NATIONAL PARKS *Magazine*

Beginning of the self-guiding trail
at Pueblo Bonito ruin, Chaco Canyon
National Monument, northwestern New Mexico

September 1963

The Editorial Page

A Trail Is A Trail—Or Is It?

IT IS OFTEN AND TRULY SAID THAT THE symbol of modern America is the automobile. One needs only to venture into the smoggy labyrinths of our metropolitan areas, or onto our roaring freeways and expressways—in his own bit of the American symbol—to be convinced. Someone has rather grimly suggested that, were Americans ever to revert to the ancient custom of providing the departed with necessaries for a future life, steering wheel and horn would be high-priority items.

Perhaps this philosophy has rubbed off to some extent on those charged with the administration of our national preservations; the recent brutal treatment of the Mount McKinley Park landscape might be cited as a case in point.

Specifically, however, we would like to bring our readers' attention to a recently completed "trail" in Great Smoky Mountains National Park.

The trail connects the Cherokee Orchard parking grounds, accessible by way of a blacktopped road from Gatlinburg on the Tennessee side of the park, with the Roaring Fork road—also blacktopped—which returns the visitor to Gatlinburg. This is no ordinary trail, however—not the kind on which you meet strong-legged folk with backpacks, or groups of youngsters straggling along after their adult leader, or, perhaps, a patient camera enthusiast awaiting that elusive moment when the sun will illuminate a Great Smokies wildflower.

It is an Automobile Nature Trail, designed to accommodate the great symbol of America. Parking places have been provided, so that the visitor can stop and see nature from his car. He can even get out of his car and use one of the short nature trails which stem from the parking places, time and energy permitting. "It gives the motorist an opportunity to go on a nature trail of his own," remarked the park superintendent.

It is a one-way trail, paved now with nothing more than dirt. A couple of dry seasons will, we feel, remedy this archaic state of affairs. How can the motorist get in close touch with nature through a blizzard of dust?

After blacktopping, the next step is obvious—the "trail" must be widened to accommodate two-way traffic, for the sake of safety. More turnoffs would then be necessary so that more people could sit in their automobiles and communicate with unspoiled nature. In short, the Automobile Nature Trail is, in our opinion, nothing but an invitation to another road in the park. Great Smoky Mountains National Park already has roads aplenty—it needs no more.

It is said that this Automobile Nature Trail is the first to be so designated. We here express the hope that it also may be the last. —*P.M.T.*

Rhododendron and laurel bloom along the foot trail to Alum Cave in Great Smoky Mountains National Park.

Alan Rinehart, National Park Service, Department of Interior

NATIONAL PARKS *Magazine*

OFFICIAL PUBLICATION OF THE NATIONAL PARKS ASSOCIATION

VOLUME 37 SEPTEMBER 1963 NUMBER 192

Front Cover Photograph by O. F. Oldendorph

Within a strip of land some sixteen square miles in area, in northwestern New Mexico's McKinley and San Juan Counties, there is a great concentration of ancient pit house and dwelling ruins, dating from perhaps the seventh to the twelfth centuries A.D., largely preserved in the Chaco Canyon National Monument. Of the lives and habits of the prehistoric Indian folk who made this complex a cultural center for the Southwest, the relics, pits and partially fallen walls tell us much; of their first settlement and their departure they tell us nothing. In the front cover photograph, time-shattered walls tower over the starting point for the self-guiding trail through the ruin of Pueblo Bonito; the metal tablet set in the stone in foreground pays tribute to the archeologists who excavated the city.

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 for Federal taxable income, and gifts and bequests are deductible for Federal gift and 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, D. C. 20036

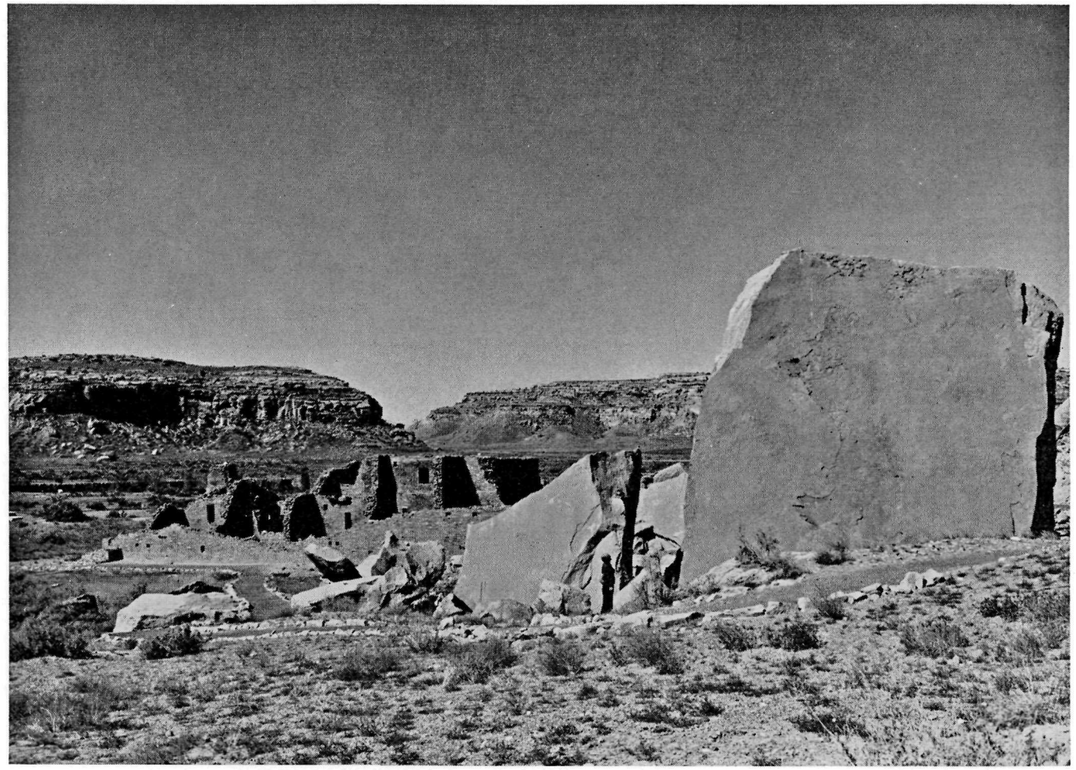
PUEBLO BONITO:

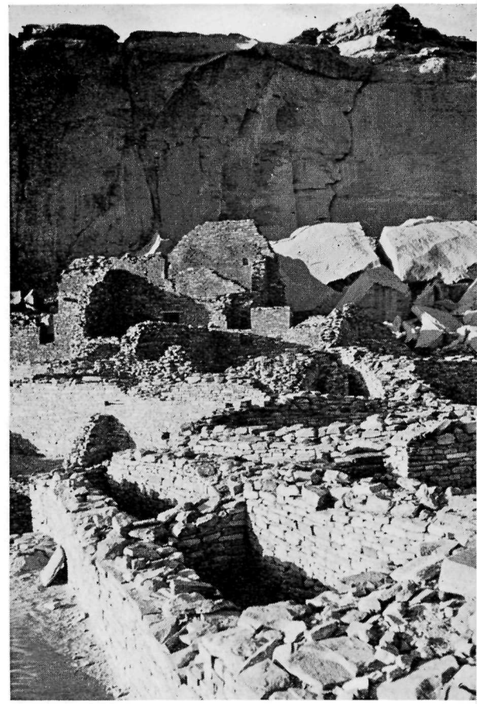
THE PLACE OF THE BRACED-UP CLIFF

By O. F. Oldendorph

Photographs by the Author

One of the finest prehistoric Indian ruins in the entire Southwest is that of Pueblo Bonito which, with numerous other archeological sites and ruins, is preserved in the Chaco Canyon National Monument in northwestern New Mexico. Some units of this complex date to the seventh or eighth century A.D.; Pueblo Bonito, "the Place of the Braced-Up Cliff" of the Navajos, is dated at about 1000 A.D. In the foreground of the photograph below are fragments of the great mass of rock which, threatening a part of the village even while it was occupied by its prehistoric inhabitants, came crashing down on January 22, 1941.





A view from the courtyard toward the cliff behind Pueblo Bonito shows chunks of "Threatening Rock" where they smashed the rear walls of the village. The total weight of the detached mass has been estimated at 25 thousand tons. The walls in the foreground were not damaged by the rockfall, but show the decay of eight or nine centuries.

Navajo Indian legends refer to a canyon in northwestern New Mexico as "the place of the braced-up cliff." The canyon is shallow in proportion to its width of a mile or more, but it is edged by rugged cliffs of tan sandstone. The almost-flat floor is grooved by a narrow central arroyo which has been gouged out of the sandy soil in wet seasons. Low shrubs grow abundantly on the canyon floor, but not a tree is to be seen. The landscape gives the feeling of a big and open country.

In the eleventh and twelfth centuries this canyon was a population center of the American Southwest. A dozen large villages were grouped within an area eight miles long and about two miles wide. In addition, there were hundreds of smaller sites—some occupied, and some long abandoned even then. Since these prehistoric Indians had no written language, and left no records, neither the names of their villages nor their canyon are known. Today the village ruins remain, and white men call them by names such as Chetro Katl, Hungo Pavi, Kin Kletso, and Pueblo Bonito. We know the canyon as Chaco Canyon, and since 1907 the entire area has been preserved under the title of Chaco Canyon National Monument.

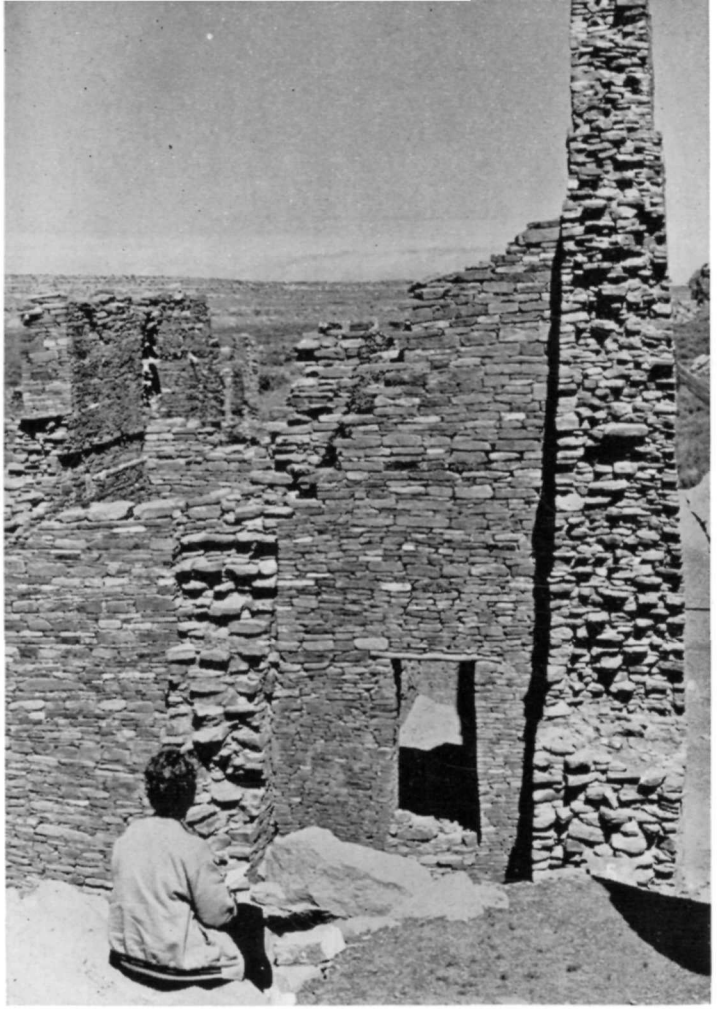
The name Pueblo Bonito means "beautiful village," and it was the gem of Chaco Canyon where, at one time, it provided comfortable living quarters for perhaps twelve hundred people. Built of carefully prepared blocks of native sandstone mortared together with mud, Pueblo Bonito was in the shape of a large letter "D" with its round side close against the base of the sandstone cliff. It was, until 1887, the largest multiple family dwelling which had been constructed in the world. The walls which formed the curved part of the "D" reached four and five stories in height; the straight portion was but a single story high. This apartment building contained eight hundred living and storage rooms.

