Sierra Club Bulletin

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August/September 1975

1976 Sierra Club Calendars

PHOTO BY CLYDE CHILDRESS

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School teachers are bringing the green world into the classroom with the aid of our 54 page book, *A Child's Garden—A Guide for Parents and Teachers.*

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Sierra Club Bulletin

AUGUST-SEPTEMBER 1975 / VOLUME 60 / NUMBER 7

Contents

Cover: ***The Breitenbush River Gorge, In Oregon's Cascade Range. This photograph by Ray Atkeson and many other beautiful scenes captured by nature photographers, are featured in the 1976 Sierra Club Calendars.***

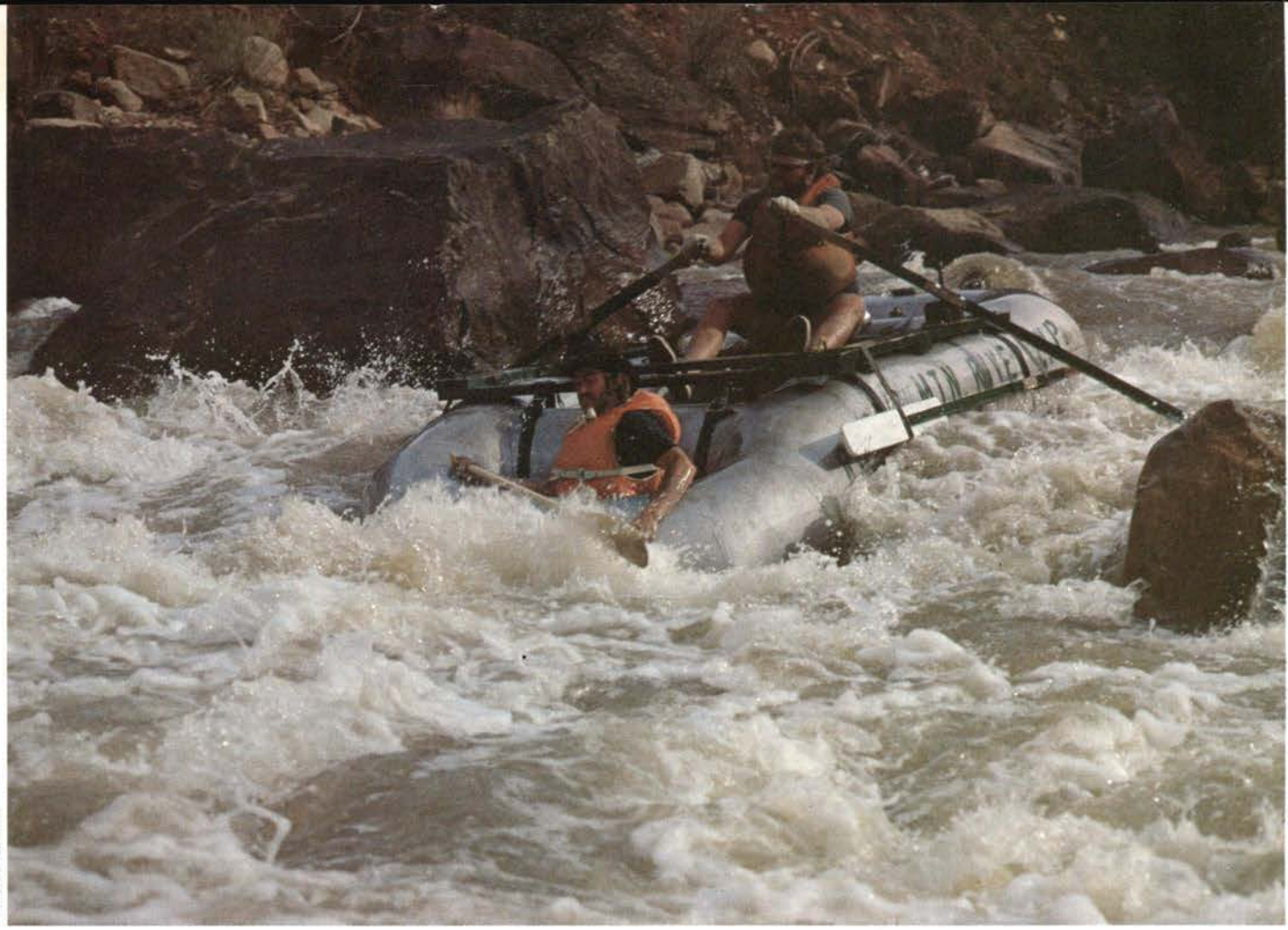
Founded in 1892, the Sierra Club works in the United States and other countries to restore the quality of the natural environment and to maintain the integrity of ecosystems. Educating the public to understand and support these objectives is a basic part of the club's program. All are invited to participate in its activities, which include programs to ". . . study, explore, and enjoy wildlands."

