate the surrounding sand. As the dune moves slowly forward, its backsloping surface is gradually eaten away by the wind, leaving the plant atop a column of compact gypsum that is bound tightly about the stem by a mass of intricately tangled roots.

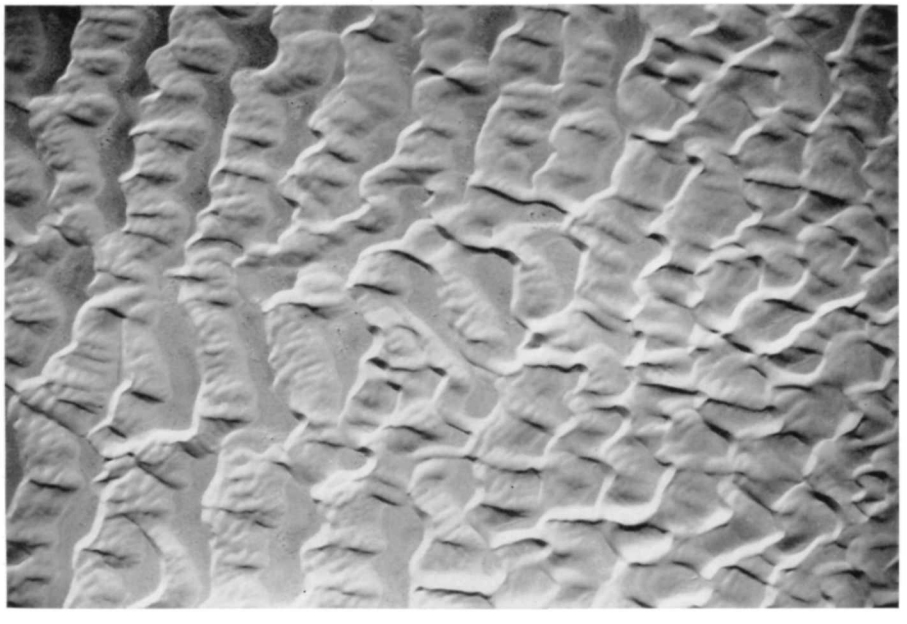
Near the margins of the duneland, where sand movement is less active, a number of species of plants are able to maintain themselves, and help to stabilize the dunes. Dr. Lora Shields, biologist of New Mexico Highlands University, in Las Vegas, has made extensive studies of plant life in White Sands National Monument. She writes that: "Except for eight dune-tolerant species, the white sands vegetation does not ordinarily survive burial."

Dr. Shields' investigations revealed the presence of the primitive plants called algae just beneath the surface of the sand in some places. Able to obtain nitrogen from the atmosphere, the algae, when they die, leave nitrogen in the sand in a form available to other plants. This discovery answered the question, long posed by botanists, as to where dune plants get essential nitrogen.

Except for insects and an occasional bird, visitors rarely glimpse animal life among the dunes. However, tiny tracks in the sand, particularly abundant and noticeable in the early morning, prove the presence of small creatures. These are mostly nocturnal, and hence rarely seen. Many of the little animals find protection in the shelter of hardy plants, and feed on seeds, leaves, or such insects as frequent plants.

Coyotes, and even porcupines, have been seen among the stabilized fringe dunes where plants of a climax community are fairly abundant. Porcupines, of course, are vegetarians, while coyotes find good hunting among the rodents. One of these, a small pocket mouse, *Perognathus apache gypsi*, is famous among biologists because it occurs nowhere else in the world. Unlike its close relatives, this subspecies is white as the result of color adaptation to its surroundings. Scientists explain this phenomenon of protective coloration by pointing out that, in an albino environment, light-colored individuals are difficult to see, enabling them to escape detection by predators. Their darker brothers and sisters are "picked off" by coyotes, owls, snakes, and other meat-eaters. Through thousands of generations of selectivity favoring blondes, a race of white mice gradually developed. This feature is of special significance, since the Apache pocket mice in the parts of the Tularosa Basin where reddish soils predominate are rusty in color. Among the broken *malpais* of a dark-colored lava flow near Carrizozo, north of the sands, the Apache mice are all brunettes.

As seen from an airplane high above the monument, the gypsum dunes of White Sands look like the ripple marks seen on beaches at low tide. Seemingly stable, the dunes are slowly moving.