Two pleasant courtyards, or plazas, formed the center of community life. Here women ground corn meal and made precisely-lined black and white pottery. Youngsters played noisily, and oldsters lounged in the sun. On ceremonial days the village people and visiting neighbors took their places on the roof tops around the plaza and watched the masked dancers emerge from one of the thirty-two underground kivas. The chants and dances were very likely prayers to the gods for rain, abundant crops, and the well-being of the village.

At the rear of Pueblo Bonito, standing free of the cliff wall, was a towering mass of sandstone. It rested upon an unstable base, but this was probably unknown to the builders until their village was a completed and thriving community. During some wet winter, the rock was noticed to be leaning toward the village, threatening to topple and to smash a sizable section of it. The inhabitants must have had words in their language which were the equivalent to the name later given to this monster by white men—"Threatening Rock."

Meeting the Menace

The Indians took measures to protect their home. They built a low stone wall at the base of Threatening Rock similar in construction to the walls of their village; and the location came to be known later to the Navajos as the "place of the braced-up cliff."



The precise masonry of Pueblo Bonito shows well in the wall sections at the left, which are in the tallest portion of the old village. Note that the right-hand wall tapers gracefully, being thickest at the bottom to support the weight of the upper stories. Here was no haphazard construction job, with rooms and stories added helter-skelter—the builders planned the wall to be a high one before construction was even started.

The Great Kiva of Pueblo Bonito, below, is now roofless, and allows visitors a good view of the interior. The central rectangular "box" was a fireplace. The long, narrow bin-like enclosures may have been covered and used as foot drums by ceremonial dancers. Roof-support posts occupied the smaller openings at the ends of the long "bins." Niches in the wall served as storage spaces for ceremonial items.

It is unlikely that the people believed the wall would support any such huge mass. Builders able to erect a five-story apartment building must have known that such a wall would never restrain the rock. But it would serve to delay further erosion of the supporting shale at the base of the cliff. These ancient engineers did what they could, and hoped that it would delay the inevitable.

Other troubles found the people of Pueblo Bonito. In the early 1100's the village was thriving; then, for some reason, it began to decline. Some families became discouraged, moved away, and others followed. The reasons for the decline are not known to us today, except that the people did not leave from any fear of the huge rock. Desertion was a fate that eventually overtook every village in the Four Corners country of the Southwest, and none of the others were threatened by a loosened cliff wall. Depletion of timber supplies, soil erosion, attack by enemies, and drought are among the explanations advanced by modern archeologists for the exodus. The trend continued, and Pueblo Bonito was consigned to a dual fate—ultimate desertion, and severe damage by the fall of Threatening Rock.

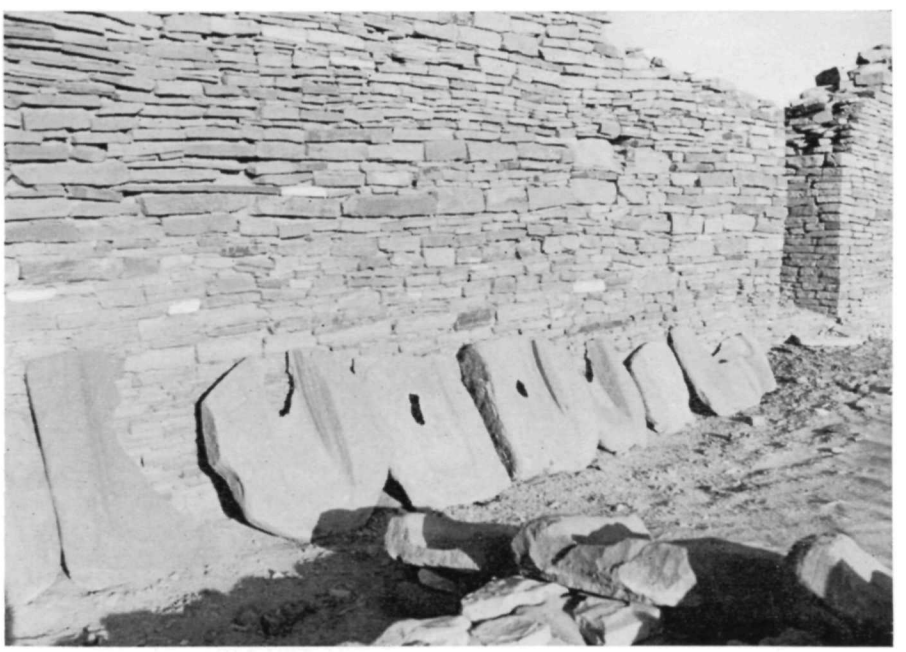
Neither fate was to be escaped. By the early years of the 1200's the village was deserted. The people moved south, possibly to the Rio Grande where many Pueblo Indians live today.

During the years after the wall was built, Threatening Rock teetered toward the village during the wet seasons and, as the underlying soil dried, it tilted once again toward the solid cliff behind it. After years of tilting, during a very wet winter, twenty-five thousand tons of rock crashed down upon the high-walled section of Pueblo Bonito. It demolished twenty-one rooms on the ground floor alone. The will of the builders could not prevail forever, but it really made no difference, since the village had been deserted since the early 1200's. Threatening Rock smashed into a dead and deserted shell on January 22, 1941.

* * *

Chaco Canyon National Monument may be reached by turning north from U.S. Route 66 at Thoreau, New Mexico, and following State Route 56 for about sixty-five miles. The road is dusty and bumpy, but if driven sensibly is passable in a pleasure car. Continuing north from Chaco Canyon for about thirty additional miles, State Route 44 is intersected about forty-five miles southeast of Farmington, New Mexico. A fine museum in a new visitor center provides interpretation of the area's history, and park rangers are there to answer questions. A secluded campground is located a mile or two from the visitor center. ■

Corn meal was ground at Pueblo Bonito at the metate. *At left, the author's wife kneels at a* metate *in good Pueblo Indian fashion, but after a few strokes of the smaller grinding stone (the* mano*) she decided that it was easier to buy corn meal at the modern supermarket. Below, a group of* metates *shows evidence of hard usage. Note the depth of the grooves which have been worn in these thick slabs of sandstone.*



Cades Cove and Chief Mountain: Symbols of Our Restless Earth

By Henry S. Sharp

Line Illustrations by Joyce Levy

CADES COVE, in Great Smoky Mountains National Park, and Chief Mountain, in Glacier National Park, are half a continent apart. The Cove in eastern Tennessee is a peaceful valley surrounded by rugged mountains; Chief Mountain in northwestern Montana is a bold crag rising above the Great Plains. Geographically so far apart and topographically so different, these two scenic gems are both due to the same geologic processes, and are closely related in origin.

Chief Mountain is an isolated, outlying peak of the Lewis Range, which in Glacier National Park forms the eastern front of the Rocky Mountains. Along the eastern foot of the Lewis Range extends one of the largest crustal breaks of North America; this break is known to geologists as the Lewis thrust fault. The fault is a great irregular surface, which slopes gently westward beneath the mountains. Along it sedimentary rocks of Precambrian age, so ancient that they contain few fossil evidences of life, have ridden eastward and upward over rocks of Cretaceous age, deposited at the end of dinosaur times. Perhaps a billion years would measure the difference in age between these two series of rocks; but now the older, first-deposited rocks lie above the younger. Because of the difference in rocks on the two sides of the Lewis fault, the latter forms the boundary between two unlike topographic regions: to the east are the weaker, younger rocks which constitute the Great Plains; to the west, the more resistant, older rocks of the Rocky Mountains. The maximum movement along the fault is unknown; but wells drilled through the older rocks nineteen miles west of the mountain front have passed through the fault into underlying Cretaceous beds. This is a minimum measurement of the amount by which the mountain rocks have advanced toward the Great Plains. It may have been twice as much.

Each year, like the slow, ragged withdrawal of a beaten army, the irregular eastern face of the Lewis Range retreats westward. Too slow to be perceptible to human eyes, erosion causes this withdrawal by removing the weak rock below the fault, leaving that above unsupported. Thus the undermined strong rock, attacked by the weather, eventually crumbles and slides down.

Chief Mountain, like a surrounded and beleaguered regiment, is a massive remnant of the older rock left behind during the erosional withdrawal of the Rocky Mountain front. Bounded on all sides by outward-facing cliffs, it shows for geologists a striking example of a *klippe*. This geological feature, named for the German word for "cliff," is defined as an isolated block of older rock separated from underlying younger rocks by a fault. Chief Mountain can scarcely be excelled as such a fault- and erosion-isolated mass.

Each year the mountain is attacked from all sides by the relentless forces of weathering and erosion. Eventually, in the course of hundreds of thousands or millions of years, it will disappear; so, to paraphrase a great student of scenery, it is indeed fortunate that we came today, for tomorrow Chief Mountain will be gone. Meanwhile it stands, rugged, weatherbeaten, imposing, with gnarled features resembling those of an old chief of the Blackfeet, a noble memorial to that great tribe, a document of geological history, a refuge for the prairie falcon and the golden eagle, and an inspiration to all who know its story.

How, you may wonder, can a quiet, sheltered valley in Tennessee be related to Chief Mountain? Actually the geological relationship is very close. Here, too, is a famous fault—the Great Smoky thrust—along which the resistant rocks, mainly sandstones and conglomerates, of the Great Smoky Mountains have slid north and west for perhaps thirty-five miles. This has carried them over weak limestones, characteristic of the Valley of East Tennessee, a southern continuation of the famed Shenandoah Valley. Again the overriding rocks are older, and the fault-line is the boundary between two very different topographic and geographic regions. The fault surface resembles a ramp rising gently toward the northwest, but at certain places the surface is bent upward into arches beneath which the underlying limestone stands higher than elsewhere. The position of one such arch has determined the location of Cades Cove.

