NATIONAL PARKS *Magazine*

Montezuma Castle, in Montezuma Castle National Monument, looks out over Beaver Creek in the Verde Valley of central Arizona

October 1963

The Editorial Page

The Mighty Colorado

MAN AND HIS WORKS ON THE COLORADO, this twelve-month past, have been marvelous to behold. The old gods of the rain, who are said to doze now, below axe and powder horn, must have roused themselves more than once in amazement.

We have had the Green River poisoning, our special national variety of ritualistic war dance against the native fish of Flaming Gorge, spilling out death to waterlife through Dinosaur National Monument. The gods, as shrewd observers, could have identified certain causal components of this operation—bureaucratic weakness, scientific incompetence, commercial exploitation, and a national disposition to fall for the latest gadgets.

We have had legislation by the Senate to create a Canyonlands National Park upstream from the Glen Canyon Reservoir which has been criticized as inadequate in size and subject to seriously conflicting uses; the bogging down of the legislation in committee in the House, where proposals which some consider even more deficient are pending; and somnolence of the plan to establish a national monument of sufficient size and high standards by proclamation.

We have had the closing of the gates of the Glen Canyon Dam, endangering Rainbow Bridge Monument, in violation of specific mandates of law and the century-old policy of park protection. It is said that the gods now behold an unfilled reservoir basin, with protective Site B on Bridge Canyon still available for a barrier dam, and utter inaction on the part of public officials charged with safeguarding the bridge.

We have had the decision in the Marble Canyon Case before the Federal Power Commission granting a license to the State of Arizona to construct the Marble Canyon Dam on the Colorado above Grand Canyon Park without the destructive Kanab Creek diversion through the park, and the intervention of the Department of the Interior to prevent issuance in favor of the impending Pacific Southwest Water Plan, and construction (still without Kanab, fortunately), apparently by the Bureau of Reclamation.

We have had the decision of the Supreme Court of the United States in *California v. Arizona*, holding that immense additional allocations of Colorado River water should be made to Arizona at the expense of California, and the bitter dissenting opinion of Justice Douglas to the effect, among other things, that the water laws of the West were being ruthlessly upset; the effect of the majority decision being in part to require greatly enlarged waterworks on the river and elsewhere to replace the Californian losses.

Interior Department's Water Plan

And now we have the Pacific Southwest Water Plan of the Department of the Interior which will no doubt preempt much space in these columns for some years to come—an elaborate project which we shall discuss in detail as time and space permit. Notable for the moment is the recommendation that the controversial Bridge Canyon Dam below Grand Canyon National Monument and Park be built at such location and elevation as to intrude its reservoir into both monument and park.

On behalf of the Pacific Southwest Water Plan let it be said that the Kanab Creek diversion from Marble Canyon through the Kaibab Forest and Grand Canyon Park has not been recommended, nor is there mention of power and storage reservoirs within the park itself; with respect to these last, however, not a word has been said either way, and if a precedent for invasion is created at Bridge Canyon it will be difficult to resist construction within the park.

The recommended normal water level at the proposed Bridge Canyon Dam is 1866 feet above mean sea level. The reservoir at this level will back up to Kanab Creek, some thirteen miles into the park. The maximum flood pool will be at elevation 1876, and the reservoir then will rise another five and one-half miles into the park. The total distance within the park which will be subject to inundation will be eighteen and one-half miles. Below the park, the reservoir will rise into the monument through a distance of 53.7 river miles. Thus the total distance in monument and park which will be invaded by the reservoir will be more than seventy-two miles. The river bottom and the lower strata of rock will be submerged; the side canyons will also be seriously affected; siltation from tributaries entering the Colorado below Glen Canyon Dam will build up within the park first, because it lies at the head of the reservoir. That we are dealing with a major violation of the century-old national policy of park and monument protection is unmistakable.

No doubt man is war, in one of his aspects, and this is the opening gun in what we have previously predicted may be a long, long war between the developers and the conservationists. This is the point at which the defenders of the remaining vestiges of the natural environment of America must stand or fall; the national tradition of wilderness and park preservation will also stand or fall, depending on what we do here and now.

The general outlines of this situation are clear: no reservoir of any great significance could be built on the Colorado River above the quicksands which now fill the upper portion of Lake Mead and the downstream corner of Grand Canyon National Monument. The defenders of natural America, if they are to be true to their trust, must resolutely reject the inundation of the canyon in the monument and the park. It seems to follow that they must oppose the construction of Bridge Canyon Dam in its entirety.

Objectives of Regional Planning

But more than Bridge Canyon Dam is involved. The Pacific Southwest Plan is a program of close to maximum development of the water resources of the Colorado for power and irrigation purposes. Conservationists, and environmentalists, if we may use the term, are challenging the primacy of de-

(Continued on page 19)

NATIONAL PARKS *Magazine*

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Front Cover Photograph by Natt N. Dodge

Montezuma Castle National Monument, in central Arizona's Verde Valley, actually consists of two units separated by a distance of several miles. The first—the photogenic Castle itself—is a largely intact prehistoric Southwestern Indian communal dwelling, constructed within a natural recess in a limestone cliff bordering Beaver Creek, tributary of the Verde River. This fortress-like dwelling, one of several within this portion of the monument, was designed to accommodate perhaps fifty persons. The second unit of Montezuma Castle Monument is known as Montezuma Well, a limestone "sink" some seven miles northeast of the Castle, about which there are also cliff dwelling and pueblo ruins. Today, as in past time, the sink produces a vast flow of precious water; about the great spring are still visible the remnants of ditches that carried water to the fields of prehistoric farms.

The Association and the Magazine

The National Parks Association is a completely independent, private, non-profit, public-service organization, educational and scientific in character, with over 26,000 members throughout the United States and abroad. It was established in 1919 by Stephen T. Mather, the first Director of the National Park Service. It publishes the monthly *National Parks Magazine*, received by all members.

The responsibilities of the Association relate primarily to the protection of the great national parks and monuments of America, in which it endeavors to cooperate with the Service, while functioning also as a constructive critic; and secondarily to the protection and restoration of the natural environment generally.

Dues are $5 annual, $8 supporting, $15 sustaining, $25 contributing, $150 life with no further dues, and $1000 patron with no further dues. Contributions and bequests are also needed. Dues in excess of $5 and contributions are deductible for Federal taxable income, and gifts and bequests are deductible for Federal gift and estate tax purposes. As an organization receiving such gifts, the Association is precluded by law and regulations from advocating or opposing legislation to any substantial extent; insofar as our authors may touch on legislation, they write as individuals.

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Federal Graphics

Some notion of the vast expanse of land encompassed within the drainage basin of the Colorado River may be obtained from the map above, which is based upon a Bureau of Reclamation drawing; the entire basin represents some fifteenth of the nation's total land area. Shown on the map are some of the major dams which either exist already or are currently under construction on the Colorado and its tributaries. These dams, and other smaller impoundments on tributaries, have made radical changes in the nature of the mighty river; as the author of the accompanying article has pointed out, the Colorado—under a policy of maximum water development—is being "bound and shackled."

The Colorado River of the West

By Weldon F. Heald

Adapted from the chapter "The Colorado River" in *The Inverted Mountains*
Vanguard Press, New York, 1948

EXCEPT TO THEIR MOTHERS, ALL babies resemble each other. They may differ in temperament, but they betray no sign of their destinies. So it is with rivers. Whether born of mountain snowdrifts or in springs upon a forested plateau, they give no hint that some are potential Mississippis while others will lose themselves in desert sands.

