

# NATIONAL PARKS *Magazine*



A Horseback Party at the Garden Wall:  
Glacier National Park, Montana

*November 1967*

# The Red Rock Recreation Lands

AT ABOUT THE TIME that this issue of the Magazine is being placed in the mails, a group of public officials will be gathering at an overlook about 15 miles west of Las Vegas, Nevada, to participate in the dedication of some 70,000 acres of mountainous public domain as the Red Rock Recreation Lands, managed primarily for outdoor recreational and protective purposes by the Bureau of Land Management in the Department of the Interior.

Formal dedications of publicly reserved lands are, as a rule, somewhat anticlimactic in the conservation world, inasmuch as dedication is usually preceded by the lengthy processes of authorization, which are commonly followed by conservationists. We think, however, that the dedication of the Bureau's Red Rock unit must be granted an exception. The event will seem to many conservationists an encouraging straw in the wind indicating the possible future course of management for suitable portions of those public lands which are to be retained by the Bureau and administered primarily for their recreational and natural or scenic values.

For the still-vast and often highly scenic reaches of the public domain—the unappropriated remnants of an even more spacious earlier Western America—constitute, with their many other values, a largely untapped reservoir of outdoor recreational potential and important natural and human history sites. The Bureau of Land Management has, under its multiple-use land management program, and within a limited budget for the purpose, developed some recreation sites, and has made a valiant effort to afford a measure of protection for natural history and historic treasures on its lands; and for these efforts conservationists have been grateful. But the great potential of the Bureau in this field of public benefit has never been realized, in part at least because of a welter of sometimes conflicting laws regarding the use and disposition of public domain.

The Red Rock Recreation Lands seems very well qualified for public identification. The area has been examined and reported on by many Nevada conservationists and civic groups, by scientists, by specialists in outdoor recreation, and by Department of the Interior field personnel. It has been judged outstanding in its outdoor recreational potential and its natural history and archeological interests.

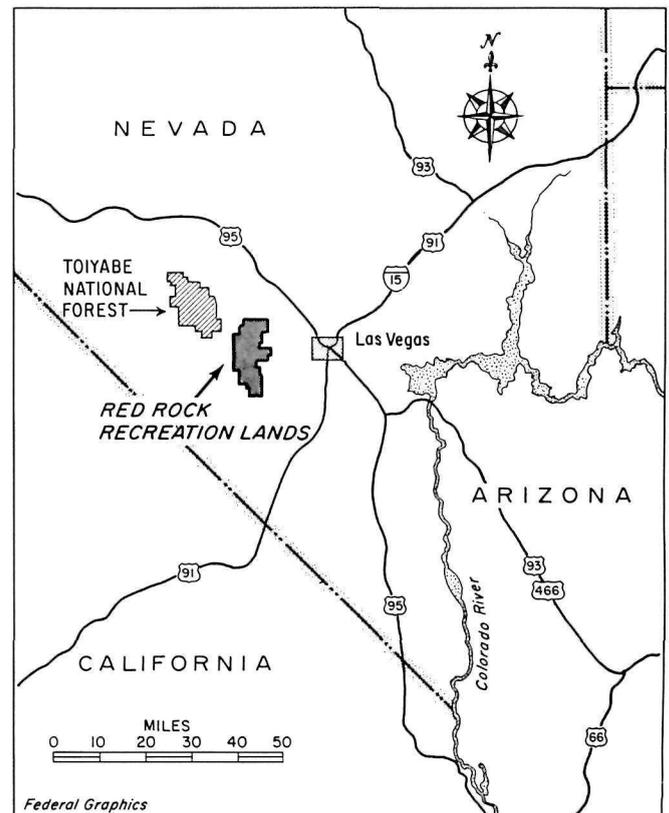
Sitting astride the middle portion of the Spring Mountain Range of arid southwestern Nevada, the terrain of the unit supports desert or near-desert plant life in its lower elevations, and a modest evergreen cover in its higher parts, which culminate in several impressive peaks. The deeply eroded and colorful sandstones, shales and limestones of the range, and the wild quality of many of its parts, offer the kind of outdoor challenge that increasing numbers of Americans find difficult to reject.

In such desert-and-mountain situations in southwestern America it is not uncommon to find biological communities which are hemmed in by formidable barriers of climate and terrain; isolated communities that are often of great interest to botany and ecology. The Red Rock lands possess such a plant enclave, in particular one small and fragile area which the Bureau has deemed worthy of protection as

unique, and in which scientific study is the primary indicated use. Geologically, the Spring Mountains exhibit a sequence of rocks ranging from the earliest well-identified period of earth history to the relatively recent; while, zoologically, the new Recreation Lands supports populations of the more common birds and small mammals of the arid and semi-arid Southwest, and in addition such larger species as mule deer, elk, desert bighorn sheep, cougar, bobcat and the wild burro.

Within a circle of roughly 250 miles radius, centered on the new Recreation Lands, lie many national parks and monuments. From the point of view of those conservationists whose particular interest lies with the welfare of the national park system, the Bureau's specially designated area, and any other Recreation Lands as might be designated in the future, are capable of playing an important part in the concept of regional planning for the national parks. Such planning looks, as our members know, toward distribution of outdoor recreation pressures throughout the regional setting of a park or monument rather than its destructive concentration on relatively small areas.

In commenting on the designation of the Bureau's new area, the Secretary of the Interior has expressed the thought that "establishment of the Red Rock Canyon Recreation Lands marks another milestone in the history of the public lands." We concur fully in this view, and here express the hope that the Bureau's new Recreation Lands in Nevada will prove only the first among others of the kind.—P. M. T.





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Front cover photograph courtesy the *Hungry Horse News*

Today's park visitors have exchanged the sway of their grandparents' horses for the drone of automobile engines and a quick look at the most impressive of America's natural beauty spots, says the author of an article in this issue. Moreover, the small percentage of visitors wishing to ride the horse-trails of the parks on their own mounts sometimes feel that they somehow arrived at the wrong place. The author outlines some simple and inexpensive solutions to a park problem.

## 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 35,000 members throughout the United States and abroad. It was established in 1919 by Stephen T. Mather, the first Director of the National Park Service. It publishes the monthly *National Parks Magazine*, received by all members.

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

Dues are \$6.50 annual, \$10.50 supporting, \$20 sustaining, \$35 contributing, \$200 life with no further dues, and \$1000 patron with no further dues. Contributions and bequests are also needed. Dues in excess of \$6.50 and contributions are deductible for Federal taxable income, and gifts and bequests are deductible for Federal gift and estate tax purposes. As an organization receiving such gifts, the Association is precluded by law and regulations from advocating or opposing legislation to any substantial extent; insofar as our authors may touch on legislation, they write as individuals.

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NATIONAL PARKS ASSOCIATION, 1300 NEW HAMPSHIRE AVENUE, N. W.,  
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# Pleasure Horses in the Parks

By Eldon Bowman

ONE OF THE THRILLS, or chores, of visiting the Western national parks sixty years ago was that of getting acquainted with a trail horse. To some it was the most agreeable means of doing the park; to others it was to be endured if the sights were to be seen at all. Endured or enjoyed, the ride over park trails was part of the experience that could not be felt by standing on the hotel veranda and simply looking into the mountains.

On horseback, our grandparents captured the dimensions of time and distance, heights and depths. Indeed, they could hardly help but be forcefully impressed by these dimensions as they numbered miles in hours and labor of their mounts, not in minutes and the drone of engines. But times have changed. Now, the automobile can deliver us to many of the scenic wonders that make a trip to a park so memorable. We have exchanged the sway of our grandparents' trail horses for that of our cars and the all-too-often fleeting glimpses of majestic scenery through side-windows. We see in a day what took them two weeks to visit; we see, while they experienced; we tend to take away impressions, they took with them a keen appre-

ciation and understanding of what they had seen, because they had also experienced it.

What has happened to the horse since it has been replaced by the car? Can visitors no longer expect to see and enjoy the parks in such a singular way? The horse is still with us, used by the National Park Service to patrol the back country and to supply remote lookouts and trail crews at work. Horse concessioners in the parks offer a wide variety of rides for hire by visitors, from an hour's ride to an extended pack trip. Who, for instance, would ever forget his descent into the Grand Canyon, as seen from the incomparable vantage point atop a trusty, sure-footed mule? Yet something is lacking in our picture of today's horses and their use in the parks. Privately owned stock is not often seen on the trails.

Two reasons may offer an explanation. First, the requirements and demands of the visiting public have been in other directions. Consequently the emphasis of the Park Service has followed the requirements. Second, private horse owners may be doubtful or even mistaken about the use of their own stock on park trails. Even those who live in the vicinity of some of our Western parks maintain the incorrect notion that they are not welcome. Such an idea is not difficult to come by when signs and facilities indicate the welcome afforded boat, trailer, and camper owners, backpackers and even pet owners. Driving up to the entrance station with a loaded horse-trailer and asking the location of public facilities and trails is likely to draw a perplexed stare, a stammer, and a request to pull to the side while the ranger on duty calls someone to find out what to do. And there the horse owner sits as the traffic flows by, with a growing suspicion that he is in the wrong place; that it might be better if he went somewhere else.

The sustained and increasing interest in riding and owning pleasure horses is a well demonstrated fact. Facilitating this interest should present only a modest problem to the parks in comparison with others they face, and one in which the solution would benefit both parks and horsemen. While proper use of the back country has always been of cardinal interest to the parks, increasingly, in these times of easy transportation, park personnel has found it necessary to educate and encourage visitors to leave the roads and take to the trails.

## *Potential Friend of the Parks*

It can be fairly argued that the ultimate success of the wilderness areas concept hinges largely on the willingness of the outdoor public to properly use these areas. Here the parks have a potential friend in the private horse owner whose presence on the trails creates no really new problems, but harkens back to the experience gained by the Park Service in its early days. For his part, the horseman is keenly interested in places to ride. The parks offer him not only some of the country's most spectacular scenery but the experience of feeling the wilderness as can few others. He may come well supplied with pack horses and all the gear necessary for an extended pack trip intending to take the "grand tour" as grandpa may have done. Or he and his family or friends may want a base camp from which they can transport their horses to various areas of the park for shorter rides to its scenic points. In either case

he should be made welcome with information and accommodations particular to his needs.

Facilities for private horse parties can be simple and inexpensive. They consist of loading ramps or docks and an area in which to unload and park vehicles. Water and a place to keep the stock, both adjacent to the loading area, and a campground complete the list of essentials at the trail head. At camps along the trail, a corral or place to tie up the horses is sufficient. Where grazing is possible and permitted, a short drift fence can sometimes be used to supplement natural obstacles in keeping the horses from too easily hitting the back trail.

