

# NATIONAL PARKS *Magazine*



*October 1969*

FIFTIETH ANNIVERSARY NATIONAL PARKS ASSOCIATION

# A Cultural Imperative

THE GREAT HIGH PLACES OF THE CONTINENT—MOUNT Whitney for one, with its precipitous plunge from the east face into valleys vastly below, or the windswept knobs of the Appalachians—have a magical power to restore men to a sense of eternity.

The wide beaches of the oceans, bringing the rhythmic wash of surf, the cry of gulls and terns aloft, and a scattering of sandpipers in spray, speak to us of long historic time—civilizations rising and falling around the littorals, Mediterranean, Caribbean, immense evolutionary time, eons from invertebrates to man.

In these ample open spaces men may recapture an awareness of the stars, of the grandeur of the universe; perhaps it is partly in the knowledge that the interstellar spaces have not been and will not be traveled by men that some persons find peace in the night skies.

There is an ultimate stillness in the distant places of the earth within which the growth of the person may be sensed and furthered, a quietude within which self-knowledge may expand.

Suppose a civilization in which the values of stillness instead of commotion were to predominate. Assume an economy directed toward a justly distributed sufficiency, not surfeit. A differential contraction and expansion would have occurred, as between harmful and beneficial commodities and services, in contrast with uncontrolled growth everywhere.

A high measure of mechanization and automation would be assumed, to provide the necessities and amenities of physical life with a minimum of drudgery and an eye to leisure. A wide variety of models in basic supplies and equipment would be offered by the factories, but restless model changes would be looked upon as disruptive.

The use of the resulting leisure would be directed by the moral conscience of mankind toward the arts and crafts, toward education, and toward the fulfillment of life in the context of community and cosmos. This is the true industrial purpose and promise.

Such perspectives presuppose the stabilization and reduction of population. The present frenzy of economic expansion and technological advance cannot be abated if there must always be more and more people to feed, clothe, and house—nor certainly if the race must engage in an endless war against famine.

We know very well what the stabilization of population implies for the United States: the universal acceptance of the two-child family as standard. The adoption of such a standard can and must be aided by government, but general compliance must be the work of a resolute but com-

passionate public opinion. In many other places, impending famine and persistent poverty press even more urgently toward a humane restraint upon irresponsible reproduction.

By the time the present mindless growth of population has been checked, a burden will have been loaded onto the natural resources of the planet, and upon our economic and technological capacities, which will demand not merely stability but reduction of numbers. The two-child standard, yielding a little less than replacement, will help achieve such reduction.

It will be difficult for western industrial society to moderate its preoccupation with extraction, manufacture, and distribution, with construction, transportation, and communication. Nonetheless, a basic presupposition of this society has always been that we were harnessing the forces of nature for human purposes; perhaps we may conclude in time that these harnessed services should be accepted for their presumptive purposes—the conquest of insecurity and drudgery so that men may pursue a more noble purpose, the flowering of the spirit.

It is also difficult to discover such trends of thought at present among the economic and governmental managers of our world. Yet the protests of the various minorities are concerned not only with injustice in terms of quantity, but with the shoddy values that dominate our social policy. Among the rebellious young there has been a widespread rejection of the traditional standards of hard work, preoccupation with possessions, and ruthless discipline of idleness and pleasure, standards that have fostered our western obsession with economic expansion. The protest may be more broadly based and more profound than its detractors suppose. When the dissenters realize their true concern with the restoration of the natural environment, the conservation movement may receive a new infusion of vigor and passion.

The significance of the natural areas that environmentalists endeavor to preserve in countryside, public forests, national parks, and wildlife refuges does not lie in any function of these places as resorts, playgrounds, or meccas for tourists. It lies in their vital contribution to man's understanding of himself as a being essentially related to his fellow men, to all the other forms of life, to the transgalactic universe, and to reality as a whole.

This is the reason why the protection of urban and rural open spaces, of woodland, wildlife, wilderness, and scenery, safe from crowding and traffic and from thoughtless exploitation, is a cultural imperative for modern man.

—A.W.S.



# NATIONAL PARKS Magazine

OFFICIAL PUBLICATION OF THE NATIONAL PARKS ASSOCIATION

VOLUME 43

OCTOBER 1969

NUMBER 265

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A Cultural Imperative	2
Big Sur: Where the Forest Meets the Sea	Dewey Anderson 4
The Paradise Ice Caves	William R. Halliday and Charles H. Anderson, Jr. 13
California's Petroglyph Canyons: A Gallery of Ancient Indian Art	George F. Jackson 15
Farming on the Blue Ridge Parkway	S. Herbert Evison 18
Buck Ranger	G. D. Alexander 21
News & Commentary	24

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Front cover photograph by Charles H. Anderson, Jr.

The ice caves of the Paradise Glacier on the south flank of Mount Rainier, in Washington's Mount Rainier National Park, have long been a considerable visitor attraction for both their unusual nature and crystalline beauty. Where there are caves, there are also likely to be speleologists—the "spelunkers," or cavers—those hardy souls who furnish us with our knowledge of the natural history and beauty of the lightless third world. Dr. William R. Halliday, heart specialist aboveground and member of the Board of Governors of the National Speleological Society, and Charles H. Anderson, Jr., underground explorer and photographer who is vice-chairman of the Society's Cascade Grotto, furnish this issue with an account of their recent investigations into the actual extent of the Paradise cave system.

The National Parks Association is a completely independent, private, nonprofit, public-service organization, educational and scientific in character, with over 42,000 members throughout the United States and abroad. It was established in 1919 by Stephen 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.

Membership dues are as follows: associate, \$8 per year; contributing, \$12 per year; supporting, \$40 per year; sustaining, \$80 per year; and life, \$500. Contributions and bequests are also needed. Dues in excess of \$8.00 and contributions are deductible from 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.

Membership in the Association carries with it subscription to *National Parks Magazine*. School and library subscriptions are \$5 a year; single current copies 75¢. Letters and contributed manuscripts and photographs should be addressed to the Editor at Association headquarters. The Association is not responsible for loss or injury to manuscripts and photographs in transit. Return postage should accompany contributions. Copyright, 1969, by the National Parks Association. Title Registered U.S. Patent Office. Indexed in the *Reader's Guide to Periodical Literature*. Printed in the U.S.A. Second-class postage paid at Washington, D.C.

NATIONAL PARKS MAGAZINE

1701 18th STREET, N.W.

WASHINGTON, D.C. 20009

DEWEY ANDERSON **BIG SUR**  
WHERE THE FOREST MEETS THE SEA



a spot of rare beauty  
we have the privilege  
of using and improving—  
if we have the wisdom  
and the will to do so

**I**n Big Sur nature has sculptured dark canyons; painted rock cliffs in high colors; scooped out deep valleys; cut jagged mountain peaks; glassed over mirror-blue pools in isolated grandeur; grouped virgin firs and giant redwoods in quiet, green groves with silver streams threading through; gouged gorges where white foam crests; flung huge boulders in fantastic shapes; and carpeted sun-drenched slopes of valley oaks and bark-shedding madrones with thick layers of successive seasons' multicolored leaves. But nature did something extra special when, in the moment of creation, she combined these elements in fashioning Big Sur. All this superlative grandeur is encompassed in a relatively small area of the Santa Lucia Mountains bordering the Pacific Ocean in mid-California, so isolated from, yet so close to the tense civilization that surrounds it. Silence envelops the visitor when he steps out of his car and breathes the sea-washed air of Big Sur country, and soon he falls subject to its overwhelming spell.

"A different world" is the common comment, and a different world it remains throughout one's stay. Even the relative newcomers who now live in such attractively located houses perched high on the bluffs above the Pacific—windowglass houses that catch every commanding view—attest the overpowering loneliness of the area, which in time they assimilate into their beings to become something different—"Big Sur people." Small wonder that artists, writers, architects, thinkers—creative people generally—find Big Sur their natural home.

Nature prompts in the visitor the quality of being one's own self and thus makes him feel free and at ease in Big Sur country. No other forest, land, or sea in my memory—which includes some of the outstanding wide open places in this and other nations—gives me this feeling of harmony so completely as does Big Sur—the something extra special that nature fashioned here. Here forest meets sea in a set-

ting and balmy summer's sunny climate so sublime, the Pacific-washed air so fragrantly fresh, as to be reminiscent of the most beautiful parts of the Italian-French Riviera. As the mood shifts with winter coming on, the furies of the Pacific dash mountainous waves against a rugged coast so sharply chiseled by the sea's incessant pounding on its granite shoreline that I am reminded of Robert Frost's foreboding lines:<sup>1</sup>

The shattered water made a misty din.  
Great waves looked over others coming in,  
And thought of doing something to the shore  
That water never did to land before.

<sup>1</sup> From "Once By the Pacific," *Complete Poems of Robert Frost*. Copyright 1928 by Holt, Rinehart and Winston, Inc. Copyright © 1956 by Robert Frost. Reprinted by permission of Holt, Rinehart and Winston, Inc.



This article is one of a series done in the field by NPA's consulting economist, Dewey Anderson. Mr. Anderson recently retired as Executive Director of the Public Affairs Institute. He is the author of a number of studies in the area of natural resources that have caused national comment.

The U.S. Forest Service has been most cooperative, providing field services and access to its personnel and studies that have made the survey possible. Articles to come in the series include the Tahoe Basin and the parks and forests along the Sierras that form the habitat of the *Sequoia gigantea*.

But Big Sur is beset with problems, as are many of our parks and forests: slim budgets versus great needs; use, overuse, and misuse; high-speed highway intrusion; private ownerships and special uses shutting out the general public; insufficient viewing, camping, and picnicking areas; excessively prolonged hunting seasons; growing commercialism; population pressure, and sometimes less than up-to-date methods of management as old policies and practices still rule. Added to these problems Big Sur has problems with "hippies, happies, and flower children."

Created a National Forest Reserve in 1906 and having within its boundaries the Ventana Wilderness and the Pfeiffer State Redwood Park, the Big Sur region of Los Padres National Forest, in coastal California's Monterey County, is now and can be forever a spot of rare beauty and wonder that the nation's farsighted system of maintaining publicly owned and managed lands has given into our keeping. We have the privilege of using and improving it and passing on to the next generation an even more precious and rarer natural heritage—if we have the wisdom and the will to do so.

