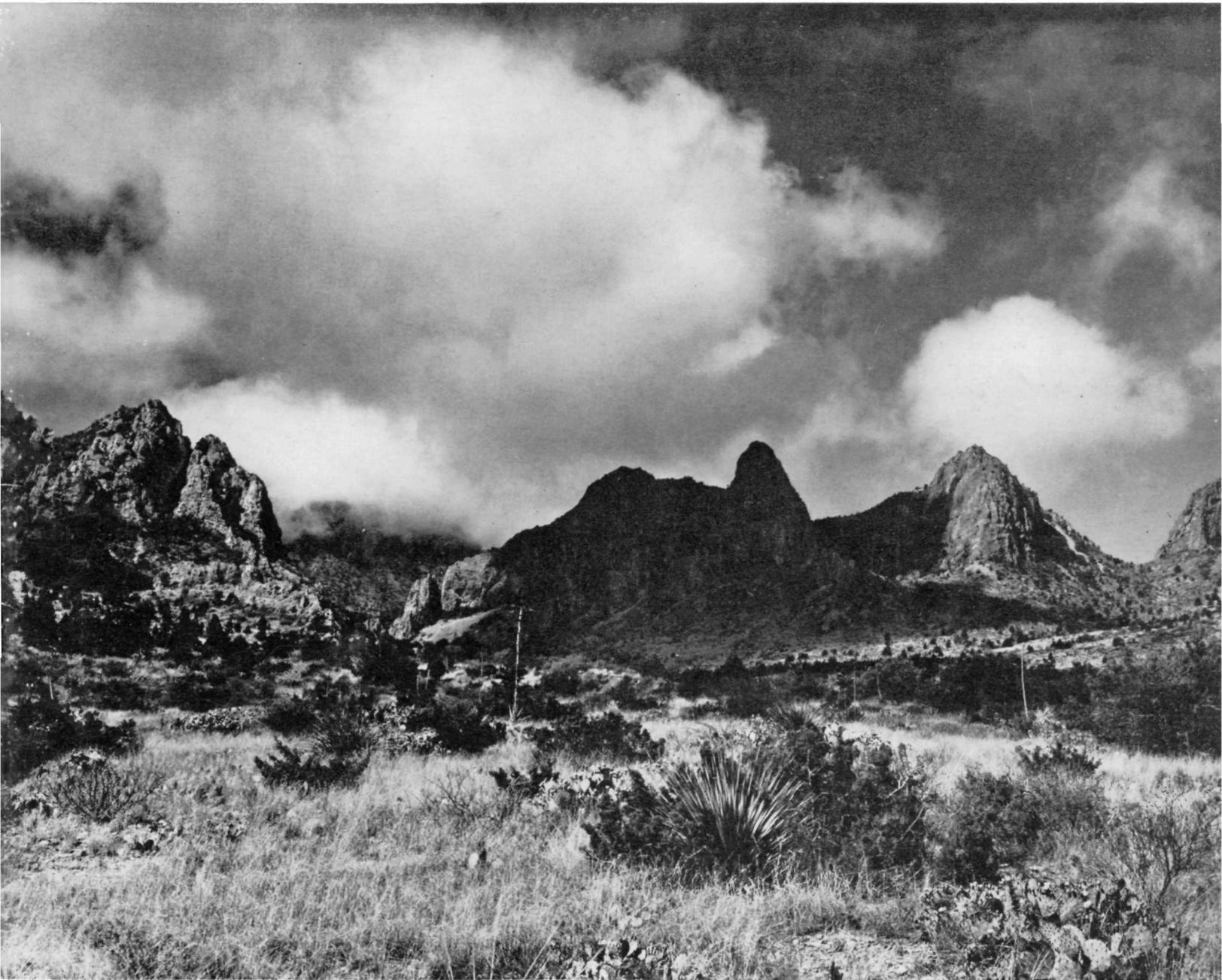


NATIONAL PARKS *Magazine*



Green Gulch, in the Chisos Mountains
of Big Bend National Park, Texas

December 1968

MILESTONES

I.

THE YEAR'S END CLOSES A FRUITFUL EIGHT-YEAR PERIOD in conservation which presents a challenge to the incoming Administration. The people who led the way during this creative time deserve the highest commendation: among them the late President Kennedy, President Johnson, Mrs. Johnson, Secretary Udall, and Mr. Laurance Rockefeller.

Consider the spacious and beautiful shoreline which has been saved: Cape Cod, Fire Island, Assateague Island, Point Reyes, Padre Island, Indiana Dunes. These shores will at least never suffer the fate of Coney Island; will they become Jones Beaches?

Added to the roster of the great parks were Canyonlands, Cascades, Redwood. The first Scenic Riverway was created, Ozarks. The Wilderness Bill stabilized the roadless country in the national forests and launched us on the permanent protection of wilderness elsewhere. The Land and Water Conservation Fund was established, and the President's Council on Recreation and Natural Beauty. Permanent policies and programs for the recreational use of our national forests and public domain were initiated.

Beginnings have been made with efforts to protect the national park system against the traffic and the congestion; the elimination of the notorious fire-fall in Yosemite augurs well. As yet the obvious remedy of regional planning and the dispersion of crowds outward from the parks to the other public lands and the private lands beyond has not been effectively applied; we still hope for action through the President's Council.

Some excellent criteria have been established by distinguished commissions for wildlife protection in the national parks, for the ecological management of the wildlife refuges, and for the protective planning of park roads with a view to park appreciation, not high-speed transportation. The menace to park standards posed by the private automobile and by real property inholdings has been recognized, although solutions have not yet been found.

The Grand Canyon of the Colorado, including the monument, the park, and much more, has been given solid protection after a prolonged struggle, and water provided for Central Arizona nonetheless. The Potomac has not yet been ruined by reservoirs; nor Storm King Mountain by the pumped-storage program of the Consolidated Edison Company. It is even possible that the Mineral King ski-resort urbanization plans may not ultimately materialize. One or another Administration spokesman has lent his aid to a good cause in all these cases, though the private non-profit organizations may have had to do most of the campaigning.

Immense new territories have been opened up for conservation by the scenic rivers, national trails, and estuarial protection programs and statutes. A revolutionary change has occurred in approaches to water pollution, moving from storage for dilution toward pollution prevention and water renovation and recycling. Atmospheric pollution has been recognized as a serious nation-wide danger; noise pollution has been identified as a concern of conservationists and environmentalists.

Issues of urban open space and parks, the closely related challenge of traffic reduction and public transportation, problems of the big road systems, cutting through green space and nature sanctuaries, plus rural and scenic roads, good or bad, bring two new departments, Housing and Urban Development, and Transportation, into conservation.

Parks, forests, wildlife, soil, watersheds, and river basins merge into the over-all conservation concept, and conservation grows into the protection and restoration of a healthful, beautiful, and enjoyable environment. The imperatives of population stabilization and reduction, world-wide and here at home in America, begin to be recognized.

The outgoing federal Administrations have made a contribution to the nation in these fields which is second to none in all our history; we look hopefully to the incoming Administration for a continuation and expansion of these constructive policies.

II.

For us in the National Parks Association also, the turn of the year marks the end of a constructive epoch, the ten-year period which we have called our Expanded Program, and the opening of new vistas.

A decade ago, in January, 1959, we enlarged *National Parks Magazine* to display-size, converted it from a quarterly to a monthly, and increased its page space 50 percent, with other enlargements thereafter.

Our membership in this period has grown to nearly 40,000, four times what it was; income and financial resources are about ten times what they were. We are solidly established in a valuable building of our own in the heart of Washington.

As usual in such matters, our responsibilities constantly outpace our facilities in money and personnel. Our program has developed from a narrow specialization in park protection to a comprehensive environmentalism. We are well aware of our solid impact on current events, and look forward with confidence to a growing and constructive influence in the future.

—A. W. S.



NATIONAL PARKS Magazine

OFFICIAL PUBLICATION OF THE NATIONAL PARKS ASSOCIATION

VOLUME 42

DECEMBER 1968

NUMBER 255

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Front cover photograph by M. Woodbridge Williams, courtesy National Park Service

"Nowhere have I found such a wildly weird country. The very silence is oppressive. A man . . . becomes awe-struck by nature in her lofty moods. Emotions are stirred by the grandeur and beauty of the scenery and the ever-changing play of light and shadows." So wrote William Ferguson in the *San Antonio Express* of 1896 about his impressions of the Chisos Mountains, backbone of today's Big Bend National Park, and most visitors will agree that the estimate was adequate. In this issue we supplement the purely scenic aspect of the park with an account of its human history.

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 37,000 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.