Thus the Colorado River is conventionally born high among the snowy peaks of Colorado, Utah and Wyoming. It starts in a thousand sparkling trout streams cascading down mountain valleys between banks of spruce and pine. Not until the arid interior basins are reached is there a suspicion that the Colorado in maturity will become the most tempestuous and inhospitable, yet the most fascinating, of all our rivers.

The Colorado's antisocial tendencies appear early in life. Each little childhood stream, upon leaving the high country, burrows into a canyon. These canyons join larger canyons, which deepen and are gathered together into stupendous barren gorges pouring their flood waters into the main channel of the river thousands of feet below the surface of the surrounding plateaus. There, at last, the full-grown Colorado River of the West reveals itself—an incredible giant, resembling no other river on earth.

With irresistible power and violence this colossus has torn a gash in the surface of the earth a thousand miles long. Between its youthful upper reaches above the town of Green River, Wyoming, and its placid, but still vigorous, old age below Parker Dam on the California-Arizona border, the Colorado has cut a rugged, almost inaccessible course through nineteen tremendous gorges. The greatest of these is the Grand Canyon. Including Marble Canyon, directly to the north, the Colorado here flows for 278 miles between continuous walls of naked rock, 3000 to 6000 feet high.

Although geologists tell us that this same giant has been cutting, gouging and excavating for many millions of years, it shows no trace of weariness. More than a thousand rapids thunder and rage deep in the heart of the canyons, while treacherous whirlpools and sand waves constantly form and disappear on the river's restless surface. With relentless, determined energy the Colorado is still attacking the sandstone, limestone, shale and lava in its bed and, in the Grand Canyon, is sawing through glasslike granites of the Archean Era—some of the earth's oldest rocks. Rains, snows, frosts, winds, and rock decay are the river's allies, helping to widen the canyons and carve the land into a fantastic labyrinth of gorges, buttes, mesas, pinnacles and arches.

Endless Work of Erosion

Inch by inch, century upon century, the river wears away the rocks, sweeping them down its turbulent flood as boulders, pebbles and silt. The billions of abrasive particles form the sharp edges of mammoth cutting tools; thus the rocks themselves furnish the means of their own destruction. The vast load of sediment transported by the Colorado is probably greater today than when Coronado's lieutenant, Cárdenas, first beheld its muddy waters at the bottom of the Grand Canyon four centuries ago. For man has aided the forces of destruction, accelerating erosion by deforestation and depletion of range land. Careful tests made by the United States Geological Survey in the Grand Canyon show that the river carries almost a million tons of sand and silt past any given point every twenty-four hours—enough material to fill four hundred freight trains of a hundred cars each!

The billions of gallons of water required each year to cut such gigantic canyons and to sluice away the debris stagger the imagination. Yet, paradoxically, the Colorado is a desert river flowing for nearly two thousand miles through a land of little rain. Were the river dependent upon its immediate surroundings for water, the result would be a puny weakling of intermittent flow and sand-choked channels. Such is the fate of most desert rivers. But this roaring, raging giant is an example of heredity winning out over environment—the Colorado derives strength throughout its life from its vigorous, noble birth. Its blood and sinews come from the ring of lofty ranges—the Rockies, Wasatch, Uintas and others—which form an almost continuous border around the outermost rim of the Colorado River Basin.

The basin itself, although constituting fully three-quarters of the river's drainage area, is a region of deserts and semiarid plateaus. It contributes an undependable and fluctuating water supply derived principally from summer thunderstorms. These afternoon

convection showers are usually of short duration, but they sometimes reach cloudburst proportions, turning dry washes into rampaging torrents and pouring their flash floods in ephemeral waterfalls over the canyon rims into the river and its tributaries. Even in little things is this giant violent and threatening.

Winter is the time of low water in the Colorado. As spring arrives the mountain snowpack begins to melt, slowly at first, but with increasing rapidity until by late May or early June a deafening red-brown cataract pours through the narrow canyons, forty to sixty feet above low water mark. A sharp drop follows the spring peak; then, with many minor risings and fallings, the waters slowly recede to the low-water stage of winter.

The average annual runoff of the Colorado River is thirteen million acre feet. But its flow has varied from a low of three thousand cubic feet per second to over two hundred thousand. This means that in spring the river may carry seventy times more water than during the low stage of winter. Twice in the past century the Colorado has almost run dry, and stories are told of men exploring its remote gorges on horseback. Twice in a hundred years the task of canyon cutting has been suspended, the tools abandoned, the rapids silenced as the mighty excavator took well-earned vacations.

A River Disappears

Major John Wesley Powell in his classic report, *Exploration of the Colorado River of the West, 1869-1872*, began page 1 with the terse sentence: "The Colorado River is formed by the junction of the Green and the Grand." Strangely enough, this is no longer true. Although there have been no earthshaking geological disturbances in the region for the past ninety years, the Grand River has disappeared. But Congress, not nature, was responsible.

A resolution presented by the State of Colorado was passed by both houses in 1921. It declared that the Grand River should thenceforth be known as the Colorado. Up to that time the Colorado nowhere flowed within the boundaries of the State of that name. But the Grand, its eastern branch, was strictly a Colorado affair. So, by a stroke of the legislative pen, the ingenious Coloradans captured their namesake river and placed its official birthplace at Lulu Pass in the Rocky Mountain National Park, northwest of Denver. But the Green is a much longer branch than the former Grand, and, though the shorter tributary has usurped the title, old-timers still consider the Green as the logical upper continuation of the Colorado.

The length of the Colorado, measured up its Green branch, is exceeded by the rivers of the United States only

One of the major tributaries of the Colorado is the Green River, shown below in Dinosaur National Monument at its juncture with the Yampa in Pat's Hole. The Green River has its inception in the Wind River Range of west-central Wyoming.

Photograph by Martin Litton

by the Missouri, Mississippi, and Rio Grande. From the headwaters of the Green, amid the glaciers of the Wind River Range in Wyoming, to the mouth of the Colorado at the Gulf of California is nearly seventeen hundred miles—equal to the distance from New York to Denver. The total area drained by the Colorado and all its tributaries is 244,000 square miles, or one-fifteenth the total area of the fifty States of the Union. This river empire comprises large parts of Wyoming, Colorado, Utah and Arizona, as well as portions of southern Nevada and California, and is bigger than all of New England and the Middle Atlantic States with Maryland and Virginia thrown in for good measure.

And so this incredible giant, although unique, is no freak or accident to be dismissed lightly. Rather, the Colorado is one of our greatest rivers. Its barren and uninhabited reaches are unfabled and unsung, but it exerts a powerful fascination upon those who have felt its mystery and explored its secrets. In fact, the Colorado River canyon country is a spectacular scenic and geological wonderland without equal anywhere else on earth.

Barrier to Westward Expansion

It would be strange, indeed, if this exceptional river had not affected the advance of white civilization across the continent. Historically, the Colorado has actually proved to be a greater obstacle to Western migration than all the mountain ranges and deserts combined. Other rivers have been pathways of exploration, arteries of travel, highways of commerce; they have contributed to the development of the country. But not the Colorado. It alone has stood as a barrier across the Far West, preventing expansion, hampering communications, detouring commerce far to the north and south. The hard-riding Spanish conquistadores and zealous missionary priests, American pioneers and settlers, railroad builders and modern highway engineers have all been successively turned back from the Colorado River country. The tide of humanity has flowed around the obstruction, leaving an area the size of Maine which is, even today, the West's last great wilderness. Few have seen the innermost recesses of the Colorado's nineteen mighty gorges, while hundreds of side canyons and cliff-guarded mesas remain untrodden by humans. And for long stretches the river still roars down its lonely, mile-deep course exactly as it did before the white man came.

