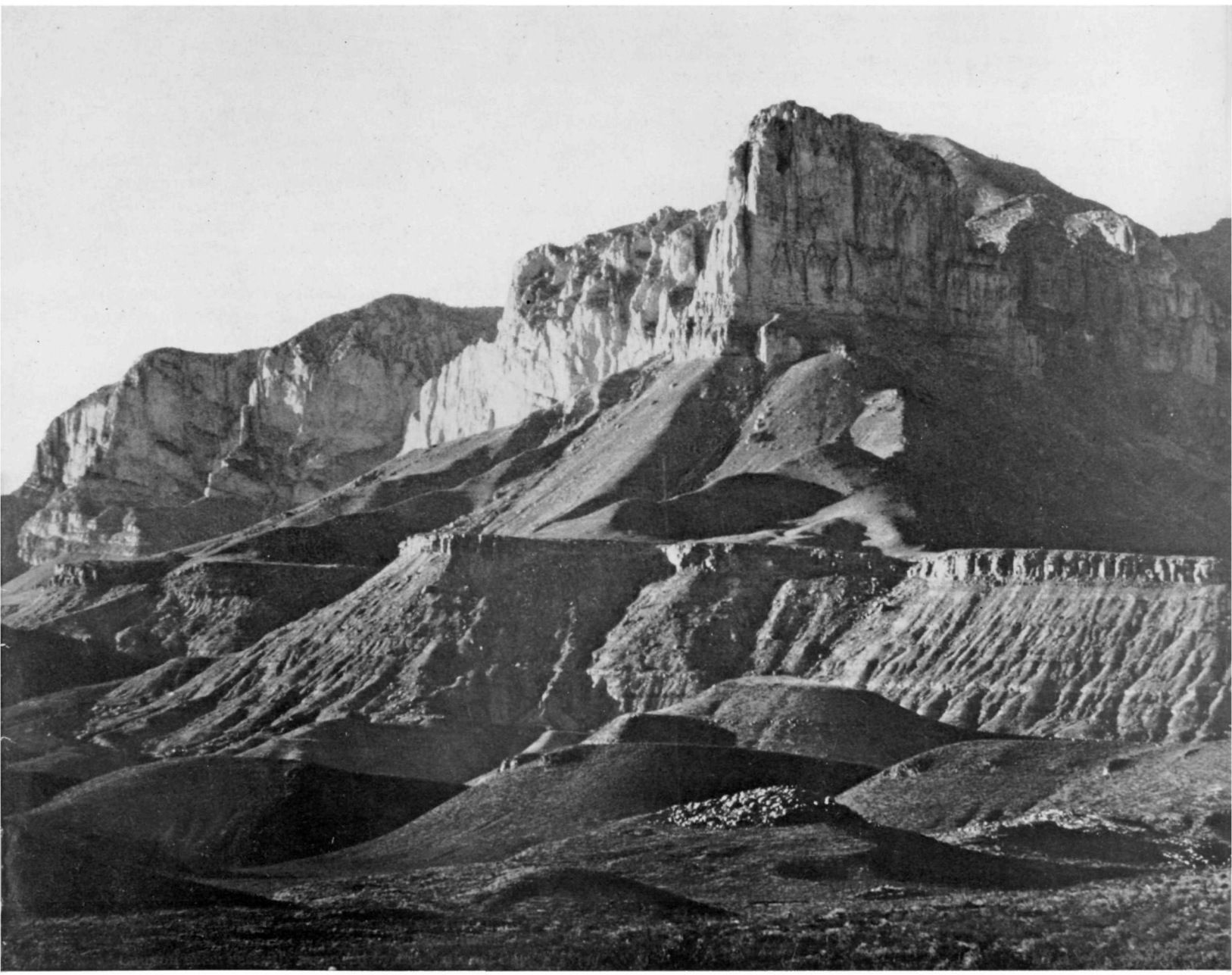
NATIONAL PARKS *Magazine*



El Capitan: landmark in the Guadalupe Range of West Texas. The peak is close by the McKittrick Canyon area, recently acquired by the National Park Service

March 1963

The Editorial Page

Peace . . . It's Wonderful!

CONGRATULATIONS, EVERYBODY! Sometimes the stormiest of skies may suddenly clear, drenching the world with golden sunshine.

A benevolence of this kind may have descended recently on all who have been concerned with the northern Yellowstone elk herd.

Just a brief six months ago it seemed unfortunately likely that the conservation movement would be torn asunder by the efforts of a few game commissioners to introduce hunting in the national parks as a management tool; the main bone of contention was the overgrown Yellowstone elk herd.

We are now happy to report, elsewhere in this issue, that a combination of measures appears to have solved this particular problem for this year; it may well point the way toward permanent solutions.

Montana and Wyoming have accepted elk trapped in the park; Montana has scheduled a winter hunting season; a number of animals have been taken for biological studies; further reduction by rangers has been suspended as unnecessary; the States have helped greatly by sharing expenses and providing personnel.

The really great thing is a change of attitude, and a seeming concensus on finding solutions within the framework of the century-old national park policy of wildlife population control within the national parks by park personnel.

We congratulate Interior Secretary Udall, Park Service Director Wirth, Superintendent Garrison, the game commissions of Montana and Wyoming, and the millions of Americans who travel from across the land to visit our national parks every year.

—*A.W.S.*

Last Chance for Rainbow

THE CONCLUSION of the District Court in the *Rainbow Bridge Case*, brought by this Association and others, that Interior Secretary Stewart L. Udall has a continuing obligation to protect Rainbow Bridge National Monument against invasion by the reservoir which will soon rise behind Glen Canyon Dam on the Colorado River, is still the law.

The case has been carried to the Circuit Court and the Supreme Court of the United States on motion for a preliminary mandatory injunction. The holding of the District Court, that the plantiffs, lacking private or special interest in the matter, are without technical standing to sue, has in effect been affirmed as the law of the case.

But the District Court has also said that while it would not undertake to control the discretion of the Secretary as to the method of protection, his legal obligation to protect the monument is clear.

The National Parks Association has called upon the Secretary to discharge this responsibility by keeping all the gates and valves of Glen Canyon Dam open until protection has been provided. Although it is our information that the right-bank diversion tunnel was closed on January 21, the low-level permanent outlets and the hydroelectric penstocks are still available, and if used will make it reasonably certain that the reservoir will not rise in any normal year above the upper site (Site B) which has been considered for protective works.

The only loss which will be occasioned by keeping these outlets open is a measure of water pressure (head) for the generation of power; this would seem to be a reasonable penalty for failure to provide protection thus far. As the District Court noted, such measures will not require actual financial expenditures.

There is just one man who can do what has to be done: the Secretary of the Interior. He has no choice any longer but to keep all the outlets open pending protection. He has a clear duty under the statute and the decision of the District Court to do so. His reputation as a conservationist and a responsible public official is at stake. We have called upon him twice since the complaint was filed—and now do so for a third time—to fulfill his obligations to the American people. —*A.W.S.*

✶ Readers who wish to add their voices to those of the Association and the other plaintiffs in the *Rainbow Bridge Case* may do so by writing to the Honorable Stewart L. Udall, Secretary of the Interior, Washington 25, D. C.

This photograph of a small portion of the northern Yellowstone elk herd was taken from a helicopter after a census of the herd during the winter of 1961. The locale is Hell Roaring Slopes in Yellowstone Park; the photograph is by courtesy of the National Park Service.

NATIONAL PARKS *Magazine*

OFFICIAL PUBLICATION OF THE NATIONAL PARKS ASSOCIATION

VOLUME 37 MARCH 1963 NUMBER 186

Front Cover Photograph by Frederick R. Gehlbach

El Capitan, in northern Culberson County, Texas is close by the recent Park Service McKittrick Canyon acquisition, near Carlsbad Caverns National Park just over the State line in New Mexico; many conservationists and scientists have expressed the hope that an additional area of some 70,000 acres of this botanically and scenically remarkable terrain—including El Capitan—may some day come under protection of the National Park Service, perhaps as a national monument.

The Association and the Magazine

The National Parks Association is a completely independent, private, non-profit, public-service organization, educational and scientific in character, with over 26,000 members throughout the United States and abroad. It was established in 1919 by Stephen T. Mather, the first Director of the National Park Service. It publishes the monthly *National Parks Magazine*, received by all members.

The responsibilities of the Association relate primarily to the protection of the great national parks and monuments of America, in which it endeavors to cooperate with the Service, while functioning also as a constructive critic; and secondarily to the protection and restoration of the natural environment generally.

Dues are $5 annual, $8 supporting, $15 sustaining, $25 contributing, $150 life with no further dues, and $1000 patron with no further dues. Contributions and bequests are also needed. Dues in excess of $5 and contributions are deductible from federal taxable income, and bequests are deductible for federal estate tax purposes. As an organization receiving such gifts, the Association is precluded by law and regulations from advocating or opposing legislation to any substantial extent; insofar as our authors may touch on legislation, they write as individuals.