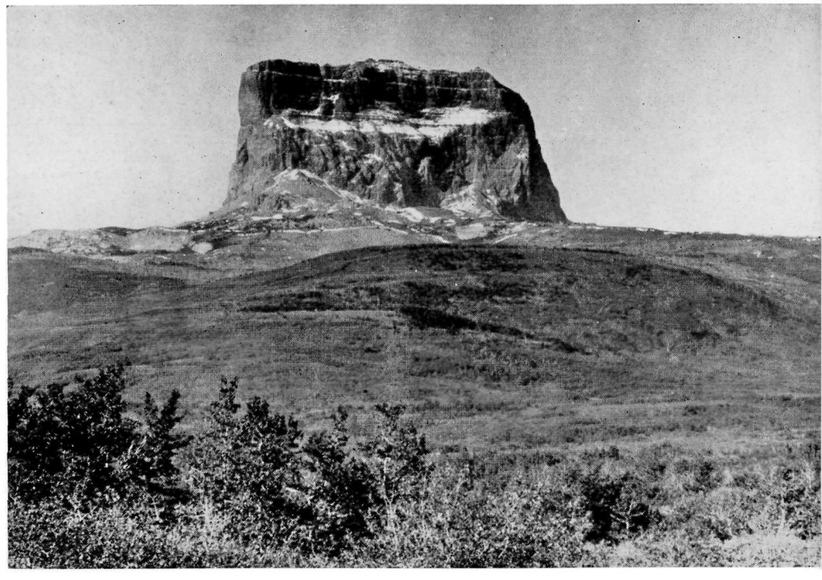
Initial differences of elevation due to movement along the fault were long ago evened by erosion, and the present topographic break is due to differential wearing down of the rocks on opposite sides of the fault. So now, the Great Smokies, composed of resistant rocks southeast of the fault, tower five thousand feet or more above the Valley on the weak limestone to the northwest. In the course of this profound erosion, which must have removed miles of rock, streams uncovered the up-arched limestone beneath the fault. Immediately all the forces of weathering and erosion combined to lower and to open out this weak limestone area into Cades Cove, whose gently rolling floor is far below the surrounding areas of sandstone and conglomerate. The process is similar to that which causes inward-retreating cliffs on Chief Mountain, but here the cliffs retreat outward, and Cades Cove is therefore slowly growing larger. To the geologist the Cove is known as a *fenster*, from the German word for "window," and like a window it allows him to "see through" older rocks to underlying younger rocks. The Cove, like Chief Mountain, is an outstanding example of its kind; but through accidents of structure and erosion, although closely related in origin, one is a topographic high; the other, a low.

The Cove, having the same limestones as the Valley of East Tennessee, has similar topography, soils, and drainage; so its pattern of settlement and agriculture resembled that of the Valley. But so isolated were the Cove inhabitants—separated from the "outside" by miles of tortuous Great Smoky roads—that they lagged culturally far behind the people of the Valley. In the Cove was preserved for long a pioneer

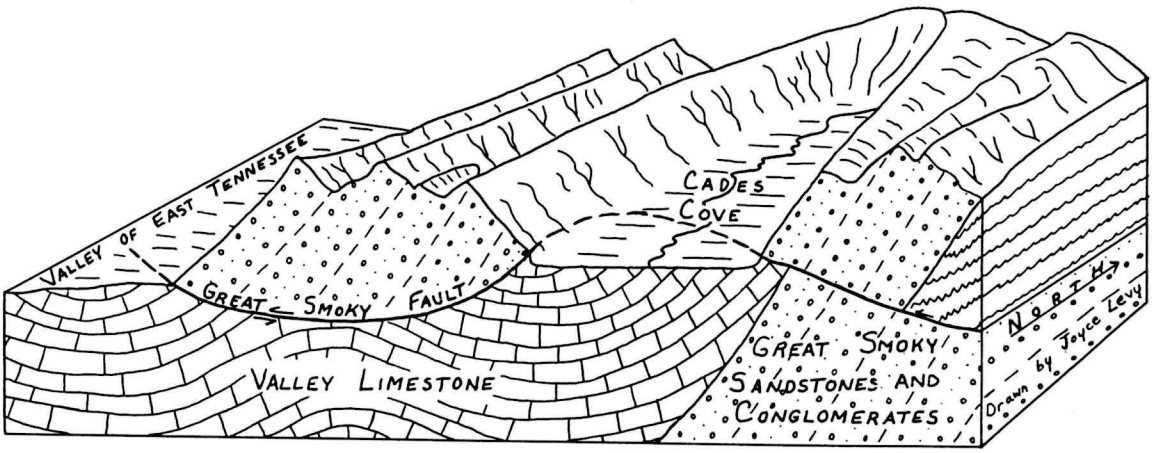
Department of Interior, National Park Service

Looking across peaceful Cades Cove, in the Great Smoky Mountains, the geologist sees a jumble of vastly ancient crystalline rocks lying atop a limestone of a much later age.

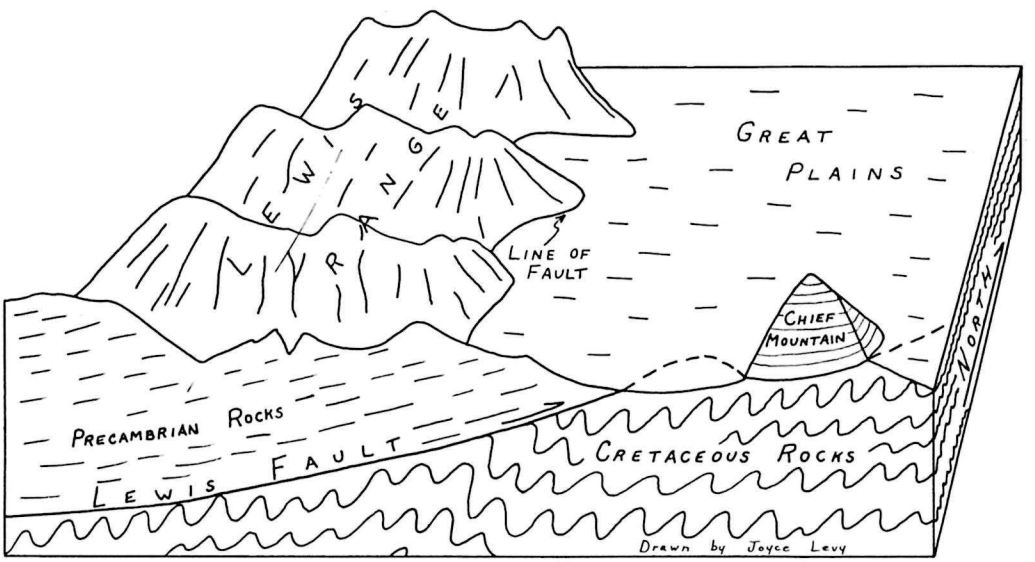
E. Stebinger, United States Geological Survey



Chief Mountain, in Glacier National Park, from the northeast. The great cliffs are composed of almost horizontal Precambrian beds resting upon later Cretaceous rock strata.



Block diagrams illustrate the topographic and geologic features of Cades Cove, in Great Smoky Mountains National Park (above) and Chief Mountain, on the eastern boundary of Glacier National Park (below). Cades Cove is a "fenster" through which younger rocks are seen underlying older, while Chief Mountain is a "klippe" or outlier of older rock moved onto younger. The controlling mechanism in each case was a low-angled "thrust" fault.



way of life characteristic of early America, and particularly that of the Southern Appalachians with its water-powered shops, grist- and saw-mills, and its self-sufficient home industries. Most Americans will agree that the National Park Service has been wise to preserve the Cove's cultural features rather than to allow them to vanish in the wilderness. So the Cove is not only a geological but also a historical window, through which the thoughtful visitor can peer into an American past about which many feel understandable nostalgia.

What will be the story of the Cove in the geological future? Almost certainly it will become wider and deeper. As the meandering canyon of Abrams Creek—the stream by which the Cove drains to the Tennessee River—deepens, the Cove will deepen concurrently. The surrounding mountains of resistant rock will not wear down so rapidly, and the present difference of about three thousand feet between top of mountain and floor of Cove may be increased by another thousand feet. At present the Cove is about five miles long by two miles wide; but by the process of outward slope retreat, its floor will continue to enlarge until, with the intervening mountains worn away, the Cove may merge with the Valley to the northwest. Then an interesting geologic feature will have vanished; but this is in a future so distant that it would be rash to predict the time of its occurrence. ■

NATIONAL PARKS ASSOCIATION
NATIONAL PARKS MAGAZINE
1300 New Hampshire Avenue, N.W., Washington, D.C. 20036

The Condensed Report of the President and General Counsel to the Corporation and Trustees of the NATIONAL PARKS ASSOCIATION at the Annual Meeting, May 21, 1963

as authorized by the Board of Trustees at the Annual Meeting

THE YEAR WHICH HAS ELAPSED since the previous annual meeting of the Corporation and Trustees has seen gratifying growth of the Association.

The Colorado River

Among the developments of major significance during the six months since the autumn meeting has been a clarification of perspective in regard to the Colorado River. The warning given some time ago that the Grand Canyon is in danger has proved increasingly to be valid.

The Department of the Interior has opposed the issuance of a license by the Federal Power Commission to the Arizona Power Authority for construction of the Marble Canyon dam. The Department's position is that the management of the Colorado should be planned with a view to full development for power and irrigation. Construction of the Arizona project at Marble Canyon would probably preclude construction of the Kanab Creek diversion, which would take 92% of the water out of the river through Grand Canyon National Park. The Association, it will be remembered, intervened in the Marble Canyon case to present the position of park protectionists against the Kanab project.

It should be re-emphasized that we did not support the Marble Canyon dam, nor could we have done so had we wished, having been limited by the terms under which we were admitted as parties for the sole purpose of presenting evidence on the Kanab Creek diversion. By the same token, we could not have opposed the Marble Canyon dam in these proceedings, even had we considered it wise to do so, by reason of the limitations imposed on the scope of our intervention.

While the Department's position may not yet have been crystalized, it would appear to be favorable to either the Kanab diversion or a series of large dams down through Grand Canyon Park. The case of *California* vs. *Arizona* now pending in the Supreme Court of the United States seems likely to result in the allocation of additional irrigation water to Arizona; [1] after conclusion of this case, it seems probable that increased pressures will develop for both power production and reclamation projects using Colorado River potentials above, through, and below the park and monument. These pressures arise from speculative agricultural and industrial sources in the Southwest, particularly Arizona.

The entire reach of the Colorado between Glen Canyon dam and Lake Mead is involved. It is highly unlikely that the conservationists can prevent some degree of dam and reservoir construction throughout this portion of the river. It does seem important however to portray to the public the priceless scenic resources which will be sacrificed by such construction. And, more precisely within the scope of our responsibilities, it is essential to combat any proposals which will result in inundation of any portion of the park or monument or the diversion of water from the river through the park or monument.