Big Sur is a natural "wonder of wonders" right on man's busy doorstep, for its heart is less than half a day's drive from the San Francisco Bay area with its eight million city dwellers. Big Sur's northern gateway is on the edge of the quaintly distinctive Carmel Village of Robinson Jeffers, Jack London, and George Sterling. Its southern tip is 110 miles down the coast a short distance from San Simeon, of Hearst fame. A thin ribbon of winding concrete connects the two—the Cabrillo Highway, designated by California as its No. 1 Scenic Highway, well-named the Amalfi Drive of America. At times the highway fairly skims the foam-crested deepest-of-blue Pacific breakers; then it climbs abruptly up the cliff, where one dimly sees and faintly hears far below the barking sea lions packed in grey masses on their rocky islands or views the sea otters playfully turning and turning in their kelpbeds, rising and falling with the sea's undulating, rhythmic motion. Spectacular close and distant views keep one exclaiming in superlatives until finally he runs out of words and lapses into silence, just absorbing it all.



Small wonder that thousands of cars full of visitors travel this scenic roadway each year, a road that was a full generation being hewn out of the rocky cliffs. Thought fearsome except by the bravest of drivers twenty years ago, it is now taxed to overcapacity so great that pressure is mounting to make it a four-lane expressway. This proposal is a major problem we face, because a high-speed highway would destroy much of the charm of the area. This threat is real and growing, and to find an answer was one reason for my trip to Big Sur in the summer of 1969 by courtesy of the U.S. Forest Service and under the auspices of the National Parks Association.

We entered Big Sur from John Steinbeck's Salinas Valley side, worked our way across the wide foothill expanses of the Hunter-Liggett military installation, stopped at historic Jolon (say Ho-lown', Spanish style) for a bite of lunch, then wound our way up the Nacimiento grade to the crest, where, as the fog lifted momentarily, we could see spread below us the vast Salinas Valley. This "salad bowl of America," whose green things find their way to our nation's tables throughout the year, is made possible by the water produced and stored on the slopes of the Santa Lucia Mountains. By just turning our gaze to the west, there spread out below us—beyond headland after headland, canyon after deep canyon, big redwoods outlining the horizon—was the calmly blue Pacific.

This crest road is a fire road of the U.S. Forest Service, used by hardy hunters whose legal season is nearly year-long. Here dwell the coast deer, a growing number of wild pigs escaped from a Polish-Russian importation up Carmel



*Spires of Santa Lucia fir in Ventana Wilderness. Dense brush cover stores water whose runoff from the slopes of the Santa Lucia Mountains supplies the crops of rich Salinas Valley.*

Valley way that English sportsmen crossed with tuskers from Tennessee, wild pigeons still plentiful enough to have an open season, dove and quail, black bear and bobcats, raccoons and squirrels. One can take issue with such a prolonged hunting season and the killing of rare and disappearing species—as I do—but the pressure mounts, and the Forest Service must yield to the state's game laws in providing the habitat for the hunters under its multiple use principles of forest management.

Struck by the rare beauty of the vistas and the fine forested scenic lookouts along the crest fire road, I advanced the proposal of a Forest Service scenic parkway modeled after the Blue Ridge Parkway in Virginia, so justly celebrated for its scenic beauty and popularity. Such a road would be much preferable to widening and straightening the Cabrillo Scenic Highway. Built soon, a crest parkway could ease the pressure for such action for at least another quarter century. Operating strictly under Forest Service management, it could open viewing sites, overlooks, and picnic spots and could lead by side roads to supervised camping areas that would help solve the present problem of overused existing facilities.

Such a crest parkway could connect with the newly created Ventana Wilderness area, forming a natural gateway for the trails leading to its 55,000 acres of rugged, dramatic, awesome mountain peaks and deep canyons—a wilderness famed by Robinson Jeffers in everlasting poetry of nature in its raw, compelling triumph over man in such verses<sup>2</sup> as:

An eagle's nest on the head of an old redwood  
on one of the precipice-footed ridges  
Above Ventana Creek, that jagged country  
which nothing but a falling meteor  
will ever plow; no horseman  
Will ever ride there, no hunter cross this ridge  
but the winged ones. . . .  
The she-eagle is older than I; . . .  
The world has changed in her time;  
Humanity has multiplied, but not here; . . .  
The unstable animal never has been changed  
so rapidly. . . .  
While the mother-eagle  
Hunts her same hills, crying the same beautiful  
and lonely cry and is never tired;  
dreams the same dreams,  
And hears at night the rock-slides rattle  
and thunder in the throats  
of these living mountains.

<sup>2</sup> Excerpts from "The Beaks of Eagles," *Selected Poetry of Robinson Jeffers*. Copyright 1937 by Random House, Inc. Reprinted by permission of Random House, Inc.

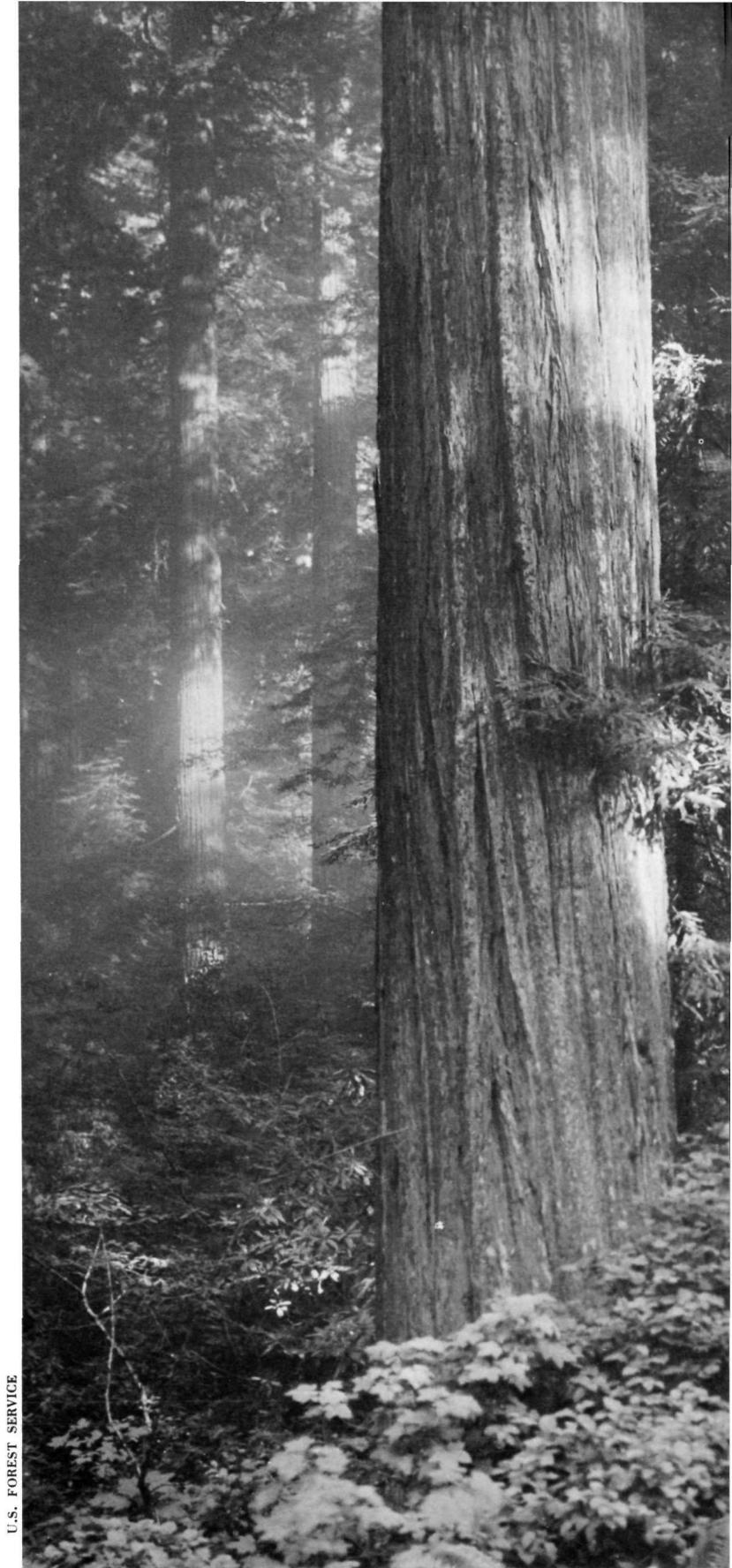
Park- and conservation-minded folk could do nothing more timely than to urge that this crest parkway become a reality. It would do more to ensure the public tenure of the Big Sur area for years to come than anything my recent tour of the area suggests. It could relieve the pressure on the Pfeiffer State Park, where overuse is showing up so badly.

The real and most important long-term answer to public need in the Big Sur country is to develop these coastal facilities of the U.S. Forest Service to accommodate many more users. To do this means developing a year-round program and financing it adequately. Such a program not only would provide for two fireguard stations at widely separated points along the coast as at present, but would establish a Forest Service headquarters in the Big Sur area and would engage a staff of rangers and assistants to work at their specialties providing multiple use, recreational, and custodial services throughout the year rather than on a seasonal basis as presently.

Yet the Big Sur area is not a park. Its multiple uses and the varying characteristics of its terrain preclude its being so designated or managed. Whereas accessible areas of the Big Sur country were logged much too heavily in earlier times, lack of roads, no good coastal harbors, and the precarious nature of ocean transport combined to save trees whose beauty we now enjoy. Here is the most southerly habitat of the *Sequoia sempervirens*, found in virgin stands of giants throughout the Big Sur forest, fine examples of what was once a major forest tree in much of coastal California and now preserved for all time because logging is prohibited by Forest Service decree. Here grows the rare bristlecone Santa Lucia fir (*Abies bracteata*), whose tall, sharp spires seem to pierce the sky on the steep slopes of the Ventana. To preserve these trees and to promote the vegetation that forms their accompanying sympathetic environment is a major purpose among the several purposes for which the Big Sur forest is maintained.

