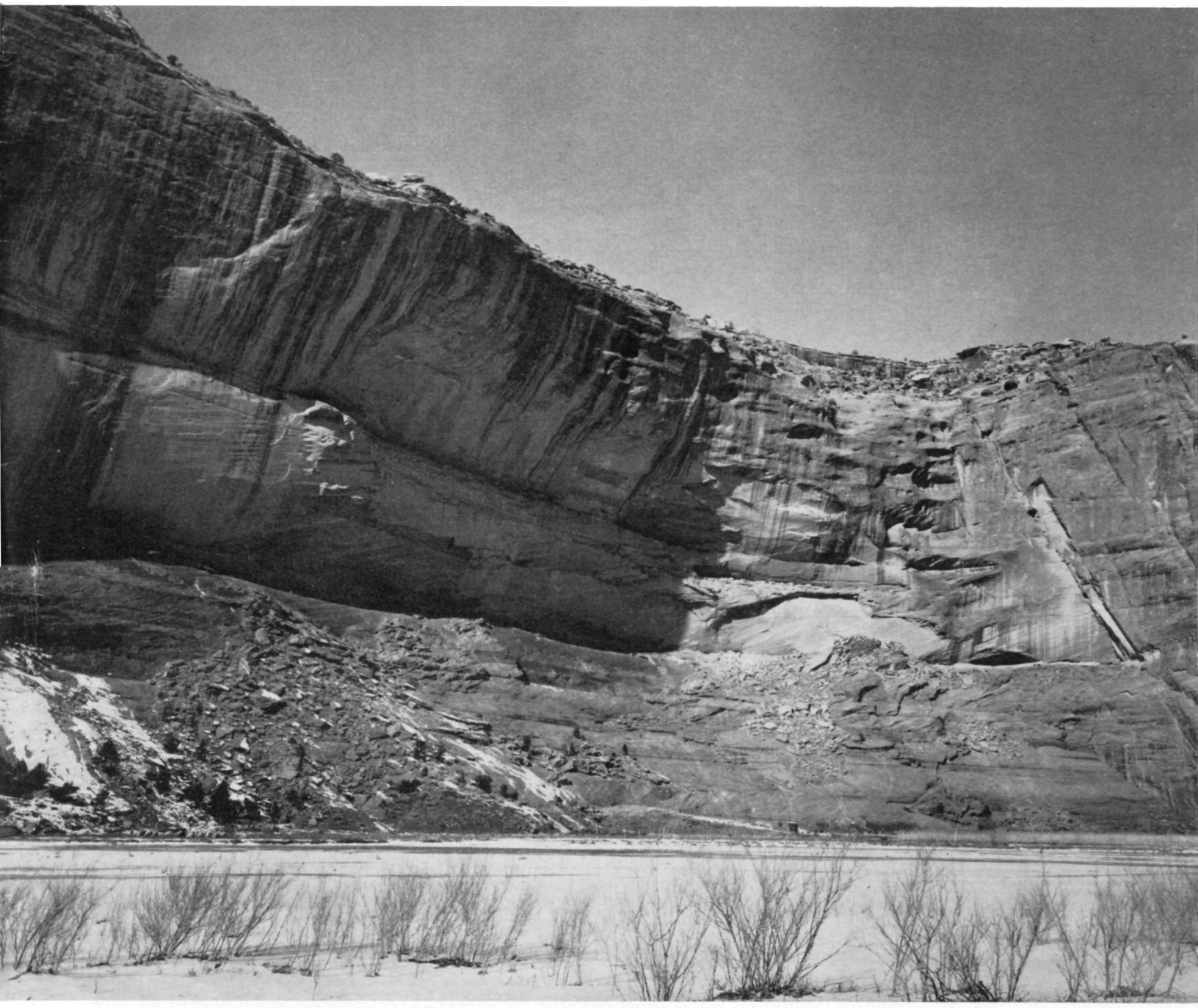
NATIONAL PARKS *Magazine*



Sonic boom damage near Standing Cow Ruin:
Canyon de Chelly National Monument, Arizona

March 1968

Progress in Yosemite

Park Service Director George B. Hartzog, Jr., is to be congratulated on his recent proposals for Yosemite National Park. The overcrowding in Yosemite Valley is notorious, the campground congestion intolerable, the smog disgraceful, and courageous action imperative.

Conservationists everywhere will applaud the decision to eliminate the firefall, where glowing coals are pushed over a 3000-foot cliff, which contributes to nothing but crowding. The golf course should also go, as planned, and the concessioner should re-negotiate his contracts, if necessary, in the public interest. The shuttle coaches started last year should be continued, but at special fares, as originally intended, which will make them attractive. Fees should be established for the campgrounds, as proposed, to reduce crowding. So far, so good.

But the shuttle system will not be effective if limited to service from the lodges around the valley. The problem is to get the private automobile off the valley floor, so that the human visitors can enjoy the park. This means mass parking facilities in outlying communities, like Mariposa, and minibus or coach transportation into the park from such communities.

It means phasing out campgrounds on the valley floor entirely, because most of this space is used by private automobiles, and providing day-use facilities instead: picnic grounds, and trail bases from which to get out to the high country.

Communities like Mariposa need the recreation business such an arrangement would give them. Programs should look toward encouragement of well planned and well financed privately operated resorts on private land in these communities. Such resorts would feature the amusements and facilities many travelers desire, but which ought not to be in the parks.

Many Government programs are available to help such businesses by providing technical advice, loans, and other assistance (although such help must await the resumption of normal Governmental budgeting). Development should be controlled pursuant to plans worked out by consortiums of nearby universities, perhaps through their bureaus of business and economic research, as this Association has proposed. In any event, honky-tonk development must be prevented.

From these communities, pleasant, comfortable, and commodious minibus or coach services should be provided into the park on the model of the Colonial Williamsburg system. The facilities should be operated by concessioners, but they might well be completely subsidized by the Service, because the Williamsburg experience shows that the cost can be very low, and the savings, in policing crowds and parking, very high.

These proposals would utilize the existing road system. Costly and ugly cuts in the mountains to widen the roads would be avoided; likewise cantilever construction over the Merced River. The old railroad should not be revived, even though on the other side of the river, not even as a monorail; mechanical intrusion of this kind into the parks will do more harm than good; if private cars continue to crowd the park, there will be only that much more congestion.

The best solution, we venture to recommend, is bus or coach transportation, low-cost or free, along the existing road. In harmony with the Williamsburg experience, the minibuses should make frequent stops and might well utilize informational announcements over a loudspeaker system with good acoustics, and pamphlets explaining the principal park features to visitors. There should be luggage space for picnic and camping gear. The vehicles should have transparent glass or plastic roofs; and, hopefully, be powered by batteries.

There is no reason why some of the presently existing lodges should not remain on the valley floor when the main problem of the private automobile has been solved; most of the other commercial facilities should go. The great problem in the national parks is not people, and perhaps not even shelter, but the private automobile.

In the same vein, there should be a freeze on any more auto or trailer campgrounds along the Tioga road, which crosses the High Sierra. This is one of those unfortunate situations where a major highway passes directly through a park and renders park protection difficult.

Competent studies have shown that the main pressure on the High Sierra at present comes from hikers on foot; even the horse apparently is being crowded out; this demonstrates the necessity for protecting the foot-trail country, as against new roads, throughout the national park system, and for more and larger permanent wilderness areas.

We cannot forebear to comment that this consideration reflects adversely on the recent decision to change Mineral King in Sequoia National Park into a crowd-recreation region for mechanical ski lifts, as against reserving it as trail country.

In the development of new plans for Yosemite National Park, an enterprise on which the new master plan team is now working, the objective should be the maximum possible protection of the existing trail country as permanent roadless wilderness. More and more people are going to be insisting on such protection in California and throughout America. It can be achieved, however, only in connection with public transportation facilities of the kind recommended above, and against a background of the dispersion of visitation over large areas.

For Yosemite, as for Kings Canyon, Sequoia, and Lassen Volcanic, the region essentially is the entire High Sierra and the surrounding mountains and foothills. The many extensive national forests which surround these parks, and the large number of reservoirs available for water-surface recreation, provide the region; the crowds can be dispersed by proper interdepartmental planning. A procedural framework for such planning should be established promptly by the President's Council on Recreation and Natural Beauty.

The Yosemite perspective includes another magnificent opportunity: the restoration of Hetch Hetchy Valley, the spectacular sister of Yosemite Valley which was destroyed by a water-supply reservoir fifty years ago.

The time is coming when San Francisco, like Los Angeles, will turn to atomic energy and desaltation for much of its water. We do not urge that such a course be expedited, because we are not satisfied that the critical problem of radioactive waste disposal has been, or ever will be, satisfactorily solved; the conservation of uranium resources suggests the need to wait for the perfection of breeder reactors; we may hope for fusion instead of fission eventually, but atomic desaltation will be with us sooner or later.

Hetch Hetchy, under these circumstances, will have much greater value as a restored recreation and wilderness area than as the draw-down basin of a water-supply reservoir. Or more simply, the reservoir can be phased out for water supply and stabilized at low levels as a lake. This would be a project worthy of a civilization which valued its esthetic and environmental resources.

The new master plan team should focus, in our judgment, on maximum wilderness protection within Yosemite Park, supported by coach transportation, phasing out the private automobile, and facilitated by the broad dispersion of visitors into the great and spacious recreational region which the Sierra and its foothills represent. —*A.W.S.*

YOSEMITE NEEDS HELP!

You can help rescue Yosemite Park from the traffic and return it to the people by writing to Mr. George B. Hartzog, Jr., Director of the National Park Service, Washington, D.C., and commending him on his plans for Yosemite Valley, but urging him to go farther, as recommended in this editorial. We would appreciate your sending copies to the National Parks Association.

NATIONAL PARKS *Magazine*

OFFICIAL PUBLICATION OF THE NATIONAL PARKS ASSOCIATION

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Front cover photograph courtesy National Park Service

The conveniences created by modern technology, commonly but perhaps mistakenly correlated with a "standard of living," often contribute immediately to the problems faced by conservationists in their efforts to keep the American environment gracefully livable. The supersonic transport, for example, which is now nearly with us, will be such a convenience; primarily designed, it may be supposed, to save time for busy people. But the supersonic transport will compound the problem of the sonic boom, a phenomenon now familiar to all; and the effects of the boom are not wholly psychological, as an article in this issue points out. The front cover photograph shows an area of boom-damage in one of the archeological units of the national park system—Canyon de Chelly National Monument, in Arizona.

All communications sent to the National Parks Association should now be addressed to Association headquarters at 1701 18th Street, N. W., Washington, D.C. 20009.

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.

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

Membership in the Association carries with it subscription to *National Parks Magazine*. School and library subscriptions are $5 a year; individual copies 50 cents. 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.

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NATIONAL PARKS ASSOCIATION
1701 18th STREET, N.W. WASHINGTON, D.C. 20009

Comeback for the Willamette River

By Stewart L. Udall

Secretary of the Interior

NO ONE LIKES TO BE COERCED, even if the only thing involved is the need to invest in social and economic progress. But whether we like it or not, it becomes clearer every day that environmental misuse in this country is rapidly reaching the point of virtually coercing us into corrective action.

City slums grow and fester. Much of the countryside is an unpicturesque shambles. The air that most of us breathe is permeated with substances that in sufficient concentrations are lethal and that may indeed be injurious to health over a long period of time at present levels. Many of our rivers are little better than open sewers for municipal, industrial, and agricultural wastes, and these same wastes are spoiling many of our estuaries and wetlands and slowly choking most of our lakes, large and small. Our total social and economic system is, in short, under duress.

The key fact that is beginning to emerge from all this is that *there is no way to avoid the costs of pollution.* Controlling it is costly; so is neglect. In an expanding economy and a rapidly growing population, the production of wastes of all kinds increases geometrically. There are two courses open to us. We can continue to save money—theoretically—by dumping these larger and larger volumes of wastes into the environment. Or we can spend whatever it takes to reduce the volume of wastes wherever that is possible and treat or otherwise dispose of the rest in ways that will prevent further wholesale destruction of the environment.

Either way, the costs are unavoidable. The question—if it is a question—is which kind of cost is greatest in the long run. Is it the cost of pollution prevention and control? Or is it the cost of progressive environmental destruction? At least as far as water is concerned, the question is open and shut.

