

NATIONAL PARKS *Magazine*



Washington's Mount Saint Helens and the
Gifford Pinchot National Forest:
a view from the Lewis River Valley

December 1963

The Editorial Page

High Winds Blow Through the Parks

WE ARE HAPPY TO EXTEND A MOST cordial welcome to the incoming director of the National Park Service.

George B. Hartzog, Jr., has risen from the ranks of the Service and has a record of some sixteen years of experience within its tradition. Skilled, like Interior Secretary Udall, in one of the basic governmental sciences—that of the law—he may be able to contribute mightily toward the integration of the resources management problems of the Federal Government from his new post in the Service.

The occasion of this administrative change, effective January 11, 1964, is also an opportunity to express the affection and admiration all conservationists feel toward the able, dedicated, and warmhearted retiring director, Conrad L. Wirth.

It is gratifying to know that Director Wirth will not terminate his contributions to the Service immediately or entirely, but will be representing the Secretary of the Interior in maintaining contact with park and wildlife protection problems in Africa; the invaluable abilities and experience of Connie Wirth must not be lost to the American people by his retirement.

Director-designate Hartzog faces challenging opportunities. He takes responsibility for the work of the Service at a time when the Bureau of Outdoor Recreation has been assigned comprehensive duties for planning and programming in the recreation field, some of them having been shifted from the Service.

The creation of the Bureau was urged by conservationists everywhere, partly in the hope that it would be a center for the coordination of recreation-linked governmental activities in more than one department. The work of the Bureau and the Service should proceed with mutual respect; the Bureau has planning and developmental problems to solve, and the Service, among other duties, must continue to concern itself with park protection.

Recent years have marked the emergence of a policy of expansion of the national park system. Stress on expansion began to appear half a decade ago, but has been most marked in the administration of Interior Secretary Udall; we assume that these policies will continue, as they should, and urge only that en-

largement not be purchased at too high a price in protective standards within the new units.

The three legs upon which a solid tripod of good conservation policy might stand at the present juncture of history in America are recreation, expansion, and protection. In respect to recreation and expansion, the present Administration, building upon the latter days of its predecessor, has already established an admirable record. As to protection the main record has yet to be inscribed, and upon it the ultimate judgment of the work of the incoming director and the Interior Secretary may depend.

Among the good omens are evil ones as well. The unfortunate speech of Assistant Secretary of the Interior John A. Carver, Jr., to the conference of park superintendents at Yosemite in October is one of the latter, and calls for brief comment here.

The National Park Service, during most of its existence, has enjoyed a high morale. Men entered the Service and gave their lives to it because they believed in the ideals of the Service. A large measure of unselfish devotion has characterized the attitudes of Park Service personnel, from seasonal rangers to directors, toward their work; and for this the American people have been grateful.

Yet the Assistant Secretary chose to characterize this morale as *mystique* and to say that personnel specifications calling for strong convictions favorable to such morale have "the mystical quasi-religious sound of a manual for the Hitler Youth Movement." Returning the Assistant Secretary's own language to him, such pronouncements on the part of highly-placed public officials are "simply intolerable."

Exception must also be taken to the philosophy of government advanced by the Assistant Secretary to the effect that a great Federal department like Interior is a military line-of-command structure. The most elementary knowledge of government reveals this notion to be nonsense.

The National Park Service, the Fish and Wildlife Service, the Forest Service, the Bureau of Outdoor Recreation, taken as examples, are structured in function and operation by their special organic laws. Not the Secretary of the Interior, nor even the President of the United States, has power to nullify those laws. Attempts to do so should be resisted by the bureau heads and Civil Service personnel responsible for the execution of

those laws. This is all the more true because, as the recent Rainbow Bridge litigation reveals, the ordinary citizen, without a special property interest in the resources in question, has no remedy in the courts. This is not to say that any agency of Government is a law unto itself, nor that it must not exercise its powers within the general governmental framework, and specifically the framework of any department within which it may have been established; but it is to say that there is always a degree of autonomy which must be respected by the higher authorities.

Comparable to the moral imperative of respect for agency autonomy is the imperative of protection for Civil Service tenure and advancement on merit; consultation and a reasonable measure of assent in assignment and transfer; and freedom from the corruption of patronage appointments. A proper concern with the free appointment of high policy-making officials must not be confused with spoils-system compromise. Particularly because the director-designate is considered the author of a sweeping administrative reorganization plan currently being carried into effect, he should be at pains to demonstrate that no purge is under way.

TURNING THE PAGE, WE ARE GREATLY encouraged by the appearance of the able report of the National Academy of Sciences committee on research in natural history in the parks. Appointed by the president of the Academy and chaired by Dr. William J. Robbins, the reporting committee consists of eminent authorities in the natural sciences.

No doubt we shall have occasion to comment on the Academy Report frequently in future issues; it is enough to say for the moment that it stresses the need for greatly expanded and better coordinated research directed at the major protection problems of the Service. Each park, says the Report, should be regarded as a system of interrelated plants, animals, and habitat—an ecosystem. Improved research should provide the essential understanding, and compatible administrative policies should provide the required protection. Unless such action is taken, the Report foresees that within a generation many of our parks may be reduced to a state totally different from that for which they were to be preserved and enjoyed.

While the Report disclaims authorization and intention to embark on a broader field than ecology, the members of the committee are conversant professionally with the related social sciences, and of necessity the result is a socio-

(Continued on page 15)



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Front Cover Photograph by Leland J. Prater, Courtesy U. S. Forest Service

Beautiful Mount Saint Helens, in southwestern Washington, is a part of that great circle of volcanoes which nearly completely surrounds the Pacific Ocean. Geologically, it is a newcomer to the fiery circle, having its inception during late Pliocene or perhaps early Pleistocene time. The mountain's volcanic activity has continued into modern days, eruptions having been reported as recently as 1842; some extraordinary caves within the lava of relatively recent eruptions are discussed in an article in this Magazine.

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 28,000 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.

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A good place to start a tour of Pipestone National Monument's natural and historic features is the visitor center, seen above, located close to one of the preservation's catlinite quarries.

THE PLACE OF THE RED PIPESTONE

By Roy W. Meyer

Photographs by the Author

THE DAY THE NEW VISITOR FACILITIES at Pipestone National Monument were dedicated in the hot, dry summer of 1958, I overheard a member of the dedication committee exclaim: "I only hope it holds off till tonight. Then it can rain for a week!" Pipestone's precipitation varies greatly from year to year, and this was during a minor drought cycle. Winnewissa Falls was only a trickle, and the prairie grass was crisp and brown. Since then a series of wetter-than-normal seasons have brought the water back to the falls and have made the surrounding prairie lush and green again.

Pipestone National Monument is an archeological-historical-scenic preserve in southwestern Minnesota, not far from the South Dakota line. Although the chief reason for its establishment was the presence there of a deposit of catlinite, a reddish stone much prized by the American Indians, it serves another valuable purpose in protecting a few samples of the original prairie, which has been plowed up nearly everywhere else.

The history of the Pipestone area is intimately associated with the Sioux Indians. The catlinite quarries were probably first worked in late prehis-

toric times by Indians belonging to what archeologists call the Oneota Aspect, usually identified with the Iowas, Omahas, Poncas, and Otoes of a later period. But by the time Europeans began to visit the interior of North America the Yanktons, one of the seven sub-tribes of the Sioux Nation, were in fairly secure possession of the area.

The earliest recorded visits by white men to the Pipestone quarries came in the 1830's. Philander Prescott, an Indian trader and employee of the Indian Bureau, went there in 1831, and five years later George Catlin, noted

painter of Indian life, made a better-publicized visit which was long thought to be the first by a white man. In 1838, a government-sponsored exploring party under the direction of Joseph N. Nicollet examined the site more thoroughly. A marker bearing Nicollet's name and the initials of John C. Fremont, a member of the expedition, can still be seen along the Circle Trail.