This probably will mean, specifically, opposition to the Kanab diversion, to any dams or reservoirs in the park or monument, and to a dam at Bridge Canyon below the park high enough to flood any portion of the park or monument. We shall endeavor to intervene in any further proceedings before the Federal Power Commission. As the Trustees know, we participated through special counsel this past winter in the most recent stage of the Marble Canyon case, oral argument before the full Commission.

Rainbow Bridge

In a sense the story of the tragic defeat of conservation at Rainbow Bridge is but one episode in the history of the destructive development on the Colorado. Since the semiannual meeting of the Trustees last autumn, the Association has taken the Rainbow Bridge issue to court, carrying it as high as the Supreme Court of the United States, with the gratifying cooperation and financial assistance of a number of other conservation organizations.

The courts held that we were without standing to sue in the sense that we spoke only for the general public and had no special or proprietary interest in Rainbow Bridge. The District Court did state, however, that despite the denial of appropriations by Congress the Secretary of the Interior was under an obligation imposed by law to protect the monument one way or another. This gave us ground for two last-ditch appeals to the Secretary to keep the gates open pending protection.

Despite everything we could do, however, the gates of the big dam were closed early this year and water is expected to rise before long into the monument and under the bridge. We shall try to get policies adopted by the Park Service mitigating the destructive effects of the drawdowns in the monument; however, such policies may not be particularly helpful, and the dangerous precedent of reservoir invasion of an important national park unit has been established.

At the present writing it does not appear that Dinosaur National Monument is in danger; however, the protective clauses which were violated in the Rainbow Bridge case were intended as safeguards at Dinosaur Monument also; we must therefore be alert to possible repudiation of pledges involving Dinosaur.

A Canyonlands Park or Monument

Just above the reservoir forming behind Glen Canyon dam, to be known euphemistically as Lake Powell, is the area now being considered for national park or monument status, the so-called Canyonlands. The march of history in respect to the Canyonlands has been singularly unheroic during the last year or two. This Association testified on invitation about a year

[1] The case was decided June 3, 1963, along the lines indicated.

ago that the measure which had been introduced to establish a national park permitted too many adverse uses and comprised a rather unambitiously small tract of land. More recently we recommended the creation of a more generous reservation as a national monument by Presidential proclamation. The area in question is within the National Land Reserve and the President could create such a monument by what is referred to at times as a stroke of the pen.

The Green River Tragedy

This Association took an early lead over a year ago in protesting against the impending poisoning of the Green River in Wyoming and Colorado to eliminate so-called trash fish and substitute exotic game fish. In spite of all our protests and others the poisoning actually took place and, as could have been predicted, got out of hand; the full story has been reported by articles and editorials in the Magazine.

Mt. McKinley National Park

In recent issues of the Magazine we have tried to lay before our members and readers a rather complete picture of National Park Service plans and operations in opening Mt. McKinley National Park to heavier visitation. Developments at McKinley pose a number of serious policy problems for us. First of all, there is the question of building a rather wide, fast road across about 100 miles of one corner of the park. There can be little doubt that the standards adopted violate sound principles of park road building.

Obtaining information was a frustrating experience. We sought cooperation at the outset for purposes of access to plans publicly available and with a view to getting the cooperation of planning officials; moreover, we desired that the Service should review the text of the study before publication; we found a great reluctance, however, on the part of certain Service officials to making the necessary information public; we found further that some of it could be obtained only through the Bureau of Public Roads, and we had the impression that some of the decisions are actually made there; at the very least, they obviously result in part from compromises between the two agencies.

It would appear in consequence that a definite effort must be made to free the National Park Service from its present subservience to the Bureau of Public Roads in park road planning. We shall also insist, unless the Trustees direct otherwise, that the master plans and enough of the subordinate plans to make them intelligible must be made and at all times kept available for public examination.

Open Planning, Records, Research, Hearings

Perhaps this is an appropriate place to take up the question of open government.

As indicated above it seems essential that the master plans and subordinate programs of the Park Service be readily available to the public; indeed, that their presentation be part of the regular public relations operation of the Service. There is nothing properly secret about any of these plans; generally, there is not even any question of land purchases, where publicity might result in higher prices; the problems are mainly ones of the proper management of land already in public ownership.

We were greatly troubled by the fact that a manuscript submitted for publication in the Magazine on the Green River poisoning was withdrawn under pressure from the Park Service which claimed that it contained material developed under a research grant from the Service which contained a clause prohibiting disclosure without permission. The circumstances of this episode are still under examination, and I propose to report further to the Trustees later. But the question arises whether, in the case of a government grant for research to an independent academic institution, it is permissible from a scientific point of view or desirable from a democratic point of view to propose restrictions on full revelation; I am not talking about reasonable restrictions in order to complete a rounded investigation, although certain marginal ethical problems arise even in such situations. I have in mind more precisely information developed collaterally from the main research, as appears to have happened in this instance. There is some danger that we are drifting into an attitude toward research which reflects the military secrecy point of view; with enormous amounts of government money going into research these days, this attitude may threaten the freedom of scientific research and scientific exchange seriously.

With respect to open hearings, a number of prominent and nationally known conservationists have taken the position that in situations such as the opening of virgin timberlands in the national forests, there should be public notice and opportunity for hearings in the field and in Washington. I have reported developments in the matter at various times to the Trustees, and on the basis of your approved policies, I have joined with others in requesting such hearings.

Pacific Northwest

The recent agreement between the Secretaries of Interior and Agriculture suggests that at long last there may be hope of developing a sound national policy for the northern Cascades; this area was one of the few excluded from the basic general principle of the agreement, which is to leave land administration where it is.

There is the possibility of setting aside a portion of the northern Cascades as a national park. Such a park might include the Glacier Peak wilderness area; it might include more. In addition to land reserved as wilderness, whether within a park or in a wilderness area, there will be country which will be relatively highly developed by roads, comparable to the developed sections of the national parks or to the recreational areas of the national forests. If in a park, these developed areas would have protection against timber cutting; in recreational areas they might have limited protection against the more destructive forms of timber cutting.

There will be considerable pressure to exclude from any reservations designated for parks all land having any significant present value for hunting. Such excluded land, unless included in a wilderness area, or in a partially protected recreational area, will presumably be subject to heavy logging; serious problems arise here which should be resolved within the conservation movement.

There is a further possibility, which is that we might establish some buffer zones around the park and wilderness areas where clearcutting would be eliminated and ecological methods of timber harvesting could be substituted. No longer do we seem to be facing an impossible barrier to a new park or to adequate protection; this improvement results from the adoption of the policy which this Association has recommended quite insistently for several years, namely, that an adjustment be worked out between the two Departments with White House assistance as a substitute for interdepartmental raiding and feuding.

Everglades National Park

Crossing the continent, I refer you to discussions of the Everglades made in previous reports to the Trustees.

The problem of the Everglades can not be solved if we look at the park in a narrow perspective; tremendous regional influences are at work and are pressing on the park: ill-conceived flood control protective operations; improvident reclamation of swamplands for agriculture; industrial development with accompanying production of dangerous wastes, noise, and disturbance; and the fantastic growth of big urban centers which consume both water and land in endless quantities. We shall be directing our attention increasingly during the next few months toward the development of a comprehensive program to get relief for the Everglades.

Shorelines

The achievements of the last two years in shoreline protection have been remarkable; the establishment of Cape Cod, Padre Island, and Point Reyes National Seashores, all within a single brief space of time, has been encouraging.

Pending is the possible creation of similar areas at Sleeping Bear Dunes, Oregon Dunes, Indiana Dunes, and Ozark Rivers. The Association has lent active support to these programs.

We find ourselves in a familiar dilemma in these matters. On the one hand it is imperative to move forward rapidly with acquisition; on the other hand in doing so we are forced to accept existing incompatible uses and also to accede to compromises with respect to future protective policies.

First of all, there are existing residential and industrial improvements in these shoreline reservations. Any attempt to uproot these improvements would meet with such resistance as to prevent the establishment of the reservation. More importantly, the resistance would be justified; it is not permissible, except in cases of overriding necessity, for either developers or protectionists to launch wholesale attacks for their special purposes on settled communities.

The devices which have been incorporated in shoreline legislation thus far, zoning, life tenancies, suspension of powers of eminent domain within certain limits, and the like, are all of them desirable efforts to adapt protective policies to settled conditions. The danger with suspending condemnation is that on violation of the conditions giving rise to suspension, and the reactivation of authority to condemn, funds for acquisition may not be forthcoming. Where a protective easement has been acquired, such future danger has been precluded.

Distinctions should be drawn between various possible forms of public easements in these cases. We can have scenic easements, directed against billboards or the cutting of trees along highways; these restrictions are frequently useful but of slight importance. We can have pre-emptive easements such as the U.S. Army Corps of Engineers proposes in order to block private development in future reservoir sites; such programs merely paralyze the communities affected pending ultimate complete destruction. We can have protective easements, intended to safeguard relatively natural areas against subdivision and commercialization; this is the most promising form of this device. A fourth form might be the managerial easement, applicable in cutover woodland regions.

And then we also have the inevitable highway problem. At Sleeping Bear Dunes, part of the Park Service plan is to build a so-called scenic driveway through the region. Oregon Dunes are traversed from one end to the other by commercial highway 101 which at some points is four lanes in width.

The national seashores which have thus far been established have contained provisions for hunting which are permissive in character. Current legislation respecting the several new areas now under consideration contains provisions which are mandatory. These mandatory clauses violate the spirit, if not the letter, of the recommendations of the Advisory Board on Wildlife Management in the National Parks.

Appalachians

As in the case of the Colorado River, where we embark on a special problem in Rainbow Bridge Monument or Grand Canyon Park and find ourselves dealing with a broad range of resources management and development issues throughout the Southwest, we engage ourselves in the East in a seemingly local issue like the protection of the C&O Canal National Monument and find ourselves willy-nilly immersed in the management problems of a great river basin, the Potomac.

It has become increasingly clear in recent years that the proposed C&O Canal National Historic Park would never become a reality until the water supply problems of the Washington Metropolitan Area were solved. Moreover, in terms of our interest in the natural environment generally, the forested areas of the Appalachian Mountains contain much of the finest near-wilderness remaining in the East.

All these issues have been drawn into sharp focus during the last two years by the publication of a series of preliminary reports, and now at last the final report, of the Corps of Engineers with respect to dams on the Potomac. One problem is that the proposed reservoirs, all of which have deep drawdowns, are offered as good recreational facilities, whereas they are nothing of the kind; another is that modern technological methods are now becoming available for the complete purification of effluents from sewage treatment plants in the big cities. It is apparent that we should turn promptly to these modern techniques to solve the more urgent water problems, instead of building enormous dams whose reservoirs must seriously impair the mountain country.