MICHAEL MCCLOSKEY • *Executive Director*

Editorial correspondence should be addressed to Sierra Club Bulletin, *220 Bush St., San Francisco, CA 94104. Manuscripts must be submitted in duplicate and accompanied by a stamped, self-addressed envelope.*

The **Sierra Club Bulletin**, published monthly, with combined issues for July-August and November-December, is the official magazine of the Sierra Club, 1050 Mills Tower, San Francisco, California 94104, (415) 981-8634. Annual dues are $15 (first year $20) of which $2.50 is for subscription to the **Bulletin**. (Non-member subscriptions: one year $8.00; three years $20; single copies 80c.) Second class postage paid at San Francisco, California and additional mailing offices.

Other Sierra Club offices: Alaska: 3304 Iowa, #5, Anchorage, Alaska 99503 / New York: 50 West 40th St., New York, N.Y. 10018 / International: 777 United Nations Plaza, New York, N.Y. 10017 / Legal Defense Fund: 311 California Street, San Francisco, California 94104 / Midwest: 444 West Main, Madison, Wisconsin 53703 / Northwest: 4534½ University Way NE, Seattle, Washington 98105 / Sierra Club Books: 1050 Mills Tower, San Francisco, California 94104 / Southern California: 2410 Beverly Boulevard, Los Angeles, California 90057 / Southwest: 2014 E. Broadway, Tucson, Arizona 85719 / Washington, D.C.: 324 C Street, SE, Washington, D.C. 20003 / Wyoming and Northern Great Plains: P.O. Box 721, Dubois, Wyoming 82513. Advertising representatives: (West) Environmedia, 8750 30th Ave. San Francisco, California 94121 (415) 387-2576; (East and Midwest) William H. Fields III, 22 Montgomery St., Boston, Massachusetts 02116 (617) 262-7532.



David Sumner

Will the Dolores Live up to its Name?

DAVID SUMNER

THE DOLORES RIVER in southwestern Colorado: a profile of contemporary events.

- Cyanide from a base-metals mill is occasionally dumped accidentally into her waters. A 1974 spill let loose 3,000 gallons and killed trout for thirty miles downriver.
- Yellow bulldozers channelize the streambed and riprap the banks "to increase water production."
- Over eighty Colorado irrigation ditches seasonally suck her flow dry in order to soak hay meadows, corn fields, and other croplands.
- Two Bureau of Reclamation (BuRec) projects are being planned —one an old-school dam and diversion job, the other a scheme designed to lessen the salt load in the Colorado River.
- Uranium diggers are moving on the Dolores' awesome, redrock canyon walls—another cost of nuclear power.
- A federal-state team, its make-up shaped by the 1968 act, is this summer studying the Dolores for inclusion in the National Wild and Scenic Rivers System.

To consume, to expediently abuse, to preserve: these are the alternatives for the Dolores River, *El Rio de Nuestra Señora de los Dolores*, the River of Our Lady of Sorrows. Santa Fe traders discovered and named her, for reasons now lost, back in the 1700s; historically she is one of the very first rivers to appear on the maps of the West, but today it is her general lack of history, specifically American history, that makes the Dolores worth preserving. Though the Dolores is both consumed and (on reaches) abused, the largest part of her 250-mile course remains essentially wild. Exceptions are the difficulties listed at the beginning of this article, plus a few quiet towns, a few ranches, and after the annual spring floods, an occasional drowned and bloating range cow to remind those who float past on rafts that wildness can also kill.