Also high on the list of multiple purposes served by this forest is water production, storage, and uses. The coastal fogs and the high winter precipitation produce a substantial volume of water. In 1969 the rain gauge atop the crest showed 100 cumulative inches of precipitation. Coming down the steep grass- and brush-covered slopes of the eastern escarpment, the runoff is trapped in several man-made lake-like reservoirs or is fed through gravel and ancient stream beds into the groundwater of the rich Salinas Valley, where it feeds the pumps that irrigate the fields under the most intensive commercial cultivation of green crops anywhere in the world. Therefore, protection of the cover on the Santa Lucia Mountains is a major purpose of the Big Sur forest.

Fire is the main scourge of the area. The long, tinder-dry



U.S. FOREST SERVICE

Redwoods—*Sequoia sempervirens*—in Big Sur region of the Los Padres National Forest.

summer season and the heavy use of the area by visitors, campers, hunters, and fishermen, along with occasional lightning storms, combine to make the Forest Service ever watchful to catch the fire while it is small and manageable. There is a network of signal towers on the tall peaks and firebreaks along the dangerous and inaccessible slopes, fire-guard stations with equipment located strategically, plus the soldier manpower and fine heavy equipment of the military installation at Hunter-Liggett to draw upon. Consequently, fires that once raged unabated for days and destroyed hundreds of acres of invaluable ground cover are almost events of the past. I say "almost" because only vigilance and good luck can make it an unnecessary qualification.

Few national forests are so fortunate as to have long stretches of ocean beach. The Forest Service at Big Sur made an exceptionally fortunate exchange of lands with the Army in control of the Hunter-Liggett installation. In return for land the military could use on the valley side, it turned over to the Forest Service 18 miles of beach land along both sides of the Cabrillo Highway and joining the Big Sur forest above the highway. This land is one of the most accessible and most scenic stretches of country found in any forest. Its acquisition put the Forest Service directly and heavily—how heavily is yet to be seen—into the ocean beach recreation business. The public demand is already there and growing rapidly, and the number of available beaches is severely limited, even in California.

The Forest Service leadership has met the challenge with promptness and imagination, though always sharply limited by available funds and especially so with the continuance of the Vietnam war and its impact on national policies. Wisely experienced and energetic old-time District Ranger Alec Campbell, backed by his Los Padres Forest supervisor, who recognized the challenge, went to work cleaning up the beaches, planting cover where needed, putting in walkways and trails, establishing scenic viewpoints, erecting personal facilities, and opening the beach areas for public use. A unique Forest Service beach program is in the making, a long leap toward the day when the Forest Service applies its expertise to making forest recreational centers comparable to the best that the National Parks offer.

When the various uses of the Big Sur forest are discussed, one inevitably returns to its primary reason for being—its superb scenic values and its greatly prized recreational features and prospects. In Big Sur forest as in no other forest known to me is the prime example of how the public's demand for scenic and recreational opportunities and service requires a shift of emphasis on the part of the Forest Service to establish new priorities, recruit new types of officers, apply new approaches, and plan new programs. Big Sur is a forest faced with these demands; yet it is undermanned and its personnel largely seasonal, its recreational facilities are by no means fully developed and installed, and its organizational structure is inadequate to meet the needs. Forethought is urged—timely planning to ensure that the recreational needs of growing numbers of users will be met in surroundings that perpetuate the natural riches of the area and do not mar its beauty nor

threaten its life. Determining the problems and attempting to outline their solutions became a major purpose of my survey visit. The major problems and solutions are the following:

- Creation of the Monterey County Big Sur forest as an independent administrative entity, responsible directly to the Region Five headquarters in San Francisco. The reasons that once justified joining this forest with the Los Padres National Forest with its headquarters in distant Santa Barbara do not hold any longer, if the Big Sur forest is to realize its destiny as a heavily used scenic-recreational area. It is already busy, with a present annual total "visitor days" use of 473,000 persons. The headquarters should be moved from the ranger station at King City, far distant from Big Sur and accessible only by travel on poor roads, to a location within Big Sur forest and preferably at some advantageous point on the Cabrillo Highway.
- Closely connected with this new organizational setup and changed emphasis is the need for a lay body or a Big Sur Scenic-Recreational Commission. It should be broadly representative of the groups who know, appreciate, and understand the unique character of Big Sur, among them being persons in national conservation organizations, residents of the Big Sur area, and user groups.
- Establishment of a scenic-recreational management and promotion-planning program on a year-round basis is imperative. This will inevitably include a far more comprehensive program of more camps, picnic areas, trails, overnight accommodations, beaches, viewing locations, and other facilities than presently exists. Big Sur forest needs to be planned for in these terms as an entity, not as presently on somewhat of a catch-as-catch-can or high-pressure basis. In this planning the proper access to the Ventana Wilderness area should receive consideration. Although this area is designated as wilderness, it is more accessible and will be subjected to more pressure than most other more remote wildernesses.
- High on the list of matters requiring the attention of this new Big Sur forest administration will be a positive approach to the problem of road transportation. With pressure mounting to straighten out the curves, to make turn-outs, to regrade, and even to make the Cabrillo Highway dual lane, the Forest Service should offer an alternative in the establishment of the Crest Parkway. In my estimate, as gleaned from discussion with people who know the situation, within the next five years the California Highway Commission will act to do something drastic about the Cabrillo Highway. If so, it behooves the Forest Service to move promptly to prevent the wrong decisions being made. If a Big Sur Scenic-Recreational Commission were in existence, it could exert a most beneficial and salutary influence on the decision-making.

Forethought is urged  
to ensure that needs  
will be met in surroundings  
that do not mar its beauty

*Big Sur region of the Los Padres National Forest: One of the  
few U.S. Forest Service campgrounds—and its only beach.*



- An aggressive program of trades and exchanges, even of purchases of strategically located private holdings, is long overdue. Already a number of important pieces of property have been sold into promotional private hands or deeded to the state as small units unconnected with its main park, which might have become part of the national forest. A glaring example of present failure is a proposed exchange of lands that would give Big Sur forest public access to its spectacular Pfeiffer Beach and establish a suitable parking area on a small parcel of land at the entrance to the beach. The owner, a private developer, charges \$2 a car for parking. Last Memorial Day his count was 174 cars paying the fee. How many were kept from using the public beach for lack of access is unknown.

The able forest ranger of the Big Sur District and his associates consummated a "deal" with the owner to trade him 123 acres of forest land atop a nearby ridge for the 23 acres adjacent to the beach. All the numerous papers required by the government were prepared and went through channels all the way to Washington, where the authorities in the Forest Service determined that the trade involved an excessive appraisal of the value of the private land. Inasmuch as the Bureau of the Budget scrutinizes such transfers closely, no one was willing to risk its refusal. So the exchange has languished for more than two years; the owner has withdrawn his offer to trade; and when the matter is finally reopened—as it must be if the public is to have free access to the public beach—it is likely that the price will have gone up considerably.

The Forest Service must reexamine its entire long-established and precedent-incrusted exchange system, including clearance with the Bureau of the Budget, to bring practices up to date. This matter is so important nationally that the organized conservationists should put it high on their organization agendas to get action.

- One cannot visit Big Sur today without seeing the "hippies, happies, and flower children" who sometimes swarm there. During Joan Baez's 1969 "festival" the State Highway Patrol checked 1,027 cars, busses, campers, and other motor vehicles parked on both sides of the Cabrillo Highway. From a few hundred such mostly young visitors a few years back, the Forest Service and park officials estimate that Big Sur now has an average of 2,000 a month. These visitors considerably complicate the orderly management of the forest and park areas. They consider themselves "free people," and rules and regulations are not for them except as they must be obeyed to avoid arrest. Sometimes these young people establish more or less permanent camps in places where such are not allowed, and they conduct themselves in ways that to say the least are "unconventional." There were 80 arrests on Joan Baez's festival day for various instances of misconduct, and one serious fire was set.

Big Sur is attractive to these people as they come from the San Francisco Bay area, the universities, and elsewhere. It has a very favorable climate; its public land is open to them; its tradition of freedom of the person and the spirit dates from way back in the heyday of Henry Miller's

residence in the region; the colony that Miss Baez and her associates have established to study the new psychology and philosophy beckons them—all these factors combine to make the Big Sur a mecca. Whether this situation is lasting, growing, or transitory depends on circumstances far beyond local control. The Forest Service realizes this fact, so it gets along from day to day as best it can with its troublesome flower children.

- In some degree commercialism has struck Big Sur, to be a problem awaiting the action of the Forest Service where it impinges on its management of the national forest lands. Most of the commercial ventures—motels, inns, and eating places—are on private holdings and are clustered along the river outside the forest proper. These facilities are used heavily during the height of the summer season. But there is a long stretch of country where the Forest Service owns both sides of the highway for miles, and the unwary traveler cannot obtain lodging or food. One day in the future the Forest Service will have to meet this problem. In fact, commercialization of Big Sur is really "tomorrow's problem," because the enlightened policy of the county officials in not permitting the highway or roads to be signed and the high prices of land that cannot be built on in less than large single ownerships have prevented the more obnoxious types of commercialism to obtain a foothold.

- Finally, the Big Sur forest management and development illustrate well the results of developing good working relationships among the public authorities with responsibilities in the area. Although this particular forest does no logging and hence does not contribute the customary 25 percent of the harvest directly to the county, Monterey County does not complain. It is well aware of the rich asset that Big Sur is to its economy. Recreation, the principal activity of the area, is big and increasingly profitable business. The production of potable and irrigation water has high value in this primarily agricultural county. Here is proof, if any were needed, that a national forest can justify its existence on other than the traditional purposes it served, the production of logs and the grazing of livestock.

**I**n Big Sur is a forest of tremendous scenic attractiveness, drawing people to it from all parts of the United States and from many foreign countries every year, where scenic recreation is the chief reason for its existence as a national land holding. We have come a long way since the pioneer struggle of Gifford Pinchot and Theodore Roosevelt to establish national forests to protect trees from ruthless cutting and the ground around them from overgrazing. Now we are facing an additional set of valuable uses—the maintenance and development of our forest areas for their scenic and recreational values to a largely city-dwelling people. In Big Sur we are on the threshold of placing the emphasis where it rightly belongs—the management of this wonder-area primarily for its scenic-recreational values. ■



*Above, the entrance to a Mount Rainier National Park ice cave. The caves attract many visitors but are rarely approachable before mid-June.*

## THE PARADISE ICE CAVES

Recent studies enlarge known extent of Mt. Rainier glacial passageways

WILLIAM R. HALLIDAY and CHARLES H. ANDERSON, JR.