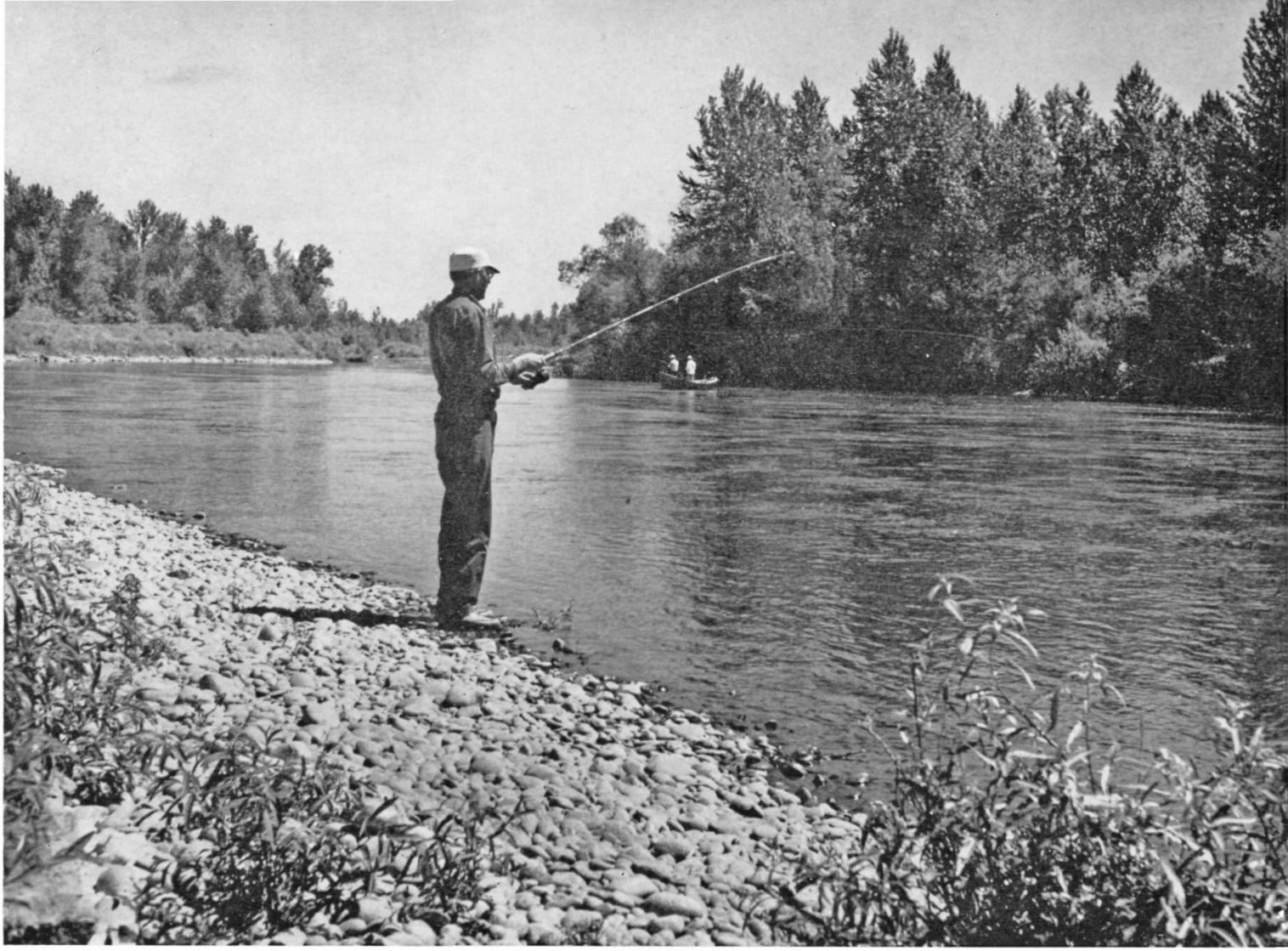
The cost of water pollution prevention and control can be measured in dollars. The total cost of uncontrolled pollution is more difficult to determine. The deterioration in the market value of properties fronting on a dying lake or a river choked with algae, the destruction of shellfish beds by gross pollution, the increasing difficulty of finding enough good water for our growing cities, the cumulative losses associated with the closing of recreational areas for health reasons—these and countless other immediate costs of pollution can also be measured in dollars. But who can measure the total cost to society, especially a growing society, when a lake or river is ruined by pollution?

Even in a static situation, the total costs of pollution outweigh the dollar costs of pollution prevention and control. Knowing, as we do, that by the end of this century our population will grow to more than 300 million—an increase of 50 percent or more in little more than three decades—the mounting costs of pollution are coercive if we really mean to try to fulfill our national aspirations. Looming larger and larger, in the opinion of a growing number of scientists and others, is the ultimate question of whether mankind can even survive unless the accelerating destruction of the environment can be halted. A major factor in all this is water.

The Water Resource in Trouble

North, south, east, and west—despite increased expenditures in recent years—the water resources of this country are either polluted to some degree or are in danger of becoming polluted. The way things have been going, no lake, no bay or estuary, no stream or river, not even any ground water resource is altogether immune to the relentless pressures of population growth and industrial expansion. From Penobscot Bay to Puget Sound, from Lake Michigan to the Mississippi Delta, from the Sacramento to the Hudson, virtually all of the nation's water resources are in trouble or in jeopardy. Some major water resources, notably Lake Erie, are already in desperate condition. A few, like Lake Tahoe, have been less seriously harmed.

The question hanging over all of the nation's water resources, and a question hanging over the future quality of American life, is how we will finally elect to deal with the problem of pollution. Which kind of cost will we ultimately decide to pay? Will we continue to pay the mounting cost of uncontrolled or inadequately controlled pollution? Or



Federal Water Pollution Control Administration photograph: Herbert E. Simison

The Willamette River, photographed a few miles north of the city of Eugene.

will we, instead, invest whatever is required to assure ample supplies of clean water for all purposes from here on out? A good start has been made toward reversing the tide of water pollution in this country, but only a start. The main job is still ahead.

In 1961, what is now the Federal Water Pollution Control Administration in the Department of the Interior began a comprehensive study of water quality in the Columbia River Basin. One of the major tributaries of that storied river soon became the principal focus of the study, and for good reason. To investigators for the FWPCA, dirty water is a more powerful magnet than clean water to a swimmer, and for long stretches the Willamette was and is a dirty river. Its hoped-for comeback, and the work in progress toward that end, is an exciting episode in the touch-and-go story of water pollution control in this country. The Willamette River Basin, hanging—on the map—like a great limb from the Columbia between the Coast Range and the Cascade Range and covering some 12,000 square miles of timber and agricultural land, represents in varying degrees virtually all of the classic water pollution problems of urban, industrial, agricultural America. No two river systems are alike, no two have precisely the same pollution problems, but if and when the entire Willamette runs clean again, it could point the way to triumph over tragedy for many another beleaguered river system across the nation.

Since the earliest migration of pioneers to the Oregon Territory, the valley of the Willamette, favored by climate and richly endowed with natural resources, has been a steadily growing center of agriculture and industry. The first settlement on the Willamette was at Oregon City, 25 miles or so upstream from the confluence with the Columbia, where the plunging waters of Willamette Falls supplied power for the valley's first sawmills and other small industries.

Today the Willamette is the life-stream of Oregon's four largest cities—Portland, through which it flows into the Columbia, Eugene-Springfield, Salem, and Corvallis—and the State's seventh largest city, Albany. Two-thirds of Oregon's population of 2,000,000, two-thirds of the State's industrial activity, and well over one-third of the State's agricultural production are all centered in this relatively small watershed, representing only one-eighth of Oregon's total area. And all forecasts point to the continued growth of this land of lush, evergreen landscapes between the

brooding mountain ranges to the west and east. It is, as Oregonians like to point out, an intensely "livable" land, this valley of the Willamette.

And it will continue to be a most livable land with one big IF—if its key resource, water, is sufficiently safeguarded against pollution. This will mean carrying out to the letter the program to control pollution from all identified sources. And from then on, it will mean taking such additional steps as may be necessary to assure that further population and industrial growth do not give rise to new sources of pollution. The key, certainly, is the successful completion of the current program, with a price tag of over $100 million that in itself is no small order.

There is much more at stake in the cleanup of the Willamette than the cost of the cleanup itself. How much is at stake is symbolized by the proposed Willamette River Greenway and all that this exciting undertaking implies for the enjoyment and well-being of future generations.

The Willamette is essentially a tree-lined corridor threading its way for more than 180 miles from Eugene to Portland. Envisioned in the Greenway project is a river park system that would preserve this natural treasure and at the same time make it accessible to all who enjoy the out-of-doors. The river park system contemplated would be complete with river access facilities, camp sites, recreational trails, urban recreational tracts, scenic drives, and scenic conservation areas. Oregon is serious about the Greenway undertaking. The Legislature appropriated $800,000 to launch the program, and all levels of government will be involved. Moreover, and this is crucial, everyone concerned recognizes that without a clean river there can be no Willamette River Greenway worthy of the name.

Willamette in Favorable Position

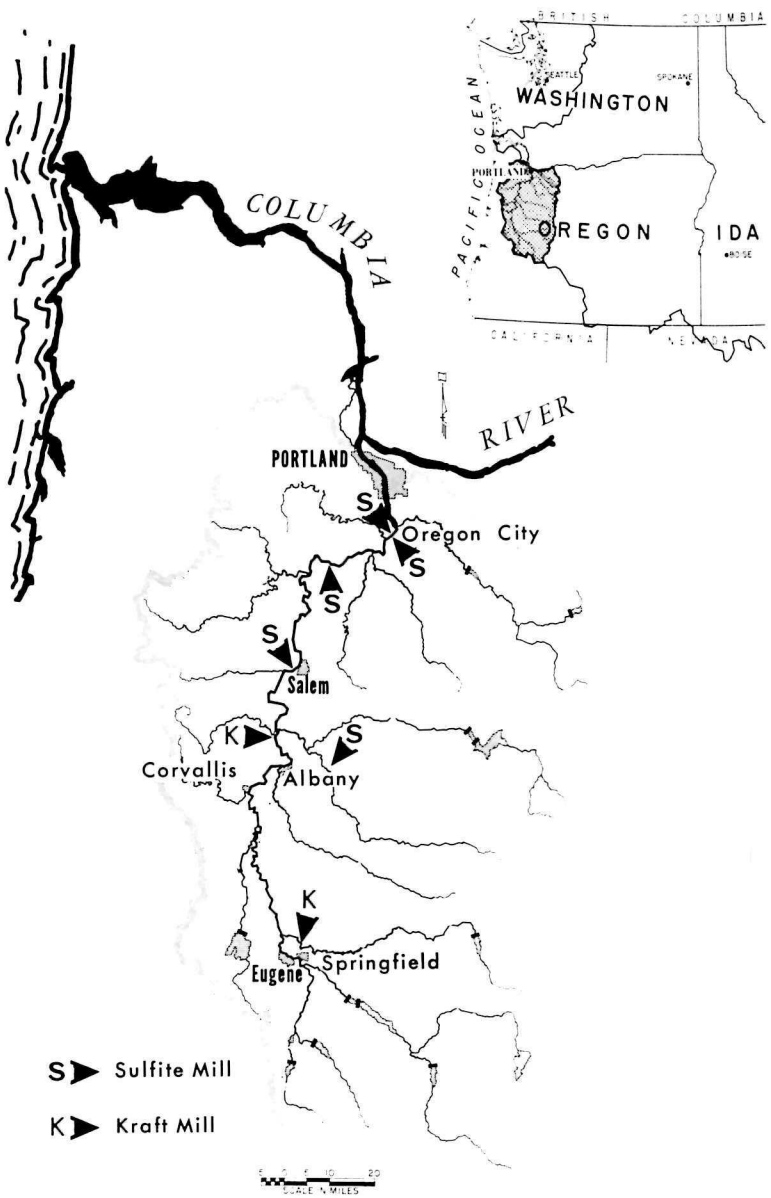
The Willamette today has a lot of history going for it. It has been caught up in the national drive for clean water while water quality through much of the system is still relatively high during all but the low-flow summer months. It stands to benefit from expanded Federal and State assistance for construction of municipal waste treatment plants and other water pollution control measures; from a rapidly growing realization on the part of both industry and the public that industrial pollution, now the major problem in the Willamette Basin, can and must be controlled; from the new public interest, as witness the Willamette River Greenway project, in the preservation of remaining scenic values in highly developed areas otherwise destined to be completely swallowed up by further urban and industrial development.

The report of the Federal Water Pollution Control Administration study noted that the Willamette River system supplies about a quarter of the total Columbia River Basin production of spring Chinook salmon and substantial quantities of coho, steelhead, and lesser salmon varieties, and that the main stem of the Willamette serves as a passageway for these migratory fish to the benefit of commercial and sport fishing in the Columbia River and on out into the Pacific Ocean.