A Reptile Resident

Another resident of the sands that is restricted to its colorless environment by the adaptation that protects it is a small white lizard, *Holbrookie maculata ruthveni*. Unlike the pocket mice, these lizards are abroad in the daytime when the sun warms their surroundings to activate the insects and spiders on which the lizards feed. The energetic bleached earless lizard is usually seen scampering over the sand to the shelter of a plant or rodent burrow. When motionless, the reptile harmonizes so perfectly with the sand that it is difficult to differentiate from its background. With no external ear openings, it can burrow comfortably in the fine gypsum; in fact, it even has overlapping scales on its upper lip to keep the sand out of its mouth!

The Apache mouse, the earless lizard, and the plants that escape burial by elongating their stems are but three of the many examples of Nature's adaptive ingenuity in this strange alabaster desert. They serve to illustrate the fact that the area is a highly effective classroom in America's university of the out-of-doors, the National Park System. Here is a great natural laboratory for research into the intricacies of the ability of plants and animals to develop ways and means of surviving and propagating under the seemingly in-

surmountable difficulties encountered in a most inhospitable environment.

Although nearly half a million visitors annually make the nine-mile loop drive into the heart of the sands, and the immense picnic area with its fireplaces and shaded tables is often crowded to capacity, these major centers of visitor concentration occupy only a tiny part of the wide expanse of the alabaster sandpile. There are more than 125,000 acres of trackless and untouched wilderness—mile after mile of glistening, rippled, virgin duneland without sight or sound of a human being. A five-minute walk from the picnic area—or from any spot along the perimeter of the loop drive—takes you into a silent sea of sand and sky where you may sit for hours, your view unspoiled and your thoughts free to roam uninterrupted by evidence of mankind.

Absence of Landmarks

As in all wilderness areas, there exists the danger of becoming lost if you wander far from the loop drive. There are no landmarks, and no two of the thousands of dunes are alike. This lack of individuality among dunes can lead to bewilderment. With the coming of darkness, a sudden chill settles over the dunes, even in summer. The white sand reflects heat; hence none is absorbed for release at night. Absence of water, and the fact that tracks may soon be obliterated by wind-induced surface-creep, are added hazards.

The personnel at White Sands National Monument has made a number of rescues, principally of children who have wandered out among the dunes. Although it is possible to navigate the sands with a properly equipped vehicle piloted by an experienced driver, a devious course must be taken because of the irregular topography. Park Service rangers have found that any attempt to follow the tracks of a lost person must be made afoot. During daylight hours, search by helicopter—called from one of several military bases in southern New Mexico—is effective in emergencies. No one should attempt to "drive the dunes" in a standard automobile; he is certain to become "stuck," if he does not suffer the worse fate of rolling his car over the steep face of a dune.

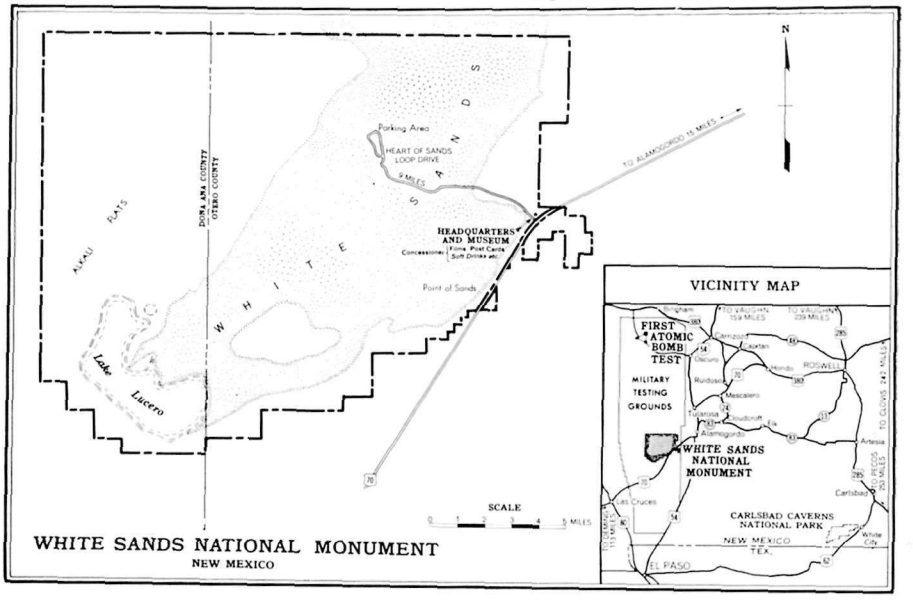
Sometimes called "recreational gypsum," the albino sandpile has a strong play-appeal for people of all ages. Parents forget their dignity and their infirmities, take off their shoes and stockings, and romp on the soft, clean, sliding slopes with their children. Photographers have a field day, and many beautiful sandscapes, made when late afternoon shadows point up the ripples and provide a wide latitude of composition, grace living room walls across the continent. People who make their own photographic Christmas cards may obtain snowdrift effects at any time of the year, and everyone is sure to find a "white Christmas" among the dunes. Each April, on a previously selected date, schools of the Tularosa Basin transport the children to the monument for the Annual White Sands Playday, with a full schedule of organized contests and competitive games.