But the days of the wild, free Colorado are about to come to an end. After millions of years of unfettered exuberance, the incredible giant is being bound, shackled, and forced to serve mankind. Water is a precious commodity in fast-growing California and the States of the Southwest, and

In the wild canyonlands of southeastern Utah the Colorado is joined by another major tributary, the San Juan. The aerial photograph below shows the confluence of the two rivers, with the San Juan entering the Colorado from the left.

Photograph by A. E. Turner, Bureau of Reclamation

One of the nation's grand scenic and scientific spectacles is the Grand Canyon of the Colorado, which has been called "the greatest sequence of geological information in the world," a tremendous 217-mile-long trench cut into the successively older rock strata of northern Arizona, in places down to the very "basement rocks"—granites and schists whose origins are obscured by the mists of a billion years and more. The aerial photograph below covers some 75 square miles of the Grand Canyon, in Grand Canyon National Park, in the vicinity of Grand Canyon Village (upper left in picture) and shows a reach of the river and canyon from the suspension bridge (extreme left in photograph, but not visible) to Crystal Creek (dark diagonal at lower right, downstream). Various roads and trails can be discerned on the south rim of the canyon at the top of the picture. The dark sections of rock adjacent to the river and some of its tributaries are exposures of vastly ancient Pre-Cambrian rocks.

Photograph courtesy U. S. Geological Survey

every drop that can be wrung from the Colorado will be used for irrigation, power, industry and domestic purposes. Already Hoover Dam has drowned the river's strident voice in the depths of man-made Lake Mead, while five other dams obstruct its lower course. Behind the newly completed Glen Canyon Dam the waters of artificial Lake Powell are backing up for 186 miles into the remotest reaches of the Colorado in southern Utah. On the Green and San Juan others are rising, and mammoth future dams are proposed along the river at Marble Canyon, above Grand Canyon National Park, and Bridge Canyon, below it. In every case this means vast engineering works—diversion tunnels, power houses, transmission lines, roads, construction communities—and usually recreational developments.

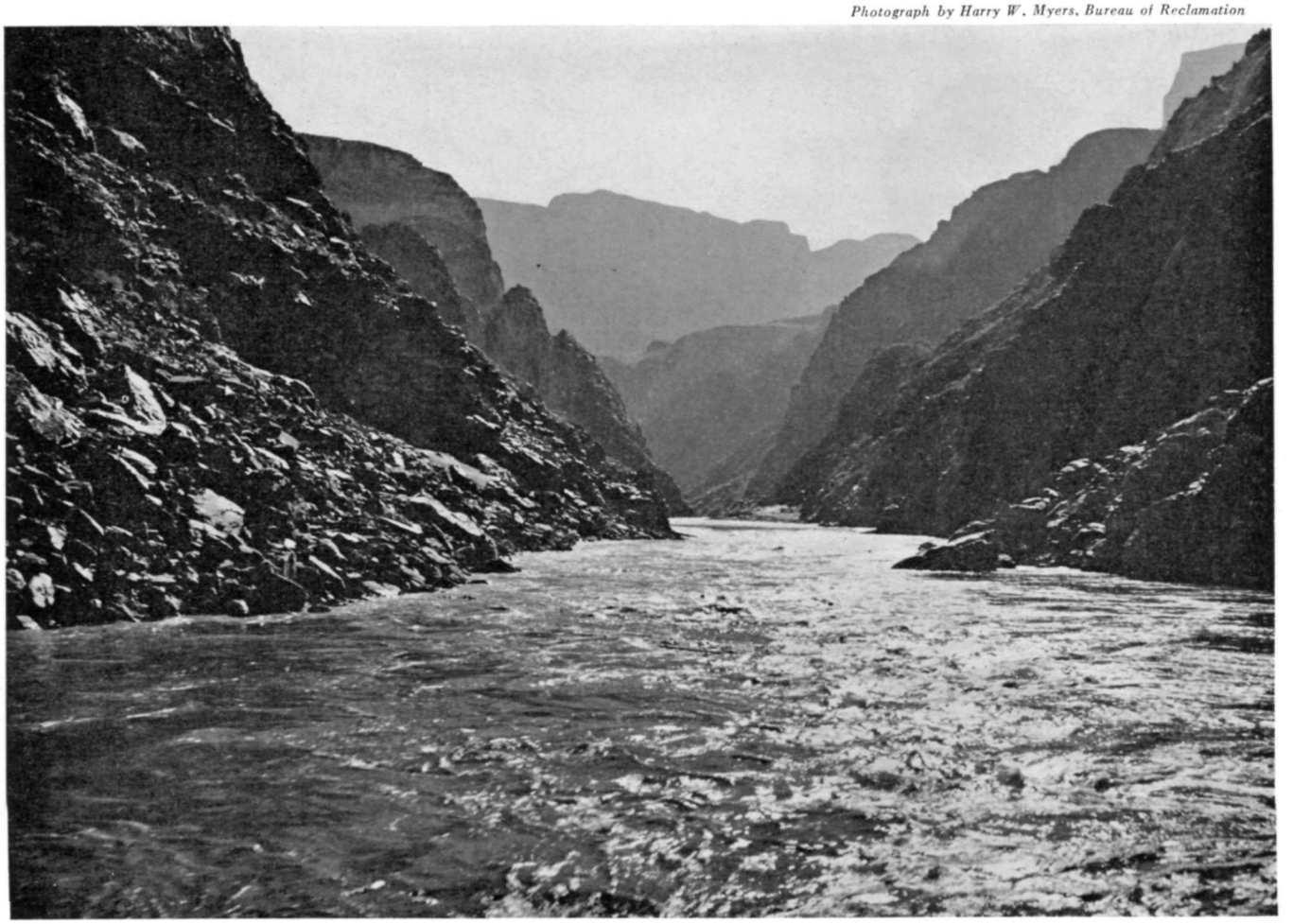
Such a sudden change is almost as revolutionary as the beginning of a new geological era. What was formerly an almost legendary no-man's-land will be opened to multiple resource development on a huge scale. Perhaps it is inevitable that this unique rock wilderness should succumb to man's restless urge to put his stamp of ownership everywhere upon the face of the earth. But in the process the American people will lose a large part of a magnificent and irreplaceable scenic heritage. In our hurry to exploit the area as quickly as possible, some of the world's grandest wildlands are being obliterated, and even dedicated wilderness in existing national parks and monuments is threatened. Only by concerted and determined action now can Americans protect these menaced areas and preserve other superb features of the region for the inspiration, education and enjoyment of the countless generations to come.

We need such places. As the pressure of modern life increases we should jealously guard our fast vanishing wilderness, not destroy it utterly as we are now endeavoring to do. A completely humanized world would be a catastrophe—a sterile and dreary end to man's struggle to change and mold his environment into a likeness of himself.

Those who love the plain, undecorated earth they live on must bow to the mania for reducing varied and stimulating environments to the dead level of human acceptability. This is called progress, and the people who deplore it are apparently in a minority. But to us who knew this incredible giant Colorado and fell under its spell, the loss is a personal one. We mourn its passing as we would that of a close and well-loved friend. ■

From Grand Canyon National Park and Monument the Colorado continues through its mighty gorge toward Lake Mead, the Hoover Dam, and then south through a series of other impoundments on its way to the Gulf of California. The scene below is in the lower Grand Canyon just upstream from the proposed Bridge Canyon dam.