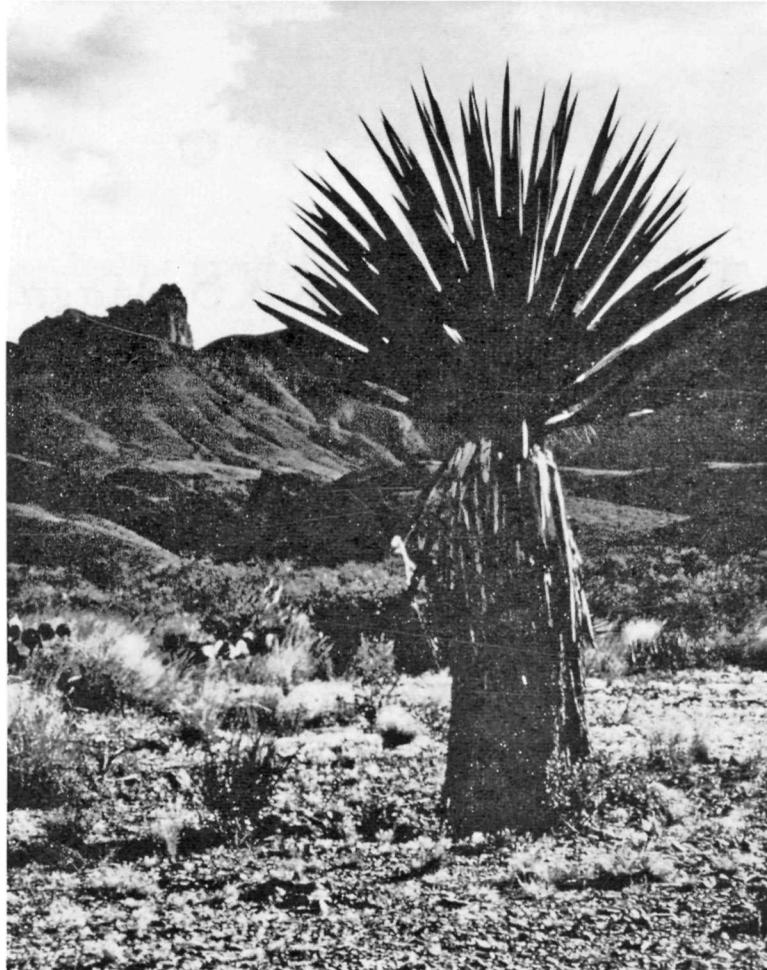
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NATIONAL PARKS MAGAZINE

1701 18th STREET, N.W.

WASHINGTON, D.C. 20009



Photograph by the author

Symbolic of Big Bend Park's harsh semi-desert environment, a yucca breaks the mountain skyline near the visitor center at Panther Junction.

BIG BEND OF YESTERDAY

By Patricia James Easterla

THE GRAVE IS SIMPLY MARKED WITH A WOODEN CROSS stuck into a pile of stones. There is no name, no date, no clue to the mystery of who the person was, or why he was buried in this place. The cross stands alone among a scattering of cacti in the isolation of the wilderness known today as Big Bend National Park in southwestern Texas. What of the humans who traveled and lived in this harsh, hostile desert? What sort of people were enticed into this land, what lured them on? For what reasons did they give their lives to this wild place?

Certainly these questions cannot be answered without first examining the terrain and make-up of Big Bend National Park. The name of the park is derived from the bend of the Rio Grande which forms a pocket in the boundary between the United States and Mexico. It is in the very crook of this bend that the 708,221 acres of the park lie. Early mapmakers branded the one word "Badlands" across this wild, inhospitable section of west Texas.

The park is part of the great Chihuahuan Desert region. But lest the idea of a desert conjure visions of vast stretches of bare sand, the Big Bend area is far from that; rather, it is one of unusual vegetation. Because its terrain is broken by the Chisos Mountains, which rise like an oasis from the desert, the botanical variations in the park are many. The desert does produce water-storing, spinous plants such as the cacti, agave or century plant, and Spanish dagger yucca; yet in the Chisos Mountains pinón pines and junipers can be found.

Summer temperatures in the lowlands of the Rio Grande can reach a high of 112°—a dry heat that sucks the moisture from everything. Today, whizzing along a modern highway in air-conditioned comfort, it is difficult to relive the thoughts and experiences of earlier travelers into this area as they wove their slow way through a starkly beautiful but formidable land.

The history of Big Bend is not a story of the passing

centuries; it is a history of yesterday. Occasionally the ranger-naturalist on duty at the Panther Junction Headquarters lobby will still be asked if it is safe to camp on the Rio Grande. To some visitors the violence that was once a part of the Big Bend is still too near the surface of the present to be history—they need reassurance.

Big Bend represented a “last frontier” to many groups of people; but none had a better right to call it a final retreat than the Plains Indians. As these people fled before the onslaught of Spanish and American land seekers they sought the protection of the vast Big Bend; and, once there, they proved formidable opponents. Even the early Spaniards made no attempt to settle the Big Bend because of the fierceness of the Apaches. Comanches were to be found there, too, fighting with the Apaches and occasionally sweeping south into Mexico. During the September full moon, after summer rains had filled waterholes, restless Comanche raiders would pass through Persimmon Gap, Mexico-bound to rob, plunder and take slaves. In time this same Persimmon Gap was to serve white settlers, stage

lines, cattle drivers, and freighters. Today, the Comanche warwhoop has been replaced by the whine of rubber tires whipping concrete as the highway from Marathon into the park passes through the same historic gap.

In view of the Indians’ tenacious hold on the land, and the inability of United States soldiers to outmaneuver them in a harsh and rough environment with conventional transportation, a most unusual experiment was conducted in 1860. Twenty-four camels were sent to the Big Bend by the Army for comparison with the more normal mode of mule trans-



Unmarked grave in Big Bend: what sort of people were enticed into this land?

portation. Among other things, the camels’ adaptability to this terrain was noted. When crossing a treacherous lechuguilla flat bristling with long, sharp spikes, for example, the camels soon learned to place their feet against the blades in such a way as to crush them. It is interesting to note that there were no attacks on the camel-trains by Indians. Certainly it must have been a strange and frightening experience for the Indians to see the oddly-shaped, tremendous beasts lumbering across the sun-baked desert. However, before the experiment could be completed the Civil War intervened, and transportation through the Big Bend country suddenly became a minor consideration.

The establishment of reservations in the north and an increased effort, at the end of the Civil War, to dispel the Indians to make way for white settlement brought to an end the long supremacy of the red man. The Big Bend was truly the last frontier for him. It was here that his last dreams and hopes died, to slowly become Big Bend history.

Now the ruggedness and isolation of Big Bend attracted another breed of humanity—the outlaws and bandits. Even the law called a halt to pursuit when disappearing outlaws and bandits set their sights on Big Bend country. Big Bend had a reputation: “There’s nothing down there that don’t have claws or thorns or a sting to it.” To both American and Mexican renegades, traveling light and in a hurry, the desert country offered a haven. Once again the settlers in Big Bend were faced with a threat, and they responded by establishing the Texas Rangers in the area. These peace officers were feared by the bandits, and at one point a standing reward of 500 head of cattle for the head of a Texas Ranger was offered among the Rio Grande bandits.

The coming of the lawless breed to Big Bend triggered some of the saddest tales in its turbulent history. In 1884 a group of ranchers discovered several of their horses missing. After following the trail for a short distance they were brought up short by the sight of a child’s beaded purse lying on the ground. The ranchers immediately sent for help, and following the clue of the child’s purse rode to the Petty camp on Tornillo Creek. The ranchers and soldiers began a three-week search for the bandits across the Rio Grande. One of the ranchers was asked on the return of the party what they had done to the outlaws when they had found them. “We didn’t have to do anything,” came the terse answer. “When we overtook them, it just naturally scared them to death; so we rounded up our horses and came on back.”

Despite the tales of violence and hardships inflicted by the environment, settlers began to filter into the Big Bend. One settler told of tying his wife’s shoes on his saddle every time he left camp to keep her from leaving him, saying that “Even a woman, pining for gossip, wouldn’t take out across the Big Bend barefooted.” Whether a Texas tale or fact, life in the wilds of the Big Bend must have been isolated for the womenfolk.

Traveler and settler learned to both respect and utilize the environment. The saw-edged blades of the sotol plant could be cut away to leave a stool resembling a pineapple. This when roasted produced a meal, and could also be used to feed livestock. The pitahaya or strawberry cactus produced a luscious fruit not unlike the strawberry. The heart of the agave could also be eaten, and a fine rope produced from its leaves. Blossoms of the Spanish dagger, when properly prepared, tasted like brussels sprouts. Ocotillo stalks could be used to make roofing, small corrals and various enclosures. But certainly no plant ever made a greater impact on local history than the candelilla.

The candelilla plant is leafless and has a fleshy, reed-like stem. In hot weather a wax coating forms on the stem, presumably to help prevent evaporation of moisture. From the plant a hard wax can be obtained for use in automobile, floor and shoe polishes, and in chewing gum. Harvesting consists of pulling up the entire plant, which is processed in sulphuric acid and boiling water. The remains of old candelilla wax camps can be seen throughout the Big Bend area, and today there are still some camps in operation outside the park. Park rangers are constantly on guard against candelilla movement as well as the picking of can-



Photograph by David Easterla

The candelilla plant, source of a wax used in various polishes, grows in Big Bend Park, which still has a minor protection problem in this respect. Above, burros bring candelilla to wax plant outside park. Below, a view of Hot Springs in 1951, with trading post at left and small motel at right.

Photograph courtesy National Park Service



delilla within park boundaries. However, waxmaking in the Big Bend region may soon be a thing of the past in any case, because of the many wax substitutes now appearing on the market.

People came to Big Bend for many reasons; but one of the most celebrated settlers arrived in 1901 in the person of J. O. Langford, who had been in poor health for some time after a bout of malaria. Upon hearing of a health-giving hot spring on the Rio Grande he purchased the land, sight unseen, and with his wife and 18-month-old daughter made the 11-day trip from Alpine, 115 miles away, in an ore wagon. He became convinced of the curative powers of the waters and eventually developed Big Bend's first commercial facility for tourists. He built a bathhouse over the springs, charging users ten cents a bath, and, after an absence of fourteen years because of border troubles, returned to build a trading post and a motel-type dwelling near his springs. The springs were badly silted in 1966; but much of the Hot Springs settlement, although abandoned, may still be seen by park visitors.

Just down the river from Hot Springs lay Boquillas, Texas (or La Noria) and across the river was Boquillas in Mexico. La Noria was primarily established to serve the men who hauled ore—lead, silver and zinc—from the old Boquillas mine in Mexico. Eventually the ore was brought across the river by aerial tramway, remains of which can still be seen although La Noria no longer exists. Sleepy Boquillas in Mexico still remains much as it was

then, and a ride across the river by burro brings one to this quaint adobe village.