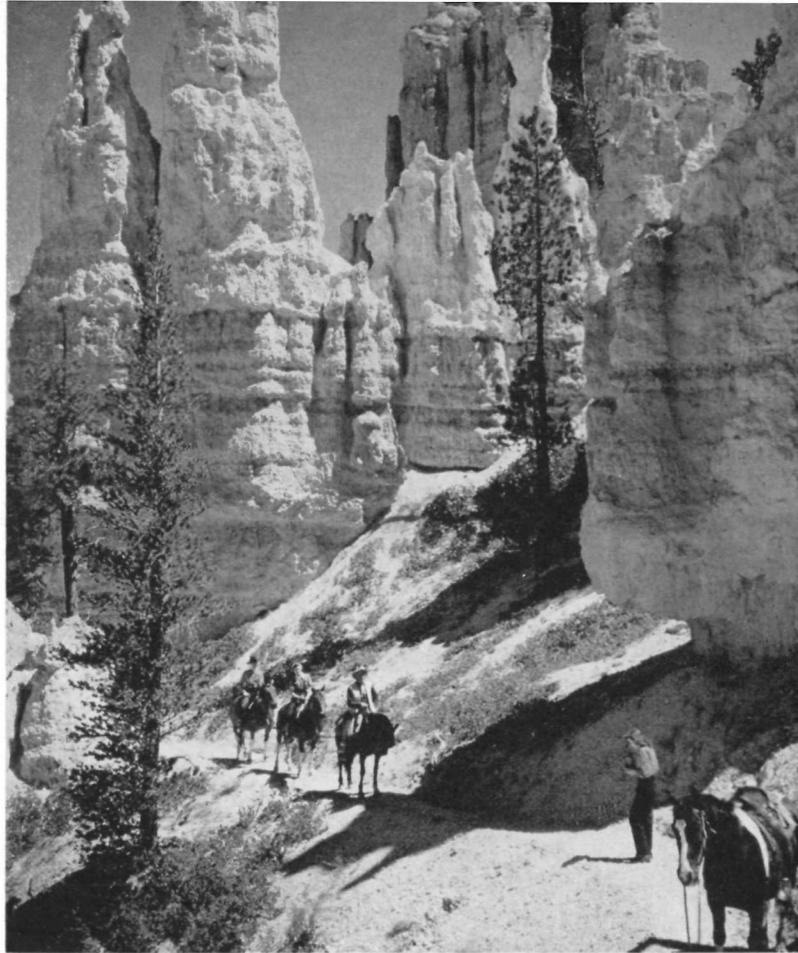
It is always easier to write about problems and needs than to effect their actual solution and accommodation. While the purpose of this article is to point up a need to offer facilities to a portion of the visiting public who own their own horses, it also offers a practical solution demonstrating the simplicity and modest cost involved in meeting that need.

### *The Logging Ranger Station*

One example of these facilities can be found in Glacier National Park. Logging Ranger Station is located on the western side of the park, 20 miles by dirt road from the heavily-used areas around Lake McDonald. The road passes between the station, an old log building pre-dating the park, and a small unimproved campground. A creek flows by, furnishing water for both station and campground, and a trail-head is located there. The station has a barn, corral and pasture for Service use, but no facilities previously had been provided for horsemen. They took their chances unloading on the road or wherever a bank afforded an opportunity. Trucks and trailers were either parked in the campground or along the narrow road itself. If staying overnight, horses were tied to trees in or near the campground. Although horsemen are as careful to clean up as most back-country campers, still hay, manure, dust, tire ruts and skinned trees tended to detract from the appearance of the camp, persuading other campers to look elsewhere for a quiet untrampled spot in which to pitch their tents.

In 1965 the ranger and fire guard, who comprise the station's summer personnel, undertook as part of their regular maintenance program to erect facilities for private horse parties. No special tools or equipment were called for; a post-hole digger, shovel, tamping bar, axe, saw, brace and bit, hammer and large spikes composed the list. A pick-up truck and plenty of standing dead lodge-pole pine and an occasional tamarack completed the necessities. The combined station yard and pasture offered plenty of room for parking and unloading. Taking advantage of a sharp-cut bank in the yard, a log and plank-faced dirt loading dock was constructed. A pole tie rack was conveniently installed near the dock.

Across the road and to one side of the campground an area was cleared of litter and deadfalls, and two pole corrals were constructed with sliding pole gates. A small stream, unused by the campground, ran next to the corrals making it unnecessary to carry water to the horses. The corrals were placed so as to be visible from several camp-



*A horse-trail party in Bryce Canyon National Monument: on horseback, dimensions are not measured against the drone of an engine.*

sites, making it easy for riders to keep an eye on their horses. For several reasons wire was judged unsuitable, although it was available. Both barbed and smooth wire present a hazard to wild animals. Often elk will use the wire to help strip the velvet off their antlers and in the process pull down the fence, dragging it for miles through the brush. A second reason for not using wire is that it is hard to see when wandering around in the dark of night under the trees. A nasty cut or burn is likely to result from an encounter with the wire. Third, but by no means least, wire is not as pleasing to the eye as a well-constructed and proportioned pole fence. In this instance the pole fence fitted this heavily wooded area, and offered the added useful advantage of being a tie rack as well.

At the head of Logging Lake, some twelve miles in by trail, the area's principal campground is located. Here two similar pole corrals were constructed in 1965. That season on several occasions loose horses appeared by dawn's early light outside the station pasture. Usually by mid-morning a rider showed up to take the wanderer in tow and say that when turned loose to graze on the swamp grass at the head of the lake, at least one horse had made a successful "end run" and had headed out. To meet this situation, two drift fences were constructed the following season. Again lodge-pole pine was used as most readily available. One fence limited the horses to a grassy area outside camp and the other cut the trail a hundred yards down the lake shore. Both were short, causing no difficulty to deer or elk, were largely hidden from view, and were

evidently successful in holding stock; no more strays appeared at the station that season.

These facilities gave some obvious advantages to the station staff. The campgrounds and their surroundings were easier to maintain. The corrals there made it easy for horsemen to move in and keep their stock without disturbing other campers. Unloading horses in the station yard created an ideal situation for the horsemen to talk with the ranger at leisure. Quite often these contacts were made in early morning or late afternoon after normal duty hours were over. Even after dark the unloading and loading were accomplished in good order in the station yard. Neither campground nor station was unduly disturbed by a process which can sometimes be a noisy, prolonged and exasperating affair. Of equal if not greater importance, the whole thing could be done safely, without exciting the horses.

### *The Former Procedure*

Contrast this procedure with the ranger's previous experience before the facilities were installed. He would hear a truck and shouting voices coming from the campground. Grabbing a flashlight or lantern, he would attempt to aid in the unloading process. To the visitor unfamiliar with the area the ranger often appeared as an intruder coming out of the darkness to tell him to move his truck somewhere he could not see, to keep the noise down, and other impossible suggestions under the circumstances of that late hour. Fortunately, more often than not a sense of humor and accommodation prevailed on both sides, and somehow the horses got unloaded and the visitors bedded down for the remainder of the night. At best, however, the ranger's contact with the party was less than satisfactory. Often, in their hurry to get away the next morning, the party would forget to cross the road to the station and give the ranger the necessary information about their trip.

With the new facilities, the usual procedure started when a horse party drove into the campground across from the station. Stopping in the entrance road, members would look around for the best place to unload. Seeing no satisfactory spot they would be directed by a camper or a notice on the bulletin board to unload across the way in the station yard. If the ranger or fire guard were there, they joined the group as the stock was being unloaded. Without fail, owners of trucks and trailers appreciated knowing that their vehicles could be parked away from the campground, and where there would be little chance for the vehicles to be tampered with while the party was away. With this happy news under their belts the horsemen were invariably in a good mood to discuss their plans, voluntarily offering the information essential to accomplishing the ranger's task of knowing "who is where" in the back country.

Over steaming cups of coffee brought out by the

ranger's wife, horses and equipment could be checked, the party sized up and the latest information exchanged. How was the trail? Any fresh grizzly sign about? How's fishing? Where's the best place to camp with the stock? These questions are important but easily enough answered. Under most circumstances, however, when the ranger gets around to emphasizing a few simple rules, it is difficult to entirely escape the suspicion of his listeners that he is giving them a standard line or lecture. The topics of safety, handling fire and leaving a clean camp are much more acceptable and effective worked into a discussion of trail conditions and in response to questions. Often invitations to drop by their camp and share a fish dinner are given as the horse party mounts up and rides out on the trail. On occasion the invitation was accepted, and the ranger found a really friendly welcome when he rode in on patrol. When the horse party returns, it brings the latest information about many things the ranger should know. Fresh bear sign, numbers and kinds of animals sighted, fish caught, fallen trees across the trail, and other such information is routine. When passed on to others it can help them be aware of and avoid situations which might spoil their trip or cause some harm.

Horse parties offer much help to the ranger in other ways. Generally the members are seasoned outdoorsmen and can handle themselves well. Should an emergency come up they are able to get help fast. Less spectacularly, they have the capacity and inclination to clean up a back country camp and pack out the unburnable trash. As a group they far out-perform the back-packers, who oft n leave even their lightweight foil, plastic bags and small cans for the bears, the ranger and the wind. With the installation of the loading facilities and the resultant improved contacts and friendly relations, camps frequented by horse parties were voluntarily policed. The cleanup was so effective that the ranger was hard-pressed to find enough litter to fill a saddlebag during the entire 1966 season.

### *Winning Friends for the Service*

As one horseman expressed it, "It makes a difference to know someone cares about that trail and about us horsemen. We appreciate the facilities and are glad to help out any way we can." With an attitude like that, many of the ranger's back country problems are solved, and the Park Service has gained some valuable friends. Another way horsemen expressed their appreciation was by recommending the area to others. The success of the efforts at Logging Station in part can be measured by the fact that the use of the facilities erected there increased 50 percent between the 1965 and 1966 summer seasons without any attempt to publicize them.

In summary, it seems that the parks have much to gain in providing facilities for private horse owners. Certainly the horseman is better equipped than most visitors to travel the trails and to experience and appreciate the back country in a manner compatible with its preservation for others to enjoy. The experience at Logging Ranger Station in Glacier National Park indicates that, where appropriate, these facilities can be simple, inexpensive, entirely adequate, and appreciated. ■

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**Mr. Bowman, for the past several summers a seasonal ranger at Glacier National Park, is, during the winter, Associate Professor of Political Science and Public Administration at Northern Arizona University.**

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*Photograph by the author*

*The gnarled knees of cypress jut from the perimeter of Tennessee's Reelfoot Lake.*

# EARTHQUAKE LAKE

BY CARL H. GILES

**I**N THE WAKE OF AN EARTHQUAKE there is usually destruction instead of construction. But when Mother Nature tossed a segment of America's topography into turmoil a century and a half ago, she created a watery jewel.