Photograph by Harry W. Myers, Bureau of Reclamation



Photograph by the Author

Moss-draped cypresses are reflected in the still waters of Billy's Lake in southeastern Georgia's vast Okefenokee Swamp. Some 331,000 acres of the swamp are included within the Fish and Wildlife Service's Okefenokee National Wildlife Refuge.

At right, the author of this article is seen maneuvering one of the small "cypress boats" used in Okefenokee Swamp. Powered craft may also be used in exploring the byways of the swamp, but there is a limitation on the horsepower of engines.

Land of the Trembling Earth

By John J. Stophlet

OUR "WINDOW," FRAMED IN CYPRESS trees festooned in long streamers of Spanish moss, looked out on a narrow strip of water where an otter was swimming. Seeing us, he dived. By watching the air bubbles we could trace his every movement beneath the surface. So he swam, until, almost beyond our sight, he surfaced and continued down the lake. It was early morning as we lay in our sleeping bags under a lean-to and watched this little drama on the Big Water in the very heart of the vast Okefenokee Swamp in southeastern Georgia.

A friend and I had received permission to camp in the remote part of the swamp for twelve days during January, just a few years after most of the swamp had been incorporated into the Okefenokee National Wildlife Refuge. One of the patrolmen of the refuge took us and our camping gear in his motorboat to Big Water Lake, where we set up camp in an old tin-roofed lean-to; it was open on three sides and the floor was raised on stakes about four feet above the soggy swamp. But what the place lacked in comfort it made up in the delightful sights and sounds of the abundant wildlife of this great water wilderness.

Early mornings we were awakened by the loud and resonant calls of the Carolina wrens and those wild and thrilling sounds of the wilderness, the long rolling notes of the sandhill cranes, as they bugled in the new day. The red-shouldered hawk screamed overhead by day and the big barred owl, the "voice" of Okefenokee, ushered in the night with its weird hooting conversations echoing through the darkness. Among the birds observed were flocks of robins and cedar waxwings, red-winged blackbirds, short-billed marsh wrens, ruby-crowned kinglets, yellow-throated and pine warblers, swamp and white-throated sparrows, and a host of other small birds. In all, we listed fifty-eight kinds during our stay in the swamp.

Exploring every day in small cypress boats, we paddled about up and down Big Water Lake and out upon Floyd's Prairie. Cruising along the twisting waterways of the prairie, we flushed flocks of gaudy wood ducks that left the water with a noisy flourish. Great blue herons and ghostly white egrets stalked the shallows, always on the lookout for prey; majestic sandhill cranes flew up with long necks extended, while against the blue of the southern sky turkey and black vultures sailed lazily in ever-widening circles.

On the prairie were acres of yellow and white pond lilies—known as "bonnets"—although unfortunately only a few of the white variety were in bloom during our stay; doubtless it is a magnificent sight when all are in bloom. Cypress "bays" or "heads" dotted the prairie; these are the scattered clumps of cypress trees that are a characteristic part of the area. We frequently beached our boats and climbed out to stretch our legs on any solid footing where the mat of vegetation was of sufficient thickness to bear our weight. When we jumped up and down and saw the "ground" quiver and good-sized trees sway back and forth, we knew why Okefenokee is known as the "Land of the Trembling Earth."

Okefenokee has an interesting history. The area is thought to have been a depression at the bottom of a prehistoric sea; later the land slowly rose in the southeastern United States, eventually transforming the region of Okefenokee into a great vegetation-filled bog. The swamp is drained by the coffee-colored waters of the Suwannee River—immortalized by Stephen Foster in song—which empties into the Gulf of Mexico, and the St. Mary's River, pouring its flood into the Atlantic Ocean. There is a low ridge separating the two drainage systems, and the source of the water is a network of subterranean springs. Elevation is 110 to 130 feet above sea level. The swamp contains some 400,000 acres, of which 331,000 are in the refuge; it extends about thirty-eight miles from north to south, and is about twenty-five miles wide. The national wildlife refuge was established in 1937.

Comments of an Early Botanist

One of the early accounts of this great swamp was by the eighteenth-century botanist, William Bartram, who wrote in his *Travels* in 1791: "The river St. Mary has its source from a vast lake, or marsh, called Ouaquaphenogaw... This vast accumulation of waters, in the wet season, appears as a lake, and contains some large islands or knolls, of rich high land; one of which the present generation of the Creeks represent to be a most blissful spot of the earth:

A typical cypress "bay" in Okefenokee National Wildlife Refuge is seen in the photograph below. These trees are actually not in contact with the ground, but rather are rooted in the upper crust of a peat bed which is up to 20 feet thick.

Photograph by Frank Dufresne, Fish and Wildlife Service

they say it is inhabited by a peculiar race of Indians, whose women are incomparably beautiful . . . whom they call daughters of the sun. . . . It is, however, certain that there is a vast lake, or drowned swamp, well known, and often visited both by white and Indian hunters, and on its environs the most valuable hunting grounds in Florida, well worth contending for, by those powers whose territories border upon it." Bartram never saw Okefenokee in person; all his information came from the Indians.

The Seminole Indians once hunted and fished here, and in 1750 were known to have villages on what are now called Mitchell's Island, Billy's Island, and Floyd's Island. Billy's Island, in its heyday, boasted a population of 600 people and a motion-picture theater. It was named for the famous Seminole chief, Billy Bowlegs, who gave a good account of himself in the Seminole Wars. In 1838, General Floyd and his army marched through the swamp and broke up the hideouts of the Indians.

