

NATIONAL PARKS *Magazine*



Fruit and foliage of the American chestnut

March 1966

Parks on Paper?

An Editorial

AS ONE OF THE NATION'S MAJOR LAND-administration agencies, the Bureau of Land Management in the Department of the Interior would seem to merit much more attention on the part of conservationists than it has so far received.

Over the past few years the scope of BLM operations has been very much broadened; no longer is the Bureau a mere land-dispensing agency for an undeveloped West, or simply a caretaker for our remaining half-billion-odd acres of public domain—a land reserve containing, it might be noted, far more acreage than the combined holdings of the National Park and National Forest Services.

Current BLM programs seem to be aimed not only toward sound public land management, but also directly toward the fields of conservation, preservation and public outdoor recreation. For example, a recent article in this Magazine outlined the manner in which the Bureau hopes to establish on the public lands an assemblage of natural and recreational reserves that could well complement the parks and monuments and specially protected areas of the national forests.

Many conservationists are not sufficiently aware of the close link that exists between the operations of the Bureau and the well-publicized plans of the Department of the Interior for new national parks, monuments, and other of the expanding category of National Park Service lands. Americans, crowding already existing preservations to capacity and beyond, are duly grateful for the many new areas authorized over the past few years; but authorization of a new area is only a first step toward its enjoyment by the public. Authorization is the framework of a park, land is the stuff that sheaths it; and in many recent instances the sheathing process

has been both slow and controversial. Barring a change of direction in the present course of events, some of our new preservations will exist for a long time largely as parks on paper.

The underlying reason for this state of affairs is not difficult to pinpoint. As a practical matter, the Government can no longer set aside vast tracts of public lands, unencumbered by private holdings or developments, for protective and recreational purposes. Today the creation of park, seashore or riverway may involve scores or even hundreds of private property settlements, the cost of which could well seem discouragingly high to the Congress. In tacit recognition of this fact, recent authorizations for new parklands have included provision for exchange of private lands inside park boundaries for public domain lands without. The Secretary of the Interior makes the decision as to suitability of the BLM lands offered for exchange. This procedure is designed to save the Government money by reducing the sums needed in direct appropriation, and becomes particularly valuable during periods of Governmental budget-tightening.

But as a vehicle for provision of lands needed for parkland rounding-out, public land exchange has encountered a rough road indeed; very few Bureau-Park Service land exchanges have taken place of late, although both agencies are in the same Department, and the head of the Department, Secretary Udall, inaugurated the exchange program himself.

For example, more than a year ago a land owner, long the holder of forest property in the new Point Reyes National Seashore of California, proposed to exchange his land for timberland in Oregon. Almost immediately a Western forest industries association held a protest meeting at Gold Beach, Oregon,

to head off the exchange. Nonetheless, the Director of the Bureau of Land Management sent a memorandum to the State BLM Director in Oregon requesting him to identify scattered lands available for exchange in southwest Oregon, in furtherance of the current BLM program for eliminating small, administratively difficult parcels of land from its holdings. Instead of following the directive, however, the State Director listed *all* Oregon BLM lands as available for exchange; he was supported in the act of defiance by high State authorities, who made known their strong opposition to trading good Oregon timberland for a California park; and by a newspaper campaign organized by lumber interests. The local political climate proved so hostile that the Secretary of the Interior was prevented from transferring the Oregon BLM Director to another State.

The net result of this controversy, in which a State Director of the Bureau was rewarded for defying his national office, has been administrative chaos in the agency; the entire land exchange process has come to a standstill. Chaos in any arm of the Government is deplorable enough; in the Bureau of Land Management its effect on new park land acquisition has been particularly serious, since the Park Service seldom has sufficient money for acquisition by direct purchase.

It seems obvious that the Secretary of the Interior will need to exert his leadership in the matter of public domain exchanges if he hopes to see his park program succeed. At the same time, conservationists might well be taking a more active interest in the Bureau of Land Management's plans for the vast public lands, with a view to lending good cooperative and protective programs the public support they merit.

—P.M.T.



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Front cover photograph courtesy U.S. Forest Service

Today the native chestnut and its bur-protected fruit, once highly prized over its natural range for timber, tanbark and food for both human and wild life, are mere curiosities to two generations of Americans. Destroyed by an exotic fungus which invaded this country some 70 years ago, relics of the American chestnut now consist of a few isolated trees and countless millions of root-sprouts which have persisted over the years, themselves leveled by the blight on loss of juvenile immunity. But some shoots show a certain amount of resistance to the blight, and conservationists feel that a large-scale, well financed program of genetic selection, using the more resistant shoots as tools with which to work, might eventually result in the eventual re-creation of an American chestnut forest.

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.

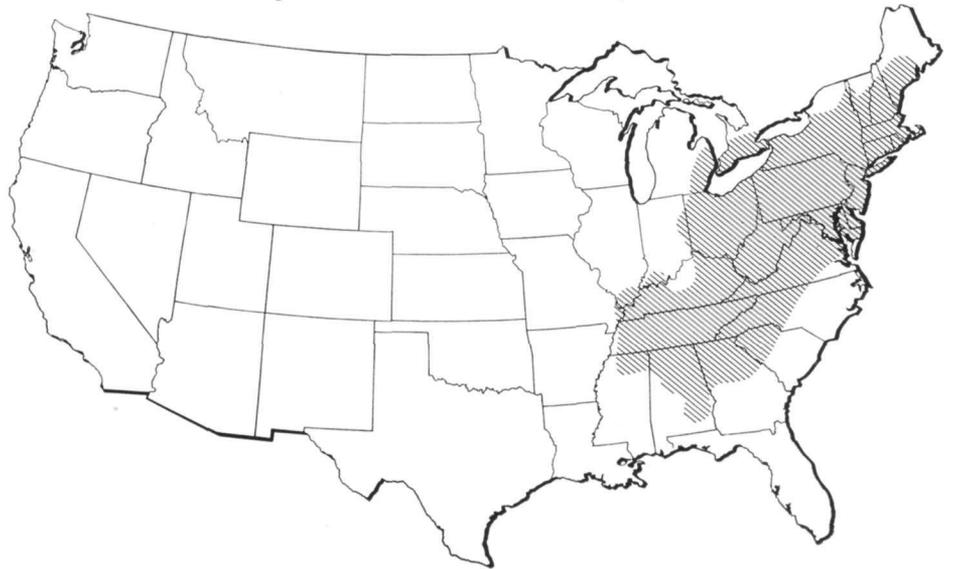
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Needed: A Long-Range

Natural Range of the American Chestnut, *Castanea dentata*



“IN SOME PLACES WE FYND CHESTNUTTS whose wild fruit I maie well saie equallize the best in France, Spaine, Germany, Italy, or those so commended in the Black Sea, by Constantinople, of all which I have eaten.”

So wrote William Strachey in his *Histoire of Travaile into Virginia Britannia*, after he had been, as announced in the very lengthy title of his volume, “Three Yeares thither Employed Secretarie of State.” The chestnut trees Strachey found growing in Virginia, whose nuts he compared with those of the European species—the so-called Spanish chestnut—was one of perhaps twelve members of a plant genus widely spread through the Northern Hemisphere; it was *Castanea dentata*, the native American chestnut.

Relics of the American chestnut like those in the picture at left are still to be seen in remoter parts of the Appalachians. Elsewhere vast numbers of the dead trees were salvaged for their tannin-rich bark and wood.

Today we Americans may still “fynd” chestnuts, but not, as we once did, in our forests; now we must go to the supermarket for nuts imported from Europe, or to the commercial orchard for those of a tree of the Orient, the Chinese chestnut. As an important Eastern forest tree the American chestnut has been missing from the natural scene for many years, annihilated in the greatest botanic disaster of recorded history.

To rehearse the destructive march of the disease commonly called the “chestnut blight” through the forests of eastern America will serve merely to freshen faded recollections for some readers; to recall to the mind’s eye those pleasant outdoor experiences so well recounted by Henry David Thoreau during an earlier day: “When chestnuts were ripe I laid up half a bushel for winter. It was very exciting at that season to roam the then boundless chestnut woods . . . with a bag on my shoulder, and a stick to open burs

Program for the American Chestnut

with in my hand . . . amid the rustling of leaves and the loud reproofs of the red squirrels and the jays. . . .”

A whole new generation has arrived on the American scene since the slaughter of the chestnut forest was completed; a generation deprived of the high fun of searching out the sweet brown nuts in the frost of an early October morning, the search spiced with the indescribable odor of damp brown leaves, ankle-deep. Late-comers have been robbed of a pleasant bit of their natural heritage by a species of fungus accidentally imported into America from the Orient, probably just prior to the turn of the twentieth century.

The deadly work of this fungus, *Endothia parasitica* by scientific name, was first noticed among the chestnut trees of New York City's Zoological Park during the summer of 1904, when the park's chief forester, Herman Merkel, discovered a number of specimens dying of some unidentified malady. Merkel sprayed the ailing chestnuts with fungicide and sent samples of the infected wood to the Department of Agriculture in Washington for analysis. Agriculture reported that the disease was caused by a fungus of the genus *Endothia*; but for several years it was believed by some scientists to be the European species, *radicalis*, harmless to the chestnut trees of Europe but fatal to those of America. The notion was given up, however, when it was discovered that the fungus first detected by Merkel also destroyed European chestnuts growing in the United States.

Finally it was noticed that the Japanese chestnut, which had been planted in the United States rather freely during the latter part of the nineteenth century, was somewhat resistant to attacks of the fungus; and the Department of Agriculture forwarded

a specimen of cankered American chestnut to one of its field men in China with a request for a search for comparative evidence in the Orient. Quickly the news came back; the fungus was endemic to China (and to Japan and Korea, as it was later discovered), and was quickly proved to be fatal to both the American and European chestnuts.