Reelfoot, perhaps the biggest earthquake-lake in the world, is the result of one of nature's notable upheavals. The cypress-studded lake sprawls amoebically into the gently rolling landscape of extreme western Tennessee, ten miles from the Mississippi River and about a hundred miles north of Memphis. Ferns and flowers choke the almost hundred miles of shoreline. Fish—mostly crappie, bream, and bass—bask in abundance in the waters, which are two miles wide at many points.

Cypress stumps stab from the lake in vast numbers where trees were felled during the earthquake. Although the region was relatively unsettled when the quake occurred, a graphic account was recorded by John Bradbury. The English naturalist, a friend of Thomas Jefferson, happened to be on the river that night in an open boat manned by a French crew. So savage

were the tremors that tore the earth on December 16, 1811, that the Mississippi made alterations in its course.

"In the night, about ten o'clock I was awakened by a most terrible noise accompanied by so violent an agitation of the boat it appeared in danger of upsetting," Bradbury noted in his detailed log. "I could distinctly see the river agitated as if by a storm. Immediately the banks began to fall into the river in vast masses. Trees were felled by the thousands.

"It was almost two o'clock in the morning when the first shock ended. At daylight we had counted twenty-seven shocks." Great cracks slashed the region on the following day.

More maritime history was being made on the Mississippi that night, Bradbury later learned. The first Mississippi steamboat, the New Orleans, was trying to navigate the river. The 160-foot paddlewheeler, enroute from Pittsburgh to New Orleans, was plagued with fires and battered by debris. But the boat completed its passage without loss of life.

Actually, Reelfoot was not discovered by many of the pioneers until

several years later. Across the Mississippi at nearby New Madrid, Missouri—which was demolished by the quake—people were not aware that a vast new lake had been created until around 1816. Not many settlers ventured into Tennessee territory because of the hostile Indian tribes in the area. Chickasaw Chief Reelfoot is said to have named the lake after himself.

Some of the Indians along the river maintained that the entire area sank and the Mississippi overflowed, creating Reelfoot. Today the quake-lake is just a few miles and minutes off the beaten path; a portion of it lies within the Fish and Wildlife Service's 9,271-acre Reelfoot Lake National Wildlife Refuge. Duck hunters and anglers are just now "discovering" the lake. A few fishing villages and motels nestle among the cypress knees jutting up to their docks, and camping is excellent.

In September, 1966, the National Park Service registered the quake-lake as one of the units in its cooperative program for designating outstanding American natural-history areas—the National Registry of Natural Landmarks. ■



*Photograph by the author*

*The Colima warbler, found in the United States only within Big Bend National Park . . .*

## **Colima Warbler Census in Big Bend's Chisos Mountains**

**By Roland H. Wauer**

**T**HE SONG CAME FROM THE OAKS just beyond the clearing. It was a rapid series of melodic chips not unlike the Virginia warbler's song, yet quite different in its manner of delivery. I recognized it immediately as that of the Colima warbler. Although I had heard that song many times before here in the Chisos canyons of Big Bend National Park, this morning its song held another meaning. I and nine other bird enthusiasts were to spend the next four days taking a census of the entire United States population of the Colima warbler.

Five years ago I had driven a third of the way across the continent to Big Bend for a visit to the Chisos Moun-

tains. Here at Boot Spring I had found three gray and yellow, sparrow-sized Colima warblers. Now its song not only brought me out of my sleeping bag wide awake but also eager to search each nearby canyon for more of those melodic songs.

Until 1928 the Colima warbler was considered to be a Mexican species only. Then, on July 20 of that year, Frederick M. Gaige, of the University of Michigan, found it near Boot Spring in the Chisos Mountains of the Texas Big Bend country. Although it is known to winter in central and southern Mexico, its range in summer extends for only a few hundred miles in northern Mexico to the Chisos.

The Colima warbler is to Big Bend National Park what the whooping crane is to the Texas Gulf Coast area, and the Kirkland's warbler to north-central Michigan. Each is found nowhere else in the United States during particular seasons of the year. The whooping crane is well known for its residence each winter at Aransas National Wildlife Refuge, north of Corpus Christi on the Texas coast. This large white crane, included as an endangered species in the latest Department of the Interior listing, departs for its breeding grounds in Canada each spring at about the same time that the Kirkland's and Colima warblers are enroute to their respective breeding



Photograph by the author

... and the warbler's nest, built of pieces of grass and deer hair beneath a protruding root.

grounds in the United States.

Arriving in Big Bend about April 15, both sexes begin singing and defending a territory among the higher canyons of the Chisos. It is then that birders from all parts of the world visit the Boot Spring area to "get" another "lifer" for their list. Although many of America's finest birders have seen the Colima warbler on its breeding grounds in the Chisos Mountains, very little about its life history, abundance and habits are known. I organized this May 12 to 15 census in an attempt to begin a reversal of this situation, and perhaps to acquire a little more information useful in interpreting this remarkable and rare bird to Big Bend Park's many visitors.

John Galley and I had hiked the five and one-half miles to Boot Spring the night before. Leaving the Chisos Basin in late afternoon to take advantage of the cooler part of the day, we had climbed the trail past Laguna Meadow toward Boot Spring. Dusk had begun to settle before we reached our destination, and Boot Canyon echoed with the mournful calls of poor-wills and whip-poor-wills. These Eastern and Western

goatsuckers are found together here, yet each show distinct preferences for their own niches; the upper, open slopes in the case of the poor-will and the cooler canyons for the whip-poor-will.

John and I were to count in the Boot Canyon, East and South Rim, and Emory Peak areas. We planned to spend all four days in the field. Other counters were assigned areas in proportion to the time that they would have available. Ranger-naturalist Dick Nelson was to count in the Blue Creek drainage, a westerly canyon with a good water source at the base of the oaks and pinyon pines. Three Midland Naturalist members—Francis Williams, Ann LeSassier and Ted Jones—

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Mr. Wauer, presently chief park naturalist of Big Bend National Park, has contributed on several past occasions to the pages of this magazine. As a photographer, he was a collaborator in the production of the recent Zion Natural History Association volume, *Birds of Zion National Park and Vicinity*.

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searched along the Lost Mine Trail and the upper Basin to Laguna Meadow. Ned Fritz, a Dallas attorney, was assigned the Kibby Spring area and upper Green Gulch. The upper Basin area along the slope of Casa Grande south to the north side of Emory Peak was the territory of Dr. Kent Rylander of Texas Technological College. Dr. Jon Barlow and his assistant, Jim Dick, searched the lower Basin and the canyons along Pulliam Ridge; Jon was spending three weeks at Big Bend studying the life history and behavior of gray vireos.

And so our count morning began as John headed down canyon and I started toward the high Chisos rim country that overlooks the greater portion of the 107-mile Rio Grande border of the park. I was soon to find, however, that the Colima warblers were not using the entire highland area but only the cooler slopes and canyons that dissect the Chisos mountaintop. Although not restricted to an oak environment, they seemed to prefer it. Singing birds also were found atop pinyon pines, junipers, mountain mahogany, and maples. Even the Arizona

cypress and Douglas fir that grow in the coolest canyons were utilized.

Although I was aware that Colimas were ground-nesters, I was a little startled when one flew up almost at my feet from a hillside which was loaded with a debris of leaves. The nest had been constructed of pieces of grasses and deer hair, in a tiny hollow beneath a root protruding slightly above the leafy canopy that gave it excellent concealment. Upon closer examination of the nest I found four tiny brown and white eggs.

I suddenly became aware of the commotion that the future parents were causing as they cheeped at me from the foliage above. They had been joined by a pair of Hutton's vireos that was adding its "two cents worth." Not wanting to disturb incubation I moved away, making a mental note to return with a strobe-light and camera to record the discovery.

Apparently the aroused Colimas had attracted more than the Hutton's vireos. As I began to move away I noticed that a number of Mexican jays had been perched overhead, too. They squawked and moved off through the trees like a troop of sailplanes. These border residents live up to their names, because they are found in the United States only in the mountains along the Mexican border here in Texas and west in Arizona.

A further examination of my surroundings revealed two other avian neighbors that had come to see what was happening in their woods. The black-crested titmouse whistled a couple of times and faded from view among the foliage of a drooping juniper. Its call seemed to encourage a pair of black-eared bushtits which appeared out of the juniper, too, before dashing off to their basket-like nest hidden nearby.

The morning was pleasantly cool as I continued along the canyon slope toward the East Rim. The loud, robin-like call of the black-headed grosbeak resounded through the forest as I topped out and had my first view toward the east and Mexico's Sierra del Carmen range, which forms a majestic backdrop for the lowland ridges of Big Bend's Chihuahuan Desert. Soaring in the distance were a number of turkey vultures, and there a golden eagle moved away from the rim area

where it probably had been hunting food for a family tucked away somewhere below the rocky rim. This majestic predator still resides in the park area in small numbers. Its appearance outside the protection of the park boundary causes local ranchers to rouse up and go "kill them varmints raised in the park." Much public education is necessary if we are to save the golden eagle.

Sunset from the South Rim was a fitting climax to the Chisos Colima warbler census that day. John and I watched the shadows deepen below the escarpment where Santa Elena Canyon cuts through the Mesa de Anguila to the west. Although the birds of the desert were hurrying to their roosts and nests for the approaching night, aerial acrobatics of the white-throated swifts were still going strong at our perch 2500 feet above. A male lucifer hummingbird flew to a pinyon snag nearby and a few warblers drifted out of the dusky sky and settled in a juniper. Three of these were Audubon's and one was a black-throated green

(a new park record), undoubtedly enroute to their nesting grounds far to the north or east. And just as the last rays of sun sent their spokes into the sky, the quivering call of a screech owl began the night chorus.

We made our way back toward Boot Spring with flashlights, stopping every few hundred yards to listen for another voice in the night. I was expecting to hear the familiar hoot of the flammulated owl in Boot Canyon, but it was silent by the time we reached our sleeping bags and settled down for the night.

I lay there going over the day's events and wondering if the other counters had been as successful as we had been here on the mountaintop. I had seen more Colima warblers that day than I had expected. They were surprisingly numerous. And the entire count proved that the bird was present at particular localities from 5700 feet on the slopes of Casa Grande to the top of 7835 foot Emory Peak. Forty-six pairs of Colima warblers were counted on those four days. ■



# Economic Development and Its Long-Run Environmental Implications

By John H. Cumberland

**D**URING THE PAST TWO CENTURIES, the efforts of Western man to solve his economic problems have met with extraordinary success. By developing new technologies, embodying them in massive industrial complexes, and reorganizing society on the bases of initiative, efficiency and accumulation, the Western World has achieved vast acceleration of industrial output. Although pockets of poverty remain for some disadvantaged groups and regions, even the working man in most industrialized nations enjoys a range of products and luxuries which would have been unavailable to even the wealthiest of individuals in earlier centuries.