Yet in the dry summer months, the dissolved oxygen in the lower reaches of the Willamette sometimes drops to as little as 2 parts per million, a suffocating environment for salmonoids. How many fail to get through, no one knows, since salmon, like other salt-water fish, have a relatively high specific gravity and sink when they die in fresh water. But it is a well-known fact that in portions of the river, particularly in Portland Harbor, which takes the brunt of the river's pollution load, a kind of "brinksmanship" has been practiced for years with the salmonoids. Generally speaking, the minimum safe level for migrating salmon is 5 ppm of dissolved oxygen, while still higher levels are required for spawning and for normal growth and development of the young. At 2 ppm, a salmon is like a man at 35,000 feet without an oxygen supply. At least for young migrating salmon that kind of water is a death-trap.

These sharp annual drops in dissolved oxygen after the rains have stopped and the snows of the Cascade Range have melted, are serious enough in themselves. They are also the symptoms of an annual ecological disaster replete

Within the shaded line, the Willamette River and its basin.



Federal Water Pollution Control Administration photograph

Every year scores of fishermen gather at Willamette Falls on the polluted Willamette River, lured by visions of migrating salmon. An average of but one Chinook is taken per fisherman for each eight days of fishing. Photo taken May, 1967.

with all of the unpleasant end-products of gross pollution—the noisome colors, odors, bubbles, and slime of water overwhelmed by organic materials in various stages of decomposition.

The future of the Willamette Valley, in short, is directly tied to the future of the salmonoids. However one feels about fish, the fact is that what is good, or bad, for fish is also good, or bad, for people, in the Willamette River basin and everywhere.

The passage of the Water Quality Act of 1965, with its provision for the establishment of water quality standards for all interstate and coastal water, irrespective of the sources of pollution, marked the beginning of a new era in water management in this country. The deadline for the submission of standards by the States was June 30 of last year. Oregon got its standards in early, and on July 19 I was able to approve the principal portions of the standards submitted by the State as the Federal standards for the waters involved.

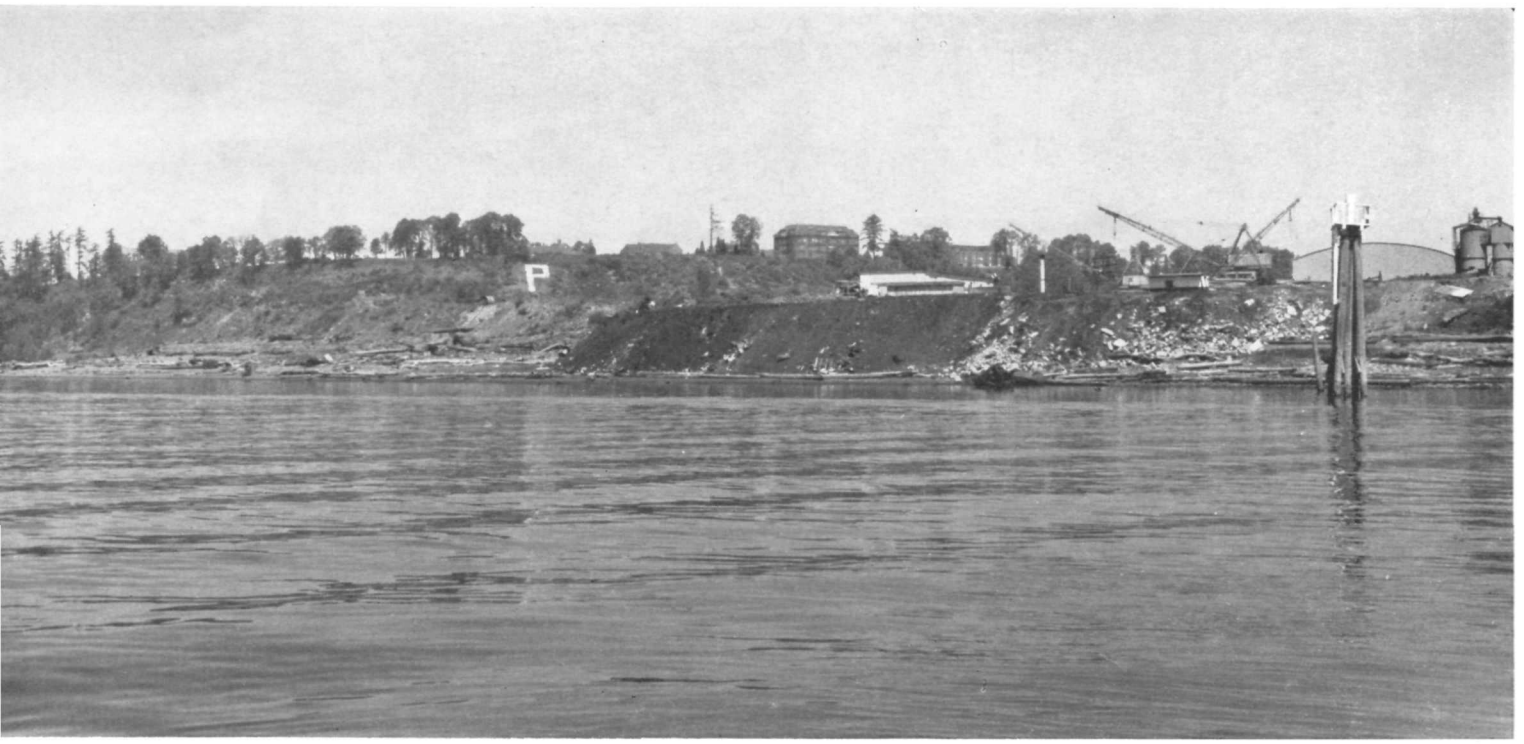
What the Oregon standards mean for the future of the Willamette River Basin is perhaps best illustrated by the minimum requirements for dissolved oxygen. The standards state unequivocally that no pollution will be permitted which causes the dissolved oxygen to fall below 5 ppm from the mouth of the Willamette to Willamette Falls in Oregon City (river mile 26.6), below 6 ppm from Willamette Falls to Newberg (river mile 50), below 7 ppm from Newberg to Salem (river mile 85), and below 90 percent of saturation from Salem to the confluence of the Coast and Middle Forks (river mile 187).

The standards also set specific limits on coliform levels, turbidity, temperature, and a long list of dissolved chemical substances.

The Oregon State Sanitary Authority, of which Governor Tom McCall was the active Chairman during the standard-setting, identified 24 major sources of municipal pollution and no fewer than 70 major sources of industrial pollution in the Willamette Basin. At the same time, the OSSA defined the improvements needed and developed a specific implementation program for all sources, community by community, industry by industry. The goal is secondary treatment of all municipal wastes and comparable treatment for industrial wastes.

From every standpoint, this is an ambitious program, but at stake is the future progress and well-being of the entire Willamette Basin. For more than 20 years, Oregon has been pressing for the construction of municipal waste treatment works in an effort to hold down pollution from the valley's growing population. In 1946, only nine Willamette Valley communities had municipal sewage treatment plants. Twenty years later, thanks in large measure to the stimulus of the Federal construction grants program initiated in 1956 and expanded several times since, the number of communities served by waste treatment works had grown to 118.

There is still much to be done to achieve fully effective



Federal Water Pollution Control Administration photograph

The bank of the Willamette in Portland Harbor at the lower end of Swan Island is presently being used as a dump. Portland University is on the bluff in the background, a point reached by the Lewis and Clark Expedition in 1806.

treatment of domestic and municipal wastes throughout the valley. But control of pollution from these sources will continue to be of limited value until pollution from industries up and down the valley is also brought under control. While the list of industrial pollutants developed by the OSSA includes a variety of wastes, the big problem today, as reflected both by the standards and the Federal Water Pollution Control Administration study, is the pollution from the pulp and paper mills located up and down the main stem of the Willamette. The FWPCA study showed that pulp and paper mill wastes account for no less than 80 percent of the total pollution problem in the Willamette River system. It is these wastes that are now largely responsible for excessive oxygen depletion in the lower reaches of the river.

There are seven pulp and paper mills in the Willamette Basin. Two are Kraft mills which significantly reduce pollution by evaporation and burning to recover for reuse the chemicals from the digesting liquors. But five are the older sulfite process mills which discharge partially treated sulfite waste liquors directly to the river. The wood sugars from the waste liquors produce wild growths of bacterial slimes, and these sulfite waste liquors can be toxic to fish and other aquatic life. Lagooning of the sulfite waste liquors in summer for discharge during the high-flow winter and spring months has proved only partially effective and is not a substitute for treatment. The recent installation of a primary clarifier by one of the mills at Oregon City and the scheduled discontinuation of pulping at the other, plus a new $3.5 million fish ladder being built at Willamette Falls, are important first steps in the long-range restoration program now getting under way.

Until recent years, water quality management in this country has been preoccupied with the age-old questions of water development and water distribution, with the manipulation of water quantity. This interest will and should continue and will become increasingly sophisticated. Desalination is already entering the water supply picture and will become increasingly important in the years ahead. Weather modification will no doubt come into the picture in time.

The major new frontier in water management, however, is water quality control. Most or all of the more urgent water pollution problems of the Willamette Valley and all across the country can be solved, or at least reduced to manageable proportions, by the application of existing technology. As technology in this field advances complete water renovation and repeated reuse for all purposes will become possible on a larger and larger scale. In view of the further population increases ahead, this will almost certainly be the way of the future in water management. Among other things, the notion that an industry has some kind of divine right to dump whatever kinds of wastes it wants into the nearest lake or stream because the industry provides jobs will give way to the principle that pollution control is a normal part of the cost of doing business. Only when that principle is firmly established can water that belongs to all the people be safeguarded for the use of all the people. Fortunately, that trend is now under way.

The next few years will be crucial ones for the Willamette River. There is much at stake there, not only for the people of the valley but indirectly for people everywhere—even for people who have had not occasion to know that the name is Wil-*lam′* -ette. ■

SST: COMING THREAT TO WILDERNESS

By Bruce L. Welch

CHALLENGES TO THE INTEGRITY OF our environment are coming hard and fast. Often they are born and gather great momentum before we feel the real force of their impact upon our lives. Once they are with us, we have little choice but to accept and bend to them or, alternatively, to fight long, life-spending battles against them. Even when we choose the latter course and win, it is often tragic, for victory is rarely complete.

We now have the opportunity to anticipate one of the greatest challenges to quality environment of our time. To do so we must speak up against the threat to wilderness, and to peace and quiet everywhere, which is imposed by the sonic boom.