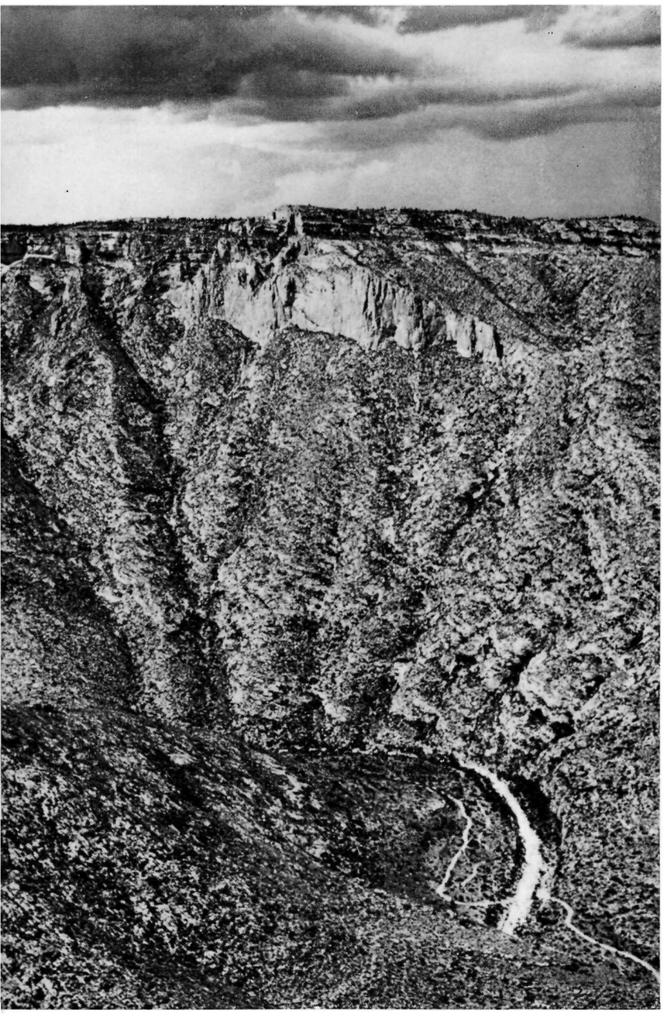
Membership in the Association carries with it subscription to *National Parks Magazine*. School and library subscriptions are $4 a year; individual copies 50 cents. Letters and contributed manuscripts and photographs should be addressed to the Editor at Association headquarters. The Association is not responsible for loss or injury to manuscripts and photographs in transit. Return postage should accompany contributions. Title Registered U.S. Patent Office. Indexed in the *Reader's Guide to Periodical Literature*. Printed in the U.S.A. Second-class postage paid at Washington, D. C.

NATIONAL PARKS ASSOCIATION, 1300 NEW HAMPSHIRE AVENUE, N. W., WASHINGTON 6, D. C.

A tract of land recently acquired by the National Park Service in the Guadalupe Mountains of Texas may serve as a scientific study area.

A Biological Visit to McKittrick Canyon

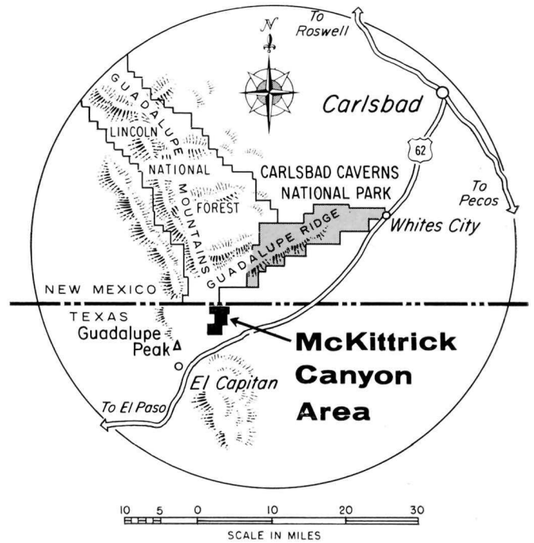
From the air, 1800 feet of steep, rugged canyon walls dwarf the broad white stream-bed and narrower access road of McKittrick Canyon near its mouth. Plants grow closer together along the stream and in slopes where runoff from rainfall is concentrated.



By Frederick R. Gehlbach

Photographs by the Author

Map by courtesy of the National Park Service



McKittrick Canyon, not far south of Carlsbad Caverns National Park, lies in the Texas portion of the Guadalupe Mountains just over the New Mexico State line. This recent National Park Service acquisition is about twenty-five miles southwest of the famous Caverns as the eagle flies, and encompasses an area of 5632 acres. It will be administered by the personnel of Carlsbad Caverns Park, at least for the time being. To get there, an amateur or professional naturalist must first obtain the park superintendent's permission and then follow the highway southward through flat Chihuahuan desert. The relatively barren landscape appears to stretch endlessly to the eastern horizon; but if one looks for detail, he will find it in a variety of grasses, shrubs, and lizards. On the west, a succession of larger and deeper canyons perforates the high Guadalupe ridge—Walnut Canyon, gateway to the Caverns; Rattlesnake, Slaughter, and Big Canyons. Finally, amid hills covered with thorny acacias and javelina bush, the traveler may meet Pete Sanchez, resident McKittrick ranger, at the highway gate.

An old paved road lined with snakeweed—an indicator of disturbed conditions—follows Bear Canyon to the ranger station. This structure and all other park property in McKittrick Canyon used to be the summer home of Wallace E. Pratt, who generously donated it to the National Park Service in 1959. Built of thin-bedded native limestone, the ranger station is situated at the base of the Guadalupe Mountains in desert-grassland dotted with scrub oaks and one-seed junipers. Here my wife, Nancy, and I spent many enjoyable days studying the McKittrick biota. We also camped inside the rugged Canyon, which may be reached by way of about seven additional miles of dirt road.

For several summers we traveled by jeep and foot throughout Carlsbad Caverns National Park surveying its biological communities. We identified plants and vertebrate animals, counted them, and measured their spatial relationships. Walnut and McKittrick Canyons were singled out for special intensive study. By paying particular attention to the nature of site conditions such as soils, rocky outcrops, elevations and whether our study plots were located in the bottom, on the sides, or outside of canyons, we slowly assembled a composite picture of the biological landscape.

Plant Life As Forage

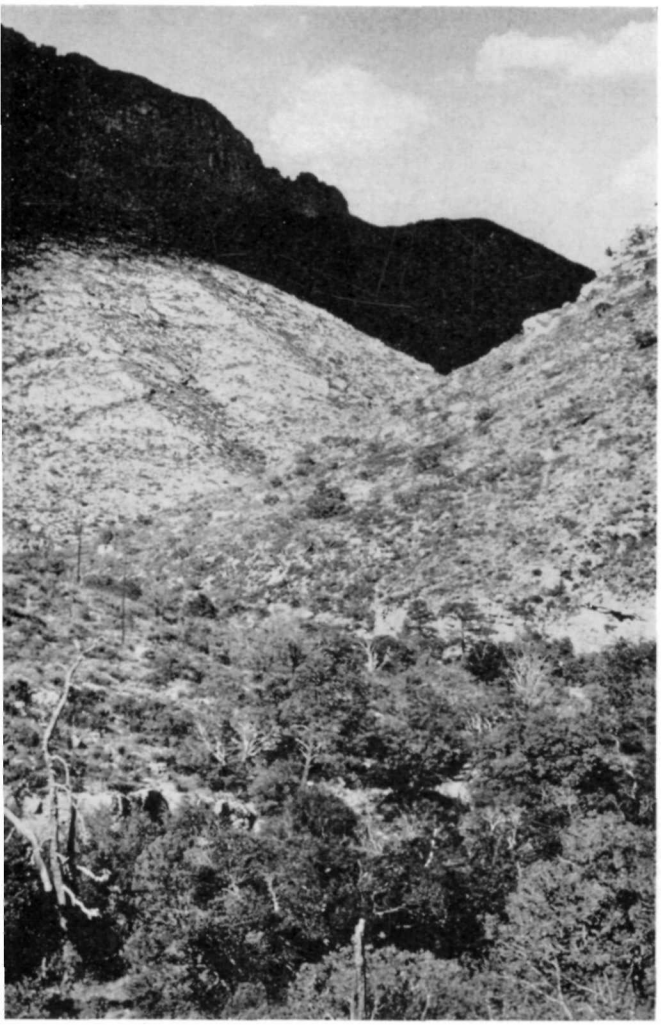
During the summer of 1962 Natt Dodge, southwestern regional naturalist of the National Park Service, joined us for a brief visit to McKittrick Canyon. At the ranger station we showed him some effects of cattle, mule deer, and smaller mammals on plant cover. Differences in the kinds of species present and their relative abundance in two adjacent study plots—one fenced, the other open range—were striking. Fluff-grass, mariola, croton, and snakeweed—unpalatable species—thrived outside the fence, but were absent from our protected plot. Favored grasses like tridens, gramas, and bull muhly were more abundant inside the fence. Oaks and dalea were heavily browsed outside.

The day of Natt's visit was cloudy, but the summer rainy season had produced a profusion of wildflowers. Greenthread, goldeneye, senna, and globemallow were among plants in bloom along the dirt road into McKittrick. A desert cottontail scooted in front of the jeep as we entered the Canyon mouth.

With its steep sides and great depth—almost 2000 feet in many places—McKittrick Canyon is an exceptional natural laboratory in which to study micro-environmental problems. Slope exposure was one factor that we were anxious to point out to Natt, Ken Baker, park naturalist, and Pete Sanchez, who accompanied us. We compared a north-facing slope of gray oak, alligator juniper, and Texas madrone with the dryer-looking vegetation of a nearby south-facing slope. Sotol, mimosa, and agave dominated the dryer, more sparsely vegetated slope. Temperatures on many such slopes in McKittrick are apparently too high for tree growth, since they receive more sunlight per unit area than north-facing slopes. Furthermore, the sparser vegetation allows greater runoff from rainfall, which in turn carries away the ground litter; so that less humus is present in the shallow soil. The two sites were less than 500 yards apart, so the effect of relative exposure was quite dramatic at that particular spot.

The plants of both slopes occurred around us on the Canyon floor, but in different sizes and quantities. Sotol, the large grassy shrub with tooth-edged leaves, was not common. Mimosa was definitely more abundant and larger than on adjacent slopes. Here, as throughout the Guadalupe Mountains, there seems to be considerable overlap between different natural communities. Ecologists call such vegetation a "continuum." The easiest way to explain what we see is to first describe the range of each individual species; then our community may be defined as the place of greatest overlap among certain common species. Very often these places exhibit peculiar soil formation or an abundance or lack of water, and the more abrupt differences between communities can be traced to equally abrupt differences in site conditions.

Near the clear, flowing stream among walnuts, velvet ash, and desert willow Natt spotted one of McKittrick's finest treasures—the huge faxon yucca. This species occurs nowhere else in any unit of the national park system. Individual plants, equally as large as the giant dagger yucca of Big Bend National Park, are scattered about the Canyon sides and bottom. Faxon yuc-



A cloud shadow covers McKittrick's north rim (left) leaving the sotol slope below in bright sunlight. Gray oaks, madrones, and alligator junipers cover the north-facing slope in the foreground. The photograph above shows oneseed and alligator junipers scattered over a flat of threeawn and hairy grama grasses in the mouth of McKittrick Canyon at an elevation of 5200 feet. The background slope faces south and supports desert-like vegetation with only a few trees on the lower half.