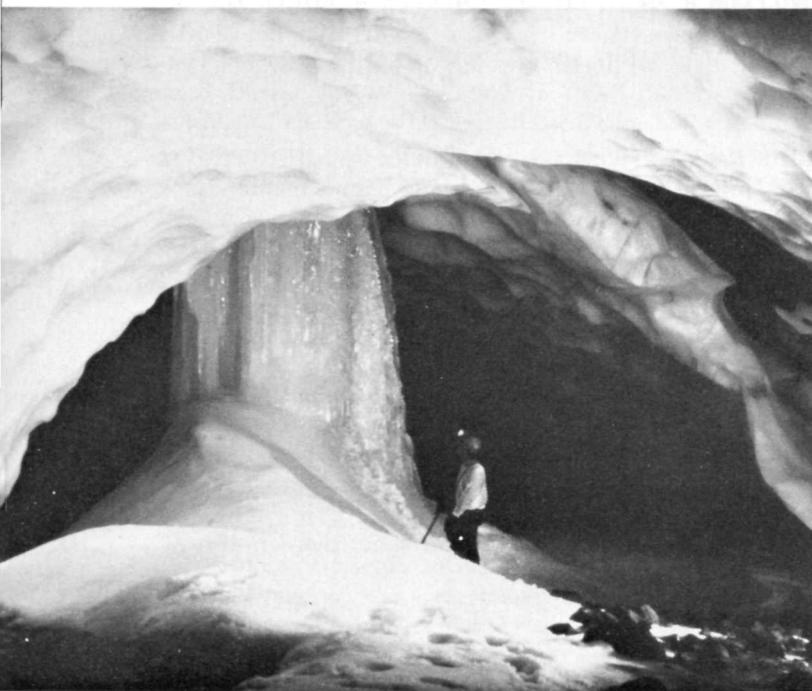
PHOTOGRAPHS BY CHARLES H. ANDERSON, JR.

**T**HE PARADISE ICE CAVES OF MOUNT RAINIER NATIONAL Park in Washington State have long been a major visitor attraction. But until about 18 months ago few considered them more than short natural stream-tunnels beneath Paradise Glacier. Recent studies by the Cascade Grotto (local unit) of the National Speleological Society, in cooperation with the National Park Service, however, have led to the discovery that this system of caves may be the world's largest glacier cave. More than a mile and a half of branching passageways have been mapped, some safely penetrable only when winter's frigid grip restricts torrential stream flow. Another mile of passageways is known, and new discoveries are still being made.

Some parts of the caves are little more than crawlways,



*A Park Service sign warns visitors to beware of a collapsing segment of the caves.*



but most consist of spacious, gleaming corridors a dozen or more feet in diameter. Several large chambers are present.

The glacier ice revealed by the caves is largely glistening white or blue-white. The walls are scalloped by large pockets. Here and there thin sections of the glacier permit a natural illumination varying from delicate green to deep ultramarine. Especially with the aid of artificial lights, the play of color and natural light within much of the cave network is entrancing.

The crowning glory of the caves is tall, graceful columns of glare ice. These columns, however, are rarely seen by visitors. Although their appearance and disappearance may seem mysterious, the processes that form and destroy the ice pillars yearly are well understood. Beginning with the first local frost, the caves store up vast quantities of cold each winter. Snow drifts deep inside. Whenever meltwater finds its way into these natural iceboxes, it freezes into glassy columns and other features mimicking those of limestone caverns. In spring, warm air gradually displaces the cold, and additional meltwater enters through the potholes, crevasses, and fissures. The pillars soon begin to melt, and by midsummer all trace of their transient glory is usually gone.

By chance, the recent study has yielded valuable information on the processes by which glacier caves destroy themselves. Mapping had to be repeated several times as portions of a particularly large section of the cave collapsed at intervals of a few weeks. Less dramatic but frequent fall of ice flakes, often weighing many tons, requires the Park Service to maintain close observation to be certain that the portions of the system open to tourists are safe.

Although the beauty of the caves is maximum in winter and spring, access is hazardous at these seasons even for experienced parties. With special permission of the Park Service, however, the studies are continuing, with participating speleologists spurred by the knowledge that few, if any, similar studies have ever been conducted anywhere in the world. ■

*Above, one of the beauties of the ice caves is the curious helictite or misshapen ice-stalactite, product of freezing water and shifty winds. The helictites shown were photographed at the ice cave entrance in April 1968. At left, a gleaming blue ice pillar in Paradise Ice Caves. The deeply drifted snow indicates that it is winter or spring in the outside world.*



# CALIFORNIA'S PETROGLYPH CANYONS

A GALLERY OF ANCIENT INDIAN ART

George F. Jackson

**P**ETROGLYPHS—ROCK CARVINGS BY PREHISTORIC PEOPLES—are found throughout the world. In this country they are most prevalent in the west, but probably the greatest concentration of them in North America is located in two remote canyons of California's upper Mojave Desert. Here more than 20,000 pecked and chiseled examples of the artistic expressions of early Americans may be seen. Big and Little Petroglyph Canyons are on the vast Naval Weapons Center at China Lake, about 180 miles north of Los Angeles, and because of their location they are among the best protected from vandalism of prehistoric sites in the country. The canyons were dedicated as a national historic landmark by the National Park Service in 1964, and at that time the Naval Weapons Center command was asked whether it would accept responsibility for safeguarding them. The responsibility was accepted; consequently,

there is none of the senseless vandalism often seen at other prehistoric sites, because visits are by special permission only.

Big and Little Petroglyph Canyons are in a remote, hilly region of low relief between the Coso and Argus ranges at an elevation of about 5,000 feet. The barren landscape is a deformed and heavily eroded section of old lava flows. Joshua trees, wild burros, a few wild horses, jackrabbits, quail and other game birds, and the ubiquitous rattlesnake now inhabit a large portion of a countryside that once supported large herds of deer, antelope, bighorn sheep, and other animals that afforded good hunting for the prehistoric inhabitants.

The pecked and chiseled glyphs are remarkable for their variety. Bighorn sheep by the thousands are pictured, along with human stick figures, katchina figures, deer, antelope,

*Entrance to Big Petroglyph Canyon in the upper Mojave Desert of southern California, one of two adjacent canyons containing myriad petroglyphs.*



mountain lions, insects, ladders, fences, abstract designs, and symbols—all chipped with meticulous care on the eroded walls of the canyons. Hunters are shown using bow and arrow, while other, older hunters use the *atlatl*, the prehistoric spear thrower that preceded the bow and arrow. Most of the petroglyphs have been cut with skill and imagination. Authoritative studies indicate that none of the images suggests an association with seed collecting, fishing, or the taking of small game. All depict tribal rituals connected with the taking of large game and symbolism affecting the tribes themselves. Few if any of the designs seem to have been made for amusement only; to their makers the work had a serious purpose. Modern Indians have no knowledge of when the figures were made or who made them.

It is likely that most of the petroglyphs were made by shamans, or medicine men. These spiritual leaders acted as high priests and physicians for their tribes and conducted ceremonies for good hunting, fertility, and other important tribal rites. They frequently led hunts themselves.

At the entrances and along the tops of both canyons are remains of old campsites and myriads of chips of black and shiny obsidian. This fine weapon-point material came from a great deposit of volcanic rock some 10 or 12 miles away, and the immense quantity of the chips indicates that the area was in use for thousands of years.

A walk down the usually dry, sandy floor of the canyons reveals thousands and thousands of glyphs—some simple geometric forms, others depicting the actions of men and animals, still others that remain mysterious, intricate, and indecipherable to modern man. The very fact that it took hours, perhaps even days, of hard and painstaking work to execute some of the images suggests that their makers

thought them of great importance. But the meaning of the petroglyph to the artist is impossible to ascertain and is lost forever in the nebulous realm of the past.

**O**CCASIONALLY THE AUTHENTICITY OF petroglyphs arises. The fact is that petroglyphs are extremely hard to counterfeit. One method of establishing their genuineness is by noting the presence or absence of “desert varnish,” the black or dark brown patina that forms on sun-exposed rocks in the hot southern deserts. Lines chipped through this patina are highlighted by the lighter rock beneath, to eventually acquire a patina of their own. Some figures at the Naval Weapons site are so dark as to be hardly visible, and various degrees of patination seem to show that many were pecked or chiseled at a much earlier period than others. On some walls and boulders lichens have covered the images. These—the patination and the lichens—provide an air of antiquity that would be very difficult to counterfeit. With modern steel tools it would take long hours of hard work to peck out a simple design on hard basaltic rock, and even when accomplished the lack of patination or lichen growth would make the counterfeit apparent to an expert on first glance. Of course, modern tools would not leave the same sort of depression in the rock that the Indians made with their stone chisels and stone hammers. There are other means also of establishing the authenticity of petroglyphs, but they are too detailed to describe here.

Despite much study and considerable research neither the growth rate of lichens nor the rate of formation of desert varnish has been established with certainty, so neither can be used to date the California petroglyphs. However,

*Images shown below are halfway up the wall of Big Petroglyph Canyon. In places parts of wall have tumbled, often breaking petroglyph designs apart.*



on the basis of ethnohistorical studies, it is estimated that the oldest glyphs in the two canyons were likely made from 7,000 to 8,000 years ago, which might make them the oldest in this country.

An intriguing bit of speculation is occasioned by their estimated age, in that some viewers profess to see, here and there, images of animals long extinct from the American scene: mammoths and camels. These images are usually very old and very dim glyphs, and no one knows exactly what they *do* represent. Is it possible that some of the ancient rock artists actually saw such creatures?