Interpretive Museum

As a means of deepening visitor enjoyment by developing understanding and stimulating appreciation of the many features of the monument, the Park Service has installed a small interpretive museum at the headquarters visitor center. It also has marked significant points of interest along the five-mile entrance drive, as numbered stations. Each meaningful feature is explained in a correspondingly-numbered paragraph in the informational leaflet handed to drivers as automobiles enter the monument.

For the tired businessman and the harried housewife, a visit to the albino desert offers a refreshing and relaxing diversion, and a restful interlude from the routine of daily life. For them, and for all Americans, Tom Charles, the "father" of the national monument—and its first custodian—wrote the following invitation: "I hope that you first see the white sands on an evening just as the setting sun bursts through a canopy of clouds above the rugged San Andreas, painting the points of the hills with yellow and gold; that the mountains themselves are purple and blue, and the deep shadows of The Sands stand out against the snow-white hills. And, as you linger in the twilight, I hope that a gust of wind will come up the long slope of a dune and sweep up an eddy of swirling sand, and as it reaches the summit it will stand erect—almost in human form. And, as you stand peering into the growing darkness, listening to the silence of the desert without the whisper of a single leaf, I hope that you turn, half-frightened, and face the full, red moon as it rises over the Sacramento Mountains, scattering its millions of diamonds over every rippled dune—then, you will have seen the Great White Sands." ■

Adapted from a National Park Service drawing.



YOUR NPA AT WORK

As the result of a strong protest to the executive director of the New York Port Authority, Mr. Austin J. Tobin, (see "Great Swamp Area of New Jersey Threatened," page 16 of July, 1960, issue), the National Parks Association recently received a letter from Mr. Tobin outlining the Port Authority's stand.

The Port Authority contemplates use of the Great Swamp area of Morris County, N.J., some twenty-five miles west of New York City, as a site for a huge airport for the New York-northern New Jersey metropolitan area; a development which would destroy one of the finest remaining wetland areas of the eastern seaboard.

In his reply to the Association's protest, Mr. Tobin said in part:

We are, of course, aware of the present character of the Morris County area. It is in light of this fact and the reluctance of our commissioners and staff to recommend any action which might change its character in any way, that we will thoroughly examine every possibility of finding another site suitable for an air terminal to serve this metropolitan area.

This cheerful approach to the problem was somewhat dimmed, however, by the modifying words of a further paragraph. Referring to an accompanying document entitled "Requirements for a Suitable Site for a Major Airport," executive director Tobin noted in his letter that "we believe that we have considered all possible sites during our preliminary studies."

Dates and Places

Yellowstone Boating Hearings: August 23, Auditorium, Cody Wyoming; August 24, Yellowstone Lake Hotel; August 26, Civic Auditorium, Idaho Falls, Idaho.

Bridge Canyon Dam Power Project Hearings (Arizona Power Authority and the City of Los Angeles): September 12, Washington, D. C.

Soil Conservation Society of America: August 28-31, Ontario Agricultural College, Guelph, Ontario.

Western Resources Conference: August 22-26, University of Colorado, Boulder, Colorado.

Conservation Education Association Conference: August 15-18, State University College of Education, Oneonta, New York.

The Parks and Congress

The second session of the 86th Congress has recessed to allow members of Congress to attend the presidential nominating conventions. Legislation will be taken up again in August when Congress will re-convene before final adjournment.