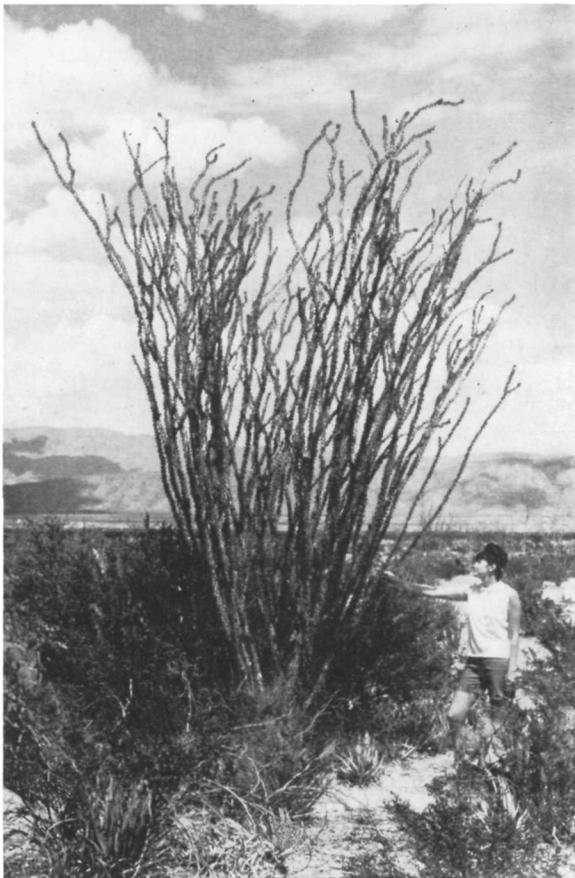
The border troubles that forced Langford to leave Big Bend for a time created ripples of disturbance throughout the region, and in 1914 the Army established a small military post at Castalon in the southwestern section of today's park, across the river from the village of Santa Elena, Mexico. Most of the Army's original buildings still stand, and some are still in use.

Before the days of the park, ranching was a big industry in the Big Bend region. The range was a rich one in some parts, covered with a fine stand of grama grass. But, as ranching brought economic growth to the Big Bend, so it also brought overgrazing and eventually erosion in some places, and today within the park there are many deserted ranches scattered about which are relics of that ranching era.

Just outside the western boundary of the park is the ghost town of Terlingua, consisting today of only adobe shells; and it is hard to believe that some 1500 people once inhabited the hot, dusty little mining town. It was here that the Chisos Mine, widely known in mining circles, bloomed in the early 1900's, to finally die in 1946. The mercury ores that were the lifeblood of the village were furnaced locally, and the metal sent to Alpine, 84 miles away. In 1922, 40 percent of the mercury (quicksilver) produced in this country came from the Chisos mines. Mining activities at Terlingua were to affect the future park area itself to

In the photograph below, taken during the time of active quicksilver mining in the Terlingua district of Big Bend, a freighter is preparing to leave the Waldron Mine with a load of liquid metal, which was shipped in metal flasks.





Photograph by David Easterla

The author stands beside an unusually large ocotillo in the park. This plant was used for fences and the stalks were also laid across roof frames as in the Gilberto Luna residence, whose remnants are pictured below.

Photograph courtesy National Park Service



some extent, because for many years wood was cut in the Chisos Mountains for use as fuel in the mercury furnaces.

The rough beauty and complex human history of this Texas land was not to go unnoticed forever. Its fascinating wildlife and botany, combined with an equally fascinating geological history that had produced towering canyon walls and deep gorges, eventually aroused the interest of many conservationists and scientists who wished to see a portion of the area protected as a national park. Certainly it was no small task on the part of the State of Texas to obtain title to the land from the some 3000 individuals who were involved. Some strange dealings of the past surfaced during the course of land acquisition. The story is told of a lady from Ohio who insisted that her potential park land be surveyed; and she went to Alpine to see that the survey was made. She was asked to accompany the surveyors to her land, and at that point it became obvious that the lady could not stand on her land, but only lean on it. She had bought ten acres in the Dead Horse Mountains which consisted for the most part of straight-up-and-down cliffs! But in 1944 the last legal tangles were unravelled. Texas presented to the people of the United States the magnificent and historic land which now is Big Bend National Park.

So it was that people had come to the vast Big Bend country for many reasons—for wealth or health, for refuge, and above all perhaps because Big Bend was the last great American frontier. The lure of adventure had called them, and today, in many an unmarked grave in the park, lie the men and women who dared venture into the wild, fierce, and largely unknown land that was the Big Bend of yesterday. ■

THE NEW REDWOOD PARK

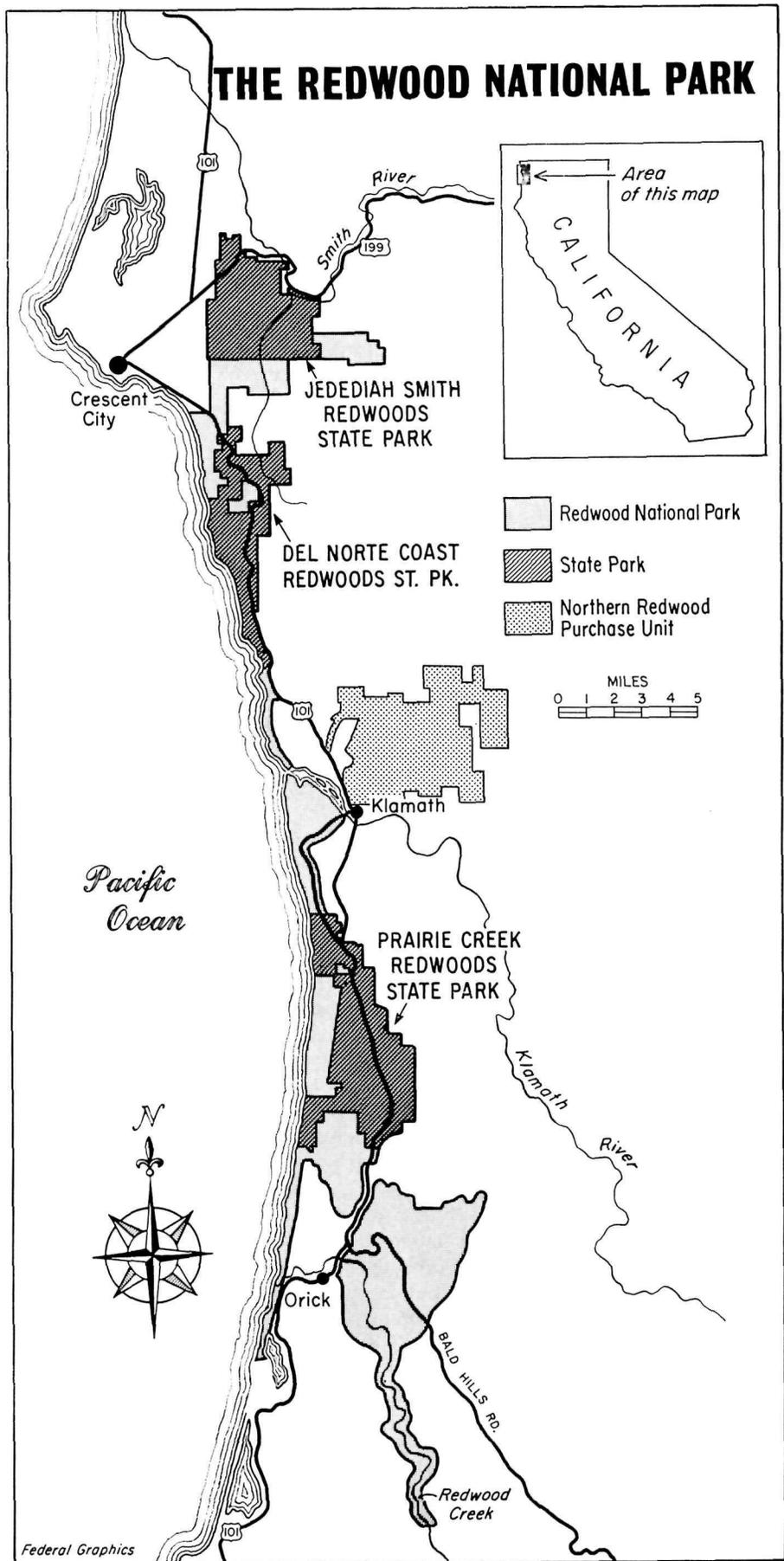
"IN 1917, THREE MEN WHO WERE exploring, in northwestern California, the most extraordinary forest that the world, perhaps, has ever produced . . . envisioned a Redwoods National Park . . . to consist of the noblest forest of them all; and, tributary to it, leading up from north and south, a procession of lesser Redwoods parks, State, County, and perhaps private." The quotation is from an editorial in *National Parks Bulletin* for January, 1926, titled "Greatest Redwoods Reservation Now in Sight." The three explorer-dreamers were Henry Fairfield Osborn of the American Museum of Natural History, Madison Grant of the New York Zoological Society and John C. Merriam of the Carnegie Institution.

The title of the article was perhaps overly sanguine, as was some of the text, which said that "fulfillment of the dream now becomes a certainty."

In fact, there was to be an editorial pause of about 42 years before announcement of a Redwood National Park could be made in *National Parks Magazine*, successor to the *Bulletin*, and those three giants of an earlier conservation day are now only immortal names; but the park they envisioned came into being during early October of this year when the President signed Public Law 90-545 to create a Redwood National Park of 58,000 acres, including the three California State Redwoods Parks shown on the map, subject to donation by the State.

An unusual provision of the law vested in the United States title to all private lands and other property in the park effective with the President's signature, except for small residential and agricultural holdings to be acquired by the Secretary of the Interior later. This provision was designed to stop redwood cutting within park boundaries.

A provision of the law that was felt undesirable by this Association and most other conservation organizations and individuals was that authorizing the trade of redwood lands in the Forest Service's Redwood Purchase Unit, also shown on the map, for private redwood lands included in the park.



