NATIONAL PARKS *Magazine*

Monkeyflowers and Indian paintbrush illuminate
a high meadow in Glacier National Park

April 1967

The Mess on the Potomac

"One way to describe the Corps of Army Engineers would be to say that it is the most powerful and most pervasive lobby in Washington . . . Their record shows that they not only regard themselves as independent of the Secretary of the Army and the Secretary of Defense, but even of the President . . . It is to be doubted whether any Federal agency in the history of this country has so wantonly wasted money on worthless projects as has the Corps of Army Engineers . . . No more lawless or irresponsible Federal group . . . has ever attempted to operate in the United States, either outside of or within the law."

—*Harold L. Ickes, 1951*

THE LONG CAMPAIGN for a Model Program for the Potomac continues. We report to our readers upon it from time to time because of its serious implications for the nation and the world.

Two years and more have passed since the President asked the Secretary of Interior to develop such a program. It was to cover, among other things, the question of Army-type major dams; complete depollution, such as to make the fresh-water estuary at Washington safe for swimming; and the protection of natural beauty.

The foundation for the assignment was a powerful coalition of farm, labor, conservation and citizens groups which had resisted the Potomac River Basin Program, Army Engineers, 1963. This coalition has undergone minor changes in the interval, but is stronger than ever.

Its power stems from the validity of its program: an all-out attack on pollution at source; a network of headwater flood-detention basins; rejection of all Army-type dams; and use of the fresh-water estuary for water supply at Washington during droughts.

Almost immediately after the assignment to the Secretary, the Department of Interior and the Army Engineers appear to have entered into a secret treaty for a temporary compromise on five Army-type reservoirs; Seneca (Main River, near Washington, deferred, site to be pre-empted); Town Creek, Little Cacapon, Sideling Hill (Middle Basin); and the authorized Bloomington Reservoir on the North Branch.

The deal saw the light of day in May 1965, with a release of a propaganda film by the Interior Department; in January, by the publication of the Interim Report, Interior, 1966; and in August, the Interim Report, Army Engineers, 1966. The two Interim Reports are so nearly identical that they may be referred to as the Army-Interior Interim Reports, 1966.

The Interim Reports do not constitute a Model Program for the Potomac, and as a matter of simple fact will not have the support of the broad consensus which favors a Model Program. They cannot be regarded even as a viable compromise; nor were they ever, in our judgment, intended to be such; for the Engineers they were a first step toward their complete program; for Interior, an escape hatch from responsibility.

The Army Engineers reported to the Senate Subcommittee on Flood Control with respect to their Interim Report in September, 1966, prior to submission to or comment by the President. The President, be it remembered, had asked the Secretary of Interior to review the Army Report, 1963, and present a Model Program to him for his consideration; no such report had been submitted to him by the Secretary. Nor had the Army Interim Report been transmitted to the President. It was said to be "in process to the Bureau of the Budget." By the terms of the President's assignment to the Secretary, it should have been transmitted, if at all, through the Secretary. Colonel Pinnell, for the Engineers, stated, "This is the interim report that the President directed be prepared."

The Department of the Army denies that the Army Interim Report was submitted officially to Congress. Be this as it may, the full text was supplied to the Subcommittee, and ardently advocated, with several appendices, one of which actually consists of the entire Army Report, 1963, which was never approved by the President.

The published transcript of the hearings makes it clear that the Engineers do not regard the Interim Reports as even a temporary compromise. General Leber, appearing for the Engineers, stated that they intended to submit a complete report later . . . they were never finished with this business . . . they would submit a report recommending additional reservoirs in approximately a year . . . the Six Bridge site was one of the proposals to be considered in the next phase of the study . . . it was one of the sites that would be the subject of another interim report, possibly a final report, to be presented to the President around the first of the year . . . they might have another interim report and then subsequently a final report . . . they would come up with all of the projects they felt were needed in one complete report . . . if they were unable to do that they would come in with a second interim report, this being the first. In addition to Six Bridge, the Verona Dam near Staunton, Virginia, was apparently under consideration. The Governors' Advisory Committee (a staff group) had been pushing for North Mountain and Savage II. This looked like a score of at least 9 out of 16 for the Army Engineers, first crack.

(*continued on page 12*)

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Front cover photograph by David Muench

As one of the nation's great wilderness parks, Glacier's two million-plus acres in northern Montana abut the United States-Canada border in the heartland of the high Rockies. Across the border lies Canada's scenic Waterton Lakes National Park, and the two parks together—although administered by each nation separately—constitute the Waterton-Glacier International Peace Park, authorized by Congress and Parliament in 1932 as a mark of good will between the two nations.

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 32,000 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 $6.50 annual, $10.50 supporting, $20 sustaining, $35 contributing, $200 life with no further dues, and $1000 patron with no further dues. Contributions and bequests are also needed. Dues in excess of $6.50 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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Photograph by Gene Ahrens

Flinsch Peak, at the left, overlooks Old Woman Lake directly below in the south-central portion of Glacier National Park. In the near foreground is Boy Lake, while in the far background at the right is Old Man Lake. Such basin-like lakes are typical of high mountain terrain which has been heavily glaciated.

GLACIER

A Trail Park and Its Users

By Lawrence C. Merriam, Jr.

Glacier National Park in Montana has long been known as the "Crown of the Continent" because of its spectacular mountains, and as a "trail park" because of the expansive trail network (some 1000 miles) covering much of the Park. Recent use figures of the National Park Service give a different impression of Glacier than that of a trail park, however.

At the end of 1965 it was announced by the Superintendent that 847,104 persons visited the Park during the year. Of this number 437,500 persons were first entry automobile or bus visitors and 3521 arrived by train. Some 89,000 people stayed overnight in park concession or private rental (inholdings) operations. Public campgrounds accommodated 252,813 persons—108,433 in trailers or camper units and 144,380 in tents (7). At the same time, according to the Chief Ranger's report on backcountry camping, a total of 5135 persons stayed overnight in the wilderness portions of the Park at designated campsites or the concessioner chalets (near Sperry Glacier and at Granite Park) (8).

While over 20,000 persons were taken on naturalist-conducted wilderness walks of a day or less, and a large uncounted group of persons made day trail hikes off the park roads, to the reader of the visitation news release it seemed that most visitors were merely driving through the park without stopping overnight. Actually it is true that the average length of stay per person in Glacier and many of the large western national parks has decreased since World War II.

The current situation is far removed from the period of founding National Park Service Director Stephen T. Mather, who in his 1917 report to the Secretary of the Interior said: "We want the traveler to come into all of our great playgrounds with the idea of staying as long as possible and exploring all their beauty spots . . ." (6). Probably today many would not desire to see all the beauty spots. Now we worry about crowds too large for anyone's comfort, loving the parks to death and transplanting urban rites to nature's sanctuaries.

The Clamor For Roads

A further contrast suggests some of today's problems. The famous novelist Mary Roberts Rinehart made a horseback trip through Glacier Park in 1915 with dude rancher Howard Eaton. She recorded the trip and her impressions in a book, *Through Glacier Park* (3). While stressing that one could not see the park properly from an automobile, she complained that more roads were needed. Said Miss Rinehart, "A government mountain reserve without plenty of roads is as valuable as an automobile without gasoline". The road system then was inadequate in pavement and general standards, but it extended to Many Glacier Hotel, Two Medicine, Cut Bank, Lake McDonald, and up the North Fork of the Flathead River (5).

Most of the roads Mary Roberts Rinehart, as well as early Park Service directors, spoke for were built. In 1933 the Going to the Sun Road was completed over Logan Pass, connecting the east and west sections of the Park, and the number of visitors rapidly increased—even with the Depression (4). Since World War II and the partial completion of the freeway system, the road trip to Glacier from all over the country has been shortened and is simpler to make. More people came each year; 1965 travel was up 4.4% over 1963, while 1964 travel was low because of bad flood damage in the Park.

Some Park roads, particularly the Going to the Sun, are very narrow and costly to maintain. This road was built to a standard again much below the freeways to which many of today's motorists have become accustomed. There is some concern that the Going to the Sun Road will not carry the future traffic loads—requiring one-way traffic controls or other drastic measures. Another cross-mountain road is proposed. This one would go east across the mountains from the North Fork of the Flathead road into Canada and down Akamina Brook into Waterton Lakes National Park.

During the 1915 season 116 parties (including Miss Rinehart's party of 42 guests) made trips of 3 days or more on the wilderness trails. Perhaps 1200 people made extended trail wilderness trips in Glacier in 1915. Actually all of the 13,465 park visitors of 1915 could very well be counted as wilderness users, since driving to a place like Glacier via roads in cars and under conditions of that period was about like a modern wilderness trip. The conditions of wilderness travel were known to all Glacier visitors except possibly a

few effete Eastern rail arrivals. Campers used primitive equipment with few of the comforts of the then urban areas. Most people had personal knowledge of horses and rural life.

Today things are much changed. Nearly half of the 1965 campers went to Glacier with trailers or camper units, and this group is increasing in numbers. The camper or trailer units contain many if not most of the comforts of the urban home—beds, sinks, toilets, even portable TV in some cases. Beyond this, the traveler today may well have spent most of his life in the city with virtually no knowledge of rural life or the conditions preserved in the non-roaded portions of Glacier. As technology provides more convenience gadgets to which people become accustomed, the gulf between the conditions preserved in most of Glacier National Park as wilderness and the usual urban life situation becomes greater. The level of understanding of the former (wilderness) decreases and, seemingly, interest in its retention.

All of this presents the impression of increasing numbers of disinterested motorists visiting Glacier via the shortest, fastest route and then moving on. There probably will be much of this, but there are also hopeful signs for increasing recognition of the Park's values.

Figures Are Misleading

In the first place there are still a great many people using the wilderness or back country portions of the park. Glacier cannot really be called a "trail park" any more in terms of over-all use, but by stressing the large numbers of highway users with primary emphasis on their activities, the Park Service gives an erroneous impression about wilderness or trail use. Actually it is increasing, and the number of people camping and taking day hikes in Glacier wilderness in 1965 exceeds the total park visitation of the 1915 season. This use is important to the park.

There are greater differences today between groups of Glacier visitors than there were in 1915. Yet the gulf between well-equipped roadside urban camping travelers with self-contained trailer units and the wilderness hiking campers with rations for a week's trip on their backs may not be at once apparent. Even Park Service personnel, many of whom are more urban-oriented in background than in the past, may not sense the differences, and with the rapid turnover in the park may not be around long enough for concern.[1]

In 1963 and 1964 Dr. R. B. Ammons, Professor of Psychology at the University of Montana, and the author, with the aid of student assistants, made studies of wilderness users in Glacier National Park. The 1963 study concerned users of the Sperry Chalet (1). In 1964 wilderness travelers were contacted on major park trails. The 1964 investigation was also part of a larger study of wilderness users in three Montana wilderness areas (Glacier National Park, Bob Marshall Wilderness Area, and Mission Mountains Primitive Area), in the same general vicinity of the Northern Rocky Mountains.

Visitors were asked questions about wilderness meaning, wilderness beginning, general socio-economic background, aspects of the trip, companions and wilderness management. In 1964, for comparison with trail users, a group of roadside campers in national park campgrounds were interviewed about wilderness meaning and beginning. While these studies were descriptive in nature and represent beginning efforts in evaluation of visitors, much care was taken to develop interviewing techniques, and some interesting results were obtained.

It was found that wilderness users who stayed out overnight on the trail or at a chalet had strong feelings of accomplishment. Their hiking or horse riding efforts were important to them and they resented the idea of possible roads to chalets or up now-trailed mountain valleys. Chalets already in place were accepted by the users, as were primitive shelters.

