

# NATIONAL PARKS *Magazine*



Dunes near Cape Lookout, North Carolina,  
in the proposed Cape Lookout National Seashore

*September 1964*

# The New Park Policy Statement

## An Editorial

AREAFFIRMATION OF THE FUNDAMENTAL protective policies which have governed the management of the great primeval national parks for nearly a century is one of the gratifying features of the new Statement of long-range objectives and management principles for the national park system announced in August by Interior Secretary Stewart L. Udall.<sup>1</sup>

The Statement classifies the units of the system as natural, historical, or recreational. This classification, as far as it goes, has long been overdue, considering the somewhat disparate elements which have been incorporated into the system over the years.

Natural areas, which are to include the major parks and monuments, will be managed, it would appear, in conformity with the conservation, nonimpairment, and enjoyment clauses of the National Park Service Act; the familiar conflict between use and protection remains, but this is inescapable, and granted the will toward protection on the part of administrators and the public alike, the problem is not insoluble.

We have been assured, incidentally, that the natural area classification covers the entire territory of each of these major units, and not merely such portions as may be classified eventually as wilderness if and after the wilderness bill is enacted.

The historical area classification is also excellent. Whether as separate units or tracts within natural areas, they will reflect a measure of human influence as contrasted with untouched nature; we think of the pastoral sections of Great Smoky Mountains National Park.

Another and more novel element in the Statement is the recognition of a share of responsibility by the Service and the Department for the total human environment. This recognition partakes of the imaginative and adventurous qualities which have characterized the administration of Secretary Udall in conservation from the beginning. We congratulate him on this refreshing forward step!

After all such accentuation of the positive, however, we have grave apprehensions about the category of recreation areas.

The Statement specifies that outdoor

recreation shall be the "dominant or primary" objective in recreation areas; we are advised that they include national seashores and riverways at the extreme, and reservoir recreation areas at the other.

We are told that the reason for this classification is a decision of the Recreation Advisory Council establishing criteria for the *selection* of national recreation areas and making them applicable to the selection of seashores as well as of enlarged recreation areas around multiple-purpose impoundments.<sup>2</sup>

The Recreation Advisory Council, which consists of Departmental Secretaries, has only advisory authority;<sup>3</sup> in this instance the Secretaries undertook to make the principles binding on their own Departments by agreement; such an agreement obviously cannot override the policy directives in the relevant statutes; nor should it override sound long-range protective policy.

The purport of the Council's criteria is reasonably clear: national recreation areas are intended for "comparatively high recreation carrying capacity." It has also been stated officially that the proposed federal recreation areas are for "high-density visitation"; and that Tocks Island, Fire Island, Assateague, Big Horn Canyon, Oregon Dunes, and Ozark Riverways are examples of these proposed federal recreation areas.<sup>4</sup>

The proposed Fire Island and Assateague Seashores and the Ozark Riverways comprise relatively fragile natural or semi-settled regions; they cannot safely be grouped with the proposed Tocks Island recreation area, which would be based on a large multiple-purpose reservoir.

The Cape Cod National Seashore Act<sup>5</sup> specifies that the seashore shall be "permanently preserved in its present state" and that development for recreation shall not be incompatible with that purpose. The Council's criteria specify, on the contrary, that outdoor recreation is the "dominant or primary" purpose, and that other uses must be "compatible with the recreation mission." As noted, the current Statement also specifies that

outdoor recreation shall be the "dominant or primary" objective in recreation areas, and even that "disappearing resources" within them "shall be managed compatibly with the primary recreation mission." In this conflicting situation, the statutory declarations of policy in favor of protection must obviously govern; the Statement expressly acknowledges this requirement; but in this respect the acknowledgment vitiates the Statement.

In our judgment, most conservationists believe that in pressing for the establishment of Cape Cod, Point Reyes, Padre Island, Fire Island, and Assateague Seashores, Indiana and Oregon Dunes, and the Ozark Riverways, they were and have been working for the protection of these areas in their present natural or semi-settled condition, and their use for recreational purposes only in a manner consistent with protection.

Conservationists have opposed the use of the term *national park* for these areas for precisely the reason that they were recognized as not having a completely primeval quality; but they have certainly not been thought of as mass recreation areas.

We have been assured, despite the language of the documents, that there is no intention to manage the seashores for mass recreation; recreation, it is said, can comprise the enjoyment of wilderness, or of semi-settled occupation, quite as much as the gregarious satisfactions of a Jones Beach or a Lake Mead; and with this latter proposition we can agree. But these reassurances appear to be incompatible with the language of the Council and the Statement.

A solution of this serious conflict of purpose may possibly lie in a sub-classification of the so-called recreation areas; or, more simply, the normal line of cleavage might be accepted between seashores, lakeshores, and riverways on the one hand, and the reservoirs on the other; two major classifications could be established in place of one. They might be described as conservation areas and recreation areas, or by any other suitable nomenclature.

We find it hard to believe that the full implications of the recent decisions in these matters have been fully appraised by the responsible administrators; we strongly urge that these decisions be reconsidered before great damage ensues to regions which all of us desire to protect.

—A.W.S.

<sup>1</sup> Memorandum to the Director of the National Park Service from the Secretary of the Interior on Management of the National Park System, July 10, 1964, released August 3, 1964.

<sup>2</sup> Recreation Advisory Council, Policy Circular No. 1, March 26, 1963.

<sup>3</sup> Executive Order 11017, April 27, 1962; amended by Executive Order 11069, November 28, 1962.

<sup>4</sup> See *Trends*, July, 1964.

<sup>5</sup> Public Law 87-126, August 7, 1961, 77 Stat. 284.



# NATIONAL PARKS Magazine

OFFICIAL PUBLICATION OF THE NATIONAL PARKS ASSOCIATION

VOLUME 38

SEPTEMBER 1964

NUMBER 204

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The Editorial Page		2
The Proposed Cape Lookout National Seashore	<i>Dorothy B. Huyck</i>	4
High Country in Kings Canyon Park	<i>Clay E. Peters</i>	9
Grand Coulee: Monument to an Ancient River	<i>Cecil M. Ouellette</i>	12
News and Commentary		16
Book Review		19
The Conservation Docket		19

Front cover photograph by courtesy Department of Interior, National Park Service

The undulating dunes of Core Banks, part of the proposed Cape Lookout National Seashore in North Carolina, are characteristic of this long and lonely stretch of beach and quiet marshland. Carpeted by swaying grasses and buffeted by temperamental winds, the dunes have retained their charm through a swashbuckling history of habitation by pirates and whalers and an era of lumbering and grazing. Standing atop a gentle mound of sand in the middle of the Core Banks, one finds it difficult to believe that this calm land was once the scene of pirate raids, violent shipwrecks and Indian hunting parties. Now the only sounds are the screeching of gulls as they skim the rolling breakers, and the swish-swish of feathery grasses bending to the sea-winds.

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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.

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# The Proposed Cape Lookout National Seashore

By Dorothy B. Huyck

**C**URRENTLY UNDER CONSIDERATION by the Congress as a national seashore is a site which combines outstanding natural features with the human history of wily pirates, sturdy whalers, and rescue work of the United States Lifesaving Service, now the United States Coast Guard. At a time when the opportunities for public acquisition of lands along the Eastern seaboard have dwindled to very few, the possible development of a Cape Lookout National Seashore is newsworthy indeed.

The proposed seashore would incorporate the southern segments of North Carolina's Outer Banks, which extend from Ocracoke Inlet (at the lower tip of Ocracoke Island) on the north to Beaufort Inlet on the south (see map,

page 8). As a link in the chain of barrier sandbars lying between the Atlantic and mainland North Carolina, the national seashore would encompass some 15,800 acres stretching over fifty-eight miles, and would be comprised of Portsmouth Island, Core Banks, and Shackleford Banks, from north to south.

#### Man-Made Problems

Sharing with Cape Hatteras National Seashore a history of assault by wind and water, the proposed area has also suffered various man-made problems that over the past 150 years have made the banks less resistant to each succeeding great storm. Lumbering and grazing hastened the processes of deterioration. As a consequence, the

potential Cape Lookout National Seashore is greatly in need of beach restoration, including dune construction, planting, and erosion control work.

In 1955 a National Park Service recreation survey pointed to the lower banks as having "first rate potentialities as public beaches," but the lack of restoration work has increased the toll taken in recent years by major hurricanes. The violent Ash Wednesday storm of March 7, 1962, in its slow march across the entire eastern seaboard, was instrumental in focusing national attention on the problems of restoration and preservation in shore areas like the Cape Lookout region.

Recognizing the complexities of restoration, the State of North Carolina

has purchased four-fifths of the acreage which forms the potential seashore, and is prepared to donate this land to the Federal government; it is anticipated that remaining lands can be purchased by negotiation, making feasible the long-range rebuilding and stabilization of the area as an entity.

After an inspection of the possible seashore this past May, George B. Hartzog, Jr., Director of the National Park Service, declared it "terrific." His assessment is likely to be echoed by those who love the dune environment, and who were represented among the 873,300 persons who visited Cape Hatteras National Seashore in 1963.

For admirers of the Hatteras region, Cape Lookout will be especially attractive in its similar but perhaps more

primitive natural state. Its banks include relatively little development other than a few fishing-supplies stores and the tiny village of Portsmouth, on Portsmouth Island. Although some holly, red cedar, wax myrtle, oak, and mulberry grow on Shackleford Banks, the remainder of the great offshore sandbars consists of dunes and sandflats almost totally without vegetation at present. Marshes border the Pamlico Sound, or western, side of the islands.