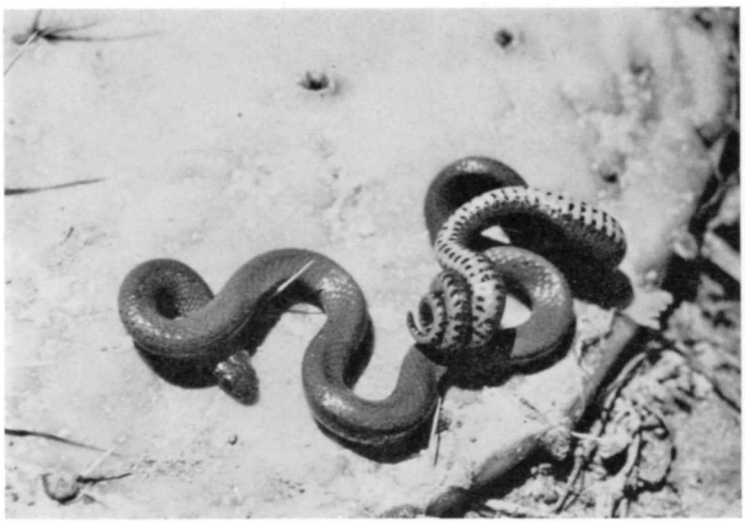
cas are reported to reach heights of forty feet farther south, but apparently do not exceed eighteen feet here.

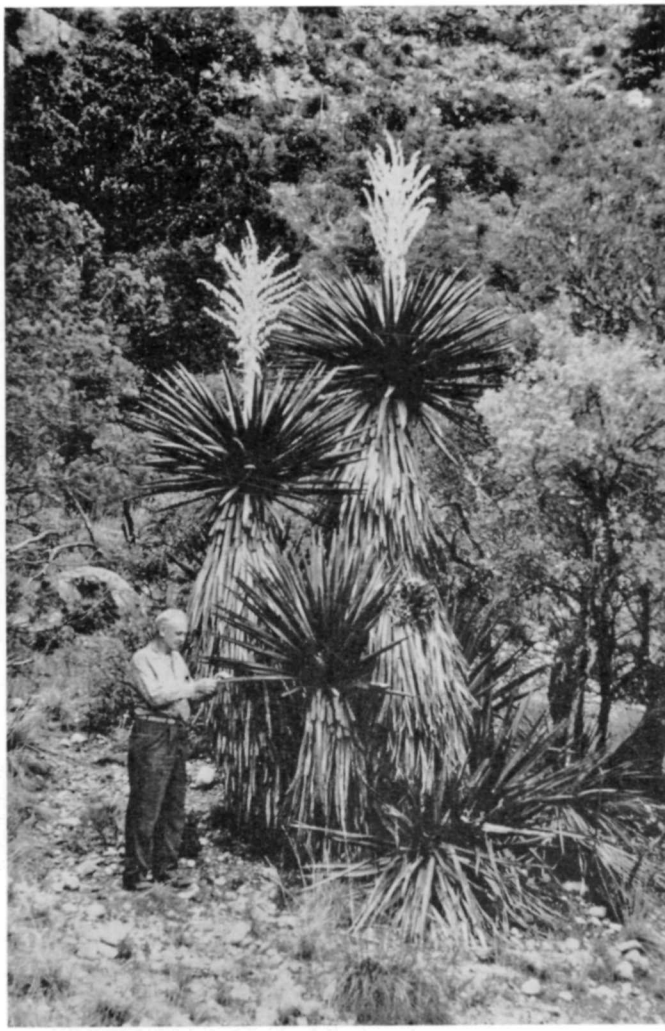
Resuming our trip up the Canyon we soon found ourselves in rather dense woodland. Bigtooth maple, Rocky Mountain and alligator juniper, chinquapin and gray oak, madrone, and southwestern chokecherry form a relatively moist "oasis" where deep soil and abundant ground water are available near the junction of the North and South Forks. This woodland is quite cosmopolitan. Chinquapin oak is a large tree of the eastern United States which extends westward to the Guadalupe Mountains. Bigtooth maple and Rocky Mountain juniper range principally to the north, and the other four species are distinctly Mexican in character. In fact, Texas madrone reaches its northernmost limits in the Guadalupes. Gradually it started to rain, and streaks of water on the madrone's reddish bark made the tree appear to be bleeding.

Wet weather did not affect blue-gray gnatcatchers and gray vireos hunting insects in the trees; but we humans were less hardy. We quickly retreated to the porch of the stone cabin that Wallace Pratt had built in this McKittrick "oasis." Ponderosa pines are abundant around the cabin, and Pete Sanchez said that the trip up the north fork would pass at least one Douglas fir, in addition to many ponderosas.

By the time we had finished lunch it had stopped raining, so we decided to go in search of a ringneck snake specimen, to show Natt the intriguing defense display of the ringnecked snake. This small, harmless woodland inhabitant can usually be discovered under fallen logs and other debris on the Canyon floor. Ken discovered the first one. He held a wriggling specimen that was coiling its tail in spiral fashion to show its "predator" the bright red underside. Ringneck snakes are dull greenish-gray above with a yellow neck-ring and spotted yellow belly which becomes coral-red on the tail. When disturbed they hide their heads and display the red portion of their tails. We think this may be intended to

Mr. Gehlbach, formerly an Instructor at Cornell University and later a Teaching Fellow in the University of Michigan's Department of Conservation, has recently received an appointment as assistant professor of biology at Baylor University, Waco, Texas.





In the photograph above, a ringneck snake, hiding its head, coils its tail in a tight spiral to show the bright-red underside. This ten-inch specimen rests on the edge of a prickly-pear cactus pad. At right, Natt N. Dodge, regional naturalist for the National Park Service's Southwestern Region, examines the fleshy, bayonet-like leaves of the faxon yucca. Dead leaves cover the trunks of these plants, the tallest of which is about 15 feet. Dried flower stalks are all that is left from the April blooming period.

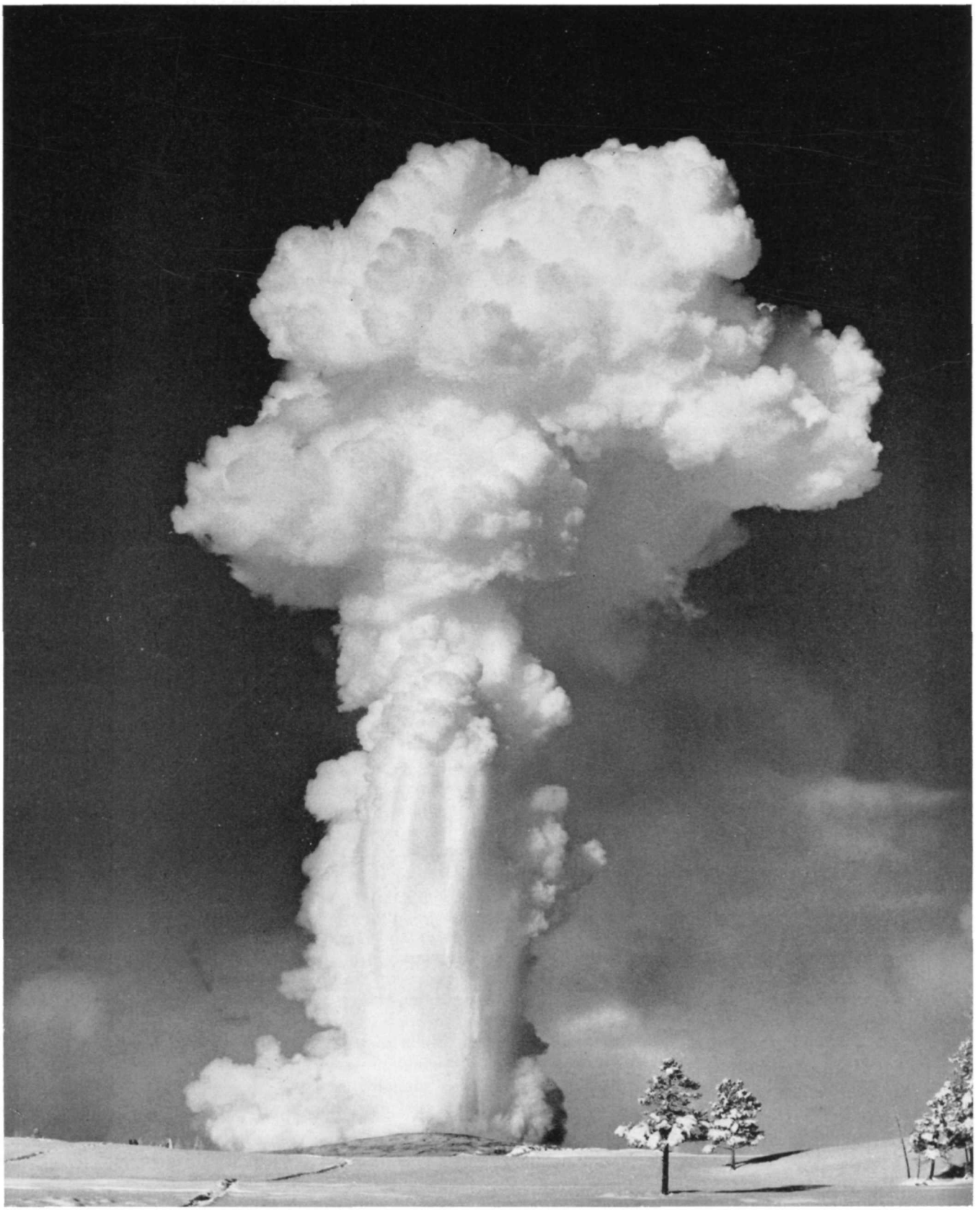
scare away their enemies, or at least to call attention to the dispensable tail rather than the more vulnerable head. Then we noticed that the hour was late.