Federal Graphics

TRANSPORT

and the

PRESERVATION ETHIC

By M. Cecil Mackey

Mr. Mackey is Assistant Secretary of Transportation for Policy Development. This is a condensation of a speech he delivered on October 25, 1968, at the 22nd annual meeting of the National Trust for Historic Preservation in Savannah, Georgia. Theme of the meeting was "Preservation and the Total Environment."

IN THE PROVINCE OF ASSAM IN NORTHEASTERN INDIA is a wildlife preserve which contains some of the last few individuals of the very rare and vanishing species of great Indian rhinoceros. In explaining the justification for establishing this preserve in resource-scarce India, Prime Minister Nehru reviewed the typical practical reasons, from its scientific value to the promotion of tourism. Nehru, however, rejected all of these reasons as insufficient, stating finally that the preserve was established simply because it was something that had to be done. As Westerners we might be inclined to reject Nehru's justification as Eastern mysticism, but I think we would be very mistaken in doing so, for in this seemingly obscure reasoning is the essence of preservation.

Nehru was saying that the most important aspect of the preservation is not the specific site or the rare animals contained within it, but rather the act of preservation itself. The fact of losing even an entire species of wildlife would in the long run have little effect. The failure to act with reverence and respect for life and for the natural processes of which that species is a part would have an irreparable effect.

The importance of this idea is that the act and the process of preservation are more essential in human terms than the specific objects and goals of preservation. Preservation is not simply a disorganized collection of efforts to save specific pieces of the environment. It is an ethic gov-

erning man's relationship with his environment. The essence of preservation is not in specific parks, historic sites, wildlife preserves and the like but rather in a respect for life and natural process—a consciousness of the perspective of human activity within the long process of natural evolution.

The importance of the preservation ethic to our society is simply that we are irrevocably part of the family of living organisms and the process of natural evolution. Disrespect for life is not isolated to specific objectives any more than is a respect for life. A society irreverent and disrespectful toward Nehru's primitive rhinoceros is disrespectful and irreverent toward humanity.

In terms of resolving the conflict between preservation and physical progress, the important aspects of the essence of preservation are: that it is, in the truest sense of the word, an ethic; that it is concerned with the processes that relate man to his environment and with specific environmental ends; and that it in no way precludes change but only places conditions on the processes of change. Thus, preservation is not in absolute conflict with physical progress so long as that progress is respectful and sensitive to life and to natural processes.

The Department of Transportation was formed basically to coordinate the fragmented and sometimes conflicting Federal transportation efforts. We have begun this job of coordination. Progress is painfully slow and conflicts continue, but we are clearly making our way in the right direction.

The function of the new Department has not been limited solely to coordinating transportation. In the legislation creating our Department there is a strain of thought which goes quite beyond transportation itself. It speaks of the conservation of the nation's resources; of preserving parks, recreation areas, wildlife and historic sites; and even of beauty. It is clear that the Congress intended the new Secretary to consider carefully the environmental consequences of transportation.

New Transportation Philosophy

The Department's dual interests in transportation development and in preservation are not always compatible. Experience with one well-planned highway through one well-established park or historic site is enough to demonstrate the conflict we in the Department find ourselves in. We are supposed to preserve the natural and historic environment and at the same time develop transportation facilities which clearly have great potential to affect adversely the environment. In the context of this apparent basic conflict of interests, we have attempted to develop new transportation programs, but far more important, a new transportation philosophy.

During the time that I have been with the Department of Transportation we have had to make decisions concerning the conflict between specific natural and historic areas and specific transportation facilities. In some cases the decision has been to allow the construction of the facility; in others it has not. In many cases we have relied on subtle changes in location and design. I would certainly not claim that any one of these decisions is perfect. Nor can I claim that the opposing interest groups have been satisfied for there is

ample evidence on both sides that they are not. I can say, however, that the orderly processes of government continued without catastrophe and that the opposing personalities and interests did enter into dialogue and, hopefully, reached some understanding.

In conflict so basic as that between preservation and physical progress positions tend to harden and take on the appearance of moral issues. Even the suggestion of compromise takes on the aura of a compromise of morals which we all, somehow, must be against. I would like, however, to suggest that compromise need not be moral compromise—that, in fact, facilitating compromise is a legitimate and valuable function of government. Compromise becomes meaningless only when it is an end in itself and fails as a means for creating something better.

I believe that preservation and physical progress are compatible. It is this belief that leads me to the conclusion that it is possible to resolve the seemingly basic conflict between environmental preservation and transportation development.

I have indicated that I believe the essence of preservation is found in its fundamental ethic. Turning to an exploration of the essence of physical progress, one is immediately struck by its dissimilarity—by the absence of an ethic of progress. It is obvious that as a society we have specific physical goals. We want to establish more and better educational facilities, reach outer space, do greater medical research, and provide better transportation. The list is very long. While we often disagree on exactly what these goals mean and more often on their priorities, there are few who would suggest that we should have no goals at all. Further, most of us would agree quite readily that our personal lives and our society are significantly better today than in the past because of the physical advancements accomplished during the last century. The essence of these goals and accomplishments, however, has been in their end result and not in the process by which we achieve them.

It is in the confusion of ends with means, in the infatuation with the processes of physical progress that we find not only the source of the conflict which is our immediate concern but a much broader and more fundamental danger—that of becoming trapped by our own techniques and tools. In evolving a technique to achieve a specific goal, we sometimes become more interested in the technique than in its result, with the technique achieving a status independent of its original goal and assuming a dominant position. In short, it is possible to fall victim to a tyranny of technique as well as of technology.

Tyranny of the Automobile

Let me illustrate the point. François Nourissier in his recent book, *The French*, decries what he calls “the absurd tyranny of the automobile.” But as we approach the problems associated with the automobile we must certainly keep in mind that the tyranny we associate with it has, in fact, been brought on by a love affair with the automobile and the mobility which it produces. It is only in the stage of disenchantment with the love affair that we begin to identify the relationship as one of tyranny.

I have suggested that there is a potential compatibility

between preservation and physical progress. In the case of preservation there is a fundamental ethic governing the processes by which man relates to his environment. In the case of physical progress there are techniques by which man can change his environment but no legitimate ethic to govern the use of those techniques, and the absence of such an ethic creates the potential for those techniques to dominate society. The possibility for resolution of the conflict between preservation and physical progress comes when we realize that the philosophy inherent in preservation ethic is precisely what is needed to govern the use of the techniques of physical progress.

This may come as an unwelcome suggestion to those who control the techniques of physical progress. It might be interpreted by some as a suggestion that we turn over transportation planning to the preservationists. This is not what I am suggesting at all. And my conclusion represents no greater criticism of those who plan physical progress than it does of the preservationists. If transportation planning has operated in what is more or less of a philosophical vacuum it is as much the fault of the preservationist who has a meaningful philosophy but has not succeeded in implementing it as it is the fault of the transportation planner for not having developed a more meaningful philosophy.

Should We Blame Technology?

In fact, there is evidence to indicate that, if blame need be determined, it resides outside the fields which are strictly devoted to the development and use of the techniques of physical progress. In an area which is close to us all, in the planning and building of highways, it is essential to remember that our society until very recently asked no more of the highway people than that they plan and build efficient highways. That we should sometimes be disturbed by the adverse environmental impacts of highways should cause us to examine our own failure to provide meaningful goals rather than to point out the environmental insensitivity of the highway planner.

If my conclusions have any real practical meaning, it is that the preservationists and the rest of society which supports them have failed to recognize objectively and apply the philosophy of preservation. The failures of preservation can not be found so much in the loss of specific natural and historic sites, although we must all view these losses with a sense of tragedy, but rather in the fact that the preservation ethic has been isolated in its application to these specific areas. The preservation ethic gains legitimacy only when one recognizes that it applies to man's relation to his whole environment and not simply to certain specific isolated natural and historic parts of that environment. It deals not just with parks, recreation areas, wildlife preserves, and historic buildings but with everything outside of man himself including man's own physical products. It deals with existing homes, factories, offices, and highways as much as it deals with anything else. Most important, its essence is not in saving any particular aspect of the environment from human interference but rather in insuring that man's effects on the environment are a consistent part of a much broader process of natural evolution—the end is nothing more and certainly nothing less than life itself. ■

TRONA PINNACLES: STRANGE MONUMENT TO THE AGE OF ICE

By GEORGE F. JACKSON

IN THE NORTHWESTERN PART of southern California's San Bernardino County—the largest county in contiguous United States—where the vast Mojave Desert begins to merge with the foothills of the Sierra Nevada, there is a series of strange geological formations called the Trona Pinnacles. Here, 175 miles north of Los Angeles, many lofty and bizarre-looking spires rise abruptly from the flat desert floor, resembling immense craggy stalagmites with no cave roof over them. Ranging in height from ten to 150 feet, they present a startling sight when first glimpsed. These "tufa castles," as some people call them, occur elsewhere, but none compare in size and grandeur with those near the small town of Trona.

On public land administered by the Bureau of Land Management, the preservation of the pinnacles has been of concern to conservationists and scientists for years. Dr. Carl L. Hubbs, of the Scripps Institute of Oceanography, has long advocated the inclusion of the formations in some segment of the national park system. Local organizations and others have also urged protection for the area. It now appears that this labor may not have been in vain.

The National Park Service has recommended that the Trona Pinnacles be made a national natural history landmark. San Bernardino County has also asked for the land, with a view toward making it a county regional park with camping areas and an interpretative center to tell the story of the formations.

Located at the western edge of Searles Lake, one of California's many dry-lake beds, the pinnacles are a dramatic reminder of a great lake of the Pleistocene Ice Age. Although their geological significance seems to have received little attention, the development of the strange towers is interesting. During the Pleistocene, many low spots in this area filled with water from glacial run-off. Searles was one of these low spots, and it eventually filled with water which overflowed through still recognizable channels into Panamint Valley, where another great lake formed. This, in turn, spilled through what is now called Wingate Pass into Death Valley, then, as now, the lowest spot on the continent.