An Ownership Dispute

In 1858 the Yanktons ceded most of their lands in this region, but reserved the right to quarry stone at Pipestone. Later much legal talent and printer's ink were devoted to settling the question of whether the treaty had established a reservation, or whether the Yanktons' rights were only in the nature of an easement. The dispute erupted after the Federal Government established an Indian school on this reserved land in 1891. The Yanktons claimed that the land was theirs, and that the government had taken part of it without their permission and had erected a school from which they would receive no more benefit than other tribes. Litigation continued for the next thirty-eight years, both in and out of Congress. Finally, in 1929, the Yanktons were awarded \$328,558.90, and they relinquished all claim to the tract of land in dispute.

As early as the 1890's the idea of making the Pipestone quarries some kind of national park or reserve was broached. In its original form the bill establishing the Indian school contained a provision—later stricken out—calling for the creation of a "National Indian Pipestone Park." John Wesley Powell, explorer of the Southwest, conservation prophet, and first director of the Bureau of American Ethnology, wrote in 1898: "I am strongly of the opinion that it would be proper and desirable to reserve an area of 2 or 3 square miles, including the Pipestone Quarries, as a national reservation to be dedicated to the public forever." He regarded the site as important geologically, anthropologically, scenically, historically, and literarily. Numerous attempts were made in subsequent years to carry out Powell's recommendation, but obstacles of one sort or another always prevented action. The State of Minnesota began taking an interest in the early 1920's,



The catlinite of Pipestone Monument is still reserved by law for the exclusive use of American Indians of all tribes, and is quarried from time to time. An active quarry at the monument is the Lone Tree Pit, seen above.

with the encouragement of the local American Legion post. It is probably fortunate that the State's plans never materialized, for they envisioned a recreation area rather than a protected site. Plans drawn up by state park officials in 1924 called for a bath-house, an outdoor theatre, several camp-fire locations, and an American Legion lodge.

After several years of effort by a local group called the "Pipestone Indian Shrine Association" and by the Minnesota Congressional delegation, and after a survey by the National Park Service, Pipestone National Monument was finally authorized by Congress in 1937, and President Franklin D. Roosevelt proclaimed its establishment on August 25 of that year. One of



A successful jump from the quartzite ridge to "Leaping Rock" (above) secured for the young Indian brave the status of manhood, according to legend. Only a few feet from the Rock is Winnewissa Falls, where Pipestone Creek tumbles over the quartzite ledge (below).



the provisions in the establishing act was that Indians of all tribes should have the exclusive right to quarry the pipestone. Only a few Sioux and Chippewas avail themselves of this privilege today, to fashion pipes, miniature turtles, ash trays, and similar articles for the tourist trade.

After a modest beginning with no resident staff at all, the monument gradually took shape. Since 1948, when the first year-round custodian was hired, both staff and facilities have expanded considerably. When the Bureau of Indian Affairs decided in 1951 to close the Pipestone Indian School, administrative control of 164 acres was transferred to the National Park Service, and the monument was brought to its present area of 283 acres.

The quarries constitute the chief attraction of the monument. Named catlinite in honor of George Catlin, pipestone is a rather soft claystone, somewhat soapy to the touch. In the Minnesota occurrence it is found as several thin beds lying beneath layers of red quartzite (the Sioux quartzite). The origin of this soft stone, sand-

wiched between beds of a massive, hard sandstone, is still a geological riddle. Because of its workability and rarity—it is found in only three or four places in the United States—it was highly prized by the Indians of many tribes, who traded extensively with the Sioux or even went to the quarries to obtain it for themselves. Catlinite pipes, probably made from stone quarried here, have been found as far away as Mississippi and North Carolina. (A splendid example of ceremonial-pipe handicraft, stone for which almost certainly came from the Minnesota quarries, is pictured on the outside back cover of this Magazine).

Legends of Pipestone

The Indians had a number of legends associated with the pipestone and its origin, but these have become so intermingled with Victorian romanticism that it is hard to tell which details are authentic. One of the most pervasive myths is that the red stone was made from the Indians' own flesh and blood, a notion which naturally gave it a peculiar sacredness in their minds. One legend has it that the quarries were guarded by female spirits who lived under the glacial boulders now called the Three Maidens. In his "Song of Hiawatha" the poet Longfellow gave widespread publicity to these legends, and added a few touches of his own. The best-known lines dealing with the pipestone quarry tell how:

*"On the Mountains of the Prairie
On the great Red Pipe-stone Quarry,
Gitche Manito, the mighty,
He the Master of Life, descending,
On the red crags of the quarry
Stood erect, and called the nations,
Called the tribes of men together."*

* * *

Perhaps the best approach to Pipestone is from the east, on Minnesota State Highway 30. The road gradually rises to the crest of the Coteau des Prairies—the ridge that separates the Mississippi and Missouri drainage systems—and then descends slightly to the town of Pipestone. These "Mountains of the Prairie" actually amount to no more than a barely perceptible rise in the terrain. On the western slope Pipestone Creek cuts its way through the prairie and tumbles over the quartzite ledge to form Winnewissa Falls, one of

the scenic attractions of the monument. Farther downstream it expands to form a pond, somewhat enlarged by a dam built in 1893, dignified with the title of Hiawatha Lake.

Although every effort is being made to preserve the vegetation of Pipestone National Monument, the area is by no means in the state in which the first white explorers found it. Catlin described it as "divested of every thing, save the grass that grows, and the animals that walk upon it," and his paintings show the quartzite ledge quite clearly, unobstructed by trees or bushes. By 1880 a settler recently from the East wrote that a fine forest was developing along the ledge, and he hoped that the prairie fires would leave it alone for a while. Apparently they did, for today the area around Winnewissa Falls and along the ledge has a heavy cover of bur oak, box elder, American elm, and ash.

Besides these trees—which are native to the region if not to the immediate monument area—there is a wide variety of grasses, flowering plants, and shrubs. About 300 species have been cataloged, many of which have been labeled along the Circle Trail. Within a few steps of the visitor center one may see columbine, chokecherry, buffalo grass, blue grama, Virginia creeper, poison ivy, wild rose, vervain, cow parsnip, spiderwort—all common to the prairies and woodlands of the Middle West—along with species native to regions farther southwest, such as wild sage and prickly pear.

The Circle Trail leads from the visitor center to Pipestone Creek, follows the stream to the falls, and then returns by way of the quartzite ledge. Near the falls it passes "Leaping Rock," where the Indian brave had to demonstrate his agility by leaping some eleven feet and planting an arrow in the rock; the Nicollet marker, and some rock formations bearing a fanciful resemblance to human features and named the Great Stone Face and the Oracle.

Pictograph Stones Rescued

Just behind the visitor center is an authentic buffalo-hide tepee sewn with deer sinew by local Indians under National Park Service direction. Nearby is a circle of stones bearing pictographs. Early visitors noted many more



"The Great Spirit, at an ancient period, here called the Indian nations together, and standing on the precipice of the red pipestone rock, broke from its wall a piece, and made a large pipe by turning it in his hand. He smoked it over them, turned to the North, the South, the East and the West, and told them this stone was red—that it was their flesh—they must use it for their pipes of peace, that it belonged to them all, and that the war-club and scalping-knife must not be raised on its ground."

Quotation and drawing from "Illustrations of the Manners, Customs and Condition of the North American Indians," by George Catlin. London, 1845.

The above sketch was made by George Catlin during his visit to the sacred quarries in 1836, and looks about east from a point just to the northwest of the northernmost quarry of present Pipestone National Monument. The sketch is considerably foreshortened in a north-south direction, and may represent a "memory refresher" for a projected later painting. The three glacial erratics presently called "The Three Maidens," just inside Pipestone Monument's southern boundary, are represented by Catlin as being five.