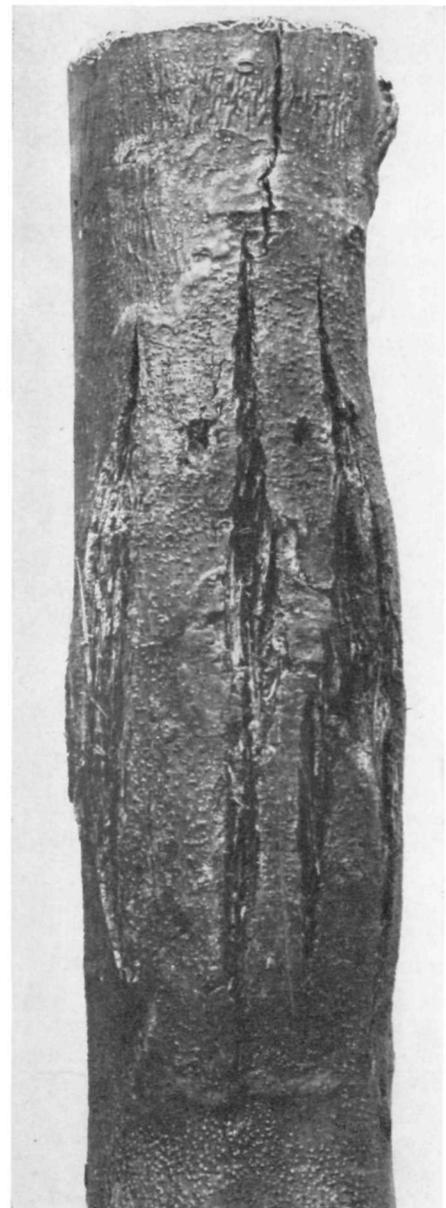
March of Destruction

To scientifically pinpoint the chestnut blight as Oriental was hardly to stop its march in America. While research work was in progress the blight was spreading like an invisible fire, rapidly widening its semicircle of destruction around New York City. Twenty years after *Endothia parasitica* had gained its foothold in New York, half of the native chestnut trees were dead as far north as northern Massachusetts, as far west and southwest as central New York State and central Pennsylvania, and as far south as Delaware and Maryland. In another ten years the parasite had reached Ohio, West Virginia and the North Carolina border; and twenty years later it had encompassed the entire natural range of *Castanea dentata*, outlined on the map on page 4. The rapid advance of the destruction was chargeable not only to the complete lack of resistance of the American chestnut to the Oriental fungus but also to the efficient manner in which the invading plant propagates itself. *Endothia parasitica* has not one but two ways of spreading its reproductive spores.

Within the small, orange-brown pustules which dot the areas of chestnut wood attacked by *Endothia* are formed spores which are released to the wind for distribution; these, settling in cracks and injuries on uninfected trees, form new fungus growths whose web-like mycelia penetrate the living tissue

Typical canker produced on a young American chestnut trunk by the saprophyte *Endothia parasitica*. Mycelia of the fungus will eventually girdle trunk completely, killing the tree above the canker. Visible are the small pustules which will produce one of the parasite's two types of reproductive spores.

Courtesy Department of Agriculture





Photograph courtesy National Park Service

of the trees to finally destroy them by disruption of the flow of sap. A second type of spore is produced in small, sticky ribbons protruding from the pustules for adherence to the feet and fur of small animals like the squirrel; transferred to a healthy tree by the animal the spore will, on gaining entrance to the tree through cracks in its bark, initiate the growth of the saprophyte.

Against this combination of wind- and animal-borne spores control efforts, such as they were, came to nothing. Only in one state was a serious effort made to halt the ever-widening semicircle of botanic disaster. Pennsylvania created a Chestnut Tree Blight Commission, whose investigative and suppressive work was funded with more than a quarter of a million dollars; two hundred chestnut-blight scouts were hired to roam the chestnut forests of the State locating and destroying infected trees, and a ten-mile-wide corridor was slashed across the State in which all chestnut trees, blighted and healthy alike, were destroyed to create an "immune belt." But *Endothia* vaulted the barrier with ease and proceeded west and south; the Commission went out of business after about two years of operations.

IF THE AUTUMN INGATHERING OF chestnuts was a particularly joyous recreational pursuit to Henry Thoreau,

and countless Americans who followed him, it had been a serious business to other harvesters both before and after his time. The American Indian living within the natural range of the tree depended heavily on the wild chestnut crop to feed his family in autumn and winter; the sweet nuts were eaten roasted, boiled to a broth, or ground into a paste from which bread was made. The nuts fed the wild turkey, passenger pigeon, bear, deer and other game that furnished a large part of his meat.

The early white settlers of America also appreciated the virtues of *Castanea dentata*. "Chestnut, of this sort there is a very great plenty," wrote Thomas Morton in the early days of the Plymouth Colony; "the tyber whereof is excellent for building, and is a very good commodity, especially in respect of the fruit, both for man and beast." Some of Morton's literary efforts may have contained inaccuracies; one contemporary commentator averred publicly that his work was "full of lies and slanders, and full fraught with profane calumnies." But surely Morton's evaluation of the American chestnut remains difficult to challenge—a very good commodity for man and beast, indeed.

To the hill folk of the Appalachians—the Blue Ridge, the Black and Craggy Mountains, the Pisgahs and the Great Smokies—the gathering of the chest-

Throughout the natural range of the American chestnut the destruction wrought by the Oriental chestnut blight was felt keenly; but nowhere was the impact as great as in the mountain country of the Appalachians. Hill folk used the chestnut for framing, fences, shakes and in various tools, while meager cash incomes were supplemented by sale of chestnut bark and wood to local tanneries.

«

Before the introduction of Endothia parasitica into the United States during the late 1890's, great tanneries like that in the picture below flourished throughout the South. This particular tanning works, at Old Fort, North Carolina, made a specialty of sole leather tanned with extract of chestnut wood.

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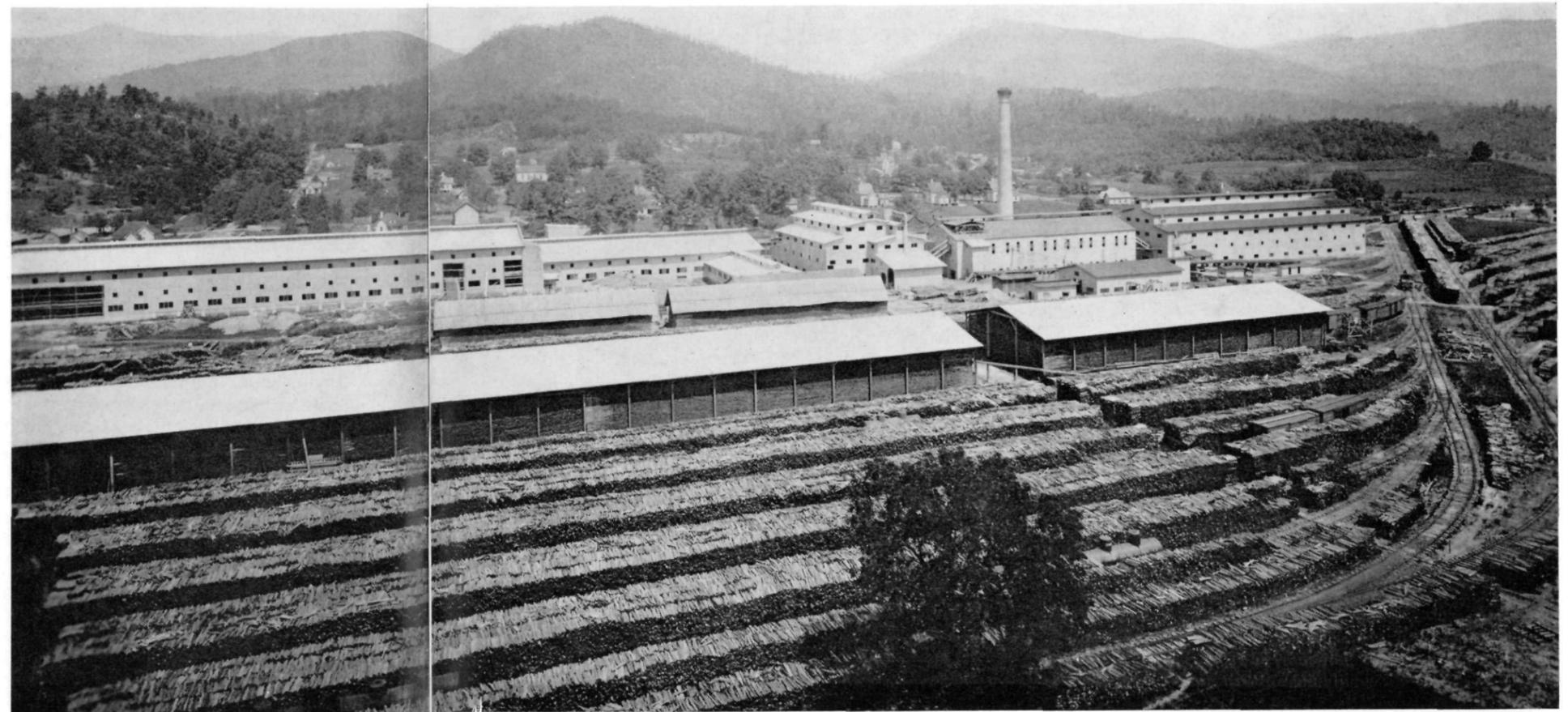
nut was far more than a sport; it was an important event in securing a livelihood. The chestnut was ready money in a part of America where ready money has never been easily acquired. There was a steady market for the nuts in the big city, while the gathering and sale of chestnut bark for the extraction of its profuse tannin occupied the slack days of winter months. The cabin of the mountain farm might be framed with locust and logged in with chestnut, its roof covered by shakes of the same wood rived out of specially selected trees. To keep the hogs from starving, the property was fenced with chestnut rails, and the animals were fattened on the nuts themselves. When the mountain man took final leave of his cabin and his clearing, his casket was likely to be fashioned of rude chestnut boards. The passing of this great tree, which constituted a substantial percentage of the entire forest cover over large areas of its natural range, altered a centuries-old way of life for the people of the Appalachians; and the loss was keenly

felt. There is a tale in the Blue Ridge of southern Virginia which says, by way of explanation, that "God killed the chestnut trees because the hill people were picking up chestnuts on Sunday and selling them." It was a terrible punishment.

Throughout the East the American chestnut was, because of the seemingly ageless character of its wood, greatly used by the telephone companies for poles and by the railroad companies for sleepers. In the remote parts of the East one may still happen upon lines of gray, crooked chestnut telephone poles that have been in the ground for decades, wood sound as the day it was set. In the coal States chestnut recommended itself for mine props because of its strength and resistance to decay. As saw timber, a great footage of chestnut was annually converted into beautiful interior trim, some of which may still be seen today in older homes and taverns. The economic loss involved in the destruction of the chestnut as a forest tree has been very great, although difficult to exactly

assess. Even more difficult to measure is the esthetic damage wrought by *Endothia parasitica*. In the Black Mountains of North Carolina the bloom of the American chestnut seemed to the naturalist Donald Culross Peattie "like a sea with white combers plowing across its surface." How does one stamp such a scene with the dollar sign? How measure the brutal disruption of an entire folk-group's way of life? How, indeed, to measure the affront to nature and the natural scene stemming from man's unwitting extermination of a native plant?

LONG BEFORE THE ORIENTAL CHESTNUT blight had run its full course through the eastern forests, plant scientists were thinking in terms of re-establishing a blight-resistant tree for timber and wildlife food and for orchard and home planting. The fact that the re-established tree might not be the original American chestnut was of secondary importance. Aside from a small minority, who thought that some of the persistent root-sprouts of





"They have a small fruit growing on little trees, husked like a chestnut, but the fruit most like a very small acorne. This they call Chechinguamins, which they (the Indians) esteeme a great daintie."—Captain John Smith, in "A Map of Virginia With a Description of the Country."