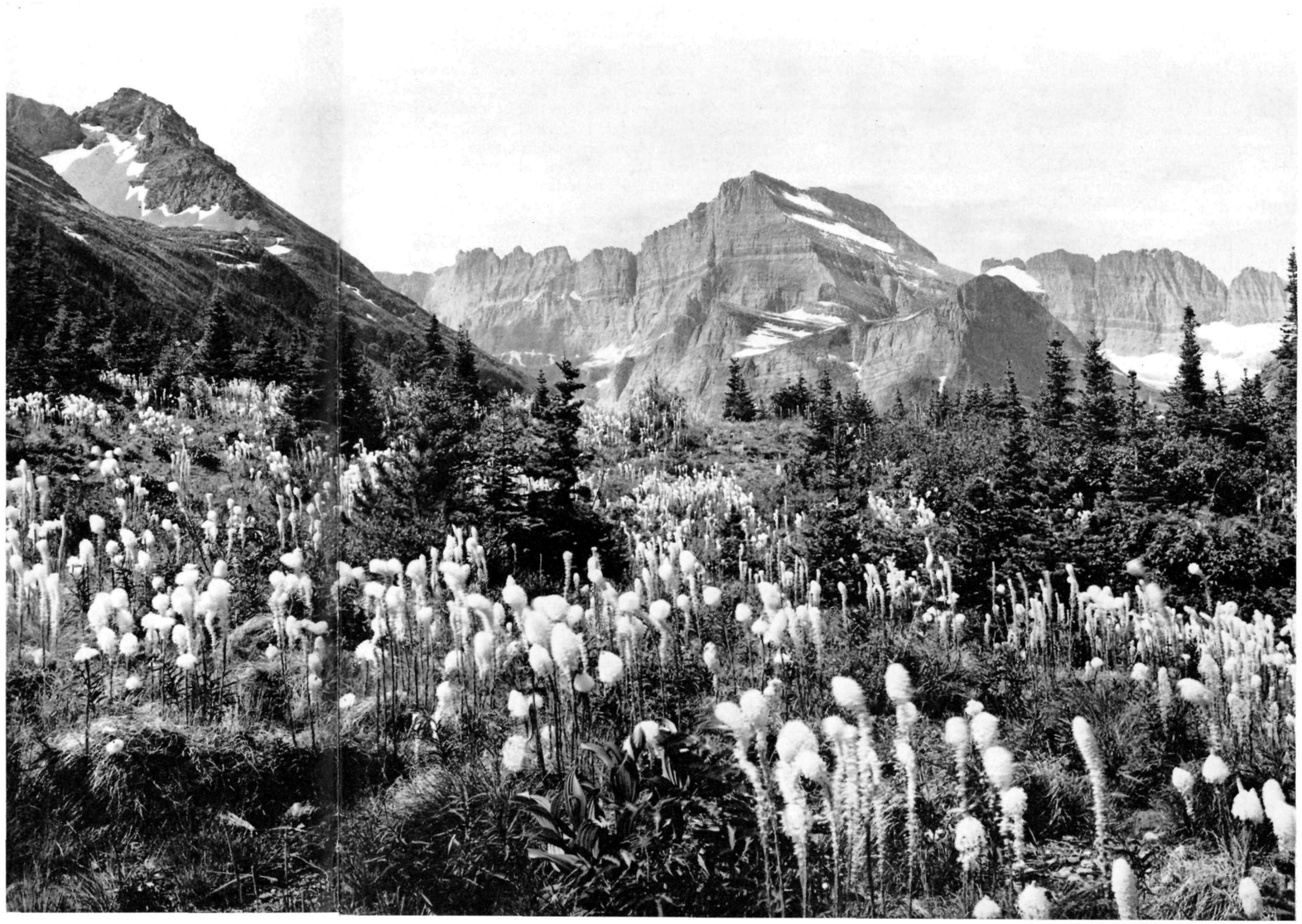
The interviewed visitors were rather consistent in defining wilderness particularly when compared with the group of roadside campers in Glacier Park. Wilderness for off-road users included these criteria: undeveloped natural country, difficulty of access, lack of roads, limited improvements of civilization, and few people (these few preferably with interests similar to the respondents). They made some concessions to modern society and technology by generally accepting chain saws for trail maintenance and aircraft for patrol and emergencies. Staying out overnight was another important part of these wilderness visitors' experience.

In contrast, in this question of characteristics important to wilderness, the roadside campers expected to find virtually no people in the wilderness—with no mention of their compatibility. Many roadside campers did not feel staying out overnight was important. Almost all roadside interviewees rejected chain saws and airplanes as important for wilderness management. These campground users also showed a lack of knowledge of complications inherent in wilderness use. They had a different conception of wilderness than the actual interviewed wilderness visitors.

Roadside campers, usually with no wilderness trip experience, generally had misconceptions about the nature of the wilderness portion of Glacier and felt it began at the edge of the road. More experienced wilderness users, interviewed on the trail, often felt the wilderness began at the end of the first day's walk or just beyond the day hiker's range (and ranger naturalist trip limit). All this suggests a range of wilderness types and user groups.

For example, there are several groups of users who enter the wilderness portion of Glacier National Park. Users could be rated according to status. Status in this case is highest where those involved are with a few people in an isolated or special situation elected by themselves, enjoying freedom of activity choice and, in a sense, envied by those below them. People can move from one of these

[1] Between 1959 and 1965 there were 3 different superintendents of Glacier National Park.



Beyond a bear-grass meadow, the ancient layered rocks of Glacier's Mount Gould. *Courtesy National Park Service: photo by Hileman*

status groups to another, and in fact an individual might be in several at different times with different companions. All of these people have a strong drive to reach their goal, be it completing the day's hike or getting to the top of the mountain. This drive is stronger in the more difficult tasks. Effort expended increases with user group status as does personal freedom and quality of experience. Perhaps the ultimate in quality here is typified by the mountaineer who combines great personal effort, drive, skill, and courage to overcome risk and reach the summit.

In the bottom group would be the roadside camper who is not really sure of what wilderness is (but whatever it is, it begins at the road). He may take a brief walk off the highway to a waterfall or lake. There are thousands of these people.

Next comes the day hiker who may also go on a short walk or perhaps on a guided naturalist walk, take a lunch, a knapsack and perhaps wear boots. There may be hundreds of this type. He may go far enough to see the beauties beyond him and yearn to stay out all night.

Above the day hiker is the near-elite wilderness user who feels wilderness begins several miles from the end of the road. He may belong to the clan of the Vibram sole and the Kelty pack, supplied with Dri-lite food, or to a several-day horse party. Included here also is the backpacker with simple and low cost equipment. The chalet user may belong in this group, too, for the chalet is more primitive than a park hotel.

Members of this group appreciate the solitude and beauty of the undeveloped country and the company of a few others like themselves. Some may stay out for days and perhaps catch sight of the most elite of all and rarest —the mountaineer or cross-country hiker.

A Mountaineer Described

The mountaineer scorns all but the most seasoned companions and carries very concentrated light food with primus stove. He prefers to go off the trails across rocks, windfalls, etc. to capture, as Thoreau of old, the true meaning of untrammeled wilderness. For this man the sense of freedom, self-realization, and the accomplishment

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are nearly complete when he gains the difficult summit—as of Mt. Cleveland —only to realize that he too must again return to the modern society to use its roads, cars, and overly processed food (2).

The difference in understanding of wilderness between the roadside camper or passing motorist and the actual wilderness user is important to recognize. It cannot be assumed that a uniform user management approach will be suitable for all users. This situation offers a challenge to Park Service management. Instead of building additional roads in Glacier or more remote backcountry chalets and shelters to bridge this gap, the Park Service can educate people effectively by interpretive programs and entrance station and ranger patrol contacts.

Over half the Glacier visitors interviewed in the wilderness during the 1964 study indicated that they had driven in the Park before and had decided to return to visit the trail wilderness. Some explained the steps followed, starting with naturalist hikes, day hikes by themselves and then wilderness travel for several days. The number that make the transition is not large in terms of total use, and previous primitive camping experience in youth undoubtedly enters in for many.

Naturalist hikes, Ruhle's *Guide to Glacier National Park*, and careful registering of users of wilderness campsites all are helpful in preparing potential wilderness travelers. Yet for some, much more detailed instructions are needed before wilderness trips should be attempted. This might include specific presentations on wilderness camping techniques, lectures stressing the quality aspects of the wilderness trip and the rewards of effort.

For most visitors lectures describing the wilderness portions of the park, what they contain, how they are managed, why they are undeveloped, and the value to the public of their natural condition will add much to the traveler's understanding and appreciation of the park. Through new technology it probably will be possible in the future to show people much of the park at the Visitor Center by photograph and television. Increasingly most visitors will probably want to see the developed portion of the park without leaving their cars or concessioner vehicles for protracted periods. For them some information on the wilderness presented via interpretive procedures is important. Probably, the number of visitors entering the wilderness will increase.

It is important that National Park Service personnel understand the continuing value of trail use in Glacier National Park. Today great numbers of visitors and most dignitaries come by car, and the overnight use of the wilderness remains small. Advancing technology tends to remove the average park visitor farther and farther from the wilderness as preserved. A major task of the Service in Glacier is to explain and interpret the meaning of wilderness as natural undisturbed land to the visitor, in ways that elicit continuing support. Surely this is what the founders of the park and of the National Park Service would expect. ■

References

1. Merriam, L. C., Jr., Kay Luding, R. B. Ammons. "Glacier Park Chalet Visits in Introduction to Wilderness Experience." School of Forestry, Michigan State University, Research Note #2, 1965.

2. Merriam, L. C., Jr., Kay Luding, R. B. Ammons. "The Wilderness Users in Three Montana Areas; Bob Marshall Wilderness, Mission Mountains Primitive Area, and Glacier National Park." School of Forestry, University of Minnesota. (In process as a special bulletin, 1967.)

3. Rinehart, Mary Roberts. *Through Glacier Park.* Boston, Houghton Mifflin, 1916.

4. Robinson, Donald H. and M. C. Bowers. "Through the Years in Glacier National Park." West Glacier, Glacier Natural History Association. First Reprint 1962.

5. U.S. Department of the Interior. "Report to the Secretary of the Interior by the Supervisor of Glacier National Park, 1915." Washington, U.S. Government Printing Office, 1915.

6. U.S. Department of the Interior. "Report of the National Park Service to the Secretary of the Interior for the Fiscal Year ended June 30, 1917." Washington, U.S. Government Printing Office, 1917.

7. U.S. Department of the Interior. National Park Service. "Glacier National Park Travel News Release, January 11, 1966."

8. U.S. Department of the Interior. National Park Service, Glacier National Park. Unpublished report of the Chief Park Ranger to the Superintendent on Backcountry Camping, 1965, (3 Feb. 1966).

White Tails and Yellow Pines

By Joseph G. Hall

A JANUARY MORNING, just after sun-up, can be numbing in the pine forests of northern Arizona, at 8000 feet above sea level. On such a morning it seems almost impossible to conceive of any creature surviving the twelve black, bitterly cold hours just past. Yet, even at this hour, calls of chickadees and nuthatches, nature's smallest packets of optimism, can be heard.

Not all optimism—or perhaps one should say, not all activity—is clothed in feathers, however. Emerging from the lofty needle-and-twig nest in which he has spent the night, a large tree squirrel now moves quickly toward the outermost twigs of an upper branch. Without hesitation he leaps across a six-foot gap to the neighboring pine, his snowy-white tail catching the sun momentarily before it disappears in the green crown. This maneuver is repeated once or twice more until he settles finally in the top of a favorite tree for breakfast.

The individual tidbits that constitute breakfast are always the same. And always they are obtained in a prescribed routine: the squirrel climbs out almost to the end

On a cold winter morning in northern Arizona, a Kaibab squirrel strips the phloem from a ponderosa pine twig.

Photograph by the author

While feeding, the Kaibab squirrel (above, in summer pelage) holds its white tail over a steel-gray body. At left, the neighboring Abert squirrel, with white belly and gray tail. Kaibab squirrel photograph taken by the author; Abert squirrel photograph courtesy the National Park Service, by Joseph S. Dixon.

of a branch and cuts it off about eight inches from the tip. This terminal section is then cut in half and the needle covered portion is allowed to parachute to the ground. The remaining piece, about three or four inches long, is held in the paws and expertly stripped of the flaky gray outer bark in corn-on-the-cob fashion. Juicy, red phloem, or "inner bark," is the nourishing food, and is consumed during the stripping process. Discarding the bare, yellow "matchstick," the squirrel now proceeds to repeat the whole operation perhaps twenty times before taking one of several midday siestas. While feeding, the almost pure-white tail is held over the body, which is steel-gray above, except for a maroon patch of fur, perhaps an inch wide, that runs the length of the backbone. A bold, black line along each side separates the gray upper parts from the black belly. Upper surfaces of the feet are gray, frosted with white. Aside from the tail, probably the most striking features are the tufts of hair extending from the ear-tips; they are longer than the fleshy part of the ear itself, and bend to every breeze.

Inhabitant of the Kaibab Island

This is the start of a typical winter day in the life of the Kaibab squirrel, most elegant member of the group known as the tuft-eared squirrels and a chief attraction during the summer for vsitors to its only home—the ponderosa pine forests of the Kaibab Plateau. This semiboreal island in the sky lies just north of the Grand Canyon, and is about 1300 square miles in extent. Other groups of tuft-eared relatives, generally known as Abert squirrels, are scattered among similar forests in Arizona, Utah, Colorado, New Mexico, Chihuahua, and Durango. Although these populations appear to have almost identical habits and depends upon ponderosa pine for virtually all their life needs, isolation of various groups has permitted differences in coloration of body and tail to develop over the course of the centuries.

The Kaibab squirrel has long been cited as a classic example of evolutionary change through geographic isolation, a fact that contributes much to the interest of this rare mammal. Edwin D. McKee, well known as an authority on the Grand Canyon and its life, points out (1941) that the ecological aspects of barriers have been the telling ones in the differentiation of these squirrels. As the raven flies, the Kaibab form is no farther than nine miles from its nearest Abert neighbor (distinguished by pure-white belly and gray tail). But that rugged nine-mile gap takes the form of the Grand Canyon, and its architect the turbulent Colorado River, and has been so inhospitable to "pine-lovers" for so many millenia that isolation has been quite complete. Deserts to the north and west of the Plateau are equally effective though less spectacular barriers. Some of the southern populations of Abert squirrels are separated from each other by as much as 100 miles, but look almost identical; their separation in time does not compare with that in space.