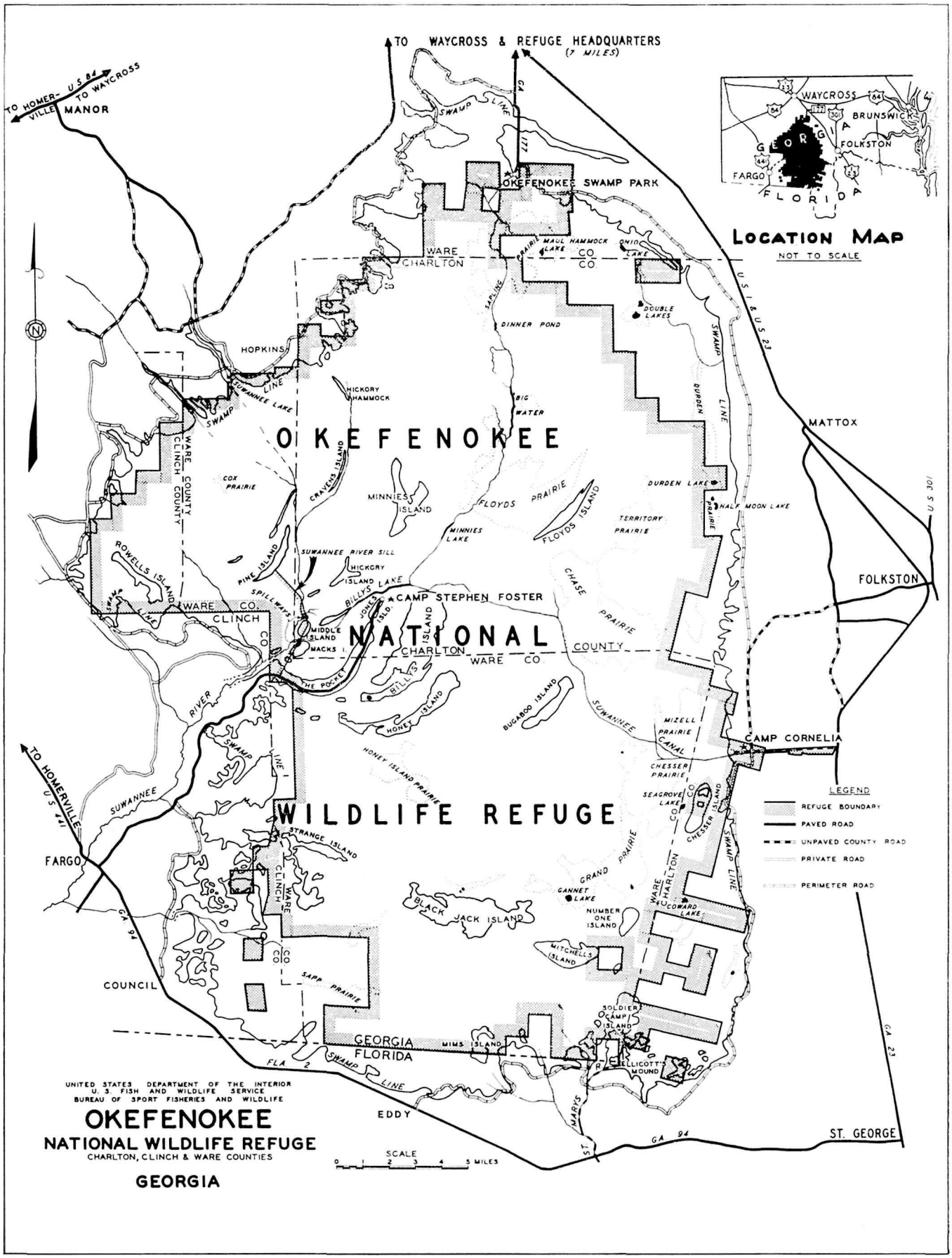
There were farms on several of the larger islands, but much of the food was supplemented by hunting and fishing in the early days. Trapping for otter, raccoon, and other fur-bearers became a lucrative occupation. The era of exploitation began about 1889 when drainage was attempted and a 14-mile canal from the eastern side of the swamp was begun. Lumbering started in 1909 when millions of board feet of choice cypress, pine, red bay and gum were cut. Today, Okefenokee has come full circle. No longer is there heard the clanging of the narrow-gauge railroad: its trestles are now rotting in the swamp; the clearings made in the great bays by the loggers are now springing up with new forest; the old cornfields on the islands are now growing pine trees, and wildlife no longer need fear the gun and trap. The wilderness has at long last reclaimed its own.

A Place of Many Rewards

Okefenokee is a delight to many people—the camper, fisherman, casual visitor, naturalist. But it is to the latter, perhaps, that the swamp offers the greatest appeal. For here, among the

Residents of our Plains States might be surprised to learn that there is more than one kind of "prairie." In Okefenokee Swamp, open marshland like that below is known as "prairie"; it comprises some 60,000 acres of the total area.

Photograph by John M. Hopkins, Fish and Wildlife Service


TO WAYCROSS & REFUGE HEADQUARTERS
(7 MILES)
TO HOMER-VILLE U.S. 84 TO WAYCROSS
MANOR
OKEFENOKEE SWAMP PARK
WARE CO
CHARLTON CO
LOCATION MAP
NOT TO SCALE
WAYCROSS
BRUNSWICK
FOLKSTON
FARGO
FLORIDA
U.S. 1 & U.S. 23
MATTOX
U.S. 301
FOLKSTON
HOPKINS
OKEFENOKEE
NATIONAL
WILDLIFE REFUGE
CAMP STEPHEN FOSTER
CAMP CORNELIA
CHARLTON COUNTY
WARE CO
CLINCH CO
WARE COUNTY
CLINCH COUNTY
TO HOMERVILLE U.S. 441
FARGO
COUNCIL
GA 94
GA 23
ST. GEORGE
GEORGIA
FLORIDA
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EDDY
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0 1 2 3 4 5 MILES
UNITED STATES DEPARTMENT OF THE INTERIOR
U. S. FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
OKEFENOKEE
NATIONAL WILDLIFE REFUGE
CHARLTON, CLINCH & WARE COUNTIES
GEORGIA

moss-draped cypress forests and on the prairies and lakes, is found a variety of wildlife equaled in but few places in the United States. The forty-one kinds of mammals recorded include the black bear, white-tailed deer, bobcat, red and gray fox, otter, raccoon; as late as 1958 there were several reports of the presence of the Florida puma. Would it not be splendid if this great golden cat of the wilderness were here once again? In Bartram's time the red wolf was abundant, but it is now extinct in this area. The beautiful little golden mouse, with its rich, tawny coat, constructs its nest of Spanish moss in trees and bushes in the swamp, while the round-tailed muskrat builds its dome-shaped house on the prairies.

Bird Life of the Swamp

Two hundred and one kinds of birds have been identified, including such spectacular species as the sandhill crane, which nests on the prairies; the wood and white ibis; anhinga; a host of herons and water birds, and the rare swallow-tailed kite. Wild turkeys are found on higher land about the perimeter of the swamp. The ivory-billed woodpecker, rarest of the rare, formerly occurred in the swamp, and it is hoped that it may one day be rediscovered.

Of the amphibians, twenty species of frogs, toads, and salamanders are found. The swamp is rich in fishes, with thirty species swimming its coffee-colored waters. Some of the more interesting kinds are the pygmy and black-banded sunfishes, star-headed minnow, and the inch-long rainwater fish, among the smallest in the world. Reptiles are well represented, with some twenty-eight kinds of snakes and a dozen varieties of turtles. There are timber and diamond-backed rattlers on the islands, and the common cottonmouth moccasin occurs throughout the swamp. The Florida terrapin and painted turtle are abundant, as is the big, leathery, soft-shelled species; but the whopper of the turtle clan is the huge alligator snapper, which sometimes reaches a weight of 150-200 pounds. These monsters, along with the alligators, are the giants of Okefenokee's reptile life.

Alligators are once again abundant in Okefenokee. In the early days these big saurians were hunted for their hides, and many thousands were killed. Their bones accumulated to a depth of several feet at the landing on Billy's Island, where they were skinned. Fortunately, they find sanctuary today in this great refuge, where they have increased with protection. We were lucky to see two while we were there, the great majority being in hibernation during our wintertime visit. In 1949, an eleven-foot individual developed the habit of stalking fishermen and visitors along the canals, but was finally roped and turned over to the Okefenokee Swamp Park in the northern sector of the swamp. Perhaps the old 'gator was seeking retribution for all his slaughtered ancestors! Visitors need not worry overmuch about danger from alligators, however; incidents are extremely rare.

The Okefenokee guide, Dan MacMillion, told an unusual animal story, locale for which was Billy's Lake. He saw a bear enter the water and begin to swim across, with a big 'gator following in his wake. Suddenly the alligator grabbed the bear by his fur collar, and pulled him under just as the bear raked the reptile's face and shoulder with his long claws. The water churned furiously. Both disappeared beneath the surface, but finally the bear emerged and continued swimming across the lake as though nothing unusual had happened!

Otters at Play

At our camp on the Big Water, some of the most interesting animals seen were the otters that swam and played nearby. Every day we observed them breaking the mirrored reflections as they passed down the dark waterways of this rather unreal world. These animals dived under our boat, popping up on the other side to look us over before submerging again. Sometimes they were seen eating a fish or some other creature beside the water; then their wet furs glistened and their streamlined bodies and long tails were seen to advantage. Raccoons were frequently observed peering down at us from on high in the cypress trees, or padding along in shallow water. One evening a 'coon came right through camp, climbing over the boats and looking around for the fish that was in a tin can we had placed in a boat. He finally found the fish and took it from the can while my companion watched, only a foot away from the bold mammal.