#### Bird Life Is Abundant

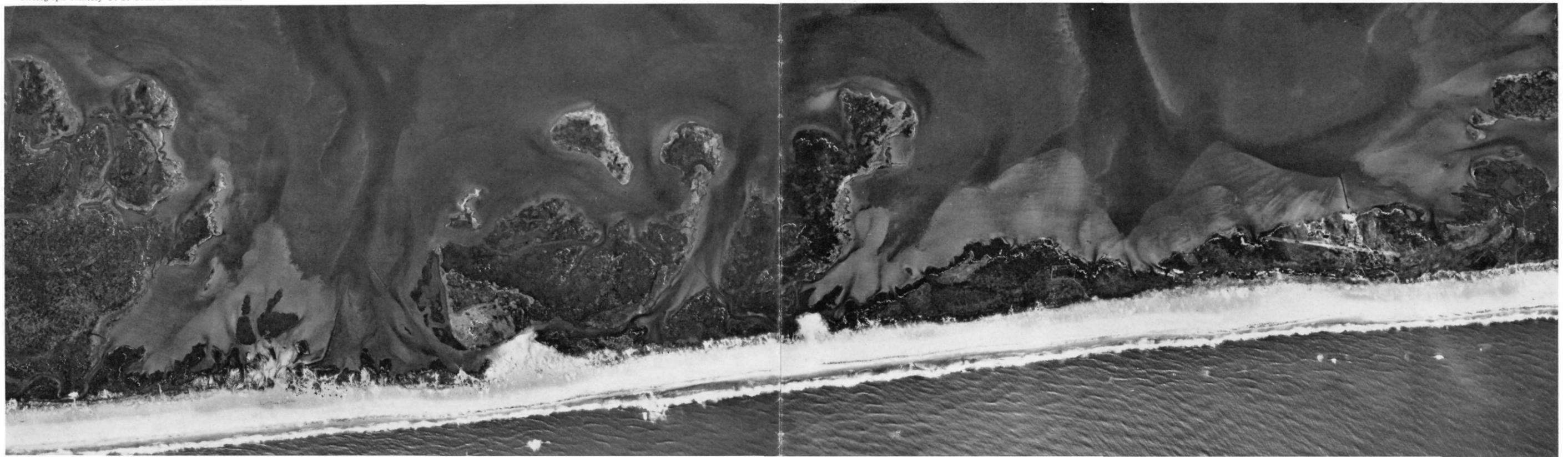
Gulls, terns, grackles, and sandpipers are among the abundant bird population. Marine life includes dolphin, channel bass, mackerel, bluefish, trout, and spot. Commercial fishermen are active in taking substantial quantities

of shrimp, crabs, oysters, and clams.

The scenic delights of the ocean, sounds, and marshes can only be enhanced as the processes of erosion control restore the natural land formations. And, thanks to a temperate climate, a lengthy outdoor recreation season is possible. When the beaches have been stabilized and made more accessible, they can be expected to attract growing numbers of campers, bird-watchers, hikers, photographers—anyone fascinated by the shifting temperaments of water and wind. In addition, there would be hunting on seashore lands under North Carolina game laws, except in places and at times designated by the Secretary of the Interior for public safety reasons.

*Looking down from an airplane at the long stretch of wave-tossed beach that comprises Core Banks, part of the proposed Cape Lookout National Seashore in North Carolina, sea and sand collaborate to create a striking picture. Open Atlantic is at bottom of photograph.*

*Photograph courtesy U. S. Coast and Geodetic Survey*





North Carolina Department of Conservation & Development

*The aerial view of North Carolina's Portsmouth Island, above, shows the tiny, serene village of Portsmouth, established in 1753 by the North Carolina Assembly after Spanish privateers had been eliminated from the Island. The first inhabitants of Portsmouth were hardy pilots who earned a living steering vessels through the sometimes treacherous waters of Ocracoke Inlet. The village is now almost abandoned, and probably holds a smaller population than even the isolated fishing camp on Core Banks, shown in the photograph below. Both Portsmouth Island and Core Banks were favorite areas of operation for the infamous pirate Blackbeard, who successfully prevented civilized development of the North Carolina Outer Banks until he was killed aboard his ship, "Adventure," in 1718, after six years of terrorizing shore inhabitants.*

Department of the Interior, National Park Service



Current legislation to create the seashore contains the familiar phrase "the Secretary shall permit hunting . . . ;" many conservationists have objected to language of this kind, preferring to make hunting discretionary with the Interior Secretary.

While the nation's hinterlands were being opened by a westward tide of migrants, some early settlement of the North Carolina Outer Banks was accomplished by persons from the young colonies in Virginia and Maryland. Their attempts at establishing a civilized toehold on the banks were complicated by the vigorous activities of pirates, first between 1713 to 1718 and later in the 1740's. During the earlier era, Edward Teach—or Thatch, or Captain Drummond, or "Blackbeard," depending on the alias in use—acquired a substantial reputation as one of the more awesome characters working the Outer Banks in the interests of piracy. The Ocracoke Inlet waters provided a favorite area of operations until a Virginia expeditionary force put an end to his adventuresome habits. "Blackbeard" was killed aboard his ship, *Adventure*, in 1718. In turn, settlement of the lower outer banks became more feasible.

#### Whalers Were Early Residents

Among the first to respond to the attractions of the region were the whalers whose huts dotted Core Banks, named for the Coree Indians of the mainland, frequent hunters on the banks. In addition to the resident whalers, men from New England came to the barrier islands on a seasonal basis to hunt whales. Then, in the 1740's, the lower banks again became the scene of piracy, this time under the auspices of Spanish privateers. Not until their unseemly activities ended was the village of Portsmouth established—in 1753—by the North Carolina Assembly. In its heyday Portsmouth was populated by people who earned a living as pilots for vessels passing through Ocracoke Inlet. In 1758 a garrisoned fort was authorized; it was maintained until the end of the French and Indian war. Fort Granville has since departed, leaving no remnants; a victim of wind, water, and sand. The village of Portsmouth has fared only a little better; from a population of 505 in 1850, it had declined

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**Despite an academic background in international relations and five years of service with the Department of State, Dorothy B. Huyck concentrates primarily on subjects relating to conservation and recreation. She has written articles for *The New York Times*, *Washington Post*, and *American Forests Magazine*, and is deeply interested in preservation of seashore areas.**

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to a mere 14 a century later. Today it boasts more houses than humans.

The Outer Banks of North Carolina have a historical reputation as one of the most hazardous stretches of coastal waters in the world. The scene of more than 650 shipwrecks, the banks were inevitably important posts for the United States Lifesaving Service, whose stations on the North Banks began functioning in 1874. Installations were extended southward and by the late 1880's included stations at Cape Lookout, at Portsmouth, and on Core Banks. In 1915 the Lifesaving Service merged with the United States Revenue Cutter Service to become the United States Coast Guard; today a crew continues to man the Cape Lookout Coast Guard Station. Although technological advances have in large part superseded the daring rescue activities performed by the Service on the banks, their recollection provides a lively page in the history of the region.

Symbolic of the proposed Seashore is the dominant lighthouse, whose towering 150 feet are painted in a black-and-white diamond pattern. The present Cape Lookout Lighthouse was built in 1859 (its predecessor having served since 1812); though unattended, it continues to function today. Its design gave a name to the once-lively Diamond City on Shackleford Banks, where 500 persons lived until the great hurricane of August, 1899. The homes of the residents, who were primarily whalers, were inundated by the storm; within three years the town was deserted, and today the only traces of Diamond City are its graveyards.

In all the acreage planned for Cape Lookout National Seashore, Shackleford Banks at the southernmost tip of the proposed area has been least scarred by the weather's fury. Stretching eastward from the mainland city of

Beaufort, it provides a convenient stepping-stone from Carteret City mainland to barrier reef. In turn, it is anticipated that the bulk of the day-use facilities to be made available to visitors will be concentrated on Shackleford Banks; some 100 acres on the mainland have been recommended for inclusion in the Seashore to provide for a Park Service headquarters area.

Transportation of visitors to Shackleford Banks would be accomplished by ferry, although long-range plans call for the building of a causeway and bridge. A visitor center, marina, several picnic areas, two or more campgrounds, beaches for swimming in both the sound and the ocean, plus the necessary road connections could be incorporated into the intensive development of Shackleford Banks, the Park Service believes.

Core Banks and Portsmouth Island, the elongated northern extensions of the seashore, are expected to remain roadless, with access available only by boat. Less intensive development is planned for these, to consist of boat-landing areas, walk-in campgrounds, picnic grounds, fishing supply stores and small interpretive facilities. Eventually, low-cost overnight accommodations might be available for the use of fishermen; but major vacation facilities such as hotels and motels are likely to be established by private owners outside seashore boundaries.

#### Seashore to Be Available to Many

More than five million people live within 250 airline miles of the potential seashore. Currently, travelers from the populous Northeastern "megalopolis" can drive down the Outer Banks through Cape Hatteras National Seashore to Ocracoke Island, gaining the latter by ferry from Hatteras Island. With the development of Cape Lookout National Seashore, motorists from the Southeastern seaboard will be able to drive onto Shackleford Banks, but between these banks and Ocracoke Island a "no-motorist land" will exist. Thus Core Banks and Portsmouth Island will constitute a barrier—to many a most welcome one—to north-south vehicular traffic along the Outer Banks. That the two islands well might remain such a barrier seems to be indicated in the National Park Service discussion of the proposed seashore.