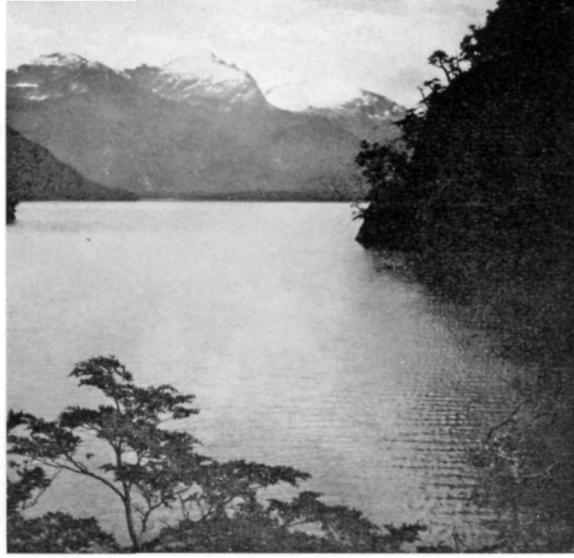
of these, but vandalism became so serious toward the end of the nineteenth century that a local resident, G. H. Bennett, had the best remaining specimens removed to his home for safe-keeping. Upon his death they were placed on exhibit at the Pipestone County Historical Society.

The Indian associations of the Pipestone area are strong even today, although few Indians take the trouble to quarry the red stone and although the Federal school has been closed for more than a decade. A local organization, the Hiawatha Club, presents each summer a dramatized version of Longfellow's poem. The performances take place just outside the monument and use the Three Maidens as a backdrop. Eighteen miles west—at Flandreau,

South Dakota—there is a Federal Indian school still in operation, and in the vicinity is a small colony of Santee Sioux whose ancestors in 1869 left their Nebraska reservation to take up homesteads in the valley of the Big Sioux River.

* * *

Pipestone is not, perhaps, one of the most spectacular areas administered by the National Park Service; but it has a certain charm, derived in part from its historic associations and in part from its significance as a remnant of virgin prairie; but above all, from its close identification with the American Indian of both past and present. ■



A view of Lago Cisne (Lake Cisne) in Argentina's Los Alerces National Park. Los Alerces is one of three Argentine preservasions in which there are representative stands of the alerce, "sequoia" of South America and a distant relative of California's two sequoias.

The Patagonian Andes is the last stronghold of the

"Sequoia" of South America

By Eugene J. Wilhelm, Jr.

ON THE WESTERN EDGE OF THE Province of Chubut, in Argentina, certain tall, silent conifers cling precariously to the world's list of extant species of trees. Complemented by emerald-blue lakes, cascading streams, and scenic panoramas, a first-hand acquaintance with the evergreen giants constitutes a rare wilderness experience.

More than 600,000 acres of a gem-like portion of the Patagonian Andes are protected in Argentina's Los Alerces National Park, created in 1937 to preserve the great conifers called "alerces." This vast area attracts thousands of visitors every year from both Argentina and abroad.

The word "alerce" probably stems from the times of the Spanish explorers of the sixteenth century. Later, in the 1850's, German immigrants to South Chile called this tree *lärche*, or *alerchholz*, because the conifer resembled the European larch. Belonging to the

family *Cupressaceae*, its scientific title is *Fitzroya cupressoides*. The generic name *Fitzroya* honors Captain Fitzroy, commander of the "Beagle" during Charles Darwin's historic expedition along the west coast of South America.

To most North Americans the alerce resembles the California coastal redwood, *Sequoia sempervirens*, in size, shape, foliage, and bark. Even its tawny sapwood and red to cinnamon heartwood suggest our tall coastal *Sequoia*. For countless centuries the alerce thrived in an extensive belt from forty to forty-three degrees south latitude, and until 150 years ago thousands of the trees prospered near deep lakes and swift rivers from Osorno to Puerto Montt, in Chile. Being an agriculturally destitute country, Chile craved every available square foot of soil for crops to feed her expanding population. The nation therefore looked upon its forest lands as "non-productive" space.

In the nineteenth century Chile be-

gan an extensive and thorough campaign to eradicate its forests and clear the land for agriculture; but the greatest single obstacle to this operation was the alerce. Standing at maturity more than 120 feet high, and with diameters approaching twelve feet, these long-lived trees covered thousands of acres. The ax proved helpless in felling the monsters, and fire seemed to be the logical tool for destruction. Year after year flames snatched away the lives of more and more of the great trees. During the brief, dry summer periods, fires spread like cancers through the live alerce stands, and billows of dark smoke drifted eastward across the Andean frontier into Argentina. Day and night the smoke continued to roll, until finally towns and villages needed street lights at noon in the thick smog. Today the charred and blackened alerce lands lie in useless ruins and not one appreciable alerce stand remains alive between Osorno and Puerto Montt.



Only a small number of the great alerces (left and above) remain in the Andean forests of Patagonian Argentina; the tree formerly flourished in adjacent portions of Chile, also, but has been largely exterminated there in land-clearance programs. It grows best in damp, acid soils between 40-43 degrees south latitude, and may occur in either pure or mixed stands.

Photographs by the Author

Nowadays the alerce dwells in marshy, peat-like soils in a few secluded localities; in Chile, the largest stand occurs in a fifty-mile-long area south-east of Puerto Montt. Although difficult to reach, these trees are now being considered for cutting.

In Argentina, the conifer is limited to three Andean national parks—Nahuel Huapi, Anexo Puelo, and Los Alerces. By far the most outstanding of these areas is the last-named.

To visit Los Alerces Park, one must travel either by bus or plane to the Patagonian town of Esquel, some twenty-five miles east of the preservation. At designated times Argentine National Park Service buses shuttle visitors between the community and the park for a nominal fee.

Squeezed between the rolling foothills to the east and the high backbone of the Andes to the west, the blue waters of Lake Futalaufquen officially welcome you to the area. Dense forests

of radal, maiten, and coigue clothe the margins of the lake in an attractive green mantle. Lake Futalaufquen is believed to be more than twelve hundred feet deep.

Los Alerces Park has been carefully developed by the Argentine National Park Service and administered for the "proper enjoyment" of visitors. Park headquarters, homes of park personnel, an office of the National Police, and a modern lodge, appropriately called "Hosteria Futalaufquen," are located on the southwest shore of Lake Futalaufquen. For the more rugged park enthusiasts, a convenient campground with tables and fireplaces sprawls along the lake shore only a few hundred feet north of the lodge.

All-day launch excursions commence early in the morning near the park headquarters; cruising slowly north on Lake Futalaufquen the visitor may view the shadowy forests and high mountain balconies. Occasionally a

lone Andean condor may be seen riding invisible "thermals" in the clear atmosphere.

At the northwest end of the lake the launch enters a swift and narrow stream called the Arrayanes River. Some two miles long and less than 300 feet wide in places, this river is named for an abundant water-loving tree, the arrayan. With its fragrant white flowers and twisted cinnamon trunk, the arrayan lives along the banks of the entire water body.