Taking a broad view, the Dolores is also unusually complete: by turns a mountain river, a foothill river, and a desert river—there is, therefore, a chance to preserve a totality rather than a limited realm. These days, American rivers are normally preserved in bits and snippits—in segments, forks, branches and stems. Of the few that still flow intact, precious few run from alpine tundra to desert, as the Dolores does.

Let us begin at the beginning:

In themselves, the upper, mountain reaches are nothing unique; both the Dolores and the West Dolores (the latter larger than the former) head in Colorado's San Juan Range; both are clear, tumbling trout streams gather-

ing tributaries, meeting, enlarging. This is a zone of high valleys, more rolling than rugged. Roads follow some of them, and there are also farms, ranches, and a pair of towns, both half asleep. It is a pleasant setting but not the reason people get excited about the Dolores; for it is only its source, the beginning of its life.

The mountain Dolores flows generally south, but for a while she slips into the foothills, the river bends west, then swerves north. By now there is water enough to float rafts (at least in season), and at the Bradfield Ranch near the pinto-bean hamlet of Cahone, many people do in fact put in, and so begin a journey that can float them through over 160 continuous miles of whitewater, flat water, canyon, valley and gorge. No one ran this long reach of the Dolores until 1948, when a pioneering party set off in a wooden San Juan boat, taking nine leisurely days. Less than three decades later, this remains one of the West's least-known river trips, but there is reason for this that has nothing to do with the Dolores or her six scenic canyons. Irrigators have filed on the river's entire annual flow and each year, after July 1, they take it. As a summer stream, the Dolores is effectively defunct; likewise in autumn; every now and again she goes bone dry. But most years, before the headgates open and the runoff is high, there is an average of thirty-five rafting days—normally in May and June. For years, Dolores partisans have quietly taken advantage of this.

Most parties pushing off at Bradfield run ninety-seven miles downstream to two gas pumps, a general store and a post office that show on most road maps as Bedrock. They plan on a four- or five-day trip, and for the first two they expect to run (or portage) some of the most challenging technical whitewater in the West. All parties pull ashore to inspect Old Snaggletooth Rapids—a seething maw of foam and rock where the Dolores drops twenty feet in 300 yards. At certain levels, some people carry around this stretch, but almost all run the lesser, unnamed stretches of whitewater that follow—even if they do it blind by their wits. Anyone rafting (or kayaking) this reach of the river will also marvel at the Dolores Canyon through which it flows, at the walls and flanks which sometimes rise 1,500 feet from river to rim, at the old-growth ponderosas (some 140 feet tall), at the wild knots of piñon-juniper woodland. They will see the sandstone—Entrada, Windgate, Navajo and more—grow both smoother and redder as the river drops. Later, they will float through Little Glen Canyon and later still through Slick Rock Canyon: thirty miles of oxbows, meanders, muleshoes and bends—again beneath a towering symphony of stone, again red (though streaked with bluish desert varnish), again rising 1,500 feet from river to rim. There are side canyons here too—and mule deer, coyotes, prairie falcons and canyon wrens. Anasazi pictographs, 800 years old, dance on the walls of arching sandstone caves. More piñon-juniper, tamarisk, yucca. Toward Bedrock, this classic desert canyon fractures, crumples and vanishes, but the Dolores continues on.

Fewer people travel the last sixty-five miles from Bedrock to the confluence with the Colorado in Utah. They could, and in the process complete a magnificent, immense journey. Below Bedrock is a small, tight, nameless canyon with several short, tricky rapids. This tapers to the broader, slower waters of Red Canyon, close to forty miles of it and is flanked by rusty sandstone buttresses all the way. And as the Dolores crosses the state line, she again grows nasty; the rapid is called "The Narrows"—long, complex, dropping fifty feet in a wild half-mile. Beyond this, one last canyon—still red, still sandstone, but heavily dissected—followed by rolling badlands, undulating bottoms and a river's end. At their confluence, the Dolores increases the flow of the Colorado by as much as one-third.

There are few places left in the United States where a river run of this extent and wildness is possible. Not on the Snake through Hell's Canyon, but maybe on the Middle Fork and Main Salmon in Idaho. Maybe, too, on certain reaches of the Green, and on the Colorado in Grand Canyon. But none of these can claim the diversity of the Dolores, and arguments about scenery are pointless.