"In view of the great importance of restoring and preserving them," says the report, "public use of Core Banks and Portsmouth Island . . . should never be so great as to endanger their preservation. Provision of visitor-use facilities and type and volume of public use must be limited accordingly." Permanent residents of the tiny village of Portsmouth on Portsmouth Island, the report notes, could be granted life tenancies if they so desired; such tenancies might also be offered to cottage owners on Shackleford Banks.

It is anticipated that within ten years after the seashore is in operation as a unit of the National Park System, annual visitation rates will reach one and a quarter million persons. Initial construction efforts would be concentrated on the building of dunes and on beach restoration. On Shackleford Banks, however, it is expected that stabilization can proceed simultaneously with the development of public-use facilities.

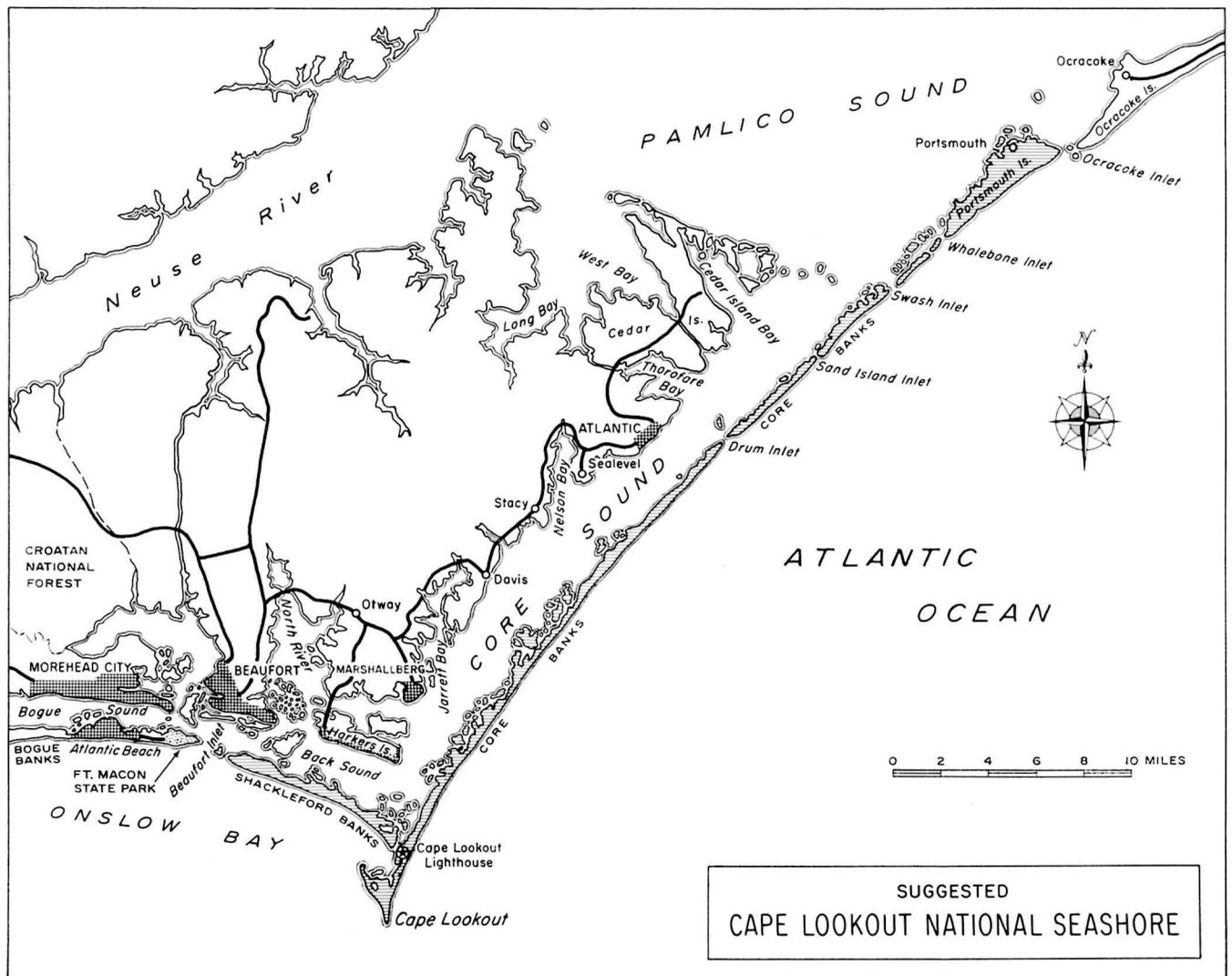
Twin bills authorizing the establishment of Cape Lookout National Sea-

shore were introduced in House and Senate during October, 1963, and there appears to be widespread support for the seashore at both the State and local level.

Establishment of the seashore would permit rehabilitation and preservation of a valuable coastal asset. It would open the area to any citizen who may choose to climb its dunes barefooted—as Director Hartzog did on his recent visit—or make use of its recreational features, or seek out wind, sand and sea for solitary contemplation. ■

*Stretching from Ocracoke Inlet, at the lower tip of Ocracoke Island, along the coast of the Atlantic Ocean to the point of Cape Lookout and then along Shackleford Banks to its termination at Beaufort Inlet, the proposed national seashore would encompass fifty-eight miles of rugged beaches and 15,800 acres of what the Park Service has labeled "first rate" recreational land. The State of North Carolina already owns most of the land, and would donate it to the Service.*

Map by Federal Graphics





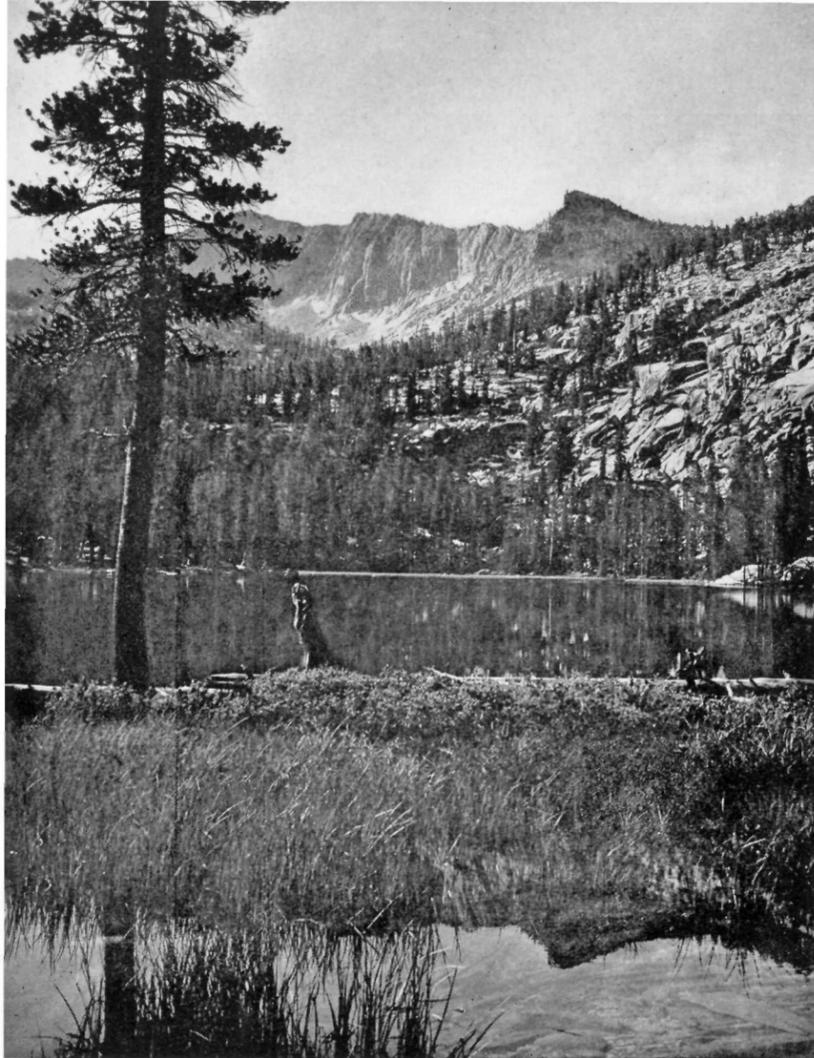
*Framed by swaying whitebark pines and sitting placidly beneath East Vidette (left) and Deerhorn Mountains, Bullfrog Lake in the High Sierra is an inviting back-country refuge for weary hikers. The lake area is so fragile that it has been closed to camping.*