On our way down the Canyon, Nancy pointed to the place where drivers of the historic Butterfield Stage used to quarter their horses. A now-collapsed dug-out may have served as temporary living quarters. To Nancy and me as ecologists the spot is still quite obvious, because mesquite decorates the old stream terrace behind the dug-out. This is the only place where mesquite grows inside McKittrick Canyon, and it is not widely distributed or common elsewhere in the Guadalupes. Mesquite seeds must have been introduced in feed for the horses, or perhaps by the horses directly as a result of grazing in lowlands to the east of the mountains.

That evening we discussed the impact of man on McKittrick Canyon. From the days of its earliest inhabitants man has been an important factor in shaping McKittrick's environment. Man is certainly not a recent invader, for we saw many Apache cooking pits near the stone cabin. Apaches may have set some of the Canyon fires which are recorded by charcoal fragments in old streambed deposits. Also, we had noticed historic and present-day effects of introduced grazing animals, and some relatively recent results of protecting deer.

American Indians once occupied or traveled over most of the land now in the national park system. If they did nothing else, they trampled plants underfoot and compacted the soil so that certain species could no longer grow in their trails. We had done this in McKittrick ourselves—so have deer and horses. In fact, horses were native to the McKittrick region until approximately 7500 years ago, when they became extinct along with the camel, shrub-ox, and ancient bison. Thus the relationship of human influence to naturalness seems to have little pertinence here, for it is difficult to say that certain effects of man, either direct or indirect, really differ from those of other animals. Perhaps McKittrick Canyon should be designated as a limited access or scientific research area to encourage study of this problem. ■

(Editorial note: A bill was recently introduced into Congress providing for a study by the Secretary of the Interior of fifty square miles of land in Culberson and Hudspeth Counties, Texas—including El Capitan and Guadalupe Peak—as a possible national preservation.)



Old Faithful's Winter Plume

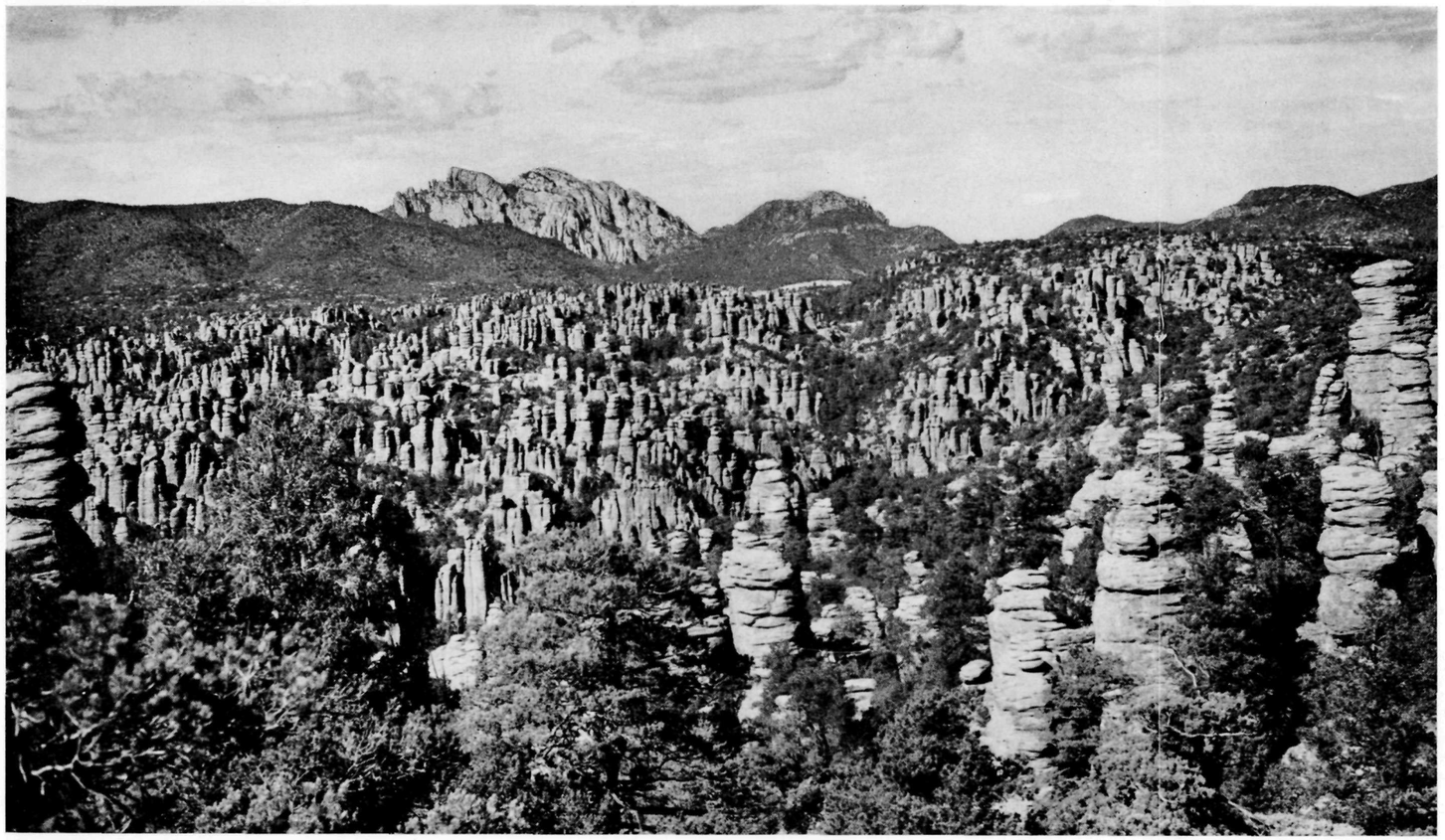
Photograph and text by Darrell L. Coe

Park Ranger, Yellowstone National Park

THE PHOTOGRAPH ON THE opposite page, of Old Faithful Geyser in Yellowstone National Park, Wyoming, was taken at approximately eight o'clock on the morning of January 22, 1962. The temperature at the time the picture was taken was —45° F.

Eruptions of Old Faithful take on an entirely different appearance when the temperature falls below about —20°. The steam cloud which ordinarily diffuses into the surrounding atmosphere in short order remains suspended over the water column for several seconds, and the sight is one difficult to describe by the written word.

Unfortunately these —20° eruptions occur only a few times each winter (during the daylight hours) and are rarely observed except by the two park rangers and their families stationed there. Park roads leading to Old Faithful are blocked by snow from November until May. Park visitors who do make their way into the area via over-snow vehicle almost always arrive later in the day, when the temperature has "warmed up" to zero or so.



A Weldon F. Heald photograph

BEHIND THE SCENE AT CHIRICAHUA

By Natt N. Dodge

Chiricahua National Monument is a seventeen-square-mile area of strange and colorful rock sculpture in southeastern Arizona and is of exceptional floral, faunal, and historical interest. The photograph at the left looks across a portion of the monument to the great recumbent profile of Cochise Head which dominates the skyline beyond the northeastern corner of the preservation.

WHENEVER ANYBODY MENTIONS Chiricahua National Monument, I am reminded of an experience in that preservation which might be called an "episode of the emergency darkroom."

Because of the rugged terrain, the National Park Service has built only one road within Chiricahua—pronounced about as "cheery-cow-ah." It follows scenic, winding Bonita Canyon, climbs gradually to the crest of the Chiricahua Mountains, and tops out at view-commanding Massai Point, near the terminus of three trails that penetrate and make accessible a small but spectacular wilderness, Arizona's "Wonderland of Rocks."

Longest of the three is Sara Deming Trail which, joining the Rhyolite Canyon Trail, takes the hiker from Echo Park turnout, near Massai Point, through the fantastic Heart-of-Rocks area down to monument headquarters—a distance of eight miles. One bright, brisk summer morning my son, Griff, and I undertook the pleasant task of photographing in color as many as possible of the startling rock figures which occur at intervals along this scenic trail.

Although we had only two twenty-exposure rolls of 35mm color film, we felt that the resulting forty pictures would provide a fairly complete record of the many odd formations we would encounter during the hike. All went well until we were deep into the Heart-of-Rocks section and had photographed such striking features there as the Old Maid, the Rooster, Punch-and-Judy, and Duck-on-a-Rock. The first roll of film was finished. As I started to rewind, the film pulled away from the take-up spool, its end remaining loose within the camera.

It took me several seconds to realize what had happened and to grasp the gravity of the situation. Unless I could find a cave or other dark place in which to open the camera, roll up the film by hand, and place it in its light-proof container, photography for the day was finished. Surely some way could be found to remove the film safely so that I could reload for the rest of the trip.

Although a search of the vicinity revealed several dark corners and gloomy crevices among the cliffs and boulders, it was obvious that the hard rhyolite rock of the vicinity contained no caves. As a last resort we decided to try a small cleft in the deep shade of a pocket among the rocks. By inserting the camera into the cleft while Griff held his jacket over the opening, I might be able to remove the camera-back and safely roll up the film. The problem was to work with my hands inside the cleft, at the same time preventing light from seeping in around my arms.

Then I had a happy thought. By taking off my trousers, wrapping the camera in their upper part, and thrusting the "package" into the dark cleft, I could reach in through the trouser-legs with some assurance that no light would enter.

I put the clumsy project into operation, and leaned awkwardly among the rocks—feeling practically naked—my hands fumbling with the film and Griff holding his jacket over the emergency darkroom. Then we heard voices, and the click of hooves among the rocks. A party of ladies on horseback swung around a turn in the trail. With gasps of surprised embarrassment and averted eyes the horseback party filed silently past.

Somewhat shaken by the experience, I managed to get the film rolled up and into its container, and hastened to get my arms out of the trousers and my legs into them. This was a type of exposure not ordinarily associated with photography.