Thus Western man appears to be well on his way to achieving his major economic objective of providing a comfortable living for most members of society. Ironically, however, evidence is beginning to emerge that progress toward solution of the economic problem is creating a critical new problem which may turn out to be the greatest challenge man has faced on the earth. This is the problem of environmental deterioration.

In the powerful drive to overcome all obstacles to expanding production, society has tended to ignore the fact that industrial production is accompanied by waste production and environmental modification in a way which is literally changing the face of the earth. Water pollution is spreading from streams into major lakes, rivers, estuaries, and even into the oceans of the globe.

Siltation from poor agricultural practices and from soil erosion, washing away land bulldozed for roads and development, is fouling waterways and filling channels and harbors. Thermal pollution from mushrooming power generation facilities is heating nutrient-laden water bodies, hastening the growth of algae, and threatening vital links in the delicate ecological balance of water bodies.

## *Possible Long-Term Atmospheric Effect*

Smog and air pollution, no longer isolated phenomena, are spreading over the globe, steadily increasing the carbon dioxide content of the atmosphere. Some scientists are

*In achieving a comfortable living for most members of his society, Western man begins to see that the solution of that problem is creating a critical new one—the problem of a rapidly deteriorating human environment.*

concerned that this may create a greenhouse effect which will melt the polar ice caps and submerge the coastal areas of our major cities.

The deliberate use of powerful agricultural fertilizers, herbicides, pesticides, fungicides and other chemicals is poisoning the land, polluting the water, killing many forms of wildlife, and accumulating in the tissues of plant and animal life (including human) all over the globe.

Since World War II, subtle new environmental threats to the earth have emerged in forms which, because they are invisible, cumulative in their action, delayed in taking

*Photograph courtesy Pennsylvania Department of Health*



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**Presently Professor of Economics in the University of Maryland's Bureau of Business and Economic Research, the author, a graduate of Maryland with a doctorate from Harvard University, has been consultant or advisor to many organizations, both in and out of government, in the fields of economic theory, regional and urban analysis, and natural resource economics.**

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effect, and diffused in nature, are even more lethal in their implications. Invisible but deadly radioactivity has been spread over the globe deliberately through explosions and inadvertently through leakage from reactors and buried atomic waste products. Increasing noise levels in the audible range of frequencies pose psychological threats to living organisms while additional threats are created by the ever-increasing spread of electromagnetic transmission throughout the electromagnetic spectrum from radio, radar, TV, microwave, satellite and other transmissions.

In the production and economic development process, modern industrial man converts so much of nature and natural resources into waste and pollution that he is running out of the open space and ecological resiliency that he formerly relied upon to absorb and reconvert the unwanted waste products of the industrial, urbanized processes.

These environmental disasters are a phenomenon not just of Western capitalism, but are linked by present technology to large-scale industrialization wherever it occurs. It is not just Lake Erie which is becoming a dead lake, but also the Soviet Lake Baikal which is threatened by water pollution. China and the developing nations of the earth can and will soon face similar problems, despite their different ideologies, if they are successful in their aspirations to create for themselves the industrial technologies of the advanced nations.

#### ***Projection of Future Events***

A few simple relationships considered together in the form of what economists regard as a model useful for systematic projection of probable future events will indicate why deterioration of environmental quality poses such an ominous threat for the future of civilization.

(1) With current technology, industrial output is accompanied by output of waste products, pollution, and environmental change.

(2) Economic development in industrial nations is characterized by upward trends in the amount of industrial activity per capita.

(3) The economic development which is sought by underdeveloped nations, with the encouragement and support of developed nations, will require vast increases of economic activity per capita.

(4) The population base to which these economic development aspirations are linked is expanding rapidly over the globe as population growth rates in the underdeveloped nations now generally exceed those in the already industrialized nations.

If these four relationships remain constant, the environmental pollution threat will be ominous indeed, and the earth will, for man at least, soon become uninhabitable. It

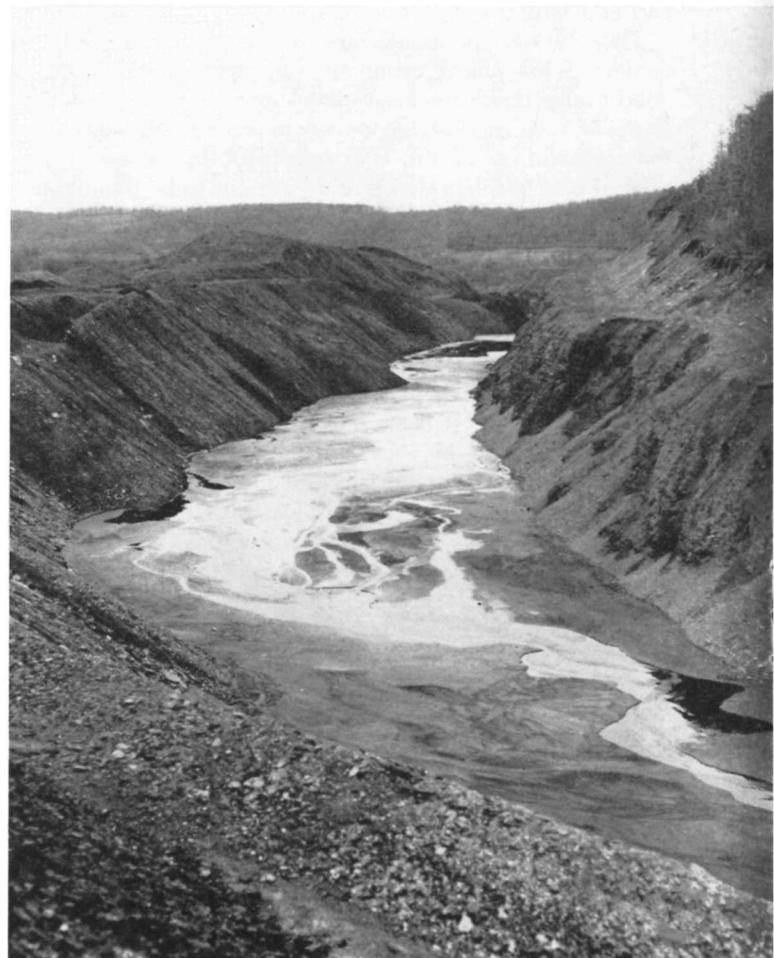
is therefore important to examine the extent to which any of these relationships can be modified by society so that it can continue to enjoy the fruits of economic development without suffocating and drowning man in his own waste.

First, the relationship between human aspirations and industrial activity is not likely to be changed. Humans in both developed and underdeveloped nations will continue to strive for even more of the fruits of industrial output and affluence in the foreseeable future.

With respect to population trends, there may be some opportunity for more rational human behavior. There is some evidence and some room for hope that as incomes and educational achievement increase, and as technically and culturally acceptable means for family planning become available, the rate of population increase may be retarded. However, this is a critical problem, since optimum levels of population have already been exceeded in most nations, and continued growth of population aggravates most social problems.

Therefore, the major hope for civilization in safeguarding the habitability of the earth is to modify the current technological linkages between industrial activity and environmental pollution. The essential task of society is to develop a pollution-free technology, both in order to maintain the viability of already industrialized nations and to insure that the vast surge of industrial activity which is sought by the developing nations will be a technology which

*Photograph courtesy "Outdoor People"*



will not corrupt the earth with waste and pollution.

It is not yet clear whether technology can offer civilization the means for correcting its own technological abuses of earth. The problem is to find new ways of recycling some of our vast output into efforts to abate pollution, recover by-products, recycle wastes, and convert dangerous outputs into useful inputs, such as waste heat from nuclear production for desalination of sea water. In order to achieve maximum internalization of external wastes and diseconomies, it may be necessary to plan from the ground up new combinations of advanced technologies in optimal relationships for recycling of pollutants, recovery of by-products and prevention of environmental damage. Advanced planning of the location and structure of massive industrial and urban complexes of the future for minimum damage to the global environment will become necessary, requiring inter-

*"In the powerful drive to overcome all obstacles to expanding production, society has tended to ignore the fact that industrial production is accompanied by waste production and environmental modification in a way which is literally changing the face of the earth." On the page opposite, highly acid water from strip-mined terrain makes a biologic desert of the streams it invades. Below, a torrent of smoke from a city dump contributes to the pollution of the atmosphere. The continual discharge of carbon dioxide into the earth's atmosphere by man's works over and above natural increment and withdrawal may eventually, some scientists have speculated, result in a slow warming of our planet's envelope of air.*

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national cooperation for maximum benefits. Recognition of the global nature of watersheds, windsheds, ocean currents, and atmospheric phenomena will indicate the necessity of extending current areas of international agreement, such as those pertaining to world fisheries, peaceful development of polar regions, and use of outer space.

Human society in the future will necessarily be more concerned with the qualitative, as opposed to the merely quantitative, aspects of economic development as it affects the environment and conditions of life. In this endeavor the economist, using traditional and newly emerging tools of analysis, will play a significant role in identifying objectives and in evaluating efficient methods for the achievement of objectives. But in addition to improved technology and more sophisticated economic analysis, protection and improvement of the human environment will require extensive modification of our legal, political, and other institutions.

If man has lost control of both his numbers and his technology, then his time remaining on the earth is running out rapidly indeed as he repeats the Biblical role of destroying an earthly Paradise through his own actions. How long and under what conditions he can continue to enjoy life on earth depends upon the extent to which he will be able to bring his reserves of knowledge and wisdom to bear upon restoring and protecting the quality of his environment.

Photograph courtesy "Redding Record-Searchlight"



# Trip Afield With a Young Thoreau

By Tom Browne

ALTHOUGH I HAD NEVER TAKEN UP bird-watching, I had always regarded it as one of the more admirable hobbies, particularly as it was non-consumptive of anything but time. My neighbor lad down the road had a more succinct way of putting it: "I like bird-watchers," he told me, "because they don't kill."

Most boys of the neighborhood owned BB guns, or 22's, or slingshots. They tramped the fields and woods on Saturday forays for things to shoot. But I had never observed my neighbor lad with gun or catapult as he trudged his solitary way to the river. So I concluded he must be a lonely boy, a Thoreau type, certainly a conservationist and lover of nature—perhaps a bird-watcher, without the usual appurtenances, such as binoculars and bird books. But he had keen sight, I am sure, which was really all that was necessary for this pleasurable pursuit for one possessing the advantages of tender years.

Or maybe my neighbor lad was just an outcast, spurned cruelly by the rest of the boys.

Having recently moved from the city to enjoy country life, I had not quite fitted into the picture. But on Saturday I was waiting patiently for him to pass my place, and asked hopefully: "May I go, too . . . wherever you're going?"