The Allegheny chinkapin, as it is called nowadays, is one of several species of *Castanea* native to North America. The specimen above, photographed in Fairfax County, Virginia, showed no trace of infection by *Endothia parasitica*; this species of chestnut has been used by plant-breeders in attempts to produce a resistant tree.

the old trees might in the course of time acquire resistance to the blight, the scientists had given up hope for *Castanea dentata*. "So, at last, it was realized that the American chestnut was doomed," said one of the reports of the Smithsonian Institution, rather brusquely ignoring the fact that man had by then given nature a rather short time in which to produce the desired mutations.

And so the plant-breeders busied themselves with a program for production of hybrid chestnut trees having good resistance to *Endothia*, crossing and re-crossing various other species of *Castanea*, native and exotic, with each other and with *dentata*. Thus were employed the Allegheny chinkapin, or bush chestnut of the Southeastern seaboard of America, possessing a moderate resistance to the blight; the Henry chinkapin of China; the Seguin chestnut, also of the Orient; and the European, Japanese and Chinese tree-sized species. Some of the hybrids obtained through these crosses have shown promise of good resistance and good form, and the experimental work on them continues.

But the patient and dedicated work that has been invested in the hybrid chestnut program by a small number

of workers has been aimed very largely toward production of a substitute tree incorporating as many of the good characteristics of the American chestnut as possible. Conservationists ask: What has been done to reestablish the native species itself as a forest tree? The answer, measured in terms of money and sustained effort and interest, is: pathetically little. The work of the few scientists in the field has looked almost entirely in the direction of hybridization, and has largely ignored the possibility of native chestnut restoration by way of the only possible road—a well-financed and well-manned long-range program of genetic selection.

There are probably several reasons for the present lack of such a sustained program. The relatively small amount of work that was done in genetic selection yielded no immediate, visible returns, and many people were convinced that such a program was a waste of time in any case. There was the additional consideration, it may be suspected, that the time required for the program could conceivably look far beyond the span of a single lifetime—a hundred years, perhaps; two or three hundred, if necessary. The Department of Agriculture in-

dulged in a small-scale effort toward genetic selection during its experimentation (now abandoned) with chestnut hybrids; the few plant specialists who have indicated an interest in genetic selection have never been able to launch a full-scale attack on the problem through the lack of funds that stems from lack of interest on the part of Federal and State agencies. Genetic selection has always been the orphan of the American chestnut restoration program, such as it has been.

Assessing the Possibilities

What would be the chances of success for a long-term, well-financed, well-staffed restoration program which, at the outset at least, might be directed by some of the few remaining scientists who have taken an interest in the revival of the American chestnut? Where is the point of departure?

Dr. Richard A. Jaynes, a plant geneticist at Yale University's Connecticut Agricultural Experiment Station, suggested the answer to the last question in one sentence of a paper written on the status of chestnut breeding at the station. "There is little doubt that there is a difference in the susceptibility of *Castanea dentata* to the blight," he said. If there is such a difference, then there is good probability of success for a large and long-term genetic selection program.

"If I could be granted an extra century or two of life and enough income to employ three or four helpers, I strongly suspect that, with the necessary land and equipment, I could (if I stuck to it) produce an effective blight-resistant strain of the American chestnut," wrote Dr. J. Russell Smith, of Swarthmore College, in 1950. "I would do this by planting, generation after generation, the seed of the most resistant descendents of . . . the tough specimens that have already resisted the blight enough to live with it for a third of a century."

Unwittingly, perhaps, Dr. Smith summed up the difficulty that has beset fifty years of small public and private programs toward restoration of the American chestnut: a pittance and three or four helpers. Surely a people able to afford a man on the moon might well deal more generously with one of the challenging forestry problems of our time. ■

EGG ISLAND ADVENTURE

BY JOHN J. STOPHLET

Photographs by the Author

COLD RAIN BEAT UPON OUR FACES as we peered across eleven miles of open ocean toward Egg Island in Bering Sea, on western Alaska's fog-bound coast. Like a ship at sea the far-off island rode the vast gray horizon, smothered in rain and mist.

With me were two companions—Warren Peterson and Henry Kyllingstad—as well as Johnny Ivanoff, our young Eskimo guide. Our objective this day was to reach the island and photograph the sea birds nesting there; and we had come a long way to fulfill the mission. Leaving Mountain Village,

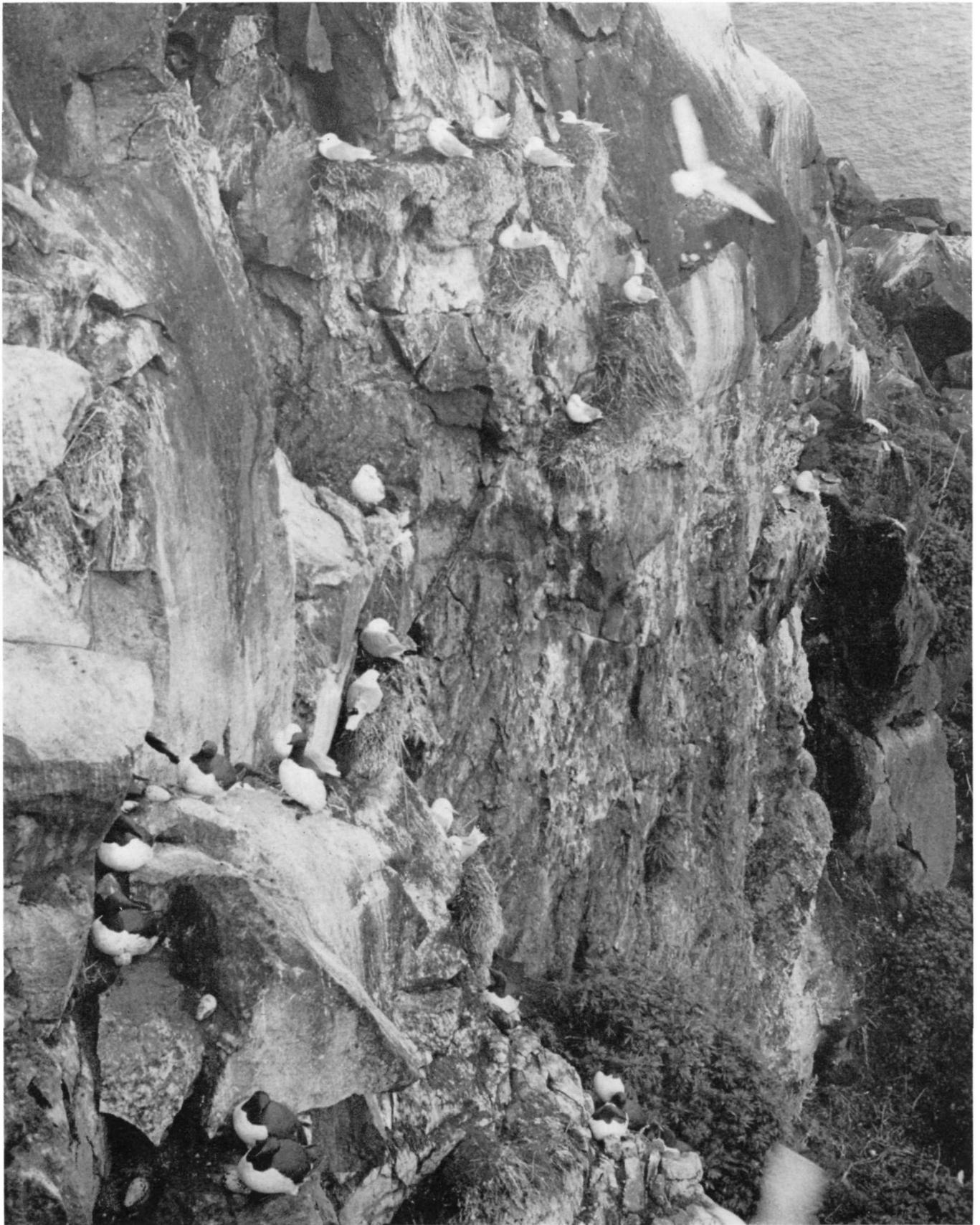
near the mouth of the Yukon River, we had traveled by tugboat a hundred and thirty miles downriver, passing through the north channel of the Yukon Delta and across Norton Sound to St. Michael on the coast, some sixty-five miles north of the Delta. Here we hired the young Eskimo to take us to the island in his boat.

Having stowed food, camping gear, cameras, and other equipment in the twenty-foot whale boat, we were off. The twin outboard motors purred, rain descended in sheets, and the sea roared as we left St. Michael on its wind-

swept hill. I looked astern to the old Russian church, the Eskimo houses, and the stern-wheelers rotting on the beach. History had been made there! St. Michael was one of the oldest Russian settlements in North America, and later, after the United States had bought Alaska, an army post was established on the spot. In gold-rush days the town was the embarkation point for miners bound up the Yukon to the Klondike. To the naturalist St. Michael has special significance, for it was in this very area that the well-known scientist Dr. Edward W. Nelson spent the

Two hours by small boat out of the Alaskan village of St. Michael, Egg Island juts abruptly from the southerly portion of Norton Sound, its bleak gray rock clothed on gentler slopes with low shrubs, luxuriant grasses, and wildflowers like yellow arnica, wild iris and white-flowering bunchberry.





fruitful years of 1877 to 1881. Nelson left a rich legacy of contributions to the knowledge of Alaskan fauna in his collections of birds and mammals and his writings on Alaska. Later, in 1920, the late Olaus J. Murie, great naturalist and grand champion of wilderness preservation, landed here to begin his studies of the caribou.

After two hours in the open boat, during which everyone became well-soaked and almost congealed, the fog lifted to reveal the island dead ahead. We landed on a little sand beach between cliffs, set up tents, and soon had a driftwood fire blazing. A cup of hot tea helped immeasurably after the long, cold ride. We had arrived at midnight; but as there was continuous daylight in this high northern latitude at the time of our visit we were free to explore the beach at the base of the cliffs. There we found the huge, white hulk of a dead walrus which had washed up on the beach. The tusks were missing, indicating that an Eskimo had probably shot the animal for its ivory. Walrus spend the winter in Bering Sea and in June, after the calving season, migrate north through Bering Strait to the Arctic Ocean. Formerly abundant, the walrus—like the polar bear—has been greatly reduced by overhunting.