CHIRICAHUA'S fastnesses are so remote and peaceful that the hiker feels quite alone; but many people use its trails, which are popular the year around. Located in the extreme southeastern corner of Arizona—only forty-five airline miles from the Mexican border—the monument has a delightfully mild winter climate. Its elevation, ranging from 5160 to 7308 feet above sea level, also places it well above the summer heat of the surrounding desert.

For those who prefer to ride the trails, saddle horses may be obtained at Faraway Ranch near the monument entrance, and overnight accommodations are available at Silver Spur Ranch, a short distance from headquarters. The half-dozen trails in the monument reveal a fairyland of rock formations—figures in all stages of completion, crowding nature's studio of sculpture. Photographers always have a field day with the wealth of colorful material at every hand.

Photograph courtesy National Park Service

But it was not wholly the scenery and climate—important and pleasant as they are—that caused President Coolidge, in 1924, to proclaim seventeen square miles of rugged terrain on the western flank of the Chiricahua Mountains as Chiricahua National Monument. Scientists, as laymen, were intrigued with the grotesque rock figures; but they were also deeply impressed with the geological record which over the millennia has produced these eye-catching formations.

Geologists are convinced that, some twenty-five millions of years ago, a series of great eruptions burst out in this region. Glowing clouds of gases carrying white-hot ashes and sand poured out from a volcanic vent to settle, blanket upon blanket, over the scorched earth, later to be welded by the pressure of succeeding deposits into the volcanic rock called tuff.

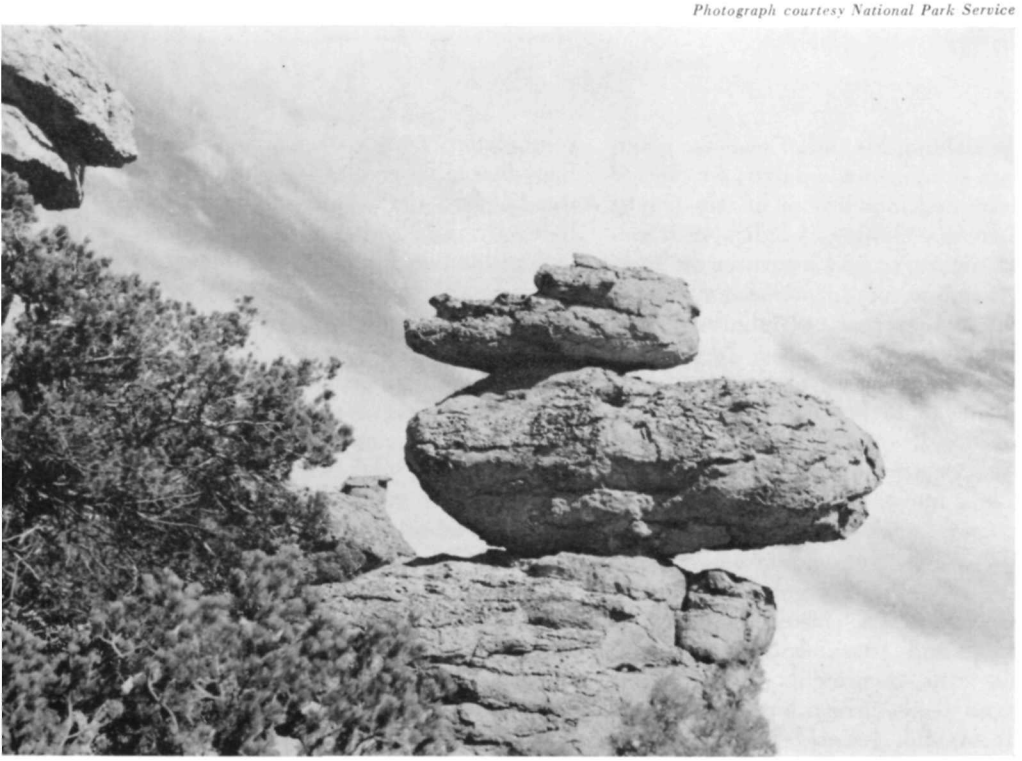
This activity continued over a very long period. Earlier eruptions of the glowing-cloud type were followed, it is thought, by a series of lava floods that spread out over the layers of tuff. As the lava layers slowly cooled, vertical shrinkage cracks developed within them.

Gradually the eruptions decreased in violence and in volume, but before they had entirely ceased, terrestrial movements slowly lifted and tilted immense, lava-capped blocks of earth-surface. Thus, over the course of time, the Chiricahua Mountains were formed.

But the forces of erosion were at work even as the mountains were rising. Rain beat upon the rocks, ice formed in the cracks to pry away flakes and slabs. Running water, tooled with gravel, scratched and abraded the rock surfaces. Over the course of time some of the upper layers were worn away. Then erosive forces commenced to bite deeply along the shrinkage cracks in the lower layers. The once-horizontal but now-tilted contact zones between rock layers were especially susceptible to the action of erosion.

Chiricahua Monument will provide a "field day" for the camera enthusiast with its grotesque and colorful rock formations. Two such rock sculptures, the handiwork of eons of erosional activity, are (above) the Pinnacle Balanced Rock, on the Sara Deming Canyon Trail, and the Duck-on-a-Rock (below) in the Heart-of-Rocks section, reachable by way of the same trail.

Photograph courtesy National Park Service



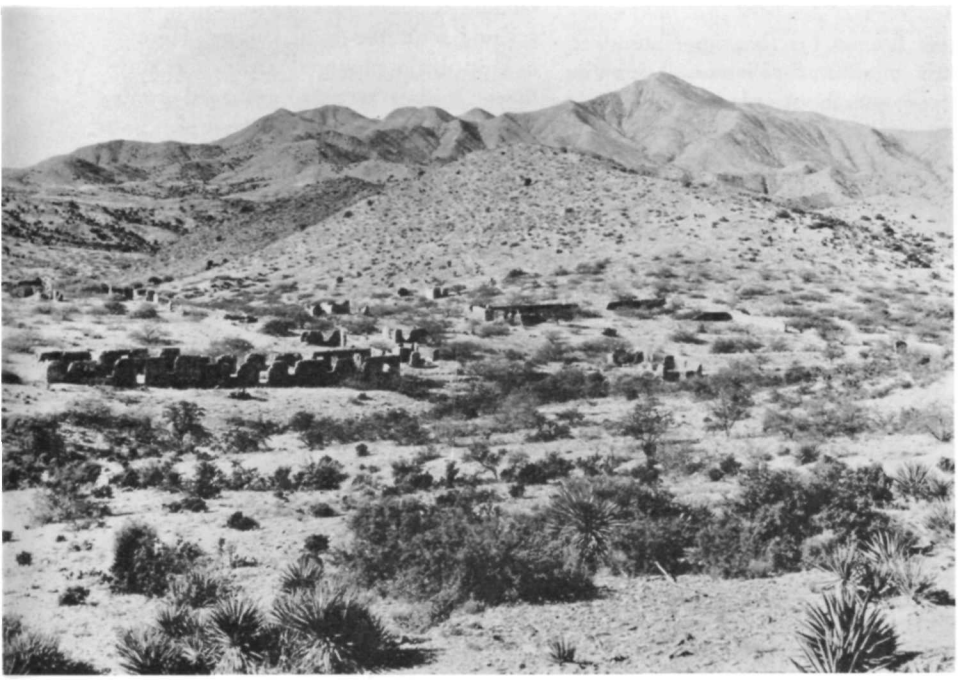
Time, the Great Leveller

As the century hand swept again and again around the face of the geologic time-clock, cracks were enlarged to fissures; fissures were widened to gullies; some of the gullies grew into canyons. A pattern of drainage channels developed. Under the influence of weathering, rock particles were reduced to soil. Plants gained a foothold and gradually covered the gentler slopes with a blanket of vegetation.

The persistent work of erosion continued. Masses of rock, undercut along zones of weakness between ancient lava flows, toppled from cliffs and crashed into the canyons. Vertical cracks, enlarged by erosion, left standing spires, towers, pinnacles, turrets, and slender columns. The abrasive action of windblown sand and the work of other elements rounded rough edges, sculpturing them into forms which the imagination of man has likened to the shapes of beasts, birds, and storybook characters. Erosion is no less active now, and during time to come will continue its work of undercutting, chiseling and scouring. Present figures will gradually wear away, or fall of their own weight, while the ever-active fingers of erosion will open new cracks, enlarge more crevices, and carve new forms and figures to intrigue

future hikers and challenge new generations of photographers.

With the formation of soil and the establishment of vegetation among the rocks and on lesser slopes, many kinds of plants found suitable conditions within the area. Seeds carried by birds or brought in by the wind—in some cases from distances of hundreds of miles—gained a foothold. On the dry, hot exposures of south-facing slopes such desert-type plants as the yucca, Palmer agave, prickly pear and cholla cactuses, and catclaw acacia became established.



Photograph courtesy National Park Service

The ruins of Fort Bowie at the northern end of the Chiricahua Mountains, north of the monument, remind the visitor of the military outpost that was established in 1862 to protect travelers of the Butterfield Stage Route from Apache attack.

Cooler slopes, where the soil retains moisture, provide suitable conditions for pigmy forests of Chiricahuan pine, pinyon pine, and scrub oaks. Shaded canyon bottoms support dense stands of trees, including the Arizona cypress, alligator juniper, chokecherry, Apache pine, and the white-barked sycamore. Exposed ridges at higher elevations are thickly covered with a chaparral composed of pointleaf manzanita, silverleaf oak, skunkbush, buckthorn, and a number of other shrubs. On north-facing slopes of the mountaintops, small stands of Douglas fir and quaking aspen are indicators of cool, moist conditions.

The diversity of elevation, exposure, slope and moisture in the Chiricahua Mountains provides a large number of biological habitats, including microclimates and ecological niches. Little wonder that more than 500 species of plants have been identified within the monument! Among these are fourteen ferns; seven oaks; and nine conifers, five of which are pines. One botanist has expressed the opinion that Chiricahua National Monument contains a greater range of plant life than any other area of equal size in the nation.