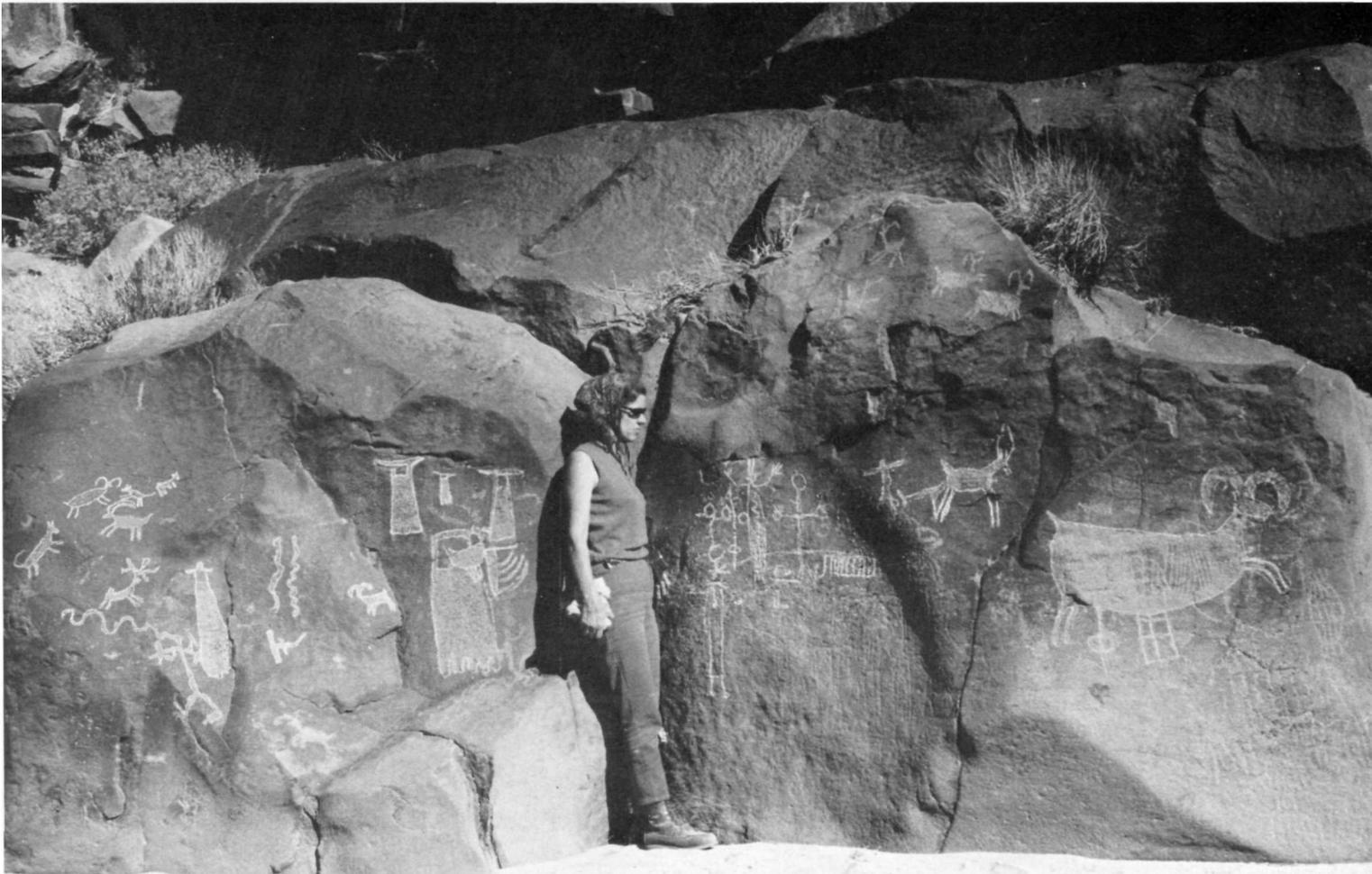
**V**ISITS TO THE PETROGLYPH CANYONS may be arranged through the Naval Weapons Center, China Lake, California, but are not on a regular schedule. Because travel is through normally restricted sections of the huge reservation, passes are necessary but not hard to get. Roads vary from paved to rough, boulder-shrewn tracks. Little Petroglyph Canyon may be reached by regular passenger car; but Big Petroglyph, a few miles away, requires a four-wheel-drive vehicle. The 50-mile route to the area is through a land of interesting variety, probably looking little different today than when the prehistoric artists were carving their mysterious designs. ■

*A deeply pecked design on a huge canyon-floor boulder. The design has been lightly chalked for clarity, but the chalk will soon weather off.*



PHOTOGRAPHS BY THE AUTHOR

*In the picture below there are more than 100 petroglyphs, some of the most interesting of which have been lightly chalked for better photographic contrast.*



IT IS LATE SUMMER. BESIDE THE ROAD AS WE TRAVEL down the Blue Ridge Parkway in Virginia and North Carolina we note a field of sturdy corn; a little farther along is a patch of an acre or so of cabbage that is forming into good-sized heads. Here a crop of hay—the second for the year—is growing thriftily; there, some sleek-looking cattle are grazing contentedly in a meadow that offers abundant food.

Such sights are common along parts of the nearly 470 miles of parkway road between Shenandoah and Great Smokies parks; what is more, these farming activities are carried out on parkway land—that is to say, park land—though they often extend over to the privately owned land beyond its boundaries.

Few travelers in this elongated park give much thought to the fact that land used in this way lies so close to the road or that, along a travel route on which fences of various kinds are one of the visitor attractions, land under cultivation is seldom separated from the road by a fence. Occasionally a traveler becomes curious as to whether the parkway is as constricted as these conditions might seem to indicate. Now and then the practice of using parkway lands in this fashion is deplored. For example, two who questioned—or, more accurately, denied—its wisdom were the authors of a Conservation Foundation brochure that appeared in 1967. They are Dr. F. Fraser Darling, famed ecologist, and Noel D. Eichhorn, a geographer; the brochure was *Man and Nature in the National Parks*.

“Nature cries out that this ill-used land should go back to trees,” they declared, noting that “land in the possession of the National Park Service is even being leased back to farmers to keep it grazed.”

Such comment naturally raises some questions. What is the basis, the justification, for this Park Service policy? And is the assumption that these lands are ill-used correct?

THE 1916 ACT THAT CREATED the National Park Service authorized the grazing of livestock on national parks and monuments, except Yellowstone Park, and that section has never been amended. However, as long ago as 1925, Department of the Interior Secretary Hubert Work expressed disapproval of such grazing, and it is Department and Service policy to prohibit it entirely in national parks and to eliminate it as rapidly as is feasible from the “natural” national monuments, on a few of which it remains. On the other hand, having accepted a distinction between grazing and pasturing, Park Service Director Arno B. Cammerer more than 30 years ago accepted the desirability not only of pasturing livestock but also of encouraging the growing of farm crops on many historical areas. The idea was to keep fields open that had been open at the time of the historic event and to present the historic scene as faithfully as possible. Perpetuation of the cultural—which is to say, the historic—scene in the mountain country of the Blue Ridge and Great Smokies was one of the objectives



M. WOODBRIDGE WILLIAMS

*The Parkway at Alligator Back, North Carolina*

# FARMING on the BLUE RIDGE PARKWAY

S. Herbert Evison

that guided the parkway planners. Thus, the adoption of farming practices for some of the parkway lands in the late 1930's did no violence to existing policy and did no violence to the land itself.

Now, as to “ill-used land,” it is true that a high percentage of the farmland acquired for the parkway had indeed been badly used. Farming methods followed on thousands of acres had been atrociously destructive. Soil had

been worn out, ruthlessly robbed of its nutrients; the misguided planting of row crops—principally corn—and overgrazing had resulted in a horrible amount of erosion on the slopes of the Blue Ridge, much of it beyond repair, much of it reaching into the subsoil or even deeper.

Fortunately not all ill-used land is beyond redemption for agricultural use. One of the important early undertakings on the Blue Ridge Parkway was to determine what injured lands could be redeemed, then to figure out what treatment they required to become productive under a management plan that would assure a protective cover of grasses and legumes to prevent excessive losses of soil and moisture. Soil-saving and soil-improving practices were applied, where applicable, to all parkway lands. No permits for pasturing or cropping were issued until the soil-restoration and erosion-control measures had produced such results that, thenceforth, with proper land use practices enforced, fertility would be improved and maintained.

*Just off the Blue Ridge Parkway farmers may be seen tilling their upland acres with the same equipment their ancestors used 200 years ago.*

G. W. PEART



These management practices were applied even to lands on the Recreation Demonstration Areas that had been acquired under the Resettlement Administration program of retiring marginal and submarginal lands from agricultural use, and which became integral parts of the parkway. Rocky Knob and Doughton Parks are notable examples of these. On a relatively small percentage of their total area—most of which has gone back to forest—the National Park Service long ago decided that the retirement did not have to be permanent.

There are other good reasons why it happens that several thousand acres of Blue Ridge Parkway lands are again pastured or cropped. For one thing, a 470-mile “alley of trees”—to use a Darling-Eichhorn phrase—was about the last thing the parkway planners wanted or that travelers along it would presumably want. Yet without some special provision for keeping down forest growth on lands formerly in crop or pasture, that is exactly what would have developed; reversion to forest is a process that has been going on for a long time on lands of the Blue Ridge and far beyond it. Millions of acres in Appalachia once farmed are now tree-covered.

The policy of permitting pasturing and cropping, it seemed, would accomplish what the Park Service wanted to accomplish on certain of the parkway lands—and would do it well. The system has increased the productivity and the moisture-holding capacity of the land. Mandatory fertilizing and liming in accordance with carefully worked-out requirements, limitations on pasturing periods and numbers of livestock, maintenance of effective erosion-control and erosion-prevention measures—all these have brought about steady improvement in the condition of the land and steady increase in its productive capacity.

**B**YOND THIS, the policy has been a public-relations tool of great importance, used in a thoroughly legitimate way. To an important degree it goes back to, and grew out of, the process of land acquisition. The basic facts of that process are that Virginia, which started out with fee-simple purchase of a much narrower strip of land for the parkway, ultimately went along with an average of 100 acres to the mile; whereas the North Carolina Legislature approved an average of 125 acres.

It should be remembered, in this connection, that what became a 470-mile-long park started out to be just another highway. Its early promoters expected that abutting landowners would donate much of the needed right-of-way because of the prospect of having a fine new road at their front doors. The adoption of parkway standards—liberal width, limited access, and the prohibition of trucking over the parkway road—dispelled that idea, to the disappointment of many. From the beginning, too, the long-isolated and clannish mountain people had looked with misgiving and distrust on National Park Service and Bureau of Public Roads people—federal employees—who came in to look over the land and survey the route; it was necessary for these outsiders to approach landowners on their lands with great circumspection, making special effort to avoid offense, occasionally in the face of menacing shotguns or rifles. (The fact that “U.S.D.A.” license plates on Bureau

of Public Roads automobiles was occasionally interpreted as an abbreviation for "U.S. Dry Agent" did nothing to improve relations between residents and visitors.)