His teeth gleamed white in his brown face. "Sure!" he said. I am positive he extended the invitation with the exclamation mark, which I have put down, for this is most boys' way of expressing cordiality. I was thankful he did not snub my age, better than the proverbial three score and ten.

We set off blithely, the two of us, and I am afraid I proved some hindrance, as the discrepancy in our ages—he was going on fourteen—was something to take into account when liveness and strength of limb were requisite to maintain the pace set in his exuberance to reach the haunts of wildlife along the murky, lazy river that slid through lush lands on its long way to the sea.

But he waited like a gentleman when-

ever I lagged behind. Finally we cut down a dimly discernible trail, then into heavier thickets. I marvelled at his superb grace as he threaded through the bush, looking back with his dark eyes—a blending of Indian blood, I think, somewhere back in his lineage—watching gravely and perhaps with some compassion as he held back branches from flicking into my face. I tagged along clumsily, but he did not once complain. At last we emerged at the river's brink where a commercial fisherman's operation was located, with a floating walkway jutting from the bank and a net rack at the end of it. The fisherman had evidently gone up the river to cast his net and drift with the slow current, for his gas-boat was gone. Out near the rack a net was piled in seeming utter confusion, but mostly likely in apple-pie order; for the fishing fraternity is a breed whose methods are unfathomable to the uninitiated.

The net apparently had been badly ripped from snagging on the river's bottom, for bits of its lead-line were missing. And the fisherman had not gotten around to mending it. But what really caught our eyes was a pair of birds scampering around the pile of net attempting to scrounge nesting material from it.

My friend, who seemed far beyond his years, held up his hand gesturing for silence.

We watched, and before us was enacted a tableau of tenacity that seemed incredible for such small fluttering creatures.

The birds, beautifully sleek and crested like royalty, the male larger than his lady, were picking up the ragged ends of twine in their beaks, flying off with them, only to be brought up short in mid-air when the pieces reached their fullest extremity. With extraordinary perseverance the busy builders kept tackling the strands, only to be wrenched back each time. But they still persisted, apparently prizing the glittering nylon twine for lining their nest.

Not accepting defeat, the determined

birds—I never did identify the species (I really should get a bird-book)—lent greater effort with each successive attempt until, exhausted, they fluttered to the rough weather-rusted planking to rest. They gazed into each other's bright, animated eyes rather anxiously, conversing in low chirps, evidently discussing the situation. Then recovered, they tackled the net again with new vigor but no success.

Finally, after more discussion, they flew into a nearby protecting thicket, site, no doubt, of their projected home in which to rear their babies. And oddly, at the moment, it struck me as ideal the manner in which birds construct new domiciles each spring of every year, abandoning them when their usefulness is over, to again roam the airways, free as . . . well, as birds,

"Too bad," my friend said softly.

"Yes, indeed it is," I replied, disturbed as he because of their defeat.

We continued our woods wandering, both quite disconsolate at the fruitlessness of the birds' labors. But somehow I felt in my bones they would be like many friends I had known and treasured through the years who, tasting the bitterness of defeat, had sought the solace of rest, and then tried again, and yet again, and had been at last successful. It was like that all across the land when conditions had been the blackest and hardest.

And so I felt the struggle for the nylon nesting material would begin anew at the next day's dawning. So that evening I scissored some of my wife's nylon gardening twine into short beak-size pieces and tucked them into my pocket. I left for the river before day-break next morning.

I was not the first to arrive at the riverside. My fine young friend down the road had already been there. And "our" birds were happily shuttling back and forth from net-pile to thicket with pieces of glittering twine he had dumped there for them to take.

Which indicates, I would say, that one has to get up very early of a morning to keep pace with the world and its remarkable young folk. ■

# COLOMA: A SAWMILL RESTORED

By Mary Bowen

THE SAWMILL AT COLOMA IN THE California Sierra, where those now-legendary flakes of gold were found in the tailrace, has been ranked by many historians as the Number One historic site of that State. It was here that the greatest migration since the Crusades—the Gold Rush to California—was given impetus.

Though the Coloma site has long been an important historic shrine, it was not until 118 years after the gold

discovery—the fall of 1965—that reconstruction of the sawmill itself got under way. The reconstructed mill, though built upon a different site than the original, represents in all other ways an effort to make this version as exact a replica as possible of the first structure. Even the tools used to build it—hand-made mallets, templates, wood chisels and broadhead axes—are faithful to historical fact. They are, as nearly as can be ascertained, similar to the

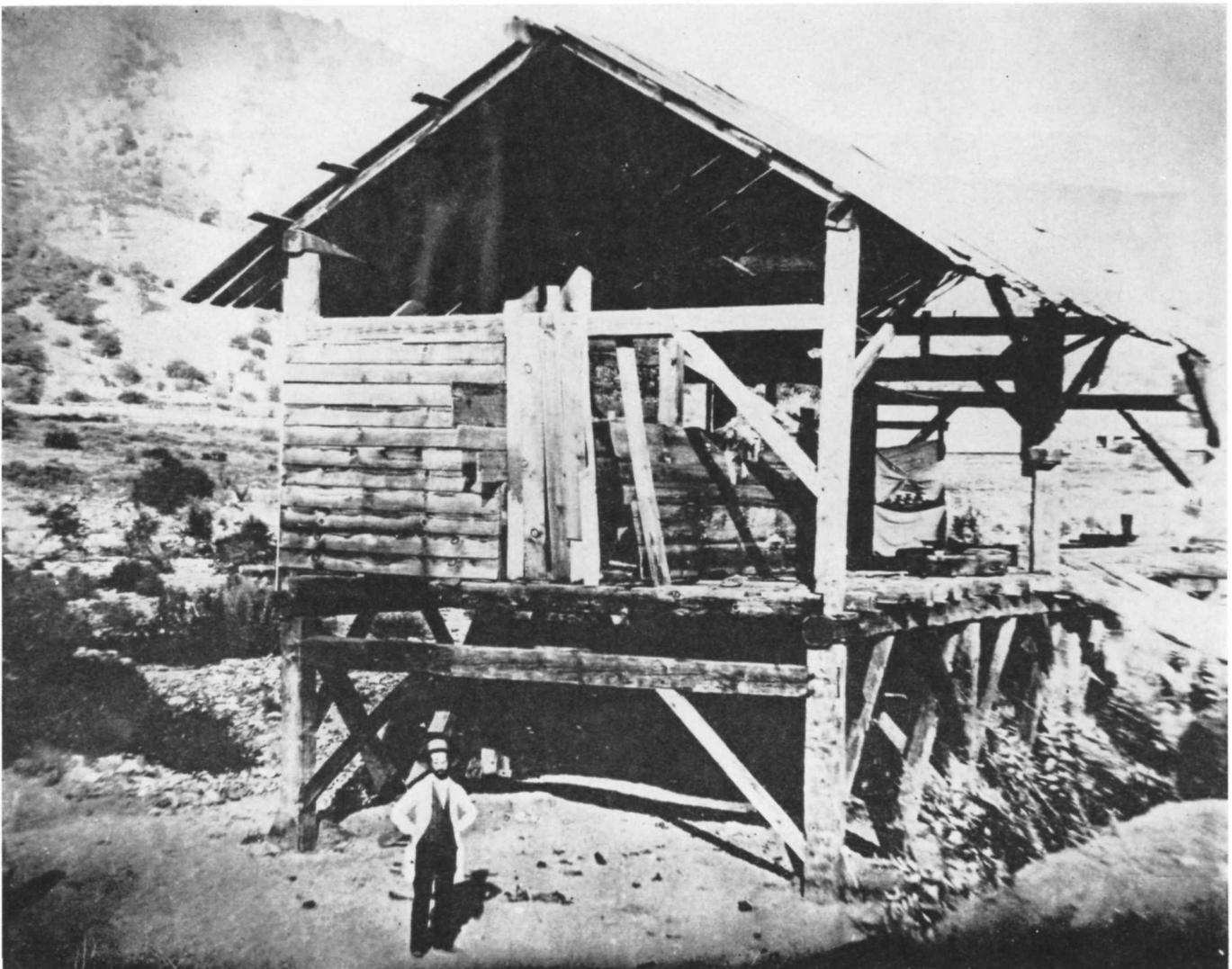
tools used in the construction of the original mill.

The work of the reconstruction was painstakingly slow and involved skills fast becoming lost arts, such as the ability to accurately, by hand, chisel out mortise and tenon joints, and to fashion the scarf joints used in splicing long timbers together.

The recently completed sawmill is the result of cooperation between the California state park system and pri-

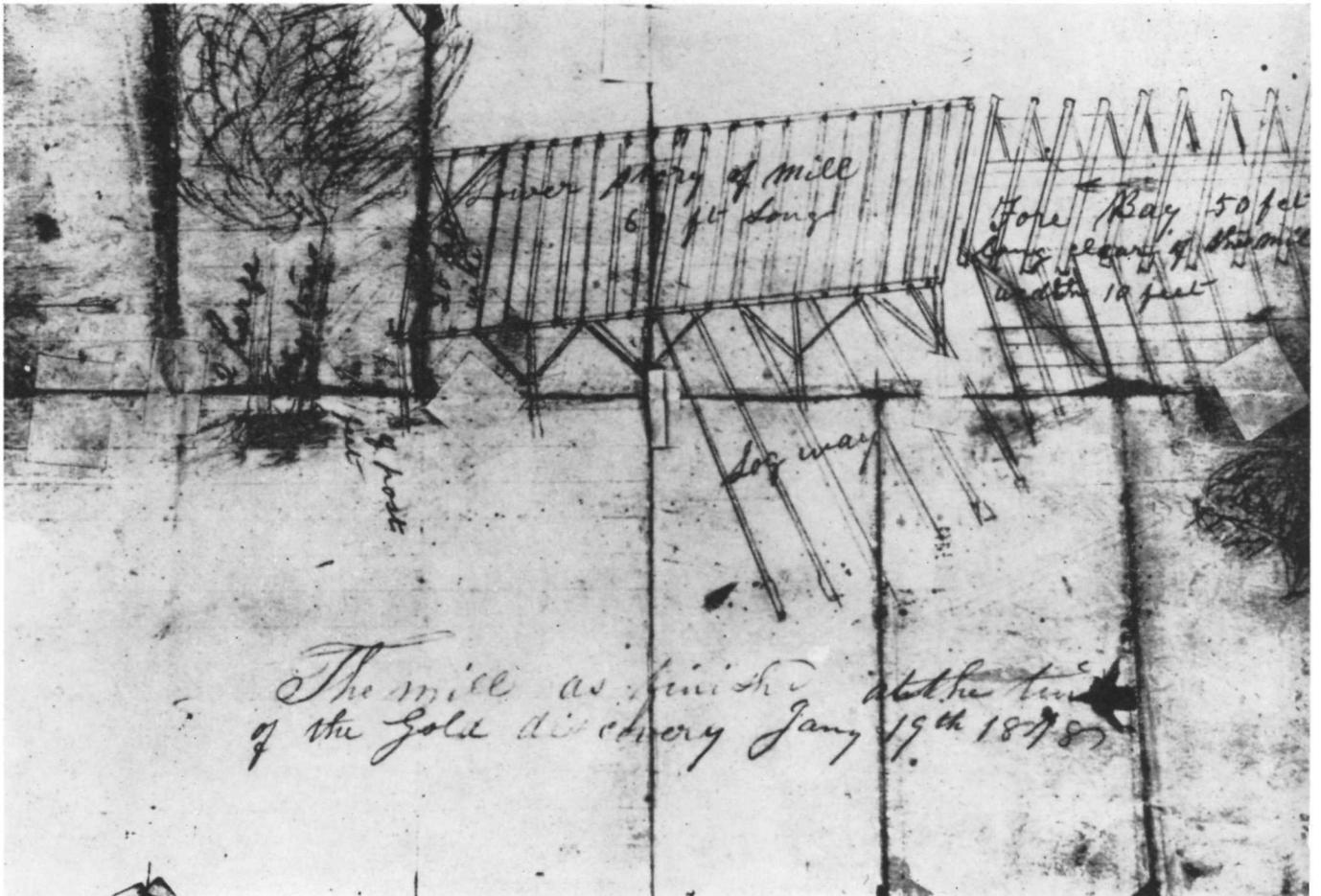
*Captain Sutter's sawmill at Coloma, in the California Sierra, below. So far as known, this is the only photograph of the mill in existence. Man in foreground is John Marshall, Sutter's foreman, who discovered gold in the mill's tailrace.*