The pinnacles, composed of "soft" limestone or tufa, were formed under water when springs flowed upward from cracks in the lake bottom. The water, rich in bicarbonates, carried with it microscopic algal plants which extracted carbon dioxide from the bicarbonate, transforming some of it into calcium carbonate, basic stuff of limestone. Barely soluble, the lime was deposited minute bit by minute bit until eventually the tall spires were formed. Depth of the lake—variously estimated to be from 640 to 800 feet—gave ample scope for their formation below the surface. One study seems to indicate that the various groups of the pinnacles were formed at different times, with variations in time of formation of as much as 10,000 to 100,000 years. Their peculiar alignment may have been influenced by the Garlock Fault, one of California's major structural elements, which passes within a few miles of the pinnacles.

Although the region of the Trona Pinnacles is extremely hot during the summer months, at other times of the year it is visited in comfort. Conservationists and desert lovers alike will applaud the saving of this bit of geologic scenery with its remarkable link to the glacial past. It will be a new world for desert lovers, recreationists and students of the great fresh-water lakes that were once scattered over now-arid parts of the United States during the melting of the Pleistocene ice. ■

An Ice Age phenomenon that has been recommended as a national natural history landmark is the Trona Pinnacles, not far from Death Valley National Monument in southeastern California.

Photograph by the author



THE RACCOON THAT HAD CHARACTER

BY TOM BROWNE

Illustrations by Chauncey W. Webster

I WAS ELATED WHEN THE RACCOONS TOOK UP RESIDENCE under my floathouse on the river. I recognized the male, the larger one, as an oldtimer of the area. I had often put out food for him. His mate was new—slim and silky, with a nose long and narrow as a fox's, eyes deep, mysterious and jet black.

During the ensuing weeks they wandered the bottomlands of the valley, vagabonds without worry. As heaviness grew upon Oldtimer's mate, I noted he dutifully took over most of the foraging for mice and grubs and frogs, and fished sticklebacks for her out of Witches Brook.

My river home floated atop logs, the gaps between choked with driftwood from many freshets. And it was there they constructed a nest from the river's debris. The babies arrived one day when Oldtimer was out hunting. The mother tidied them up for his return. I think he nudged all four of the youngsters with his nose, one at a time, to greet them and get their good scent.

The family would be together a year, and Oldtimer must have known now he would have to be more vigilant, not to get into trouble with Pete Scanlon's basset hound. I'd been keeping track of happenings among my friends of the woods and streams, and I know Oldtimer, just before he mated, had had a close call with the basset, escaping by taking to the water and hiding in a bed of reeds.

Wearied, he had padded home to a big cottonwood, its trunk marred with claw scratches made during the long period he had lived in his high-rise apartment where two massive branches forked and the main stem deteriorated, as cottonwoods do, leaving a cozy chamber. I knew all this because I had tramped the woods almost as much and as long as Oldtimer had.

Because he feared the basset, and realizing his own home was marked and scented with his many trips up and down the tree, he must have brought his mate to my riverside home to have their young. Somehow they seemed to know I had always been their friend.

As the babies grew into animated balls of fluff, quiet only during their solemn contemplation of the gurgling flow of water past the log on which they were born, they grew and hungered for solid food. So Oldtimer hunted with increased diligence and for longer, wearying hours. Their mother did too, of course; and when they were gone, I peeked and played with the babies, getting down on my stomach and peering in at them, seeing their eyes glittering like so many jewels.

Now what I record from here on may perhaps be partly conjecture, but most certainly the greater part has to be true and accurate, for I checked with my neighbor Pete Scanlon; so it was not too difficult to arrive at conclusions when signs left along the wooded paths were taken into full consideration by both of us.



*"He bit through an ear's green sheathing,
sinking his teeth into the soft sweetness within."*

Dusk was falling over the bottomlands near the clearing where Pete grubbed at the soil. Oldtimer, his mouth dripping for early sweet corn, was quietly studying the situation. Lacking the keenness of vision possessed by most other animals, he sensed more by intuition than sight that Pete had just left the cow-barn where he had finished milking. By sniffing the air carefully Oldtimer had determined that the basset was sprawled on the stoop of the small farmhouse. After a time, Oldtimer's acute hearing must have told him the hound was being fed. He probably heard Pete speak to him, then the basset's teeth chomping. Pete had pulled shut the door, then the windows of the farmhouse flamed with lamplight.

After waiting impatiently a bit longer Oldtimer must have glided toward the barn, beyond which was Pete's cornpatch. A soft breeze was telling goodnight stories to the stalks. As he walked across the clearing, his steps must have sounded to him like thunder. He was fearful of detection; but the basset, luckily, was downwind. Oldtimer then made his way cautiously around the cowshed, hugging the wall, fragrant with the odor of the warm milch animal within, mixed with the redolence of sweet meadow hay being masticated. The tantalizing aromas must have caused Oldtimer to hesitate, but then he proceeded, gliding between the rows of corn.

Rustling of the stalks as he tugged them down, loosening the fat golden ears, could have given Oldtimer some concern, for he knew how keen was the basset's hearing. He bit through an ear's green sheathing, tearing it away, sinking his teeth into the soft sweetness within. He nibbled ear after ear, going recklessly from one to another in haste after only a few sampling nibbles; for why be frugal when there was such abundance?

He was probably considering the possibility of lugging some of the corn home to his youngsters when he heard the padfalls of the basset pounding toward the cornpatch.

"Racing for his life . . . it must have been with grateful relief that Oldtimer slid into the brook."



Oldtimer streaked across the clearing on a diagonal course. The chase was on, with the basset calling his master and scolding his quarry in two tones of voice at the same time.

In that first mad rush to evade the hated enemy Oldtimer bounded along a dead fallen tree, worn barkless by weather and smoothed like glass by the successive seasons. He slipped, tried desperately to save himself, but the momentum of his haste pitched him into an upthrust limb, dried hard as stone. The impact took the breath from him; he tumbled to the ground. Apparently it was not until he was aware that the basset was crashing through the brush toward him, yelping exultantly, that Oldtimer moved. And it was with considerable effort, for he ached, not only with the force of the impact, but with age as well. He got going again, with the hound baying unmercifully at his heels.

Panting desperately, for he was still hurting, Oldtimer must have realized that time was running out for him. So he headed for Witches Brook, where it was deep and silent. Racing for his life with the basset barking furiously, jaws almost snapping his tail, it must have been with grateful relief that Oldtimer slid into the safety of the brook. Exhausted, breathing heavily from corpulence and the whacking he had received, he turned to face the basset head-on just as the hound, unable to stop his mad speed, plunged ungracefully into the water, sending cascades of spray into Oldtimer's face.

The Course of Events

The hound's crying was choked off when water filled its mouth. Pete, who was listening as he followed the baying, was positive this is what happened. Now in an element of his own, Oldtimer craftily circled the hound, and with the speed of a fish darted aboard the basset's back. Then Oldtimer placed a front paw deliberately, murderously, upon the hound's head, pushing it under the surface.

A desperate losing struggle was waged by the dog. For seconds Oldtimer's thoughts must have revelled in the revenge he was inflicting and which he had sought for many years. But when he felt his enemy's body lose all strength, a strange compassion came over him; he relented, for he had character surpassing that of most humans, and pushed his enemy toward shore where a little sandspit jutted out, and sat solemnly watching the dog come back to life.

Pete, his master, came then with a flashlight flaring. He shone it all around, then tumbled down the tangled shore to his dog. Oldtimer glided swiftly into the shadows, but not before Pete had glimpsed him.

"Dang you, dog," Pete said, cuddling him with his arms. "Why'd you try to catch Oldtimer? We've got lots of corn." His voice, I am sure, for I know Pete well, was huskier than usual as the dog laved the backs of his hairy, work-worn hands with his tongue. "There just wouldn't be no joy at all, us working away on the farm without Oldtimer coming around. Now, would there, boy?" It seemed as though he was conversing with a true old companion, which was the truth.

And I think Oldtimer must have been extremely tired then, but exultantly happy that he could go home to his family. For he had a great deal to teach his young ones as soon as they emerged from their den under my floathouse, which would be any day now. ■

NEW HOPE FOR THE SANDALWOOD

By WINIFRED BELL FLETCHER

DURING THE NINETEENTH CENTURY THE NATIVE KINGS of Hawaii conducted a highly profitable assault on the splendid sandalwood forests of the Islands, exploiting the precious timber until the trees were nearly exterminated. That several species of sandalwoods are still plentiful in the Hawaiian Islands today is due partly to a belated reforestation program in the 1930's, and partly to the slow awakening of a public conservation conscience.

The sandalwood tree was known as far back as the 5th century B.C., and is mentioned in the ancient Vedas. It was the "almug tree" of Biblical times. It is found today from Java and India to Juan Fernandez, the Bonin Islands and Hawaii, and is a straight, handsome tree usually attaining a height of 15 to 25 feet, although some authorities mention specimens 50 to 80 feet tall. Leaves are opposite, ovate, 2½ to 3 inches long and about 1½ inches wide; flowers are small, varying from white to red. Sandalwood belongs to the family Santalaceae, with 26 genera and some 250 species. The species in Hawaii belong to the genus *Santalum*, a half-parasite which obtains nourishment from the roots or stems of other trees by means of sucking organs.

J. F. Rock, in a 1913 treatise, lists four species of Sandalwood indigenous to Hawaii: *Santalum freycinetianum*, *S. ellipticum*, *S. pyrularium* and *S. haleakalae*. To these Harold St. John added *S. paniculatum*, now known to be the same as *S. freycinetianum*—popularly called "yellow sandalwood"—which was exported to China by the shipload in the early 1930's. He writes of "the splendid groves" of former days.