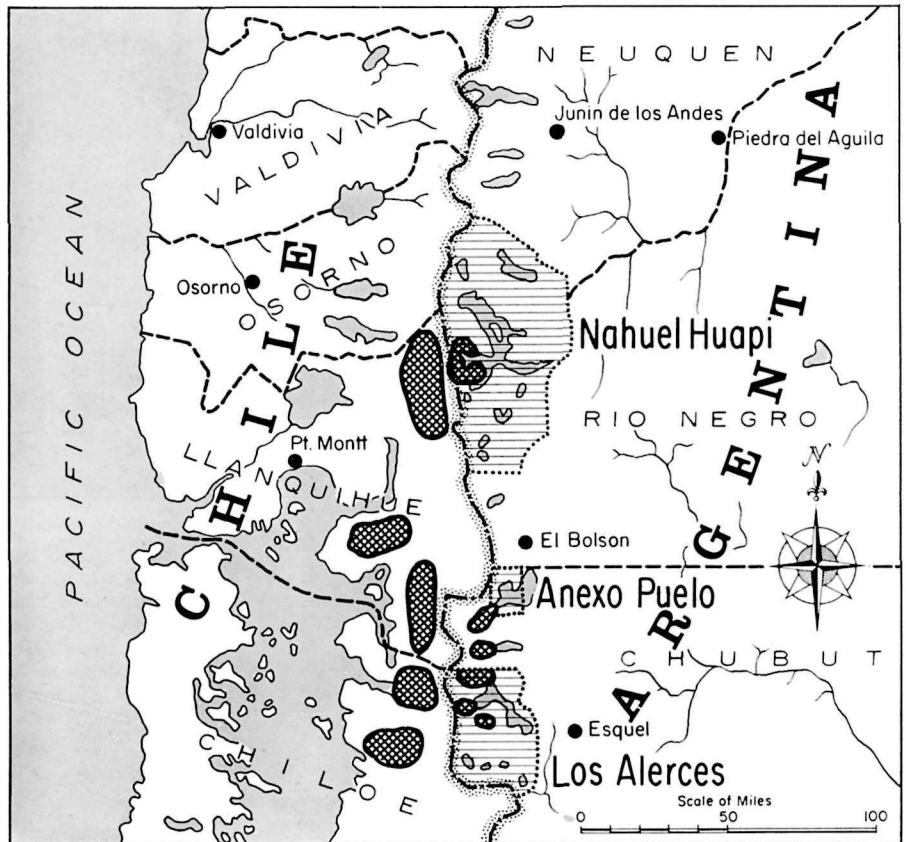
After proceeding across a small lagoon—called Green Lake—the visitor disembarks to eat lunch at the local *hosteria*, and following the noon meal a park bus takes him north to a second launch on Lake Menendez.

Here two outstanding features excite general interest. The first of these is Torrecillas Glacier. On clear days this massive tongue of ice dominates a spectacular view of the Andes Mountains, and large gaping crevasses stretch



Crosshatched areas of the detailed map at right (which covers the sector indicated in the general map above) outline the remaining stands of the alerce in Argentina and Chile. The tree occurs in three of the national parks of Argentina—Nahuel Huapi, Anexo Puelo, and Los Alerces, indicated by horizontal shading; the latter park was created in 1937 to protect especially fine stands of the conifer.

Maps by Federal Graphics



across its surface. According to recent studies, this glacier is retreating at a rapid pace.

The second feature lies at the north end of the lake. After an hour's boat trip, a stand of erect and quiet trees looms ahead of the launch—the alerces. These natural spires are the most notable representatives of the species within the park; with straight trunks reaching diameters of ten feet at shoulder height, the old conifers have escaped fire and ax for 150 decades or more.

The "sequoia of South America" is a relic of past time, an evergreen which grows best under humid conditions below an elevation of 2500 feet. It has an unquenchable thirst for water, and some specimens thrive under conditions of more than 150 inches of annual precipitation; and a complex plant and animal community thrives with them.

Many kinds of mosses, lichens, and

fungi live on the lofty trunks and branches, and dense bamboo stands huddle together below. The dark thickets allow mammals, birds, and even men protective shelter from the elements. Now and then a stately giant is weakened by a rotted interior, or by disease, and comes crashing down during a winter storm.

But the death of one alerce means life for countless others. An open space in the high canopy permits precious sunlight to touch the forest floor, while, with the slow decomposition of the sleeping monarch, vegetative forms co-

operate to establish a living "log community."

It has been estimated that the alerce may attain an age of 4000 years. Growth rates of "old" alerce trees in the park cast some light on this matter, and one sampled tree at Lago Cisne is calculated to be 1800 years old. However, it is possible that the very high ring counts in the outer growth layers of alerces have led to gross overestimates of the total age of large trees of the species.

But, regardless of the longevity question, the alerce today is representative of diminishing South American wilderness. Fortunately there is a growing, if slow, tendency in South America to regard forests, lakes, mountains, and other natural phenomena as economic, scientific and esthetic assets; its national parks and reserves represent the continent's efforts to save portions of the original land as living museums for the future. ■

The author, who is with the Department of Geography at St. Louis University, extends his appreciation to the National Academy of Sciences—National Research Council and the Argentine National Park Service for the financial and logistic support which made this article possible.

It is not difficult to traverse even the smallest sections of the lower part of Ape Cave, in the Mount Saint Helens Cave area which has been suggested for preservation.



A speleologist discusses the

Features and Significance of the Mount Saint Helens Cave Area

By William R. Halliday

Photographs by the Author

AS A RESULT OF RECENT EXPLORATION and study, it has become apparent that a Recent lava flow south of Mount Saint Helens, in the State of Washington, is of exceptional interest and importance, and probably of national significance from both speleological and general standpoints. As such, it is believed by various Northwestern speleological, outdoors and conservation groups—as well as the writer—to merit national monument status.

This lava flow is in Skamania County in southwestern Washington, with the exception of its southwesternmost tip which crosses the Skamania County line into Cowlitz County. Its upper end is at an elevation of about 3000 feet at a point about two miles southwest of the

base of Mount Saint Helens. Mostly about three-quarters of a mile wide, it follows a slightly sinuous course southeast, then southwest for a distance of a little more than five miles to the edge of the Lewis River Canyon, at an elevation of about 1200 feet. Lava-tube caverns are known throughout most of this length. Similar Recent basalt on the floor of the Lewis River gorge may be a continuation of this flow, or an entirely separate flow. The lower third of the flow is divided by a forested kipuka, about one-half square mile in extent. At least part of the flow is about 2100 years old as dated by radiocarbon study.¹ Along its length is a marked

gradation in vegetation. The lower end is covered with straggly, recent-appearing growth, with beautiful moss gardens an outstanding feature. The upper sections support a typical Douglas fir forest. In these areas, some extensive “clear-cut” logging has taken place. Where not marred by clear-cutting, the frequent views of Mount Saint Helens, framed by the virgin forest, are breathtaking. They should prove a major tourist attraction when the area is further developed.

Although U.S. Forest Service releases have in the past referred to this flow as “the Goat Mountain cave area,” Goat Mountain is several miles farther west, and bears no apparent geographic or speleological relationship to the flow.

In this flow, or complex of flows,

¹ Fairhall, pers. comm.

five important lava-tube caves and several smaller tube fragments are known. The major caves are Ape Cave, Bat Cave, Lake Cave, Little Red River Cave and Ole's Cave. With a slope length of 11,215 feet, Ape Cave is the longest lava-tube cave known in the United States. At the time of writing, no longer lava-tube cave has been reported anywhere in the world.

Other features of this area include exceptionally fine tree-casts near Lake and Ole's Caves, and elsewhere in the flows. Both vertical and horizontal casts are present. Many are several feet in diameter and as much as fifteen feet deep. Some near Ole's Cave appear to perpetuate the bark patterns of the engulfed trees. Some near Lake Cave contain casts of charred, cracked wood. Outstanding self-guided interpretive tours could be developed in these areas.

To permit appropriate study of this curious geobiologic unit, and to preserve the flow as a "living museum," it would appear desirable to keep the entire flow as nearly as possible in its natural condition, and to restore patch-cut areas as rapidly and as effectively as possible. Such restoration also would greatly enhance its attractiveness to visitors.

Significance of the Area

The most obvious feature of significance of the Mount Saint Helens cave area is the "record" length of Ape Cave. The fact that it is the longest lava tube in the United States—and perhaps in the world—makes it of national significance. Nevertheless, there are other features in this area which probably are of greater importance than the mere length of this single cave. Their scientific importance probably surpasses their importance as tourist attractions, important as that might prove to the economy of Cowlitz County.