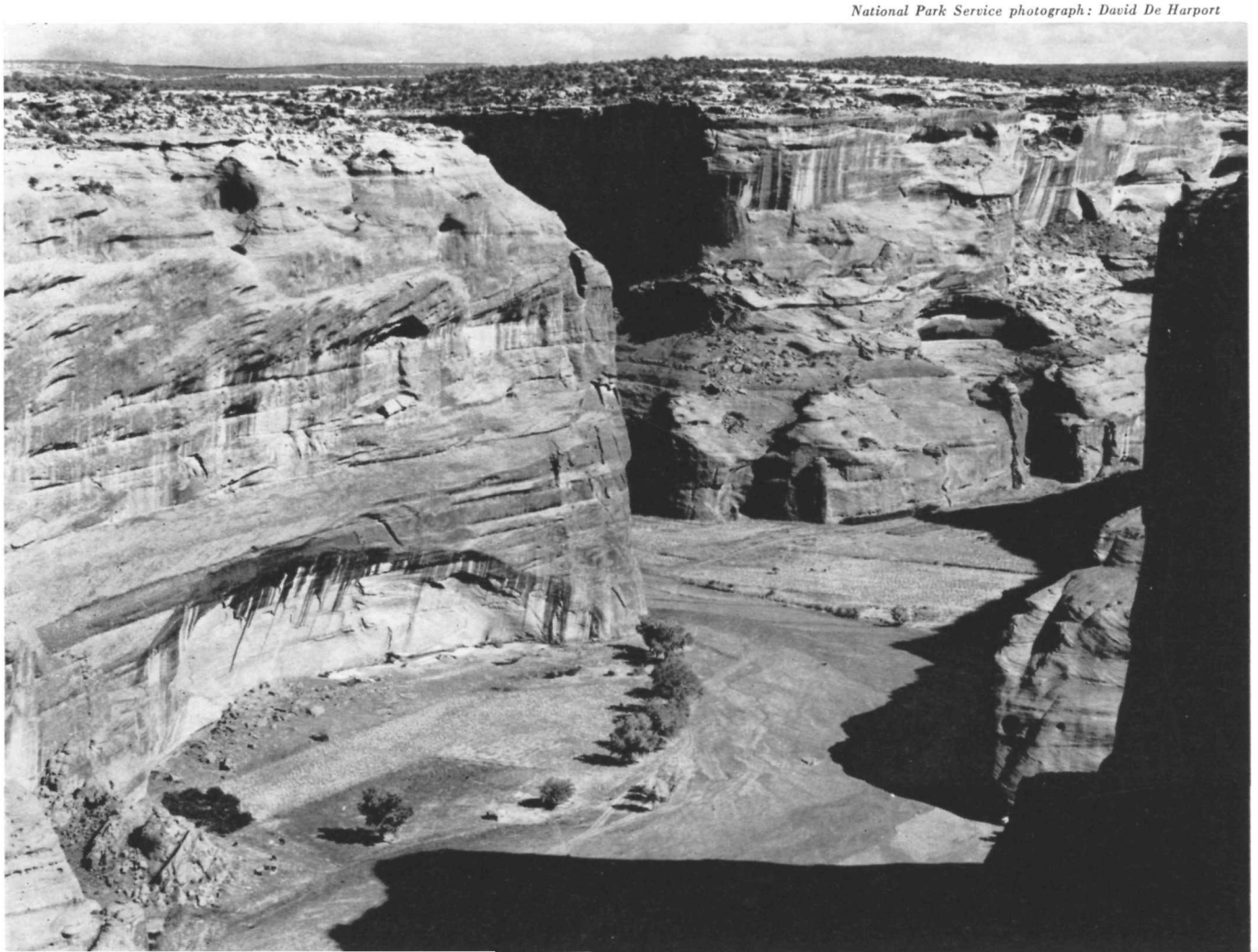
Many of us have not yet felt a boom shake the frames and tranquility of our homes. Nevertheless, to an important degree, the problem is already with us. On August 11, 1966, at Canyon de Chelly National Monument in Arizona, a sonic boom from a single military airplane loosened an estimated 80 tons of rock, which fell on ancient Indian cliff-dwellings and caused them irreparable damage.[1] Extensive damage has been done by sonic booms to unique sandstone formations near the bottom of the Navajo Loop Trail in Bryce Canyon National Park. In a letter recently published in the official publication of the American Association for the Advancement of Science, a scientist complained of being disturbed daily by sonic booms while camping in the Grand Teton Wilderness of Wyoming. Recently I mentioned the sonic boom problem at a meeting of Tennessee Citizens for Wilderness Planning in Oak Ridge, Tennessee; since then several people have related to me their experiences of being startled by the shock waves of sonic booms while hiking or camping in various wilderness areas of the country.

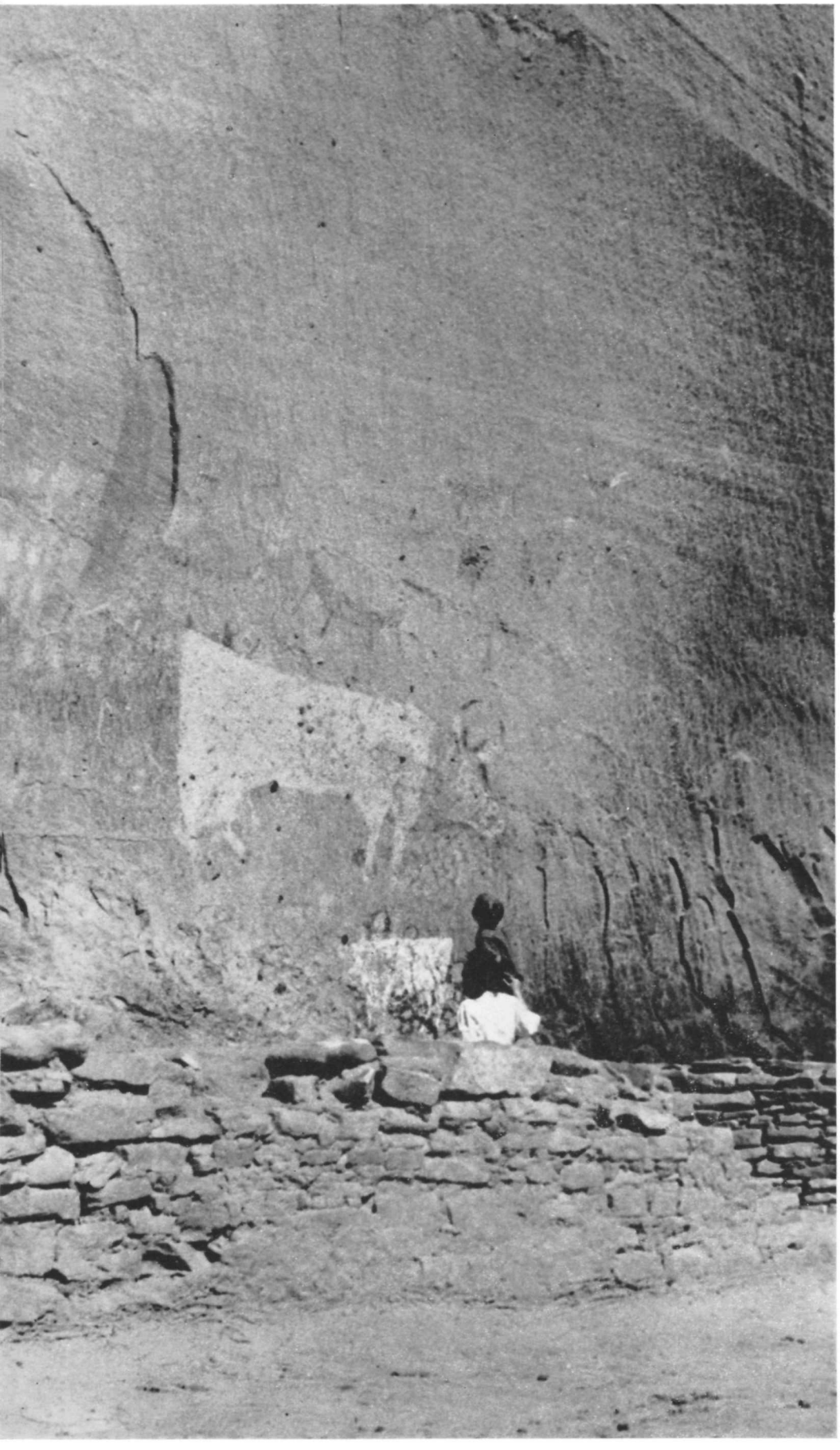
The commercial supersonic transport (SST) will probably become a reality irrespective of what we do. For economic reasons and for national prestige the federal government has underwritten a commercial supersonic transport, and a great deal of money has already been expended for its development.[2]

I do not desire to undermine this quantum advance in commercial transportation. However, one may well question the desirability of having shock waves, generated by supersonic trans-

Canyon del Muerto from the Standing Cow overlook, Canyon de Chelly National Monument, Arizona, near the scene of sonic boom damage.

National Park Service photograph: David De Harport





Standing Cow Ruin, Canyon del Muerto, Canyon de Chelly Monument, with blue and white standing cow just above. In August, 1966, a sonic boom triggered the fall of a cliff section near Standing Cow, resulting in destruction of a prehistoric cliff-dwelling.

ports passing overhead, continually interrupting the tranquility of our homes and vacationlands. If we are to insure a worthwhile future we must preserve sufficient opportunity for quality in living. This quality will not tolerate routine commercial supersonic flights over land.

Secretary of Transportation Boyd has estimated that at least 500 supersonic transports must be sold in order to make the venture of underwriting them a financial success. It will take less than three hours for an SST to fly from New York to Paris; at this speed, and with the large number of passengers that they will carry, it seems unlikely that these supersonic transports will be needed only for routine transoceanic flights. Indeed, a planning report of the Federal Aeronautics Administration, issued early in 1967, estimated that there will be 19,726 commercial departures of supersonic transport flights from airports of 55 major cities in the United States in 1971, and 536,226 departures in 1980. These estimates, it should be noted, were based upon the assumption that there would be no sonic boom restrictions. Further, only 10 percent were projected as international departures; 90 percent were projected as "domestic"—to be confined to routes over the United States proper.

The report assumed that the *minimal* flight distance would be 700 miles for each departure. Multiplication of this minimal distance (and certainly a majority of flights will travel farther) by the 40-mile width of the boom-zone for an SST flying at operational altitude yields a minimal area of effect of 28,000 square miles, or about 0.92 percent of the total area of continental United States for each flight. Thus, on the average, each square mile of continental United States (there are 3,022,387) would experience a minimum of 12.4 sonic booms per day from domestic flights alone in the year 1980. In view of the fact that our population may approximate 250 million in 1980, one can easily calculate that supersonic transports would jangle nerves in over

three billion human heads during each 24-hour period if they were not zoned to boom-corridors away from major centers of population. If there are to be routine commercial SST flights over land, it is obvious that such boom corridors must be designated, and that the boom frequency within them will be very high.

It is equally obvious that the year 1980, which is only twelve years away, was only an arbitrarily selected time. If it can be made economically feasible, and if we permit, the flights occurring in 1980 will be just the beginning; their number will increase from there.

While some proponents of the SST have blithely assumed that people would become adapted to this modern sound, there exists no theoretical or empirical support for such an assumption. Indeed, in recent studies conducted at Edwards Air Force Base, a nominal peak atmospheric overpressure of 1.69 pounds per square foot was judged unacceptable to only marginally acceptable by 27 percent of the experimental subjects indoors and by 33 percent of the subjects outdoors, in spite of the fact that the subjects were residents of Edwards Air Force Base who had been exposed to an average of 4-8 sonic booms of 1.2 psf each day for the preceding two years. Clearly, the experimental population employed in this study was selected *a priori* for its high tolerance to noise. Further, in this highly artificial study, the subjects were warned one minute in advance of the arrival of each test boom which they were to judge for "acceptability." [3]

Some Physical Costs

Millions of dollars in claims for damage caused by sonic booms have already been filed in this country, in Western Europe and in Great Britain. Glass panes have been broken; paintings have been shaken from walls; a herd of prize cattle in Switzerland stampeded over a cliff when frightened by a sonic boom; three workers were killed in France last August when a sonic boom from a military plane collapsed the roof of an old farmhouse that had a rotten main beam.

In general, the FAA holds that pressure of a shock wave must exceed that of normal atmospheric pressure by about 5 psf in order to produce such immediate damage. Proponents of the proposed commercial SST believe that it will produce a pressure wave of only 1.8 to 2.5 psf at cruising altitude. Even this, however, is about 50 percent more intense than the average boom judged to be objectionable by about 24 percent of Oklahoma City residents who were employed en masse as guinea pigs for tests of sonic boom "acceptability" in 1964. Further, a 26-page report recently released by the Aeronautical Research Institute of Sweden under the first authorship of its former Director General, B. K. Lundberg, presents evidence that about one in 1000 booms created by the commercial SST while flying at cruising altitude would have an intensity two to three times that of the average boom, and that about one in 10,000 would be three to four times as intense. Thus, if only 150 supersonic transports were operative, the loudest "superbooms" would be felt by about 450,000 of us each day and the intermediate boom by about 4,500,000. The booms produced would not be confined to the area directly beneath the flight path; indeed, the most intense booms would be felt in the two zones to the right and left of the flight path at a distance of 25 to 45 miles.

Three considerations are important to those of us who are interested in preserving the re-creational values of wilderness. First, reverberation of the sonic booms in mountainous terrain may, in many circumstances, focus and greatly intensify their effect. Second, even ostensibly non-damaging, high-intensity impulsive sounds will be unnecessary and unwelcome violations of the peace and quiet of the wilderness. Third, if routine flights of the commercial SST are permitted over land, they inevitably will be routed over wilderness in order to minimize their effects upon the centers of population.

We must not permit our open lands to become a noise wastebasket for the nation. A modicum of wilderness solitude can be preserved only if routine commercial SST flights are prohibited over land.

When the Board of Directors of the Sierra Club met in San Francisco on September 1, 1967, they adopted a resolution which "opposed the operation of civil aircraft under conditions that produce sonic booms audible at the surface of the earth." The Wilderness Society recently passed a similar resolution. On December 29, 1967, The Conservation Foundation [4] released a 12-page newsletter on the subject of noise pollution in which two and a half pages were devoted specifically to the sonic boom. Perhaps the most encouraging news of all is that Secretary of Interior Stewart Udall has, within the past month, appointed a committee of high-level scientists to study the broad problem of noise pollution.