C & O Canal National Historical Park

S. 77 (Beall). A watered-down version of the House bill to establish the C & O Canal park in Maryland that failed in May. The defeated bill authorized the National Park Service to buy some 10,000 acres of land for the 165-mile-long park and provided for a 25-mile parkway along the canal. The same bill prohibited construction of water storage dams to escape flooding of the canal above Great Falls. *S. 77*, which the Senate passed late in June provides that the Park Service can accept 4800 acres of Maryland state land but cannot buy any. The parkway will not be built, nor will creation of the park bar any usage of the Potomac River valley for flood control, water supply, power, or irrigation uses. As a result, the bill would cost little in Federal funds.

The Senate bill makes a concession to supporters of dams or reservoirs for public power and other uses in the wording which states: "Any portion of the lands and interest in lands comprising the park shall be made available upon Federal statutory authorization for public non-park uses when such uses shall have been found, in consideration of the public interest, to have a greater public necessity than the uses authorized by this act."

The Senate Bill is now under consideration by the House Interior and Insular Affairs Committee. The present version is believed to be acceptable to the committee whose favorable report would allow the Rules Committee to clear the bill for floor debate and possible passage before the end of the session in August.

Dinosaur National Monument

H.R. 6597 (Aspinall). To revise boundaries of Dinosaur National Monument in Colorado and Utah. Favorably reported to the Senate late in June, bill has been amended in two ways: (1) to exclude an area within the new boundaries which House version originally included for protection of deer; (2) at the request of Senator Allott, to make clear that the boundary change is for preservation of status quo of the area. This amendment employs the same wording used in C & O Canal park bill quoted above. (Allott had previously introduced a bill to change the monument to a national park.) Conference on House and Senate versions of the boundary change bill has been requested.

Grand Canyon National Park

H.R. 10613 (Udall). Authorizes the Secretary of the Interior to acquire the patented [uranium] mining claim on the south rim of Grand Canyon National Park. In exchange for apex mining rights under adjacent government land for 25 years and the right to continue to maintain cottages and facilities necessary for mining operations until 1966, the fee simple title to the property would be conveyed to the government as part of the park. Atomic Energy Commission's recent limitations on amount of ore mining interests can sell to the government have discouraged private owners from coming to terms. Further consideration will be given by the Atomic Energy Commission. No further action anticipated this session.

Great Salt Lake National Park

S. 2894 (Moss). To establish Great Salt Lake National Park in Utah. Department of the Interior's report to the Senate Interior and Insular Affairs Committee suggests that action be deferred for the present. Hearings will be held on November 16, 17, and 18 in Salt Lake City and Ogden, Utah.

Haleakala National Park

S. 3623 (Fong and Long). Designates the Haleakala portion of Hawaii National Park on the Island of Maui as a park unit apart from the portion on the Island of Hawaii. Passed by the Senate. Favorable consideration by the House is probable.

Mount Rainier National Park

S. 1358 (Murray). Authorizes headquarters site for Mount Rainier National Park in the vicinity of Ashford, Washington. Present headquarters site would be adapted for public use. Signed by the President on June 27.

Multiple Use of Forests

H.R. 10572 (Grant). To establish principles of multiple use of national forests as a policy of Congress. Signed by the President on June 12.

Rainbow Bridge Protection

Public Works Subcommittee of the Senate recommended concurrence on action of the House committee which disallowed funds for protection of Rainbow Bridge originally included in Public Works Appropriation Bill. Reported to the Senate. Amendment on the floor of the Senate would be last-ditch move to save flooding of the monument.

Salmon River Preservation

S. 2586 (Church-Neuberger). Prohibits licensing of any dam on the Salmon River until fish passage problem has been solved. Reported favorably to the Senate.

The Editor's

Bookshelf

THE NATURAL THING: The Land and Its Citizens, by Pieter W. Fosburgh, Macmillan Co., New York, 1959. 255 pp. $4.75. Illus.

In a short introduction to his collection of essays author Pieter Fosburgh discards traditional definitions of conservation—"maintenance of the balance of nature" and "wise use of natural resources." He offers in their place a definition not so much concerned with forests and animals and land, but one that deals with human happiness in the least materialistic sense: "Conservation is a science and a philosophy, combined as a dynamic working force to solve problems arising from man's relationship to his physical environment." A man who puts wasted land to work for him is not merely raising crops or growing trees, he is changing his environment and in consequence working a change in himself. The land and the man have a profitable relationship, each one is better for the other.

Fosburgh sees this mutually profitable relationship between ourselves and our environment as essential "to the production of both potatoes and poetry." The land as environment not only sustains our bodies, it sustains us culturally, gives us a history, a literature, a heritage with spiritual roots. But now the balance in the relationship between man and the land has been disturbed, the land has given too much. We have drawn heavily on it, but as conservationists, we can give it a helping hand.