*Photograph courtesy California State Library*





Visitors view the present-day mill reconstruction at the Marshall Gold Discovery Park, Coloma, in the photographs above. A valuable aid in the reconstruction work was the contemporary sketch below; legend in handwriting reads, "The mill as finished at the time of the gold discovery on January 19, 1848." Photographs above are courtesy Doug Bowen; the sketch is by courtesy of the California Department of Parks and Recreation.



vate interests. John Hassler, proprietor of the Sierra Nevada House in Coloma, the El Dorado County Historical Society, the Sutter Mill Restoration Committee, and individuals encouraged the State to construct this mill within the Marshall Gold Discovery Park at Coloma. The total cost was shared equally by public subscription and private funds. The project materialized after more than a century's urgings that "something be done" about preserving or reconstructing the mill.

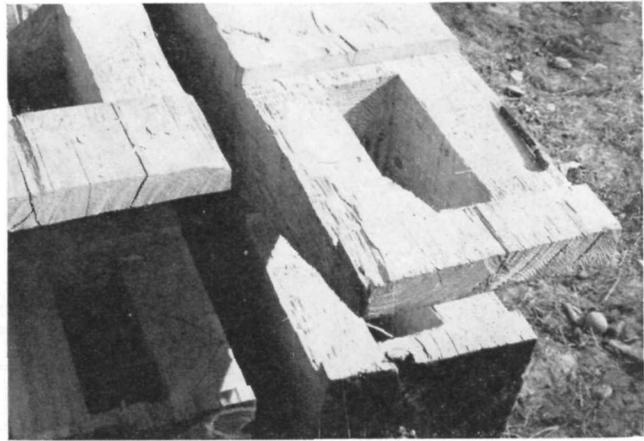
The first plea of this sort appeared in the *Empire County Argus*, a Coloma newspaper, in an editorial dated May 13, 1854. "In our swift progress to eminence," the editor wrote, "we should remember our classic ground, Sutter's old mill. Among the changes which are continually going on in our midst, the levelling propensities of the age, it would be well to preserve some vestige of our past. As time progresses numerous visitors will congregate here, to examine the place where gold was first discovered and to take a look at the mill."

Despite urgings that it be preserved, the old mill was eventually destroyed by flood water and plagues of souvenir hunters. At one time gold-topped walking sticks fashioned from the mill timbers fetched a high price in fashionable Sacramento shops.

It was not until three-quarters of a century after the newspaper editorial appeared that the first actions were taken to commemorate the site. In 1924 the stone marker which now stands in the river bed to mark the site of the old sawmill was erected. As workmen were excavating for the footings of the monument, the original timbers of the sawmill foundations were uncovered. It might have been supposed that the early-day miners would have completely worked over the millsite down to bedrock for the gold which might be found there—the "levelling propensities of the age"—yet the timbers were still intact.

There has been conjecture that perhaps the early miners regarded this site as a shrine. Whatever the reasons, the mill timbers were left—gift-wrapped in silt, so to speak—for a future generation.

Though some work was done at the sawmill site in 1924, it was not until



*Reconstruction of the Coloma mill called for skills possessed by few contemporary workmen. Some of the details of construction are pictured on this page, including a handmade scarf joint, above; a handmade template, at left; and hand-cut tenon joints, below. The photographs are by courtesy Doug Bowen.*

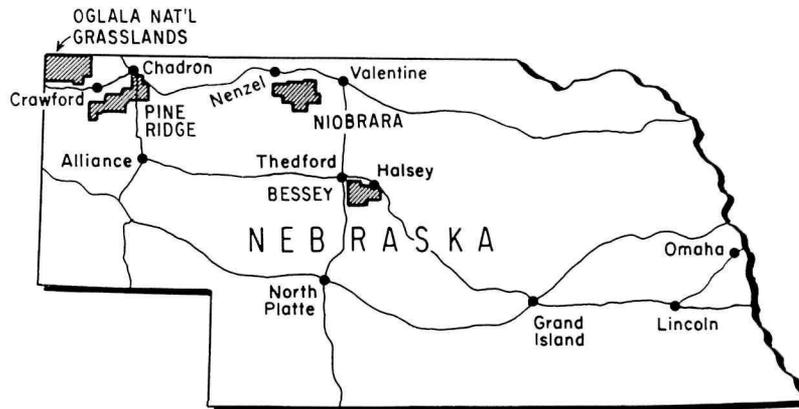


1947 that the area was completely mapped, excavated and sifted for artifacts. Research done at this time, combined with early blueprints for the mill's construction and other historical documents, has proved to be of major importance in assuring the authenticity of the present reconstruction. Today, almost 120 years after the original mill was built, a replica of it is at last available for the public.

Through the efforts of a host of peo-

ple—from the early newspaper editor to those who did research at the site in 1924 and 1947 to the present-day craftsmen and civic organizations—proper commemoration has been made for what was termed in 1854 "classic ground." This is the spot referred to in an oft-quoted diary entry dated January 24, 1848:

"This day some kind of mettle was found in the tail race that looks like gold." ■



*The four units of the Nebraska National Forest.*

# Nebraska's Man-Made Forest

By Ora A. Clement

**I**T MAY BE TRUE, AS HAS BEEN WRITTEN, that the Deity is the only architect of trees, but it is certainly true that man can make a forest; and the largest man-made forest in the United States had its real beginning before the first forest reserves were withdrawn from the public domain in 1892.

The project was sparked in the early 1880's by Dr. Charles Edwin Bessey, who came to Nebraska University in 1884 to become head of its Department of Botany. Ranging the State in the interest of his science, Dr. Bessey became intrigued with the idea that the Nebraska sandhill country had once supported forests, and could do so again. He urged experimental plantation.

He received no encouragement until 1891 when the Division of Forestry, ancestor of the U.S. Forest Service, offered him seedlings for a small demonstration plot with no provision for planting or care. Friends donated the use of an acre of their sandhill ranch. The seedlings were set in untreated soil and after a few years were practically

forgotten. The plantation was more than a hundred miles from the University, making care and supervision impracticable.

Ten years later, as Federal agencies began to turn attention to conservation of natural resources, the Division of Forestry made a routine survey of existing projects, and the little sandhill experiment was investigated. The report was exciting. The neglected plantation had produced a growth of sturdy ponderosa pines and some other species of trees. Dr. Bessey's proposition had been demonstrated.

The Nebraska National Forest was created by proclamation of President Theodore Roosevelt in 1902. It presently comprises some 340,000 acres, and includes four units—Bessey, Niobrara, Pine Ridge and Oglala Grasslands. The man-made forest lies in the Bessey District, and is in typical sandhill terrain. Planting there has been continuous through the years, and today the wooded hills appear to the visitor as natural growth.

A walk or drive through the forest is

rewarding to the outdoor man whether his interest is in the trees, birds, flowers, the plentiful wildlife, or the invigorating air with its spicy odor. The forest is visited each year by increasing numbers of outdoor enthusiasts who desire a recreation spot off the beaten path.

The interest of the trained forester naturally centers about the nursery which is the heart of the project. The nursery is located on Middle Loup River at the edge of the forest. It is said to be the first forest nursery established by the old Division of Forestry.

From the first, the nursery had to operate by trial and error, breaking its own way without precedents; there was no known technique for forestation in a wilderness of sand. There was no data for guidance, no trained help available, nothing to indicate what trees would be most adaptable to existing conditions. There was no equipment for wholesale planting. Neither seeds nor seedlings were to be had in quantity.

But, meeting each problem on its own terms, the nursery has a proud his-



Photographs courtesy U.S. Forest Service

*Above, trees of the man-made Nebraska National Forest dot the gently rolling Nebraska sandhills. Below, the nursery in the Bessey Division.*

tory of achievement. Foresters from the States and from foreign countries visit it to get helpful ideas for their own projects. The nursery now furnishes millions of seedlings and young trees annually for federal and state developments as well as to individual farmers. Shelterbelts along High Plains highways, windbreaks and groves about farmsteads, shade trees in parks and on schoolgrounds, attractive roadside recreation areas, trees that fringe natural and artificial lakes—these and many other plantings are largely supplied by the national forest's nursery.

Of great importance are the nursery's records, with their story of experiments with soils, fertilizers, water supply, methods of planting and cultivation, use of equipment, fire control, and other matters of interest to tree-planters.

In May, 1965, the installation came very near complete annihilation when fire, caused by lightning, destroyed approximately 8500 acres of growing trees, among which were some from the earliest plantings. The nursery beds



and buildings were saved practically undamaged, however.