The history of sandalwoods in Hawaii from 1790 to 1830 is colorful and dramatic, and turns around the fact that the heartwood of the tree, when dry, has a powerful and aromatic fragrance. Thus, when the chiefs found that the Chinese and Indians would pay high prices for the wood, a sandalwood trade was established—the first Hawaiian commerce with a foreign country. Commoners were compelled to cut the fine stands of trees ruthlessly for the gain of their rulers. This flourishing business was at its height between 1810 and 1820.

The earliest definite record of the beginning of the sandalwood trade in Hawaii is credited to Isaac Ridler, a deserter from the *Columbia*, who told Joseph Ingraham that a Captain Metcalf, while at Kalakekua, had been "taking in sandalwood." Metcalf may have been the first to carry sandalwood to China, where it was prized for incense and carved articles.

Vancouver the explorer mentions sandalwood, and it is thought a Captain Kendrick, in 1778, may have accidentally discovered its value when it was brought to his ship with other timber for firewood. How ironic that this precious wood was first put to such plebian use!

From 1790 to 1810 Hawaiian records concerning the tree were few and fragmentary. Tax records in Marin's *Journal* (in Spanish) mention the name of the district, the chief ruling it, number of pieces of sandalwood shipped, month and day—but omit the year. The Winship brothers and William Heath later persuaded Kamehameha I to give them a ten-year monopoly on the sale of Hawaiian sandalwood; but the King revoked the monopoly in 1816, and thereafter the trade became an important royal industry.

It came about in this way: in 1821, King Kaumualii of Kauai Island imposed a sandalwood tax on the people, requiring each man, woman and child to pay a tribute of a Spanish dollar (hard to come by), or 133⅓ pounds in sandalwood whenever the King needed money for ships or cargoes. This weight was called a *picul*. The chiefs superintended the weighing on the beaches, and woe betide any luckless subject who fell short of the requirement!

The wood was heavy and very hard, and when dry became pale brown or light yellow. The people carried it down from the mountains in packs strapped to their backs with fiber ropes. The ropes, passing over shoulders and under arms, rubbed great lumps on the backs of the bearers, who were nicknamed "callousbacks." This sandalwood tax was a grinding burden for the poorer people. Often entire families worked for months in the mountains, sustained by scanty food. For, compelled to neglect their lowland taro patches to wrest the tax from the uplands, *poi* became scarce. At times a despairing soul would commit suicide or even do away with one of his children to reduce the number required to pay tribute.

Sandalwood Forests Disappear

But if the decree was a hardship on the people, it endangered the very life of the sandalwood forests, for soon the valuable growth was all but wiped out. The sandalwood tree, existing upon the roots of its host, is difficult to propagate; and cutting was carried on with shameful vandalism. It was not uncommon for lumbering parties of 300 to 400 people to go into the mountains.

History gives us many accounts of the harvesting of sandalwoods. Ellis reports seeing 2000 or 3000 men returning from the forests, each carrying sections of logs tied

on their backs with *ki* ropes. "This trade," remarks one writer, "bred misery and death for those who cut and hauled the wood. But it introduced Hawaii to commerce."

In the very beginning, gathering sandalwood may have been more or less of a lark, if we are to believe a British sailor's charming description of a trip into the mountains near Vaipio with a chief. I quote from the *Old Quartermaster* of 1839.

"The Captain of an American merchant vessel—the *Chinchili* . . . was to be paid . . . in sandalwood. The cutting . . . is invariably at night . . . and the captain was invited to accompany the young King to view the scene . . . It took us nearly all the forenoon to get to the spot.

"The ascent was painful and fatiguing . . . but the pleasing sight fully repaid me. . . There stood a vast number of men . . . each with a torch. . . At a certain signal they dispersed, each taking his own way to cut his load, accompanying his labor with a song, to which the whole band . . . joined in chorus. . . A beautiful night . . . to inspire delight. After . . . two or three hours the wood is collected together, each chief inspecting his own lot; it is then taken to the water's edge where it is piled end on, ready for boats to take away."

But as the king and chiefs bartered for more and more sandalwood to pay for fabulous luxuries from the Orient, and to exchange for coveted sailing vessels, the song and romance vanished. Pressure was put upon the people until in time the burden became intolerable. "None were ex-

empt," states one chronicler, "neither the aged nor infirm. Even young girls of 13 years. Each must pay his tax." The forests were plundered recklessly. As the supply diminished cutters were forced to go higher into the mountains, and labor became even harder. No discrimination was exercised. When large trees became scarce, young trees—mere seedlings—were seized. Even the roots were dug. Women deliberately cut off the little shoots so that the supply would be lessened and their children thus saved much drudgery! Soon the false sandalwood, or *naio* (*Myoporum sandwicense*) was utilized to bolster the supply. William Alanson Bryan reports that \$300,000 worth of sandalwood was exported in a single year; and still the decimation went on.

Dibble, the historian, credits Kamehameha I with being the first native king to attempt conservation of the sandalwoods. When men brought young trees to him he said, "Why do you bring the *small* wood hither? To my sons belong the small sandalwoods." And he forbade the cutting of the saplings. But the damage had already been done, and his successor, Liholiho, did not continue his father's decree. By 1835 only an occasional tree was left—and that in some inaccessible place. Demand snowballed, and \$150 was paid for a ton of wood. Liholiho paid \$90,000 in sandalwood for a ship called *Cleopatra's Barge*.

Here it must be said in all fairness that the early Hawaiian probably had no idea of malicious vandalism. Sabotage implies deliberate, cruel destruction for its own sake. In that sense they were only unwitting destroyers.

At left below, a branch of Santalum ellipticum, native Hawaiian species of sandalwood found on Kauai and Oahu. Trunk of this tree is straight and short, branches slender and drooping. At right, a flowering cluster of S. haleakalae, native species found only on Mount Haleakala on Island of Maui. Blossoms are bright scarlet and leaves thicker than in S. ellipticum.

Photographs courtesy Bernice P. Bishop Museum, Honolulu





Photographs by Chester Morse

Indian sandalwood (*Santalum album*) above, in Foster Botanic Garden in Honolulu, is not a native Hawaiian species but was introduced for use in reforestation. Shrub form of native false sandalwood, *Myoporum sandwicense*, is shown below.



To them the supply seemed inexhaustible, and when they discovered that its sale could bring unheard-of luxuries, they were like children with a toy. But the result was the same—virtual extinction.

In 1930 and 1931 the Hawaiian government, alarmed, took tardy steps to save the sandalwoods, and imported *Santalum album* from India to start a replanting program. But this was difficult, since the supply of host trees was depleted also. It met with little success until later, when national park rangers planted seeds of the *Santalum pycularium* (a native true sandalwood) along with seeds of the ironwood tree, which was used as a host. The true sandalwoods were called *iliahi* by the Hawaiian, from *ili* (bark) and *ahi* (fire), since the inner skin is fiery red. But since it takes years for young trees to develop fragrance, results will take time.

From 1944 to 1964 we find many reports of experts and other investigators searching the Islands for any survivors of the four native species of sandalwood. St. John mentions finding such native trees in 1944 on both sides of the Waianae and Ko-lau ranges on Oahu from 500 to 2400 feet altitude, favoring the drier areas below the rain forest. In 1951 Webley Edwards located “gnarled but hardy trees” in Hawaii National Park below the Chain of Craters Road near Kilauea Volcano, and the park superintendent saw “fine stands high on Mauna Loa.” Judge Matthewman reported groves of “pristine glory” on Hualalai, North Kona, and some on Molokai. He tells the story of a Hawaiian king who had “a huge hole dug with the cubic capacity of the ordinary ship . . . which the slaves were ordered to keep filled with sandalwood.” Albert Judd identified a similar pit on the Kamehameha School grounds.

In 1964 Hans Stauffer, a Swiss scientist, visited Hawaii and believes that three or four species were discovered during his visit. Norman Carlson, resident land manager of the Bishop Estates, found a tree in South Kona measuring 75 feet in height.

Botanical experts inform us that native species of sandalwood are still abundant in Hawaii, both the false and true varieties—the latter being “a good hike up into the mountains.” A belated but vigorous effort is being made to preserve the remains left by the saboteurs. One species can be located on a short drive from downtown Honolulu, and a shoreline variety is found as a shrub at Kaena Point in the hot beach areas. The false sandalwood *Myoporum sandwicense*, is quite plentiful in a surprising range of habitat as a shrub, and up to the 8000-foot timberline of Mauna Loa, where it is a 25-foot tree. There is a large specimen of the false sandalwood (a native tree) thriving on the slopes of Diamond Head. Old-timers say that sandalwood is “down on the Big Island.” Paul Weissich, Director of the Honolulu Botanic Gardens, mentions an Indian sandalwood tree at Fort Ruger and another in the Foster Garden.

These hopeful examples may show that the Hawaiian conscience has been alerted to the possible loss of the sandalwood, and that the oldtime sandalwood saboteur has had his day in Hawaii. The vision of present-day conservationists will assure us that the Hawaiian sandalwoods are more than a mere memory caught in the lingering sweetness of some yellowed fan or rare old treasure chest. ■

News and Commentary

A Broader Perspective for Highway Planning?

The zeal of highway engineers is drastically altering the face and character of America. It seems prudent, therefore, to give a meaningful voice in highway planning to those charged with protecting parks and other valuable public assets, and indeed to the ordinary citizen.

The Department of Transportation in Washington has taken what hopefully will prove a significant step in this direction. In October the department announced proposed regulations requiring two public hearings on most federally aided state highway projects. The first hearing would precede a decision on location. The second would come at the design stage. Highway departments would be required to invite expression on a broad range of questions, including environmental and conservation impacts and whether some transportation facility other than a new highway would better serve the public interest. At least four weeks' public notice would be required in advance of any hearing. Pertinent background documents would have to be made available for public inspection and copying.