In a narrower sense, the need to determine which or who are the conservationists becomes a central problem when specific questions of say, deer management or sport vs. game fishing arise in a state. Who must the people listen to, whose decisions will they abide by, whose decisions will they finally suffer? Trained biologists or game managers give way to influential groups, private interest packs a wallop in the legislation of game and wilderness. Apathy, disinterest or misinformation can work the destruction of irreplaceable segments of the natural community—it becomes a moral necessity to decide who the conservationists are.

The trained conservationist, according to Fosburgh, is a man who has "sufficiently appreciated the face of Nature to explore the bone structure and the sinew beneath it." He has discovered that "no single aspect of Nature can be isolated." Good soil, water, healthy trees and abundant wildlife are essential parts of a total environment; they cannot be isolated from the influence of man.

In the essays following the introduction to *The Natural Thing* the author writes generally of the influence of man on his world, but specifically of the hunter and his prey, the land speculator and abandoned farms, the Adirondack guide and the Adirondacks, New York State and the Forest Preserve. He writes with good humor and ease, and in a soft voice he repeats the fact that man and his environment can and must work together for mutual benefit.

—*A.D.V.*

WILDLIFE IN AMERICA, by Peter Matthiessen. New York. The Viking Press, 1959. 304 pages, with 8 color plates, many black and white photographs, more than 100 line drawings by Bob Hines, and an introduction by Richard H. Pough. $10.00.

It was, of course, simply an odd coincidence which dictated that a news item in the daily papers should serve as an unofficial and rather grim preface to a reading of Peter Matthiessen's splendid volume, *Wildlife in America*. On the very day set aside by the reviewer for a fuller acquaintance with this large and handsomely produced volume, the Massachusetts Audubon Society was voicing public alarm over the disappearance of the bluebird from the eastern United States, and was speculating that the promiscuous use of powerful insecticides, now so commonplace in America, may be playing a part in the extinction of a well-loved bird.

Had Peter Matthiessen, editor and novelist, waited perhaps a few more years, he might well have been able to include the bluebird in his chapters of American wildlife, vanished and vanishing. For *Wildlife in America* is the record—and gloomy reading it makes—of the extermination, and threatened extermination, of such mammals, birds and reptiles on this continent as have been unable to cope with the conditions and contrivances of man, the animal kingdom's most destructive representative.

From the great auk to the whooping crane and the California condor, Mr. Matthiessen calls the roll of dead and dying species; and not a little of the reader's pleasure—if, indeed, he can derive any from this sad chronology—is derived from the liberal inclusion of the virile English of past days, as observers long gone relive their times and make their observations in the pages of the book.

—*P.M.T.*

A Quick Glance At . . .

JUST ABOUT EVERYTHING IN THE ADIRONDACKS by William Chapman White. Adirondack Museum, Blue Mountain Lake, New York, 1960. 101 pp. $3.50.

For further reading about nature and people in the Adirondacks. A collection of columns which first appeared in the *New York Times* and *New York Herald Tribune*. Described as the author's "love letter" to the country where he lived his last years. Attractively bound.

COME WITH ME: A National Park Adventure by Douglass Hubbard. Awani Press, P.O. Box 1971, Fresno, California, 1959. 24 pp. Illus. Buckram, $2.75; paper, $1.00.

A children's picture-trip through a national park. A park-naturalist's simplified but informative guide-talk forms the text. Reading it is like overhearing it, looking at the excellent pictures is like being with the children on the hike.

MEET THE SOUTHWEST DESERTS, by Phillip Welles. Dale Stuart King, Six Shooter Canyon, Arizona, 1960. 82 pp. Illus. $1.00 paperbound.

An introduction to some of the more

common plants, mammals, birds, reptiles and insects of the desert. Helps the newcomer understand the difference between a mesquite and creosote bush, centipede and millipede. Photography by Marvin H. Frost, Sr., is especially rich, allows the reader to examine even the deadly scorpion at his leisure.

CAMPGROUND ATLAS OF THE UNITED STATES AND CANADA by James A. Bier and Henry A. Raup. Alpine Geographical Press, Box 685, Station A., Champaign, Illinois, 1960. 177 pp. Maps. $3—A list of nearly 5900 campgrounds located in national parks, monuments, recreational areas, forests, state and provincial parks, county and municipal parks. Individual state maps.