Ole's Cave appears to be one of the very few caves in which a lava-tube cavern can be traced from vent to terminal cupola. Lake Cave demonstrates confluence of tube-forming flows of different composition, especially in the Red Passage. In addition to its superb speleogenetic sequences, Lake Cave is one of the extremely few lava-tube caves which have been dated accurately. This was possible as a result of radiocarbon dating of charcoal found

just outside the tube in the form of a charred root, still imbedded in the pre-flow soil. The flow in which Ole's Cave is located appears to be much younger than the Lake Cave flow, and may have occurred little more than 100 years ago. On the other hand, correlated study of the caves in different parts of the flow may prove that, surface appearances to the contrary, the entire bed was deposited during a single geologic episode. Little Red River Cave is of particular importance because of the glaze in the entrance section, the "double-barrelled," lava-fall far back in the cave, and other features. Bat Cave is more complex than the other caves, with three effluent tubes and other features of scientific interest. It is the only cave in Washington State inhabited by a colony of bats. Protection of the bats from disturbance should be the principal consideration in protection of this cave. Ape Cave is also of biological and geological importance.

The near-400 foot section of Ape Cave located downslope from the lower entrance is relatively free from breakdown, and could easily be developed for visitors. With the proper installation of hand-rails, few hazards would exist. This section of the cave has many features illustrative of the origin and development of lava tubes, and would support an excellent interpretive program. Because of the vulnerability of some features (stalactites, "badlands," etc.) to thoughtless or intentional vandalism, only guided tours should be permitted here. Visitors might be provided with a short tour upslope as well as downslope. Most of the remainder of the 7000-foot upslope section of Ape Cave is difficult and dangerous for inexperienced persons, and tourists should probably be excluded there.

Features of Ole's Cave

Ole's Cave contains more breakdown than the lower section of Ape Cave, but portions of this cave are

also suitable for development for tourist visitation. Ole's Cave was the first commercial cave in Washington. A section upslope from the lowest entrance is suitable for development as a self-guided tour with gasoline lanterns. Interpretive signs could be placed at appropriate features. In this area are "George Washington's Face" and some interesting lateral ridges of successive intratubal flow. The lowermost section of Ole's Cave also contains notable features, but of greater fragility, so that only guided tours should be permitted here. The remainder of this cave, like the upper part of Ape Cave, should be open to competent parties of spelunkers.

Lake Cave and Bat Cave contain too much breakdown to be suitable for development for tourist visits. String Cave and the other cavelets known in the flow are too small to be of interest. The very small entrance section of Little Red River Cave is suitable for tourist visits, and is perhaps of some visitor interest because of the spectacular glaze in that section. The descent to the main part of that cave is much too dangerous for visitor development, however, even if the pit were to be enlarged. The features of its lower sections are quite fragile and delicate, and likely would not be appreciated by tourist visitors as much as those of Ape and Ole's Caves. The section below the entrance area should probably be reserved for spelunkers and speleologists.

Division of Ownership

Since ownership of the flow is intricately divided between federal, State and private authority, private development of the area probably is out of the question. Three approaches to its preservation and development appear possible: State park development; national forest development under special-use permit or as a "dedicated area," and establishment as a national monument.

With few exceptions, the State parks of Washington are devoted to mass recreation. The lava-tube area is not suitable for such a park. On the other hand, a basic plan somewhat similar to that practiced at Ginkgo State Park might prove suitable, with secondary recreational use of some areas. However, the past record of State park ad-

Dr. Halliday, who makes his home in Seattle, Washington, is a nationally known speleologist who has been published widely on cave exploration and its natural history interests. He is the Director of the Western Speleological Survey.

ministration in Washington makes the desirability of State park status for the flow seem dubious. Further logging, for example, almost certainly would occur.

In other States, a number of caves on Forest Service land are open to tourists through development by concessionaires under special-use permit. Two of these are Boyden Cave, California, and Minnetonka Cave, Idaho. Kings Caverns, California, have received dedicated area status, as has a tree-cast area in Oregon. The Kings Caverns are not open to the public, but are set aside for speleological study. In the Mount Saint Helens cave area, the Forest Service could establish a dedicated area in which some of the caves and their sections were to be developed for tourist visits and other protected speleological study. In contrast to the situation at national monument caverns, however, few tourists appear willing to detour even a few miles to visit these developed caves on Forest Service lands. Furthermore, severe shortages of funds and personnel have precluded proper protection by the Forest Service of many of the caves on its lands, and such caves often have been damaged severely by vandals.

Under the National Parks Act of 1916, areas of national significance are to be administered by the National Park Service. National Park Service areas also attract far more out-of-State

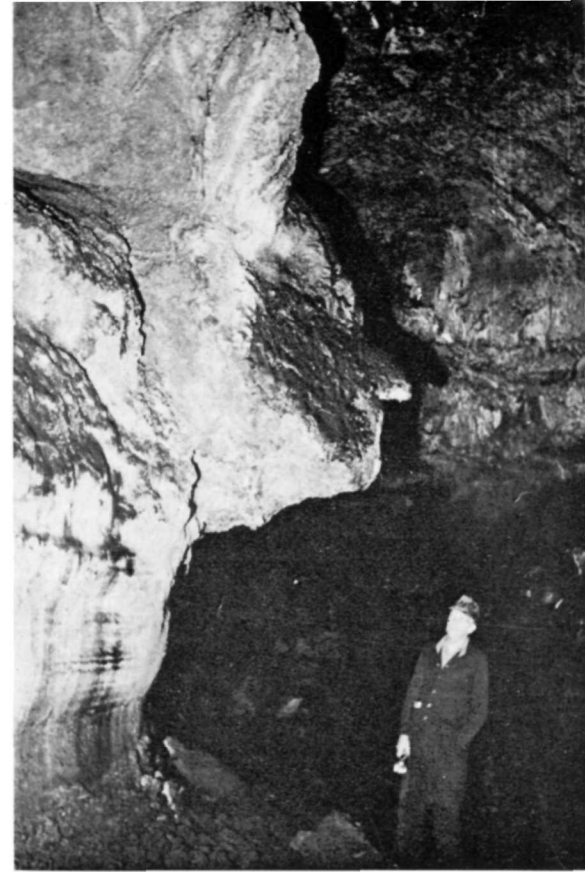
A projecting lava formation in Ole's Cave bears a strong resemblance to a human profile, and is known as "George Washington's Face."

visitors than State parks or Forest Service dedicated areas. Although not perfect, the protection of undeveloped caves in national parks and monuments, and the administration of developed caves therein, appear to be significantly better than those of national forests. These two factors alone are not indications for establishment of a national monument, but are fringe benefits in areas which qualify by reason of their national significance. None of the lava flows in present units of the national park system exhibits an ecological community similar to that of the Mount Saint Helens cave area.

Aside from those who would gain financially from continued logging of the small remaining virgin forest of the upper part of the flow, and perhaps from the standpoint of a few hunters, designation of this small flow as a Lava Caves National Monument would seem desirable from nearly every standpoint. Such a national monument could be established either by Presidential proclamation or by Congressional action. Such action, however, would involve four problems:

1. National monuments should be "living museums," but large clear-cut areas are present locally on the flow, especially near Ape and Lake Caves. The boundary of such a monument, however, could be drawn to exclude as much as possible of these areas. Furthermore, in fifty years, much of the damage no longer would be so obvious if further cutting were halted immediately. Relatively small patch-cut areas could be included to maintain the unity of the monument and to simplify administration.

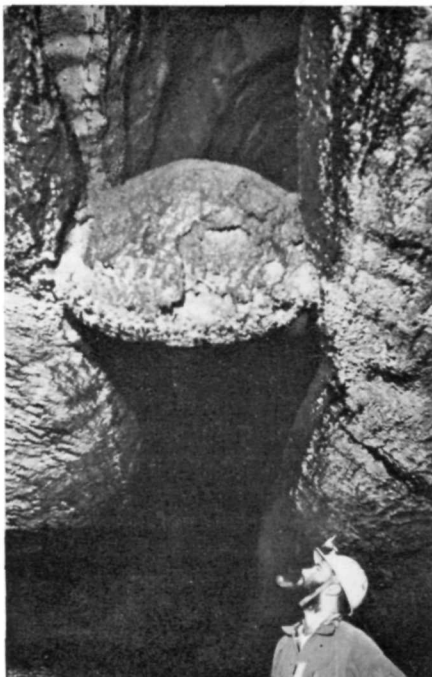
2. Establishment of a national monument (or a properly dedicated Forest Service area) would halt timber-cutting in the area, and thus cause some economic disarrangement. Proper delineation of boundaries, however, could exclude all but a small quantity of the



merchantable timber of the area. Under such circumstances, virgin forest would be of far more economic value as part of the natural scene than as timber.