Within the present range of the Kaibab squirrel—about half of the total area of the Plateau—there are several sub-populations variously isolated from each other. The squirrels of Powell Plateau are an example. The Plateau is an elongated table-land that appears to have deflected the course of the Colorado River in the western reaches of Grand Canyon National Park. A hiker setting out to explore the Plateau must drop down from Swamp Point to a saddle 800 feet lower. From here he climbs almost 1000 feet to gain the level summit of Powell, where he finds himself wandering among the yellow boles of a truly magnificent stand of mature pine. This forest covers the northeastern half of Powell, and here is found a population of Kaibab squirrels. But the saddle which humans traverse by trail in a leisurely hour-and-a-half is low enough to act as a red light to squirrel traffic between Powell Plateau and the mainland. A "jay-walker" probably does not cross it once a decade (though jay-flyers do so daily). Conse-

quently, there is a distinct possibility that the white-tails of Powell Plateau may eventually become more recognizably different from the rest. They would then have reenacted on a small scale what has occurred on the Kaibab Plateau as a whole.

Strangely enough, the population density of the mammal varies tremendously from place to place, even across vast stretches of what appears—at least to humans—to be uniform forest. What is so desirable about the areas where squirrels are relatively numerous? The answer is not clear, and attempts to clarify it have only turned up a second sub-problem. This involves choice of individual trees for feeding purposes. Certain pines are highly favored while others, for obscure reasons, are ignored. It has been demonstrated that squirrels will return to harvest twigs from trees used the previous season three times as often as one would expect by chance. An analysis of the monoturpenes of both types of trees has so far yielded no clues, and the sugar content is now being examined. Perhaps some trees may seem sweeter to the sciurine tooth than do others!

Investigating Trends in Population

Another enigma is the pulse of the population as a whole. Oldtimers on the Kaibab tend to agree that there just are not as many squirrels now as there used to be, and that those seen are shyer than is usual when the squirrels are more numerous. Evidently the total population is now hovering close to, perhaps on the brink of recovering from an all-time low; the most recent peak in numbers seems to have been sometime in the early thirties. In 1965 and 1966 a moderate upswing was noted, and hopefully this marked the beginning of an extended recovery. The Arizona Game and Fish Department and the National Park Service are keeping a close watch on the population levels and are making some headway in finding out what makes the population tick. There is some evidence from tree-ring measurements suggesting that there has been a gradual decline in forest vigor which has paralleled the decline in numbers of squirrels.

Be that as it may, this much seems crystal clear: the welfare of the forests of ponderosa pine is the welfare of this squirrel, as surely as the eucalyptus trees of Australia mean life to the koala. Like other species strictly adapted to life in a climax community it will see lean days following close on the heels of any circumstances that tend to upset the stability of that community or to diminish its vigor.

When C. Hart Merriam—who, incidentally, first described the Kaibab squirrel—was engaged in his historic observations on plant and animal distribution in northern Arizona seventy-five years ago, he noted (1890) the close dependence of the tuft-eared squirrels upon the yellow pine. Both the squirrel and the pine were "indicators" for his Transition Life-zone. And more recent work has reinforced his conclusion. The squirrel that cleans the phloem from pine twigs on a chill January morning may have lost his ear tufts by July, but he is busily harvesting green cones from the same tree. Later, when the summer storms have provided enough moisture, he will be digging up mushrooms. But the mushrooms favored by these squirrels grow only in the duff where they can be in the immediate vicinity of roots of ponderosa pine. In the long view, then, *Pinus ponderosa* is to the Kaibab squirrel both the alpha and omega. If his life-history, which now bristles with unsolved riddles, is eventually better understood, the understanding will no doubt hinge on intricacies of the give-and-take between white tails and yellow pines. ■

References

McKee, E. D.; "Distribution of the Tassel-eared Squirrels." *Plateau*, 1941, vol. 14, 12-20.

Merriam, C. H. "Results of a Biological Survey of the San Francisco Mountain Region and Desert of the Little Colorado, Arizona." 1890, U.S. Dept. of Agr., *North Amer. Fauna*, No. 3, i-vii, 1-36.

Shown at right are the ranges of the Kaibab and Abert squirrels in the United States and Mexico. The map, slightly modified, is from E. Raymond Hall and Keith R. Nelson, THE MAMMALS OF NORTH AMERICA, copyright © 1959 by The Ronald Press Company, New York. It appears here by permission of the publisher.

The Mess on the Potomac

continued from page 2

The Army Interim Report was transmitted to the Secretary of the Army for transmission to the Bureau of Budget without public hearings in the localities, without consideration by the Board of Engineers for Rivers and Harbors, and without attendant public notice and opportunity to comment. Because two of the projects were new, and a third basically revised, the established procedures require such hearings, consideration, and opportunity for comment. The transmission may be open to attack by injunction.

Nor is Interior satisfied with its own Interim Report as a permanent compromise; more Army-type dams are being considered. Assistant Secretary Holum, assigned to this project by Secretary Udall, wrote on February 16, 1967, as follows: "this year I find that the problems of how to provide the Upper Basin water supply requirements . . . may become more difficult to resolve . . . careful studies have convinced some . . . that major storage facilities will soon be essential in addition to the headwater storage."

Army and Interior have been collaborating closely in the preparation of their Interim Reports, and in all the above procedures. The General Counsel for the Army wrote on November 3, 1966, that "the Department of the Interior worked closely with the Corps in developing the Interim Report, concurs in the Chief's recommendations and regards the procedure being used as consistent with the President's 1965 instructions to Secretary Udall concerning the Potomac River Basin."

Proponents of a Model Program, resisting the Interim Reports, asked the Secretary of the Army for an opportunity to lay their views before him on September 26, October 28, November 3, November 15, and December 6, 1966. No such opportunity has been accorded. The Secretary of the Interior is pushing a plan for a Potomac Valley Park between Washington and Cumberland. It ignores the long-standing proposal for a C & O Canal National Historical Park. It depends mainly on letting the Army Engineers acquire the site for the proposed Seneca reservoir. It will rely heavily on fee simple condemnation, and has aroused intense opposition. It ignores the only project which can save either the C & O Park or the Potomac Park from inundation by the Seneca reservoir: a supplemental water supply intake in the fresh-water estuary for Washington.

There are no serious technical problems in the use of the estuary. Available for the elimination of nutrients from treatment plant effluents are, among other methods, distillation, reverse osmosis, electrodialysis, coal filtration, the alum treatment, spreading upon farm and forest lands, and the simple improvement of present facilities and processes.

Questionable statements of fact have been made by the Army Engineers to the Secretaries of Interior and Army, who have been advised that the estuary contains only 5 billion gallons of water for the purposes in question; Geological Survey studies show more than 100 billion gallons.

Electronic computer studies have been undertaken at great cost to prove that if effluents are pumped to the Chesapeake or Atlantic there will be saline water intrusions into the estuary; no one ever supposed otherwise; the proposal is to purify the effluents and return them to the estuary, preventing saline intrusions.

The Interim Reports, to their credit, recommend acceleration of the proposed network of headwaters impoundments for flood prevention and local water supply; without firm commitment, they appear to have abandoned storage in major reservoirs for the dilution of pollution; but the key to the jig-saw puzzle of the Potomac they refuse to accept: the supplemental intake on the fresh-water estuary, which would solve Washington's water supply problems quickly, cheaply, and for good.

The President of the United States would have strong public support in taking a firm hand to clean up the mess on the Potomac. Some kind of a top-level review of the entire problem by generalists of broad experience is needed; men without operating agency connections, and with no purposes but the public interest. —*A.W.S.*

The photograph shows Crabtree Creek, tributary of the Savage River in western Maryland, drawn down deeply in early November during the fall foliage and hunting season. Conservation pool level of the Savage I reservoir, operated by the Army Engineers in the upper reaches of the Potomac River Basin, is the juncture between light and dark rocks at right in the picture. Tree-trunk remnants in the mud of the left foreground are useful in assessing scale of the area shown. A network of small headwater impoundments of the Soil Conservation Service type for flood prevention and local water supply would obviate the need in the Basin for high dams like Savage I, with its destruction of scenic and natural assets.

NATIONAL PARKS ASSOCIATION
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Report to the General Membership by the
President and General Counsel 1967

Report of the President and General Counsel, Anthony Wayne Smith, to the General Membership of the

NATIONAL PARKS ASSOCIATION

on the Occasion of the Annual Meeting of the Corporation and Trustees, May 25, 1967

THE GOOD NEWS with which we can begin our report this year is the announcement by the Johnson Administration of its plan to solve the water problems of central Arizona without building the Marble and Bridge Canyon dams on the Colorado River.

The Administration proposed in February that the necessary aqueducts and pumping plants be built to transport water from the reservoirs behind Parker and Davis dams on the lower reaches of the river into Arizona, and that the electric power for pumping be purchased from the new combination of privately and publicly owned utilities known as WEST. The current would be produced at a large thermal plant, presumably fired by coal.

More than a year and a half ago this Association advocated precisely the solution which has been adopted, in testimony given on invitation by the President and General Counsel to the Subcommittee on Irrigation and Reclamation of the United States House of Representatives.

We said at that time that the central problem was to help Arizona get the water it needs and that this is a question of aqueducts and pumps and the electric power to do the pumping. We said that the power could be produced by coal-fired thermal plants at from 3 to 4 mills or less, whereas hydropower would cost 4.2 mills or more. One coal-fired thermal plant of 600,000 kilowatts capacity would do the entire pumping job. We said that there could be a very broad consensus on this approach, and that few would oppose it.

The issues, it will be recalled, have been beclouded by grandiose plans for the construction of Bridge and Marble Canyon dams for the production of power for sale, with a view to building up a huge fund for reinvestment in new aqueducts in California, for the purpose of bringing water to southern California to replace water yielded to Arizona, and for further development.

These water transportation facilities, drawing on northern California, were to be supplemented eventually by further similar facilities, tapping the Columbia Basin in the Pacific Northwest; the proposal naturally encountered resistance in that region.

It need hardly be recalled that Bridge Canyon Dam would have backed water through long reaches of Grand Canyon National Monument and a considerable distance into Grand Canyon Park itself; Marble Canyon Dam would have destroyed one of the finest remaining scenic canyons of the Colorado.

The National Parks Association stood entirely alone at first in recommending the obviously simple solution to all these problems which has now been given the firm stamp of approval by the Johnson Administration.

The outcome demonstrates the very important part played by independent scientific and educational institutions such as ours in the governmental process in a democracy; standing outside the bureaucratic processes and economic pressures which often distort official regional and resources planning, such institutions can often bring the light of unbiased and objective inquiry to bear on great public issues.

While recommending the solution which has been approved, the Association investigated many related technical aspects of the problem: we showed that Bridge Canyon Dam was not necessary as a money earner, because the sale of water in Arizona would produce adequate revenues; that Marble Canyon Dam was not desirable for pumping power, because coal could do the job more cheaply; that neither dam was a safe public venture for power sales in terms of profitability, in view of impending competition from coal and atomic energy; that atomic energy plants coupled with pumped storage at load center would probably at least be competitive with hydropower carried long distances as money-earners; that atomic desaltation plants, drawing on the Pacific and Gulf of California, as contrasted with reservoirs and aqueducts, would probably provide the least costly solutions to the future water problems of southern California; and that if matters came to building up a fund for reinvestment, the best approach would be a low-interest loan to a basin agency, reinvested at higher going rates. All these considerations are still valid, but the simple solution adopted by the Johnson Administration, previously recommended only by this Association, cuts the Gordian Knot.

In times and circumstances where successes for conservation are few and often only partial, the members of this Association may take great satisfaction in having provided the key to the protection of one of the great scenic wonders of the nation and the world.

Part of the Administration proposal is a recommendation that Marble Canyon be included in Grand Canyon National Park; under the Federal Power Act, this would protect Marble Canyon against the issuance of licenses for hydroelectric power dams by the Federal Power Commission.

The Bridge Canyon dam site has been omitted from the Administration recommendations, on the theory that the issue should be left for future decision by Congress; because any dam at Bridge Canyon would flood portions of Grand Canyon National Monument, the Commission has no authority to issue a license there without special legislation.

This Association has recommended that the entire stretch of river between Powell and Mead reservoirs be declared a National Monument by Executive Order. The time has come to provide complete protection for the entire river between the two reservoirs as either a national monument or a national park.

Work of the kind this Association has done to save the Grand Canyon is expensive. The technical studies, although the experts often contribute much free time, are costly; the necessary conferences with officials in the administrative agencies call for highly qualified staff operations; and *National Parks Magazine* must devote time, effort and space to the publication of the results of the technical studies. Our members who are in a position to do so can help us greatly by substantial financial contributions.