Today, three impending actions concern those who care about the Dolores. Most immediate is the Wild and Scenic Rivers study now in progress. As such operations go, it has been generally open and able, but it is crippled by the law which authorized it. Three major sections of the Dolores were arbitrarily excluded from study, including the final twenty-two miles in Utah; the very notion violates the fact that a river is a continuous, living thing. The study team has not yet made its recommendations—wild, scenic, or recreational—for those reaches of the Dolores that are left. Some of its preliminary work in this area is compromised, though with a single exception, not badly. That exception, however, hurts; another thirty-five miles of the Dolores has tentatively been declared "ineligible" for inclusion in the national system. Due date for completion of this study is January 3, 1976; then it is up to Congress.

Next in importance comes BuRec's Dolores Project, one of Colorado's "five bathtubs," which was authorized in 1968. Its main feature, the McPhee Dam, would block the Dolores in the foothills—eleven miles upstream from the river runners' prime put-in at the Bradfield Ranch. As yet, solid data on this irrigation project are unavailable, again because work is in progress. BuRec is planning a minimum flow below the McPhee, which would be an improvement over the present situation. However, this flow is far too low for rafting; how that will be handled is uncertain. BuRec will state its case this autumn.

Finally comes a second water development on the Dolores, the Paradox Valley Desalinization Project authorized in 1974. This BuRec job is still on the drawing boards, its eventual shape a matter of conjecture. Were the Upper Colorado River Basin less dammed and drained, desalting would be unnecessary, but that's a statement after the fact. The question now is how the Paradox Project will affect the free-flowing Dolores; the answer is several years away.

Meanwhile, the Dolores River remains an American anomaly: more alive than dead, more wild than tamed, a free-flowing river for 250 miles from headwaters to mouth. It's almost too late to save her, but not quite—not yet. Even if she is severed, there are still segments, especially her magnificent canyons and her rapids, worth the fight.

David Sumner is a noted freelance writer on conservation subjects and the former editor of Colorado *magazine.*

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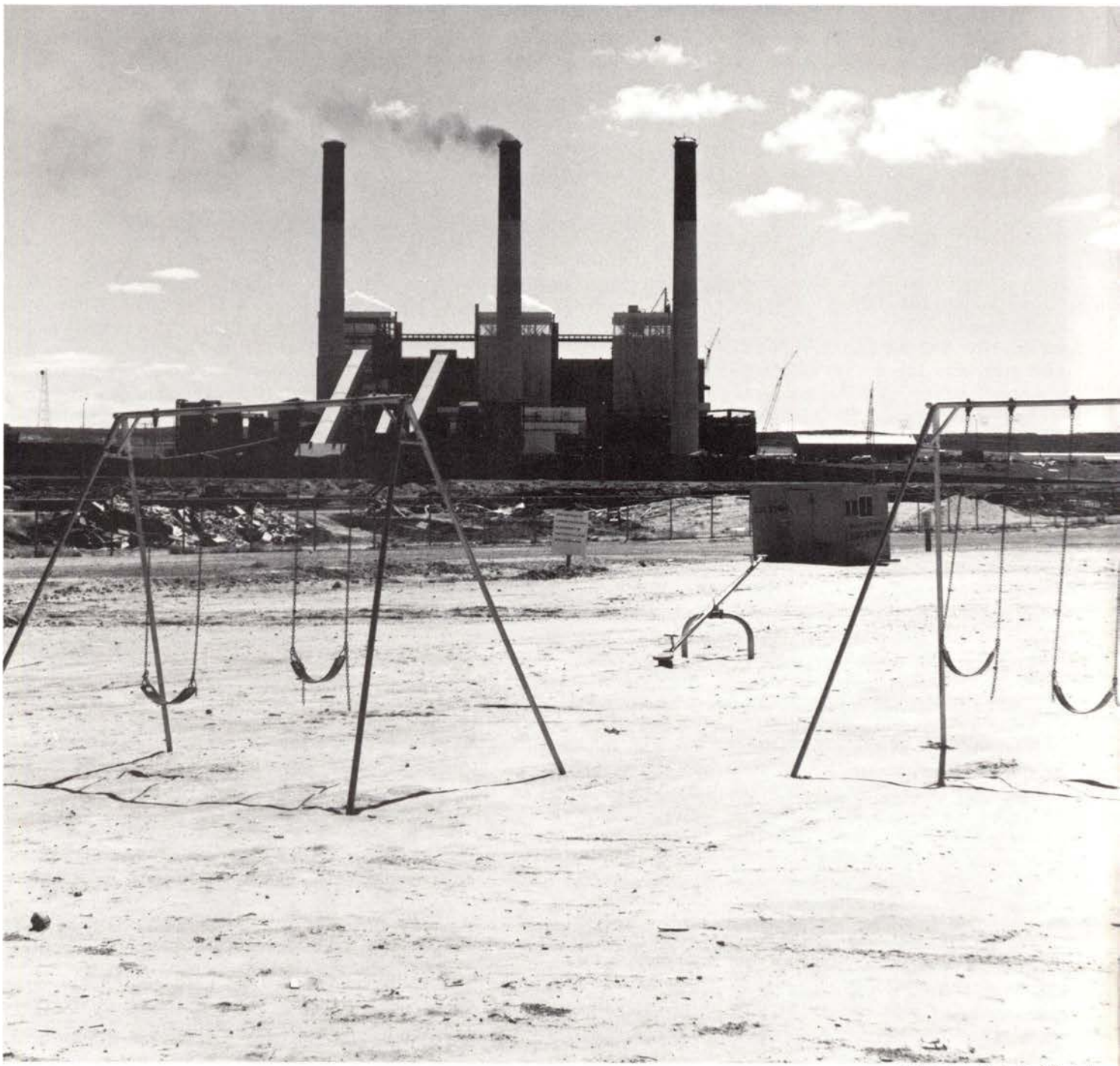