Because the Chiricahua Mountains are relatively isolated, being surrounded by wide expanses of semi-desert grasslands, a number of plants found in other Southwestern mountain ranges have not made their way to the Chiricahuas, and are conspicuous by their absence. However, certain plants are present which have, through thousands of years of evolutionary change, developed into forms not found elsewhere. These are known to biologists as products of isolation; the situation may obtain among animals as well as plants. Two examples among mammals, of especial scientific interest, are the Chiricahua red squirrel and the Chiricahua green rock rattlesnake.

Adding to the complexity of animal life in the Chiricahuas are species which occasionally "invade" the mountains from the highlands of Mexico. Among these are the coppery-tailed trogon, the thick-billed parrot, and the Mexican jaguar. Another invader—one which apparently has found suitable conditions and seems likely to stay—is the coatimundi, a long-tailed relative of the raccoon.

Song in the Canyons

Among the larger animals of Chiricahua National Monument are the Coues whitetail deer, the wild turkey, the peccary or javelina, and an occasional black bear. Hikers are often halted by bright flashes of color and bursts of song amid the greenery of a canyon bottom. Orioles, red-faced warblers, painted redstarts, and vermilion flycatchers are among the colorful songsters.

For the amateur botanist or enthusiastic photographer scanning the trailside for a rare flower or an artistic composition, it is hard to believe that less than a century ago these same rock-ribbed canyons echoed to the rifle-fire and the taunting cries of Apache warriors. Confident of their ability to outwit and outmaneuver any white man's cavalry detachment among the labyrinth of canyons in their ancestral hunting grounds, Apaches under the leadership of the elusive Geronimo played deadly hide-and-seek with punitive forces dispatched from nearby Fort Bowie, for twenty-four years the focal point of military operations against the Chiricahua Apaches. Last survivor of Geronimo's band, which was captured and deported to Florida in 1886, "Bigfoot" Massai escaped and made his way back to the Chiricahuas. Several years later he was tracked to the point in the monument which now bears his name. Another famous Apache, the wise and wily Chief Cochise, is immortalized by the massive outcrop of rock called Cochise Head, which dominates the skyline beyond the northeastern corner of the monument.

Rocks, flowers, trees, wildlife, Indians, history; all play a part in the fascinating stories that lie quietly "behind the scenery" in Chiricahua National Monument. So that the visitor may have the opportunity to learn of these things, the National Park Service has provided the area with a number of interpretive devices. At monument headquarters a small exhibit room has on display interpretive and informational publications, and briefly outlines the scientific reasons which make the monument of national significance.

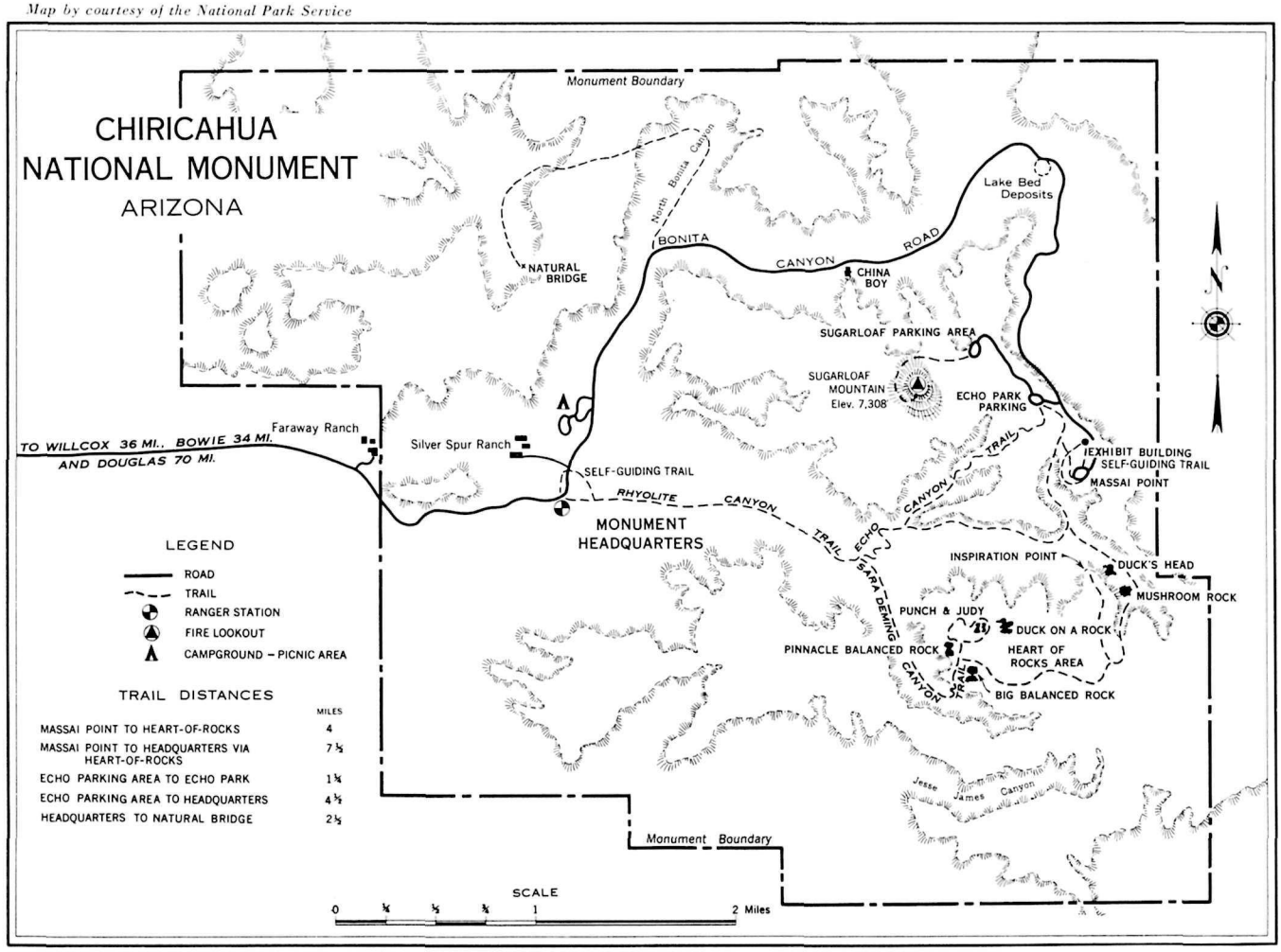
On a knoll overlooking Massai Point, an orientation building presents a series of window-ledge exhibits that tells the geological story of the monument. At the foot of the steps leading to this building is a registration desk which marks the start of a self-guiding nature trail. The visitor may obtain a guide booklet at this desk which, as he follows the well-maintained trail, will introduce him to the common plants and trees that are at home in Chiricahua Monument.

A similar self-guiding route—the Foothill Forest Nature Trail—starts at monument headquarters and acquaints the visitor with the vegetation of the lower elevations. Also near monument headquarters is a small arena with home-made benches where campers may gather on summer evenings to hear a park ranger explain the monument's story with the aid of projector and color slides.

The National Park Service's ten-year development program called *Mission 66* has recently provided comfortable houses for the superintendent and his small staff. Plans call for enlargement of the headquarters building to include a visitor center, extension of the present campground, and development of a modern campfire arena with comfortable seats and up-to-date audio-visual equipment. This expansion is deemed necessary to meet the pressure of an ever-growing visitation; there were 8179 visitors in 1939; 16,063 in 1949; 41,800 in 1959 and 43,400 in 1961.

The present road to Massai Point is considered adequate to care for anticipated traffic increases for years to come, and the splendid trail system needs only annual maintenance to provide access to the wilderness of spectacular rock formations and natural communities of native plants and animals. Here Americans have a chance to hike and climb, and make friends with the wild things. Here is a land little changed from the days when Indian women gathered roots, herbs, pinyon nuts, and acorns; and the voice of the coyote was the curfew of the hills. ■

Map by courtesy of the National Park Service



Your National Parks Association at Work

Katmai Tour Vehicles Will Stay on Road

It was recently reported to the Association that the concessioner at Katmai National Monument, at the base of Alaska's Katmai Peninsula, has been agitating for permission to use large-wheeled cross-country vehicles for sightseeing, beginning at the end of the present jeep road and going around in the Valley of the Ten Thousand Smokes and the open tundra above it. Such use of vehicles, it was stated, would leave indelible scars in many places in the terrain peculiar to Katmai.

Upon inquiry to the National Park Service, the Association has learned that plans for the 1963 travel season contemplate the inauguration of limited transportation service over the existing Katmai jeep trail, but that concessioner sightseeing vehicles would be limited to the trail and would go no farther than the Valley of Ten Thousand Smokes overlook turnaround. The Service has assured the Association that driving of such vehicles over the open tundra into the valley itself would not be permitted.

Outdoor Recreation Hearings

During February, the Senate Committee on Interior and Insular Affairs held hearings on *S. 20*, the organic act for the Bureau of Outdoor Recreation, authorizing the Secretary of the Interior to implement many of the recommendations of the Outdoor Recreation Resources Review Commission through the newly created Bureau of Outdoor Recreation. Upon invitation, NPA's Executive Secretary Anthony Wayne Smith told the committee that, in his opinion, the proposed measure seemed to be well suited to implementation of the planning, research, cooperative and educational activities which will be necessary at Federal and State levels if adequate provision is to be made for the nation's ever-increasing outdoor recreational needs.

Is the Cataloochee Campground Road Safe?

The National Parks Association is still in disagreement with the Park Service over the need for a new access road into the Cataloochee campground area of Great Smoky Mountains National Park. This difference has been aired in the January and February, 1963, issues of the Magazine.

The Association contends that a blacktopped road of forty-foot width from gutter to gutter hardly fits the description of "quite moderate" for a campground access road; the Service contends that the standards to be used are necessary to "provide an adequately safe road for the use intended."

In the accompanying photograph, an Association member seems to have little trouble, and no apparent risk, in hauling his trailer from the Cataloochee campground over the present access road, which is gravel-topped and winding.

An Association member photographs his car and trailer at the top of Cove Creek Gap on his way out of the Cataloochee campground in Great Smoky Mountains Park. Park Service claims that a new entrance road is needed here, of higher standards for "adequate safety."