WILDERNESS PROTECTION throughout the national park system has been one of the major preoccupations of the Association during the year. The National Park Service Act, as all conservationists know, establishes a *priority* for the protection of natural conditions in the great parks and monuments; use

and visitation are to be compatible at all times with protection.

The Wilderness Act was intended to supplement these fundamental guarantees of the National Park Service Act. Procedures were specified, including public hearings in the localities, for the designation of the roadless areas of the parks and monuments as wilderness, safeguarded against roads, structures, and motorized equipment.

This Association pointed out long ago that the danger inherent in these procedures was that small wilderness areas would be designated, and that the remainder of the unit would be opened in consequence to even heavier use and occupation.

We said that if this danger were to be obviated, plans for wilderness protection in the parks would have to be made on the assumption that heavy visitation would be deflected into public and private lands outside the parks, permitting the parks themselves to be protected primarily as foot and horse trail country.

Diversion of visitation in this manner would require comprehensive regional planning by all public agencies, federal and state, and the cooperation of private business, working under good local plans, outside the public lands.

The agencies for such regional planning, we said, already exist in the President's Council on Recreation and Natural Beauty and the Bureau of Outdoor Recreation.

While these recommendations have had widespread approval in words, they have not yet been implemented to any significant degree. As a result, the first public plans for wilderness protection in the national park system may be more destructive than beneficial.

Hearings have now been held in the following park system units: Great Smoky Mountains, Lassen Volcanic, Craters of the Moon, Sequoia-Kings Canyon, Isle Royale, Pinnacles, and Lava Beds. The Association has presented studies and recommendations for all these units, consisting of plans for wilderness protection inside each unit and plans for the dispersion of the crowds into public and private lands outside the unit; maps and a detailed text have been submitted; representatives of ability and stature have attended the hearings and submitted the statements.

As the present report is being prepared, additional hearings are scheduled for Chiricahua, Petrified Forest, Everglades, Cumberland Gap, Mammoth Cave, Theodore Roosevelt Memorial, Bryce Canyon, Arches, Capitol Reef, Cedar Breaks, and Shenandoah. These proceedings will be concentrated heavily within the next two or three months; thereafter the Director of the Service will make recommendations to the Secretary of the Interior, and the Secretary to the President. The deadline for the completion of the President's proposals is September 3, 1967.

The prognosis is not favorable. In spite of the well-nigh united recommendations of conservation organizations that the proposed wilderness areas be greatly enlarged over the Park Service proposals, the Service apparently adheres to its policy of restricted protection. There seems to be no disposition within the Department of the Interior to encourage the Bureau of Outdoor Recreation, in its function as staff agency of the President's Council on Recreation and Natural Beauty, to make the comprehensive regional plans which would support a higher measure of protection by the Service; nor by the Service to press for such broad planning.

All of this means that the nation may be headed for the greatest disaster in history in the national park system.

The Association regards its participation in the hearings on park wilderness as participation in a strictly administrative proceeding. It has always been our contention that the protection of the roadless areas as such in the parks by firm administrative decision was exacted of the responsible public officials by the National Park Service Act and the special acts for the individual parks. We address ourselves to the preparation of master plans, and subordinate plans and budgets, intended to accomplish that kind of protective result, within a regional dispersion program. Such planning is not primarily nor necessarily related to legislation of any kind whatsoever; it could be accomplished without legislation; legislation may not result from it.

This Association has endeavored to meet the challenges of park wilderness protection by the rapid enlargement of its staff of expert consultants in park and regional planning and management. The services of additional writers, cartographers, field investigators and representatives have also been enlisted. The financial burden thus assumed by the Association has been very great, and members who may be in a position to give substantial financial assistance might wish to consider doing so at this time.

THE PROPOSAL for a national park in the Coast Redwoods Forest in California seems at this writing to be stalled on dead center. The National Park Service, as will be recalled, originally advanced plans for a park in the Redwood Creek region south of Prairie Creek State Park. It revised its plans thereafter, proposing a park in the Mill Creek region between the Del Norte and Jedediah Smith State Parks farther north.

This Association felt that both areas should be protected and included in the park; on invitation we testified to that effect. We also called attention to the desirability of placing the entire Coast Redwoods Belt, outside the existing and proposed parks, under ecological management, and suggested management tools which could be used for that purpose. We have noted that the existing purchase units long ago established by Congress are still available as a basis for a new national forest in the Coast Redwoods Belt. Cut-over and burned-over lands could be acquired by free purchase, and help could thus be given for revegetation and long-term management in the public interest.

Essential to the protection of the existing Redwoods State Parks and any Redwoods National Park is the stabilization of surrounding watersheds; to some extent these can be included in the parks, but methods of management of the surrounding forests will continue to affect all the parks. We have urged the use of management easements requiring long rotation and individual-tree selective cutting for the protection of the soils, waters, and watersheds, and the forests themselves. The exaction of scientific woods operations by these or other effective methods would be in the interest of the operators who are disposed to follow good practices, as against irresponsible competition.

Sentiment for the large Redwoods National Park recommended by this Association, and the suggested national forest, may be increasing. Short-sighted business interests continue, however, to resist all constructive proposals. Time is running out for the Redwoods; an irreplaceable economic and cultural asset will soon be completely wrecked unless a growing public indignation can be focused effectively on practical solutions.

In recommending a Redwoods National Park again this year, the President of the United States commented that this is a "last chance" conservation opportunity. Most conservationists will agree with him emphatically that vigorous measures must be taken to protect the remaining primeval Redwoods now before it is too late.

THE PERENNIAL PROBLEM CHILD of the National Park System, Olympic National Park, has been in trouble all year. No sooner does predominant public opinion get the issues settled in favor of protecting the park as against cutting out the famous Rain Forests for logging, or cutting off the ocean strip for Jones Beach recreation with roads, or opening the park to hunting, or pulling back the boundaries here and there, than the agitation against the park starts all over again.

The gruesome part of all this is the instigation toward destruction provided by public officials responsible for protection. Last year we related our successful resistance to the objectionable Overly Report which called for deletion of the Bogachiel-Calawah Rain Forest and areas bordering on Quinault Lake. Thereafter a new document was produced within the Department of the Interior, assertedly for study, but none the less official, again authored in part by Overly, withdrawing the Bogachiel-Quinault recommendations, but proposing that the ocean strip be excluded from the park and developed in part for crowd visitation. We have protested editorially and by direct communication, and other conservationists have supported our position.

AMONG OTHER PROJECTS which have currently bogged down is that for a great new national park in the North Cascades Mountains of the State of Washington. As reported last year, and in *National Parks Magazine* from time to time, an interdepartmental North Cascades Study Team produced a report which it was hoped might minimize previous conflicts between the Park and Forest Services.

This Association had recommended the interdepartmental approach, and while the report was far from unanimous, the effort signalized a step ahead.

Presumably the plans of the Administration will crystallize before long. The guiding objective should be the preservation of the greatest possible area in wilderness; while there are differences in the ways by which wilderness would be administered by the two Services, protection in wilderness status should come first.

Wilderness means, not the exclusion of people, as the propagandists for the traffic say, but protection as trail and campfire country for the enjoyment of the rapidly growing numbers of people who are demanding release and escape from urban pressures.

The President recommended a Cascades National Park in his Message to Congress on Air and Water Pollution and on Recreation and Natural Beauty. The problem is to shape up the concrete outlines of the proposal in harmony with the spirit which gave it birth: the purpose of preservation as wilderness.

TURNING TO THE EASTERN SEABOARD, the Potomac River Basin still affords an unparalleled opportunity to develop a program which will be a Model for the nation and the world.

The Interim Report submitted by the Secretary of the Interior in January 1966 cannot be regarded as a Model Program meeting the request of the President.

It is an unsatisfactory compromise with the original Army Engineers program of 1963, endorsing three of the proposed Army-type reservoirs in the Middle Basin, deferring decision on the big Seneca dam near Washington, and accepting the authorized Bloomington reservoir on the North Branch.

Since its publication, the Army Engineers have produced their own version of an Interim Report, dated August 1966. It is nothing more or less than a complete endorsement of the Interior Interim Report. It is now apparent that Interior and Army reached an agreement, perhaps two years ago, on the substance of these reports; they may for convenience be referred to as the Army-Interior Reports on the Potomac, 1966.

The Interim Reports ignore the true solution to the emergency water supply needs of the Washington Metropolitan Area; this would be the construction of a supplemental intake in the fresh-water estuary at Washington for use in dry seasons and droughts.

The estuarial approach lacks the appeal which the traditional dam-building system has for an enormous bureaucracy which draws its livelihood and develops its careers from pouring concrete; likewise the appeal to the large associated contractors, and to their friends in more than one branch of government; its appeal is to unbiased citizens concerned for the use of modern techniques for the solution of practical problems.

On the other hand, advocacy of a Model Program built around the estuarial approach and coupled with support for a network of headwaters reservoirs of the watershed management type, has had strong support from a very broad coalition of farm, labor, conservation and citizens organizations numbering perhaps 7½ million people. There have been minor changes in the composition of this coalition, including significant additions, and it seems likely to grow in strength; the National Parks Association has provided the technical studies and the theoretical planning framework for the Model Program which this coalition has supported.

The President has recommended a Potomac Valley Park without elaborating on details. The Interior Department has recommended land acquisition by the Army Engineers to pre-empt the area of the proposed Seneca Reservoir, and by Interior itself for additional green-space protection from Washington to Cumberland. No mention has been made in these proposals of the project for a C & O Canal National Historical Park which has had broad endorsement by conservationists.

The estuarial intake is the key to the protection of both the proposed C & O Park and the proposed Potomac Park; it seems likely that a combination of the intake, the C & O Park, and a system of protective covenants supported by easements, will eventually gain the broadest consensus as the solution for most of these area problems.

DEAD SILENCE HAS PREVAILED in the National Park Service since the controversy last year about the impending construction of a new transmountain road in Great Smoky Mountains National Park.

The Service has been planning to build the new road on the pretext that the absurd traffic jams on the existing highway will thus be mitigated; the truth is that the new road will bring even more congestion into the park.

The excuse given for the proposed construction is that an old agreement between the Tennessee Valley Authority and the State of North Carolina requires it. Competent legal studies show that the terms of this old agreement are no longer binding; in any event, renegotiation, were there a will, should not prove difficult.

The proposed highway became a bone of contention at the hearings conducted by the Service on its plans for the designation of wilderness areas in Great Smokies Park. The wilderness plans were wholly inadequate and were supported only by the crowd-recreation business promoters in the localities; a massive turn-out by conservationists made a clear and emphatic record for much more ample wilderness protection, and against the proposed highway.

EVERGLADES NATIONAL PARK and all the Everglades region of central and southern Florida are still in great jeopardy.

As our members know, mammoth drainage projects have been underway for many years in the areas around Lake Okeechobee. The natural water supplies which have flowed from time immemorial through these regions into the Everglades National Park have been diverted to the Atlantic and the Gulf of Mexico and to municipal and agricultural use; the park, with its great wealth of irreplaceable sub-tropical vegetation and wildlife, has been cut off; prolonged drought nearly destroyed the park last year.

This Association, with other conservation groups, has advanced proposals for bringing water to the park; we have suggested reservoirs controlled by the National Park Service in the northern portions of the Conservation Areas above the park, and the improvement of aqueducts between the lake and the park.

An elaborate study of the entire problem by the Army Engineers has been under way for some time; we have urged the National Park Service without much response to take an active part in this planning. There is great danger of ultimate recommendations for a highway and other barriers to the natural flow of water southwest of the park, and of unsuitable storage projects within the park.

A special emergency has arisen with respect to the navigation and drainage canal which has been almost completed southeast of the park; when the final cut is made through the coastal beach, salt water will intrude into the park and destroy its ecology in its southeast corner. We were instrumental a year ago in obtaining representations by the Secretary of the Interior to the Secretary of the Army to prevent the opening of the Canal pending study of locks or similar facilities to exclude the salt water; during the year nothing more was done, and the emergency has arisen again; it may become necessary to bring suit against the Army Engineers to prevent opening until protection has been accorded.

THE MAJESTIC SCENERY of the Highlands of the Hudson River continues to be the focus of another bitter conservation battle. As reported last year, a decision by the Federal Power Commission issuing a license to the Consolidated Edison Company for the construction of a pumped storage power plant at Storm King Mountain was reversed and remanded by the Second Circuit Court of Appeals of the United States with instructions to take testimony on scenic and historic resources.

The National Parks Association intervened in these proceedings and the President and General Counsel has testified as an expert witness on the national park caliber and the scenic and recreational resources of the Highlands, and on the necessity, in terms of good regional planning, for the resolute protection of the area in natural condition.

The implications of this case and decision are very great for the other similar situations.