The Plants and Animals

Egg Island covers several acres surrounded by sheer cliffs, offering but few places where a boat can be beached. On the more gentle slopes and in breaks in the cliffs, there was a luxuriant growth of waist-high grass, clumps of willows, shrubs, and wildflowers. We found yellow arnica, wild iris, and white-flowering bunchberry blooming among the grasses and moss. The accessible route to the top of the island was through the break in the cliff back of our camp. Struggling up the steep slope through the grass and willows, I came abruptly upon a big gray arctic hare only a few feet away. Black-tipped ears erect, nose twitching, it sat motionless while a small com-

Mr. Stophlet, of Toledo, Ohio, began his career in conservation as a naturalist with the Michigan Audubon Society's Battle Creek refuge. He is author of a number of articles dealing with subjects in the general field of conservation.

pany of ravens circled above, their wild guttural cries all but lost in the wind and roar of the sea below. Although the arctic hare is common on the mainland, I hardly expected to find one here. Apparently they reach the island over the ice in winter.

There were a few songbirds on the island, including common redpolls, savanna and golden-crowned sparrows, and several Gambel's sparrows with their young. A red-breasted merganser and a number of the large, heavy-bodied black and white Pacific eiders were seen; but it was the sea birds that presented the big show. On the first day of our stay Henry and I shouldered cameras and went to the top of the island to photograph sea birds. We settled on a small promontory that jutted from the face of the cliff with a hundred-foot drop to the wave-washed rocks below. Opposite us, on the cliff, California murres and Pacific kittiwakes nested. The immaculate kittiwakes incubated their eggs in nests of grass, tucked securely into crevices of the rock wall; the murres warmed their single eggs on bare, unsheltered rock ledges. Murre eggs were of two colors: white, and blue-green; both colors scrolled with black markings. The eggs are sufficiently pointed at one end so that they will roll in a circle on the bare rock; otherwise they would roll off the cliff. Glaucous-winged gulls screamed high over the cliffs and sea, on the lookout for the nest of an unwary murre or kittiwake that had left its eggs unguarded. As we set up the cameras and began taking pictures, storm clouds gathered, rain again deluged us, and the sea was whipped to foam. Who said, we tried to recall, that this is the worst climate in the world? We decided it was not

our day—at least so far as photography was concerned—and so returned to camp.

The next morning it was still raining, and being apprehensive that a storm might isolate us on the island we broke camp and began circling to the west side for our return to St. Michael. As we rounded the island and approached the nesting birds, there erupted from the cliffs a veritable blizzard of murres and kittiwakes as, on wildly beating wings, they left their nests. Every crack and crevice on the cliffs held nests. Perched on the rocks were a few pelagic cormorants, but we found no nests of these birds.

It became apparent that the sun was about to favor us, so we beached the boat and started for the base of the cliffs. As we scrambled up the slope through the shrubbery, horned puffins shot out of their burrows at our feet. Black-tufted puffins, their yellow head-plumes streaming in the wind, passed like winged bullets as they flew out over the water in wide circles, only to return in patrol of their nesting grounds. Great rafts of horned puffins and smaller squadrons of parakeet auklets floated on the sea. Toward evening the puffins returned and whitened the island in hundreds as they perched on the rocks in close ranks. It was a sight to long remember.

Auklets and Puffins

Henry caught several parakeet auklets and horned puffins on their nests under the rocks, banded them, and set them free. He wore gloves for protection against the sharp bills of the puffins, as the birds can inflict a nasty wound on exposed hands. Puffins seem ridiculously comical as they solemnly stand in long rows on the rocks, white breasts "puffed" out below big, parrot-like bills. Of the two species of puffins on the island the horned was much more common than the tufted; both kinds nest in crevices among rocks and in burrows which they dig in loose soil at the base of cliffs. We found many nests of horned puffins, but none of the tufted. The strikingly-colored latter species breeds south to the Santa Barbara Islands, off the southern California coast.

Of the several varieties of small "alcids" which nest in Bering Sea, we found only the parakeet auklet on the

On the rough face of an Egg Island cliff a group of California murres and Pacific kittiwakes finds a nesting-ground. Black and white birds in lower portion of photograph are murres; at lower left may be seen two murre eggs with long points which act as pivots around which eggs may roll. Several kittiwakes are to be seen guarding their grass nests in the middle and upper part of the picture.



Of the two species of puffins found on Egg Island—horned and tufted—the horned was the more common; the solemn-looking specimen in the photograph was banded by the party and released. Both puffins nested on island among rocks and in burrows.

island. This little bird is blackish above, white below, with white plumes on the cheeks and a small red bill, its lower mandible curved upwards.

Egg Island is one of many colonies of sea birds that occur in the Aleutians, Pribilofs, and other islands in Bering Sea; some of the larger colonies may blanket cliffs for miles. The "bird cities" of Alaskan waters offer some of the most spectacular and awe-inspiring sights in the bird world, and one might wonder why the animals are so nu-

merous in this region. The primary reason is, that the far-northern seas are extremely rich in plankton, that teeming, microscopic life composed of diatoms, copepods, tiny shrimp-like euphausiids, and many other species that create "the pastures of the sea." Even such giants of the deep as the huge whalebone whales feed on this small life, which is actually basic to whale existence. Small fish abound in this abundance, feeding on the plankton, the larger fish gobbling up the

smaller; and in turn the birds feed upon the small fish and other marine creatures. And so, on Egg Island, we were really seeing but a few of the links in the chain of life which runs endlessly in a great circle, each link depending on that preceding, no link stronger than any other.

Fortunately, the major concentrations of sea birds are now protected in refuges in the Aleutians and Pribilofs and other islands of Alaskan waters, to be a continuing source of interest to scientists, naturalists, and all those plain Americans who love nature for its own sake for years to come.

Farewell to the Island

After photographing the birds until almost sundown we made for the boat, which by now had been left high and dry on the rocky beach by the receding tide. Much shoving and tugging was needed to free the craft, but at last we climbed aboard and began the long ride back to St. Michael. The cacophony of bird voices finally died away, and Egg Island became only a speck on the distant horizon and a pleasant recollection. The sea was now smooth and we were all in a mood of contentment after the successful venture. A flock of common scoters, dark wings flashing in the bright light, passed by, and on a floating log sat a relatively rare Aleutian tern, its beautiful form reflected in the glassy sea. It was a fitting climax to two days spent on an island of grandeur amid a galaxy of fascinating birds.

I looked toward the low mountains where the last rays of the setting sun touched the peaks in crimson. Before me lay the wondrous world of the "Great Land" of Alaska, wild and free, extending north to the Brooks Range where the caribou roam, where splendid white sheep grace the crags, and where wolf, grizzly, and wolverine have lived together in undisputed domain for countless centuries. There too, are the mighty rivers with leaping salmon, and vast tundras with multitudes of ducks, geese, and shorebirds, nesting among the ponds and lakes. Truly Alaska is an outdoorsman's paradise! But the threats are many to this unspoiled land. How may we best defend and preserve this priceless treasure of wilderness and wildlife for Americans of the future? ■

Has the Polar Bear a Future?

SINCE MEN OF MANY NATIONS FIRST explored the icebound world above the Arctic Circle they have agreed that the most impressive mammal of the area was *Thalarctos maritimus*—the polar bear. These large mammals have survived despite intensive hunting, which began as early as the 1700's when whaling ships pierced their arctic range. As early as the turn of the nineteenth century polar bear population began to diminish appreciably, and today the remaining animals are taken by the most modern—and disastrously efficient—methods. Scientists and conservationists in the United States and elsewhere fear the bear may be headed for total extinction.

Until the advent of the long-range rifle and later the light airplane, it was difficult for even the most skilled hunter to bag a polar bear. The animals are clever and fast; they are sure-footed

on ice and are at home in the Arctic's freezing waters. Mature male polar bears weigh about 1000 pounds and stand ten to twelve feet tall on their hind legs. Every other year the females, which are somewhat smaller, scoop out a den in a snowbank and hibernate, during which time the cubs—about the size of a rat at birth—are born.

As far as can be determined the natural habitat of the polar bear encompasses all that territory north of the Arctic Circle, and occasionally as far as 800 miles or so below it. The wandering habits of the species make it difficult to police the numbers killed; the bear is listed in the United States Department of the Interior publication on rare and endangered species as of "status unknown."

Early this year, in an effort to find out more about the bear, Senator E. L. Bartlett of Alaska suggested an in-

ternational technical meeting on the mammal; and on September 6, 1965, representatives of Norway, Denmark, Canada, Russia, and the United States met in Alaska to conduct the First International Scientific Meeting on the Polar Bear.

It soon became obvious that, as Bartlett has said, the bears "do not legally belong to any country; and thus no country has gone to much trouble to find out about them." There are about 10,000 bears left, of which at least 1300 are killed yearly. Protective legislation is scant; Norway and Russia are the only nations affording even partial sanctuary.

Each nation involved in the meeting agreed that the bears are an "international circumpolar resource," to be protected by all; but more data is needed before we can answer the question, "Has the polar bear a future?" ■

A mother polar bear and two cubs, caught by camera climbing aboard an ice floe, look up curiously at a passing Coast Guard helicopter.

United States Coast Guard photograph





In Argentina's Nahuel Huapi National Park deep blue lakes nestle among the rugged Andes.

Nahuel Huapi, "Tiger Island" of Argentina

By Eugene J. Wilhelm, Jr.

Photographs by the Author

IN NORTHWESTERN PATAGONIA, ARGENTINA, deep blue lakes nestle among the rugged Andes Mountains. Complemented by snow-capped summits, cascading streams, and green carpets of broadleaf evergreen trees, this Lake District constitutes one of the superbly picturesque areas of the world. And perhaps nowhere else in the beautiful Lake District may one find such a combined and concentrated variety of landscapes as those contained in Nahuel Huapi National Park. Largest of Argentine national parks at nearly two million acres, Nahuel Huapi lies along the eastern slope of the Andean chain, abutting the Chilean frontier.

The name "Nahuel Huapi" derives from the largest lake within its boundaries, Lake Nahuel Huapi, which forms the grand central feature of the park. In shape it resembles the outstretched claws of a tiger; and, in fact, the words "Nahuel Huapi" are Indian for "Tiger Island." The lake receives numerous rivers and minor tributaries, plus the

waters of smaller lakes. Verdured hills and mountains almost completely encircle it.

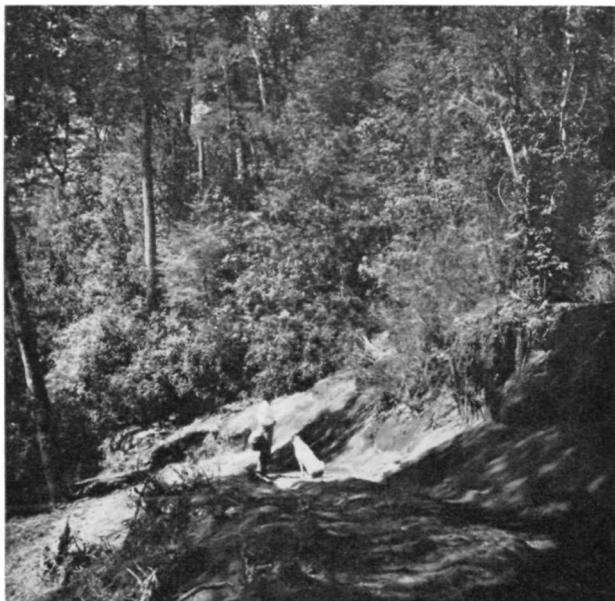
Park Botanical Experiments

Situated in the center of Lake Nahuel Huapi is Isla Victoria, largest island in the park. Presently the island houses experimental greenhouses and garden plots of exotic trees and herbaceous plants. The Argentine government is particularly interested in the economic potential of American trees like the redwood, Douglas fir and western hemlock, in addition to several European varieties. A bird refuge has been established at the northwestern end of the island to protect water birds like gulls and cormorants during breeding season.