Nevertheless, this new technological menace to a quality environment has very strong support on Capitol Hill and elsewhere in administrative branches of the Federal Government. It can be headed off only if there is a strong expression of public opposition.[5]

In reality, more is involved than the SST and its boom. At some point we, as a people, must learn restraint. Very soon we, as sentient creatures who hold the seeds of our own destruction in our hands, must learn the patience to look ahead and carefully plan—in human terms—before we inflict major changes upon our environment. At some point, and this moment in history cannot come too soon, we must affirm to ourselves and to our leaders that we will not mold ourselves further to fit our machines, nor further sacrifice our identity and our peace of mind. ■

Dr. Welch, an ecologist, is presently a Visiting Investigator at the University of Tennessee's Memorial Research Center and Hospital.

Footnotes

[1] Further damage at the site occurred on October 4, 1966. Records kept by the monument staff show that the sound barrier was broken 83 times over the monument between August 11 and December 22, 1966.

[2] The Government has committed itself to an expenditure of $1.2 billion for the development phase, in partnership with Boeing and General Electric, of a supersonic transport for civilian commercial use. From fiscal 1962-1968 the Government has invested $653 million in development, and private contractors $80 million.

[3] Interim Report NSBEO-1-67, *Sonic Boom Experiments at Edwards Air Force Base*, National Sonic Boom Evaluation Office Arlington, Virginia, July 28, 1967.

[4] 1250 Connecticut Avenue, N. W., Washington, D.C. 20036.

[5] Opposition to overland flight of supersonic transports is being led by Citizens League Against the Sonic Boom, under the directorship of Dr. William A. Shurcliff and Dr. John T. Edsall, 19 Appleton Street, Cambridge, Massachusetts 02138.

SWIFTCURRENT FIRE LOOKOUT

BY CAROLYN RINEHART

ON THE COLD, WINDY MORNING OF June 20, 1967, a helicopter brought my husband and me to our home for the summer: Swiftcurrent Mountain in Glacier National Park.

The "bird" perched in front of the lookout, its runners not bearing much weight. We ran out, crouching to escape the long, whirling rotor blades, and James Thomas, fire-control technician, helped us to unload our two hundred pounds of supplies.

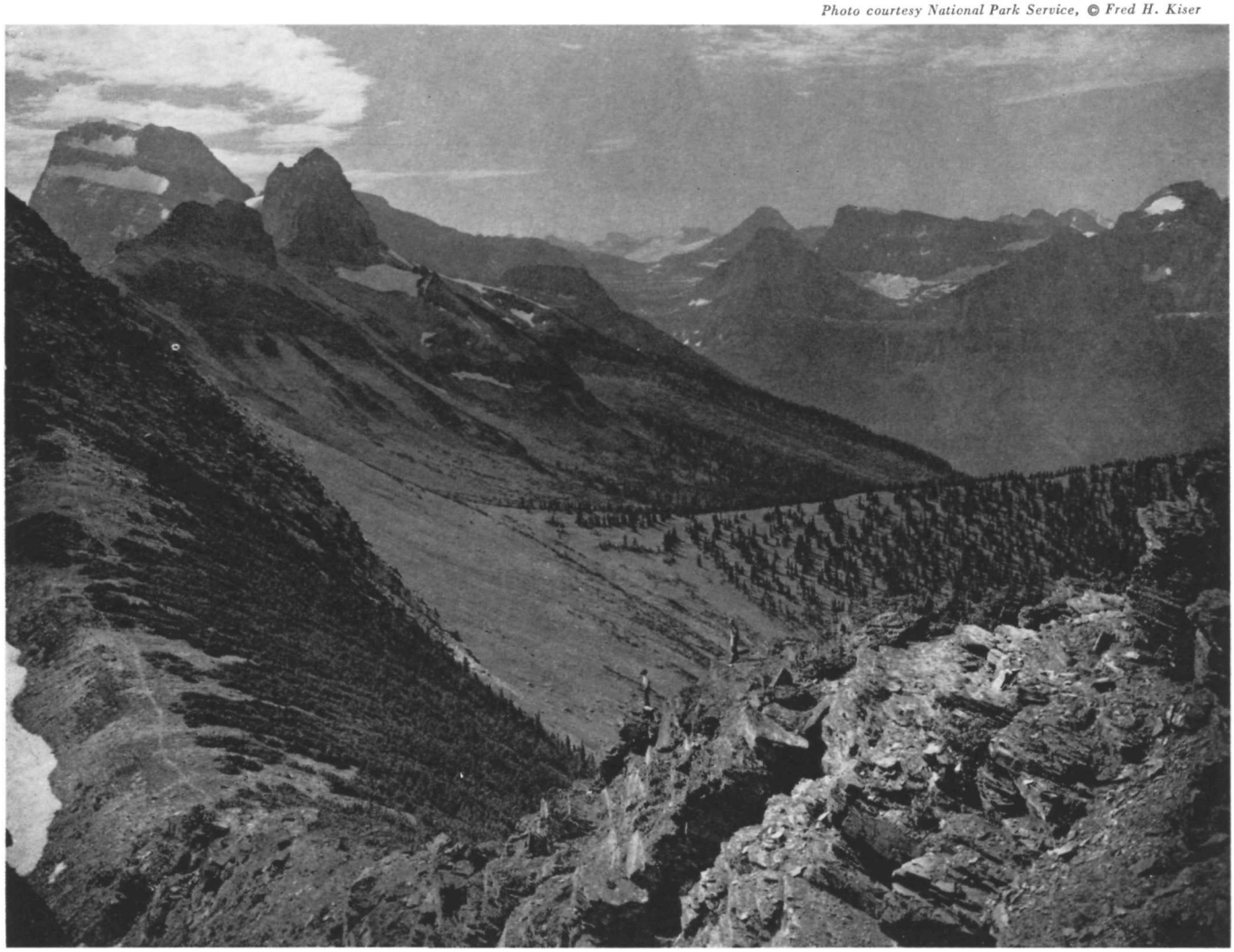
A month before we had been at home in East Texas finishing the school year. Like many other lookouts, my husband, Bob, is a college student. A week before, we had been starting our training at park headquarters.

After unpacking and arranging some of our gear, taking in the magnificent scenery, and turning on several burners of the cooking stove we used for heating, we began to inspect the dominant piece of furniture in our 12-by-12-foot house. It was the Osborne fire-finder, situated in the exact center of the room. With it we could find the azimuth, or horizontal angle, and the vertical angle to any point visible from the lookout, in addition to locating it by reference to landmarks. Then, in the central Fire Cache at park headquarters the azimuth (preferably from more than one lookout) would be plotted on a large topographical map to locate the fire.

A portable two-way FM radio was to

In the vicinity of Swiftcurrent Mountain the High Rockies soar in a great welter of tilted snow-patched blocks.

Photo courtesy National Park Service, © Fred H. Kiser



be our link with the outside. Over the radio we reported fires, relayed messages for other park employees, answered daily checks from headquarters, and ordered groceries. We were allowed some visiting in the evenings with fellow lookouts.

Our cot-beds were on the south side of the building. The north side contained the modern propane cooking stove, cabinet, and dining table. We used a gasoline lantern for a reading light at night.

During the training week Gary Bunney, the park fire control chief, told us that there had been no fires of any size in the park during the past three years. He looked over the rows of new faces and rather pointedly expressed the hope that there would be no fires this year.

His hope was not to be realized, however. We soon had a sample of the lightning storm, a weather condition that, aside from being exciting, is important to the lookout because of its fire-producing potential. In the 30 years before 1967, lightning has accounted for 59 percent of the fires and 75 percent of the area burned in Glacier National Park.

On the morning of July 13, we woke up in a severe lightning storm and groggily started counting the strikes. Suddenly I saw a puff of smoke with flame at its base on Flattop Mountain, about four miles away. We got a reporting form, took a reading, and reported the information to Apgar Lookout, since it was before 8 a.m. and the Fire Cache was not yet open. Other lookouts were reporting smokes also.

Later in the morning we reported two more smokes, but could not locate them exactly because they were behind a ridge from us. The aerial observer flew over the area in the patrol plane. He found our visible smoke easily, and one of the over-the-ridge smokes. The other he never found. Had it burned itself out, or had it never been anything but haze? We did not know. Suppression crews were brought in to both "seen" fires by helicopter, as they were several miles off any trail. The four-man crews had extinguished the small fires by evening, but they stayed with them overnight for safety's sake.

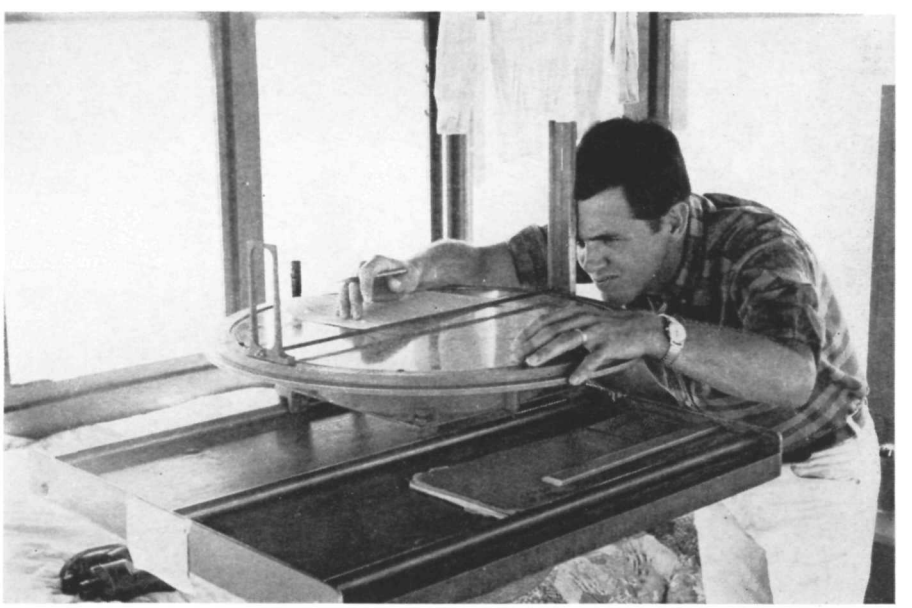
Although lookouts are not usually called to suppress fires, they may be called when the fire is small and the lookout can reach it before anyone else. Such a fire occurred on July 29. As sometimes happens, this fire was not visible from the lookout itself. We were informed of it by Tom Walton, the manager of Granite Park Chalet, a hikers' hotel below us.

A hiker coming into the chalet from

With water on his back, Bob begins the trek up to the fire lookout station . . .

. . . where the author operates the washing machine (two hands and a rub-board).

Photographs by Bob and Carolyn Rinehart



By sighting a smoke-point through the Osborne fire-finder, its location can be pinpointed.

Swiftcurrent Pass, Tom said, had seen a small fire burning in some trees near Swiftcurrent Creek, not far from the trail. It was man-caused, evidently the result of a careless camper or smoker. Bob called the Fire Cache and offered to go to the fire. He received permission and left, taking with him the smokechaser's pack of fire tools and rations from the lookout basement. A regular crew reached the fire in the middle of the night after an eight-mile walk.

Things were relatively quiet until the night of August 11-12; a Friday when the most damaging lightning storm in years hit the park. Flame spots were flaring up all around us. The Fire Cache was overrun with almost 40 calls.

Next morning the dispatcher asked us to report anything that was still burning. As the aerial observer flew over the park, decisions had to be made. Could ground crews get in on time, or would smokejumpers have to parachute to the fire from airplanes? How many men would be needed? For how long must they be supplied? Would pumps be necessary to get water to the fire? Lookouts watched to report changes in fires and wind shifts.

We had only one persistent smoke, and a four-man smokejumper crew was dropped to it. We learned later that 21 forest fires had erupted during that night, all of them in remote areas of the park. Most of the park staff—fire suppression crews, rangers, naturalists, trail crews, and maintenance men—were out on fires, and the regular park functions still had to continue. Visitor season was at its peak. Roads must be patrolled, the naturalist program must be maintained. Other manpower had to be found to help fight the fires.

Fire crews and many experienced supervisors were obtained from other parks. Forest Service and Bureau of Land Management men helped, and military personnel and aircraft were also called in. Some of the helicopter pilots were just back from Viet Nam. A valuable contribution was made by the many Indian crews that came from as near as the Blackfoot reservation adjoining the park and from as far as Alaska. All the latest devices, including infra-red photography and di-ammonium phosphate retardant, were used against the advancing fires.