Undertakings of this kind on our part require money. Attorneys must be retained, experts employed, transcripts purchased, hearings attended in distant cities, and field inspections made, with related travel expense. Such work would be impossible if we relied only on membership dues; substantial contributions by our members are always needed to cover these costs.

SUCCESSES IN THE ENLARGEMENT of the national park system can happily be recorded: Guadalupe Mountains National Park, Cape Lookout National Seashore, Pictured Rocks National Lakeshore, and Indiana Dunes National Lakeshore.

The money to purchase the land within the areas of the new parks established in recent years, however, has not been forthcoming in anything like the necessary amount.

There is still great danger that the new units will remain largely parks on paper. There is also great danger that the existing system will not be adequately protected. This Association continues to grapple with all these problems.

We maintain also our continuing interest in the protection of wilderness in the national forests and wildlife refuges; in the wildlife refuge system as such; and in the protection and restoration of wildlife everywhere. We seek to advance the philosophy and practice of ecological forestry. We labor also in the vineyard of good watershed management. Your President and General Counsel presented recommendations for greater emphasis on the watersheds as against big down-stream engineering at the National Watershed Congress last May.

There is a great need for planning road construction, in terms of location and engineering, to avoid the destruction of natural areas, including municipal parks, the rural countryside, good agricultural land, wilderness which should be preserved as such, and our great national parks and monuments. The Association is constantly alert to these challenges.

The destructive pressures of the traffic within the big cities, as well as across the countryside, have become so great as to cause national alarm. The pollution of air and water has also become a national issue. We try to help publicize these problems and find solutions.

Behind, beneath, and around most of our conservation and environmental difficulties we find the ever-present expansion of population. It is quite impossible to propose viable solutions for most of the long-range issues which concern us except within the context of population stabilization, and even reduction. We seek to contribute to education on the subject.

Our Conservation Education Center in Washington, presenting motion pictures, lectures, and educational field trips concerned with parks and the protection of nature, continues to draw large participation.

Our Vacation Business Program, designed to stimulate good planning in the development of operation of privately owned vacation and recreation businesses on private land outside our national parks and forests, affords hope of helping to disperse crowds as part of the regional planning approach we advocate.

We are continuing our activities in the world-wide conservation field. Your President and General Counsel attended the sessions of the International Union for the Conservation of Nature and Natural Resources at Lucerne, Switzerland last June.

The endorsement, interest, and many-sided assistance of prominent citizens in business, conservation, and foreign affairs, is contributed to the Association by its New York Honorary Committee under the chairmanship of George S. Leisure, Esq.

THE MEMBERSHIP of the Association continues its steady upward growth. We had 34,722 members on stencils as at December 31, 1966. This figure reflects our customary heavy culling of all persons who do not keep their dues fully paid.

By far the largest part of the income of the Association comes from membership dues. There is a small income from investments; the balance is received in the main from the voluntary contributions of members over and above dues.

About one-third of our entire membership makes a financial contribution of some kind to the Association, above regular dues. A relatively small and dedicated group contributes from $1,000 to $20,000 a year apiece. A somewhat larger sector makes gifts ranging from $25 to $1,000 a year. Without this generous aid we could not carry on our work.

In addition we find from year to year, and note with gratitude, that one or more devoted members have remembered us in their wills. Several foundations, convinced of the value of our work, make regular annual grants. From time to time the Association is the beneficiary of larger bequests, in the range of from $25,000 to $175,000.

We have suggested to potential major contributors that gifts during their lifetime, as distinguished from bequests, would enable them to work with us on important projects of mutual concern.

Our monthly *National Parks Magazine* ranks as one of the foremost conservation publications in the nation. It is our principal educational vehicle. Through it, distinguished writers and scholars present to a growing audience many interesting and stimulating studies of natural resources management problems, including those of the national park system.

Less prominent, perhaps, but of great importance, are the consultative relationships maintained by the Association with governmental agencies responsible for natural resources administration. Our members may have the satisfaction of knowing that their participation in the Association helps to make possible this constructive work in furthering the national interest throughout America. □ □ □

Climate and Tree Rings in Mesa Verde

Growth patterns of conifers may provide a valuable check on local evidence for erosion and deposition

By Deric O'Bryan

ALMOST A CENTURY AGO, a party headed by F. V. Hayden and including W. H. Holmes and W. H. Jackson, working for the United States Geological and Geographical Survey, explored the San Juan River in the southwestern United States. In 1874 they rode into the Mancos Canyon, which bisects the Mesa Verde highland and forms part of the southeastern boundary of what is now Mesa Verde National Park. The first published remarks about the famous cliff-dwellings and other archeological remains appeared in the November 3, 1874, issue of the New York *Tribune*, written by Ernest Ingersoll.

Personnel of the U. S. Geological Survey mapped the Mesa Verde region in 1910-11 (some revisions were made in 1926), and studied the geology, applying local names to such formations as the Point Lookout Sandstone and Mancos Shale.

Today, highways have replaced horse trails on Mesa Verde. The ruins, once a source of curious speculation, have yielded many secrets to archeologists, including identification of the years in which they were built and occupied. The cliff-dwellings contain numerous well-preserved building timbers. Dr. A. E. Douglass, an astronomer, dated some of the ruins in 1929 by a meticulous study of "talkative tree rings." Subsequently, Douglass and his students compiled a 1500-year tree-ring chronology from growing trees and wood collected from the Mesa Verde ruins.

The tree rings *are* talkative, and this is the reason: About 19 inches of moisture falls as rain or snow on Mesa Verde in an average year. The range is from 10 to 35 inches. Local trees, such as Douglas fir and pinyon pine, add a wide annual growth ring in a year that is moist and cool; the ring is narrow when the year is dry and warm. This is the basis of dendroclimatic research: dating climatic fluctuations and the intervals of time in which they occurred by comparative study of the growth-ring sequence of trees and aged wood. Chart 1, at the bottom of the page, illustrates the relationship between precipitation (or moisture availability) and the growth of conifers on Mesa Verde. Note the similarity of pattern between the annual amount of rainfall and the width of the corresponding tree ring. The few discrepancies serve as reminders that other factors beside moisture availability influence tree growth.

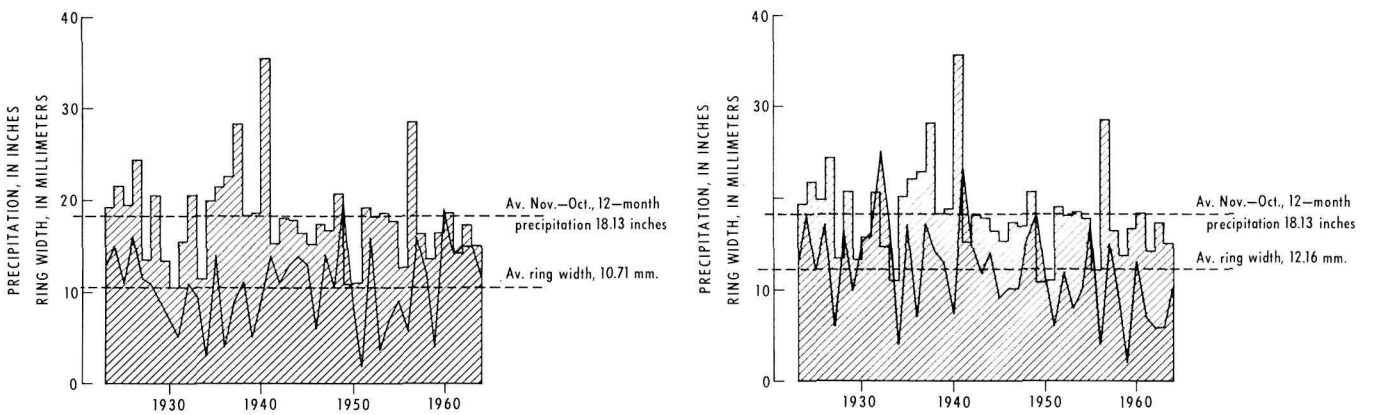
In 1964, the U. S. Geological Survey resumed interest in Mesa Verde for two apparently unrelated projects: (1) a series of ancient check-dams was surveyed as the start of a long-term study of the local sequence of erosion and deposition, and (2) wood specimens were collected from groves of fir and pinyon growing near the weather station, in order to make comparisons between tree-ring widths and annual rainfall values, illustrated in chart 1.

The study of the check dams, which were constructed 800 or 900 years ago, necessitates the careful observation and measurement of land-surface changes for many years to come, before geomorphological trends become apparent.

The initial study of wood specimens already had been accomplished by Douglass and his followers. In 1956, E. S. Schulman published a pioneering paper, "Dendroclimatic Changes in Semiarid America," based predominantly on

Chart 1.

Tree-ring widths compared with November-October 12-month precipitation values for the 1923-1964 period. Left, pinyon pine; right, Douglas fir.



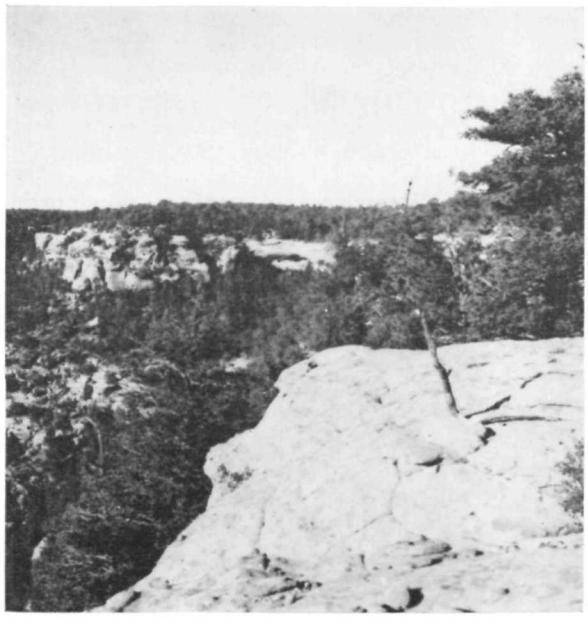


Figure 1.

A cove in Navajo Canyon, Mesa Verde National Park. The trees growing in the thin soil on caprock are stunted; those growing on the talus below are comparatively tall and luxuriant.

tree-growth records. The U. S. Geological Survey had just become interested in Mesa Verde trees, and was still concentrating on procedures, when "The Biological Model for Paleoclimatic Interpretation of Mesa Verde Tree-Ring Series" was published in 1965 by H. C. Fritts, D. G. Smith, and M. A. Stokes.

The dendroclimatic procedures—especially site selection and specimen selection—deserve explanation. If a tree is growing in a moist valley bottom or below a seep or spring, its roots have access to water, and moisture availability is not a critical factor in its growth. A tree growing on the mesa top, in shallow soil above quickly drained bedrock, is insulated from the ground-water table and must depend on rainfall; thus moisture availability is a dominant—probably the dominant—growth factor. This latter site is the type desired and selected; it is illustrated in figure 1 above.

A tree growing in the center of a grove probably will be stunted, particularly in its early years, by competition with mature trees for the sunlight, moisture, and soil nutrients it needs. A tree growing on a grove's periphery, or in a scattered stand, usually has less competition for these essentials of existence, and responds to climate in a more direct, less complicated way.

Figure 2, on the page opposite, shows similarity of growth between three Mesa Verde trees growing on caprock and in scattered stands. It compares the ring growth of three adjacent conifers for the same period of time. The annual precipitation columns in chart 1 demonstrate that 1951 and 1959 were dry years, corresponding to narrow rings shown in figure 2.

Dr. O'Bryan, now a social scientist with the Water Resources Division of the U. S. Geological Survey, is the author of "Excavations in Mesa Verde National Park, 1947-1948," Medallion Papers No. XXXIX, privately printed for Gila Pueblo, Globe, Arizona, June 1950.

Wood specimens collected are of two kinds, cross-sections and cores (the latter removed without harming the tree). Permission was secured to fell four Douglas fir and four pinyon pine growing on suitable sites on Mesa Verde. Each was cross-sectioned near the base, half-way up the trunk, and near the crown. These cross-sections permit the measurement of the tree rings along multiple radii, in order to determine average ring widths. Correlation coefficients (measures of the degrees of linear association between two or more records) were computed for all pairs of radii within a cross-section, and between two sections of the same or of different trees. These values ranged from .60 (between two trees) to a high of .95 in a single tree. Furthermore, the cross-sections permit evaluation of the growth record contained in a core—equivalent to a single radius. It was determined that measurements of four cores (radii) from each tree provide a reliable average value for a ring's width. The cores should be 90 degrees apart, with compensation for scars and branches. The procedure of coring is simple and quick and—most important—does not harm the tree.