## High Country in Kings Canyon Park

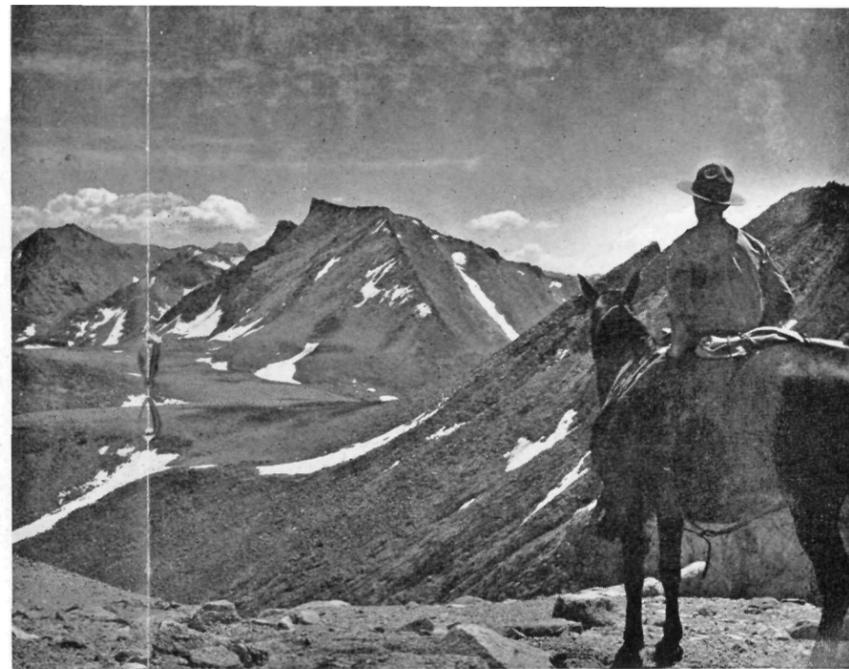
Photographs by Clay E. Peters

CONSERVATIONISTS HAVE FOLLOWED with great interest the proposed addition to Kings Canyon National Park of beautiful Cedar Grove on the lower Kings River Canyon. For Cedar Grove is a major point of departure for trails that lead the willing and able up into "the country beyond"; the back country of the park, the high granite heartland of wild and majestic Sierra scenery that some park enthusiasts believe unrivalled in the entire mountain

range. Here are wilderness waterfalls, streams, crystal lakes and flowering meadows set against a backdrop of roughly chiseled peaks—a country described by Colonel John White, for many years the park's superintendent, as "the rugged splendor of the Kings." On this and the following two pages a back-country photographer, traveling the trails by horseback, records some of the Colonel's rugged splendor for readers of this Magazine. ♦



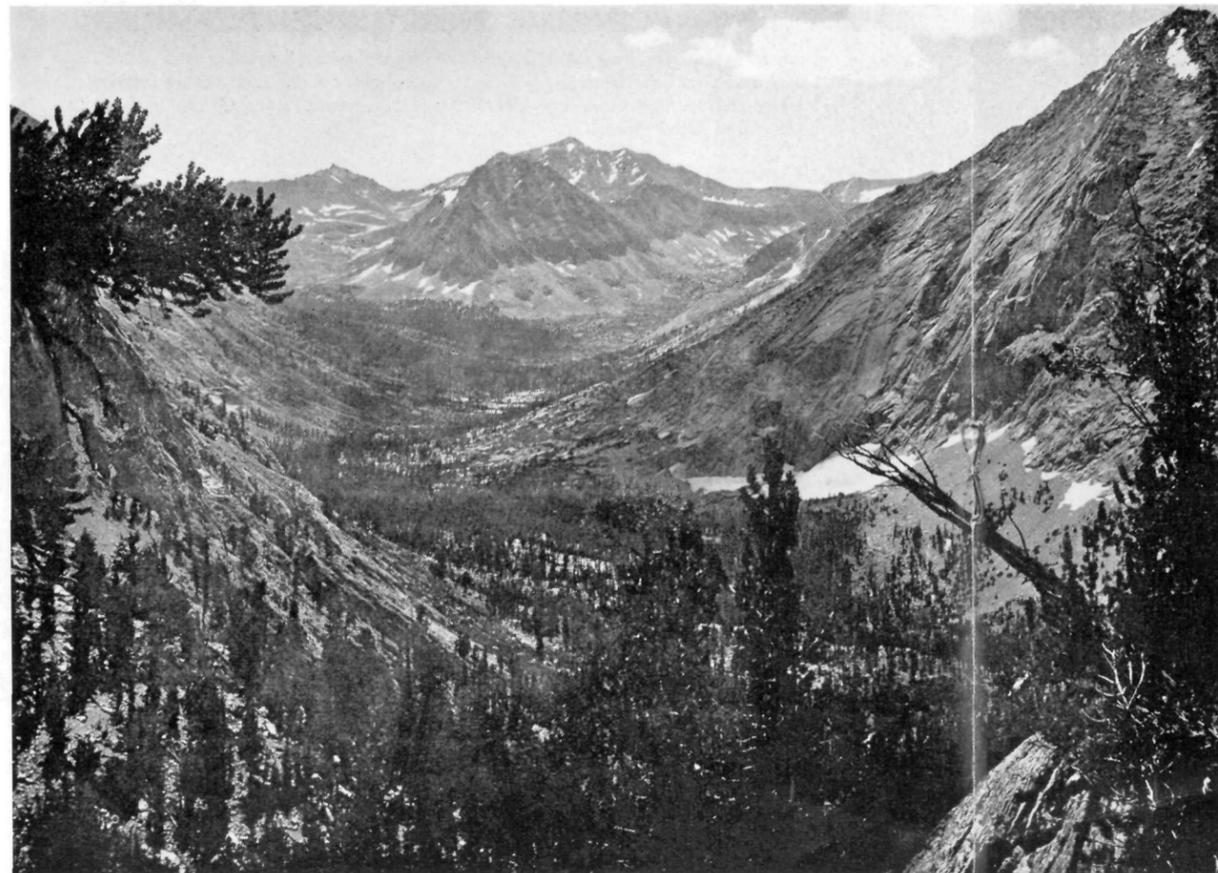
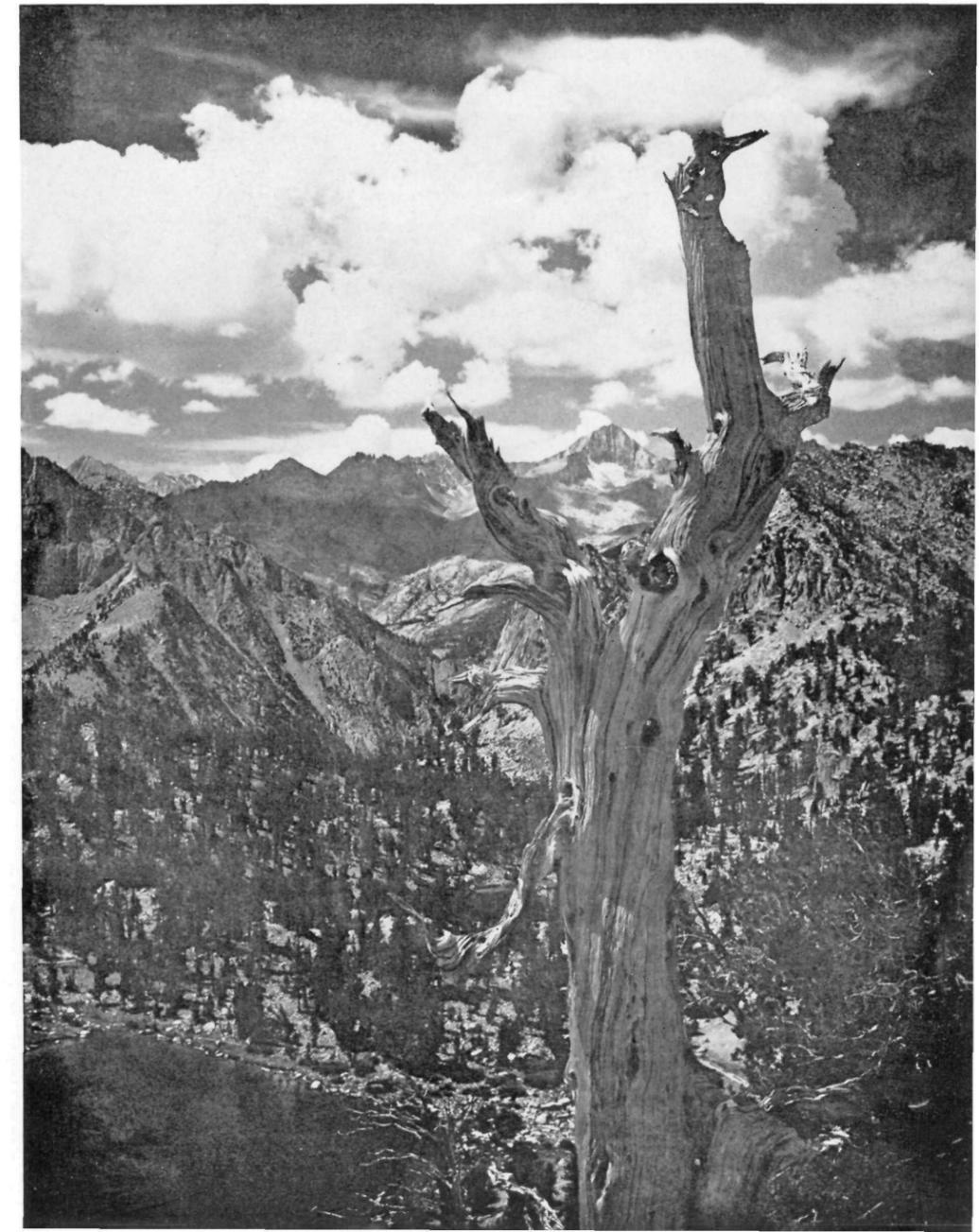
Shimmering in the bright California sunlight, this unnamed lake in the Gardiner Basin, north of Gardiner Pass, is one of the many hidden spots in the 710 square miles of primeval wilderness that comprises Kings Canyon National Park. Within the rugged mountains, lonely canyons, and towering Sequoia forests of the park, hikers and horsebackriders seeking nature's solitude may pause at many such lakes to enjoy spectacular views. Resting quietly along the banks of the lake, a visitor is likely to spot a big-eared mule deer, a wary gray fox, or one of the many other mammals inhabiting the park.