There are some parallel problems in the Potomac Basin, which are actually as broad as the entire Appalachian country, such as strip mining, with which many of our members are deeply concerned, and of which we have treated to some extent in the Magazine.

Hunting in the Parks

The success of our efforts to prevent the introduction of recreational hunting in the national parks as a so-called management tool has been gratifying. One might almost say that if the Association had done nothing else in recent years to justify its existence, its effective defense of the century-old tradition of no hunting in the parks would do so. The very able document agreed upon by the Advisory Board on Wildlife Management appointed by Interior Secretary Udall last year was published, as you know, as a special insert in the April Magazine. The Association was the first organization to publish the report.

The other side of the Advisory Board's recommendation is equally important: it is quite imperative that wildlife populations, and particularly ungulate populations, in the parks be held down to the carrying capacity of the land. Only so can the original natural conditions prevailing in the areas at the time of settlement be maintained as required by the National Parks Act.

Fishing in the Parks

The question was raised recently by members of the Association whether if hunting is prohibited within the parks, fishing should not be prohibited also. It was indicated that the answer might have an important bearing on the example being set by our national park system for similar systems abroad.

Accordingly, I had a staff study made of policies now being

followed which showed the nature and extent of fishing which has been traditionally permitted in the park system and methods employed by the Service in restocking park waters with native fish.

I also made inquiry of our Trustees as to their views on policy; in almost all cases they expressed the feeling that present policy permitting fishing in designated lakes and restocking with native fish was desirable.

Motorboats in the Parks

The question of motorboats on national parks lakes is still before us. We are painfully aware of the undesirability of permitting this issue to be dragged out much longer. We have in the past adopted an official statement on this subject looking toward the eventual elimination of motorboats from national park and monument waters.

The question now arises, however, and has been put to me by individual Trustees, whether we can afford to temporize on this question any longer. I am inclined to agree that we can not afford to do so; having accomplished nothing by taking a cooperative attitude, we must apparently now take the aggressive. I propose therefore to intensify our protests against motorboats on parks lakes, in terms of their elimination from all true park waters, but wish to have the specific approval of the Trustees before I do so.

Nibbling at the Fringes

There is a more or less constant flow of correspondence across our desks dealing with what we can only regard as violations of the National Parks Act in small bits and pieces in many scattered locations. Members write to us about these problems and we talk or correspond with the Park Service or the Department of the Interior about them; in far too many cases we get little enough satisfaction; at such juncture we are inclined to report them in the Magazine.

For example, there has been the road into the Cataloochee area of the Great Smoky Mountains National Park, a quiet corner of the park which has been open by an unimproved country road to people who wish to escape the traffic; the Service has assented to the construction of a wide, fast road from an intrastate exchange into an intensively developed new campground; how much more of this can Great Smokies Park stand? And we now have a relocated section of an interstate highway going directly through Ocmulgee National Monument. A new airport just a few miles south of Grand Canyon National Park will presumably bring enormously increased visitation to an already crowded unit of the system. Hundreds of thousands of dollars of Park Service money is to be spent on this venture. And at Cape Hatteras National Seashore the Service is engaged in a mysterious and confusing operation of getting validation by Federal Regulation for the previous construction of an airstrip for which it may not have had the original authority.

Wilderness Bill

It was the considered judgment of the Trustees last fall, however, that while the unity of the conservation movement in respect to the Wilderness Bill must be preserved, it would be in the long-term best interests of the national park system to drop out the sections relating to the parks.

With the double objective in mind of preventing any appearance of withdrawing support for the protection of the wilderness and primitive areas in the national forests by the National Parks Association, and at the same time complying with the instructions of the Trustees as to the effect on the national park system, we abstained from testimony on the bill in the Senate. This had the effect of leaving the record as it was in regard to our support for the entire bill.

I still feel that a vigorous effort must continue to get such protection for wilderness and primitive areas in the national forests, but I believe that the situation in the national park system is completely different.

In respect to the national park system we have the protection accorded by the National Parks Act and a great number of specific bills protecting specific parks and monuments. As the Wilderness Bill has emerged, it will require that all the units of the system be passed in review before the very committee which is giving us such a difficult time with respect to the basic Wilderness Bill principles. The danger is very great, first, that wilderness areas in the national parks will be whittled down by administrative decisions in the National Park Service before presentation to Congress, and secondly, that during consideration in the House committee, all the attacks that have been made on each individual park through Congress will be reopened.

The best solution to the present dilemma may be that if we are asked to testify in the House we should take the position that procedures for the issuance of Presidential orders extending additional wilderness protection to portions of the parks be made permissive and not mandatory.

Pesticides

Our concern with the abuse of insecticides and other pesticides throughout the nation and indeed abroad, arises in part from the existence of these problems in the national park system, but in the main, our concern with the protection of the general natural environment for both wildlife and human life.

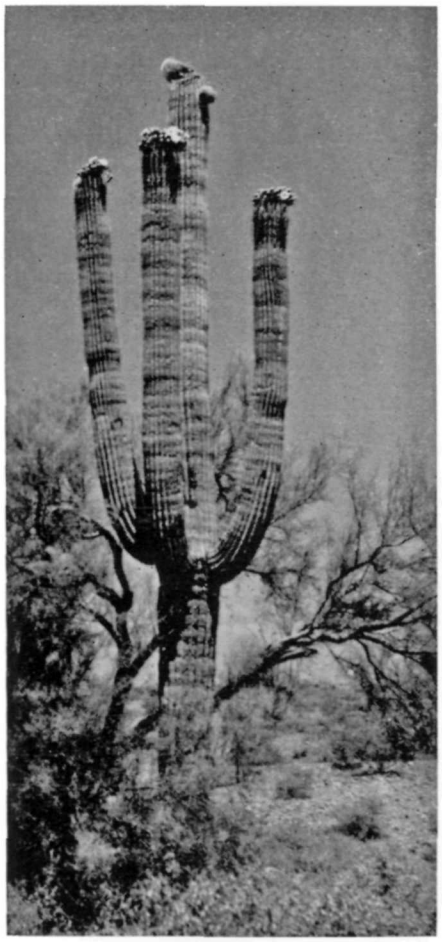
The Association may properly claim considerable credit for the intense public interest which has developed around this question during the last year in the sense that we helped to present Miss Rachel Carson to both an extensive Washington audience and to the television audience, not to speak of the readership of *National Parks Magazine*. We have scheduled, with the participation of perhaps half-a-dozen other national organizations, a conference immediately after the annual meeting with Secretary of Agriculture Freeman. At this session we would hope to urge that the Department of Agriculture drop its promotional and advertising activities favoring widespread insecticide use in agriculture, merely making information available on request, and always accompanying instructions as to use with specific and adequate warnings about the dangers involved.

Conservation Education Center

The second academic year of the Conservation Education Center for the Greater Washington Region, an activity of the Association, has just come to a close.

We continue to have the cordial cooperation of the public school system and the universities throughout the District of Columbia and the surrounding counties and are making constant contact with grade school and high school teachers and through them with the students.

The Trustees have all received the announcement of the Center from time to time and I shall not review the separate features again. The lectures by Rachel Carson and Ian L. McHarg were outstandingly successful. Our field trips have developed a rather stable patronage. Our motion picture exhibits have been outstandingly successful in terms of the size of audience and also the fine quality of films. ◆



Slopes of the Maricopa Audubon Society's wildlife refuge near New River, Arizona, support saguaro cactuses and palo verde trees. The fruit of the saguaro is a valuable food for a number of species of Southwestern birds.

Photographs by Moulton B. Smith

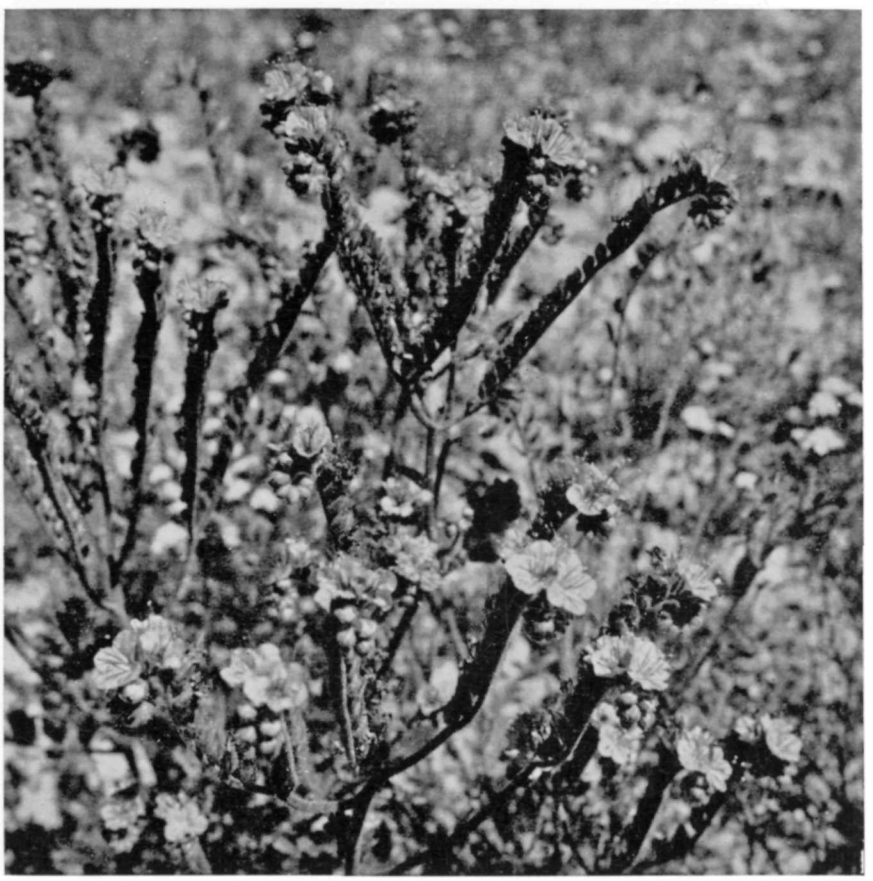
Wild hyacinth, or blue phacelia (shown in bloom in the photograph at the right) and many other wildflower species grow abundantly in the sanctuary, furnishing nectar for hummingbirds and more than 15 species of butterflies.

Desert Sanctuary

By Ida Smith

IN A SHELTERED SPOT among cottonwoods and palms, in central Arizona, lie the ruins of an old ranch house. A little river trickles by its yard. Colorful butterflies vie with hummingbirds for the nectar of thistle, mallow and other blossoms that grow along the slopes leading up from the river. The only sounds, ordinarily, to break the stillness are the songs and calls of birds. Down at the river's edge a variety of tracks tell of animals that come silently at night and early morning to slake their thirst.

For some time members of the Maricopa Audubon Society, of Phoenix. Arizona, had speculated upon the possibility of converting this secluded spot into a wildlife refuge. William H. Patey, a retired newspaper editor and then



president of the group, was assigned the arduous task of untangling red tape and running down titles. After months of tedious and painstaking record-searching, Patey finally executed the last detail necessary to lay the groundwork, and the sanctuary was established in the summer of 1958.