On another occasion, as the sun set beyond the cypress forest and we coaxed soggy wood to burn for the evening meal, we heard the squalling of bobcats from the dark woods. It is a sound of the ancient wilderness, and, like the howling of wolves or the clanging of geese in the night, has the quality of unquenchable wilderness—one which strikes a responsive chord in all perceptive listeners. In beautiful and mysterious Okefenokee the wilderness still lives.

Return to the "Outside"

Now it was time to break camp and return to civilization; loading our gear in the boat, we started out of the swamp. By paddling and poling we progressed slowly through the channels connecting Minnie's Lake with Billy's Lake where, years before, Seminole warriors had navigated their dugouts. We saw the abundant "wood kate," the local name for the crow-sized pileated woodpeckers, with their flaming red crests flashing through the trees. At last, twelve miles and five hours later, we reached Jones Island, where we had left our car. It had been an unforgettable experience in the "Land of the Trembling Earth," preserved as the Okefenokee National Wildlife Refuge.

Today, Stephens Collins Foster State Park is located on Jones Island at the west entrance to the swamp. There are cabins, picnic areas, guide service, and boats available. At the east entrance is Camp Cornelia, where a campground is maintained for the public. A publication of the Fish and Wildlife Service, which administers the swamp, says: "But Okefenokee is more than a general wildlife refuge. It represents an attempt to preserve an area of primitive Americana; to defend against further encroachment existing stands of virgin cypress, now among the best in the South, and to reforest sections denuded by woodcutters, turpentine gatherers, and fires; to hold in trust for all the people—sightseers, students, naturalists, photographers, fishermen—this amazing lost world with its beautiful mirrored effects."

We need many more "Okefenokees" where the creatures of the wild may find a home, and where man can find peace and solitude and the spiritual replenishment he seeks. ■

News Notes from the Conservation World

Rampart Dam in Alaska Opposed by Californians

Opposition to the construction of the proposed Rampart Dam on the Yukon River in central Alaska has been expressed in a formal resolution by the California Fish and Game Commission, according to the Wildlife Management Institute.

The towering structure, which is under consideration by the U.S. Army Corps of Engineers, would flood 11,000 square miles, 8,000 of which are prime waterfowl producing habitat. The Commission stated that: "No plan for prevention of fish and wildlife losses has been published and no funds have been made available nor plans initiated for compensating for such losses."

Federal Agencies Launch Anti-Litter Campaign

The Park Service and the Forest Service, in conjunction with Keep America Beautiful, Inc., have recently initiated an intensive anti-litter campaign. A feature of the campaign is a special poster, designed to promote better outdoor manners and to be placed in areas of heavy public use in the national forests and parks.

At a recent meeting in Albuquerque with Fred Kennedy, regional forester of the southwestern region of the Forest Service, Dan Beard, regional director of the southwest region of the Park Service, commented that the cost of litter cleanup in the national park system amounts to some $1,500,000 annually. In the national forests, maintenance and cleanup costs in the southwestern region this year have risen to $421,000.

Farmers Turning to Recreation

Nearly ten thousand farmers and land owners in the United States, in cooperation with local soil and water conservation districts, have established at least one recreation area on their properties during fiscal year 1963, the Department of Agriculture has recently announced.

An additional 9075 land owners said that they also intend to establish recreation areas on surplus farm lands. A total of 39,685 land owners have considered including recreation for profit in their operations in the course of receiving technical help from the Agriculture Department's Soil Conservation Service during the fiscal year.

Almost a thousand district land owners switched from livestock, dairy, crop, fruit and other farming activities to recreational enterprises as a primary source of income—moves which involved 237,691 acres of land. Another 1562 land owners plan to convert 511,780 acres from present livestock and crop land to recreational areas as a primary source of income.

The report, prepared by the Soil Conservation Service, shows that interest in developing rural recreational areas is not confined to areas surrounding expanding cities and towns, but is widespread throughout the 2939 soil and water conservation districts which include 97 percent of the nation's farms and ranches.

National Audubon Society Opposes Animal Bill

In a recent hearing before the Senate Committee on Finance, Charles H. Callison, assistant to the president of the National Audubon Society, spoke in opposition to H.R. 1839, a bill which would provide for the free importation into the United States of wild mammals and birds for exhibit purposes.

Callison stated that the Society opposes the legislation because "it would encourage the needless commercial exploitation of wildlife by importers, dealers, and exhibitors and thus would endanger some species that are extremely rare or even threatened by extinction," and that "it would encourage the crass exploitation and inhumane treatment of animals that characterize many of the so-called 'roadside zoos', 'jungle gardens', and other commercial exhibitors. . . ."

One of the justifications that has been cited in favor of the bill is that it would expedite more rapid customs clearance. However, the National Aubudon Society feels that the delay is necessary to the proper regulation of such imports and that a careful check of all wildlife being imported into this country is essential.

Opposition statements to the bill have also been filed by the National Wildlife Federation, the Wildlife Management Institute, and the World Wildlife Fund.

Two Wildlife Refuges Established

The establishment of two additional wildlife refuges totaling 17,649 acres, and the addition of some 6735 acres to existing refuges has been authorized by the Migratory Bird Conservation Commission. The new areas are the 10,952-acre Pee Dee refuge in Anson and Richmond counties, North Carolina, and the 6697-acre Browns Park refuge in Moffat County, Colorado.

Refuges for which additional lands have been added are: Red Rock Lakes Refuge, Montana, 1662 acres; Rice Lake Refuge, Minnesota, 2562 acres; Ruby Lake Refuge, Nevada, 1488 acres; Columbia Refuge, Washington, 160 acres; Sabine Refuge, Louisiana, 129 acres, and Lacassine Refuge, Louisiana, 734 acres.

American Motors Awards Nominations Are Sought

The American Motors Corporation has announced that it is now accepting nominations for its 1963 conservation awards. The awards program annually honors the work of twenty professional and non-professional conservationists, and selects the conservation activities of two non-profit organizations for special recognition.

Ten awards, each consisting of $500 and an engraved bronze plaque, are made to professional conservationists employed by non-profit organizations. Plaques and citations are awarded to ten non-professionals whose conservation efforts are a voluntary expression of good citizenship. Awards of $500 go to two non-profit organizations for outstanding achievements in special conservation projects.

In addition, the awards are intended for persons whose conservation efforts have not received public recognition. Nominees should be conservationists whose work is less known rather than those who have previously received national recognition or have achieved prominence in their fields.

Nominations for awards should be submitted by letter before November 15 to: American Motors Conservation Awards Committee, Room 700, 555 Madison Avenue, New York 22, New York. Endorsements or other supporting evidence of achievement may accompany the nominations.

National Park Service Training Centers Named

The National Park Service recently named its two new training centers at Harpers Ferry, West Virginia and at Grand Canyon, Arizona in honor of the first and second directors of the Service, Stephen T. Mather and Horace M. Albright.

The Stephen T. Mather center at Harpers Ferry, established this year, con-

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The Editor's Bookshelf

SOLDIER & BRAVE. The National Park Service. Harper & Row, New York. 1963. 279 pages, illustrated. $6.50.