All photographs by Jack McLellan

OWITS
THE CROSSROADS

JACK McLELLAN

THE KAIPAROWITS coal-fired power plant will be delayed again," says the Secretary of the Interior, "but we will proceed toward approval with all possible haste." The proposed $1-billion power project in Kane County, Utah, has been the focal point for one of this century's greatest environmental battles. The most recent delay in approval for building the 3,000-megawatt plant, one of the world's largest, is because of additional study needed for powerline rerouting. (Utah's junior senator, Jake Garn, attributed the delay to the Interior Department's being "so damn afraid they are going to be sued" by the environmental groups.)

Senator Garn's pointed statement pretty well sums up the battle lines being drawn—well-financed power plant developers and politicians on one side and environmentalists on the other. Many people in the southern Utah communities favor the huge plants, in the mistaken but understandable belief that they will be good for the area—increased revenues,more jobs, and so on. But a rapidly growing number of the residents fortunate enough to live in this fantastic country are beginning to have second thoughts. Ranchers in the coal mine areas are asking environmentalists for help. Some local politicians are beginning to realize the problems they will be facing when community populations grow rapidly to as much as ten times their present comfortable levels, and when new cities of 15,000 to 20,000 are built.

If you have good photographs of Grand Canyon, Zion, Bryce, Capitol Reef, Arches, and Canyonlands national parks and the countless national monuments and other scenic areas in and near the Colorado Plateau, save them—they may be valuable some day as records of a golden age when the scenic Southwest lay under clear blue skies. The views grow hazier each day with pollution from the so-called "clean" Navajo plant and long-traveling particles from the Four Corners and Mohave plants. As each huge new plant is built, even utilizing the best technologically available pollution-control devices, millions of tons of ash, sulfur oxides, nitrogen oxides, mercury, radioactive elements, and other trace elements will be spewed into the air as waste products from the burning coal.

The Basic Problem

Within and adjacent to the Colorado Plateau is some of the most fantastic ecologically fragile land in the United States. The Colorado Plateau dominates the scene, with its thousands of desert canyons branching out like long fingers from the Colorado River and its tributaries. Mountain ranges and monoliths, such as the Abajos, La Sals, Navajo Mountain, and the Henrys, comprise alpine islands amidst the sea of desert sand and sculpted red rock.

Within a 250-mile radius are eight national parks, twenty-six national monuments, three national recreation areas, two national historic sites, and one national memorial—one-fifth of the acreage administered by the total National Park Service. The area also contains three Bureau of Land Management primitive areas, several National Forest units, numerous state parks, Indian reservations and sacred grounds, and *de facto* wilderness areas such as the Escalante Canyons.