A gnarled, sun-bleached foxtail pine snag juts out above the pointed top of Mount Brewer, on the Great Western Divide. The Divide is a massive sub-range within the Sierra. Hidden here and there among the park's mountain ranges are little alpine lakes, somewhat like Bullfrog Lake, seen at the bottom left of the photograph, which are surrounded by lush green meadows. In the spring and summer the meadows bordering these lakes provide a dazzling display of multi-colored wildflowers.

«

Alone in the vast inner country of Kings Canyon National Park, the photographer pauses atop his horse to survey the mountains lying south of Junction Pass. An over-abundance of visitors has caused damage to some fragile parts of the park, and this trail is no longer maintained.



This is beautifully-glaciated Upper Bubbs Creek Canyon, nestled at the foot of East Vidette Mountain (right) and Center Peak. The John Muir trail travels south along this canyon, and crosses Forester Pass, 13,200 feet above superb back-country wilderness. Bubbs Creek, a lovely, clear stream which glides from Vidette Meadow along the canyon floor, provides an excellent trailside companion in the early morning or late afternoon, when its waters catch the polish of the glaciers adorning the mountainsides. Foliage is mainly that of the foxtail pine.

# Grand Coulee: Monument to an Ancient River

By Cecil M. Ouellette

*Shown in the photograph below is the "fossil" falls over which the ancient Columbia River, forced out of its normal channel by glacial ice, poured in one of the great cataracts of geologic history. The precipice over which the river waters rolled is more than three miles wide and four hundred feet high; it is known now as Dry Falls.*

*Photograph by Bureau of Reclamation*



**I**T OFTEN SEEMS THAT THE WORLD'S largest masonry structure, the Grand Coulee Dam, is the only point of visitor interest in eastern Washington State. But venturing southward on State Routes 2F and 7, the author discovered that the real interest of the region had just begun; for these routes follow the greatest example of canyon-cutting by glacial rivers in existence.

As geologists describe the events of the past in eastern Washington, the glacial ice of the Pleistocene, pushing to the south, reached the lava plateau of central Washington and dammed the ancient Columbia River near the present site of the Grand Coulee Dam. Forced to find a new route to the sea, the river backed up, overflowed its banks, and poured across the plateau in a huge flood. Over the centuries the floodwaters carved into the lava plateau a network of gashes called the "channeled scablands"; and the largest and most spectacular of the channels is the Grand Coulee.

The mouth of this great glacial spillway starts west of the Grand Coulee Dam and extends for fifty-two miles across the scablands, to end at Soap Lake on the gravel desert of the Quincy Basin. It begins with a width of three and a half miles, widens to five miles farther down, and then, in places, narrows to only a mile. The channel is flanked by perpendicular walls that rise 1000 feet from the valley floor. Because of its sheer cliffs, man has so far been able to cross at only one place—near Coulee City—where the western wall diminishes in height. The Grand Coulee is divided here into two parts, the Upper Coulee and the Lower Coulee.

To appreciate and fully understand this greatest scar of the scablands, the traveler must go back fifteen million years to the Miocene Epoch when central Washington was a land of moun-

tains, valleys, streams, and lakes. Trees, shrubs, and plants flourished in a moist climate. The sacred tree of China, the ginkgo, was present here. Sequoia, oak, elm, cypress, pine, chestnut, and other large trees also grew in profusion. Traces of cattails and huckleberry plants have been unearthed in the region.

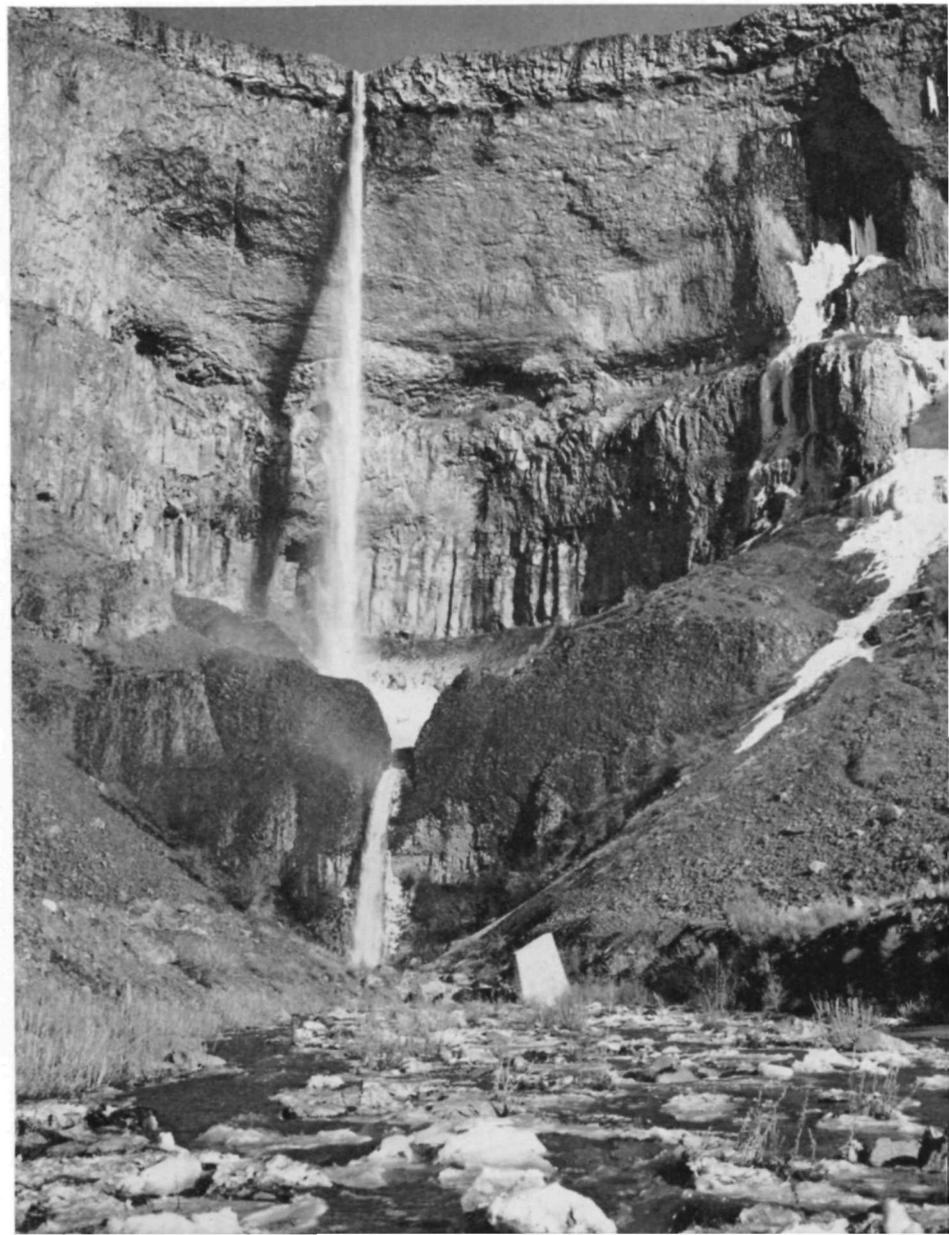
During the Miocene one of the largest lava-floods ever to appear on the earth's surface engulfed a tremendous area in the Pacific Northwest. Lava gushed from thousands of fissures. Flood succeeded flood and layer by layer the outpourings built up the Columbia Plateau to heights of 4000 feet. All told, this devil's broth covered an area of 250,000 square miles in the northwest. Molten rock destroyed forests, invaded lakes, and buried mountains. The ancient Columbia River was

forced by the advancing lava into its present course between the plateau and granitic mountains of the Big Bend country.

With the end of the lava flows, movements deep within the earth warped and depressed the lava beds in many places. Two major rock-folds appeared; one across the southern end of the Upper Coulee and the other paralleling the Lower Coulee to Soap Lake; both points of weakness had a great part to play in the formation of the Grand Coulee.

Then came the Pleistocene, with its cold breath, to set the stage for the final act in the creation of the Grand Coulee. Moving ice blocked the Columbia River and forced a change in its course. Its waters surged across the Columbia Plateau and poured over the lava beds that dipped away to the south

*Bureau of Reclamation photograph*



*In early spring, when the snow melts, many newborn waterfalls pour over the lava walls of the Grand Coulee. This thin but powerful stream of water is called the Devil's Punch Bowl, possibly because of the furious swirl of water it creates when it hits the plunge-pool below. Some of the rough-faced walls of the Coulee rise 1000 feet from the valley floor, and prevent travelers from crossing the spillway except near Coulee City.*



Photograph by the Author

*Dwarfed by the immensity of the landscape, a visitor gazes at this scene at the upper end of Lake Lenore, where the lower Coulee was cut by centuries of water erosion. The jagged walls and the many little islands show the lava beds dipping to the east.*

over one side or "limb" of a rock-fold.

As one travels beneath towering walls, it becomes apparent that receding waterfalls were the agents that carved the Grand Coulee. The most gigantic cataract was that of the upper Coulee, where the glacially-fed river dropped over a 1200-foot precipice. In the process of cutting its way back toward the present Columbia River Valley, the waters reached a width of four miles, and at this point divided to form an island and a double falls. Here roared twin cataracts, each two miles wide and 800 feet high. With further recession, the falls left the island now called Steamboat Rock, which is two and one-half miles long, a half-mile wide, and 800 feet high, so named because its layers of lava resemble the decks of a mighty vessel. The waterfall completed its retreat to the present channel of the Columbia and left the Upper Coulee in the shape of an open box.