3. Whether the lava bed became a national monument or a Forest Service dedicated area, future development plans should exclude hunting, to insure the safety of visitors. For this reason the boundaries should be drawn carefully to exclude areas of particular importance to hunters, if at all possible. Since the Washington State Game Department has refused to cooperate in such planning elsewhere in the State, the assistance of local hunters should be sought for such planning. Because of the narrowness of the flow, no significant problem should arise.

4. This area is a "checkerboard" region, within the Gifford Pinchot National Forest but with federal ownership only of isolated blocks of land. It appears that the State of Washington owns some of the important cave areas. The reaction of the State administration to a Forest Service dedicated area is not predictable. On the basis of past experience, the State administration probably would oppose establishment of any national monument unless there were strong local and Statewide support. The Forest Service might also



A bearded cave explorer examines a wedged lava ball in a high-vaulted section of Ape Cave.

oppose such a national monument on general philosophic principles; it could be assumed that the commercial logging companies would, also. Actually, however, establishment of a national monument here could facilitate land consolidation and management for all concerned.

Tentatively, it appears that most of these problems could be minimized by delineating such a Lava Caves National Monument as follows: *Southern boundary*, edge of Lewis River Canyon. *Eastern boundary*: (from south to north) a line one-quarter mile east of the east edge of the lava bed north to

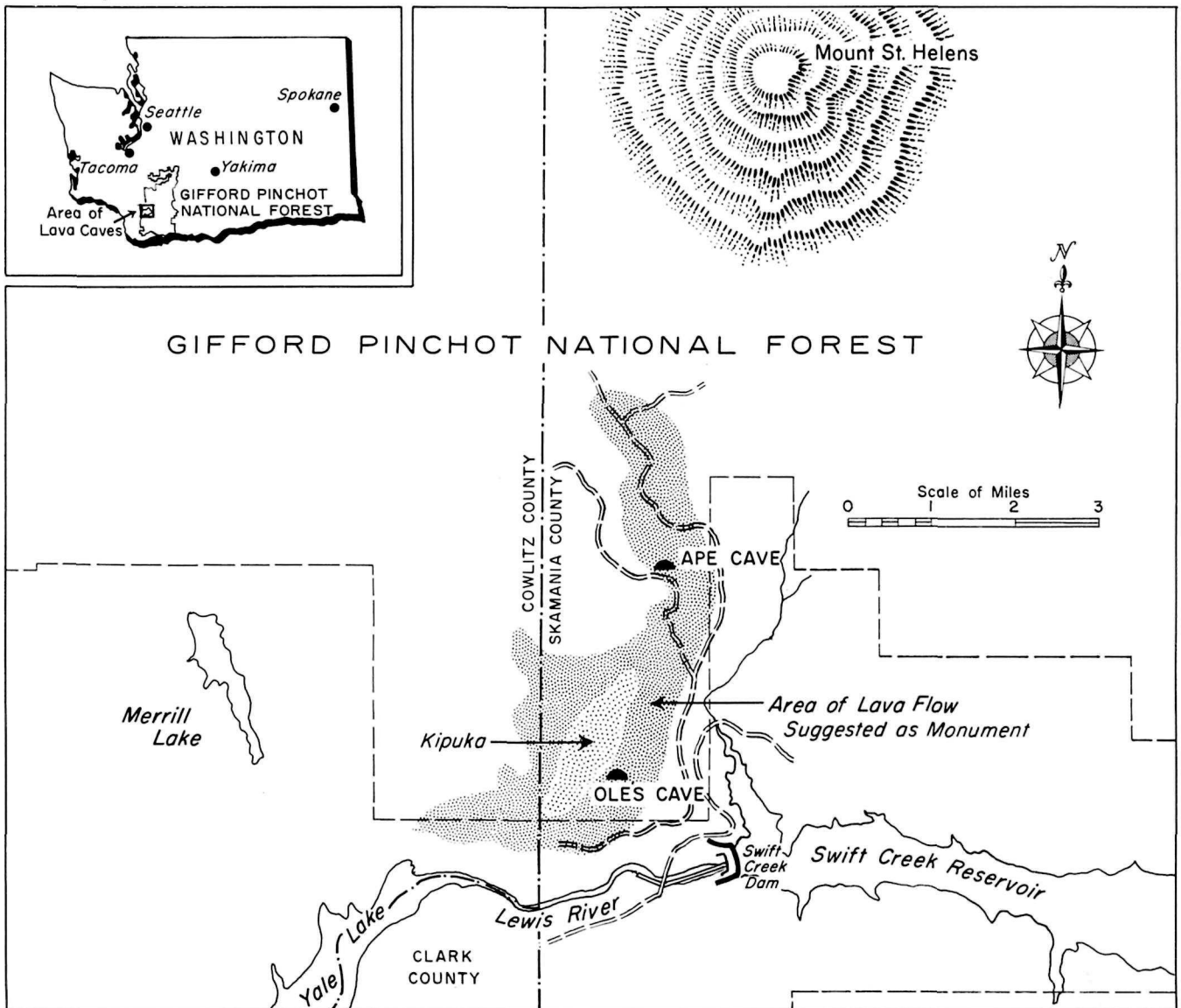
the edge of a clear-cut area in the northeast corner of section 17, T7N, R5E; thence north along the edge of the west fork of Swift Creek road, to bench mark 3064 in section 30, T8B, R5E. (Because the flow tapers to this point, there is no northern boundary). *Western boundary*: eastern edge of hill in section 31, T8N, R5E and sections 6 and 7, T7N, R5E together with a one-quarter-mile fringe of that hill except where already clear-cut. Thence west to the inflow of Cougar Creek into Grass Lake, thence south and west along the margin of the hillside and lava flow to the canyon edge.

Conclusions

In addition to 11,215 foot Ape Cave, which is the longest lava-tube cave known in the United States and perhaps the entire world, the lava flow south of Mount Saint Helens in Skamania County, Washington, contains many features of high scenic, geologic and biotic importance. It appears to be of national significance, and might well be preserved and developed as the Lava Caves National Monument. Two of the caves are suitable for development for tourists. Others probably should be reserved for speleological study and visits by competent persons.

The area of lava flow near Mount Saint Helens in Washington which has been suggested as a possible national monument is shown in fine stippling below. Also indicated are locations of two important caves of the flow, while a "kipuka," or tract of "older" land entirely surrounded by the relatively recent lava stream, is indicated in coarser stippling.

Federal Graphics



The Editorial Page (continued from page 2)

ecological study in some measure; together with the Academy committee we await with interest the forthcoming study by Dr. F. Fraser Darling for the Conservation Foundation, which frankly essays the socio-ecological task.

The ecosystems in the parks cannot be isolated from the social issues which increasingly impinge upon the parks. Ultimately the problems of the parks are problems in government: hence in a complex of social sciences, quite as much as the biological sciences; specifically, economics, sociology, demography, social psychology, depth psychology, cultural anthropology, history, government, and law. They are also, if we may be pardoned the assertion, problems in philosophy and art.

The impending desiccation of the Everglades, for example, with which the Report deals at some length, is the end result of atrocious mismanagement of public investment in flood control, reclamation, transportation, urbanization, and industrialization. Everglades Park cannot be saved without a comprehensive program for all of southern Florida which revises practices in these fields completely.

But the immediate impact of the Academy Report, or so we trust, will be to strengthen the long-established—but more recently somewhat shaken—policy of strong protection for natural conditions in the parks.