The area covers a stretch of land about a mile long and a half-mile wide, and is owned by the T Cattle Company. It winds along New River, about three and a half miles northeast of the tiny community of New River, and thirty-five miles or so north of Phoenix. It is hidden from the Black Canyon Highway by ordinary-looking desert shrubbery.

The T Cattle Company, through its president, Mr. Levi Reed, gave Patey its full cooperation, and the Maricopa Audubon Society immediately obtained permission to post the area. Signs at the waterholes read: NO TRESPASSING, COLLECTING, HUNTING OR SHOOTING. The cattle company maintains its ownership of the land with grazing rights, but the Society has full authority from the State to police it as a wildlife sanctuary and to preserve its natural beauty. A special board of directors, together with the membership, share in the guardianship of the refuge.

"At first we permitted certain groups to picnic and camp there," said Patey, the year following establishment, "but found that we had to discontinue it. Each time, we had to clean up after them. We hope in time to give nature student groups from schools and Scout organizations access to the area, under our supervision; but for the present we plan to reserve it strictly for wildlife inhabitants until they get used to the place and have learned that it is a sanctuary."

In the several years that have followed, wildlife has shown a remarkable increase. Just recently a family of bobcats moved into the premises. These are native predators. What effect they will have in helping to maintain a natural balance in the sanctuary will depend upon how fast they multiply.

The sanctuary is one of the few places in southern Arizona that has a year-around flow of water. It comes from a little spring that feeds into the New River. The flow of New River itself is governed by the amount of snow and rainfall in the mountains. During certain times of the year it is

Pools of the New River harbor numerous small water creatures, among which are Gambusia minnows, one of the few native species of fish left in Arizona. Numerous tracks near the pools show where deer, raccoons, skunks, and other animals come nightly to drink.

dry except for small pools fed by the spring; hence it is an important watering place for both cattle and wildlife.

An interesting variety of small life abounds in the streams and pools. Most conspicuous are the Gambusia minnows. These small animals are one of the few native species of fish left in Arizona waters.

The sanctuary area was once the site of an early-day ranch owned by William W. Cook, a pioneer cattleman and sheriff of Maricopa County. The ranch house burned down many years ago, and was never rebuilt. Several palm trees planted by the Cooks are still living, and provide food, shelter and nesting material for birds. A few tamarisk trees, immigrants from the Near East, were also planted. In the fall their clusters of feathery white blossoms provide nectar for swarms of little snout butterflies.

Predominant among the native trees are cottonwood, willow, hackberry and mesquite. Across the highway on the slopes of the desert hills stand giant saguaro cactuses, whose fruit provides food for birds, particularly doves. The area lies close to the borderline between the Lower and Upper Sonoran Life Zones.

Wildlife Food Plantings

During 1958 the Maricopa Audubon Society made seventy-five new plantings at the sanctuary; mulberry, pyracantha, and other fruit and berry trees and shrubs adaptable to a desert region. "Watercress planted has increased tremendously," says Mr. Patey. "The Society is also experimenting with wild rice in some of the shady pools."

A large variety of birds—including orioles, sparrows, finches, quail and several Western dove species—and more than fifteen species of butterflies have been observed in the area. The Society plans to check-list the wildlife, and provide a nature trail for tree and shrub identification.

In spite of the postings in the sanctuary, however, hunters still pose a problem. There is yet a great need for public education in the appreciation of nature, and a need for realization that there are many people who eschew hunting for the more mature enjoyment to be derived from observation and reflection upon the interesting aspects of wild things alive in their native habitat. ■

In the photograph below may be seen the foundations of the old ranch-house near the New River; the house was built by a pioneer cattleman and sheriff of Maricopa County. Palm trees and tamarisks, planted by the original owner, are still in evidence around the ruin.

Some Views Concerning the Development of Mount McKinley National Park

As a sequel to this magazine's recent series of articles on Mount McKinley National Park in Alaska and the plans of the National Park Service for its development, the Association has solicited the comments and recommendations of several persons intimately acquainted with that far-northern preservation. None of these persons was concerned with the series of articles, nor have their responses received editorial attention other than that required to bring the texts into conformity with the usual style of the magazine.—Editor.

PERHAPS THE ULTIMATE EXPERIENCE OF McKinley National Park is reserved for those who have struggled to the heights of Mount McKinley. In the midsummer twilight, amid the supreme silence of the Harper Glacier, to look down two miles into the purple gloaming of the park tundra with every lake and pond sparkling like a gem, is to be disembodied, separated definitively from time, from civilization, even from humanity.

Yet even on these icy slopes are present the birds and animals that complete the McKinley Park experience: The purple finch blown over the mountain by the furious winds; the weasel slinking across the snow in the upper Muldrow basin on some secret quest amid the seracs: the gulls scudding around camp at McGonagall Pass. McKinley National Park was established to preserve the animals, birds, and fish, the national curiosities and scenic beauties of this Arctic-alpine region. McKinley National Park was also established for "The freest use of said Park for recreational purposes by the public." [1]

The National Parks Association is concerned that present Park Service plans to develop McKinley National Park will not achieve the best combination of these purposes. It is hard to understand why modern highway criteria are applied to the renovation of the existing highway when the rule of natural line of ascent would cause less scarring and filling. It seems the planners forgot that the Arctic soil makes slowly and the growing season is short. One must wonder also at the necessity to plan large scale comfort accommodations at Wonder Lake when the Woods and Camp Denali have shown a better way to serve this need with accommodations outside the park, the solution now recommended to the Secretary of Interior by the Leopold Report.

The Park Service may not ignore, however, the demands of the Alaskan Congressional delegations to prepare Alaskan parks to meet the tourist trade the new State is promoting. The estimate of future visitors may be exaggerated for this year or next, but the people will come, and Alaskans rightly know that the parks will help bring them. The Service would be derelict in its public responsibility if it did not anticipate and plan for these future requirements.

We, who share the Association's concern, wish to be reassured that the Park Service is not selling its soul to the public demand for easy comfort and amusement. We wish to see a resurgence of determination in the Service to exercise its responsibility to maintain high esthetic standards, to provide uplifting education and to encourage and protect the right of the individual to participate in these natural wonders. Management must be as much of a lesson to the park visitor in quality, taste, and judgment as the park is an example of scenic beauty and natural harmony.

It is regrettable that this park does not include the wild mountain scenery of the southern half of the McKinley massif and sufficient surrounding uplands and tundra to give full protection to the roaming wildlife. We cannot expect, however, that either those interested in park preservation or the developers of Alaska are going to encourage park expansion until the management is sufficiently dynamic and tasteful to accomplish the park's dual purposes.

This park presents the Park Service with an opportunity for some creative and imaginative management. In this regard the following would seem appropriate:

1. Highway development should be confined to the present roadbed. Completion of the remaining sections of the old road should place less emphasis on roadbed criteria and more upon esthetic appearance and evaluation of what the soil and flora can accommodate.

2. Tighter supervision by naturalists as well as engineers should be exercised on construction contracts, including closer supervision by the Washington Staff.

3. Any future road construction to provide access to other sides of the park should be outside park boundaries undertaken with the full participation (including financial) of the State of Alaska.

4. If the visitor trade requires a glacier upon which to tread, access should be on the south from the Palmer-Fairbanks Highway outside the present park. It should not be from Wonder Lake to McGonagall Pass because:

   a. The Pass is a very poor and dangerous place from which to get at the Muldrow Glacier.

   b. The view from the Pass is unrewarding and McKinley is hidden by the ridge of Mts. Koven and Carpe.

   c. Most important, however, the bridging of the dangerous and unpredictable braided stream of the McKinley Forks River presents engineering, maintenance, and safety problems, the solution and cost of which is not warranted by the end results.

5. All other access within the park should be by trail.

[1] An Act to establish the Mount McKinley National Park in the Territory of Alaska, approved February 26, 1917 (39 Stat. 938, Sec. 5).

Facilities

1. Administrative and interpretive services should be concentrated in a minimum number of locations. There is no need for such facilities at both Eielson and Wonder Lake. The Eielson view and the Wonder Lake mosquitos make Eielson the logical choice, particularly since a visitor center has already been built at Eielson.

2. New comfortable overnight facilities should be located outside the park in the vicinity of Denali or Palmer-Fairbanks highways to the south.

3. Camp grounds including tent sites and lean-tos should be available at several locations: Polycrome Pass, Eielson, Wonder Lake, etc. Austere camping sites should be located at remote points in the interior to encourage the hiker. Such sites might even include lean-tos.

Interpretation

Other than presentation of scenery, the challenge of McKinley Park is its Arctic wildlife and flora. Here is an opportunity for the Park Service to place primary emphasis on interpretation.

1. An inventory of the natural features is needed.

2. Inhouse research should be undertaken into the interrelationships of the flora and fauna for precise understanding, better protection and full interpretation.

3. Imaginative presentation of this knowledge to the public could make McKinley one of our best managed parks. It is such interpretation and personal guidance that will make the visit to McKinley Park an unforgettable Alaskan experience.

Perhaps the Park Service is awake to its problems in McKinley National Park. Maybe they just sent the wrong squad out for the first play. Rather than the naturalists and interpreters, it is the engineers who ought to be sitting on the bench in this game. We hope the Director and his planners will now send the right squad out for the next play. If he were to do so, the Park Service might win one, and then if they could win one, they might win a few more.

Those of us who, on occasion, find it necessary to voice our concern over the activities of the National Park Service must remember that if it were not for the Service we might not have a park system to enjoy. It is the dedication and devotion of the men of the Service who saw the national parks through long days when no one else was interested. It is in these same men that our hopes for the future lie. Our criticism is offered constructively in the spirit of friendship and in common cause.

HENRY S. FRANCIS, JR.
McLean, Virginia

Henry S. Francis, Jr., is special assistant to the associate director for International Activities, National Sc'ence Foundation. He is a resident of McLean, Virginia.

THE MANAGEMENT OF AREAS INCORporated into national parks is to foster three prime purposes—natural features, visitors to participate in these features, and scientific purposes. The requirements for facilities in the parks should be the responsibility of those with special training in forecasting needs for them. The final responsibility for the actual design and location of the facilities should rest with those who have special knowledge of the natural features that are one of the reasons for the park's existence.

These people with special knowledge and training can detect the sometimes not obvious differences between facilities that truly promote the purposes of the parks and those that merely serve the convenience of engineers, contractors, administrators or local politicians. For example, a road in a national park should not be a demonstration of engineering skills but a means of allowing visitors to participate in the park and to move them unobtrusively, with a minimum of ecological disturbance, to the natural features of the park.