The immense volume of water con-

tinued southward with more waterfalls that must have made the lower Coulee the wildest and most spectacular part of the Grand Coulee. The canyon curves slightly on its seventeen-mile course to Quincy Basin, and in places its lava-terraced walls are only a mile apart.

Below Coulee City is the "skeleton" of perhaps the greatest waterfall in geologic history. Dry Falls is three and one-half miles long and four hundred feet high, a precipice three times longer, and somewhat higher than that of Victoria Falls in Africa, the largest existing cataract. From the vista point, the author could see only two of the five huge alcoves which form the falls. The remainder of Dry Falls extended in a hazy outline to the horizon. The flooding waters of the diverted Columbia cascaded over this giant precipice with the power of a hundred Niagaras. Looking out over the curving rim of the falls, one tries to visualize the pouring waters of the past; but imagination

is hopelessly lost in such immensity.

Nestled in the abandoned plunge-pools of Dry Falls are colorful lakes. And on the floor of the ice age channel, Park, Blue, Lenore, and Soap Lakes form a beautiful blue string along the entire length of the Lower Coulee.

The writer followed the winding road down the side of a steep bluff from Dry Falls and entered Sun Lakes State Park, which includes Park Lake. Travelers to the area will find Sun Lakes State Park an oasis in the lava country and an enjoyable layover. Acres of lush grass dotted with shade trees surround the upper end of Park Lake. Camping spots and cabins are available along the shorelines. Fishing, boating, swimming, picnicking, and golf are to be enjoyed. Because of varied activities and pleasant location, the park is used by many visitors as a base-camp for investigating the scenic grandeur of the Grand Coulee.

Many lava flows can be counted on

the cliffs east of Blue Lake. And between two of the layers one finds the remains of a fossil forest. Sometimes the intervals separating the lava flows were long enough for soil to accumulate; for forests to grow; and for animals to thrive, only to be buried by the next flood of molten rock. Now, casts of trees six feet in diameter are exposed near the shore of Blue Lake, and petrified wood is abundant.

For a number of years the author had heard rumors of a fossil cave somewhere in the scablands which contained the lava-mold of a rhinoceros. This seemed difficult to believe, so an investigation was indicated to classify the story as either fact or fable. Ques-

tions and answers led to Blue Lake, where the story proved to be fact. In a cove at the upper end of the lake, and a few hundred feet up the basalt cliff, is the rhinoceros cave. It is large enough to crawl into, and with the aid of a flashlight one can see the impressions of the animal's skin on the wall, and the head- and leg-molds are clearly defined. Paleontologists have found, through study of charred bones that were found on the floor of the cave, that the mammal was indeed a rhinoceros. It had apparently been trapped by a lava-flood while roaming the Columbia Plateau. Erosion has since revealed the almost perfect rock-mold. The cave can be reached only by boat

from one of the lake developments. Not too well-known before, it is now becoming a popular side-trip with visitors to the area.

The glacial ancestor of the Columbia River continued its work of excavation for countless centuries. Then the climate became warmer, and the melting ice sheets and retreating waters left the Grand Coulee much as it appears today. It has become seventeen miles of recreational terrain, where the traveler discovers everything from fishing to spectacular scenery. Within the black-and-red basalt walls of this mighty prehistoric river one may read the story of an erosional wonder of the world. ■

*Steamboat Rock, in the Grand Coulee, at one time divided the flow of the prehistoric Columbia River at the site of an immense waterfall. Subsequent retreat of the falls left the rock mass as a downstream island in the river channel, and today it has the appearance of a butte standing on a valley floor. Its sharply defined lava layers somewhat resemble the decks of an ocean liner.*

*Bureau of Reclamation photograph*



# News and Commentary

## Death and Taxes

Americans are fond of commenting, with a wry smile, that nothing is sure when it comes to human activities except death and taxes. Ironically, some property taxes in the United States have been responsible for a certain type of death: the death of precious scenic or recreational open lands which individuals are forced to sell to developers because of heavy tax assessments on such lands. To avoid the forced destruction of open lands as a result of economic pressure, the General Assembly of the State of Connecticut passed Public Act 940 in 1963 to assess farm, forest, or open space lands in the State "... based upon its current use without regard to neighborhood land use of a more intensive nature . . ."

This Act represents a fundamental change in the theory of land taxation in the United States, and means that Connecticut towns can now designate "open-space" areas and assess them for property taxes at rates lower than those applied to highly-developed commercial lands nearby. One Connecticut conservation association noted that if such a policy is continued, vast open areas can remain in their natural state, rather than being shifted to other, less desirable uses because of the pressures of taxation. In effect, the Connecticut Legislature has recognized that the public has a vested interest in keeping large tracts of land open for cultural, conservation, educational, and recreational uses, and that forced, badly-planned community growth is highly detrimental to the public interest.

More recently, a local controversy in the vicinity of the nation's capital resulted in an Internal Revenue Service ruling that property donations to protect scenic views entitle the donator to a tax deduction. The controversy arose when a realty developer wanted to build high-rise apartments on a scenic bluff overlooking the Potomac River. To settle the issue, the owners of the property granted "scenic easements" to the Federal Government. This had the effect of warding off development on the land that would injure natural appearance and character and destroy the charm of the surrounding landscape. The IRS then stated, in an unpublished ruling, that the owners of the land were entitled to deduct the monetary value of the easement from taxable income.

When the ruling came to the attention of Senator Gaylord Nelson of Wisconsin,

he urged wider application of the principle. At his suggestion, the IRS agreed to publish a similar general ruling to encourage the preservation of scenic spots throughout the nation. Such authorization of tax deductions is an enlightened interpretation of the provision in the Internal Revenue Code allowing deductions for contributions to the government for public purposes. The ruling was published in the Internal Revenue Bulletin for July 27, 1964, and will greatly encourage conservationists who seek to insure public protection of open spaces. This governmental awareness of a nationwide need for conservation is an important step in the right direction, and indicates a new, creative use of the tax system.

## Construction Without Destruction

To prevent possible future despoliation of recreational, scenic, or park lands by poorly-planned road building, the Bureau of Public Roads recently issued a regulation to insure cooperation between outdoor recreation agencies and state highway departments in matters of road construction. Beginning October 1, highway departments will be required to consult with state and local outdoor recreation agencies on the planning of Federal Aid highways likely to involve park or recreational resources. In case of disagreement, the application of the state highway department for Federal funds would have to be approved by the Department of Commerce. This measure would provide a check on the often destructive—and generally unregulated—plans of some state highway departments. Similar protection already exists for fish and wildlife areas.

## World-Wide Conservation

In 1936 Ernest Hemingway's friend Gertrude Stein, who loved to confuse her readers with unusual sentences, defined America this way: "In the United States there is more space where nobody is than where anybody is. This is what makes America what it is."

Today the places "where nobody is" are quickly being filled with a burgeoning human population, both in the United States and elsewhere on this planet. With human population come material human demands; with these demands often comes a corresponding destruction of the natural environment. The problems engendered by such destruction were recently discussed at the 12th session of

the United Nations Educational, Scientific, and Cultural Organization's General Conference in Paris. These discussions resulted in the adoption of recommendations to all Member States to preserve the beauty of the natural environment on a world-wide scale.

UNESCO recommendations are based upon the thesis that "... at all periods men have sometimes subjected the beauty and character . . . of their natural environment to damage which has impoverished the cultural, aesthetic, and even vital heritage of whole regions in all parts of the world . . ." To overcome man-made damage and restore as much as possible of the world's natural environment for the highest uses of mankind, the UNESCO report outlines general steps each nation should take to safeguard its natural resources. Among these are protection of landscapes and historic sites; esthetic construction of both public and private buildings; prevention of air and water pollution; restoration of damaged natural areas; and planned urban and rural development. UNESCO suggested that interested nations bring the plan to the attention of authorities concerned with conservation, and submit reports to UNESCO on implementation of the program.

## Women's Work

Women's work, which in this decade has come to mean everything from darning socks to running for the Presidential nomination, has been increasingly concerned with the preservation of important outdoor recreational areas to fill the needs of the individual, the family, the community, and the nation as a whole. This July, more than one hundred representatives of the Young Women's Christian Association and their families gave new meaning to female participation in conservation at the first National YWCA Conference on Outdoor Recreation and Conservation at Jackson Lake Lodge, in Wyoming. They gathered to hear speech-

### Re Park Unit Classification

Members who, after reading the editorial on page 2 of this issue, desire to express their views on seashores and recreation areas may write to the following at Washington 25, D.C.:

Hon. Stewart L. Udall  
Secretary of the Interior  
Hon. George B. Hartzog, Jr.  
Director, National Park Service  
Hon. Edward C. Crafts  
Director, Bureau of Outdoor  
Recreation

es on conservation and to formulate programs for community action in saving recreational lands near large population centers, as well as in making better use of existing recreational facilities.

Laurance S. Rockefeller, Chairman of the Outdoor Recreation Resources Review Commission and a speaker at the YWCA Conference, pinpointed the Association's conservation goals when he noted that ". . . every community can create areas which will preserve natural values and make them available for the public."

The YWCA has always pioneered in conservation; Sea Rest at Asbury Park, New Jersey, was established by the YWCA in 1874 as one of the first outdoor centers in the United States. Perhaps this is one aspect of women's—and men's—work that should never end.