What benefits from the study of tree growth-rings may be expected? If the rings reflect climatic conditions accurately, and if they can be interpreted, they should make possible the reconstruction of regional fluctuations of climate within the limits of local tree-ring chronologies. These fluctuations may be checked against local evidence of sequences of erosion and deposition, which are associated, respectively, with "dry" and "wet" conditions. These associations between excessive precipitation, deposition (or alluviation), and a wide tree-ring, and between deficient precipitation, erosion, and a narrow tree-ring are applicable to the interpretation of regional geomorphology and hydrology, not only in the Southwest but also in other semi-arid parts of the world. Furthermore, the study should permit determination of the recurrence expectancy—but *not* the specific times—of annual precipitation fluctuations of various magnitudes. ■

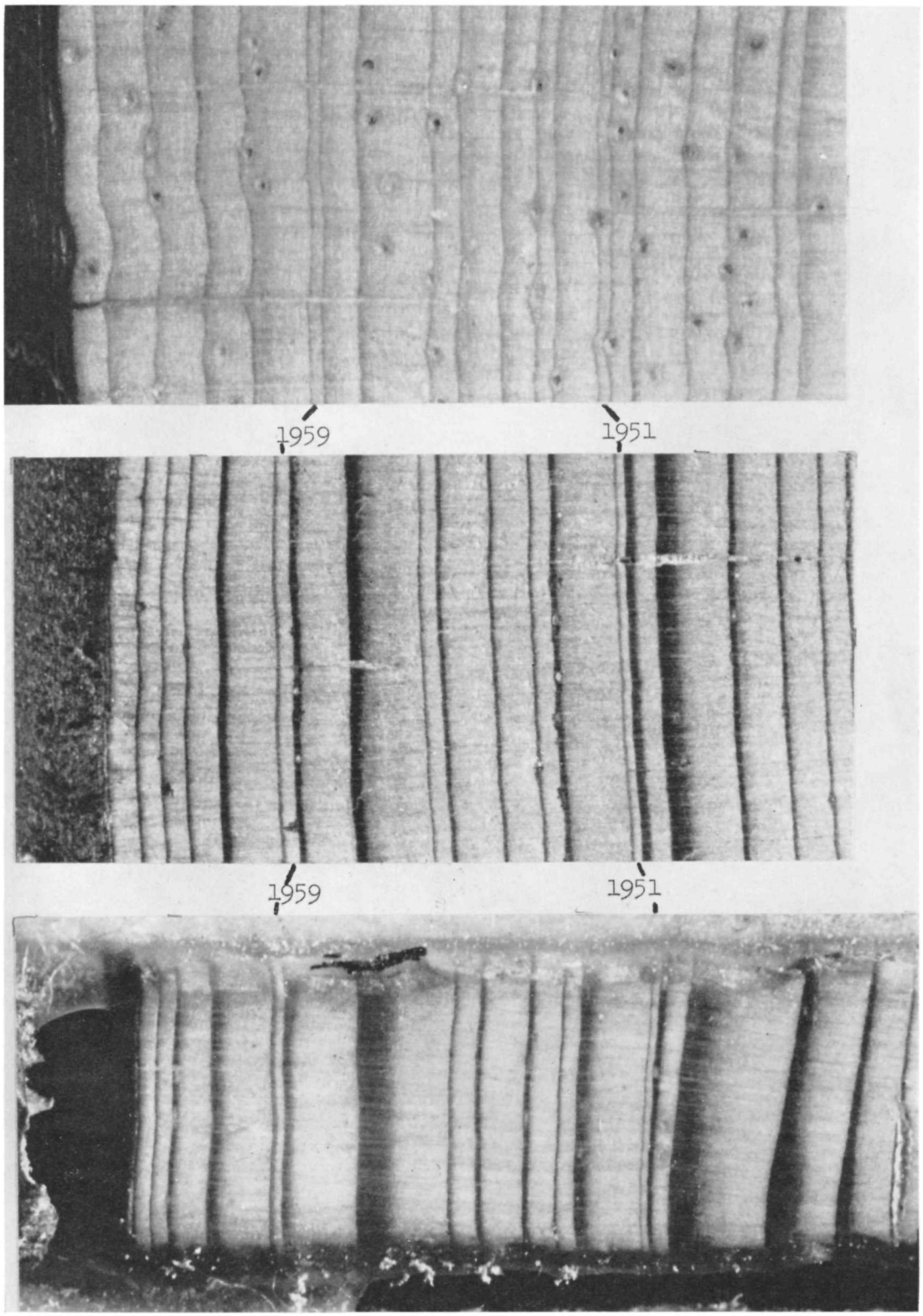


Figure 2

Similar tree-ring patterns in three Mesa Verde trees: (a) pinyon pine cross-section from a tree felled for study purposes in October, 1964; (b) Douglas fir cross-section, cut on the same date; (c) Douglas fir core, collected in May, 1964.

The view above shows rock formations along the western shore of Olkhon Island, which will be among the first areas of the new Soviet national park to be developed for tourism.

The First Soviet National Park

By Philip R. Pryde

In 1965 it was announced that plans were being made to establish the first national park in the Soviet Union on the shores of Lake Baykal in Eastern Siberia.[1]

Prior to this announcement, the primary instrument for the preservation of nature in the Soviet Union has been a nationwide network of nature preserves, known as *zapovedniki*.[2] Each of these preserves serves some or all of the functions that wildlife refuges, wilderness areas, and national monuments serve in the United States. However, only a few of them, such as the Kavkaz, Teberda, and Ritsa preserves in the Caucasus, are open to large-scale tourist use. The new national park, on the other hand, would have tourism as one of its primary goals.

The background to this first Soviet national park is quite interesting, and familiar, to American conservationists. Like the first federally protected area in the United States, Yosemite Valley, its eventual establishment as a park was not the result of a spontaneous, farsighted governmental decision, but rather stemmed from the urgent appeals of concerned individuals and institutions who sensed the imminent destruction of an irreplaceable natural monument.

Lake Baykal, the site of the proposed national park, is the most voluminous body of fresh water in the world. Over 400 miles long and averaging 30 to 40 miles wide, it lies at an elevation of 1490 feet and is almost completely surrounded by high mountain ranges whose lower slopes are covered with forests of pine, larch, and birch. Lake Baykal is unique in other ways as well. It is the deepest lake in the world at 5712 feet (1741 meters). Its water is particularly clear and pure, and it is inhabited by more than 1200 types of living organisms, of which 708 are found nowhere else. The preservation of these unique natural properties of the lake has been viewed, both in the Soviet Union and abroad, as having the highest priority.

Today, however, the quality of Lake Baykal is in jeopardy. Although the lake lies in an area of moderately harsh climate,[3] the area to the south and west of it, rich in minerals and served by the Trans-Siberian Railway, is rapidly developing into a major industrial complex. As a result, pollution of the lake is being threatened in particular from two common sources—logging operations and pulp mills.

Warnings have been voiced recently regarding the possibility of greatly increased erosion on many of the logged-over hillsides that drain into the

Above, the central administrative area of the existing Barguzin Preserve on the northeast shore of Lake Baykal; the preserve might be included within the proposed national park.

lake. Approximately 120,000 acres of forested land will be cut annually to supply the needs of two new pulp mills being built near the lake, and it has been estimated that from this acreage more than 400,000 tons of soil will be washed away each year. As a result, the streams in these areas will be carrying up to seven times as much sediment into Lake Baykal as they are at present. Although it has been stated that logging operations will be moved out of areas where serious erosion is threatened, one of the leading spokesmen for conservation in the Soviet Union, the writer Oleg Volkov, has declared that he "considers such assurances (after trips to the major timber cutting areas in the country) the kind of good intentions with which the road to hell is paved." [4]

However, the problem posed by the waste materials from the two new mills themselves has received the bulk of the attention in the Soviet press. One of these mills is now nearing completion at Baykalsk, a new town on the south shore of the lake. The other one is under construction near the delta of the Selenga River, the lake's main affluent (the exact location of this plant has not been specified). Both would be in an area subject to earthquakes.

Expensive measures for the purification of the mills' wastes have been planned, so than extensive water pollution of the type caused, for example, by the Kotlas pulp and paper combine on the Vychegda River in European Russia, would not occur. However, doubt is still being expressed as to whether these new, and hence unproven, water purification methods will be adequate. A letter to this effect, which also questioned the economic feasibility of the plants, was published in the Soviet newspaper *Komsomolskaya Pravda* on May 11, 1966. It was signed by more than thirty scientists, artists, and writers, including many members of the Academy of Sciences of the U.S.S.R. This letter is probably the most significant public appeal for an increased concern towards resource conservation which has been publicized to date in the Soviet Union, although it represents neither the first nor only public expression of concern.

Mr. Pryde is a doctoral candidate at the University of Washington. He holds a Foreign Area Fellowship for study of natural resource utilization in the Soviet Union.

The method which has been proposed for preserving the waters of Lake Baykal is the new concept of a "Lake Baykal National Park." It was put forth in a study prepared jointly by the U.S.S.R. Institute of Geography, the Siberian division of the U.S.S.R. Academy of Sciences, representatives of Gosplan (the state planning agency), and the Leningrad State Urban Planning Institute, and was entitled "Basic Trends for a General Scheme for the Integrated Utilization of the Natural Resources of Lake Baykal and Its Basin."

The Lake Baykal National Park will differ considerably from the concept of a national park familiar to Americans. It could probably best be described as a type of special regional administrative agency with supervisory authority over all of the activities within its borders, and having a particular emphasis on pollution control and recreation. Economic activity within it will not be limited to tourist services, as in American parks. Commercial fishing, for example, long an important activity on the lake, will be continued. In the words of the chief project engineer, I. A. Yevlakhov:

A portion of one of the mountain chains that border Lake Baykal is shown in the picture above. Preservation of the lake and its immediate surroundings, plus protection of lake waters from threatened pollution, was the aim of Soviet conservationists and scientific organizations in pressing for establishment of the Soviet Union's first national park. Photos with this article from small color-negatives.

"The purpose of the park is to utilize and protect Baykal's natural resources. It will also exercise sanitary and technical control over the operations of the chemical, fishing and lumber enterprises in the lake basin, as well as over water transport. To this end there are provisions for the organization of a science center as well as protection and inspection services, departments of mass activities, and a park administration." [5]

Apparently the establishment of this multiple-purpose park carried with it added safeguards for the preservation of Lake Baykal's water. Two new assurances have been advanced. First, it was reported that the original plans to transform the pulp into cellulose locally have been abandoned in favor of shipping it in bulk to plants located elsewhere for processing. Secondly, if the industrial waste materials from the Baykalsk mill were found to be polluting the lake despite the measures taken to prevent this, then alternate plans have been made to ship the wastes over forty miles via a pipeline to the Irkut River, which flows into the Angara River rather than into Lake Baykal. Presumably, the huge Bratsk Reservoir on the Angara would act as a settling basin for such semi-treated industrial wastes, if they were to be diverted. The Angara, as Lake Baykal's only outlet, was formerly as clear as the lake itself; however, another lumber mill at Bratsk has already considerably reduced the quality of this river's water.

Shape of the Park

The park is initially to encompass 5000 square miles; this will ultimately be increased to 15,000. The first areas to be developed for tourism will include Olkhon Island and parts of the adjacent shoreline, Cape Svyatoy Nos, and sections of the Khamar-Daban and Barguzin mountain ranges. It would seem likely that the present Barguzin *zapovednik*, used for the protection and breeding of the prized Siberian sable, will become part of the park. Unfortunately, no map showing the precise areas to be initially incorporated into the park has yet appeared. In its capacity as a tourist attraction the park will be able to accommodate a half-million visitors a year, and campgrounds, motels, and guest houses will be established for their use.

It has not been made clear whether the park will eventually surround the lake completely or not. If it will, then 15,000 square miles of park—assuming this figure includes only land area—would be enough to provide for a strip of protected land around the lake only about 18 miles deep. In any event, 15,000 square miles would not be enough to encompass the entire watershed of the lake, or even that part of it within the U.S.S.R. (the Selenga River rises in Mongolia). Thus, the situation arises where the park's administration will need to have authority over areas and activities outside of its borders, if it is to completely guarantee the quality of Baykal's water. Lacking such authority, the park's jurisdiction would be inadequate to provide such a guarantee, which, presumably, is the very reason for its existence. How this problem is to be handled has not been made clear.

Interestingly, none of the articles, including the letter from the conservationists, made any mention at all of what efforts would or should be made to control air pollution from the pulp mills and from other industrial plants around the lake, nor was any mention made of what was happening to the sewage from Baykalsk and other lakeside towns. In addition, nothing was mentioned regarding any measures to protect the lake from excessive soil

erosion caused by continued logging operations, which has been one of the major areas of concern.

The new Lake Baykal National Park clearly embraces much more of a multiple-purpose concept than do national parks in the United States, as evidenced by the presence of pulp mills and other industrial activities at least under its administration, if not actually within the park boundaries. Perhaps a designation such as "Lake Baykal Resource Management Region" would describe this new type of development more accurately. It would appear that those *zapovedniki* that are open to intensive public use come closest to being national parks as we know them, particularly since these preserves are by definition closed to economic development, whereas the new national park will not be. However, *zapovedniki* have the disadvantage of being able to be established and abolished by governmental decree.