The regulations would also require highway planners, when beginning to consider a traffic "corridor" for a possible highway, to solicit the views of state resources, recreation and planning agencies and interested federal and local officials and advisory groups, and to make the responses known to the public as a part of the hearing process.

The law for some years has required that citizens be given a formal hearing on the location of federally aided highway projects. But such hearings often have taken place after, rather than before, the engineering decisions. Highway engineers, too, have not earned celebrity for demonstrable concern about non-traffic considerations. Thus the proposed rules, if finally promulgated as written, could do much to encourage decision-making more sensitive to both public wishes and broad public needs.

In part the department's proposal is intended to implement a new revision of federal law. Where the statute formerly mentioned only economic effects as a factor to be considered in fixing a highway location, now it also specifies "social effects," impact on the environment and consistency with the goals and objectives of community planning. In a series of recent hearings the Committee on Public Works of the United States Senate heard

much criticism of highway planning for ignoring such considerations.

The proposed two-hearing procedure has been advocated by the Citizens' Advisory Committee on Recreation and Natural Beauty. The committee, headed by Laurance S. Rockefeller, has also proposed creation of a federal review board to hear citizen appeals of highway decisions. The proposed regulations provide for appeals to the Federal Highway Administrator, but department officials have not favored an appeal board.

State highway departments reportedly are opposing adoption of the regulations. Comments addressed to the Federal Highway Administration, Rules and Docket Room 512, 400 Sixth Street, S. W., Washington, D. C. 20591, were invited until December 13. A public hearing has been set for December 16. Conservationists could usefully write to state Governors and express their views.

Saving the Parrots

The decline of the Puerto Rican parrot has become a matter of priority concern to government ecologists. Because hunting, habitat loss and other factors have reduced the once abundant species to an estimated 50 to 200 individuals, the Departments of Agriculture and Interior have announced a joint project aimed at saving the colorful parrots from extinction. Researchers will seek to learn vital species survival facts related to reproduction, nesting, food, enemies and migration habits. The research will be conducted by Dr. Cameron B. Kepler, Bureau of Sport Fisheries and Wildlife ornithologist, with the aid of Ricardo Cotté, bureau game management agent, and Dr. Frank Wadsworth, director of the Forest Service's Institute of Tropical Forestry. The surviving parrots are in the 28,000-acre Caribbean National Forest.

Battle at Storm King

There have been important recent developments in the long struggle over Consolidated Edison Company's proposed pumped-storage hydroelectric plant at Storm King Mountain, on the Hudson River.

Three years ago the United States Court of Appeals for the second circuit, in reversing a Federal Power Commission order granting a license for the project, agreed with conservationists that the commission, among other things, had given inadequate attention to conservation values. The court decision stated that the commission's renewed proceed-

ings "must include as a basic concern the preservation of natural beauty and of national historic shrines." The court also required more consideration of implications for the Hudson's fish.

The new hearings were conducted during 1966 and 1967. Last August the hearing examiner reached a conclusion—a new green light for Consolidated Edison. The examiner discounted the threat to fish. And he asserted that the utility's plans "would conserve rather than destroy scenic beauty," and actually "enhance" the riverscape. The basis for this striking judgment, in part, was the fact that the utility firm during 1966 changed its plans by proposing to put the Storm King powerhouse (but not all its related facilities) underground and to create a shoreline park in the course of disposing of what was excavated.

Conservation organizations have challenged the examiner's decision in a number of briefs asking that it be overruled by the power commission. One of the major briefs, submitted by the Scenic Hudson Preservation Conference, pointed out that even with the powerhouse belowground there would still be a river-edge tailrace, transmission lines, elaborate proposed visitor-access facilities and a massive fluctuating reservoir, enclosed by five dams, to deface the presently exceptional natural setting. The brief submitted by counsel for the National Parks Association, Smith W. Brookhart, contended that the decision failed to satisfy the commission's statutory responsibilities

(continued on page 20)

The Public Land Law Review Commission

From time to time the Magazine has printed articles on a category of public lands which has been much in the minds of conservationists in recent years—the vast domain administered for the American public by the Bureau of Land Management. Several years ago the Congress established a Public Land Law Review Commission to study the public land laws and make recommendations as to changes that may be needed to enable the public lands to serve Americans with maximum benefit. Dr. Walter S. Boardman, NPA's consultant in conservation matters, has been following the work of the Commission, and the Magazine will be providing Association members with information on that work in News and Commentary.

with regard to comprehensive regional planning. It also objected to exclusion of portions of the testimony of the association's president and general counsel, Anthony Wayne Smith, who appeared as an expert witness.

In the most recent development, New York City has become an unexpected ally of the project's opponents. The city late in October filed a petition to intervene in the proceedings, stating strong objection to the planned location of the plant in what was described as hazardous proximity to the Catskill Aqueduct, a principal water-supply facility. The petition said the aqueduct would be endangered by blasting and other construction operations.

Last month the proceedings were ordered reopened. Next March 4 was set for the start of hearings on the aqueduct question. The commission also decided to allow additional testimony concerning a possible substitute powerhouse location in Palisades Interstate Park, a proposal of the commission staff. Consolidated Edison urged that the hearings cover this proposal, but there already has been strong objection to it from conservationists who feel it important to protect the integrity of the park.

At Association Headquarters

The National Parks Association and *National Parks Magazine* are happy to welcome a new staff member in the person of James G. Deane, native of Hartford, Connecticut and for many years a resident of the District of Columbia. As of November 1st Mr. Deane assumed the duties of associate editor of the Magazine and press officer for the Association with a background of many years with the *Washington Star*, daily newspaper in the nation's capital, including five years as education editor. He is presently vice-chairman and a trustee of the Committee of 100 on the Federal City, and chairman

of its subcommittee on conservation and park protection; and he has been active in various city and regional conservation projects and controversies.

The Association is also happy to announce that Jonas V. Morris, of Washington's Morris Associates, has recently joined NPA's group of consulting specialists in park and conservation matters as Planning Consultant. Mr. Morris possesses an extensive background in national governmental affairs as a journalist, assistant to Members of Congress, federal agency staff member, and governmental affairs consultant. He is currently developing for the Association a plan for the rational development and public use of the new Assateague Island National Seashore on the Maryland and Virginia coasts.

Dr. Crafts Honored

This year one of the career federal employes being honored with Rockefeller Public Service Awards is Dr. Edward C. Crafts, director of the Department of the Interior's Bureau of Outdoor Recreation and former assistant director of the Forest Service. BOR, among other roles, administers the Land and Water Conservation Fund, used for acquiring land for park and conservation purposes. Dr. Crafts has headed the bureau since its establishment in 1962 and has been in federal posts since 1933. The Rockefeller Awards, each carrying a \$10,000 grant, are sponsored by John D. Rockefeller 3rd and administered by Princeton University.

Advisory Board Acts

Three major additions to the national park system were recommended recently by the Advisory Board on National Parks, Historic Sites, Buildings and Monuments. One is a proposed Gulf Islands National Seashore embracing Cat, Ship, Petit Bois and Horn Islands in Mississippi and Santa Rosa Island, Forts San Carlos and Barrancas and the Naval Live Oak Reservation in Florida. A second is a proposed Sandy Hook National Seashore embracing 13 miles of shoreline now part of Fort Hancock, New Jersey, near New York City. The third is a proposed Big Thicket National Recreation Area north and west of Beaumont, Texas. The board earlier favored a national monument at Big Thicket, but planners have shifted to a concept of a combined public recreation area and private "environmental conservation zone."

The board also recommended enlarging the George Washington Birthplace National Monument at Wakefield, Virginia, and seeking implementing legisla-

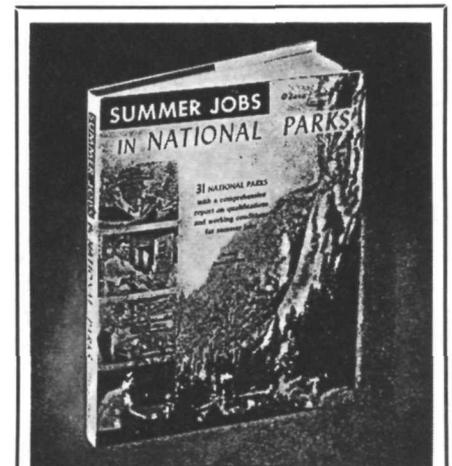
tion in Congress to establish the already authorized Ice Age National Scientific Reserve in Wisconsin.

Nine natural areas were recommended for the National Registry of Natural Landmarks. These are Emerald Bay on Lake Tahoe and Audubon Canyon Ranch in Marin County, California; Lignumvitae Key, a fossil coral island in Monroe County, Florida; Monument Rocks Natural Area in Gove County, Kansas; Cranberry Marsh in Licking County, Ohio; and four Alaska areas: Clarence Rhode National Wildlife Range, Malaspina Glacier, Worthington Glacier and Simeonof Island National Sea Otter Refuge.

The Sound Around Us

Some pregnant comments and proposals regarding what is widely called "noise pollution" are contained in a report prepared under the auspices of the Federal Council for Science and Technology, which has its headquarters at the White House.

According to the report, entitled "Noise—Sound Without Value," our mechanized civilization has reached a point where concerted efforts are needed to cope with the din. Racket is not only



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growing steadily but no longer can be escaped even in secluded vacation retreats, the report asserts.

In terms of the numbers disturbed the worst offender outdoors, it suggests, is probably urban highway traffic; and the most interesting remedy proposed for both this and aircraft noise is substituting quieter transportation systems "such as efficient, high-speed, quiet rail transit." The report criticizes planners for routing new highways through peaceful residential areas and parks, and government generally for failure to act vigorously enough in the interest of noise reduction.