Every schoolboy knows that the American Indian is the hunter and warrior with feather bonnet and tomahawk, galloping bareback after buffalo or swooping down with bloodcurdling war-cries on the wagon train. As the schoolboy grows to adulthood he may think of Rousseau's concept of the "noble savage," or perhaps that of James Fenimore Cooper, who saw the Indian as the noble son of nature finding his purest incarnation in the gallant and virtuous Uncas, the "last of the Mohicans." Hollywood and television have unfortunately been guilty of perpetuating these mythical and unfair stereotyped views.

In reality, Indian affairs include many of the darkest pages in the history of the United States. With the opening of the Santa Fe Trail and the westward migration, the Indians were forced off their lands. The resulting clash between the white man and the Indian led to almost a century of continuous warfare. The United States government tried to destroy the Indian way of life and in its stead to impose the white man's ways, customs, and social and political institutions—all of which largely failed and brought only bitterness and resentment. The relationship that developed between the government and the Indian population was essentially that of guardian and ward—a paternalistic relationship that constituted an affront to human dignity.

Today as a group, Indians have only half the level of education, only two-thirds the life expectency, less than a third the income, and seven to eight times as much unemployment as the national average. During the last thirty years, the Indian population in the United States has increased about sixty percent, to well over half a million people. Roughly two-thirds or about 380,000 live on reservations and the balance have been assimilated into other communities and into the mainstream of American life and custom.

The question over whether there should be a complete assimilation or cultural autonomy of the Indian population has resulted in major debates. There is much to be said for encouraging the preservation of the Indian heritage beyond simply its material ruins, just as myriad foreign heritages are preserved in this country. It is through that segment of the population that wishes to retain its cultural autonomy that the Indian can make a rich contribution to American life.

Soldier and Brave consists of two sections. The first is devoted to a brief and absorbing account of the Indian and military affairs in the trans-Mississippi West. To condense material that occupies a multitude of volumes is no small task but it has been admirably accomplished here by the historians and archeologists of the Park Service.

The second section is an especially useful guide to the historic sites and landmarks of the epic struggle, some of which are in danger of extinction. A careful listing, by States, has been made of missions, schools, forts, trading posts, reservations, and battlefields with information about their dates, location, ownership, and present condition. In addition to the sites which are presently in Federal ownership, those sites which are eligible for inclusion in the national park system are also listed as well as those which have historical value but are not of sufficient importance to be brought into Federal ownership.

The volume is profusely illustrated with photographs of the landmarks and of the men—both Indian and white—who fought and died. Nine maps are also included.

Ray Allen Billington, author of the widely used textbook on western history, *Westward Expansion*, and professor of history at Northwestern University, has written an excellent introduction to *Soldier & Brave* and Conrad L. Wirth, director of the National Park Service, has provided a foreword to the volume.

—*Judy H. Caldwell*

ALL ABOUT CAMPING. By W. K. Merrill. The Stackpole Company, Harrisburg, Pennsylvania, 1962. 262 pages. $3.95.

From a former U.S. Park Ranger comes this handy manual for both the experienced and the tenderfoot camper. It includes advice on all types of camping from auto to back-packing, with checklists of equipment and advice to hunters and fishermen. Also included is a bibliography for those readers who want more detailed information on some particular phase of camping. Secretary of the Interior Stewart L. Udall has written a brief foreword for this excellent reference book and guide. —*J.H.C.*

WILD CASCADES

By Weldon F. Heald

Enter a land of glaciers and rushing cataracts, where mirror lakes reflect images of thousands of acres of nearly vertical forest land. *Wild Cascades* takes you on a journey to Washington's Glacier Peak-Lake Chelan parkland; the incredible country that is potentially our greatest National Park. Weldon Heald points out—and documents with perceptive text and photographs—why this scenic world must be protected . . . before it is too late.

Format: 9 x 12 inches, 128 pages, including ca. 80 illustrations, 16 in color. Price: $7.50.

Also just published by Sierra Club:

The Last Redwoods: The Photographs and Story of a Vanishing Coastal Scenic Resource by Philip Hyde and François Leydet. Including 80 illustrations, 8 in color. Price, $17.50. Special price until December 31, 1963: $15.

Ansel Adams: Volume 1, The Eloquent Light by Nancy Newhall. Nearly 100 illustrations and 176 pages. Price, $20.00. Special price until December 31, 1963: $15.

Sierra Club, Mills Tower, San Francisco 4

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ducts a program concerned with methods, skills, and techniques for uniformed personnel in the field of interpretation.

The Horace M. Albright Training Center at Grand Canyon is a basic training center for uniformed personnel during their early careers in the Service. It was established in September, 1957 and formerly had temporary facilities in Yosemite National Park; it will move into its new buildings in Arizona during the fall.

Director Conrad L. Wirth of the Park Service said that both centers will be used for other Park Service training activities, and also expressed his hope that other Federal and State agencies will be able to utilize the centers' facilities.

Kirtland's Warbler Preservation Is Dedicated

Dr. Ira N. Gabrielson, president of the American branch of the World Wildlife Fund, and Edward P. Cliff, chief of the Forest Service, were the speakers at dedication ceremonies held during early summer for the Kirtland's Warbler Management Area in the Huron National Forest in Michigan's Lower Peninsula.

The dedication marked the first time that the Forest Service has instituted special forest management practices in an area to benefit a songbird. Now on the world list of endangered species, only about 1000 of the birds are believed to be extant. The entire population winters in the Bahama Islands, and nests on forest lands in Michigan.

The Michigan Department of Conservation and the U.S. Forest Service will provide more nesting areas for the bird and will also effect special management programs in the Huron National Forest and adjoining State forest lands to prevent the Kirtland Warbler from becoming extinct.

Strip-Mine Control Bill Passes in Pennsylvania

The year 1963 could conceivably be the dawn of a new conservation era in Pennsylvania, as well as in all States where coal is mined by stripping.

On July 16 Governor Scranton of Pennsylvania signed a strip-mine control bill which ended a bitter twenty-year conservation battle. State conservationists and sportsmen expect that the terms of the new law will spell the end of the land destruction and stream pollution which have resulted from the activities of the coal-stripping industry.

The new law calls for the restoration of stripped land to its original contour, with the exception of mountainous terrain, where an application may be approved for terrace backfills. Coal strippers will be licensed, and licenses are subject to revocation for violations of the law's provisions; both operator and landowner will be liable for violations, unless liability is specifically limited to the operator.

Under terms of the law, a five-man Land Reclamation Board will be established, which will review the required detailed plans of strip-mine operators; these latter will be charged with responsibility for the prevention of stream pollution through acid drainage or siltation, under penalty of fine or imprisonment.

Two Are Appointed to Parks Advisory Board

Two appointments to the Advisory Board on National Parks, Historic Sites, Buildings and Monuments have been made in the recent past. First of these, made in August, was that of Edward J. Meeman, editor emeritus of the Memphis, Tennessee, *Press-Scimitar* and conservation editor for the Scripps-Howard Newspaper Alliance.

Mr. Meeman, native of Evansville, Indiana, is chairman of the board of the National Conference on State Parks and vice-president of the American Planning and Civic Association.

Second appointment, in September, was that of Paul L. Phillips, International President of the United Papermakers and Paperworkers, AFL-CIO, and a trustee of the New York State College of Forestry, Syracuse University, Mr. Phillips is a native of Strong, Arkansas.

Your National Parks Association at Work

Board of Engineers Holds Potomac Basin Hearings

On September 4, many hundreds of persons—home owners, businessmen, farmers, sportsmen and conservationists—from various parts of the Potomac River Basin attended a Washington, D.C., hearing called by the Board of Engineers for Rivers and Harbors of the Corps of Engineers to take oral and written statements and petitions on Corps plans for *16 major, deep-drawdown dams on the* Potomac River and its tributaries. The National Parks Association and other national, regional and local organizations had previously urged such a public hearing prior to any final decision by the Corps on its big-dam plan for the Basin.