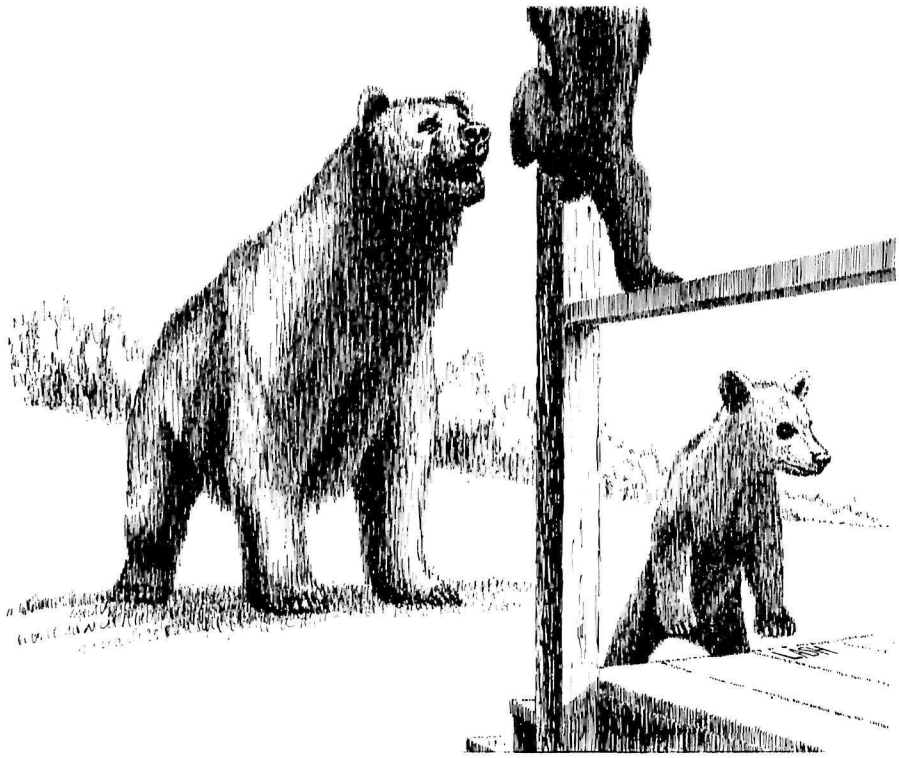
Most of the fires were soon controlled, but two grew to large proportions in spite of every effort. They were the Flathead fire, which consumed 8859 acres of forest, and forced two lookout couples to leave their posts; and the Glacier Wall fire near scenic Heavens Peak, which flared up again September 1 to burn a total of 3109 acres.

We were not lonely in our lookout station, because Swiftcurrent Lookout is the most visited one in the park. Naturalist-conducted hiking parties came almost every morning, and a few horse parties made the trip.

Mule-train days, which came every two weeks, were welcome occasions. We would then get fresh meat and vegetables, which we would keep in our "refrigerator" basement and feast on for a few days. When these were gone, it was "back to the cans."

We had visitors in addition to the human ones—or perhaps it would be more correct to say that we were doing the visiting. Fat, perky, mantled ground squirrels with side-stripes were almost constant companions. Two hoary marmots lived just over the cliff to the north. A flock of ptarmigans made contented little clucks as they walked over the rocks. Columbian ground squirrels and Rocky Mountain pikas also shared the mountain top, but we saw them less often because of their shyness. Other, less frequent visitors, included mountain goats and Rocky Mountain sheep, both of which we saw on the trail above timberline. Wildflowers in the middle of July were beautiful.

At the end of the summer, despite many meals of canned sausages and beans, we were really sorry to be leaving. We would miss so many things: our "radio friends" on the eight other park lookouts, the bright brown eyes of a ground squirrel or marmot peering through the window, the wildflowers on the trail, the brilliant sunsets in the Western mountains. We were glad to have had a small part in the protection of this magnificent national land from fire. ■



"A frantic search . . . ended with discovery of the cubs climbing over the porch and its steps."

INCIDENT AT JASPER:

Is Spanking Out of Date?

By Helen C. Shoemake

Illustration by Richard Lash

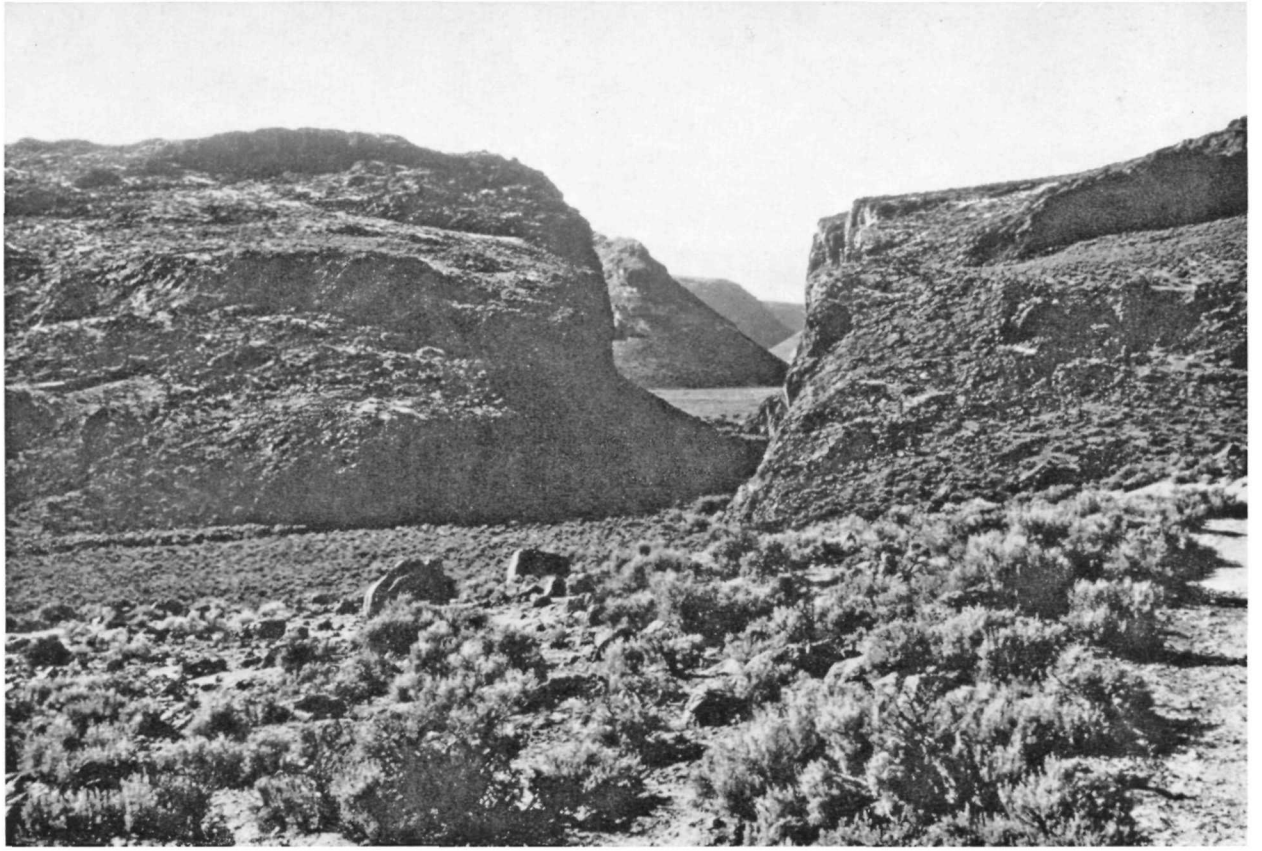
In Canada's Jasper National Park, which stretches for many miles along the High Rocky Mountain chain adjacent to the Alberta-British Columbia provincial border, people are warned—as they are in some of the national parks of the United States—not to feed or become over-friendly with the black bear population. The warning includes bears that wander into the vicinity of the hotel at Jasper.

While I was staying at the Jasper hotel, I often saw a mother bear and her two cubs strolling about the grounds during the early morning. On one particular morning, while I was on the way from cabin to main dining room, I discovered the mother bear and her youngsters wandering along ahead of me—mother in the lead, the youngsters tagging along behind.

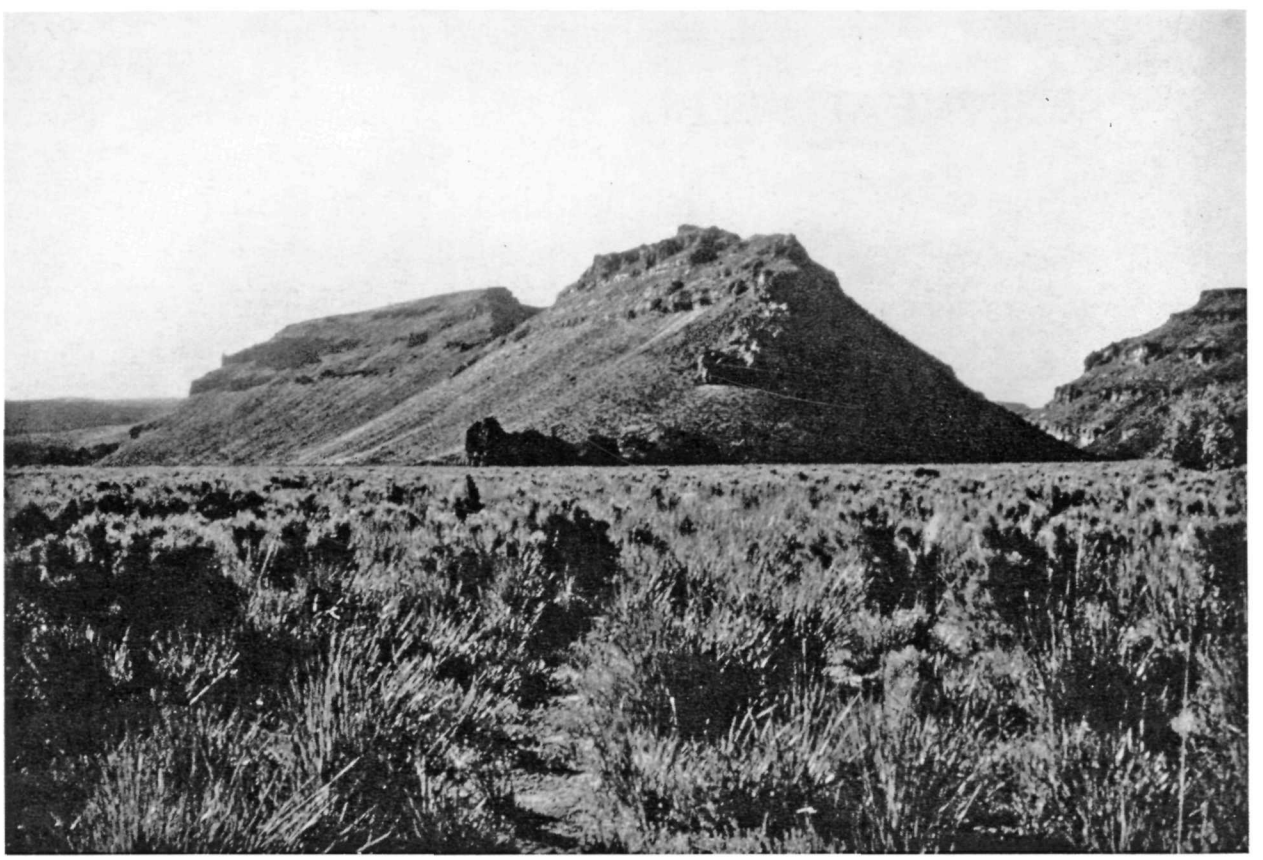
As the trio passed a cottage, the youngsters veered away and climbed the steps that led up to the cottage porch. The mother bear turned, as though to check on the progress of the pair, but found nothing. A frantic search ensued, which ended with the discovery of the cubs climbing over the porch and its steps. Mother Bear wiggled, and evidently held communication with the strayaways, for they marched back down the steps, one after the other.

As each reached the ground it was greeted with a swift, hard spank on its furry end. Obviously, this bear was not a subscriber to modern notions about discipline for the young!

Apparently her way was good, for the two cubs were not seen wandering away again. ■



Photograph above shows a natural cleft in the basalt of Upper High Rock Canyon, Washoe County, Nevada, used by the wagons of emigrants who followed the Applegate Trail through Nevada into southern Oregon during the middle part of the 19th century. Photo below shows a splendid example of a desert meadow—the Great Meadow—in Upper High Rock Canyon. At this point High Rock Creek, not visible in the picture, makes a fork; the Applegate Trail continued to the left of the butte.