Thus it was that tree-planting continued uninterrupted after the catastrophe. The ashes had scarcely cooled when regular crews, assisted by an army of volunteers, were at work re-

setting trees. During the season, according to the Bessey Division's report, 514,000 trees were planted on the burned area; thus, nature and the U.S. Forest Service will continue to extend the bounds of this man-made forest in the Nebraska sandhill country. ■

# News and Commentary

## **Mineral King and Grizzly**

We have been queried by at least two Association members for saying in the July editorial that the Mineral King region of the California High Sierra is habitat for the grizzly bear, among other animals, apparently on the assumption that the statement indicated the presence of the grizzly there today. So far as known there are no wild grizzlies there or anywhere else in California at present. However, the editorial did not list grizzlies as residents; it said that Mineral King is grizzly habitat, which it is, having supported the mammals until about 45 years ago. This bear was one of the mammals listed by the Fish and Wildlife Service as an endangered native species in its first compilation several years ago, and was again confirmed as such by the Secretary of the Interior in his finding of March, 1967 (*Federal Register*, Vol. 32, No. 48, p. 4001); in view of the scarcity of grizzly habitat, the mammal could and should be brought back to Mineral King.

## **High Mountain Sheep**

The long story of the proposed High Mountain Sheep hydropower dam on the middle reaches of the Snake River in Idaho continues to unfold after some 13 years of argument over the merits of private versus public operation and the doubts of conservationists as to the need for further damming of an already well-dammed river system. Indeed, this question was strongly projected into the controversy during recent months when the Supreme Court, on whose doorstep the matter finally landed, raised among other questions that as to whether any dam at all ought to be constructed.

About three years ago the Federal Power Commission issued a license for private construction of High Mountain Sheep, an action which was taken to court by a group of Washington State public utility districts, which saw itself constructing either High Mountain Sheep or a smaller dam farther downstream on the Snake, and the Department of the Interior, which wanted Federal construction and operation. Thus the question eventually arrived in the Supreme Court in mid-1967; and the Court has sent the case back to the Federal Power Commission with instructions to explore, in the Court's words, some "neglected phases of the case." Among these areas for exploration were: whether the natural resources and recreational potential of the river had been sufficiently considered; whether

there is an existing need for additional power in the region; whether, in view of prospective alternative sources of energy—solar and nuclear energy, for examples—deferral of the project might not best serve the public interest; or whether any dam ought to be built in view of these questions and the fact that natural reaches of rivers in this country are becoming a precious commodity, so to speak. The Court indicated that the Commission would not have discharged its functions under the Federal Power Act unless it makes an informed judgment on these phases of the case.

Since the Court sent the matter back to the FPC, that agency has brought the various parties together in a pre-hearing conference at which the private and state contenders joined forces to seek a license to construct, and at which the Interior Department announced that it now has a number of alternative possibilities under study, including the possibility of no High Mountain Sheep at all. The Commission has scheduled public hearings on the matter for November 21.

## **Natural Landmark Dedicated**

During August the Petrified Gardens, a privately protected area of great geologic interest and significance located just off New York Route 29, three miles west of Saratoga Springs in the northeastern part of the State, was officially dedicated as a unit of the National Park Service's growing list of Registered Natural Landmarks. (Acceptance of Petrified Gardens as a natural landmark in late spring had made it number 50 on the list). The Natural Landmark program was established in 1964 as a natural history complement to the Service's highly successful Historic Landmark program, initiated in 1960. The two programs are designed to lend official encouragement to private individuals and organizations that own and operate outstanding historic and natural history areas in a manner which meets a rather stiff set of Service criteria regarding basic conservation principles and site preservation and protection.

The privately operated area known as Petrified Gardens displays and interprets for the public an outstanding exposure of fossilized algae dating far back into the earth's recorded geologic history, with an age of approximately a half-billion years.

Representing the Secretary of the Interior and the Director of the Park Service at the August occasion was Robert H. Rose, of the Washington headquarters of-

vice, chief geologist of the Service. During the course of his remarks to the assembled group, Mr. Rose suggested that "If man is to survive his rendezvous with destiny, he must recognize and accept a basic morality of nature from which evolves a conservation ethic demanding admiration and respect for the land." America's frontiers were once considered boundless and her resources inexhaustible, he said; but today, "every thinking person recognizes that these views are an illusion of the most tragic and dangerous kind." The preservation of the environment and the natural and cultural resources within it is not the concern and responsibility of the Federal Government alone, Mr. Rose told his audience, but of all responsible citizens as well; in presenting the operators of Petrified Gardens—Mr. and Mrs. Robert A. Ritchie—with the bronze plaque and certificate which proclaimed the area a Registered Natural Landmark, geologist Rose told them that "you and the other conservationists of America are proving that we are worthy of the cultural heritage entrusted to our care."

## **Bald Eagle Painting**

A full-color painting of the magnificent bald eagle is featured in a new Government publication, *Symbol of Our Nation*. The reproduction, on high-quality paper suitable for framing, measures 11½" x 15½", including a white border. Bob Hines of the Bureau of Sport Fisheries and Wildlife is the artist. The publication also tells the story of the bald eagle in our history and the present extreme danger to its survival (the southern race of the bird is carried on the Bureau's endangered species list). Copies may be ordered for 50¢ each from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402; catalog number is I 49.2: Ea 3.

## **Wilderness vs. I-70**

The hour of decision is approaching for the southern portion of the Gore Range-Eagles Nest Primitive Area in Colorado. Secretary of Agriculture Orville L. Freeman will soon decide whether the public interest would best be served by keeping the area wild or allowing an interstate highway to be built through part of it. He has authority under the Wilderness Act of 1964 to delete the southern 7000 acres from primitive—and hence from future wilderness—status. It is one of the Act's specific exceptions.

Two strong camps are opposed, and although we view with distaste the destructive proposal to route a portion of Interstate 70 through this magnificent wilderness, still the curious reversal of

roles traditionally played by the antagonists in this kind of struggle has taken our fancy.

The issue is whether to route I-70 west of Dillon along the existing U.S. 6 over Vail Pass, or to drive a straighter shortcut through the primitive area, avoiding the summit of a pass by constructing two tunnels. To widen and bring up to interstate standards the 27.1 miles of U.S. 6 involved would cost about \$22 million. To build the proposed 16.5-mile "Red Buffalo" route, with twin 6100-foot tunnels beneath Gore Divide and a 7½% grade on tunnel approaches, would cost approximately \$63 million.

Chambers of commerce are campaigning for the maximum expenditures of highway monies for—of all things—psychological reasons. The Colorado Highway Department confesses that it prefers the costlier route partly because it is shorter, but also because the shorter straight-line route is a challenge to its engineers. And conservation groups, sometimes accused of having no sense about money, are fighting to economize on public funds.

The Primitive Area straddles the Gore Range in the White River and Arapaho National Forests. It is a land of contrasts, with jagged mountains nearly as high as Colorado's tallest. It lies only 65 air miles west of Denver, yet parts are considered as primitive and rugged as any areas in the U.S. Mining and lumbering have been minimal, and it contains magnificent stands of timber. Avalanches occur frequently in winter and rockslides in summer.

Chambers of commerce of both Denver and Grand Junction, which lies father to the west along I-70, envision more tourist and trucking dollars flowing along the shortcut. A Gunnison club president is quoted as saying that the tunnel "would eliminate the barrier which mountains create in the minds of highway travelers." A Colorado state representative also looks to the shortcut to "help abolish the barrier of the Continental Divide within our state."

The Rocky Mountain News of Denver is crusading against the Eagles Nest route, and the Denver Post also opposes it. The Colorado Open Space Coordinating Council is leading a vigorous fight by individuals and conservation groups. One writer said construction of the Red Buffalo route would "be an act of governmental vandalism." Another noted that even though the shortcut might "open up" the wilderness to the busy motorist, he really should not be looking at the scenery if he is doing 70, the speed required to effect the saving of about nine

minutes promised him by the shorter route. Senator Peter H. Dominick of Colorado strongly favors widening the existing Vail road. He was convinced, after a rugged all-day horseback trip over the proposed Red Buffalo route and an air trip the following day, that the magnificent wilderness should not be violated by a major U. S. highway.

Assistant Secretary of Agriculture John A. Baker also took to horse for a first-hand look at the area. After his trip, Secretary Freeman at last ordered the Denver office of the Forest Service to analyze in detail the resource impacts of the proposed highway on the primitive area. The "impact study" is to include studies of potential harmful effects on wildlife; soil erosion; timber; stream pollution, and watershed.

Recently the highway department has been cutting trees in the wilderness primitive area and preparing for exploratory drilling under a Forest Service permit to survey, issued October of last year. The permit has allowed the department to land helicopters within the primitive area and to install equipment for snow, avalanche, and weather studies.

At best the shortcut would have to provide firmly anchored snowsheds, and it is not impossible that avalanches and rockslides would ultimately prevent the road's going through. The state highway department, however, says the Vail Pass route has more unstable ground and more area exposed to the sun, which can cause ice problems. They also say the shorter route would save users \$3.3 million per year.

It is not clear to us whether 11 million tourists would each save 30 cents, or whether, say 33 truckers would each save \$100,000. It is also not entirely clear why tourists supposedly interested in seeing Colorado would prefer a tunnel to a mountain pass, or just how a 7½% grade-approach, plus controlled speed through a tunnel, could really be faster for commercial interests than the 3½% grade on the Vail Pass route.

The Forest Service has been slow to speak in this situation, hence the Secretary's interest is encouraging. The Service deserves encouragement from other interested Americans. And as he is making his decision, Mr. Freeman will also have the support of the Transportation Act of 1966, which declares it "to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites," and which directs the Secretary of Transportation not to approve any (road) project requiring use of public park or recreation

areas "unless there is no feasible and prudent alternative" to such use and unless planning for such a road minimizes harm to the area.

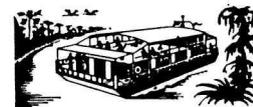
### ***New Park Service Post***

A new position has been established within the National Park Service—that of Deputy Associate Director for Urban Affairs. Mr. Johannes E. N. Jensen has been appointed to that post by George B. Hartzog, Director of the Service. Mr. Jensen has been serving as Assistant Director for Design and Construction since 1963, and he will be succeeded by Charles E. Krueger.

### ***Another Ontario Park***

The Department of Lands and Forests of the Province of Ontario has announced plans to develop a large park north of Penetanguishene on the south shore of Lake Huron's Georgian Bay. The Government has already obtained 3000 acres for the park and intends to purchase an additional 2000. It will be the largest provincial park within a hundred-mile radius of the populous Toronto area; a major  
*(continued on page 22)*

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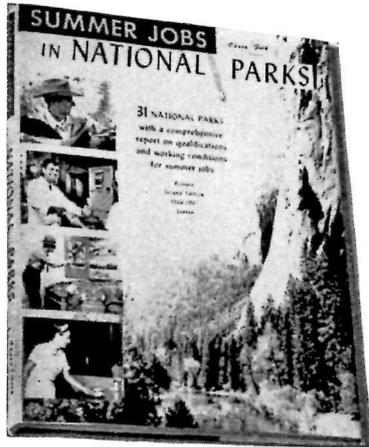
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future haven for campers, swimmers and naturalists, the park will take several years to fully develop, it is reported. With a half-mile of shoreline which will provide some fine beaches, the proposed reserve is mostly second-growth bush at present.