The incoming director of the Service, by reason of the bitter circumstances of the times in which he assumes office, will be forced through many an ordeal by fire. He may contemplate, for example, as he takes the helm, that the main shock wave of the population explosion, already accurately predictable, has not yet struck.

The test of statecraft in the National Park Service, and in all related work in the Department of the Interior, now and henceforth, will be the recognition that the protection and restoration of the natural environment for all life everywhere, beginning with such vital base-points as our great national parks, with all that such policies require in the preservation of ecosystems and the improvement of socio-ecologies, is an imperative of any civilization worthy of the name.

—A.W.S.

Dr. Olaus J. Murie

IT IS WITH DEEP REGRET THAT THE National Parks Association publishes this notice of the passing, during late

October, of Dr. Olaus J. Murie, conservationist, scientist, and member of the Association's Board of Trustees.

Dr. Murie, whose work in mammalogy led to several books and many scientific papers and magazine articles, was an outstanding exponent of the therapeutic value of wilderness for the human mammal; "the one person who best personified wilderness in our culture," in the words of Dr. Howard Zahniser, executive director of The Wilderness Society, of which Dr. Murie was president for a number of years.

Perhaps some measure of the esteem in which Dr. Murie was held by the folk of the conservation world may be indicated by citation of several of his awards in the field. These included such coveted honors as the Leopold Medal, the special Audubon Medal Award of the National Audubon Society, the Honor Roll Award of the Izaak Walton League, and the John Muir Award of the Sierra Club.

At the time of his death Dr. Murie was 75; for many years he had made his home at Moose, in the shadow of Wyoming's Teton Mountains.

Road-Block to Rainbow

A RECENT NEWS STORY IN THE *New York Times* set our mind to wandering back over the course of the long struggle by conservationists to afford protection to Rainbow Bridge National Monument from the waters of Lake Powell, now creeping up the Colorado in Utah, and into its wild tributary canyons; and to the long-established policy of park and monument protection from such intrusions.

One of the alleged blessings which was to follow creation of Lake Powell was ease of access to the great and colorful natural arch of Rainbow Bridge. Would-be viewers of the Bridge eventually could, it was said by opponents of protective works for the monument, take to their boats from ramps in the Glen Canyon National Recreational Area, ride the waters of Powell, skim up Aztec and Bridge Canyons, and, to quote one of them, "what more satisfying way could there be to see and appreciate this magnificent arch than to float up under it and view it from many angles?"

However, a practical angle is developing which—alas and alack—may seriously interfere with the many-angled view, and somewhat rob it of its poetic quality. It seems that boat access to Aztec Creek and the Rainbow Bridge trail is presently blocked by a monu-

mental, rotting, and thoroughly unpoetic mass of logs, planks, cans, cartons, muck and assorted jetsam brought down the Colorado, and down Aztec Creek and its tributaries by flash floods, and held at canyon-mouth by Lake Powell's currents. Not only this; the whole mess is expected to migrate up Aztec Creek as Powell's floodwaters rise. (In a matter of a couple of years or so, say Park Service and Bureau of Reclamation people, it will be under Rainbow Bridge itself.)

What is to be done? Nothing. "Our funds just won't permit us to clear Aztec Creek," the superintendent of the Glen Canyon Recreational Area has said.

But wait—an idea has occurred to the regional information officer of the Bureau of Reclamation. The Bureau wants to cooperate with the Park Service in dissolving the junk-jam. ("After all, our dam causes it.") A dam above the Bridge, and a tunnel connecting Bridge Creek with Aztec Creek, would divert debris from Bridge Creek into Aztec Creek in time of flood. Since the former is a tributary to the latter, the force of this maneuver in protecting the water access to Rainbow Bridge via Aztec Creek has escaped us as of this writing.

In any event, the superintendent and the information officer expressed the opinion that a solution to the problem can come only through a Congressional appropriation. This is where we make our exit. The Glen Canyon-Rainbow Bridge record continues to spin on its turntable, but somewhere along the line it seems to have cracked. We have the uneasy feeling that we have been through all this before.

—P.M.T.

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*Conrad L. Wirth to Retire As National Park Service Director; Will be Succeeded By Associate Director George B. Hartzog, Jr.
Assistant Director Hillory A. Tolson Also Announces Retirement Plans*

In the nation's capital the summer of 1963 was one of rumor and rumble over possible retirements and changes in the National Park Service's top structure. Thus conservationists in Washington and elsewhere were not unduly surprised by Interior Secretary Stewart L. Udall's mid-October announcement of the imminent retirement of Conrad L. Wirth as director of the Park Service, and his replacement by George B. Hartzog, Jr.; and the retirement, late this month, of Hillory A. Tolson, Service assistant director for administration.

Both Wirth and Tolson are long-time career men with the Park Service. The retiring director, a native of Hartford, Connecticut, joined the Service in 1931 after three years with the National Capital Park and Planning Commission (now the National Capital Planning Committee). He advanced through the ranks to become associate director in early 1951, and director late in the same year. During his career with the Service the retiring director has accumulated innumerable conservation awards and honorary degrees, and has participated as a member or officer in the work of many national land-planning groups. In 1962 he was elected president of the American Institute of Park Executives.

George B. Hartzog, Jr., who will take over the directorship of the Service (in January of 1964) commenced his park career in 1946 as an attorney in Chicago; from November, 1947, to August, 1948, he was an attorney at the



Conrad L. Wirth
*will retire as director of
National Park Service.*

Lake Texoma Recreation Area at Denison, Texas (today under Corps of Engineers jurisdiction). He was then transferred to Service headquarters in Washington as attorney-advisor. In August, 1955, he became assistant superintendent of Rocky Mountain National Park, and in 1957 was transferred to Great Smoky Mountains Park in the same capacity. In 1959 Hartzog was made superintendent of Jefferson National Expansion Memorial in St. Louis. He left the Service in 1962 to become executive director of a St. Louis organization of civic and business leaders, but in 1963 re-entered the Park Service as associate director. He is a member of the American Institute of Park Executives, the National Conference on State Parks, Missouri Park and Recreation Association, and the Forestry Advisory Council of the University of Missouri.

Hillory A. Tolson entered the Park Service in 1932, and has been an assistant director for administration since 1943; as such, he has been the principal officer in charge of "house-keeping" duties like finance, audit, personnel, property and records, safety, and administrative programs of an allied nature. He was the initiator and developer of the *National Park Service Administrative Manual*. Tolson was the 1949 recipient of the Cornelius Pugsley Silver Medal for significant contributions to the national park field, and, in 1963, was awarded the Interior Department's highest honor, the Distinguished Service Award.



George B. Hartzog, Jr.
*will be the new direc-
tor of the Park Service.*

Redwood Grove May Honor Hammar skjold

A fund-raising campaign has gotten under way for purchase of the famous Pepperwood Grove of California coastal redwoods as a memorial to the late secretary-general of the United Nations Dag Hammarskjold, according to the Save-the-Redwoods League, conservation organization of San Francisco.

The Pepperwood Grove, among the last unpreserved virgin groves of *Sequoia sempervirens*, is on the Redwood Highway some 250 miles north of San Francisco. Some of its trees are more than 300 feet tall, with ages estimated in excess of 2,000 years.

Negotiations for purchase of the grove have been opened with the owner, a lumber company, and the Dag Hammarskjold Memorial Grove Committee, appointed by Governor Edmund G. Brown of California, through the Save-the-Redwoods League. It is hoped that

the objective may be reached by United Nations Day, October 24, 1964.

The fund-raising campaign is under the chairmanship of Major-General Frank E. Stoner (U.S.A., ret.); the address of the Save-the-Redwoods League is 114 Sansome Street, San Francisco, California.

Park Service Rangers Taking to the Water

Some national park rangers have temporarily changed their traditional green uniform for swim-trunks, fins and snorkel tubes to prepare for the growing popularity of underwater swimming among the visitors to the national parks and recreation areas.