HIGH ROCK CANYON AND THE APPLEGATE TRAIL

By Paul M. Tilden

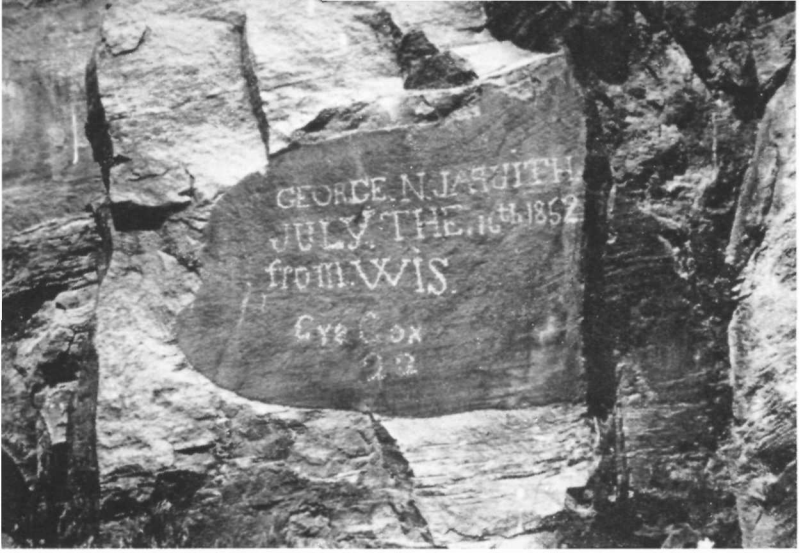
This article is based largely on material furnished the author by Charles S. Watson, Jr., Director of the Nevada Outdoor Recreation Resources Index and Survey, and by Dr. Vincent P. Gianella, of the Department of Geology, University of Nevada. Photographs are from the cameras of Mr. Watson and Alvin McLane.

TODAY, THERE ARE MANY PEOPLE WHO THINK THAT THE greater part of America's human and natural history legacy has already been caught up in the protective web of the National Park Service, or has at least been studied for protective purposes, either by the Service or the States.

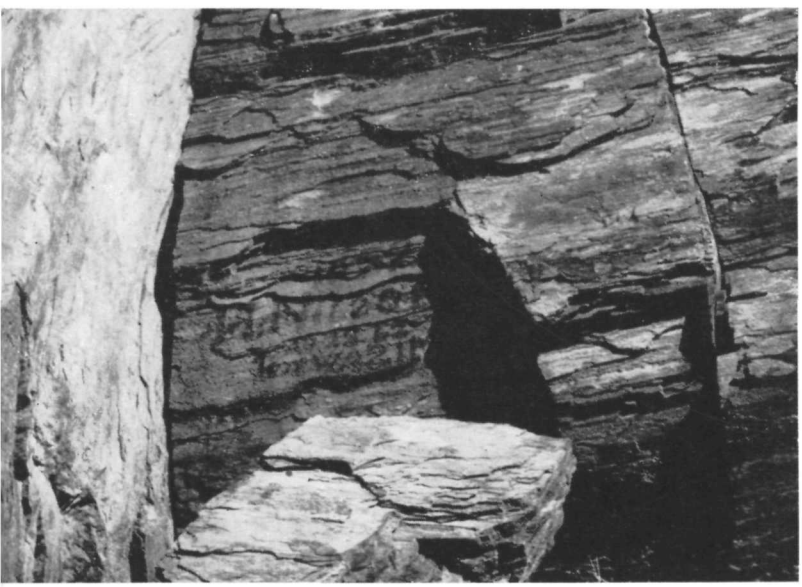
The assumption seems reasonable. Probably there are not many more great scenic parks to be created; the grandest of the natural history stories and events have been set aside. Indeed, given current human population trends, one may easily contemplate a future in which no further land, no natural marvels, no shores, no historic souvenirs could possibly take precedence over the simple need for space.

Up to now the protective burden has largely been shouldered by the National Park Service at the national level; but in the near future it may also be picked up—in a modest way, perhaps—by another Federal agency. For, in the past several years, the American people have been looking with increasing interest at the still expansive lands that re-

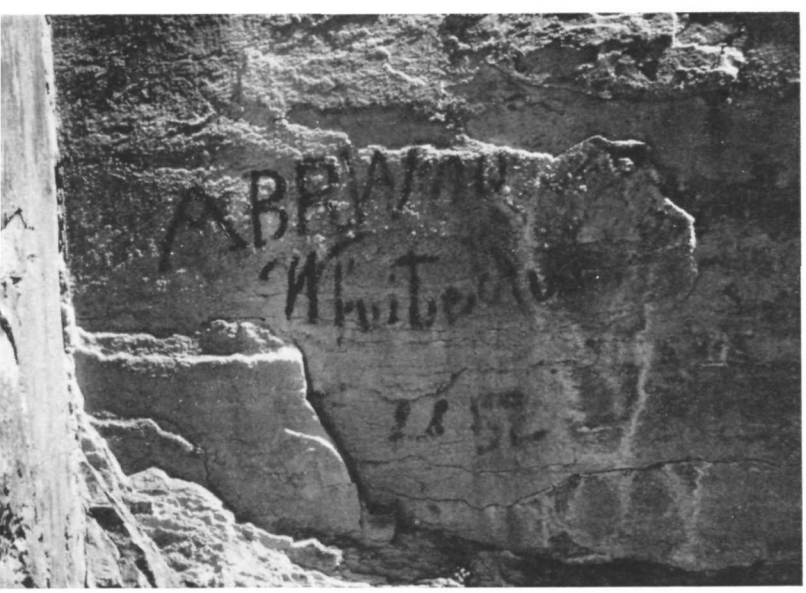
Within High Rock Canyon proper are the imposing cliffs for which the name "Applegate Cliffs" has been suggested. At their bases there are caves which may have archeological significance, and which may possibly have been used by the pioneers. Names of pioneers, dates, and inscriptions are painted with grease or inscribed on cliff walls here.



Pioneer inscriptions found in Lower High Rock Canyon: above, GEORGE N. JAQUITH (Q is a reversed P) JULY. THE. 16th 1852 from. WIS.



1852 H. Wilson AU 28 52 WWA 211, above, and ABRWha (Abraham) White Aug 28 52 below.



main in the public domain, those Federal lands which for one reason or another have never been preempted for public or private purposes, and whose retention or disposition is even now under close study. All this public property is managed by the Bureau of Land Management in the Interior Department.

From the conservation point of view the public lands contain a wealth of scenic, scientific, archeological and historic protection possibilities, aside from their vast outdoor recreation and economic potential; sites in such profusion that a splendid system of designated units, complementary to the protected holdings of other Federal land administration agencies, could well be established.

FAR TO THE NORTH in the same State lies another tract of great scenic and historic interest, for the most part lying within the public domain—the splendid High Rock complex of canyons, through which runs a thread of earlier American history spun during the days of Westward Migration.

July of the year 1846 found two transplanted Kentuckians—Jesse Applegate and his brother Lindsay—and thirteen other men laying out a route into western Oregon which they thought would be more convenient for emigrants, and which would in addition escape the far-reaching control of the Hudson's Bay Company. The Applegate party proceeded through southern Oregon to Klamath Lake and east to Goose Lake, where it dipped down into the northwestern corner of Nevada, traversed High Rock Canyon, and then moved east across the Black Rock Desert to intercept the Humboldt River and continue northeastward to Fort Hall in Idaho.

At Fort Hall the Applegate brothers found a large party of emigrants for Oregon, which was induced to try the new trail to the Oregon country. This baptism was not an especially happy one, though it was at least successful in landing the emigrant party in Oregon. In a short summary of that pioneer trip on the Applegate Trail, Dr. Vincent Gianella of the University of Nevada notes that "it was a long, tedious journey, and the emigrants suffered greatly and lost most of their property on the way . . . The route continued to be used sporadically by emigrants to Oregon until the summer and fall of 1849, when thousands of California-bound gold seekers took the High Rock route to Goose Lake and then down the Pit River . . ." [in northern California].

During their work on the Nevada Survey, two members of the Nevada Outdoor Recreation Association—C. S. Watson, Jr., and Alvin McLane—discovered in Lower High Rock Canyon some fascinating inscriptions left in 1852 by the users of the Applegate Trail; some of these are pictured here for the first time so far as known.

The scenic canyon itself, with impressive vertical walls of black and brightly colored volcanic rocks, opens into pristine desert meadows in its upper reaches, and has a good representation of wildlife indigenous to such terrain. Some 14,000 acres of the long canyon and its surroundings would, the Survey has indicated, make an especially impressive and historic Nevada State Park; and the State has indicated its interest in the possibility. In a step which could make such a park possible, the Bureau of Land Management recently withdrew nearly 14,000 acres of the canyon for retention in the public domain. ■

News and Commentary

Citizens Conference Approves Fosdick Plan

A plan to assure plentiful water for the Washington area in future droughts, without the need for 16 major dams in the Potomac River Basin, outlined in a study made for the National Parks Association by Ellery R. Fosdick, won unanimous approval in January of a group of enthusiastic citizens from the four States of the basin, meeting in Winchester, Virginia.

The Fourth Annual Conference of the Citizens Permanent Conference on the Potomac River Basin heard Mr. Fosdick report that the 100 billion gallons of good quality water (many times estimated future requirements) in the "natural reservoir" of the fresh-water estuary of the Potomac could be tapped by an intake costing less than $10 million, as compared with a 1962 price tag of $393 million for the system of big dams advanced by the Corps of Engineers.

The coalition of farmer, labor, conservation and citizens groups making up the Citizens Permanent Conference played a major role in a preliminary defeat of the Corps' Potomac proposals, offered then for flushing of pollution, and in shifting official emphasis toward the prevention, rather than dilution, of pollution.

Several speakers expressed alarm at the severe dislocations, from which there is no appeal, that would result if the Corps program were enacted. Spencer M. Smith, Chairman, warned the Conference they could rely only on themselves to defeat the dam proposals. Unless they worked in their localities to get the Potomac estuarial intake built, the Corps program could be enacted by this session of Congress, he said. The meeting unanimously re-affirmed the Conference's program of flood control through small headwaters impoundments, and of prevention of pollution, and pledged to support legislation authorizing the intake recommended in Mr. Fosdick's estuarial intake study conducted for the NPA.

The 14th Reunion Hike on the C & O Canal

Preliminary information from the C & O Canal Association indicates that the organization's 14th Reunion Hike along that historic and highly scenic waterway on the Potomac River will take place Friday and Saturday, April 26 and 27, led once again by Supreme Court Justice William O. Douglas. (This year is, incidentally, the 140th anniversary of ground-breaking ceremonies for the old canal.) The hike up the canal will start at 8:30 a.m. on the 26th at Weverton, Maryland (Lock 31) after a brief pre-hike program at 8, with lunch at the Antietam Creek Camping Area about 12:30 p.m. and a coffee break between the two points, which are 11.4 hiking miles apart. The Friday night camp-out will be at the Western Maryland Sportsmen's Club at Dam No. 4, where there is unlimited open space for sleeping bags and tents, plus floor space under cover in case of inclement weather. The host club will cook a camp supper and breakfast. The C & O Canal Association notes that limited feeding arrangements make it necessary to restrict reservations for meals to members and guests who have registered and paid in advance. Saturday night's banquet will be held at Shepherd College in Shepherdstown, West Virginia, at 7 p.m.

As noted above, this information is preliminary. About April 1st the C & O Canal Association will have available the latest details and a final registration form for the hike; meanwhile, potential hikers should get in touch with the chairman of the 14th Reunion Hike, Mr. Colin Ritter, whose address is: Box 1076, Alexandria, Virginia 22313.

Landmarks, Historical and Natural

Nineteen new sites were recently recommended by the National Parks Advisory Board for registry with the Park Service as National Historic Landmarks, in the Service's cooperative program for the protection and good management of historic American structures and sites. The program is the historic site complement of the more recent Natural Landmark program which aims toward the same goals for outstanding natural history phenomena in private ownership.

(*continued on page 20*)

There are presently 753 national historic landmarks registered with the Service.

Sites recommended by the Board were: the William Corbit House, Odessa, Delaware; New Castle Historic District, New Castle, Delaware; the showboat *Goldenrod*, St. Louis, Missouri; Bronck House, near Coxsackie, New York; Dyckman House, New York City; Jean Hasbrouck House, New Paltz, New York; Old Quaker Meeting House, Flushing, New York; Schuyler Mansion, Albany, New York; Van Alen House, near Kinderhook, New York; Van Cortland House, Bronx, New York; Wyckoff House, Brooklyn, New York; Augustus Lutheran Church, Trappe, Pennsylvania; Ephrata Cloister, Ephrata, Pennsylvania; Reynolds-Morris House, Philadelphia; 1704 House, Delaware County, Pennsylvania; Woodford, Philadelphia; The Woodlands, Philadelphia; Presidio Nuestra Senora de Loreto de La Bahia, near Goliad, Texas, and George Perkins Marsh Boyhood Home, Woodstock, Vermont.