The discovery of the Nahuel Huapi region can be traced back to the time of the Spanish explorations. In the sixteenth century Spanish expeditions sought areas of wealth and at various times came in contact with the beauti-

ful Lake District. After these expeditions Jesuit missionaries visited the region, seeking to convert the local Indian population. Some of these early padres are remembered in the names of park lakes like Mascardi and Guillermo.

The first Argentine movement toward a national park did not occur until the twentieth century. On November 6, 1903, Dr. Francisco P. Moreno donated some 37,000 acres in the vicinity of Laguna Frias to the Argentine government for the creation of a national park. Dr. Moreno was interested in the geology, native flora and fauna, and human history of the region, and during his many exploratory expeditions grew to appreciate the extraordinary values the region possessed. After the initial gift the Argentine government gradually increased the size of the preserve to 106,000 acres in 1907, and to its present size of nearly two million acres in 1922. With the passage of Law 12,103 in 1934, Nahuel Huapi officially



*Along the Eastern slope of the Andes the exuberant Valdivian rain forest (left) reaches its continental limit. Among its trees, the stately and rare alerce (above) is without doubt the most magnificent, often attaining a height of 120 feet and an age of 2000 years. It closely resembles the California coast redwood, *Sequoia sempervirens*, and is, in fact, a distant relative of that ancient coniferous tree.*

became the first national park of Argentina.

According to parts of Law 12.103, and later governmental decrees, areas set aside as national parks in Argentina are regarded as outdoor museums or natural preserves. In these areas native plants and animals are allowed to develop freely, subject only to natural forces and influences. Nahuel Huapi and other national parks of Argentina are recognized further as possessing economic, cultural, esthetic and scientific values for the people of Argentina and of the world.

The principal community in Nahuel Huapi National Park is the town of San Carlos de Bariloche, located on the south shore of Lake Nahuel Huapi. A visitor today finds a very modern settlement with abundant accommodations. In fact, Bariloche has been developed as the main summer and winter mountain resort of the country. Not least of the town's attractions is the distinctive Swiss-Alpine setting, re-

flected by architecture, European foods, and foreign languages heard. Years ago many Swiss, German, and Italian immigrants settled here, and these alpine dwellers quickly called their new home "Little Switzerland."

The unique aspect of Nahuel Huapi, however, rests in its natural history. In few other areas of similar size are there such great physical variations in surface configuration, climate, soils, vegetation and animal life. Towering volcanoes, massive glaciers, colorful gorges, deep lakes, folded ridges and block mountains comprise a partial list of the many known landforms represented in the region. Diversity of surface configuration stems primarily from the complex geological history of the district, and its position within one of the world's regions of contemporary mountain-building.

Great Mountain System

Longest landform unit of South America, and among the most signifi-

cant geologically, the Andean Range forms one of the most impressive mountain systems of the world. The southernmost segment of the range, in the vicinity of Nahuel Huapi, is narrow, compact, and relatively low in elevation, averaging about 2200 feet. Although not high the southern Andes are of scenic and scientific interest because of glaciation and active volcanism.

Ice has been an impressive agent in modeling the gradational landforms of the Nahuel Huapi district. Mountain or valley glaciers have left appreciable imprint on surface features, developing glacial troughs, hanging valleys, cirque basins, deep lakes, and other normal features associated with ice erosion. Pleistocene glaciation has produced a variety of depositional landforms as well, such as moraines, outwash fans, outwash deltas, and related phenomena.

Mount Tronador, "The Thunderer," is an excellent example of Nahuel



To the west of the Lake District is a zone of recent volcanic activity in which there are several active volcanos, and on occasion Nahuel Huapi National Park is showered with ash and cinders. A symmetrical volcanic peak of the region, Osorno, is pictured above.

Huapi park glaciation. With eight active glaciers on its slopes, this highest and grandest summit of the park dominates the entire frontier region of the preserve. The mountain received the name from the thunder-like rumbling produced by sliding blocks of ice plunging over steep rock walls into gorges below. In the geologic past Tronador extended its ice fingers in various directions, carving and gouging out large U-shaped valleys. Many of its terminal moraines are presently located more than twelve miles away from the summit. Today, most geologists hold that Tronador is an extinct and broken-down volcano.

Recent volcanism in the Lake District is restricted to a zone west of the main Cordillera in Chile. Three large volcanos and several smaller ones dominate this region. Although at some distance from Nahuel Huapi, active volcanos like Calbuco leave their mark on the park landscape. Because of predominating westerly winds, tons of ash and cinders fall periodically on the park. If an eruption of long duration takes place, the accumulating ash may have serious consequences on park flora and fauna.

A narrow belt of lowland in Nahuel Huapi separates the western Andean Range from the eastern Patagonian Plateau. This depression forms a dis-

continuous series of north-south trending basins whose elevations lie between about 500 to 1000 feet above sea level. Markings of glacial moraines and beds of formerly more extensive glacial lakes occur on the bottoms of these basins.

The eastern extremity of the park is part of a dissected plateau of moderate elevation. Throughout this territory two chief surface elements are associated in varying degrees of arrangements. Covering a base of crystalline rock, a mantle of stratified material forms a tabular plateau with steeply-scarped margins. These strata consist of sedimentary rocks, basaltic lavas, and glacial debris. Hilly to mountainous land of resistant crystalline rock stands above the plateau.

The physical diversity of Nahuel Huapi is again vividly expressed in its weather and climate. For example, the cool, rainy forests of the frontier contrast sharply with the dry Patagonian steppe sixty miles or less to the east. Several reasons for such diversity are apparent, including latitudinal position, surface configuration, influence of the cold Peru oceanic current, and dominant atmospheric pressure areas with their accompanying wind systems. In the park average annual precipitation declines from 157 inches along the eastern slope of the Andes to 39 inches

at the town of San Carlos de Bariloche, only some thirty miles by air to the east.

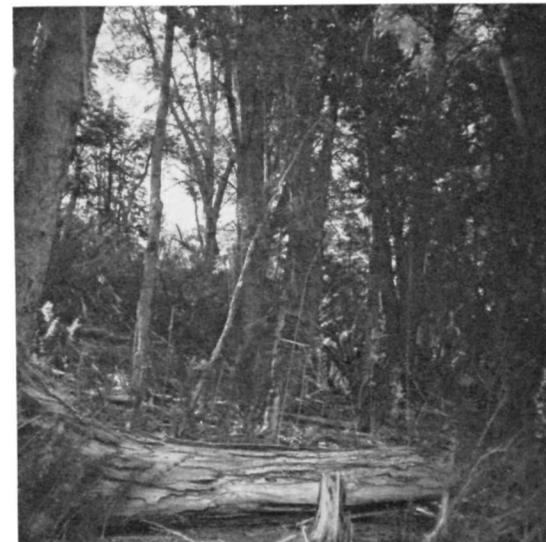
But Nahuel Huapi offers more than geology and climate to its visitors. On the western fringe of the park, in a zone of abundant precipitation, evergreen trees attain their maximum dimensions. Here, close to the border of Chile, thrives the exuberant Valdivian rain forest.

The extraordinary growth of coihues and alerces, the imposing intertwining of lianas around the trunks and branches of the massive giants, and the rich epiphytic life recall impressions of a tropical rain forest. In addition, a dense undergrowth of bamboo clings to the sun-spots of the forest floor, hindering travel of both man and beast.

The Imposing Alerce

Undoubtedly the most magnificent member of the Valdivian rain forest is the alerce, *Fitzroya cupressoides*. In appearance this stately conifer closely resembles the California coastal redwood, *Sequoia sempervirens*. Even its tawny sapwood and cinnamon heartwood suggest our tall coastal *Sequoia*. Often attaining a height of 120 feet and an age of 2000 years, the species is restricted as to locality in the park. The alerce grows well on swampy soils in the western valleys where it thrives in the dampest habitat in unmixed

Prostrate beeches like the coihue shown below allow other plant forms to secure a foothold in the dense Valdivian rain forest.



stands. In drier places the tree associates with coihue and laurel-like representatives.

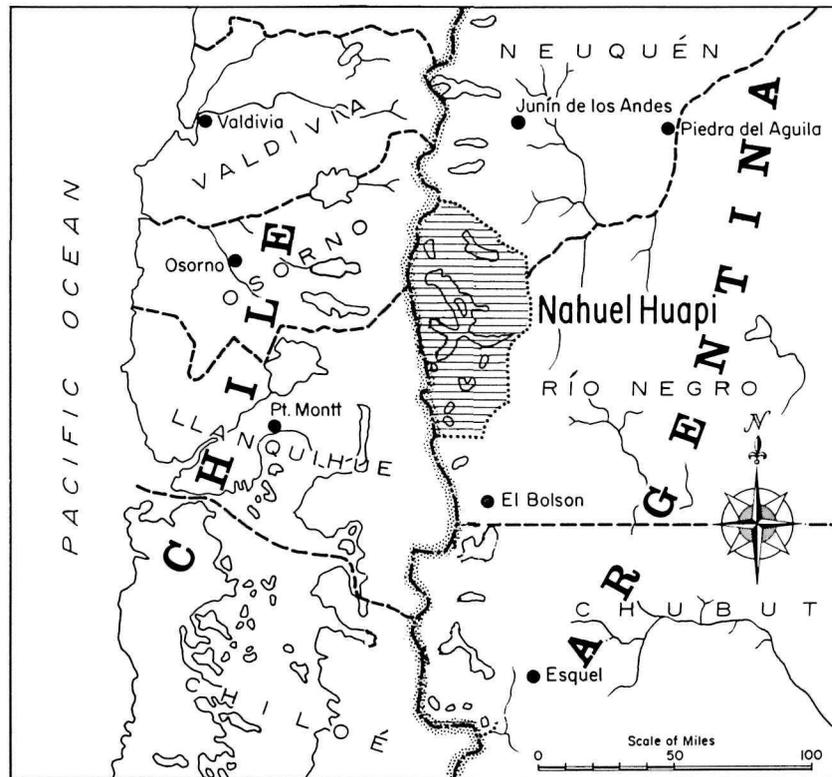
The predominant tree of the Valdivian rain forest is the coihue, *Nothofagus dombeyi*, an erect evergreen beech. Certain coihue specimens have withstood windstorms, diseases, fire, axe, and ashes for more than six centuries. Receiving more than 150 inches of annual precipitation, the coihues permit a complex but fascinating forest community to exist. Many varieties of mosses, lichens, and fungi prosper on the lofty trunks and branches. In fact, it is even common to find other plants like ferns growing out of the rich moss platforms.