The highway departments of both Virginia and North Carolina offered and paid fair market prices for the land bought for the parkway. Yet acquisition of such wide strips did, in a number of cases, result in hardship to the original owner, with consequent discontent and ill-feeling. For example, a farm that had yielded a fair, or only a bare, living to the owner was often so diminished in size by the taking of an 825-foot-wide or 1,030-foot-wide strip for the parkway that the remainder would no longer produce even a bare living. Not infrequently farms were cut into two widely separated segments. In the best of situations—from the farmer's standpoint—farming two pieces of land so far apart was awkward and difficult, the more so if the farmer was required to go "the long way 'round" by using paralleling roads to reach an authorized crossing of the parkway road. Occasionally a residual piece would be so small as not to be worth the trouble of farming under those conditions; however, both states tried to avoid this kind of situation by extending their purchases to take in the tag ends.

M. WOODBRIDGE WILLIAMS



*Perpetuation of the historic scene in the mountain country of the Blue Ridge and Great Smokies was one of the objectives of those who planned the Parkway.*

THE DECISION TO ALLOW the use of parkway land for farming was not put into effect until the late 1930's, but the announcement of intent was made considerably earlier. Justified for other reasons, it paid an important dividend by remedying some hardships and difficulties, and it influenced the attitudes of others toward the Park Service. Lessees and permittees pay for the privilege of using lands they once owned; however, the fees are moderate, in some cases nominal. It has always been considered more important for money and labor to be spent in improving the condition of the land than in paying rent.

In those occasional cases in which the bordering farmer was not interested in leasing, others who could be relied on to treat the land well have been allowed, even induced, to avail themselves of the privilege.

Land leasing is just one of the practices that has helped to change the earlier distrust, even sometimes enmity, to a friendlier attitude. The parkway employs a good deal of seasonal labor, which is recruited from the towns and farms along the way. The Northwest Trading Post, in northwestern North Carolina, offers an outlet for the handiwork of a large number of mountain families; and the handicraft shop housed in the old Cone Mansion at Cone Park is a busy and successful operation. The overall economic impact of parkway travel is hard to estimate, but it is large.

To a rather important extent the farming picture along the parkway, as representing part of the old mountain-life scene, is falsified; it is not as it was, but as it should have been. The Park Service could not allow it to be otherwise. The lagniappe in this situation is that the practices required on the parkway lands have provided worthwhile demonstrations to mountain farmers along the way. And there is hardly a permittee who has not extended the better farming practices to the land he still owns.

William O. Hooper, the parkway agronomist, supplied me with up-to-date figures on the agriculture-use program early in November 1968. He estimates that about 20,000 acres of parkway land, when acquired, was in crops, pasture, and pastured woods or was cutover or denuded forest land. Today, about 4,310 acres of this land is, as he put it, "maintained for agricultural exhibits, principally managed pasture." Covered by special-use permits, 3,670 acres are in permanent pasture, 460 acres in permanent hay, and 180 acres in cultivated crops.

Revenue from these permittees comes to about \$1,600 a year; Hooper estimates that their annual contribution—lime, fertilizer, weed control, pasture maintenance, and so on—is valued at about \$50,000. He adds that more than a million trees and shrubs have been planted on eroded soils; other areas have regenerated naturally. He writes, "There are no erosion scars today on parkway lands and most erosions on contiguous lands have been healed."

The road that has been laid in this very long park has been designed to keep the scarring of the landscape to a minimum; and much of it has now been built long enough, and the landscape treatment has become so naturalized, that the road looks as though it had always been there. Among the fruits of the expert and imaginative planning given the whole project are the many open stretches along the road in which the land is being well used, adding immeasurably to the charm and enjoyability of the parkway.

# BUCK RANGER



a firsthand account  
of ranger training

by G. D. ALEXANDER

*This article expresses the thoughts of the author only and has no connection with National Park Service views or policies.*

## THE FIRST WEEK

A very tall and very lean figure unfolded himself from behind his mini-desk. As he rose, he said in a soft southern drawl, "I'm Bob Woody from North Carolina—married—no children. I graduated from the University of North Carolina in biology, and I like to fish." As Bob sat down, another man stood, speaking in the twang of eastern Tennessee.

And so it went, everyone in turn; men from Massachusetts, Illinois, Texas, and Oregon. These introductions brought out what a tremendously diverse group had come together here on the South Rim of the Grand Canyon. This group of forty or so men had only one thing in common—they had just been appointed national park rangers. From now until we completed our one-year probation, we would be known to our seasoned counterparts as "buck rangers."

We had assembled here at the National Park Service Academy—Albright Training Center—for an intensive three-month training period before being assigned in the field. The class consisted of twenty-nine newly appointed rangers, four backlog rangers who had been working in the field, a national parks policeman from Washington, D.C., seven women in the positions of historians and naturalists, and a guest participant, Jim Benallie of the Navaho Tribal Parks rangers.

This first week was spent mostly in getting oriented to Park Service terms, policy, and philosophy, and to the splendid physical plant that makes up the Albright Training Center.

## THE SECOND WEEK

Area-significance talks consisted of five-minute talks by trainees on assigned areas somewhere among the 260 or so tracts that the National Park Service administers. Each trainee had to research each of the areas assigned to him and prepare suitable audiovisual aids.

These talks usually were leavening in our days of solid classroom work. One of the best remembered talks was given by Paul, who, dressed in an oversized trenchcoat, gave us the hilarious "overall" picture of a Civil War battle as an improbably modern TV commentator.

Physical training, held several times a week, was not meant to condition us so much as to relieve the eight to twelve hours spent in the classroom each day. It also served to give us basic knowledge of keeping fit to meet the rigors of the ranger's job.

In addition to the usual calisthenics and team sports, we sometimes spent part of these periods practicing litter carries or fire hose rolls and lays.



#### THE THIRD WEEK

Eivind Scoyen, a retired associate director of the National Park Service, was to give several classes on the protection function of the ranger. Later in the evening we had an open discussion period with Mr. Scoyen in the lounge. During this evening session he kept us enthralled with tales from the very earliest times of the Park Service. Mr. Scoyen had grown up in Yellowstone National Park in the stagecoach days when the old horse cavalry had protected visitors and resources.

One of his accounts was about the time Stephen Mather, the founder of the National Park Service, had him bring a tame Kaibab deer to Washington, D.C. This deer was kept in a hotel room and traveled to formal dinners in a taxi. The complications of these events brought tears of laughter to our eyes.



#### THE FOURTH WEEK

Wednesday evening around nine I walked over to the training center to pick up some miscellaneous papers to study. Upon arrival I encountered Tom, one of our instructors, who told me to get my hard hat, boots, headlamp, and whatever else I might need. A scenic flight had crashed in the Grand Canyon.

Minutes later ten of us trainees assembled in front of the center and piled into a station wagon. We headed for the Duck-on-Rock viewpoint, near which the plane had gone down.

When we arrived, we were divided into three groups. One group stayed on the rim, the second was to be stationed on a ledge about a hundred feet below, and the third group was about seventy-five feet below the second on another ledge. There was a fourth group consisting exclusively of seasoned rangers at the crash site about seventy-five feet below our third group. The bodies were to be bagged, lashed into a stokes litter, and hauled by ropes from group to group up to the rim and the waiting ambulance. Each of our groups was led by a seasoned ranger from the Grand Canyon staff.

We eased ourselves over the safety wall around the viewpoint and began carefully working our way down the steep canyon wall. The brush we made our way through was weirdly illuminated by the glow from our headlamps and the searchlight on the rim. We slowly found our way to our position, a stout pinion pine, and rigged our ropes there.

The work I was preparing myself for had suddenly become a very hard reality.



#### THE FIFTH WEEK

The Federal Bureau of Investigation gave a two-day session we had all been looking forward to. The morning of the first day was spent out on the range learning how to handle and shoot the standard police .38 revolver. We had had previous classes on the weapons, and most of us had no trouble qualifying. We also did some 12-gauge trapshooting to familiarize us with riot guns. In the afternoon we went over personal defense methods and search and seizure techniques. These classes got rough at times as we strove to quickly become familiar with the moves.

On the second day we had our minds "blown," so to speak, by the likes of Joe Pyne and no less than J. Vernon

Tuckey himself. These agents very effectively alternated lectures to impress us with the responsibilities of law enforcement officers regarding arrest procedures and the rights of the accused. Joe Pyne managed to make his points (subtly?) with stories of Balso Leary, that fumbling master criminal. J. Vernon Tuckey is reputed to have been a Baptist preacher and a trial lawyer before joining the F.B.I. Whether or not this is true, it was believable to us who attended his performances.



#### THE SIXTH WEEK

The Avalanche Peaks Project was designed to teach us the fundamentals of "master planning" the development of an area for the National Park Service. The project involved planning all the various park activities, not just the ranger and interpretive activities.

The class was divided into five groups. Each group handled the project separately. Of particular note was the conflict in our group between conservation "purists" and "recreationists."

We argued for almost four hours one night on whether to run a road around the north edge of Cougar Lake in Avalanche Peaks National Park (a mythical area on which we had extensive topographic maps and data, reams of printed matter, and even a complete topographic model).

The "purists" argued that pure wilderness out of the sight and sound of man's works is a park's goal. The "recreationalists" argued that if most people don't use a resource, it shouldn't be preserved—and most people don't hike, they drive. We finally settled the issue with a compromise of a gravel road halfway around the north edge of the lake.

This classic argument will be with the Park Service as long as there is wilderness of high quality left for people to enjoy, quietly and alone.



#### THE SEVENTH WEEK

During the work week we went into the field with regular experienced rangers; and by helping them cope with the everyday problems that occurred, we gained practical knowledge to complement our "book-learning." This week was invaluable to us all but especially to those few like me who had no previous seasonal experience with the Park Service.