### Cooperating to Clear the Air

In the August, 1964 issue of this Magazine we reported the promising step taken by California authorities to eliminate vehicular pollution of the atmosphere by requiring that all 1966 model cars sold in the State be equipped with exhaust-fume purifiers. Air pollution, however, plagues not only Californians, but all Americans; many of us fight daily personal battles with threats to health from soiled air, blackened buildings and sooty streets, and ugly red-grey clouds of smog that often hang over almost all urban areas. The problem now has grown serious enough to attract the attention of Secretary of Health, Education, and Welfare Anthony J. Celebrezze, who recently announced the formation of a joint government-industry committee to study ways of controlling air pollution from motor vehicles on a nation-wide scale.

According to Mr. Celebrezze, the committee will survey the extent of pollution caused by automobiles and develop recommendations to solve the problem. Formation of the committee was provided for in the Clean Air Act, enacted last December.

"The Federal Government has a clear responsibility to seek means of reducing the burden of atmospheric pollution coming from the some 80 million cars, trucks, and buses on our streets and highways," stated Mr. Celebrezze. "Industry shares in this responsibility, and it is entirely appropriate that we sit down together to work out ways of dealing with this worsening problem."

### Possible Danger for the Dunes

The problems in protecting an outstanding shoreline from commercial development, which were detailed in the July

issue of this Magazine in the case of the proposed Indiana Dunes National Lakeshore, rarely end with the introduction of legislation to create a national preserve. Even after studies of the area, local discussions and reactions, Park Service proposals, and public comment have ended, any valuable land area which may be coveted by conservationists and commercial interests alike is still subject to pressures from groups or individuals. Until the area is actually declared a national preserve, it is in danger of being denied inclusion in the public domain.

Conservationists have been trying to save the Indiana Dunes since 1916, when Stephen Mather, first Director of the National Park Service, recognized that its rugged beaches, quiet forests, and botanical treasures should be kept in their natural state for the benefit of all the people. Since that time public and private interests have been jousting over the area, with the result that when the land was finally considered for legislation as a national preserve, a substantial part of it had already been altered by commercial activity. On July 24, the Public Lands Subcommittee of the Senate Committee on Interior and Insular Affairs reported favorably on a bill to establish an Indiana Dunes National Lakeshore. The bill would provide for 11,292 acres of superb recreational land to serve the pressing needs of more than seven and a half million people in heavily-populated nearby urban areas.

The favorable report sparked hope among many conservationists that the dunes would at last be granted permanent public protection. But a few days later, on July 29, one of the steel companies interested in part of the dunes for development protested inclusion of its lands in the preserve, and attempted to block Interior Committee approval of the bill. The company contended that inclusion of their 840 acres in the west section of the proposed lakeshore, adjacent to Gary, Indiana, was unnecessary. On August 4th, however, the company's objections were silenced, at least for the time being, when the Committee reported favorably on the bill by a vote of twelve to three.

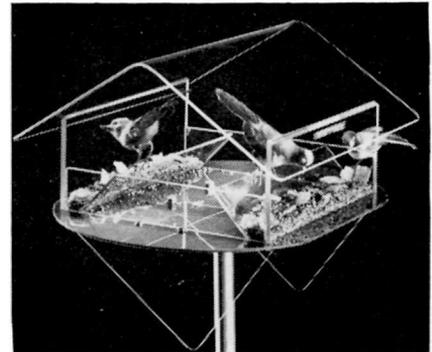
This new report was welcome to residents of the dunes area as well as conservationists, who feel that this 840-acre section is essential to the lakeshore. It is believed that without it visitors will jam into the more fragile parts of the proposed preserve, upsetting the ecological balance of the area, placing the natural values of the lakeshore in danger, and crowding themselves out of the outdoor experience they often seek on the wind-swept sands. In the face of such possible

results, those interested in the preservation of the Indiana Dunes would consider the loss of the west section of the area an unfortunate occurrence.

### Invasion of the Everglades

Lush and mysterious Everglades National Park, located at the southern end of the State of Florida and embracing more than 2100 square miles of subtropical wilderness, received an annual visitation of 669,200 persons in 1963. This number represents a substantial increase in visitor use of the park over the

(continued on page 18)



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preceding year, and Park Service tabulations so far indicate that 1964 visitation figures will show another jump in the numbers of Americans wishing to explore the park's shadowy mangrove swamps, winding waterways, and strange bird and animal life.

Next year's Everglades visitors may find that the park's biggest inholding—the so-called “hole in the doughnut,” of more than 8000 acres—has in the meantime been sliced in half. Recent foreclosure by the Farmer's Home Administration on some 4200 acres of the inholding presented opportunity for transfer of the land to the Park Service; legislation to accomplish this is awaiting floor action in the House of Representatives, after approval by the Senate.

It was only after the Senate's bill to acquire the “hole in the doughnut” had received subcommittee hearings that conservationists became aware that another governmental agency—the Army Department—wished part of the possible addition to the park for its own purposes. The Army wanted 700 acres of the land for a Nike missile site; fearing, apparently, that a rebuff to Army demands would place the acquisition in jeopardy, the Park Service said that it “foresaw no difficulty in reaching an agreement with the military.”

Conservationists were not well pleased with the meek attitude exhibited by the Service, though admitting the powerful leverage that the Army can exert in the name of national defense. They raised these questions: how can the Park Service uphold its high standards of park management if it will not do battle against such intrusions? Had the Army made studies of alternative areas and submitted them for public and professional comment and review before claiming that park lands must be employed as missile sites? The answer to this last question, at least, was no. The Army, seemingly, can also make a landing and quickly have the situation in hand, as well as the Marines.

Now at hand is a new shipment of Jesse Jones Volume Binders, designed to hold a year's issue of *National Parks Magazine* snugly and conveniently. Color of the binder is gray, with a green spine imprinted with the Magazine's name. The price is \$2.00, postage paid, from

National Parks Association  
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### **Battle of the Sexes**

A forced battle of the sexes is currently under way in the State of New Jersey, involving not people but one traditional insect enemy of people and trees, the gypsy moth. The start of the battle means that New Jersey, with the help of the United States Department of Agriculture, has abandoned the use of suspected harmful pesticides—especially DDT—in favor of sex lures which trap and kill male gypsy moths. The lures, which were recently dropped on 75,000 acres of farm and woodland in northern New Jersey, are small cardboard containers smeared with a female moth attractant called “gyplure.” The male moth is enticed to enter the container by the smell of gyplure; once inside, he is trapped by a sticky substance and thus prevented from mating with any female moth in the area. The lures are believed to trap males before the mating process can take place.

The use of sex lures is part of a large-scale program in New Jersey to discover alternative methods of pest control after authorities decided to discontinue the use of supposedly dangerous pesticides in the State. Two other methods of control now under observation involve the releasing of flies and other insects which prey upon gypsy moth caterpillars, and the spraying of 42,000 wooded acres with a chemical known commercially as Sevin, believed to be harmless to humans and wildlife.

While New Jersey authorities are experimenting with alternatives to DDT, one official of Suffolk County in the nearby New York City borough of Long Island is contending that DDT is not as harmful as conservationists and some of the public think. The courageous official, who is superintendent of the Suffolk County Mosquito Control Commission, claimed at a recent hearing on pesticides that he had eaten DDT, had it sprayed and spilled on him, and had spent hours with wet DDT on his clothing without having suffered ill effects. In response to public outcry against the use of pesticides on Long Island, other Suffolk County officials heard the superintendent's testimony and promised to form an organization to coordinate research and development on insecticides in the County.

### **A Devoted Conservationist**

Admiration for a devoted conservationist, and the good work done by such a conservationist, are factors which linger and grow long after the death of the individual. It was with such feelings, mingled with deep regret, that the Association learned of the death of eighty-

two-year-old John R. Eldred of Kingston, Rhode Island. Mr. Eldred, ex-instructor of mechanical engineering at the University of Rhode Island, was long active in civic affairs and in the implementation of sound policies of conservation. To insure the continuation of such policies, Mr. Eldred left a sizable bequest to this Association, for which it is deeply grateful.

### **Pictured Rocks Lakeshore**

In a recent report to Congress, the Department of the Interior endorsed the establishment of a proposed Pictured Rocks National Lakeshore along Michigan's scenic Lake Superior shoreline. The lakeshore would extend approximately thirty-five miles along the shoreline, comprising 67,000 acres of multi-colored sandstone cliffs, sandy beaches, small lakes and quiet ponds, waterfalls, cascading streams, and a multitude of plant and animal life. According to the Interior report, the lakeshore would offer a wide range of public recreation opportunities while at the same time preserving the natural beauty of the Pictured Rocks area. It would serve the outdoor recreational needs of the fifty-odd millions of people who live in the eight States directly to the south, as well as all other Americans.

The name “Pictured Rocks” supposedly comes from the colored sandstone formations which jut from fifty to 200 feet high along fifteen miles of the lakeshore. Formed by centuries of buffeting by wind and rain, the rocks distinguish the area which the Interior Department claims is “an excellent combination of natural values of exceptional quality for recreational and other public purposes.”

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## Book Review

THE YEAR OF THE GORILLA. By George B. Schaller. The University of Chicago Press, 5750 Ellis Avenue, Chicago, Illinois 60637. 1964. 260 pages, with epilogue and bibliography. Illustrated. \$5.95.