Giant coihues become top-heavy with time because of their shallow root systems. Winter storms seek out a certain number of such trees and lead them to a crashing doom. But the death of one tree means life for countless others. The open space left in the high forest canopy permits precious sunlight to touch the forest floor. And with the gradual decomposition of the sleeping monarch, chemical and biological agents work feverishly in the rejuvenation of life. Soon plants cooperate in establishing a living "log community" by seeding the log and its surroundings. From lichens and fungi to mosses and ferns, then to flowering plants and trees, plant succession continues at an accelerating rate.

Surprisingly, Nahuel Huapi, with its lush rain forests, dense undergrowth, marshes, lakes, rivers, and mountains, is faunally poor. A hundred species of birds, thirty species of mammals, and but few native species of fish are known. Presently, several of the fishes are considered rare in the park.

Practically every major lake of the park supports a number of hualas. These giant grebes persistently swim and dive for fish, and may be identified from afar by their weird, sad cry. Other water birds of the park include cormorants, gulls, ducks, geese, and black swans.

Terrestrial birds and mammals in Nahuel Huapi vary according to geographic regions. The semi-arid steppe contains a small but interesting faunal assemblage. Years ago the short grass attracted large numbers of guanacos. Today, this New World relative of the camel rarely ventures into the park be-



cause of excessive hunting pressure. On the other hand, the rhea still persists in the zone. This bird, usually miscalled the South American ostrich, bears only a superficial resemblance to the African ostriches, and stands much lower. Measuring four to five feet tall and weighing up to fifty pounds, rheas are the largest of New World birds. Like the ostriches of Africa, however, rheas remain shy inhabitants of the steppe, travelling in small flocks and depending on running speed to escape their enemies.

The alpine zone of the park is the natural home of the Andean condor. Unquestionably the title of best terrestrial soaring bird in the New World belongs to this large South American vulture. With a wing span of ten feet and a body weight of twenty pounds,

the giant bird is a natural marvel of aerodynamics. Except when rising from the ground, the condor rarely flaps its wings aloft.

To sum up, Nahuel Huapi National Park represents something unique in the world of nature. Few other areas of South America offer so much pristine wilderness to mankind. It is for that reason, among others, that the region became Argentina's first national park. Today, Argentines proudly proclaim Nahuel Huapi to be their "Yellowstone." With Nahuel Huapi as its model, Argentina has since established nearly fifteen other national parks.

Such an Argentine national movement toward preservation of nature might have occurred in the nick of time. For land, water, and wildlife are rapidly losing the battle with ever-increasing population pressures and an ever-expanding economic base. Natural wonders and outstanding natural scenes throughout Argentina, and throughout Latin America generally, are shrinking and disappearing at a tremendous rate; there is no doubt that the time to save such national treasures is at hand. ■

Professor Wilhelm teaches biogeography at McGill University in Montreal. He spent nearly two years (1961-62) in Patagonia, studying the land and its people, with financial aid from the Office of Naval Research and the National Academy of Sciences.

Landmark in conservation writing:

A Wilderness Bill of Rights

Reviewed by George S. Leisure

A Wilderness Bill of Rights. By William O. Douglas. Little, Brown and Company, Boston, Massachusetts. 1965. 192 pages with appendix and index, illustrated in black and white. \$5.95.

IF YOU HAVE EVER HAD ANY LOVE FOR the great outdoors, you are going to be glad to read *A Wilderness Bill of Rights*, the most recent book written by United States Supreme Court Justice William O. Douglas.

In this book Justice Douglas makes an eloquent plea in defense of our free-flowing rivers, our once crystal-clear lakes and our remaining wilderness areas. After making an exhaustive survey of the nation's desperate conservation needs, he sets forth the facts with meticulous care based on tireless first-hand observations—not hearsay—and backs up those facts with numerous examples. For instance, he reminds us that John Quincy Adams related in his diary how he and his family swam in the Potomac River in the environs of Washington, D. C. Today the river is so heavy with silt, and so polluted with sewage, that a person going overboard near the city risks fatal infection. And the Potomac is no exception. Justice Douglas informs us that today one must drive about twenty miles out of the city of Cleveland to find Lake Erie water that is safe for swimming.

Because surface oils and detergents



GEORGE S. LEISURE

George S. Leisure, Esq., is Chairman of the New York Honorary Committee of the National Parks Association. He is the head of the internationally prominent law firm, Donovan Leisure Newton & Irvine, 2 Wall Street, New York City. As this review reveals, he is himself an ardent conservationist.

coat the feathers of birds resting on the Mississippi and prevent flight, large segments of that river have been abandoned by birds as a flyway. In the mid-1940's the author, with a member of the Fish and Wildlife Service, took healthy rainbow trout and lowered them into the water near the mouth of the Willamette River at Portland. The trout lived only a little while.

We learn that our beautiful scenic forests have fared little better than our rivers and lakes at the hands of the loggers and roadbuilders. As Justice Douglas cogently says, the harm done to a lake or river may possibly be rectified in the future; but when trees are cut they are lost not only to our generation but to all succeeding generations. He bids us to reflect that we are, after all, at best only life tenants in respect to our priceless national heritage.

When you finish reading this book you might change your mind about some of the advantages of modern civilization. We have seen the examples of older countries, such as Spain, where the timber was recklessly cut from the high ground to impoverish an entire nation. The author gives us some examples of such cutting in this country. He says that in northern California it has been found that dams cannot control the real causes of floods, since reckless logging has stripped that region of its ability to retard, absorb and contain rainfall. He further informs us that of our 186,000,000 acres in national forests and national grasslands, only eight percent has been set aside as land on which there cannot be any road-building, logging or exploitation.

Justice Douglas stoutly believes that the preservation of wilderness values requires what he calls a Wilderness Bill of Rights. He shares with the reader his surprisingly broad awareness of this country's magnificent scenic wilderness areas, and also his deep concern about the manner in which these resources are being lost through reckless logging, mismanagement of waterways, and inexcusable misuse of lands. He points out that at the Federal level we have absolutely no con-



WILLIAM O. DOUGLAS

*Associate Justice
Supreme Court of the United States*

stitutional guarantee that there will be a single acre of our wilderness left for future generations out of the vast public lands owned by the central government.

Justice Douglas feels that no single course of action will be sufficient. He insists that a Wilderness Bill of Rights must consist of many and diverse ingredients. One ingredient is realization of the present need for Acts of Congress to convert existing administrative primitive areas of the National Forest System into additional legislative wilderness areas. Another significant ingredient of such a Bill concerns the need for a more circumspect determination of multiple uses of lands. He would include necessary restrictions to forestall invasion by roads and motorized vehicles, which inevitably change the character of wilderness areas. A further ingredient of the Wilderness Bill of Rights is that, where the use of land has in the past been determined by administrative fiat, provisions for public hearings should be made. Impartial panels composed of men not subject to local pressures and economic interests are needed if our national resources are to be protected. For the protection of wildlife the suggested Bill calls for the promulgation of needed rules and regulations concerning the use of fences on public lands, as well as regulations necessary to insure proper sewage disposal to prevent pollution of streams.

The author insists that governmental agencies themselves be subject to conservation standards. Legislation governing the Bureau of Public Roads, for example, should make it clear that it is the duty of the Bureau to preserve natural beauty, scenic trails, trout streams and the like. Similarly, the Tennessee Valley Authority's bureaucratic proliferation of dams should be checked by proper and effective conservation standards; and,

News and Commentary

Parks By the Board Foot?

During 1965 Secretary of the Interior Stewart L. Udall requested review of "the park situation" in Olympic National Park and the promulgation of recommendations concerning the preservation; responsibility for the review was placed in the hands of Fred J. Overly, formerly superintendent of the park and more recently regional director of Region I of the Bureau of Outdoor Recreation. During his tenure as superintendent of Olympic conservationists had, it will be recalled, a number of serious differences with Mr. Overly on questions of park management, especially in regard to timberland protection and boundary adjustments. Mr. Overly's recent report and recommendations to the Secretary on boundary revisions for Olympic have stirred up a new storm of criticism among conservationists.

Briefly, the Overly recommendations, which bristle with board feet and new hunting opportunities, would redraw boundaries to net the park a loss of 59,000 acres; the report notes, however, that Olympic would still be left with 16.2 billion board feet of timber after some 2.5 billion feet had been thrown open to timber-cutting by transfer to Forest Service management. Included in the excised lands would be parts of the great Bogachiel-Calawah rain forest, which, the report notes, "attracts few park visitors." Some park-oriented people are bound to think at this point that the national park idea has never turned entirely around the number of visitors who may be counted in

a particular spot over a particular length of time.

In a strongly worded letter to Secretary Udall, President Anthony Wayne Smith of the National Parks Association called for the rejection of the Overly report, saying that "it is intolerable that the Nation should have to defend Olympic National Park every few years against some new proposal like this for the benefit of the timber industry." He said that few persons would quarrel with reasonable adjustments of boundary lines in conformity with topography, but added that the adjustments proposed would be more convincing if they enlarged the area of the park and its timber stands instead of reducing them. In his own recommendation to the Interior Secretary, President Smith suggested that the Overly report be dropped into the wastebasket. "Anything other than its prompt rejection must necessarily lead . . . to great conflict and controversy over a prolonged period of time in the management of Olympic National Park and the entire Olympic Peninsula," he wrote.

Monument Grazing Curtailed

By the end of the current grazing season in Organ Pipe Cactus National Monument in Arizona, there will be 550 animals grazing there instead of the present 1050 head of livestock. The reduction will come as a result of orders issued recently by Assistant Secretary of the Interior Stanley A. Cain, who has instructed the National Park Service to cut the grazing in half to reduce damage

to the monument by cattle grazing. Native vegetation in the area has suffered extensively; damage has been aggravated by drought conditions in recent years. The area houses rare specimens of cactus and other desert plants found nowhere else in the United States. Dr. Cain has directed the Service to supervise grazing closely to insure compliance with orders and to permit recovery of the fragile desert vegetation.

An F & WS Appointment

Secretary of the Interior Stewart L. Udall has recently announced the appointment of Dr. Joseph P. Linduska, of Chestertown, Maryland, as the Associate Director of the Bureau of Sport Fisheries and Wildlife. Dr. Linduska, who has a long background of conservation work, succeeds the late Lansing A. Parker in this important Fish and Wildlife Service position.