Abundance of Park Sites

There are still many areas in the Soviet Union that are not now set aside as preserves or parks which well merit such consideration. Some of the more outstanding among these areas would be such natural features as:

1) the remaining undeveloped sections of the Kronotskaya geyser basin. This area, one of only four such large geyser basins in the world, was formerly preserved as a *zapovednik*, but was declassified in order to allow exploitation of its geothermal power potential. A 12,500-kilowatt geothermal station is now nearing completion there.

2) Mt. Elbrus in the Caucasus, an 18,468 foot volcanic peak and the highest mountain in Europe.

3) the Academy of Sciences Range in the Pamirs of Central Asia, which contains peaks of up to 24,500 feet, the highest in the U.S.S.R.

4) the former preserve area in the Altay Mountains of Western Siberia.

5) parts of the Mangyshlak Peninsula in western Kazakhstan, which contains interesting erosional formations and the lowest point in the Soviet Union (432 feet below sea level).

6) Klyuchevskaya volcano (15,584 feet) on Kamchatka Peninsula, one of the world's tallest active cones, as well as other nearby volcanoes.

7) part of the mountains and coast of the Crimean Peninsula.

It is to be hoped, however, that whatever type of permanent preservation measures might be extended to areas such as these, they would specifically exclude any type of commercial activity not directly related to providing basic visitor and administrative services.

Like the United States of not too many years ago, it appears that the Soviet Union will, in the not too distant future, be entering an era of increasing leisure time, combined with an expanding automobile industry. Aside from the fact that land in the Soviet Union cannot be privately developed, it is reasonable to expect that the eventual results, in terms of recreation requirements, will probably not be much different there than they have been in our own country. Hopefully, Soviet planners will have prepared adequately for the onslaught. ■

Footnotes

[1] Lake Baykal is also frequently spelled "Baikal," depending on the transliteration system used.

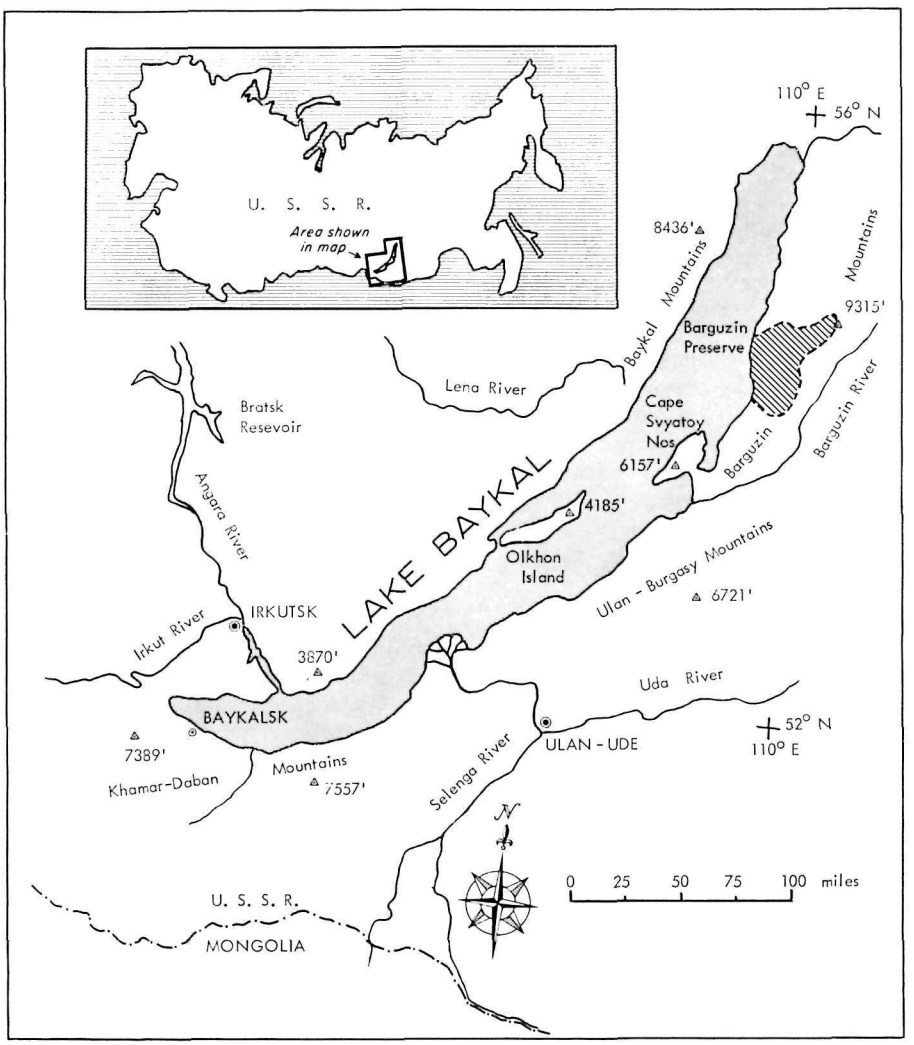
[2] See "State Protected Areas in the U.S.S.R.," *National Parks Magazine*, Vol. 36, No. 178 (July 1962). As of August, 1966, there were 66 of these reserves reported in the U.S.S.R.

[3] The average July temperatures around the lake range from 60-65° F.; average January temperatures range between 0° and —5° F. The over-all climate approximates that of Winnipeg or Edmonton.

[4] Oleg Volkov, "A Trip to Baykal," *Literaturnaya Gazeta*, January 29, 1966, p. 2.

[5] Yevlakov, I. A., "Generous Gift of Baykal," Interview by L. Shikarev of *Izvestiya* which appeared in the issue of September 25, 1965, as translated in *Current Digest of the Soviet Press*, Vol. XVII, No. 39, pp. 32-33.

The first national park of the U.S.S.R. will center on Lake Baykal, initially encompassing some 5,000 square miles, though its size may eventually be increased to 15,000 square miles. Diagonally shaded area is the existing Barguzin Preserve, or "zapovednik," to be part of the park.



News and Commentary

A National Trail System

A growing interest among Americans in the idea of a nationwide system of foot trails has been reflected in Washington this spring in public hearings of both House and Senate on proposed measures to establish such a system. At the hearings, held in March, President A. W. Smith of the National Parks Association outlined upon invitation his views in the matter. His statement was presented to the House Subcommittee on National Parks and Recreation by Grant Conway, trustee of the Association and for several years president of the Potomac Appalachian Trail Club; and to the Senate Subcommittee on National Parks and Recreation by Paul Tilden, assistant to the President and editor of *National Parks Magazine*.

In his statement Mr. Smith characterized the national trail system proposals as being among the most attractive developed in recent years during the great resurgence of public interest in natural outdoor recreation, capable of offering large numbers of people the best opportunity to escape the pressures of mechanized urban living. Further, the statement said, the system could be established with relatively little difficulty, disturbing few existing land-use patterns, and making use to a considerable extent of the public lands.

Provision for the exclusion of motorized vehicles from the trail system was called excellent, and the statement indicated that there should be no modification or weakening of its intent. The best way to ruin the purpose of the proposals would be to open the trails to motor scooters, motorcycles, or other such motorized equipment, the Association's president said.

The '67 "Golden Passports"

During March the 1967 $7 "golden passport," or annual permit for entrance to national parks, forests, refuges, and public land and other recreational areas went on sale at entrances to the units at many Government offices, and at many offices of the American Automobile Association. Money derived from the passports goes into the Land and Water Conservation Fund for acquisition of new public recreational lands and purchase of inholdings within existing areas. Last year the Fund received $120 million from the entrance permits and other sources—mainly sale of surplus Federal property and the motorboat fuel tax—and conservationists both in and out of Government hope that it will do even better during the current year.

There are a few changes in the fee schedule for 1967, which is essentially as follows:

The $7 Golden Eagle Passport is valid nationwide for the purchaser and all accompanying him in a private, noncommercial vehicle to all designated Federal areas that require an entrance fee.

A $1 daily vehicle permit will admit purchaser and all accompanying him in a private vehicle for entrance at one single designated Federal area that requires an entrance fee.

A $3 to $5 short-term vehicle permit for purchaser and all accompanying him in a private vehicle at one single Federal area requiring an entrance fee, and

A daily 50¢ permit for use by an individual entering a single area by means other than a private, noncommercial vehicle.

It should be pointed out that the permits do not cover special charges that may be made in the various areas; as, for example, charges for guide service, firewood, locker rooms and cabins.

Refuge Wilderness Hearings

Reviews of Fish and Wildlife Service plans for legal wilderness in the wildlife refuge system continue with the following public hearings scheduled:

April 18, on the Charons Garden unit of the Wichita Refuge in Oklahoma. Hotel Lawtonian, Lawton, Oklahoma, 9 a.m. For information, write the Refuge Manager, Wichita Mountains Wildlife Refuge, Box 448, Cache, Oklahoma 73527.

April 21, on Okefenokee Refuge in Georgia. Ware County Courthouse, Waycross, Georgia, 9 a.m. Write the Refuge Manager, Okefenokee National Wildlife Refuge, Box 117, Waycross, Georgia 31501 for information.

April 25, on Tuxedni, Bogoslof, and Bering Sea Refuges in Alaska, Bureau of Land Management conference room, Cordova Building, Anchorage. Write the Associate Supervisor, Alaska Wildlife Refuges, Box 500, Kenai, Alaska 99611, or the Regional Director, Bureau of Sport Fisheries and Wildlife, Box 3737, Portland, Oregon 97208 for detailed information.

May 2, on the Malheur Refuge in Oregon. Courthouse, Burns, Oregon. Detailed information from the Manager, Malheur National Wildlife Refuge, Box 113, Burns, Oregon 97720.

May 10, on the Huron Islands and Seney Refuges in Michigan. Write the Refuge Manager, Seney National Wildlife Refuge, Seney, Michigan 49883 for Service plans and maps.

It is not necessary to be present in person at these hearings to express views concerning wilderness in the various units. Statements received by the Refuge Managers up to the date of the appropriate public hearing will be included in the official record for consideration.

Solid Wastes & Power

New York City Air Pollution Control Commissioner Austin N. Heller reported recently that the city might be able to get 25 to 50 percent of the power to light its homes, operate its factories and run its trains by burning garbage for fuel—and at the same time cut down 35 to 40 percent of its smoke and soot.

He estimated that it might take three to five years to build a plant with a possible $100-million cost "as a starter." He asked the Consolidated Edison Company two months ago to explore the idea. A ConEd spokesman said they had renewed a study of the concept, particularly on the basis of European successes.

Summer Jobs in the Parks

The Student Conservation Association, Inc., announces that approximately 115 positions will be available this summer for well-qualified high school age, college, and graduate men and women, to work and learn in the Student Conservation Program, which is operated in cooperation with the National Park Service. There will be 75 to 90 positions available for the high school age group, and 19 to 24 positions available for the college and graduate group in 12 national park areas. Participants in this program will have the opportunity of assisting the National Park Service while extending their own education through actual field experience.

For further information and application forms, write to: The Student Conservation Association, Inc., Sagamore Hill National Historic Site, Mtd. Rt., Box #304, Oyster Bay, New York 11771.

Interior Yearbook Published

The Third Wave, the latest in the Interior Department's Conservation Yearbook series, has been recently published, carrying a foreword by Secretary Udall saying that the United States citizen is switching from his traditional role of conqueror to that of partner with nature.

Full-color picture essays in the book include a look at the ways, good and bad, in which man shapes and impinges on his environment. A special 16-page section, "A Parade of Parks," pays tribute to the

50th Anniversary of the establishment of the National Park System, and a two-page pictorial guide, "Which America Do You Choose?" provides an attention-holding educational tool for teaching resource management and its attendant pollution problems.

The publication has been placed on sale by the Superintendent of Documents, Government Printing Office, Washington, D.C. for $2.00.

Plea for Endangered Species

John Gottschalk, Director of the Interior's Bureau of Sport Fisheries and Wildlife, has sent a letter to fish and game directors in each state asking for a study that would help with a nationwide program for protecting rare and endangered species of wildlife. In particular, Director Gottschalk asked for a review of state laws and regulations concerning animals that are in difficulty, among them hawks and owls. He noted that species outside the scope of Federal regulations can only be protected by the states, and expressed the confidence that the state wildlife agencies will respond favorably to the appeal on behalf of threatened wildlife.

New Wildlife Refuge

The Migratory Bird Conservation Commission has authorized purchase of some 12,000 acres from four private owners for the UL Bend National Wildlife Refuge in Phillips County, Montana. Most of the rest of the almost 57,000-acre refuge will be composed of land to which the Federal government already holds title. The area "has a tremendous potential for development of high-quality waterfowl production habitat," according to Senator Metcalf, a Commission member. He said that after development, the area could produce at least 15,000 ducks a year.