In another action, the Advisory Board has recommended, and Secretary Udall has approved, National Natural Landmark status for famed Diamond Head, on the Island of Oahu in the Hawaiian Archipelago. In doing so, the Board and the Secretary stepped into a controversial conservation matter. The lower slopes of Diamond Head, a volcanic cone still relatively untouched by development, has been viewed by developers in recent months as the likely site for high-rise luxury apartment hotels. In this they have been opposed by Hawaiian conservationists and other Islanders who have hoped that some of Hawaii's natural treasures, like the famous Diamond Head, may be protected against the pressure of the dollar. Registration of the extinct volcano as a natural landmark will have no legal effect on the development vs. protection controversy there, but it will certainly strengthen the hand of the defending conservationists, who have indicated that they would like to see the undeveloped portion of Diamond Head designated a park.

Eagle Information Booklet

Conservationists need no reminder of the dangers threatening our bald eagle. Our readers, though, might be surprised to learn that shooting has brought down the largest number of those eagles found dead. The National Audubon Society has published an informative booklet, *Will a Bullet Kill The Last American Eagle?*, which takes some hope from this fact. Identification of young birds is difficult because they do not acquire the distinctive white head and tail until after their fourth year. Nevertheless, this particular cause is one that can be stopped if everyone who carries a gun does his part by making certain his target is not a case of mistaken identity. Copies of the booklet may be obtained by writing to the Public Information Office of the Society, at 1130 Fifth Avenue, New York, New York 10028.

New Recreation Publications

The Bureau of Outdoor Recreation has recently published an *Index of Selected Outdoor Recreation Literature*. The 151-page book, designed to assist those engaged in outdoor recreation research, contains subject, name and geographic indices. It is a guide to about 1000 publications, having to do with various aspects of outdoor recreation, received by the Department of the Interior in 1966. The price is 75 cents.

A second government publication may interest those readers who are especially concerned with wildlife and our wildlife refuge system. *National Wildlife Refuges 1967* is in the nature of an annual report on the various aspects of the system. It sells for 25 cents, and has 16 pages.

Both documents may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Help for the Wild Horse

The wild horse, symbol of the Old West, is due to get some help in its fight for survival on the vast Federal rangelands. In a policy statement issued recently by Interior's Bureau of Land Management, Director Boyd L. Rasmussen assured mustang fans that positive efforts will continue for the preservation of wild horses and burros. BLM estimates that there are some 17,000 wild horses and 8,000 burros roaming the public domain.

Director Rasmussen said that BLM field offices have been instructed to carry out the following policy:

1. Where it is determined that the esthetic value of wild horses or burros on Bureau-administered land is a public asset, a planned management program shall be initiated. Management plans will be developed to accommodate a reasonable number of animals.

2. In situations where wild horses or burros compete with livestock and wildlife for limited forage and water, BLM will work with interested groups, livestock operators and State wildlife agencies to assure good management of all.

31st Annual Maryland House and Garden Pilgrimage Set for May 2-12

The 31st Annual Maryland House and Garden Pilgrimage, which takes visitors through many of the beautiful old homes of the State—opened specially for the occasion—is scheduled for May 2 to May 12 (with water cruises scheduled for June 1 and 2). Tours this year will extend from the low-lying Tidewater counties of Kent and Talbot into Cecil County on the Eastern Shore, through the tobacco fields of Charles County to Anne Arundel County and Annapolis, capital of the State since 1694. Parts of Baltimore and Harford Counties are also on the tour, and there will be an excursion into the Kenwood-Chevy Chase area near Washington.

Chesapeake Bay, with its many scenic tributaries, will be background for the two water cruises, which will leave Baltimore for the charming town of St. Michaels, Maryland, with its famous Maritime Museum and recently acquired lighthouse and lightship. Proceeds of the Pilgrimage assist in restoration and preservation projects throughout the State. Further information may be secured from: Maryland House and Garden Pilgrimage, 223 Sheraton Belvedere Hotel, Baltimore, Maryland 21202.

Opened specially for the 31st Annual Maryland House and Garden Pilgrimage will be beautiful and historic homes like "Fairview," shown at left, owned by Mrs. Doris R. Rend and located in Talbot County, Maryland. The boxwood garden and maze of this home are considered by many to be the oldest and most extensive in the country; there are many extraordinary and beautiful trees on the property, with a profusion of yews and magnolias.

3. Where forage for wild horses or burros has been reserved, Bureau field officials will establish cooperative management agreements with State and local authorities and with other interested groups. The cooperative agreements will be consistent with Federal and State statutes.

4. BLM recognizes that wild horses and burros may become too plentiful for the protection and conservation of the public lands. Where control is required BLM will work with State and local authorities in gathering excess animals to reduce the herd to manageable numbers. Any roundups must be done in a humane manner. Use of motorized vehicles or airplanes is expressly forbidden.

Director Rasmussen said that BLM and the Interior Department have made efforts in the past to preserve herds of wild horses, setting aside in 1962 a 435,000-acre wild-horse refuge in Nevada. In 1965, a wild horse protection and management area was established in the Cedar Mountain area of Tooele County, Utah.

Reviews

MOMENT IN THE SUN. By Robert and Leona Train Rienow. The Dial Press, 750 Third Avenue, New York City 10017. 1967. 286 pages, with index. $6.00.

In this sharp analysis of where we are and whither going, the Rienows have presented a study of the deteriorating quality of the American environment. They have carefully documented their disquieting statements—statements which all of us wish, I am sure, were not true. This is not a book for people who inhabit the world of optimistic fantasy; rather, it is for those who want to learn about the current course of events in the human environment and how our mistakes affect our lives, today and tomorrow.

The United States, supporting less than ten percent of the world's population, is consuming 83 percent of the raw materials and resources produced by the

(continued on page 22)

rest of the world. The emerging nations are becoming aware of this ratio, and its continuation may well court disaster. Even if we could persuade the rest of the world to accept such a state of affairs the day of surplus, in this country and in the rest of the world, is almost past, and we are on a collision course with disaster. The geometric increase in human population is certain to outstrip the supply of natural resources. Perhaps it *is* possible to survive on plankton and waste proteins; but we still face the regimentation and degradation that human overpopulation is certain to produce.

In this perspective, the authors next consider what happens when an organism destroys its environment. In lands where mankind has long lived under settled conditions we can see how nature has responded to abuse. In the Middle East, Mongolia and North Africa vast barren stretches and desert have replaced the rich, productive lands that once existed. We are following the same destructive course, except that we are moving much faster than did the people of these other lands. Our cities sprawl ever more broadly, bringing pollution and ugliness. Automobiles now occupy more space than people. The potable water supply is diminishing rapidly over wide areas; confrontations over water rights may well become the greatest battles of the near future.

The destruction of the American environment will produce what the authors call "our tarnished standard of living." In a chapter titled "The Ultimate Horror —a Septic World," they cite the course of events in Afghanistan, an old civilization, as an illustration. There, not only is the water polluted but the very soil is charged with bacteria harmful or lethal to man. Even the vegetables grown there are unsafe for human consumption. "All the excitement and allure of the exotic, ancient lands of the globe are somehow negated by the constant care that must be exercised by the visitor to avoid death-dealing disease from the excessive contamination everywhere in the environment," they write.

Air pollution, still increasing rapidly, is more and more recognized as an irritant and a killer. There are no easy, inexpensive means of checking it, to say nothing of initiating a reverse trend.

As new and more deadly chemicals for insect control have been developed, they have been, like their predecessors, spread wholesale through the environment. Many insects have been able to develop new, resistant strains to keep up with the parade of chemical pesticides, but their natural enemies have been eliminated. We must constantly employ new and more deadly compounds to stay ourselves in the race.

Even if we should in future be able to continue life on a diet of plankton, rock derivatives and oil, we cannot today escape a deteriorating environment and the hard fact that the quality of living is being chipped away by the thousand psychic chisels created by too many people and too much togetherness. We are told by the optimists that science will find ways to solve our problems; unfortunately, the optimists have not been in close touch with the scientists, to hear

their evaluations of the situation. Blind faith in technology is no solution to man's problems today; it is only a pleasant form of escape from reality. Science has been able to stretch resources and improvise substitutes, but it has at best only been able to postpone the day of reckoning.

This review sounds gloomy; but indeed, its subject is its own warrant for gloom. One is tempted not to peer too closely into the human future that is guaranteed by this book and others which have appeared from time to time in very recent years, barring some intelligent actions now—today, this coming week, this coming year.

The Rienows say: "Only a powerful social effort involving the abandonment of aggrandizement as a national creed—in short, the acceptance of a totally new code of values—can bring us into an equilibrium with our environment, and perhaps prolong our moment in the sun."

—Walter S. Boardman

THE GIFT OF THE DEER. By Helen Hoover. Alfred A. Knopf, Inc., New York City. 1966. 210 pages in hard cover. $4.95.

Like other seekers of wilderness who have abandoned city life for the less convenient but basically more rewarding pleasures of the forest habitat, Mrs. Hoover has acquired an astounding knack for befriending wild animals. To her two-room log cabin near the Minnesota-Canada shore have come deer, a bear, a lynx, a bobcat, birds, squirrels, rabbits and even a sleepy groundhog—all eager to share the food and companionship that the author and her artist husband, Adrian, are so quick to offer. The animals parade through the pages of the book with ease, style and wit, and the interested reader gets facts, a charming story, and possibly a bit too much sentiment from the mixture.

The story is mainly about Peter, the "buck with the generous heart," who is saved from starvation by the Hoovers one bitter winter. He repays them by bringing an entire family—indeed, several generations—of deer to the cabin, where they provide many years of the richness which comes with the friendship of wild animals. That is what is aptly called "The Gift of the Deer."

The book is a little long and tends to drag a bit in places, but the slow spots are well worth accepting for the satisfaction brought by a down-to-earth message.

—Maxine A. Rock

THE CONSERVATION DOCKET

A NUMBER OF APPOINTMENTS AFFECTING the National Park Service, the Bureau of Outdoor Recreation, the Fish and Wildlife Service, and the U. S. Forest Service have been made during recent weeks. Among these were:

Joseph Watterson, architect and former editor of the American Institute of Architects Journal, as chief of the Division of Historic Architecture, in the Park Service's new Office of Archeology and Historic Preservation, headed by Dr. Ernest A. Connally.

Carl R. Stoddard, formerly park planner in the Park Service Western Region Office, as the first Superintendent of San Juan National Historical Park on San Juan Island in Puget Sound.

Lawrence C. Hadley, formerly Superintendent of Colonial National Historical Park, to Superintendent of Yosemite Park, to succeed John M. Davis, recently retired.

Robert C. Horne, from Associate Regional Director of the National Capital Region to Assistant to the Deputy Associate Director, Urban Affairs, on the staff of Director George B. Hartzog.

Russell E. Dickenson from chief of the Division of New Area Studies and Master Planning, Washington Office of the Service, to succeed Mr. Horne as Associate Director of the National Capital Region.

Robert N. McIntyre from Assistant Superintendent, Blue Ridge Parkway, to Assistant to the Regional Director (cooperative activities and public affairs) in the Southeast Regional Office at Richmond.

Nash Castro as the Director of the National Capital Region, to succeed T. Sutton Jett. Mr. Jett, a veteran of 33 years with the Park Service, retired January 1st of this year.

Louis E. Reid, Jr., as Assistant Director for Recreation and Natural Beauty in the Bureau of Outdoor Recreation, to replace Daniel M. Ogden, now Budget Director for the Interior Department.

William E. Rennebohm as Chief of BOR's Division of Nationwide Planning and Surveys.

Charles H. Lawrence, to succeed Alan T. Studholme as Chief of Management and Enforcement in the Bureau of Sport Fisheries and Wildlife. Mr. Lawrence was formerly Assistant Chief of Management and Enforcement.

In the Department of Agriculture's U. S. Forest Service, Dr. Robert W. Brandt, forest pathologist in the Service's Washington office, has been appointed Branch Chief in charge of Forest Disease Research to succeed Dr. John Hansbrough, retired after 42 years in the Federal service.

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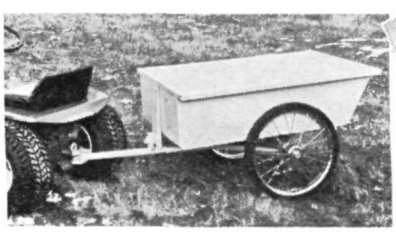

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