Arkansas Governor Rejects Dam on Buffalo

The Army Corps of Engineers, which has been pushing for construction of Gilbert Dam on the Buffalo River in the White River Valley area of Arkansas, has received official rejection of its plan from Governor Orval Faubus. The Governor, who favors a plan by the National Park Service to acquire and develop the area as part of the proposed national wild rivers system, has declared that another dam on the Buffalo River is not necessary for flood control or for the creation of hydroelectric power. "Already created dams and lakes are to be found on every side of the beautiful Buffalo River area within a distance of thirty to 100 miles. The creation of another such facility would add little to the attraction of the area . . . I support the national river proposal," the Governor said.

New Executive Director for Population Reference Bureau

A writer and conservationist with a wide range of interests and abilities has been chosen as the new executive director of the oldest information agency in the nation concerned with questions of human population: the Population Reference Bureau. Since its establishment in 1929, the Bureau has been gathering, analyzing, and interpreting facts on population growth and relating these facts to world economic and social problems. Now that the population explosion has been recognized as a crucial human problem, the Bureau must expand and move at a faster pace; to facilitate the change Mr.

(continued on page 20)

A Wilderness Bill of Rights (continued from page 18)

while it is quite proper under the Rural Electrification Act for public agencies to be given preference in the distribution of public power, the author suggests that there is no reason to restrict that preference to Federal hydroelectric projects. Federal steam plants, and in future nuclear energy plants, may serve the same power-generating purposes without flooding precious remaining areas.

As Justice Douglas points out, there are numerous voices in government that make policies affecting conservation; further, that only the most powerful of all voices can halt such bodies as the Bureau of Public Roads and the Corps of Engineers in their programs for despoiling America's natural wonders. If wilderness is to be saved, the voice of the people must be clear and strong. His recommendation is

that such an authoritative voice be established by creation of an Office of Conservation, responsible to the President.

We are fortunate indeed to have a man of Justice Douglas' broad first-hand knowledge, courage and stature standing firm in defense of our diminishing wilderness areas.

When you finish this book, you will close it with the feeling that you have caught something of the author's immediate intimacy with his own exploration, and man's relationship to the sun and moon and wind and stars and so much unrecorded history. It is delightfully written as only a master could write, and is filled with illuminating and enriching detail. I find it an irresistibly fascinating book which I feel should be read by every thinking American.

Monroe Bush will now direct the Bureau.

Mr. Bush is author of numerous articles on conservation; is vice chairman of the board of trustees of the Greater Washington Educational Television Association; a member of the Board of Directors of the Washington Home Rule Committee; a member of the Board of Directors of The Friends of the National Zoo; and a member of the Board of Directors of the Washington Performing Arts Society. He is also a former board member of the Nature Conservancy, and in 1965 was the

winner of the annual award of the Virginia Citizens Planning Association for his work in formulating and assisting in the development of the State's Natural Areas System.

Public Land Law Review Commission Meeting

Representatives of Governors of all fifty States have been invited to attend and participate in an important meeting on March 24—the Advisory Council meeting of the Public Land Law Review

Commission. The public is also invited to hear about the Commission and to learn about its duties and responsibilities. The meeting starts at 10:30 A.M. in Room G-308 of the New Senate Office Building in Washington.

The Commission was created by an Act of Congress to take a new look at public land laws, decide if the lands are managed properly, and further decide if they should be retained in the public ownership or disposed of to provide what has been termed "maximum benefit for

Joint Study Team Submits Its Report on the North Cascades

Suggested answers to the years-long question of best public land management in the North Cascades of Washington State were made public recently with issuance of *The North Cascades*, the printed results of two and a half years of evaluation of that great scenic mountain region by a team of Park Service and Forest Service representatives, with Dr.

Edward C. Crafts, Director of the Bureau of Outdoor Recreation, as team chairman. The study was ordered by President Kennedy early in 1963 to "explore in an objective manner all the resource potentials of the area and the management and administration that appear to be in the public interest," after years of bickering among conservation agencies.

In the report Dr. Crafts made it quite clear that not all members of the study team agreed on all of the recommendations presented below; some members differed on some details. Briefly, the report calls for:

Establishment of a North Cascades National Park of some 698,000 acres, of which some 314,000 acres would come from the existing North Cascades Primitive Area in the Mount Baker National Forest and most of the balance from the so-called Eldorado Peaks High Country in the Wenatchee-Mount Baker Forests.

Creation of four new wilderness areas (Alpine Lakes, Enchantment, Mount Aix and Okanogan) and boundary revisions to enlarge the existing Glacier Peak Wilderness Area by 39,000 acres. With establishment of the new wilderness areas the existing Cougar Lake, Monte Cristo Peak and Alpine Lakes Limited Areas would be declassified to ordinary national forest land status.

Extension of the southern boundary of Mount Rainier National Park to incorporate about 7000 additional acres.

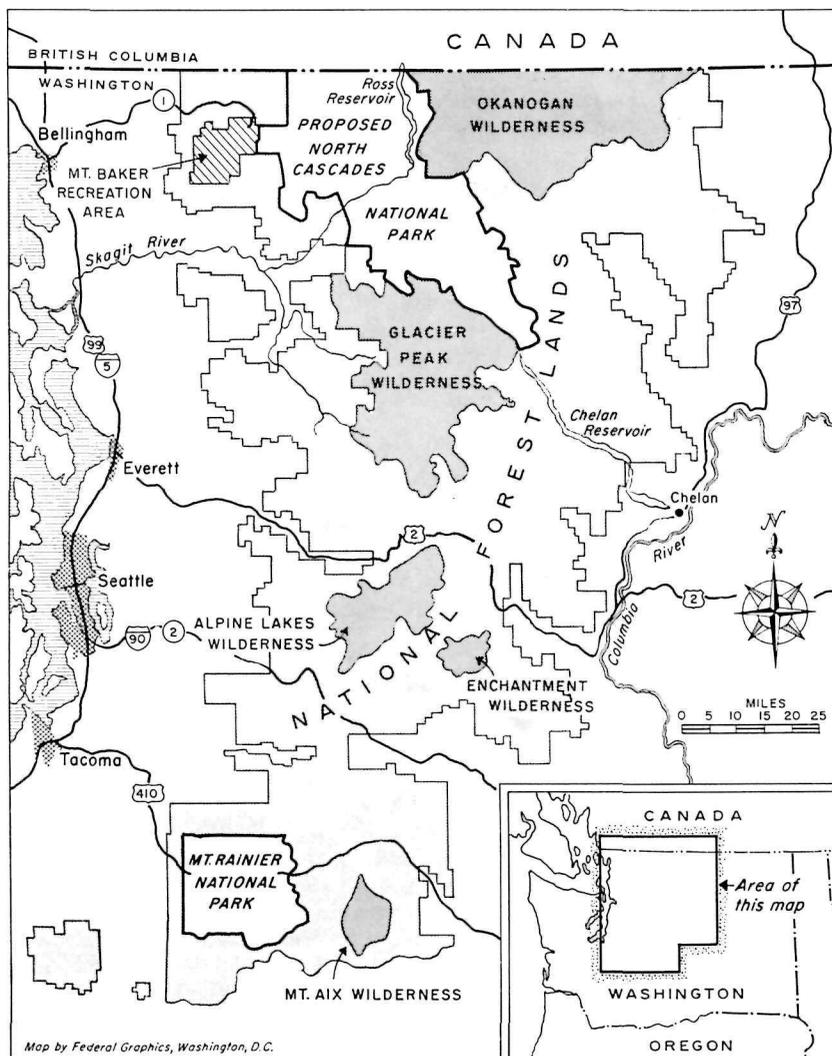
Continuation of the Mount Baker Recreation Area (Mount Baker Park Division of the Mount Baker National Forest, as it was designated by the Secretary of Agriculture in 1926) under jurisdiction of the Forest Service.

Designation of portions of the Skagit River and its tributaries (Cascade, Suiattle and Sauk Rivers) as a Wild River.

Establishment of a 900-mile "scenic road" system and construction of several thousand miles of trails in the North Cascades.

Provision for adequate camping, picnicking, winter sports, boating and other recreation facilities including fishing and hunting opportunities, and for research on timber management to minimize erosion and the adverse effects of clear-cutting on the natural scene, leading eventually perhaps to harvesting of Douglas fir by other than clear-cutting.

Pattern of North Cascades land management as seen in the Crafts study report.



the general public." Representative Wayne N. Aspinall of Colorado is chairman of the group.

For the purpose of the Commission's review, public lands are defined as including reservations other than Indian reservations; national forests; wildlife refuges and ranges; and the resources of the public lands. In regard to these lands, Commission Chairman Aspinall has told the livestock industry to study the Commission report and use it to reappraise its own position in regard to use of public lands, and has made what has been reported as a special plea to "recreation interests" for "tolerance in their demands."

Natural History Seminars

Registration for short summer seminars in Rocky Mountain National Park is now in process for individuals interested in plant identification, alpine tundra ecology, and mountain geology. Because the park represents an ideal "outdoor laboratory" for the observation and discussion of a wide variety of plants and animals, seminars stress field observation of the landscape of the park and adjoining areas and give participants a chance to study under well-known scientists and naturalists. The University of Colorado awards credit of one semester hour in upper division botany per semester week; the seminars are open to both professionals and beginners. For more information contact Mr. Pat Miller, Executive Secretary, Rocky Mountain Nature Association, P. O. Box 147, Estes Park, Colorado 80517.

Taxing the Polluters . . .

Environmental pollution, which includes excessive noise, junkyards, misuse of natural areas and littering as well as the contamination of air and water, may soon be punished by what a presidential advisory group has called a "polluters tax." The tax was recommended by a group of physicians, scientists, and engineers on the President's Science Advisory Committee. In its report on "Restoring the Quality of Our Environment," the Committee stated that each individual has a right to live in an atmosphere of quality, and that "there should be no right to pollute" that environment to the disturbance of the rights of others.

The report recommended the polluters tax because "the pressure to pollute in the past has been an economic one; the pressure to abate must in the future also be economic." The report, which took fifteen months to prepare, calls for a sweeping attack on all forms of pollution and environmental contamination through incentives, education, research,

enforcement, and the attraction of new talent to the pollution abatement field. A presidential statement issued by Dr. Donald F. Hornig, White House science advisor, said the report would provide the basis for future action by the President on many problems related to pollution.

President Johnson, who has set up a number of committees to aid in the giant task of protecting what is left of the natural environment and restoring some measure of order to our overcrowded cities, said that he has asked appropriate Federal agencies to study the report presented by the Committee and "report to me on the ways in which we can move to cope with the problems." One sure way to cope with any pollution problem in this nation seems to be to make pollution unprofitable through taxation.

. . . and Rewarding Cooperators

For the first time in the nation's history, a local landowner may profitably exchange a promise for a tax cut. The promise: to preserve scenic open space by granting a perpetual scenic easement to Federal, State, or County governments. The tax cut: a tax credit granted by the county, which could amount to up to half the total real estate tax levied against the property.