The Corps has contended that the 16 big dams are necessary to insure adequate water supply for Washington and pollution abatement in the river, and that the reservoirs created by the big dams would constitute prime recreational areas.

For the National Parks Association, President Anthony Wayne Smith recommended that the big-dam approach to the water problems of the nation's Capital be laid aside entirely and that an intensive attack on pollution of the Potomac and its tributaries be substituted. He pointed out that ample additional water would be available in the upper portion of the Potomac Estuary as needed, after treatment by distillation for removal of pollutants. Such treatment, he said, is now economically feasible.

Opponents of the Corps plan pointed out that the reservoirs created by the big dams would all be subject to severe drawdowns during dry weather, and that their value for recreation would be very low; they also stressed the adverse impact of the Corps plan on the economic and historic values of the Potomac River and its basin, and the vast dislocations implied for its human population.

Distributed at the hearing was the National Parks Association's printed analysis of the Corps of Engineers District and Division Engineers Potomac River Basin Report—its formal answer to the Corps plan and its alternatives to the big-dam approach to the water problems of the Potomac River Basin. This analysis, concurred in by a number of the major national conservation organizations, is still available to readers of the Magazine in limited quantity; one or more copies (up to six) will be furnished upon request.

The Prairie National Park

During August, NPA President Anthony Wayne Smith submitted, on invitation, his views concerning *S. 986*, a bill to create a Prairie National Park in Kansas. Hearings on the bill were being held at the time in Washington by the Senate Committee on Interior and Insular Affairs' Public Lands Subcommittee.

Few would quarrel with the objectives of the bill, he indicated; the creation of a tall-grass prairie reserve, with its primitive flora and fauna intact or restored, would seem highly desirable.

In examining the methods by which such a park might be put together in a settled area, the analysis of the bill indicated that Prairie might be the place to experiment with a restriction on the exercise of the power of eminent domain, and to make land procurement dependent on the voluntary assent of owners.

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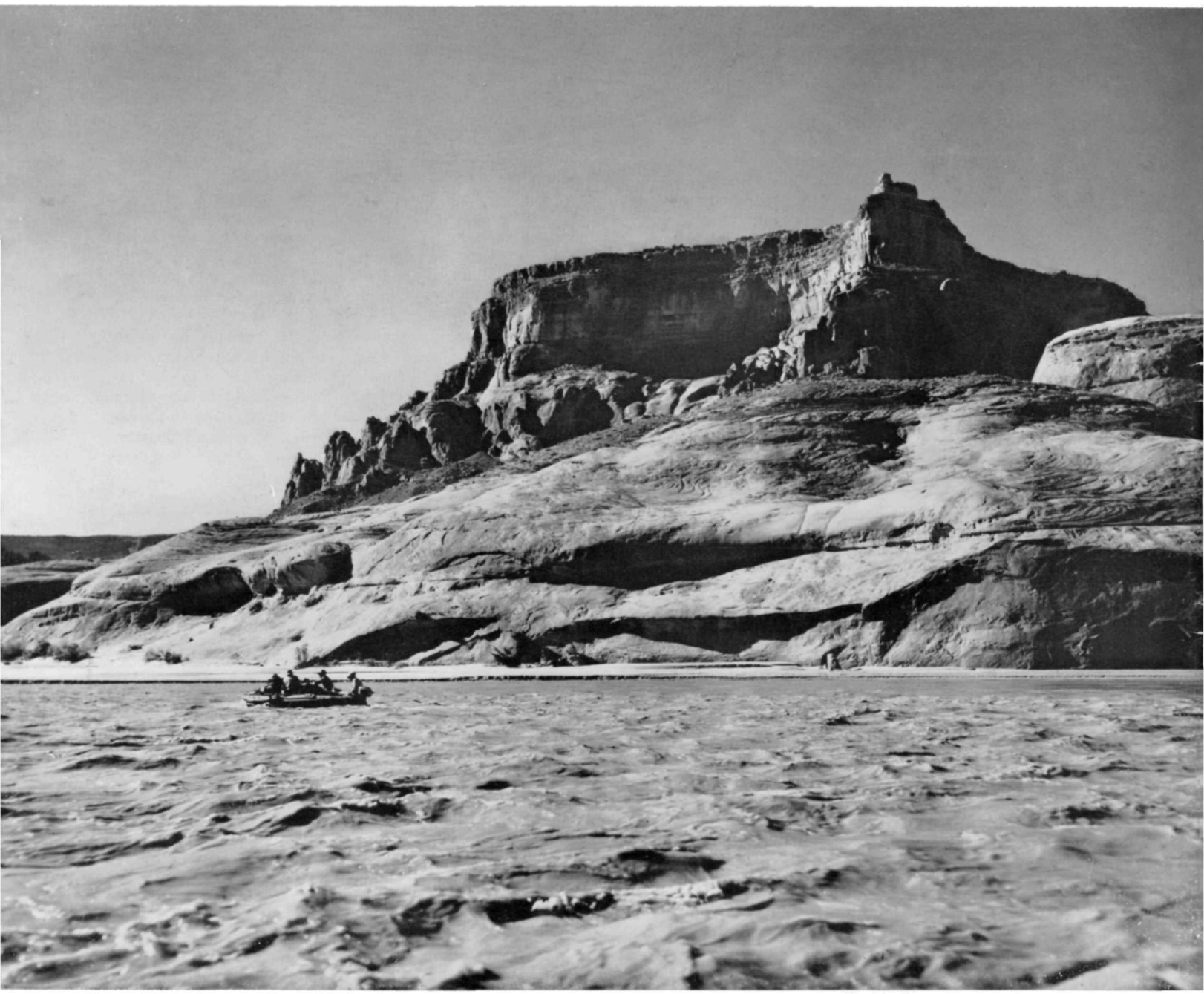
velopmental values generally in river basin planning these days. Hydroelectric power and heavily subsidized irrigation are not the only objectives to be sought in regional planning; the values of life and beauty as they now exist in these regions are important to a genuine civilization, and should be the integrating consideration. A comely, tranquil, and spacious living environment for man and his fellow creatures, plant or animal, should be the central objective.

On these judgments of value, we must ask ourselves also whether the Marble Canyon Dam above the park should ever be built. There are many who regard this reach of the Colorado River as much too valuable to be wantonly thrown away. For our part, in these pages we shall try to present the beauties of the remaining untouched reaches of the Colorado River between Lake Mead and Lee's Ferry by written word and photograph so that our readers, and all the American people, may judge and decide for themselves the course they wish to pursue. With respect to Bridge Canyon, however, our choice and our duty must be clear; if the national park tradition is to survive, then Bridge Canyon Dam must never be built.

One final word of warning, for those who love the natural beauty of California. The Pacific Southwest Water Plan is a proposed "package deal" by which developmental interests in California would be given compensation in the form of enormous water impoundments and aqueducts in California in place of water diverted from the Colorado River into central Arizona. Impoundments on the Trinity River, the Eel River, and elsewhere are involved; water will be transported from northern California to southern California and even a thousand miles into central Arizona itself. We shall analyze the implications of this vast program in its many aspects in the months and years ahead. *A.W.S.*



Photograph by Stan Rasmussen, Bureau of Reclamation

A boating party passes an eroded formation of Carmel and Navajo sandstone at the south end of the Kaiparowits Plateau on the Colorado River.