In the case of Mount McKinley National Park the problem is doubly critical. Not only must the basic purposes be served but the rigorous climate and special environmental restrictions of this sub-Arctic and Arctic-alpine area must also be taken into account. For example, breaks in the vegetative cover (i.e., road cuts and fills, foundation grades, campgrounds) that would be quickly healed in temperate regions take many, many years to revegetate in Mount McKinley Park. Some of the breaks already made because of ecological ignorance will probably never heal naturally but will remain or even enlarge. Now obviously, one cannot take a modern automobile across a tundra area without ecological disruption but, if care is used, the disruption can be minimized and even made helpful. The care and love for the country which characterized the construction of Trail Ridge Road in Rocky Mountain National Park should stand as a model for the McKinley Park road. It will take great skill, much time and much money to bring the McKinley road into harmony with the environment and with the purposes for which the park was established.

Mount McKinley National Park should play an increasingly significant role in the scientific study of sub-Arctic ecology. It is important that the research be conceived imaginatively so as to take full advantage of the peculiar characteristics of the sub-Arctic, as well as the permanent protection afforded by the park. Undoubtedly, the boundaries of the park will have to be enlarged so as to include substantial areas of spruce taiga, a vegetation type that is found in the present park only in scattered patches. Because of the slowness of vegetative growth in the sub-Arctic there should be increased support for long-term studies of the productivity of sheep, caribou and moose range in this park, so that the populations of these herbivores will not be allowed to exceed the capacity of the range to support them.

The really important thing to keep foremost in consideration of developmental activities in Mount McKinley National Park is that the plant and animal communities are exceedingly delicate and that traditional temperate-zone construction and management techniques are frequently not applicable. If those who administer this park can acquire an appreciation of the delicacy of these plant and animal communities then most of the problems will not occur.

WILLIAM O. PRUITT, JR.
College, Alaska

Dr. William O. Pruitt, Jr., of College, Alaska, is a zoologist who specializes in the ecology of Arctic and sub-Arctic mammals. He is a member of the board of directors of the Alaska Conservation Society.

IT WOULD APPEAR TO ME FROM WHAT you write [in *National Parks Magazine*] that the affairs of Mount McKinley Park need close attention. This is an enormous area and deserves much thought, particularly in regard to the highways being built which will bring it much closer to the ordinary tourist. The bringing of the latter into a national park is in my opinion a dangerous program and one which is likely to endanger the wildness of the area.

Some years ago we made a trip in Mount McKinley National Park. We had no car and except for the river trip we covered the entire distance on horseback,

(Continued on page 21)

News Briefs from the Conservation World

Pennsylvania Sites Favored As Park System Units

The Department of the Interior has recently informed Congress that it favors proposed legislation for the establishment of the Allegheny Portage Railroad National Historic Site and the Johnstown Flood National Memorial, both in Pennsylvania, as units of the National Park System.

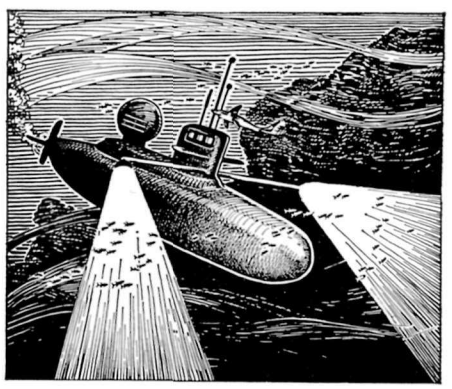
Commenting on two identical bills for the purpose, the Department explained that a national historic site would interpret the building of the Pennsylvania Canal and the Allegheny Portage Railroad, which was a spectacular part of the Canal, and that a national memorial would commemorate the tragic Johnstown flood of 1889, which caused extensive loss of life and property damage.

Tiny Submarine May Explore Ocean Frontiers

Jules Verne may have thought that his *Twenty Thousand Leagues Under the Sea* was fiction, but his tales of undersea hunting from a submarine may become fact, according to a recent report from the Department of the Interior. A study is now being proposed that could lead to the construction of a "mesoscaphe," a nuclear-powered research submarine to explore the deep frontier of the ocean.

The mesoscaphe—which literally means "middle boat"—could carry out studies on marine fishing and mineral resources, disposal of atomic wastes, national defense, and weather predictions. Biological, physical and chemical oceanography are also prime areas of investigation for the mesoscaphe.

The "mesoscaphe," as seen in an artist's sketch. Department of the Interior has asked Congress for study approval of such a tiny submarine for use in undersea mineral exploration, biological studies, the charting of ocean currents, and the influence of the oceans upon weather. It might operate submerged for several weeks at a time at speeds up to 20 knots, the Department has indicated.



The project is part of the National Oceanographic program which is being planned and coordinated by the interagency Committee on Oceanography of the Federal Council for Science and Technology.

"We need better eyes in the sea, eyes comparable in power to those with which scientists are probing outer space. We need to apply our technological abilities to more intensive probing of inner space, the world ocean," said Secretary Udall, in discussing this unusual craft.

Bill Would Set Standards For Pesticides Persistence

Mr. John E. Fogarty (R.I.) has introduced H.R. 7353 "to require certain standards of nonpersistence of synthetic pesticide chemicals (economic poisons) manufactured in the United States or imported into the United States." The bill was referred July 1 to the House Committee on Interstate and Foreign Commerce.

Section Two of the bill provides: "The Congress finds that the land, air, and navigable waters of the United States are being irreparably polluted through the ever-increasing use, quantitatively and geographically, of synthetic pesticide chemicals which decompose slowly, if at all, and persist in the environment for long periods. The Congress further finds that to prevent the further pollution of the land, air, and navigable waters of the United States in the public interest it must regulate the composition of all synthetic pesticide chemicals manufactured in the United States or imported into the United States. Therefore, it is the policy of the Congress by enactment of this section to invoke and exercise its fullest constitutional powers in order to effectively regulate the composition of all such synthetic pesticide chemicals."

The bill would set the date of June 30, 1965, as a deadline after which synthetic pesticide chemicals would have to conform with standards of nonpersistence. The Surgeon General would prescribe the standards of nonpersistence after consultation with the Secretary of Agriculture.

DDT and the Robin

Apropos to the news item directly above, a recent release by the World Wildlife Fund—international foundation dedicated to the saving of the world's wildlife and wild places—indicates that many nature enthusiasts feel the robin, a species of thrush, will join the dodo and the passenger pigeon in extinction if nothing is done to stop the indiscriminate use of pesticides. DDT has been established as the culprit responsible for a decline of 92 percent in the robin population in Michigan, for example. In Massachusetts, counts in one area showed an 80 percent reduction in 20 years. Already American and British bird lovers are asking: will it disappear altogether?

The president of the World Wildlife Fund is HRH Prince of the Netherlands, and its campaign director is Ian S. McPhail, 2 Caxton Street, Westminster, London, S.W.1.

54th Western Forestry Conference Is Announced

"The People's Stake in Land Use" will be the topic of the 54th annual Western Forestry Conference to be held in San Francisco from December 11 to 13, 1963, the program committee of the sponsoring Western Forestry and Conservation Association has recently announced.

N. B. Livermore, Jr., of San Francisco, is chairman of the 42-man committee, which represents a cross-section of land users in the western United States and Canada, from loggers and miners to conservationists and preservationists. The Association itself is composed of government and private forest land managers in the West.

Livermore said that increasing population pressures in the West have forced both public and private land managers to give more attention to multiple-use land planning for the future.

Trumpeter Swans Flourish in South Dakota Home

For the first time in eighty years, the world's largest waterfowl—the trumpeter swan—has successfully nested east of the Rockies, the Department of the Interior's Fish and Wildlife Service has reported.

Two pairs of wild trumpeters, introduced three years ago from Red Rock Lakes National Wildlife Refuge in western Montana, set up housekeeping on muskrat houses in a remote part of Lacreek National Wildlife Refuge, in South Dakota. One nest has produced four healthy young birds and the other nest was still being incubated when last observed. There are an estimated 600 trumpeter swans in the contiguous United States today.

Your National Parks Association at Work

The Assateague Island National Seashore Proposal

One of the effects of the great East Coast storm of March, 1962, was to breathe new life and interest into public acquisition of the few remaining national seashore opportunities left between Maine and Florida. As long ago as 1935, the National Park Service had conducted a survey to determine the number of qualified areas remaining along the Eastern seaboard, and at that time it named 12 possibilities, including one which has since been authorized—Cape Cod National Seashore in Massachusetts, for which land is currently being acquired.

One of these was Assateague Island, a 33-mile-long offshore bar lying off the coasts of Maryland and Virginia and divided between State jurisdictions south of its centerline. That portion which is in Virginia—9 miles—is encompassed by the Chincoteague National Wildlife Refuge. The portion lying within Maryland has, in the past few months, been actively viewed by Secretary of the Interior Stewart L. Udall, the National Park Service, and the Bureau of Outdoor Recreation as a prime national seashore, and a study of its potentials was recently released by the BOR.

Parts of the Maryland portion have been subdivided, and some summer homes built; most of these were destroyed in the 1962 storm. There are few other developments. The State of Maryland is currently acquiring 640 acres of the northern sector of Assateague for a State park; present access to the Maryland portion of the island is by privately operated ferry, but a bridge from the mainland is in prospect.

There has been controversy between Worcester County—which hopes for private development and subdivision of the Maryland part of the island—on the one hand and the Interior Department and Maryland agencies such as the Maryland Economic Development Commission, Maryland Department of Forests and Parks, and State Board of Natural Resources on the other hand, over the fate of the island. Conservationists generally favor the Interior Department position, and several national conservation organizations have recently made public their positions in the matter. The National Parks Association, in a letter to Governor John Millard Tawes of Maryland, has announced its concurrence with the findings of the Bureau of Outdoor Recreation —that, as the largest remaining undeveloped seashore between Cape Hatteras and Cape Cod and an area of high scenic and recreational value, the Maryland portion of the island is fully qualified for national seashore status.

"We believe that this project for protection and development should be carried out with full respect and protection for existing developed residential properties," wrote President Anthony Wayne Smith. He indicated the Association's feeling that only Federal acquisition, with the support and concurrence of Maryland, could provide the island with necessary protection against destructive subdivision and overcrowding.

Other national conservation organizations which have expressed themselves in behalf of Federal preservation are: the National Wildlife Federation; the Nature Conservancy, and The Wilderness Society.

Some Views Concerning the Development of Mount McKinley National Park

(Continued from page 19)

sleeping on the ground each night. Our excellent guide showed us a way through the park which a visitor should follow. Some years later I wrote a chapter in one of my books on the area and am taking the liberty of furnishing you with a copy of the text. It gives some idea of my thinking about this area and my impressions at that time.

The pictures included in your magazine, which you sent me, in no way reveal the character of the park and do not present many of the places which are especially to be marked. Mount McKinley Mountain itself, its glacier, all of the far-reaching surrounding terrain, the tundra and many other features of the area have no prominence. McKinley is such a large place that few casual visitors really see it. That statement would include me.

This park is a very rare possession of the United States. I would not know how much damage could be done by parties who move in by motor to do there what they could do elsewhere, and I pray that close attention will be devoted to the development of this scene of great natural beauty. There is nothing like it, probably in any country, and we have nothing to rival it.