Urged is intensified research in the direction of quieter engines, appliances and buildings as well as stricter local anti-noise ordinances. One important administrative step already has been taken at the federal level. Earlier this year, the report notes, President Johnson instructed federal agencies to take account of noise factors in locating and designing federally financed buildings, highways and other projects. The net impression from the report, however, is that of a gigantic unsolved problem.

Gabrielson Given Award

Dr. Ira N. Gabrielson, prominent conservation leader and a National Parks Association trustee, has been named Virginia's outstanding conservationist for 1968 by the Virginia Wildlife Federation. Dr. Gabrielson is vice-chairman of Virginia's Outdoor Recreation Commission and chairman of the Northern Virginia



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Regional Park Authority. He also is president of the World Wildlife Fund and the Wildlife Management Institute.

Bald Eagle Sanctuary

A modest but significant conservation accomplishment during the recent session of Congress was the initial appropriation toward acquiring a 950-acre tract of marsh and woodland almost within sight of Mount Vernon as the federal government's first bald eagle refuge.

Until last year it appeared that this strategic habitat, on a Potomac peninsula called Mason Neck, might soon be engulfed by subdivisions. Thanks to determined efforts by conservationists and unusual government responsiveness, this hopefully has been averted. Mason Neck, the location of historic Gunston Hall, is to have a state park and new northern Virginia regional park (one regional park exists there already) in addition to the present sizable Gunston Hall reservation. The planned refuge is to be added to this protected area.

Much of the acreage for the entire complex has been purchased temporarily by the Nature Conservancy (for in excess of \$4 million). Congress last summer allocated \$375,000 for the refuge, and there is authority for an equal second installment. It will remain for Congress to make provision, within the framework of the Endangered Species Act, for completing the refuge acquisition, since the act at present sets a ceiling of \$750,000 on any single project and the refuge purchase will probably total about \$2 million.

Once it is established, the refuge will safeguard one of the very few known permanent bald eagle roosts on the continent.

THE CONSERVATION DOCKET

THE SECOND SESSION OF THE NINETIETH Congress chalked up a number of conservation achievements. Most spectacular, of course, after years of controversy was agreement on a Redwood National Park, described on page 9 of this issue. Another major benchmark was creation of the North Cascades National Park with associated recreation and wilderness areas, outlined in the November issue.

New laws also authorized a 201,250-acre Flaming Gorge National Recreation Area in Wyoming and Utah and a 96,000-acre Biscayne National Monument in the Florida Keys. Four areas became part of the National Wilderness Preservation System: San Gabriel in Angeles National Forest and San Rafael in Los Padres National Forest, both in California; Mount Jefferson in Oregon and Great Swamp National Wildlife Refuge in New Jersey.

A National Scenic and Wild Rivers System was initiated with the designation of eight rivers for preservation and 27 others for study as potential additions. The eight initially designated are the Clearwater in Idaho, Eleven Point in Missouri, Feather in California, Rio Grande in New Mexico, Rouge in Oregon, Saint Croix in Minnesota and Wisconsin, Wolf in Wisconsin and Salmon in Idaho. A National System of Trails, too, was initiated with designation of the Appalachian Trail and Pacific Crest Trail and provision for study of 14 more. Congress also authorized an estuarine study, hopefully the prelude to a system of national estuaries. It established a National Water Commission, long advocated by this Association, to study water problems. Enacted was a Colorado River Basin Project avoiding the threat of a reservoir invading the Grand Canyon. And provision was made for enlarging the Land and Water Conservation Fund which finances park and recreational expansion.

On the negative side, bills to curb the traffic in rare and endangered wildlife and to strengthen water pollution controls failed to win passage. And the Federal-Aid Highway Act of 1968 weakened protection of parks, refuges, recreation areas and historic sites, authorized scenically damaging highway projects in Washington, D. C., and short-changed roadside beautification.

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PAUL EHRLICH'S POPULATION BOMB

reviewed by General William H. Draper, Jr.
national chairman of the Population Crisis Committee

While you are reading these words, four people will have died from starvation. Most of them children.

From these words on the cover of the paperback version to an Appendix consisting of letters which you might send to your Congressman, clergyman, local newspaper or the like, Dr. Paul Ehrlich's volume is designed to mobilize the kind of action necessary to defuse the population explosion before it destroys the world. He fears the war against hunger is already lost.

Dr. Ehrlich writes not only with the background of a trained biologist but also with the urgency and the anger of one who wants to do more than analyze in a test-tube the downfall of the human race. Drawing on a variety of scientific materials, he paints with very bold strokes the outlines of the world food crisis, the pollution crisis, the conservation crisis, the political crisis, the family crisis, and the religious crisis. Not every detail is exact but the overall impact of a world where population doubles in 35 years, where a continuous 2000-story building covering the entire planet may

one day be necessary to house some 60,000,000,000,000 people is unmistakable.

Looking into the future and prophesying doom has been the unhappy lot of demographers ever since Thomas Malthus founded "the dismal science" in the late 18th century. Unfortunately, over the past few decades, ever since the resources of modern science have been dedicated to death control around the world without corresponding attention to birth control, even the dismal science of demography has not projected the full scope of human misery that lies in store unless population is controlled. Professor Ehrlich's book leaves little doubt that we will face "a dying planet" unless we learn to value the natural life of our environment as well as the teeming life of our own species.

The Population Bomb (a phrase incidentally first used by Hugh Moore, whose Hugh Moore Fund has done much to publicize the crisis) is intended to be just that—not a gentle dissertation but a bomb to blow the United States from apathy to action. Less than half the book is devoted to describing the dimensions of the population crisis; the other half is devoted to a discussion of what is and is not being done about it—and what ought to be done.

Professor Ehrlich's solution, a powerful Federal Department of Population and Environment to research, organize, publicize, educate, appropriate and virtually legislate on every aspect of the problem is, he admits, not likely. But, revised policies in taxation, social legislation, and foreign assistance might well be established to promote the smaller family and reduce the burden on all. He makes a number of specific, constructive, and provocative suggestions to achieve the goal he recommends—zero population growth rate.

The principal criticism I would make of Dr. Ehrlich's bomb is that in his Cassandra-like pessimism, he does not credit sufficiently the remarkable changes in attitude which have taken place over the last few years, nor the very real beginnings of success in checking population growth in many areas. The fact is over the last 5 years much of the world has come to recognize that there is a population crisis.

This remarkable growth in understanding has taken place overnight. A subject that was taboo five years ago is now front-page news day after day, and high

on the agenda of U.N. and national government priorities. There is cause for hope that *homo sapiens* can still see and meet the new challenge.

Moreover, it is surely too gloomy to declare as Professor Ehrlich does that "family planning does not work either" in the field of population control. Family planning, that is, people choosing to have fewer children and taking the necessary steps to succeed, is simply going to *have* to work unless we want to resort to genocide, starvation, nuclear weapons, or compulsory sterilization.

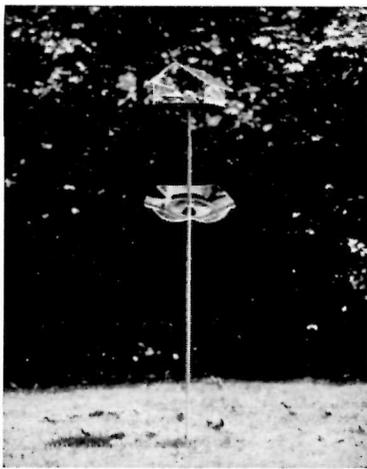
The evidence so far is that an appalling number of children who come into the world (one authority estimates more than half) are unwanted. These births could have been prevented had simple and acceptable methods of birth control been at hand. Polls suggest that more than half of the fertile women in developing countries do not want additional children, but rather are condemned by ignorance and lack of facilities to having them. Even more strongly, astronomical rates of illegal abortion suggest that many women are willing to risk their lives *not* to have more children.

I would make family planning fully available to every man and woman in the world, not only current methods like the condom or the oral contraceptive, but also whatever new methods may be developed by concentrated research. Universal family planning requires strong commitments and a high sense of priority by governments and by their people.

One thing is clear. Eloquence alone is not enough to defuse the population bomb. In the words of Paul Hoffman, who heads the United Nations Development Programme, "The time now is for action." Professor Ehrlich points the ways to act, but he needs many companions and much help. There is no time to waste.

THE POPULATION BOMB. By Paul R. Ehrlich. Ballantine Books, Inc. 101 Fifth Avenue, New York City 10003. 1968. 223 pages in paper cover, 95¢

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Photograph by Paul M. Tilden

In the headwaters of the Rose River a split rail fence of American chestnut, grayed by a half-century of wind and weather, rambles toward the higher elevations of Virginia's Blue Ridge Mountains and Shenandoah National Park.

SEVERAL YEARS AGO the National Parks Association undertook to generate some public interest in one of the nation's neglected but highly challenging conservation problems—the restoration of the American chestnut as a forest tree. The Association was under no illusion as to the time, patience, and money the program would involve; but it was convinced that the few efforts toward chestnut restoration did not encompass all of the most promising methods. What was needed, the Association believed, was a long-term, well-financed and well-publicized attack on the problem which would continue even if results were many years or many decades away.

Today there is growing interest in the matter. One of the organizations concerned with experimental American chestnut work, looking toward production of pioneer blight-resistant trees, is Stronghold, Inc., private, non-profit corporation which owns and operates the estate of the late Gordon Strong on Sugarloaf Mountain near Frederick, Maryland. The trustees of Stronghold have authorized the commencement of a long-term program that will embrace, among other methods, genetic selection. The National Parks Association is happy to be a cooperator in this program in regard to information, technical advice, guidance and publicity. It is through programs like these that the American chestnut, a tree once woven into the lives and character of an entire population, will one day be restored to the native scene as a forest species.

National Parks Association

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