*The Year of the Gorilla* is a literary version, written for a large audience, of George B. Schaller's monumental scientific book, *The Mountain Gorilla—Ecology and Behavior*.

After a reconnaissance survey of the geographic range of the mountain gorilla, conducted with John Emlen, George Schaller concentrated for more than *The Year* on an intensive systematic study of the supreme anthropoid.

The location was the magnificent Albert National Park which includes the whole chain of Virunga Volcanoes in south-central Africa. This valuable reservation was established in the 1920's by King Albert of Belgium on the encouragement of Carl Akeley. Its purpose, which becomes increasingly important, was primarily to protect the mountain gorilla.

If the reader has any doubts that science and literature can be combined, he should read *The Year of the Gorilla*, and then decide the question. If he doubts that certainty and uncertainty, risks and security can be lived together and beautifully described, then he should read *The Year of the Gorilla*.

I am biased in favor of George Schaller, and almost anything that he does. This is in part because he accepted the very great challenge and risk of making a systematic field study of the mountain gorilla; it hardly need be added that he won the gamble.

I believe that Schaller has many of the best qualities of a Murie, who loved the wilderness and defended it against the encroachment of too many people; of a Beebe, who observed animals and birds with the sensitiveness of an artist and described them beautifully but accurately; of a Darling, who had the infinite patience needed to analyze the network of complex interactions of the Red Deer herds of Scotland, and now pursues vigorously his mission of conservation. George Schaller is a first-rate naturalist-scientist, a well-trained ecologist; he is becoming a splendid observer of free-ranging animals, he is deeply sympathetic with the principles of conservation, he strongly prefers the natural, undisturbed environments of Alaska, Africa, and northern India (where he is now) to the university campus and its

laboratories. *The Year of the Gorilla* reflects these characteristics of Schaller as a person and his acute reactions and observations of the gorilla "at home" when George and Kay Schaller were their forest guests.

Several of the groups of the gorillas actually seem to have accepted Schaller almost as they accepted peripheral males which wandered into groups temporarily and then left. The infamous "charge" of the gorilla was found to be principally bluff. Furthermore, the gorillas became "habituated" very quickly to Schaller's unobtrusive presence and his cautious, sensitive, and skillful observational behavior.

*The Year of the Gorilla* is well organized and well written. It is possible that Schaller derived great pleasure, and perhaps some therapeutic benefits, from the writing of this free-flowing expressive and informative book following the laborious task of compiling facts and describing them with approved scientific restraint in the *Mountain Gorilla*. Nevertheless, no liberties have been taken which distorted accurate observations. *The Year of the Gorilla* gives a complete and systematic picture of the previously little-known naturalistic behavior of the gorilla in its mountain environment. A great debt is owed George Schaller for his scientific contribution and for adding two grand, new books to the literature of science or scientific literature.

C. R. CARPENTER

THE PENNSYLVANIA STATE UNIVERSITY  
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### THE CONSERVATION DOCKET

After nine years of planning, debate, and compromise on a system to preserve rapidly-disappearing wilderness areas in the United States, the House approved H.R. 9070, Pennsylvania Representative John P. Saylor's version of the "Wilderness Bill," on July 30. The vote was 373 to one in favor of establishing the system, with Representative Joe R. Pool of Texas casting the solitary negative vote. The amended House version of the bill eliminated a controversial provision which would have excluded 3500 acres of the San Gorgonio Wild Area in southern California from protection under the wilderness system, which will immediately embrace approximately nine million acres of undeveloped land. The provision would have opened the San Gorgonio area to development as a commercial ski resort. Another provision amended in H.R. 9070 would have allowed the Secretary of Agriculture to remove primitive areas from protection under the system and revert them to multiple-use lands without Congressional approval. On August 4, the bill met with opposition on the floor of the Senate, where it had gone for approval after passing the House vote. A joint Senate-House conference will probably be held to

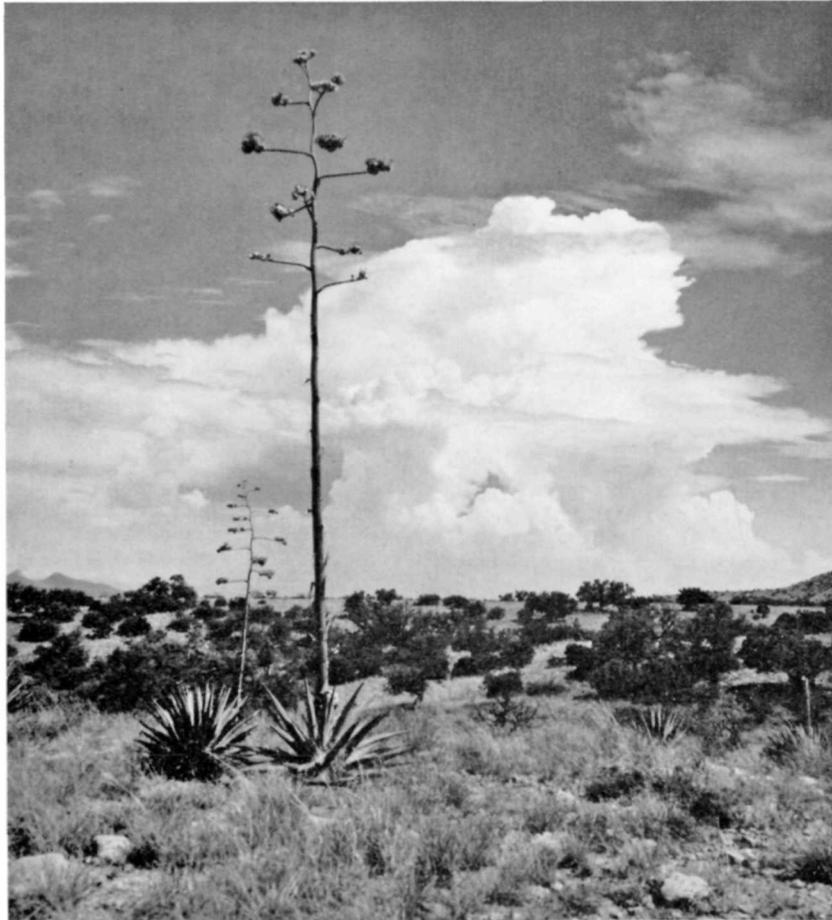
iron out existing differences of opinion between the two versions of the bill.

Congressional and Interior witnesses were scheduled to testify August 11 on S. 2128, the Brewster-Beall bill to establish an Assateague Island National Seashore off the coast of Maryland. Public hearings on the bill are to be held next spring, a delay which some conservationists feel might endanger passage of the measure for several reasons. Work on a bridge to Assateague will soon be completed, making the island vulnerable to private development. In addition, a recent court order will require the Maryland Health Department to permit the installation of septic tanks on the island, a factor which could result in a burst of home-building and land speculation on the proposed national seashore before protective legislation can be enacted.

Another seashore bill, H.R. 7107 to establish *Fire Island National Seashore* near New York City, where it would be accessible to approximately nine million urbanites, is currently awaiting action by the House Committee on Interior and Insular Affairs. Its companion bill, S. 1365, has been favorably reported out of the Senate; the bill may possibly be passed late in August.

The Land and Water Conservation Fund bill, R.H. 3846, has passed the House and is currently undergoing examination in an executive session of the Senate Committee on Interior and Insular Affairs. This bill would establish a Conservation Fund to be used mostly by the States and their political subdivisions, and partly by the Federal Government, for the planning, development, and acquisition of outdoor recreational facilities and areas. The States will use their share of the Fund on a fifty-fifty matching basis, and special provision has been made to make Federal aid available to counties and local governments through the States if their proposals are included in a statewide outdoor recreation plan. Federal agencies such as the Park Service, Forest Service, and Bureau of Sport Fisheries and Wildlife will use their share of the money mainly to acquire outdoor recreation areas. Money for the Fund will come from user and entrance fees to designated Federal recreation areas; from an existing motorboat fuel tax, which now goes into the Highway Fund; from the sale of surplus Federal real property; and from advance appropriations which will be paid back from the Fund over a period of time.

On July 21, President Johnson approved and signed the Water Resources Research Act, S. 2, to stimulate research into water problems in American universities and to train hydroscintists to cope with modern needs for fresh water supplies. The bill provides for furnishing financial assistance to non-Federal research centers in an attempt to discover new ways to cope with water problems throughout the nation. The Act, first sponsored by Senator Clinton P. Anderson of New Mexico, authorizes two continuing programs of water research: first, it provides for annual grants to aid one State water resources research center in each State; secondly, it provides aid for specific water resources research at land-grant universities.



*Photograph by Weldon F. Heald*

*An agave, once used by the American Indian of the Southwest for fiber and soap, breaks the skyline of Arizona's Coronado National Memorial.*

THE PLANT THAT THRUSTS ITS BLOSSOM-SPIKE boldly upward in a sparse and difficult land in the photograph above is called agave, maguey, amole, or soap plant. It once served many practical tasks for American Indians, and is still employed by some Mexicans for various household purposes. The agave is protected on lands administered by the Park Service; lands that are habitat for the myriad other native plants and animals of North America, and on which there are no criteria for distinguishing the "useful" from the "unuseful."

YOU CAN HELP continue the work of preserving the many wonders of the American continent for the education and enjoyment of this and future generations by securing new members for the Association; by raising your own membership classification; or by contributing to the general funds of the Association in addition to your membership dues. Such contributions are deductible for Federal taxable income.

**National Parks Association**

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