Conservation Education Center Commences Spring Session

The 1963 spring session of the National Parks Association's Conservation Education Center in Washington, D.C., opened on February 12 with an illustrated lecture by Mr. Daniel B. Beard, Assistant Director, Public Affairs, National Park Service. Mr. Beard linked folklore and legend with history and economics in his presentation entitled *Folk Song Country Around Washington.*

A film presentation on March 5 will feature a pictorial plea to save the Indiana Dunes country, and *This Sculptured Earth*, a new film produced by the National Park Service, which highlights the canyonlands of southeastern Utah.

A discussion of the economic revitalization of the small towns in the Potomac River basin through development of educational and cultural resources will be the theme of the April 3 event. Members of the panel will be Dr. Paul Goodman, Columbia University, author of *Community of Scholars;* Dr. Richard Weigle, President of St. John's College, Annapolis, Maryland, and Dr. William K. Seldon, Executive Secretary, National Commission on Accrediting, Washington.

A two-day field trip is scheduled for the weekend of April 27-28. Participants will visit Seneca, Mouth of Monocacy, Fort Frederick, Four Locks on the C & O Canal, and historic Hager House, Hagerstown, Maryland, on a *Spring in the Valley* tour. The second day will feature visits to dam sites selected by the Corps of Engineers along Pennsylvania tributaries to the Potomac; conferences with local people whose farms might be submerged; and discussion of alternative plans which would permit the Potomac and the C & O Canal to retain their historic beauty.

A final film program on May 7 will present *In the Beginning* and *River Wilderness Trail.*

In May two field trips will be run in cooperation with the Board of Education of the District of Columbia. Three junior high school classes will be taken to Prince William Forest Park, near Quantico, Virginia, where a botanist, a geologist and a historian associated with NPA will lead the group in an experiment in teaching ecology to students in an outdoor laboratory.

All events, except field trips, are held in the auditorium of the Smithsonian Natural History Building at Tenth Street and Constitution Avenue, and are open to the public without charge. Field trip fees cover the actual cost of operation.

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News Briefs from the Conservation World

Northern Yellowstone Elk Reduction Goal Achieved

On January 31, Secretary of the Interior Stewart L. Udall announced that park rangers have stopped shooting elk in Yellowstone National Park, except for laboratory purposes, because hunting in Montana outside the park and the acceptance of live transplants by that State and Wyoming promise a quick end to this season's elk overpopulation program.

The Secretary said that the action followed Yellowstone Superintendent Lemuel A. Garrison's report that more than 1300 elk have been removed from the park's northern herd. Secretary Udall praised the two States for their willingness to cooperate in assisting in the trapping and transplanting program. Montana and Wyoming have accepted about 560 live elk transplanted from the traps in the park since the reduction program started January 8, the Secretary indicated.

Studies over the years by wildlife biologists show that Yellowstone's northern range can accommodate approximately 5000 elk in the winter, in addition to other species. A census this year revealed that the herd was up to about 6800 head, so that about 1800 elk would have to be removed to protect the range from extensive damage.

"We are grateful to Montana for holding a special elk hunting season north of the park from January 26 to February 28," Secretary Udall said. "Hunters in Montana outside the park have already taken more than 300 elk, which cut the park reduction needs to around 1500, and the almost 600 animals shipped to the two States cut it further to about 900. Park rangers began their reduction on January 16, and by January 24 they had killed 406 animals, when they stopped because all the signs indicate that hunting in Montana, together with the trapping and transplanting, will bring the herd down to 5000."

Technicians from Montana State College and the National Park Service have killed almost 100 elk for biological studies since the studies began last September 19. An additional 100 elk will have to be killed up until June to complete the studies. The studies involve gestation and pathological research, so specimens must be obtained a few at a time. Secretary Udall said that the remaining biological specimens are the only elk to be shot in the park this season.

Carcasses of all elk killed in the park have gone to American Indian tribes to supplement their meat diets. The meat from the additional laboratory specimens will also go to the Indians. Secretary Udall added that even if all 1800 animals had been turned over to Indian tribes, the tribal requests would still have exceeded the reduction program's capability to provide elk meat.

Park rangers have had gratifying success this year using helicopters to drive elk into corrals where they are penned and loaded into trucks to be released by the States of Montana and Wyoming on lands outside the park.

Secretary Udall expressed the Department's appreciation to the States for their financial assistance to the expensive helicopter program. The Secretary added that both States have also been helpful in providing personnel to help in the handling and shipment of the elk.

Elk reduction programs have been necessary for years because overpopulation has been a perennial winter problem on Yellowstone's northern range. In the summer the range has adequate forage for all its species. But in the winter heavy snow shuts off most of that food supply and drives the elk to the windswept upper ridges. The elk overpopulation has crowded out beaver and whitetail deer, and threatened the food supply of other wildlife species.

Helicopters Are Blamed For Penguin Decrease

A recent dispatch from Wellington, New Zealand, by way of the *Manchester* (England) *Guardian*, indicates that increased human visitation in the Antarctic has threatened the most southern colony of the Adelie penguin, at Cape Royds in McMurdo Sound, with extinction.

The small colony of penguins has made its home on the doorstep of a hut of the historic Shackleton Antarctic Expedition; this historic site has, according to the dispatch, as many as 25 visitors a day who arrive by helicopter from a nearby American base. It is not the visitors themselves, but the helicopters which are endangering the colony; the penguins become frightened by the man-made "birds," scatter, and spill the eggs from their nests in the process. Skua gulls then devour the eggs.

It is noted that, up until 1954, the penguin colony maintained about 2000 nests at the site; since then the number of nests has been reduced to barely half of that figure.

An Infra-Red Investigation of Kilauea Volcano

The United States Geological Survey has recently commenced an aerial infrared survey of Kilauea Volcano and its vicinity in Hawaii Volcanoes National Park. Purpose of the survey is to deter-

George B. Hartzog, Jr., Named NPS Associate Director

The appointment of George B. Hartzog, Jr., of Crestwood, Missouri, as associate director of the National Park Service was announced on January 15, 1963, by Secretary of the Interior Stewart L. Udall. Mr. Hartzog will fill the vacancy created by the retirement of Associate Director Eivind T. Scoyen in January, 1962.

Associate Director Hartzog joined the Park Service in 1946 as an attorney in Chicago; during 1947 and 1948 he served in the same capacity at the Lake Texoma Recreation Area in Texas. He was then attorney-advisor in the Service's Washington headquarters until 1951, when he became assistant chief of concessions management. In 1955 he became assistant superintendent of Rocky Mountain National Park, and in 1957 was appointed assistant superintendent of Great Smoky Mountains Park. In 1959 he became superintendent of Jefferson National Expansion Memorial in St. Louis, Missouri.

mine whether any of the subsurface volcanic heat waves are detectable from the air; heat waves will be measured by infra-red sensors recently developed for military and satellite observations. The project is part of an intensive study recently started by the Geological Survey to utilize "multiple sensing" to investigate earth composition and structure. Of especial interest in the survey will be the "rift" zones that radiate southwest and east from the crest of Kilauea, from which great floods of lava have poured during the past.

Whooping Crane Flock Diminished by Six

The United States Fish and Wildlife Service has reported that, as of January 16, only 32 whooping cranes were on the wintering grounds of the Aransas National Wildlife Refuge and nearby sections on the Texas coast. This was six less than the number which started north in the spring of 1962.

No young whooping cranes have been seen on the wintering grounds, the Service reported, nor were any sighted during the summer of 1962 on the nesting grounds near Great Slave Lake in northern Canada.

The Service has noted that the fall migration period of the rare bird usually extends over a period of about two months. The first cranes to arrive at the Aransas Refuge last fall were seen on a survey October 19. There was a gradual buildup of the flock until December 7, when 32 birds were observed; subsequent counts have failed to disclose any additional whooping cranes.

Committee for ORRRC Report Formed in Washington

The creation of a Citizens Committee for the ORRRC Report, which will work toward "the widest possible understanding and practice of the policies and programs advocated in the Outdoor Recreation Resources Review Committee Report," was announced in Washington, D.C., on February 5th. Announcement was made by Laurance S. Rockefeller, chairman of the committee which brought forth the ORRRC's 246-page report evaluating the nation's outdoor recreation needs and resources, both present and future. The report was delivered to President Kennedy in January of 1962.

Objectives of the new committee, according to Mr. Rockefeller, are: publication and distribution of informative material, including digests of the ORRRC's summary report and its 27 background studies; the provision of information on how citizens and citizen-groups can assist and participate in furthering the aims of the report; cooperation with other organizations in developing their own programs consistent with the new committee's purpose; and analysis and comment, when appropriate, on proposals and actions related to outdoor recreation. Mr. Rockefeller indicated that the committee will be a temporary organization which will be dissolved when its objectives are met.

Chairman of the new committee is Joseph W. Penfold, conservation director of the Izaak Walton League of America; Laurance S. Rockefeller is honorary chairman; and Frank Gregg, formerly of the Izaak Walton League, is executive director and secretary. Vice-chairmen include Dr. Ira N. Gabrielson, Dr. Maurice K. Goddard, Bernard L. Orell, Joseph Prendergast, and M. Frederick Smith.

The committee's offices are located at 1001 Connecticut Avenue, Washington 6, D.C.

Rescuing the Masked Quail

The Bureau of Land Management has recently set aside a 640-acre tract of the national land reserve—adjacent to the Arizona-Sonora Desert Museum, west of Tucson, Arizona—as the site of a pioneering experiment to bring back a species of bird which has for many years been on the verge of extinction. This is the masked bob-white quail, missing from the southwestern scene since about 1904, and at one time considered wholly extinct.

A few of the birds were later discovered in Mexico, and the Department of the Interior has acquired three pairs which have been released on their new range. The land will be posted in order to keep disturbing influences at a minimum.

The masked bobwhite project is being supervised by the Museum, with cooperation from the Bureau of Land Management, the Arizona Game and Fish Department, and the Allegheny Foundation.

FACE OF NORTH AMERICA. By Peter Farb. Harper and Row, New York City. 1963. xv + 316 pages, bound in cloth. Illustrated. $6.50.