BOUNTIES ARE BUNK by Roger M. Latham. National Wildlife Federation, Washington, D. C., 1960. 10 pp. Illus. —Traditional payment of bounties is attacked because of the lack of actual benefits. Harmless or beneficial predators are killed by mistake, fraud is practiced, and, according to the author, "perhaps the best argument of all against the bounty is that the money spent for this purpose can usually be used to better advantage in other ways . . . It has been proved over and over again that game supplies can be increased greatly by habitat improvement work without any accompanying predator control efforts." Single copies may be obtained without charge by writing to National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C.

Arches, Bristlecones, Caves . . . the ABC's of Great Basin

RESULTS OF FIELD INVESTIGATIONS FOR PROPOSED GREAT BASIN NATIONAL PARK, NEVADA. Prepared by Region Four Office, National Park Service, San Francisco. Distributed by the Sierra Club in cooperation with the Great Basin National Park Association, 1959. 42 pp. 7 photographs. 2 maps.

A major part of this report is devoted to "Ecological and Other Evaluations of the Wheeler Park Area" by National Park Service Biologist Adolph Murie. His *Summary and Conclusions* should be of particular interest to all those concerned with the preservation of the unique character of this Great Basin area. For that reason it is presented here in full.

* * *

In attempting to appraise the Wheeler Peak area as a potential national park, one objective was to determine if it was a worthy representation of the Great Basin. I was not seeking the spectacular, or comparing the area with Glacier Park, the Tetons, or the Olympics to decide on its qualifications, but instead was comparing it with other Great Basin areas to learn if it would serve as a satisfactory sample of that type of country. After comparing my observations at the Wheeler Peak with pertinent ecological literature of the Great Basin and after discussing the region with a number of people familiar with the region, it appears to me that the Wheeler Peak area is an excellent sample of Great Basin physiography, flora, and fauna for preservation in the national park system. The boundaries should be drawn so as to include sample representative types of habitats that occur in this general area, including the various mountain and desert ecological types.

The Wheeler Peak area is not only a fine representation of the Big Basin, but has several additional outstanding features of national park quality.

One feature of national significance is the bristlecone pine. A day among the bristlecones is an unforgettable experience. Their weird, hobgoblin shapes with arms reaching and turning at all angles, like the illustrations in the *Wizard of Oz*, give one the feeling of being in a strange world. The trees are fantastic, each one is a character to meet. And then one keeps reverting to the thought that they are the oldest living thing, that some of them antedate human history, and lived on and on through one era after another. After seeing the bristlecones in their beautiful settings one cannot help but feel that they deserve our best protection, and that these trees should be saved in many places. Bristlecones, because of their hard and beautiful wood, are especially subjected to vandalism, so protection should begin soon. If the bristlecones were the only feature in the area we would be fully justified, in my opinion, in setting aside a large area surrounding them for their protection and as an esthetic setting for them, and designating the area a national park.

The values of Lehman Cave have been recognized, for it is already a national monument. This cave is one of the most exquisitely beautiful in the world and it would be an outstanding feature in any park.

There are several small caves in the area that speleologists have explored. One cave is said to be the home of "hundreds of bats."

The zonation of the plant life from desert to arctic-alpine is characteristic of the high peaks in the Great Basin. This display of temperature effect on distribution of plant life has captured the imagination of both laymen and scientists.

A special consideration is the presence of bighorn habitat. The bighorn may possibly be gone from the area now, but, if so, it can be readily reintroduced. Other large animals of interest include the mule deer, cougar, and bobcat.

Native cutthroat trout are present in two streams, and there is hope that some of the highly vulnerable desert fish life can be given proper protection.

The geology is apparently representative of the Great Basin, and part of the story of Lehman Cave. The precipitous limestone cliffs, the large limestone arch, the many odd rock formations, and the lichen-covered rock shelves contribute strikingly and intimately to the esthetics of the area.

Wheeler Peak Glacier

The glacier on Wheeler Peak has created considerable interest since its rediscovery in 1955. It is small, but because of its location (the only one in Nevada) it may have more significance than far larger ones in colder and wetter climates. Already its processes are being intensively studied, and two scientific papers on it are being prepared for publication. This feature gives special value to the area.

The display of shrubs and trees in the many canyons is ecologically and esthetically outstanding.