The law, recently passed by the Prince George's, Maryland, County Board of Commissioners, specifies that land eligible for tax credits must be in the areas recognized as "open space" by the Maryland Department of Forests and Parks. Areas will include the Potomac River shoreline, including an area directly across the River from historic Mount Vernon on Virginia's scenic shore; woodland; and wildlife refuges.

Heavy development, commercial or industrial activity, trash dumping and billboards are prohibited on open space lands.

Water and the Budget

In his recently announced Federal budget for 1967, President Johnson has set aside \$3.1 billion for the preservation and management of natural resources. He has asked Congress to authorize national park, seashore, and lakeshore legislation; to provide Federal support for the Appalachian Trail; and to establish a Redwoods National Park in northern California. Most important, perhaps, is the stress the President has put upon the problem of water pollution. He has recommended the expenditure of \$307 million for research into the problems of water pollution, mine acid drainage, waste treatment, and river basin planning. He has

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also made it clear that he intends to propose new legislation to strengthen the regulatory authority of the new Federal Water Pollution Control Administration and to conduct more research. He has also instructed the Secretaries of State and Interior and various agencies to prepare programs for an international conference to find solutions to water problems in other nations.

The urgency with which President Johnson has approached the problem of our diminishing fresh water supplies is in keeping with the recent findings of the Senate Public Works Subcommittee on Air and Water Pollution, which warns that by 1980 the United States may be using and reusing each day all the water it has. In the report the Subcommittee,

headed by Senator Edmund S. Muskie of Maine, called for \$6 billion in appropriations for Federal grants for construction of sewage treatment plants, and a total national expenditure of \$20 billion for water pollution abatement in the next five years beginning with fiscal 1968. Also suggested was expansion and liberalization of the Water Quality Act of 1965.

(The Morgan Guaranty Trust Company, in a recent monthly survey of economic conditions in the nation, has stated that "the cost of stepped-up pollution control programs defies meaningful estimates, but it is certain that many billions of dollars will be involved").

Foresters Elect President

The Society of American Foresters, which is comprised of 15,500 professional foresters in the United States and Canada, has elected a new president to succeed outgoing president Philip Briegleb. The new president, William D. Hagenstein, of Portland, Oregon, will serve for the two-year term 1966-1967.

Mr. Hagenstein is the executive vice-president of the Industrial Forestry Association in Portland, and has had experience in the United States Forest Service, the private lumber industry, and the West Coast Lumbermen's Association. He is past associate editor of the *Journal of Forestry*.

Kenneth P. Davis, professor and chairman of the Department of Forestry at the University of Michigan, Ann Arbor, was elected vice-president of the Society.

Entrance Permits Available

The new, seven-dollar entrance permit for Federal recreation areas is now available, and will admit the purchaser and all who accompany him in a private automobile to more than 7000 Federal recreation areas. The new permit is officially called the Federal Recreation Area Entrance Permit, and is a wallet-size card printed in gold ink. It is valid on a nationwide basis, and will admit the user to lands administered by the National Park Service, Bureau of Sport Fisheries and Wildlife, Bureau of Reclamation, Bureau of Land Management, Forest Service, Army Corps of Engineers, and the Tennessee Valley Authority. The permit will be on sale at various government offices, many American Automobile Association offices, and at entrance points to most Federal recreation areas. For the full text of the recreation fee regulations, write to the Office of the Secretary, Department of the Interior, Washington 25, D. C. Please note that the *National Parks Association* is in no way involved in the distribution of this permit.

THE CONSERVATION DOCKET

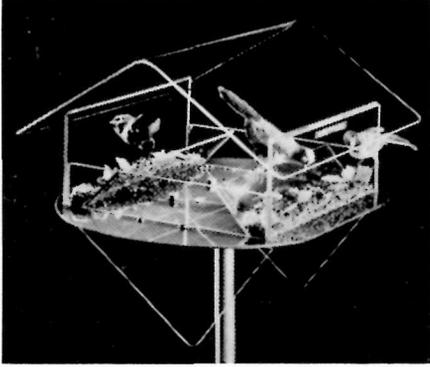
ON JANUARY 10, THE 89TH CONGRESS assembled for its second and concluding session. General conservation bills of importance have already received some attention; S. 1446, sponsored by Senator Church and others to authorize a national system of wild rivers, has passed the Senate and is now before the House Interior and Insular Affairs Committee. Committee Chairman Wayne N. Aspinall has indicated reluctance to move the bill this year, citing the following proposals as having priority over both the wild rivers bill and some six bills to establish a Redwood National Park in California: Cape Lookout National Seashore, North Carolina; Indiana Dunes National Lakeshore, Indiana; Sleeping Bear Dunes National Lakeshore, Michigan; Guadalupe Mountains National Park, Texas; Oregon Dunes National Seashore, Oregon; and Pictured Rocks National Lakeshore in Michigan.

Representative David King has introduced H. R. 11905, to establish a Great Salt Lake National Monument in his State. The area would include lands bordering Egg Island, all of Antelope Island, and some water areas and submerged lands. The bill also provides for operation and management of recreational facilities by the State of Utah; it was referred to the House Committee on Interior and Insular Affairs.

Conservationists expect that proposals for air and water pollution control this session will center on programs for Federal grants to the States and on possible incentives to industries to control pollution. Ohio Representative Mrs. Frances P. Bolton has introduced this session's first such proposed legislation in the form of a bill amending the Internal Revenue Code of 1954 to encourage the construction of treatment works for the control of air and water pollution. The bill, H. R. 11866, would permit the deduction of expenditures for the construction, erection, installation, or acquisition of treatment works by private industry. It was referred to the House Committee on Ways and Means. H. R. 11990 and H. R. 11999, both introduced by New York Representative Seymour Halpern, deal with water pollution. H. R. 11990 would amend the Internal Revenue Code to provide an additional first-year depreciation allowance for new waste treatment facilities; the bill was referred to the House Committee on Ways and Means. H. R. 11999 would amend the Federal Water Pollution Control Act to increase the authorization for waste treatment plant construction grants. The bill is before the House Committee on Public Works. Another bill now before the same committee is H. R. 11917, by Representative Henry S. Reuss. The bill would, among other objectives, strengthen Federal authority to enforce pollution abatement and increase authorization for individual and joint project grants.

During the middle of February the House Committee on Interior and Insular Affairs ordered a favorable report to the full House on proposed Cape Lookout National Seashore on North Carolina's Outer Banks. A similar proposal easily passed the Senate in the first session.

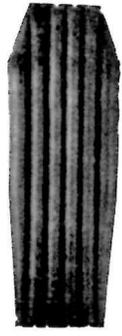
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Reviews

NATIONAL PARKS OF THE WEST. By the Editors of Sunset Books and Sunset Magazine: Lane Magazine and Book Company, Menlo Park, California. 1965. 320 pages, illustrated in black and white and color. \$11.75. (Special deluxe slip-cased edition, \$13.50.)

Much would be expected of a pictorial volume emanating from this source, where Martin Litton, himself a top-drawer photographer of the natural scene, is associated with other competents in its production. There is no disappointment. It is a handsome book—frankly a picture book, but with a text adequate for its purpose, prepared under the guardian eye of Dorr Yeager, an alumnus of the National Park Service.

The discerning picture-editing here offers an excellent example of what should always be a healthy relationship between color and black and white illustration. There seems at the moment to be almost a mania for the employment of color merely for the eye-catching sake of color. It seems a pity. Unquestionably the color picture has its delightful and important use. But color is only one of the precious optic experiences of the visitor to our lovely parks. There is form; there is texture; the black and white will almost always present these two wonders better. Indiscriminately used, color reproduction can even stifle the imagination. The greater number of pictures in this Lane Company volume are in black and white, the work of artists who not merely see the view but feel it, and to depth. Color has been used here where it does its special job.

Looking through the pages of such a charming and meaningful book as this, one does not feel disposed to quarrel with anything about it. And yet . . . was it really necessary to advertise the notorious "fire-fall" at Yosemite? A small matter, perhaps. Early activities in the national parks had their boyish and prankish touch. But those who believe with Aldo Leopold, that we should have the highest quality of use in these cultural preserves, will wince and try to forget.

—Freeman Tilden

THE BIRD WATCHER'S AMERICA. Edited by Olin Sewall Pettingill, Jr. McGraw-Hill Book Company, New York. 441 pages, illustrated, with index. \$7.50.

Played as an enthralling game or pursued as a scientific avocation, bird-watching is a valuable accessory to travel. A bird guide, binoculars and an alert eye relieve the tedium of crossing expanses of plains or deserts or driving through monotonous farmlands enroute between

national parks and wilderness areas. Able to identify the birds along his way and planning his route to include the best habitats, the bird student is never bored.

Olin Sewall Pettingill's two guides to *Bird Finding East and West of the Mississippi* are excellent aids to planning an itinerary, but they provide, mainly, clues to the species of birds to be found in the hundreds of localities they list. In *The Bird Watcher's America*, Dr. Pettingill presents an anthology by America's most eloquent naturalists which describes in detail the ecology of forty-six outstanding regions of the United States and Canada and the birdlife found there. Many national parks, monuments and wildlife refuges are discussed, as are less famous areas of special interest, providing a balanced picture of the myriad ecological biomes of the continent.

From the Florida Keys and Bona-venture Island; through the Appalachian Highlands; the bogs and forests of the midwest; prairies, deserts, mountains and canyons of the Rockies and Sierra Nevadas, to the great refuges of Alaska, the reader travels across the land, guided by writers who reveal their intimate knowledge of their subjects. Omission of the central Gulf Coast of Texas and Mrs. Conger Hagar's unique studies there seems regrettable, although Luther Goldman's account of the Rio Grande Valley gives some indication of the extraordinary spring and autumn avian migrations along that coast.

The book is not only for bird students. It serves to develop an appreciation of geography and the American outdoors, and will inspire young people to open their perceptions to the natural world around them. It should be read by anyone planning vacations in the national parks and equally by people who seek to learn more about their own home environment. —Fred M. Packard

THE WORLD OF CORAL. By Robert Silverberg. Duell, Sloan and Pearce, 60 East 42nd Street, New York City 10017. 1965. 150 pages, illustrated, with bibliography and index. Clothbound, \$3.95.

For the landlubber there is always fascination, and perhaps some measure of repulsion, in the strange "other world" of the underseas, populated with prey and predator even as the world above. Author Silverberg introduces the reader to the remarkable and beautiful cities of the warmer seas, the busy, colorful, grotesque colonies of the reef-forming polyp—the world of coral, with its many animal attendants, loafers, visitors, workers, sharpshooters and assorted colorful

hangers-on. "It is all quite wonderful, this world of the coral reef, and it always will be, no matter how many times we visit it," says the author.

Included is a good and readable discussion of the Darwin-Dana-Murray *et al.* controversy over the origin and geologic history of the coral atolls of the Pacific; a subject on which much is still published in the scientific journals.

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