The word "journalistic" is sometimes a token of depreciation, and justly so. But at its best journalism can be an interpretive bridge across that widening gulf between science and the so-called humanities. This is true when a skilful writer like Farb resorts to the best specialist authorities, digests them with patience and understanding, and avoids hurdling the "general reader" with words like—in this instance—*geomorphology*. The effort, truly, may become too chummy and oversimplified to suit the expert. Yet if the man of science looks toward an uplift of general culture rather than to self-indulgence in pleasurable research, we remind him that he needs middlemen. Farb qualifies as one of such.

The "face of North America" is—landscape. The sea, the inland waters, the mountains, the forests, the desert, all that man looks upon, and should realize, as being a living and growing companionship of his own brief career; these are admirably pictured in text and illustration in this handsome volume. Not just nature's beautiful shapes, however; but the amazing variety of organic lives that have adapted themselves to their environments and seem to supply a consoling meaning to the sum of existence.

More and more of our mobile population every year are flowing out of their urbanized dovecotes, mostly with an unreasoned urge like Lapland lemmings, thinking only, "Any place but *this!*" It is well. Also it is well that though they may have immediately in view nothing but physical relaxation they can be induced to admire and to understand the natural scene. The science textbook does not woo them. This one can.

Besides the photographs, Jerome Connolly has supplied charming line drawings, and his figures of earth-form exemplars are unusually clarifying. An appendix records many national and State parks where North America's "face" is seen in its major manifestations.

GLACIATION IN BIG BEND NATIONAL PARK, TEXAS. By Hubert O. Jenkins. Sacramento State College Foundation, 6000 J Street, Sacramento 19, California. 1958. 16 pages illustrated with maps and photographs. Complimentary copies will be sent upon request to the publisher.

Dr. Hubert O. Jenkins of Sacramento State College discusses the evidence for glaciation in the Chisos Mountains of Big Bend Park, and makes the statement that the park contains the southernmost glaciated area in the United States.

For those of the magazine's readers who are interested in the glaciological aspect of geology, this will prove a challenging paper indeed.

MAMMALS OF THE SOUTHWEST MOUNTAINS AND MESAS. By George Olin. Illustrations in black and white by George Bierly. Southwestern Monuments Association, P.O. Box 1562, Globe, Arizona. 1961. xv + 126 pages, illustrated in black and white. In paper cover, $2.00; bound in cloth, $3.25.

This volume, which is a continuation of the Association's most excellent series on Southwestern natural history subjects, identifies the hoofed mammals, the rodents, and the carnivores of the four States which are ordinarily considered to constitute the "Southwest." The text is authoritative and, as an additional bonus, highly readable.

THE PADRE ISLAND STORY. By Loraine Daly and Pat Reumert. The Naylor Company, San Antonio, Texas. 1962. 52 pages, illustrated. In paper cover, $1.00; in cloth, $2.95.

Most of the interest of this volume on our most recently acquired National Seashore would very likely lie in the historic aspects of the island and the South Texas coast. The photogenic support tends strongly in the direction of cheesecake; nevertheless, there are some interesting facts on the somewhat violent past of the area, and some material on the plant and animal life of the shore environment.

WILDLIFE OF THE NORTHERN ROCKY MOUNTAINS. By William Baker, Earl Larrison, Charles Yocom and Iain Baxter. The Naturegraph Company, Healdsburg, California. 1961. 112 pages in paper cover, illustrated in black and white. $1.95.

The sixth volume in Naturegraph's American Wildlife Region Series, this handbook is a guide to the flora (!) and fauna of the northern Rocky Mountains, an area extending from the Wasatch Range of northern Utah to the interior mountain ranges of British Columbia, Alberta, Yukon Territory and southeastern Alaska. Over four hundred thumbnail sketches contribute to the usefulness of this fieldguide.

Selway-Bitterroot Wilderness Area Is Created

On January 11, 1963, the United States Department of Agriculture announced the establishment of the Selway-Bitterroot Wilderness Area along some 80 miles of the Bitterroot Mountains Divide between Montana and Idaho, including about 45 miles of the free-flowing Selway River and the Selway River Canyon.

The new Forest Service wilderness area encompasses 1,239,840 acres of the Lolo, Bitterroot, Clearwater and Nez Perce National Forests in Idaho and Montana; it is the largest area of such classification yet established in the nation.

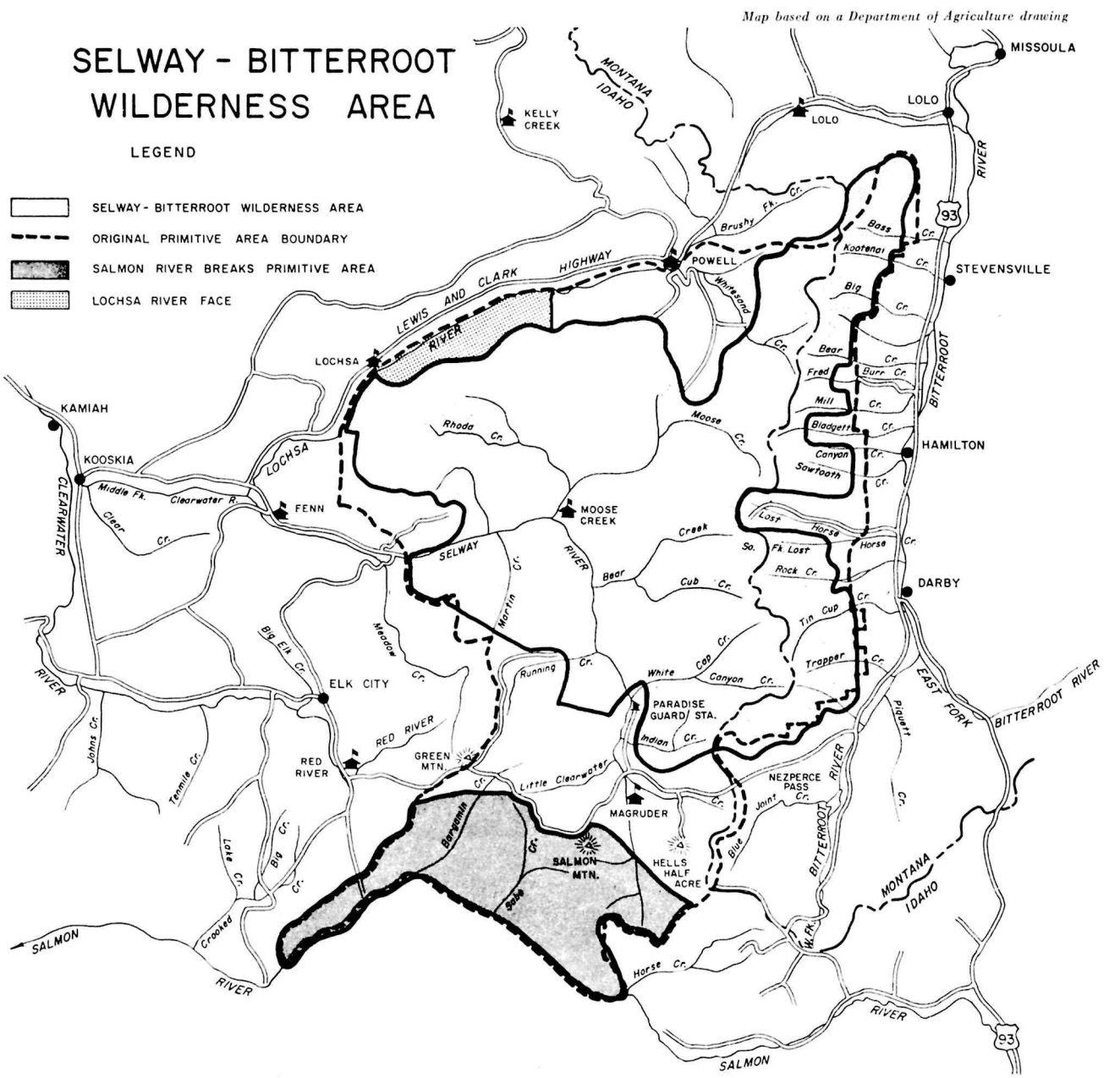
As may be seen in the map below, the new wilderness area was carved from an original tract (totaling 1,875,306 acres) which was formerly the Selway-Bitterroot Primitive Area, established and designated in 1936.

The stippled portion of the map along the Lochsa River (titled "Lochsa River Face" in the map legend) is a tract of about 44,000 acres which will be managed with outdoor recreation as the "key value." It was not included in the new wilderness area because parts of it will be needed for developed camping spots, picnic sites, and pack facilities, according to the Department of Agriculture.

The heavily-shaded portion of the former Primitive Area has been designated as the Salmon River Breaks Primitive Area, of 216,870 acres, which will continue to be managed in accordance with Forest Service policy for primitive areas.

Declassified from the former Selway-Bitterroot Primitive Area were 446,906 acres. During Forest Service hearings in Montana and Idaho in March, 1961, many conservation organizations, including the National Parks Association, approved the proposed reclassification but felt that the elimination of any substantial acreage from the primitive area would damage the wilderness character of a superb national forest unit.

Map based on a Department of Agriculture drawing



A pahoehoe flow in the Kau Desert, on the leeward slope of Kilauea volcano, Hawaii Volcanoes National Park. Photograph by Bob Haugen, courtesy of the National Park Service.

PERHAPS THE YOUNG MAN in the photograph above, who so earnestly examines the intricate pattern of a pahoehoe flow in Hawaii Volcanoes National Park, may one day become a geologist. Who can say? If he should, he will find that America's national parks and monuments offer him the opportunity to pursue earth-science studies in terrain still in its natural condition, undisturbed by the artifice of man.

ONE OF THE objectives of the National Parks Association is to help keep our great preservations in unaltered condition as areas of the highest scientific, scenic and recreational importance. You may help to strengthen its hand in this work by helping to secure new members; by presenting gift memberships to friends; or by contributing to the general funds of the Association over and above your regular membership. There is a coupon on page 15 for this purpose.