The immense variety of duties we encountered particularly impressed us. After we had returned to classes and compared notes, we found that we had visited with campers, answered innumerable questions, taken entrance fees, helped on guided trips, aided in interpretive programs, patrolled roads, aided motorists, and generally had a good time helping people enjoy the Grand Canyon. On the tarnished side of the coin we had dealt with disorderly conduct, issued citations, subdued drunks, and helped in investigations. Some of us got work we hadn't expected, like repairing interpretive exhibits, emptying garbage cans, bucking firewood, landscaping areas, and doing various clerical chores.



#### THE EIGHTH WEEK

On Monday we heard a coordinator for the Job Corps centers that are set up in the national parks. This guest instructor spent several hours giving us the gist of the

structure and efforts of the Job Corps program in the national parks. Moreover, he spent no little time trying to convince us of the overall value of the corps.

I felt that more facts concerning this program could have been brought out had not the instructor sidetracked the discussion. When our questions started to draw a little blood, our guest changed the subject rather than try to field controversial points.

The Park Service maintains a large number of buildings in many remote areas. Consequently, it is necessary to furnish fire protection for them and the buildings of our concessionaires as well. This structural fire protection duty, of course, falls to the park rangers.

Johnny Rauch, from the Texas A & M University State Fire School, was brought in for these days of classes. Along with Johnny's vast background in most phases of structural fire control, he had a very easy relationship with most of the class. It was just as if he were talking with a group of firemen in a firehouse.

#### THE NINTH WEEK

Early Friday morning we hastily packed our mules and our backpacks with forest tools and all the necessities for a three-day trip into the wilderness of the South Rim country. During the early hours the mules taught us the all-day trail pace and mule-handling wisdom. Sometimes I got the idea that the mules were smarter than any of us.

Late in the afternoon we finally got to our campsite, and after unpacking we set up a lean-to. After we had settled down, I broke out a quart thermos of cold beer I had in my backpack all day long. Split among the six of us in my party, it lasted only a few wonderfully delicious minutes. As usual at this time of year in this part of Arizona, it began to rain. It didn't bother our consciences at all to sit in our lean-to sipping our beer and watching the late groups slog in through the rain.

While encamped we participated in night compass problems, horse and mule handling, search techniques in rough country, survival techniques, wilderness management problems, and campfire programs in the evenings. The instructors lectured under the ponderosas, and it was an altogether delightful change of pace.

#### THE TENTH WEEK

On Friday we were given our assignments—where we would be going from the Grand Canyon. When we had accepted our initial assignment at Albright Training Center, we were informed that we would be reassigned without regard to our personal preferences. Regardless, almost everyone had his preference. Many, like myself, opted for majestic mountains and tall timber. Others looked for wave-washed beaches or rolling hills.

It was Friday afternoon a scant two weeks before we were to scatter to the four winds. Rumors had been mongered constantly as to which parks had openings. This morning a pool had been started to guess twelve of the areas we would be going to. At long last at three o'clock, while we were on break, assignments came out. When we rushed back to the classroom, we found a sheet of paper face down on all our desk tops. I snatched mine up and hurriedly found my name—next to the Natchez Trace

Parkway. It was not exactly the snow-capped peaks or rushing waters I'd had in mind, but as I found out later, it is one of the best possible parks in which to get my initial training.

#### THE ELEVENTH WEEK

The innocuous title "rescue operations" on our schedule really meant "technical rock-climbing techniques for rescuing stranded climbers." Jack Morehead came down from his Jenny Lake District in Grand Teton National Park to conduct these days of training.

The first day was spent in the classroom learning ropes, knots, pitons, karabiners, and stokes litters. The next day was spent entirely out on the cliff faces of Shoshone Point in the Grand Canyon.

There is only one correct way to do a free body rappel. I had to learn this the hard way. Ten feet over the lip of a cliff top my rope, not placed exactly correctly, slipped down to the crook of my knee. Suddenly I was dangling in space curled up like an armadillo. Fortunately part of our instruction dealt with the extreme safety measures always employed on any mountain rescue. Around my waist was tied a belaying rope and at the other end was my good friend Larry Waldron, securely anchored and braced on the cliff top. As casually as I could, I called for tension. Larry immediately took the slack out of the belaying rope and braced himself. I put my weight on that slender nylon line and got untangled.

#### THE TWELFTH WEEK

Almost all of this week would be devoted to our five-day field trip. The field trips are designed to give the trainees exposure to actual problems in the field. We would see and hear about the problems and ideas of state, county, private, and other federal outdoor recreation areas.

While overnight in Tucson we gave up our sleep to visit Nogales, Mexico. I was fascinated by the taxicabs there. The taxi rides to the night spots were better than the shows. The cabs in Nogales seem to have to meet rigid standards. They all have to be at least ten years old and lack certain basic equipment—like windows, mufflers, shock absorbers, brakes, and several cylinders. The drivers know one gear (second), one speed (terrifyingly fast), and as many prices as they think the traffic will bear. The streets come in only two varieties, one being very new, very wide, very well lighted, and having little traffic. The other kind is dark, unpaved, narrow, full of immense holes, and has all the traffic. Naturally the taxi drivers use only the latter kinds of streets. These cabbies have the courage of frustrated bullfighters. They roar down these alleys regardless of what is approaching or crossing, and the devil take the faint at heart.

On the last day we were all preoccupied with packing and cleaning up the apartments for the next class. That morning there was a simple ceremony of giving out the diplomas; Dr. Stanley Kane was on hand to say a few words and present them. Yet when Wayne Cone, the training center supervisor, had us all repeat the oath of office at the end of the ceremony, I felt a pang.

Somehow I had left a part of me there on the South Rim, and in many ways I came away changed. ■

Transportation Secretary Volpe has announced that Everglades National Park "will not be damaged"; if necessary to avoid damage, Miami's new jetport will be shifted.

### RECKLESS DRIVING ALONG THE GREAT ALEUTIAN FAULT

By about this time there is a small chance that man for the first time will have triggered a major destructive earthquake and a devastating Pacific tsunami.

The potential trigger of these events is a nuclear explosion called Milrow by the Atomic Energy Commission. Milrow is scheduled to be fired underground on the remote Aleutian island of Amchitka sometime in October. The so-called "device" will produce about a one-megaton explosion. Its principal purpose will be to demonstrate, to the AEC's satisfaction anyway, that the island is a suitable site for testing devices of much higher yield (believed intended for the warheads of antiballistic missiles).

Typical of many of today's technological events, the Amchitka test series is going ahead despite considerable voids of knowledge about its possible consequences and despite the sober doubts of many scientists having firsthand acquaintance with the situation. It is difficult to imagine where the AEC could test multimegaton bombs without stirring up opposition, but on Amchitka the agency appears to have opened several fronts at once.

The site was chosen over other equally remote areas primarily for simple reasons of expense and convenience. Yet it is only 30 to 100 kilometers from one of the most seismically dangerous zones on the planet, a belt of potential geologic cataclysms that nearly rings the Pacific. With the great earthquake of 1964 still fresh in memory, many citizens of Alaska and other threatened areas and many seismologists elsewhere are fearful that nuclear explosions so near the Aleutian fault will cause the fault to slip, releasing energies beside which those of the "device" will be a mere eruption.

In addition to this consideration is the fact that Amchitka is part of the Aleutian Islands National Wildlife Refuge. The refuge is an important nesting site for a large variety of birds, some of them fighting off extinction, and the island itself is the home of the largest population of northern sea otters known. Sea otters once were within a finger snap of extinction; only the survival of the Amchitka group because of the island's inaccessibility, plus diligent conservation efforts during the past several decades, has brought them back. It is not known how

many, if any, otters will die as a direct result of underwater shock from the blast. The greater danger may be the more subtle one, the possible upsetting of the animals' life cycle so that breeding success falls below what is necessary to sustain the population.

Acting as a combination of judge, jury, and defendant, the AEC of course declares that its experts have investigated all the potential dangers and that the chance of disaster is small enough to go ahead at least with Milrow. This explosion will be closely monitored for fault slips. If significant slips occur, testing will be moved. (Once again, presumably, the AEC will be its own referee and will decide what "significant" is.)

A number of scientists believe that no test shot really can prove the safety of the site for larger tests. They think a small increase in the energy of a device can prove to be the "straw" that causes the fault to let go. The increase in energy between Milrow and the later shots will by no means be small.

Possibly the chance of seismic disaster is remote, perhaps even as remote as the AEC claims. What is really interesting about the whole controversy is that technology should have the arrogance to take any chance at all. For reasons of logistics and economy within one federal agency a finite risk is being taken, not only of seriously disrupting Aleutian ecology and of contributing to the extinction of the Alaskan sea otter, but also of destroying whole cities and killing thousands of people. Many a motorist has taken an exceedingly small chance in order to get somewhere a bit faster, then found himself staring at the unmeasurable cost of a dead child on the road beneath his machine. With the stakes involved, the AEC should beware of similar reckless driving.

### OIL REGULATIONS IN EFFECT; DRILLING RESUMES

On August 21 the Department of the Interior put into effect a new set of rules governing drilling for oil on offshore tracts leased from the federal government. Basically the same stringent rules proposed by Interior Secretary Walter J. Hickel after January's disastrous blowout in the Santa Barbara Channel, there are nevertheless some important areas of compromise between what was sought by industry and by conservationists.

Meanwhile drilling operations in the

Santa Barbara Channel appear to be on the increase, with activity resumed on more than a dozen leases. After the Union Oil Co. blowout that resulted in a 200-square-mile oil slick, a blackened coastline, and considerable damage to the flora and fauna of the channel, Hickel ordered all drilling stopped until further notice. The order provided that each drilling operation would be reviewed individually and a resumption of drilling permitted only when officials were satisfied that the well was secure against leaks.

There is a considerable body of geologic opinion to the effect that there can be no real security against leaks in the Santa Barbara Channel. Years before former Interior Secretary Stewart Udall finally consented (under pressure from the Budget Bureau and others) to granting the leases, it was warned that the structure of the sea floor in the area made drilling for oil unsafe. A disaster of the kind that finally occurred was predicted.

The problem is that the rock overlying the oil deposits is thin (only about 300 feet at the Union well) and laced with fissures that can communicate with the surface. Oil under pressure rising in a well shaft can, and did, force its way out of the shaft to the surface via some of these fissures. Once a blowout occurs, the only long-term solution to leakage is depletion of the oil pool in order to lower the pressure. (One of the drilling operations that has been resumed will tap the same oil pool as the Union well and was permitted just in order to lower the pressure.)