This region is a piece of America where nature has produced a fauna and flora suitable to that terrain and climate. If the place can be left alone enough so that nature's processes are prominent and not overshadowed by modern structures, the area will in time become increasingly outstanding because so much of the rest of the country will be modified beyond recognition. I feel we have here an opportunity and are considering something precious for our civilization. ◆

Conservation News Briefs

Conservation Scholarships

The National Wildlife Federation is accepting applications for scholarships and fellowships in the field of conservation or conservation education. Applicants need not necessarily be enrolled in an institution of higher learning if projects are meritorious in the cause of conservation. Among the fields of study appropriate to these scholarships are resource management, teacher training, radio and television, scouting, journalism, and farmer-sportsmen relationships.

Application blanks and further information may be obtained from the Executive Director, National Wildlife Federation, 1412 16th Street, N.W., Washington 6, D.C. Applications must be submitted by November 1, 1960.

Bryce Canyon Visitor Center

A new visitor center was dedicated in June at Bryce Canyon National Park, Utah by Secretary of the Interior Fred A. Seaton. The visitor center, a one-story concrete, masonry and wood structure, is located near the entrance to the park. It includes a large lobby, auditorium, and information facilities, as well as a museum featuring exhibits which explain the geological story of Bryce Canyon.

Full-Scale Operations at Glen Canyon

Construction which will eventually bring on the flood at Rainbow Bridge was begun late in June at the Glen Canyon damsite in northern Arizona when the first bucketful of concrete was tripped by Secretary of the Interior Fred A. Seaton. Full scale concreting operations are now underway for the dam which is the key structure in the Colorado River Storage Project.

Although the total cost of the project, some $324,074,000, has been estimated to include the protection of Rainbow Bridge National Monument, protection funds have been deleted from the Appropriations bill passed by the House of Representatives. Conservationists hope that although the Public Works Subcommittee of the Senate Appropriations Committee has also deleted the funds, the Senate will restore them when the bill reaches the floor.

New Monument at Grand Portage

Secretary of the Interior Fred A. Seaton recently announced the establishment of Grand Portage National Monument in Minnesota. Comprising approximately 700 acres, Grand Portage is the scene of the historic 9-mile trail used by thousands of travelers, Indians, explorers, fur traders, soldiers and missionaries who helped to open the interior of the North American Continent. The establishment of this monument was authorized by Act of Congress of September 2, 1958.

That Uneconomic Ice

The Pacific Northwest Chapter of the Sierra Club, in Seattle, Washington, contributes a clipping from the Seattle *Times* announcing a study of that State's 250-odd glaciers as a possible source of hydroelectric and irrigation water during dry years. There are, it seems, an estimated 250 million acre-feet of water immobilized in the State's glaciers in the form of uneconomic ice, and in cooperation with the United States Geological Survey, the Washington State Department of Conservation will undertake, at a cost of less than $5,000, to find out how this glacial ice could be melted!

Blue Ridge Concessioner Needed

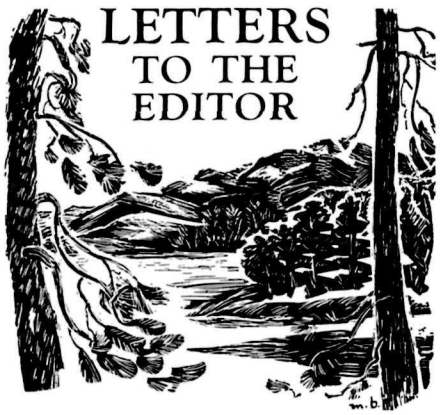
National Park Service is accepting applications for operation of visitor facilities on the Blue Ridge Parkway between Roanoke, Virginia and Asheville, North Carolina. The successful applicant will be required to provide service station, restaurant, and lodging facilities. Applications should be sent to the Parkway Superintendent, P.O. Box 1710, Roanoke, Virginia, before August 15.

City of Refuge

A little-known region of the island of Hawaii will probably become the City of Refuge National Historical Monument as soon as land transfers are completed, according to a Department of the Interior announcement. The proposed monument, located in the Kalapana section of the island just outside of Hawaii National Park, is rich in archeological remnants of primitive Hawaiian culture. Shrines, temples and petroglyphs tell the story of this city where tribal outcasts found refuge.

Forestry Congress Commemorative

This four-cent commemorative postage stamp, printed in green, will be placed on sale August 29 at Seattle, Washington, to mark the Fifth World Forestry Congress meeting at the University of Washington on that date. More than sixty nations are expected to participate in the Congress, according to Richard E. McArdle, Chief of the Department of Agriculture's Forest Service. Technical papers by two hundred internationally known experts on forestry, and tours of major forest areas will be features of the meeting, which ends September 10.