The Commission passes on recommendations by its chairman, the Secretary of the Interior, for additions to waterfowl refuges within the National Wildlife Refuge System. Money for the additions comes mainly from sale of duck stamps to duck hunters.

Estuarine Protection

Because the nation's estuarial lands have not been readily adaptable to residential, industrial or agricultural purposes, many of them are still places of great natural beauty and scientific interest and, in addition, contain some of the most important remaining wildlife habitat on the continent. For these reasons a program of protection for estuarine areas is long overdue, and fits with a number of other good conservation and environmental measures that have been proposed recently, such as the bills for a national trail system noticed on page 24. These thoughts were the essence of a statement submitted on invitation to the Subcommittee on Fisheries and Wildlife Conservation of the House Committee on Merchant Marine and Fisheries during early March by NPA President A. W. Smith; the measure being publicly heard by that group was H. R. 25, a bill to protect the nation's estuarine areas.

The estuarine bill contains a requirement that there shall not be any dredging within any estuary of the United States or in the Great Lakes and connecting waterways without a permit from the Secretary of the Interior. Mr. Smith endorsed the principle of the requirement as an invaluable contribution to good natural resource management throughout the nation.

Atomic Energy in Alaska

The Board of Directors of the Alaska Conservation Society has recently stated its opposition to the use of national wildlife refuges, national parks, and other lands dedicated to conservation of renewable resources, for atomic experimentation. "We realize that top-level decisions already have been made that affect Amchitka Island," said President Robert Weeden. "We strongly urge the Atomic Energy Commission to take measures to reduce the possibility of losses to sea otter and other resources of this Island to a minimum. Probably the most effective step would be for the AEC to finance a team of competent biologists, working on Amchitka, to advise the Commission on specific actions to make inevitable damage as slight as possible."

The Board also passed a resolution asking the AEC to delay further action on the proposed test site near the Utukok River in the Alaskan Arctic until careful study has been made of the effects of potential radiation contamination of the huge caribou herd in this area. "We know that the main calving grounds of a herd of 250,000 caribou is in the Utukok River—Noluck Lake—Lookout Ridge area," said Weeden. "We know that lichens concentrate radioactive elements, and that caribou form the link whereby these sources of radiation, in concentrated form, get to people. It seems wise to study this situation pretty carefully before committing ourselves to a major testing program in the Arctic."

The Society also passed a resolution requesting the U. S. Forest Service to implement sections of its multiple-use management plans which would preserve scenic and recreation values of the Inside Passage of Alaska.

THE CONSERVATION DOCKET

THIS DOCKET CONTINUES THE LIST OF NEW conservation legislation introduced to the time of this writing (mid-March) into the First Session of the 90th Congress. As in the last Docket, "S" indicates a Senate bill and "H.R." a House bill; the entry is followed by its committee referral.

S. 785, to amend the United States Code to prohibit transportation or shipment of alligators or alligator hides, taken illegally, in interstate or foreign commerce. Committee on Public Works.

S. 682, for control of erosion and sediment damage on American rivers and streams. Committee on Agriculture and Forestry.

S. 963, to establish the Amistad National Recreation Area in Texas. Interior and Insular Affairs Committee.

S. 1013, to authorize construction and operation of the Central Arizona Project. The bill omits the Bridge and Marble Canyon dams from the Project in accordance with the Administration's recent decision to substitute thermal power for Bridge and Marble hydropower for pumping purposes. Interior and Insular Affairs.

H. R. 488, providing for consultation with Fish and Wildlife Service and State agencies in initiation of Federal pesticide programs. Merchant Marine and Fisheries.

H. R. 489, to require Interior Secretary to make a study of the polar bear and walrus for development of conservation measures. Merchant Marine and Fisheries.

H. R. 495, amending the Federal Food and Drug Act to establish standards of decomposability for pesticides which present hazard to the public health because of their failure to decompose. Interstate and Foreign Commerce.

H. R. 551, to establish the Biscayne National Monument in Florida. Interior and Insular Affairs.

H. R. 818, to amend the Clean Air Act for better prevention and control of air pollution. Would establish air regions and standards. Interstate and Foreign Commerce.

H. R. 851, to establish the Chesapeake and Ohio National Historical Park in Maryland. Interior and Insular Affairs.

H. R. 911, to establish the Channel Islands National Park in California. Would redesignate the existing Channel Islands Monument as a park with additional land and water. Interior and Insular Affairs.

H. R. 1043, to establish the Dinosaur Trail National Monument in Texas. Interior and Insular Affairs.

H. R. 1272, to forbid the Federal Power Commission from issuing any license for dam construction on the Colorado River between Glen Canyon dam and Lake Mead before December 31, 1969. Interstate and Foreign Commerce.

H. R. 1305, to enlarge the boundaries of Grand Canyon National Park in Arizona. Interior and Insular Affairs.

H. R. 1311, to establish a Redwood National Park in California. This bill looks toward a so-called "big" park centered on Redwood Creek rather than the so-called "small" park centered on Mill Creek farther north. Interior and Insular Affairs.

H. R. 1340, to extend the Blue Ridge Parkway from Beech Gap, North Carolina to Kennesaw Mountain National Battlefield Park in Georgia. Interior and Insular Affairs.

H. R. 1409, to establish the Sonoran Desert National Park in Arizona. Interior and Insular Affairs.

H. R. 1448, for a study by the Interior Secretary of a plan for preservation and development of Long Island Sound in New York and related shorelines in New York, Connecticut and Rhode Island. Interior and Insular Affairs.

H. R. 2075, to establish a grant-in-aid program for preservation of buildings having archeological, architectural or historical significance. Interior and Insular Affairs.

H. R. 3323, to establish the early iron works at Saugus, Massachusetts, as a National Historic Site. Interior and Insular Affairs.

H. R. 3996, to establish a National Scenic Rivers System. Interior and Insular Affairs.

H. R. 4137, to provide for scenic development and road beautification of the Federal-aid highway system. Public Works.

H. R. 4150, to authorize a program of research to determine the effect of overhead electric power lines on the health and welfare of Americans, and the impact of the lines on natural beauty. Interstate and Foreign Commerce.

Whittier's Duck Bank: Haven for Easter Castoffs

In the Quaker town of Whittier, California, animal enthusiasts may observe one of the most admirable Easter customs to be found anywhere in the country. There, in the large pond in William Penn Park, is a sanctuary for baby ducklings that are so thoughtlessly given to children as Easter gifts.

The pond is known in Whittier as the "Duck Bank," to which children are invited to bring their ducklings as a place where the animals can be turned loose to live free and normal lives. Youngsters are encouraged to do this rather than keep the tiny creatures cooped in pens or boxes at home, where they soon die. In the Duck Bank the young birds are protected and cared for, and each is registered with its donor's name to be visited at any time.

Whittier's citizens hope that humane societies throughout the country will emulate this excellent project, inasmuch as the defenseless creatures are still being sold as Easter souvenirs despite laws in some States—seldom enforced—prohibiting their sale. —*Juliette Laine*

Reviews

STRANGERS IN HIGH PLACES. By Michael Frome. Doubleday & Co., Garden City, New York. 339 pages, with appendix and bibliography. Illustrated, $5.95.

Strangers in High Places is a superbly written account of the Great Smoky Mountains region and its inhabitants. The sensitive feeling and keen understanding with which Michael Frome tells the story of the mountains, their people, and the national park further establishes him as one of the outstanding nature writers of current times. Man has changed the biotic community to some extent, yet has been more molded by the country than he has affected it. Those who live there become truly a part of it.

There is, first, the geological history of the Smokies, and the history of their earliest known inhabitants, the Cherokee Indians. Their cruel treatment by the white man as he coveted their lands is reported with fairness and accuracy. Later on, when current events are being examined, there is a review of the century between, and of the management, even now, under the Bureau of Indian Affairs.

By the close of the 20th Century the remnants of the Cherokee and the white settlers had established a working relationship, and a period of stability seemed at hand. Then came the big lumber companies and the devastation of the great forests. Before the last slopes and valleys were stripped, a dim understanding began to dawn upon the public. Voices were raised urging that steps be taken to preserve what still could be saved. As is so often the case, there was dissension as to how this could best be done. Finally, by the generosity of the Rockefeller family and the efforts of conservationists, the Great Smoky Mountains National Park came into being.

The establishment of the park brought a period of relative stability. Life in the adjoining mountains went on much the same as it had in the past. An interesting chapter deals with the moonshiners and their irritants, the revenue agents.

With the coming of the park the power struggle was intensified. There were the politicians who viewed the park as a source of patronage. They were powerful and determined. There were also great men, including Horace Albright, director of the National Park Service, and conscientious park administrators, who opposed the domineering of such men as Senator McKellar and Secretary Ickes. Protecting the public interest cost some their positions and their health. There was little in the way of public backing. The chapter titled "The Crucifixion of Ross Eakin" is the dramatic story of a park superintendent who stood up against political power.

In recent years the growing demand for mass recreation and the pressures of the motoring public have produced new threats to the complex of life in the Smokies. The tragedy is, that it need not be a choice between destruction of the park through overdevelopment on the one hand, or of limiting the public enjoyment of the region on the other. By wise planning the sanctuary can be retained and the public adequately served to the economic benefit of the region. Frome finds the answer to the increasing visitor use in the position taken by the National Parks Association in its regional planning. The author says:

"Some form of public transportation should be the beginning but not sum total, as a plan for the Great Smokies. Campers bound for the park could receive their campground assignments and ticket arrangements at the entrances. When all the spaces are gone, others would be directed to campgrounds in the adjoining national forests, Indian reservation, and commercially developed resorts. In this manner, the entire region, and not just the park itself, would absorb and serve the rising tide of visitors. Such was the design of the proposed Appalachian National Park and Forest of sixty years ago. Such was the intent, too, thirty-odd years ago when the national park was created."

In spite of the high promises of Government the plight of the Cherokees remains bleak. Grandiose schemes have been projected by leaders who lack an understanding of the Indians and their problems. Such planning serves only to compound the ills that already exist. To a great degree this can also be said of the white people who have become native to the hills.

Tribute is paid to the social workers and private agencies that have taught handicraft work to the mountaineers. Much beautiful work has been produced and the money for necessities thus procured.

The final chapter, "The Sanctuary," is a brief but almost poetic summary of what the Smokies are and stand for. Frome looks at the present debate over the projected new transmountain road through the park, proposed by the present administration. He recalls the heroic work of Kephart in the days of the lumbermen, and of Cammerer, who was, with Albright, one of the founders of the park, and who became a casualty of the power struggle. He concludes, "Suddenly all the struggles of the Kepharts and Cammerers are alive again. It is our chance to prove worthy of a heritage and establish a mark for the future."

—Walter S. Boardman

NATURE RESERVES IN ROMANIA. Edited by Emil Pop and N. Salageanu. Meridiane Publishing House, Bucharest, Romania. 1965. 173 pages in English, illustrated. Clothbound, 55 lei ($8.80).

Editors Pop and Salageanu have adapted the contributions of a number of Romanian scientists and scholars into a well-organized book that details the history of the park and nature reserve movement in Romania, about which little or nothing is known in America. Members of the Romanian Academy, the editors are representative of a group in that nation which has played the key role in establishment of a large system of nature preserves protecting a wide variety of geological features, outstanding ecological associations, and havens for threatened species of animals and plants. The book is heavily illustrated with very good photographs. *—P.M.T.*

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How the Battle of the Dam saved a wildlife paradise

For centuries, Horicon Marsh has been a favorite stopping place for huge flocks of migrating mallards and Canada geese. Hundreds of species of fish and game make it a paradise for sportsmen and nature lovers.

But Horicon Marsh is a paradise we almost lost.

Louis "Curley" Radke. "When he talked about the marsh, you could hear him from Wisconsin to the White House."

In 1869, the area was drained to uncover more tillable land for farming. It turned the once beautiful, living marsh into an arid wasteland where crops failed, natural plants shriveled and died, and wildlife disappeared in droves.

A basic fact was also revealed: The marsh had played a vital role in Nature's master plan, providing irrigation, as needed, to surrounding forests and plains. When Nature's balance was disturbed, floods and droughts plagued the land—a typical result of man's misunderstanding of Nature's ways.

To mend the damage, a dam was built. But due to conflicting interests, the marsh was later drained again... then dammed again—a seesaw battle that lasted some thirty years.

The tireless efforts of private citizens finally won public support for restoration of the marsh as *the best use of the land for the community.*

A leader among them was Louis "Curley" Radke, a local resident, who fought the battle through 16 sessions of the Wisconsin Legislature. Helped by the Izaak Walton League, the Milwaukee Federation of Women's Clubs and many others, Radke succeeded in getting a petition signed by 115,000 interested supporters.

Countless newcomers are hatched on the marsh year after year.

As a result, Horicon Marsh is today a 30,000-acre Wildlife Refuge, protected, nurtured, and controlled by the State of Wisconsin and the Federal Government.

You and your neighbors are needed to help decide the best use of the land around you.

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