It is at least good to know that even at this late date your organization is devoting some time to consider what the place would be like when the public overran it. I am presuming that you have already gone into the subject and probably have much experience gained from other parks too. I am most thankful that I visited McKinley at a time when my health was good, my body strong and my endurance up to what was required. As a citizen of the United States who has ridden and slept all over this area I trust that no development program will be followed at the expense of preservation of the property.

My best wishes to you for what you are trying to accomplish in this major problem of keeping the park natural.

ADRIAN VAN SINDEREN
New York City

Adrian Van Sinderen is a businessman of New York City, and one of the earlier visitors to Mount McKinley National Park. He has kindly consented to future publication, in this magazine, of the account of his experiences in the park mentioned in his letter above.

THE PLACE NO ONE KNEW: GLEN CANYON ON THE COLORADO. By Eliot Porter. The Sierra Club, 1050 Mills Tower, San Francisco 4, California. Edited by David Brower, with a foreword by the editor. 170 pages 9¾ x 13½, with 72 plates in full color and endpaper maps. $25.00.

For sheer beauty of color in both text and photograph, this large-format volume has created for itself a niche in the art of bookmaking—a remarkable epitaph to a lost canyon and a lost cause. Eliot Porter and the group of distinguished conservationist-writers who have collaborated to produce a memorial to Glen Canyon—now commencing to fill with the reservoir waters of Lake Powell behind the Glen Canyon dam—have provided posterity with a gripping record of strange grandeur unmatched, perhaps, on the mighty Colorado.

In a larger sense, *The Place No One Knew* will serve well to point up the brewing struggle on the Colorado between preservationists and the pressure for development in the Colorado River Basin—between more Glen Canyons and the "complete and full utilization of the waters of the river." (Assistant Secretary of the Interior Holum, before the Federal Power Commission in the Marble Canyon case). Further esthetic and scientific tragedy is in the making on the Colorado, from which preservationists will have to salvage what they may.

Perhaps, hopefully, there is some truth in the words of the press release which accompanied this volume: "Had the public known, it never would have let this happen." If this be so, much remains to be done by Eliot Porter and his eloquent camera. —*P.M.T.*

WATCHERS AT THE POND. By Franklin Russel. Alfred A. Knopf, Inc., New York. 1961. 265 pages. $4.50.

A pond—the life around and within it. Little in truth does the average human eye see as it gazes across an expanse of water, with its plant and animal life. A pond is a world and way of life unto itself as myriad forms of life struggle for survival.

Watchers at the Pond recreates the pond's life cycle for one year as the life and death of its inhabitants is explored. Prey and predator alike are forced to their utmost endurance in the unending struggle for existence.

The author, Franklin Russel, has cast a telescopic eye over the pond universe and written a book which reads as smoothly as a novel. He begins his account in bitter mid-winter when most of the pond animals are in hibernation. The narrative continues as they come to life, either to survive or succumb to the hazards of spring and summer; and then again return, to sleep away the winter.

The major drawback to *Watchers at the Pond* is the author's greatly romanticized account of the pond community, which he has done primarily through a rather verbose style of writing. Though this style would be well suited to a novel, it detracts from an objective study of the plant and animal life of a pond.

Robert W. Arnold has sketched rough but expressive line drawings of the various pond animals and has sprinkled them throughout the book; these add to its interest.

For the average reader, *Watchers at the Pond* would provide a pleasant evening's reading; but the natural history specialist would be apt to find the author's treatment of the subject somewhat generalized. —*J.C.*

NOTES ON THE BIRDS OF GREAT SMOKY MOUNTAINS NATIONAL PARK. By Arthur Stupka. The University of Tennessee Press, Knoxville, Tennessee. 1963. vii + 242 pages, paperbound. With appendices, references and index. $3.00.

This well-printed volume goes considerably beyond the visitor-guide publication to natural history topics of the national parks and monuments, meritorious as these latter—now being produced by the various national park natural history associations in some profusion—most certainly are. *Notes on the Birds of Great Smoky Mountains National Park*, by a veteran National Park Service ranger-naturalist and biologist, commences with the assumption that the reader already has at least a casual background in ornithology; it dispenses with illustrations and descriptions, and, with a brief summary of the geologic and climatic characteristics of the park and a short section on the historical ornithology of the area, proceeds into the "Notes" proper. These document the known occurrences of various species of birds within the park, their current status populationwise, their altitudinal ranges, dates of arrival and departure, nesting data, and other information. The volume thus serves the several purposes of guide, reference work, and scientific contribution to our knowledge of Great Smoky Mountains Park bird life. —*P.M.T.*

LET'S GO TO A NATIONAL PARK. By Lloyd and Rose Hamill. G. P. Putnam's Sons, New York, 1962. 48 pages. $1.95.

The authors of this book have done an excellent job in presenting our national parks to a child. From the entrance to the exit gates, the child is told what he will find upon a visit to any of the parks. Unfamiliar terms are defined as they occur in the text and are also listed in a glossary in the back of the volume. It is illustrated throughout by Robin King.

ONCE UPON A TOTEM. By Christie Harris. Atheneum. New York, 1963. 148 pages. $3.50.

Also written for children, this small volume relates five tales and legends behind the totem poles which were left by the Indians of the North Pacific coast. The book is illustrated with woodcuts by John Frazer Mills.

Letters to the Editor

The Chief Joseph Story Brought up to Date

I have contemplated writing you for some time regarding an article entitled "Memorial to An Indian Moses," by Philip R. Smith, Jr., which appeared in the February [1963] issue.

Since 1958 the National Park Service has been conducting an extensive research project on the Nez Perce and their participation in the Campaign of 1877 with special emphasis on the Battle of the Big Hole. The results of this project have been so overwhelming that they cannot be overlooked if we are to present the truth as we find it.

In 1907, L. V. McWhorter of Yakima, Washington, began researching the Nez Perce. He continued until his death in 1944. As a result of this work two books were published which are of importance to us—*Yellow Wolf, His Own Story* (Caxton, 1940), and *Hear Me, My Chiefs* (Caxton, 1952). Upon his death his family turned over his papers, which are voluminous, to the library of the State College of Washington in Pullman. These papers are practically indisputable. In fact, they are held in such high esteem the college has published a catalogue on them, which was compiled by Nelson A. Ault.

Part of McWhorter's work was to take various Nez Perce warriors around to the different battlefields for recollections and on-site marking of important activities. He came to Big Hole Battlefield on four occasions. As a result of this the McWhorter Stake Map with tabulation was compiled and finally completed in 1938. This map was one of several documents used as the basis of our Siege Area Trail Guide.

Shortly before Chief Joseph surrendered his band and those few of the other bands that wished to surrender with him, Chief White Bird and most of his band escaped to Canada to join Sitting Bull. At this time there was living in western Montana a man by the name of Duncan McDonald (son of old Angus McDonald, last Hudson's Bay Company Factor at Fort Okanogan in Washington, T.) whose mother was Nez Perce. Mr. McDonald was a proficient linguist and a very well-educated person. He was hired by a newspaper in Deer Lodge, Montana, *The New Northwest*, to go to Canada and interview White Bird. This was good thinking on the part of the editor, as McDonald was a nephew of White Bird. McDonald then forwarded to the editor a series of letters or articles on what the remnant of the non-treaty Nez Perce had to say of the campaign, etc. These were all published in 1878.

Last summer Alvin M. Josephy, Jr., published *The Patriot Chiefs*. The chapter on Chief Joseph in this book is one we recommend to all, as it points out, for the first time in modern publications, the fallacy of the Great Red General or Red Napoleon theme we have long subscribed to.

We Americans love to attach a hero symbol to people and are not prone to readily accept strong evidence—actually incontrovertible evidence—that the symbol is false. The references mentioned are only a few, although some of them are basic, that present Joseph as only one band chief with no more authority than any other one. Chief Looking Glass was the unanimously elected Head Chief or War Chief of the non-treaty bands as they left Idaho for the buffalo country. He was the last Nez Perce to die at the hands of the soldiers in declared war, being hit by a long-range sniper's bullet the morning of the day Joseph surrendered. Chief Joseph came into prominence for many reasons: the name was easy to remember; there were three and possibly four of this family to be known by this name—Old Joseph, Young Joseph (the one that surrendered), his younger brother Ollokot (the real warrior of the whole family) and an older brother who died some years before the 1877 fracas. The language barrier was probably the greatest single contributor to the Chief Joseph myth.

Do not misunderstand, the Chief Joseph that surrendered was a great man for his people. He was a tremendous statesman, diplomat and all-around guardian. From the moment he decided to surrender he came into his own as a leader, for he never ceased his efforts for fair and promised treatment for his people for the next 27 years of his life. He did not win, but he did not give up. It is too bad we do not know more of this period of his life than we do.

The National Park Service must present in its interpretation of any area, whether it be wilderness or historical, the facts as are known and accepted at the time. So there in a nutshell is our problem—the challenge to dispel a myth and present an even greater story of fortitude by a group of people who realized they had lost before they had actually begun. We hope you will understand our situation and will go along with it.

JACK R. WILLIAMS, Superintendent
Aztec Ruins National Monument

• Our thanks go to Superintendent Williams for his time and effort in bringing our readers a new and more accurate insight into the Big Hole Battlefield Monument story. Mr. Williams, now superintendent at Aztec Ruins National Monument in Arizona, was formerly at Big Hole Battlefield National Monument; on May 17, 1963, the monument was redesignated by Congress as the Big Hole National Battlefield, bringing to five the number of such areas in the park system. A boundary revision which accompanied the redesignation brings into the new national battlefield the scene of the Indian encampment as well as other important historic sites connected with the action of 1877.

—*Editor.*

New Saguaro Road Proposed

Another threat against the wilderness values of the National Parks! This time the road-happy National Park Service is planning to cut the [eastern unit of] Saguaro National Monument in half by a highway. The proposed highway is outlined on [a] map from an official National Park Service publication (U.S. Government Printing Office publication #661270, 1962).

As can be seen from the map, this planned highway will ruin the wilderness aspect of the eastern part of the monument and turn this area and the whole not-so-large monument into another roadside park. National Park Service policies are not easy to comprehend; on one hand it complains about lack of funds for ample protection, lack of funds for purchasing inholdings inside the boundaries, etc.; but on the other hand there seem to be plenty of funds available for costly highway constructions.

In the past I had thought Saguaro National Monument to be a rather excellent example of balance, part of the monument being available by paved roads in the form of a loop drive and the remaining larger part kept in wilderness state. The planned road not only destroys Saguaro National Monument as a wilderness unit but it also destroys the view and atmosphere for the visitor who views the monument from the road, since instead of having a view of unspoiled scenery ahead of him and the knowledge that there are no highways ahead for a few miles he will, in future, have just another view from one paved road to another paved road.

HARRY MELTS
Englewood, California

River Otter in the Great Swamp of New Jersey
Photograph by Leonard Lee Rue III