A Difficult Problem

With the meeting of the National Parks Advisory Board now reported, I have been alarmed that no mention has been made of the proposal, that public shooting will perhaps be permitted in the Chesapeake and Ohio Park and in the proposed Seashore Area Parks. Did they in any way consider this problem?

This is a most serious violation of the very fundamental requirement for the preservation of all wildlife in ALL national park and national monument locations. Shooting is no more compatible in any amount whatever, than is fire with gasoline. Is it just an oversight that the National Parks Association has not taken steps to object to such a serious violation?

If the Association really intends to act in accordance with the principles upon which it was founded, let us see action and strong editorial evidence that such an anomalous proposal be actively opposed.

HENRY M. WEBER, M.D.
Indio, California

There can be no question about the very great importance of defending the principle of no hunting in our national parks and monuments. However, we are faced with a somewhat difficult problem in regard to the seashore areas, and many very responsible people feel that these areas must often be planned in a somewhat different way from our great primeval parks.

When the Cape Hatteras National Seashore was established, going on twenty years ago, plans were worked out whereby the established communities there were allowed to stay and whereby limited areas were set aside for the hunting, which was also well established. Had these compromises not been made there would have been no possibility of getting the seashore established. The same is probably true of all the remaining seashores, which many of us feel must be acquired by the Federal Government if their complete destruction is to be prevented. In brief, we are faced with a difficult choice in respect to some of these new areas which are not of top national park quality. We can let them go to destruction under the bulldozers breaking ground for housing developments, big roads, and the like. Or we can work out politically viable compromises which will save the essential features of these regions and keep them permanently for the enjoyment of people who can appreciate them. If we are to do the latter, we must stand even more firmly on our determination to protect the big national parks and the wildlife in them as they are.

No proposals have been made, so far as I know, to permit shooting in the proposed C & O Canal National Historical Park.

—Anthony Wayne Smith
Executive Secretary

Letter Bombardment

Alice F. Howland's letter in your May *magazine concerning* The Shrine of the Ages on the rim of the Grand Canyon coincides with our sentiments exactly. If letters will help defeat the purpose, we hope the Secretary of the Interior will be bombarded with letters by the thousands.

MRS. J. L. HOOKS
MRS. BRUCE REID
Beaumont, Texas

New Member Writes

For several years I have been an occasional reader of the *National Parks Magazine* and have found myself in basic sympathy with your oft-expressed goal of protecting our parks against the incursions of commercial interests. Therefore, I have decided to join the National Parks Association, and am enclosing my check for one year's dues. Besides having the pleasure of reading the *National Parks Magazine*, I hope in this way to make my small contribution toward furthering the aims of the Association.

ROY W. MEYER
Mankato, Minnesota

Uses "Hunt and Peck" System

I became a conservation enthusiast when I made a contribution to the National Parks Association two years ago, and subsequently received the magazine which I read regularly and with great interest. However, as a comparative novice in my knowledge of the conservation program, I find that there are a number of questions which I would like to have answered, as well as terms and references in articles I read that need some clarification. There must be others among your readers equally uninformed and confused.

The idea I have in mind for the article is a sort of glossary, explaining, or perhaps merely defining, some of the major terms appearing regularly in the magazine. Most of these I can now define for myself, but others I'm still uncertain about. And the knowledge I do have has been acquired by a sort of hunt and peck system.

My reading over these last two years would have been far more meaningful if I had had a brief table to refer to from *time to time.*

POLLY R. LOWNDES
Evanston, Illinois

● Your magazine is deeply indebted to you for an instructive letter, Mrs. Lowndes. Our modern "specialists" occasionally fall into the comfortable assumption that the jargon of the confraternity is universally understood, and that those unable to follow it are probably either uninterested or dull. This is an assumption that needs to be punctured now and then. However, just such a glossary as you have outlined has been scheduled for the next special educational issue of *National Parks Magazine*, which we hope will appear in late fall or early winter.

—Editor.

ON THE BACK COVER: A part of the Grand Canyon of the Colorado River, in Grand Canyon National Park, where visitors may record, on a thin sheet of film, a large part of the earth's past history. Shown is Purple River Junction from the north rim, in a Union Pacific Railroad photograph.