**Eliminating Phosphates**

The soap industry has been asked by Interior Secretary Stewart L. Udall to do something about detergents, which make it easier for all of us to live a clean life in our homes but which have an opposite effect when finally liberated in our rivers and lakes. Phosphates added in the process of manufacturing detergents stimulate growth of aquatic plants which age, pollute and clog river, lake and estuary.

In an address before a meeting of industry representatives the Secretary requested the elimination of phosphates from soaps and detergents, adding that control of phosphates from other industries and from agriculture will also be necessary. He solicited industry cooperation in a joint Federal-industry research effort to find substitutes for phosphates.

As a consequence of this meeting, a 13-man task force of representatives from Interior and the soap and detergent industry has been named to recommend a cooperative research program on the overall problem of controlling eutrophication (over-fertilization) of lakes. A study of phosphates and their possible replacement will be included.

**The American Alligator**

Directors of fish and wildlife departments in 15 southern states currently are asking Congress to help prevent the further decline of the American alligator. The December issue of National Parks Magazine will carry an article on this endangered animal and its present status.

**Reviews**

**BRYCE CANYON NATIONAL PARK.** By John Barnett. Bryce Canyon Natural History Association, Bryce Canyon National Park, Utah 84717. 1965. 40 pages, illustrated in color. 50¢.

**WILDFLOWERS IN COLOR.** By Arthur Stupka. Harper and Row, Publishers, New York City. 1965. xiv + 144 pages, with suggested readings and index. Illustrated in color. \$5.95 in hard cover, \$2.50 in paperback.

The continued increase in national park attendance, coupled with the knowledge explosion, demands that natural history associations increase the quantity and quality of park publications. Some park associations have met this obligation better than others. On the whole, however, obvious trends in the "new wave" interpretive literature emphasize short, articulate texts and colorful illustrations.

Two examples of such popular works are *Bryce Canyon National Park* and *Wildflowers in Color*. The former book depicts the physical-cultural landscapes of Bryce Canyon; the brief text is enhanced by 38 color illustrations of highest quality, plus two park maps. Contents include the geological story, trees and shrubs, flowers, animals, human history, and what to do in Bryce Canyon. Perhaps the major criticism of the book is its lack of an attempt to tie together the often dangling, fragmented material into a coordinated ecological story. Bryce Canyon would do well to follow this book with a penetrating but popularly written ecological treatise on the park.

*Wildflowers in Color* was produced by a major publishing house (Harper & Row) in cooperation with three natural history associations: Shenandoah National History Association, Eastern National Park and Monument Association, and Great Smoky Mountains Natural History Association. Hopefully this book will establish a precedent for similar cooperative publishing ventures in the future. The book covers a wide area of the eastern United States, although it was written primarily about the flowers of the Blue Ridge Parkway, Great Smoky Mountains National Park, and Shenandoah National Park. This is the "heartland" of the Southern Appalachians and is accessible, within one day's travel by automobile, to more than half of the population of the United States. *Wildflowers in Color* is a field guide to identification and a full-color picture book of more than 250 wildflowers, shrubs, vines, herbs, and trees located in the "vegetation cradle" of eastern North America. On the whole the color photographs are clear and suffi-

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ciently enlarged for proper identification. A location map of the three connecting park areas would have been helpful for the visitors, and a greater proportion of common wildflowers found in Shenandoah could have been included. Nevertheless, putting aside these minor flaws, *Wildflowers in Color* represents one of the best and most popular park guides in existence.

—E. J. Wilhelm, Jr.  
University of Virginia,  
Charlottesville, Va.

**PALMS, PEAKS AND PRAIRIES.** By Richard Fleck. The Golden Quill Press, Frances-town, New Hampshire, 1966. 71 pages in hard cover. \$4.00.

It is a truism that when a man travels he takes himself with him, but he also becomes a part of what he has seen and read. Mr. Fleck has kept his terse, almost New England, style even when describing the lush growth of Florida, the fertile fields of the Midwest, the grandeurs of the Rockies or the turbulence of two oceans.

Either by reference or choice of titles he makes us aware that Thoreau, Dickinson, W. H. Hudson, Stephen Crane, Cather, Steinbeck, Robert Frost and other authors have become a part of himself. But what does he offer to an audience unaware of all these authors? Just what he intended—to show us that America is an empire, tropical and temperate, fertile yet with deserts, mountains and high plains; all these variations of scenery and climates in one country.

—Dorothea Gray Gray

(We are advised that this volume may also be obtained from The Bookcellar, P. O. Box 419, Laramie, Wyoming.)

**"IN WILDNESS IS THE PRESERVATION OF THE WORLD".** By Eliot Porter. Ballantine Books, 101 Fifth Avenue, New York City 10003. 1967. 160 pages, illustrated in color. \$3.95.

This is a paperback edition of the Sierra Club's big Eliot Porter volume, fantastic in the excellence of its photography and color printing, published during the fall of 1962 and now widely known throughout conservationist America (and probably most of the civilized world as well). One is not sure whether the book is Eliot Porter's photographs supported by Henry Thoreau's observations on the New England countryside, or the other way around; many purchasers have eventually concluded that the book was really two books—Eliot and Thoreau complementing each other under one cover.

Within the limitations imposed by the mere mechanical requirements of a paperback book, Barnes Press, printer of the big volume, has duplicated the craftsmanship of 1962 in miniature at a remarkable price.

—P.M.T.

## THE CONSERVATION DOCKET

SEVERAL BILLS OF INTEREST TO CONSERVATIONISTS, listed in this column in past issues of the year, have been acted upon by one or the other of the Congressional bodies, as follows:

S. 778, to establish the Apostle Islands National Lakeshore in Ashland and Bayfield Counties, Wisconsin, passed by the Senate, August 21, and sent to the House, where it was referred to the Committee on Interior and Insular Affairs.

S. 814, to establish the National Park Foundation, reported, with a minor amendment, out of the Senate Committee on Interior and Insular Affairs with Report No. 532.

H. R. 4739, to authorize the Interior Secretary to grant leases to concessioners for employee housing at the El Portal administrative site outside Yosemite National Park, reported with amendments out of the House Interior and Insular Affairs Committee to the House, and committed to the Committee of the Whole House on the State of the Union.

H. R. 5605, to establish the Florissant Fossil Beds National Monument in Teller County, Colorado (described in the magazine for July, 1965), reported out of Interior and Insular Affairs Committee with Report No. 622, and committed to the Committee of the Whole House on the State of the Union, with a limitation of 1000 acres as maximum size of the monument.

The Potomac Edison Company's proposed route for a high-voltage power transmission line across the Antietam National Battlefield in Maryland, reported in the *October Magazine*, resulted in a number of bills designed to protect national parks, forests, historic sites and some other special areas from intrusion by high-lines, whether in or adjacent to publically owned lands. Latest of these bills is H. R. 11809 (Reuss, Wisconsin), which would require the Secretary of the Interior to inventory lands and waters adjacent to Federal lands of historic, recreational or scenic value, which could be adversely affected by powerline construction. The bill would further require grant of a certificate of construction by the Interior Secretary in cases where, after a hearing, he might determine that construction of lines for interstate transmission on these adjacent lands would be in the public interest.

A number of appointments within the National Park Service have been made during the recent past, most important of them being:

• Frank F. Kowski, superintendent of Sequoia-Kings Canyon Parks, as Director of the Service's Southwest Region, to replace Daniel B. Beard, now retired.

• John S. McLaughlin, superintendent of Yellowstone Park, to succeed Mr. Kowski as

superintendent at Sequoia-Kings Canyon.

• Jack K. Anderson, superintendent of Grand Teton Park, to succeed Mr. McLaughlin at Yellowstone.

• Howard H. Chapman, superintendent of the Coulee Dam National Recreation Area, to be superintendent of Grand Teton Park.

• Thomas W. Morse, to be superintendent of the newly authorized Cape Lookout National Seashore on the Outer Banks of North Carolina. Mr. Morse was most recently assistant superintendent of Cape Hatteras National Seashore, on the Outer Banks just adjacent to the north.

The Secretary of the Interior has appointed a seven-man commission to advise him on matters relating to the newly authorized Indiana Dunes National Lakeshore. The seven are: Thomas E. Dustin of Fort Wayne, Indiana, chairman; and, all from Indiana, John A. Hillenbrand, II, William L. Lieber, Harry Frey, William J. Tobin, John R. Schnurlein, and Mrs. Celia Nealon.

The Secretary has also announced the appointment of Robert Falcon Scott, of Washington, D.C., as Chief of the Division of Refuges in the Fish and Wildlife Service's Bureau of Sport Fisheries and Wildlife. (The Division has had an Acting Chief since the retirement of Francis C. Gillett nearly a year ago). Mr. Scott is a biologist with a wide range of wildlife ecology work and study behind him.

Director Boyd L. Rasmussen of the Bureau of Land Management has appointed Harold C. Lynd, most recently a member of BLM's Forestry Staff, to the position of Chief of the Staff. Mr. Lynd replaces Archie D. Craft, who has been named BLM State Director for Oregon.

The Federal Power Commission has amended its regulations, through Order No. 350, to require applicants for minor (less than 2000 horsepower installed capacity) hydroelectric power projects licenses to include exhibits relating to conservation and enhancement of fish and wildlife resources. The FPC had earlier this year directed applicants for major project licenses to include such exhibits in their applications. The exhibits must show the effect, if any, the projects would have on fish and wildlife resources of the areas and proposals for measures to conserve and enhance such resources.

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*Cedar Breaks National Monument is one of the several national reserves which have been established in southern Utah to protect superb examples of a spectacular erosional landscape in a dry, high-plateau terrain.*

**A**S AMERICA'S leading conservation organization concerned primarily with the protection of the national parks and monuments the National Parks Association has pioneered in the conception and development of plans for helping relieve these areas of the mounting pressures for overdevelopment. The Association has already outlined a number of regional plans for parks and monuments that have been reviewed for purposes of the Wilderness Act; in issues of the near future it will present plans covering the southern Utah parks and monuments. Such regional planning is, in the opinion of the Association, vital to any solution of the perennial "protection and public enjoyment" problem in the park system.

THE ASSOCIATION needs your help in such park planning and protection work. You can assist in any of several ways: by raising your membership class; by contribution to the general funds of the Association over and above regular dues; perhaps by remembering the Association in your will; by helping to secure new Association members. All dues over and above basic annual dues, and all gifts and bequests, are deductible for Federal income, gift and estate tax purposes.

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