A pamphlet issued by the oil industry in midsummer shows, if nothing else, the degree of flexibility of the English language. It notes that the "seepages" from the Santa Barbara "incident" should not be a "cause for hysteria" nor the occasion for imposing "costly and restrictive regulations on offshore oil activities."

The regulations referred to apparently are those that now are in effect. But the most feared feature, absolute liability for the outcome of drilling accidents, has been modified. Originally Hickel proposed rules that would have made the oil companies liable not only for the direct costs of cleanup but also for reparations to third parties damaged, for example hotels that lose business because of oil-fouled beaches.

As they now stand the rules state that third-party liability will be determined

by "applicable law." That is, the third party will have to go to court and apply existing civil liability laws in order to collect. Suits growing out of the Union blowout should help set some precedent in such cases, at least in California.

A second area of revision a bit disappointing to conservationists concerns the disclosure of geologic data from a proposed oil lease site. The amended rules require that such data be provided to the government but prohibit their publication without the consent of the oil companies, unless the Interior Department official at the scene determines that circumstances make publication necessary.

In a third matter the industry lost a round. A provision of the rules as originally proposed has been retained which would permit the Interior Department to hold public hearings before granting oil leases. The industry objects to such a bothersome impediment to its use of public property.

Other provisions of the rules include stiffer engineering requirements for accident-prevention procedures and full consideration of all environmental factors that might be affected by drilling or subsequent accidents. Conservationists are asking for consideration of the environment before even prospecting is allowed, on the grounds that once oil is discovered, at great expense to the industry, pressure for development becomes enormous.

#### A MAINE TOWN LOOKS TO THE FUTURE

We were recently browsing the contents of the Anti-Pollution League's *Bulletin* for July, in which there is much sound commentary on the prospects for keeping various parts of the country in liveable and enjoyable condition, with special emphasis, as might be thought, on air, water, and other environmental pollution problems. Of particular interest was comment on the current outlook for New England, and in particular its northern regions, which have been undergoing promotion as locales for assorted heavy industrial projects—thermonuclear power plants, oil refineries, and such.

The fundamentals behind this drive are many and complex; but briefly we think that before this beautiful portion of New England is sacrificed to industrial development, the people of northern New England ought to take a hard look at their greatest ultimate resource, natural beauty, and their greatest resource potential, outdoor recreation.

We are well aware that parts of northern New England have not shared in the general affluence experienced by most of the rest of the nation. We also know that many northern New Englanders are more



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## Coming Events in NPA's World Travel Program

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Tour price, including round-trip air fare from New York, \$1585. Membership limited to 30.

### AROUND THE WORLD—IUCN MEETING

November 8 to December 6

Round-the-world tour in conjunction with the 10th General Assembly and 11th Technical Meeting of the International Union for Conservation of Nature in New Delhi, where one may attend or take optional excursion to Nepal. Nature and man's handiwork in Japan, Hong Kong, Cambodia, India and Iran—pearl fishing at Ise-Shima Park, the sculpture of Angkor, architecture of Isfahan, the 2500-year-old ruins of Persepolis. Leader, A. W. Smith of NPA.

Tour price, including round-the-world air fare from New York, \$1890. Membership limited to 30.

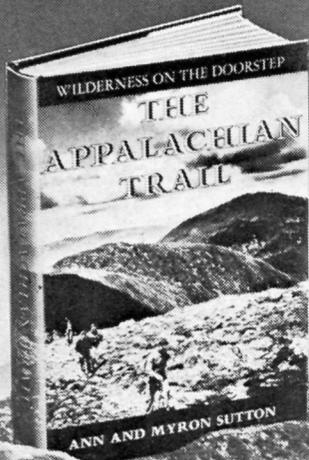
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interested in a liveable environment than great affluence and have no desire to exchange one for the other. Lest there be some question on this point, we print an excerpt from the annual report of the Town of Warren, Maine, a small village and township on the beautiful central coast of the state—a township without much by way of luxury, but with a well-developed notion of what it might want in the way of industry.

"During 1968," the three-man Warren Development Corporation reported to Warren taxpayers, "the Corporation has explored many avenues which could lead to the type of industry and environment our town needs. By this statement we mean that we do not think we should down-grade our streams and ponds just to get a multimillion dollar industry here. Of course this would cut our individual tax bill drastically, but is this really what we want? . . . We have discouraged applicants who would have a pollution problem, as we feel we cannot take a chance in this respect."

Now the Warren Development Corporation, a committee of the town government, has the sum of \$100 a year to spend on promotion, according to the town report; but little as that may seem, it is entrusted to a group obviously endowed with more than the usual amount of vision in matters of this sort.

### ENDANGERED WILDLIFE BILL PROGRESSING IN SENATE

Smooth sailing in the Senate was expected for this session's endangered species protection bill as this issue went to press. The measure, which would permit the Secretary of the Interior to halt interstate and foreign commerce in threatened species and their products, was passed by the House and made its way almost all the way through the Senate Commerce Committee before Congress adjourned on August 13. Quick passage by the Senate was considered likely when Congress reconvened after Labor Day.

The bill also would permit the Secretary to spend up to \$2.5 million per year, instead of the present \$750,000, for the acquisition of land to protect native endangered species; would authorize the appropriation of \$1 million in each of the next three years for the purchase of inholdings in lands administered by Interior containing endangered species (inholdings in the Everglades are believed to harbor alligator poachers); and would direct the Secretary to encourage the governments of other nations to enter into agreements with the United States for the protection of threatened species being taken within their borders.

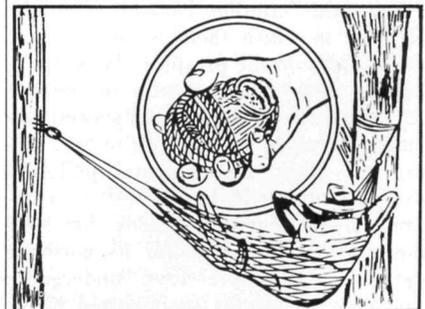
### BAY REFUGE PROPOSED

An effort is under way to have the Secretary of the Interior set up a national wildlife refuge in south San Francisco Bay.

The Sequoia Audubon Society is seeking to have a substantial part of the lower third of San Francisco Bay, in the neighborhood of Palo Alto, set aside as a "national wildlife refuge complex." The area consists of salt marsh, sloughs, fresh water and saltwater ponds, creeks, mud flats, and bay shallows. It shelters a wide variety of wildlife, including some species on the list of rare and endangered species compiled by the Bureau of Sport Fisheries and Wildlife. Among species with important habitat within the proposed refuge are the red-bellied harvest mouse, which has adapted to the area by learning to swim and to drink salt water; the vagrant shrew; the California clapper rail, on the rare list and a bird for which habitat preservation is the only feasible method of protection; the salt marsh song sparrow; and the harbor seal, some 400 of which haul out in the South Bay.

In general, San Francisco Bay in its natural state is considered to be in grave danger from sheer numbers of people. Already landfills have reduced the bay's surface area from 680 square miles to

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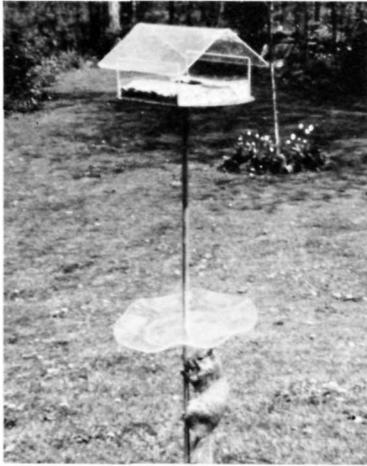
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about 400, and the prospect is for much more reduction as space is manufactured for housing developments, shopping centers, and other urban sprawl phenomena.

**UNDERWATER PARKS**

The California legislature has enacted a bill authorizing the establishment of underwater state parks. The bill was introduced by Assemblyman John Stull.

Stull said that the California Park Commission will locate and develop marine preserves in areas selected for their scenic, ecological, geological, and scientific values. Three areas now under consideration include the Penasquitos Lagoon-Submarine Canyon sector near San Diego, the Julia Pfeiffer Burns State Park off Monterey, and Salt Point in Marin County north of San Francisco.

The legislation specifies that the Park Commission must "give consideration to and permit multiple uses of such parks" when "natural features, location, public need, prior commitment or other proper and beneficial uses" dictate. Certain selected areas may be preserved in their "original or natural condition."

**CANADIAN PUBLICATION**

The University of Calgary in Calgary, Alberta, has published the proceedings of an international conference held last October under the sponsorship of the university and of the National and Provincial Parks Association of Canada.

The two-volume publication, entitled *The Canadian National Parks: Today and Tomorrow*, is number three in the university's Studies in Land Use History and Landscape Change, National Park Series. Volume I contains 575 pages, Volume II, 400 pages. The set is edited by J. G. Nelson and R. C. Scace, of the university's Department of Geography. It may be obtained from Dr. Nelson at a cost of \$12 per set.

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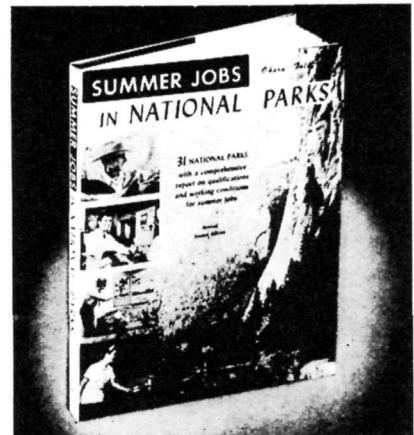
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Today in the crystal tide pools of Acadia National Park on the north-central coast of Maine there is colorful life to attract the vacationing visitor. Conservationists ask: shall the future of a yet beautiful coast be limned in drifting oil? Some thoughts on the matter are found on page 25.

You can help your Association in its studies and recommendations on the acute environmental problems facing the nation today by contributing to its general funds over and above regular dues. All dues over and above regular dues, and all contributions, are deductible for federal income taxation.

PHOTOGRAPH BY P. M. TILDEN