Underwater swimming assumes two forms: skin diving, using face-plates, fins and snorkel tubes; and scuba diving, using the same equipment plus air tanks. To insure maximum safety for visitors and park employees in this, rangers are attending a three-week scuba-diving course at the United States Naval Diving

School in Washington, D.C.

Diving has been an integral part of the Service's program, especially since the development of underwater nature trails in Virgin Islands National Park and Buck Island Reef National Monument, both in the Virgin Islands. Other underwater interpretive methods are also being planned for other areas administered by the National Park Service.

Anti-Billboard Bonus Extension

During October, Congress approved legislation which will extend for two years the bonus offered to States that bar billboards from interstate highways.

The Federal Government's share of the construction costs of interstate highways is increased by one-half of one percent in States that prohibit signs and billboards within 660 feet of the right-of-ways of the interstate roads. Since the bonus provision was enacted in 1958, only twenty States have enacted laws to qualify for the payments.

The Editor's Bookshelf

RUNES OF THE NORTH. By Sigurd F. Olson. Alfred A. Knopf, Inc., New York, 1963. 255 pages. \$4.95.

"Like the ancient bard in the Finnish epic poem *Kalevala*, I have listened to the rapids of rivers, to the winds of summer and winter, and to the waves of many lakes. I have known mountains and glaciers, forests and tundras, and have gathered runes wherever I have gone." Thus the opening passage in *Runes of the North*, in which Sigurd Olson, well-known conservationist, writer, and member of the President's Quetico-Superior Committee proves himself a master "runner," as the Gothic bards were called.

Although originally an alphabet developed around the second or third century by the Germanic tribes in Europe, the term "rune" evolved to mean a character or sign which was believed to have magical power, and which was used as a charm, healing formula, or incantation. (Runic characters were common in Anglo-Saxon writings until gradually crowded out by the Latin alphabet of the Christian missionaries.) In a more general sense, a rune is a tale of magic and mystery.

The Finns also used runes in their writings, as, for example, in the Finnish epic *Kalevala*. Of uncertain origin, but generally thought to date from the Middle Ages, the *Kalevala* has been called the most significant national epic in existence and, after the Scriptures, is perhaps the chief mental and spiritual treasure-house of the Finnish nation. A collection of popular songs, ballads, incantations and early runic poetry handed down verbally from generation to generation and combined into an artistic whole by Dr. Elias Lönnrot in 1835, the *Kalevala* portrays the adventures of three heroes in their raids into the cold north.

Mr. Olson's runes are divided into two sections: "Le Beau Pays," the beautiful land, and "Pays d'un Haut," the upper country. The tales in the former take place in the Quetico-Superior area of southern Canada, while the setting for the latter is the far northern wilderness, from Hudson Bay across the tundra to the Yukon and Alaska.

"Le Beau Pays" is comprised of several short tales ranging through such subjects as a charming Indian myth "The Dream Net," the exhilaration of the *sauna* (the Finnish steam bath, which has recently become another tinsel status-symbol in this country) to the pleasures of digging a spring for a remote cabin

in the woods.

"Pays d'un Haut" has perhaps more continuity than the first section, as the author reminisces his explorations of the northern wilderness. He has also periodically captured the melancholy spirit of the bleak and desolate country of the *Kalevala* in his accounts of the North American land of the moose, caribou, and wolf.

A note of sadness prevails as the author observes the swift change in the old way of life and its identification with the past in totem and symbolism. Deep spiritual roots have been cut and replaced by a world of gadgetry, speed, and excitement; the old ways are rapidly being abandoned.

"It is a land of space, solitude, and forbidding grandeur. . . . It occupies most of the Canadian Shield and is as hard, unyielding, and bleak as its native granites. Here is no intimacy and familiar beauty, but challenge and adventure of such power that all canoeists dream some day of penetrating its vastness." Sigurd F. Olson has done so on many occasions, and this volume is by way of a report to the dreamers. —J.H.C.

HIGH TRAILS. By Robert H. Wills. University of Washington Press, Seattle, 1962. 147 pages. \$3.00.

This volume is a guide to the Cascade Crest trail in the State of Washington. It includes a complete mile-by-mile log and twenty trail maps covering the fourteen sections of the main trail as well as the side trails. Also included are chapters on proper equipment, clothing, supplies, and mountain photography.

OUTDOOR RECREATION PREFERENCES: A NATIONWIDE STUDY OF USER DESIRES. By Leslie M. Reid. The School of Natural Resources, University of Michigan, Ann Arbor. Multilithed, xii + 288 pages. Includes 3 figures, 48 tables and 18 plates. 1963. \$6.50.

The study, derived from the author's doctoral dissertation, is based on a survey of 10,982 visitors in twenty-four outdoor recreation areas, including four national parks, seven national forest areas, three Federal reservoirs, nine State parks, and one metropolitan forest area. The analysis, by an assistant professor of park and recreation administration at Michigan State University, focuses on visitors' opinions, preferences and dissatisfactions in the various areas.

ECOLOGY OF INLAND WATERS AND ESTUARIES. By George K. Reid. Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N.Y. 1961. xvi + 375 pages, in cloth binding. \$7.50.

A college-level textbook in aquatic ecology of value to those readers of this Magazine who wish to go far more than casually into a fascinating study.

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Below, a ceramic figurine of the Hamangia civilization, Middle Neolithic period of Rumania. From cemetery of Cernavoda; about 4000 B.C. Photograph courtesy Dr. D. Berciu, Institute of Archeology, Rumanian Academy of Sciences, Bucharest.



Above, a catlinite effigy pipe from a Middle Mississippian Indian burial mound of the present Shiloh National Military Park and Cemetery, Pittsburgh Landing, Tennessee, and in the museum there. Dated at about A.D. 1200. Photograph by Ira B. Lykes, courtesy National Park Service.

Below, "Le Penseur" (The Thinker), modeled by Auguste Rodin and first shown in plaster in 1889; in bronze, 1904. This view is from the left side, from a photograph by courtesy of the Rodin Museum, Philadelphia; The Philadelphia Museum of Art.



Through the Ages With the Thinker

"In every epoch of the world the great event, parent of all others, is it not the arrival of a *thinker* in the world?"—Thomas Carlyle

CERTAINLY THE FRENCH SCULPTOR AUGUSTE RODIN agreed with Carlyle when he modeled *Le Penseur* (The Thinker), a masterpiece known to every lover of art.

But Rodin was not the first to put this concept into a sculptor's image. From one of the many Indian mounds of the area that is now Shiloh Battlefield Military Park in Tennessee, among skeletons, broken pottery and other artifacts of the Middle Mississippian culture dating from about the year 1200 A.D., was taken the exquisitely executed Thinker in the form of an effigy pipe, pictured on this page. The prehistoric artist carved it from the rock known as "catlinite" quarried in Minnesota at the Indian sanctuary now preserved as Pipestone National Monument. (See article on page 4). This effigy pipe is in the Museum at Shiloh.

Yet even our talented Indian artist was tardy with his inspiration. Neolithic man's Rodin preceded him by nearly four thousand years. Recently, a figurine of the Hamangia

culture, which in the fourth millenium B.C. flourished along the western coast of the Black Sea, has been recovered. Of brown clay with brownish-black slip, "this Cernavoda man", says Marija Gimbutas, lecturer in archeology at Harvard, "with his weight balanced perfectly in the heavy legs and the masterfully curved back and arms, sits on a small stool. His face, with pensive and anxious expression, is supported on bent arms. . . ." A Thinker of 5000 years before our time!

And long before that, without doubt there were aboriginal artists creating the same picture in terra cotta, or in drawings on the walls of caves.

Said Saint Matthew: "Which of you by taking thought can add one cubit unto his stature?" So far as the body is concerned, the question was just. But as for the power of thought in the understanding of the world around us, the artist through the ages apparently has never had a doubt.