Seven coal-fired power plants are now operating within the area. The Four Corners and Mohave plants are in full operation. The San Juan plant, just north of Four Corners, has one

Jack McLellan is immediate past chairman of the Sierra Club Southwest Regional Conservation Committee and is now vice-chairman of the Uinta Chapter. He is a professional photographer and teaches at Westminster College in Salt Lake City.

unit in operation (with four more proposed), as do the Cholla and Huntington plants. The Navajo plant has one unit in operation, with three planned. The Reid Gardner plant has two units operating and two more planned. One additional new plant is proposed for Arizona, and one for just north of Las Vegas, Nevada. *Five* new plants are planned for Utah—all of them near national parks and monuments. (Just outside the region, to the northeast, are the Jim Bridger plant—2,000 megawatts—near Rock Springs, Wyoming, and the Yampa project—800 megawatts—and smaller Hayden plant near Craig, Colorado.)

The developers' position is simply that the Colorado Plateau region is the easiest and cheapest place to build a plant. Period. And their reasoning is logical granted their assumptions. More than enough cheap coal is present, and water, although scarce, is present in sufficient quantities if all other uses and values are ignored. Land is incredibly cheap, thanks to the open hearts of state and federal officials. Utah has no plant-siting laws or land-use planning laws (other than ineffective county ones), and Utah air-quality officials are very quiet about the likely degradation of present clean air regions and the adverse effects on public health that may result from such pollution. Other states aren't much better off.

American industry has repeatedly shown that it will do only what it is forced to do. Unless an industry as a whole is made to adhere to nationwide regulations, a given segment often will not voluntarily comply with unprofitable—or even legal—responsibilities.

Industry would rely on tall stacks, which would broadcast the emissions over a considerable distance, leaving the ground area adjacent to a plant free enough of the noxious discharge to meet prescribed ambient standards. The method rests on the proposition, "the solution to pollution is dilution." However, when all the dilutions from the proposed plants are added together—and keep in mind that remaining effluent from controlled stacks is micron (.000039 inches) and submicron in size, and will not filter out—the total corollary becomes "dilution plus dilution is pollution."

Environmentalists argue that the true alternative to massive development of polluting, coal-fired power plants in the Southwest is energy conservation in the urban load centers, reducing the need for plants. The Clean Air Act, the Supreme Court has ruled, prohibits significant deterioration of air quality in clean air regions, specifically to prevent utilities and industry from escaping the effect of stringent urban air-quality standards by fleeing to less populated areas. In addition, such locations amount to a subsidy from the people of the Southwest to the users of electrical energy in Los Angeles, who wish the right to consume electricity without paying its true cost, including pollution. And, conservationists note, so long as utilities have the option of building crude, polluting generating plants in the Southwest, they will lack the incentive to develop new technologies for burning fossil fuels cleanly, or for using such sources as solar or geothermal energy to meet legitimate energy needs.

No coal-fired power plants should be built anywhere near national parks and monuments, or any other scenic, historical, or sacred site. In addition to air pollution, "human overgrazing" will result from the influx of newcomers who may be even less concerned about the natural worth of the area than are the people who already live there.

People should be educated to the need for reducing their consumption of energy, and where necessary, such consumption should be regulated.and limited by appropriate legislation. Research into alternative energy sources must be increased drastically, for the path to adequate future energy supplies lies neither in nuclear power nor in the profligate exploitation of our remaining fossil-fuel resources.

Kaiparowits: Statistics and Comments

Statistics on all the plants would fill several books, and would be meaningless to most people. An attempt has been made here to pull together the most pertinent facts about the Kaiparowits plant, most controversial of the projects. In a general sense, all the information provided below applies to all the plants in proportion to their sizes. In general terms, each 1,000 megawatts of generating capacity will require:

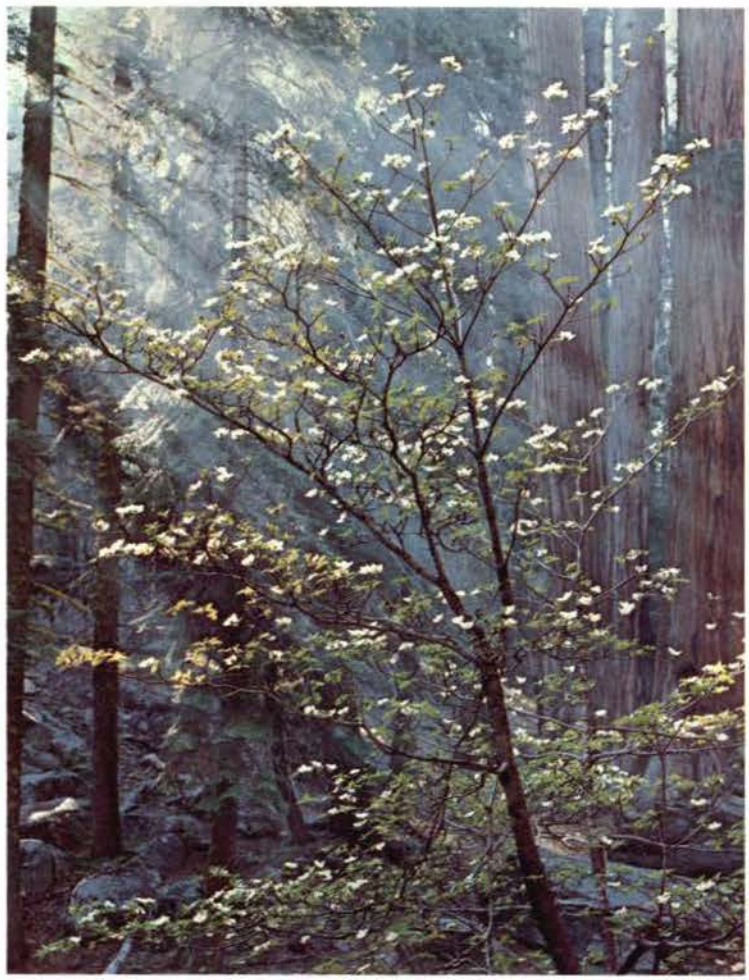
3.2 million tons of coal per year,
16,500 acre-feet of water per year,
1,000 workers in coal mines and power plant,
2,400 total workers (direct and indirect),
5,000 total population.

- The Kaiparowits generating plant consists of four 750-megawatt steam electric turbine generating units. Steam is supplied from four coal-fired steam generators, each with a stack over 600 feet high.
- The plant would use approximately 25,000 tons of coal and 135 acre-feet of water per day.
- One million barrels of fuel oil would be used the first year for main boiler start-up and auxiliary boiler use. This would be reduced to 200,000 barrels after five years.
- Hot electrostatic precipitators would be used to remove particulate matter (fly ash) from stacks. Their design efficiency would be 99.5-percent removal.
- Sulfur dioxide would be removed by wet lime flue gas scrubbers with efficiency consistent with best available technology at time of procurement, probably 80- to 90-percent efficiency.
- There would be no equipment to remove nitrogen oxide.
- With the efficiency levels cited above, under ideal conditions, daily stack emissions would be as follows: fly ash, 12.2 tons; SO_2, 34.3 tons; NO_2, 120 tons; unknown amounts of mercury, radioactive particles, and other trace elements.
- Failure of the precipitators and scrubbers could result in as much as 112 tons of fly ash and 22 tons of SO_2 released to the atmosphere per hour.
- 2,430 tons of fly ash and 309 tons of lime-SO_2 residue per day would be collected by control equipment and transported to disposal site. Expected volume over 35 years: 60 million cubic yards, covering 450 acres to a depth of 90 feet.
- Nearly 10 million tons of coal would be burned each year.
- About 50,000 acre-feet of water from Lake Powell, from Utah's share of upper Colorado River water, would be used per year for condenser cooling and other uses. The water would be "consumed"; none would be returned to the river.
- Dispersal of salt from cooling towers (the Colorado River has a very high salt content) is estimated at 5,800 tons per year. One mile beyond the plant, deposition is computed to be 165 pounds per acre per year. Vegetation would be affected.

Continued on page 26

1976 Sierra Club Calendars are ready!
(...and more beautiful than ever.)

Wilderness 1976
Sierra Club Engagement Calendar

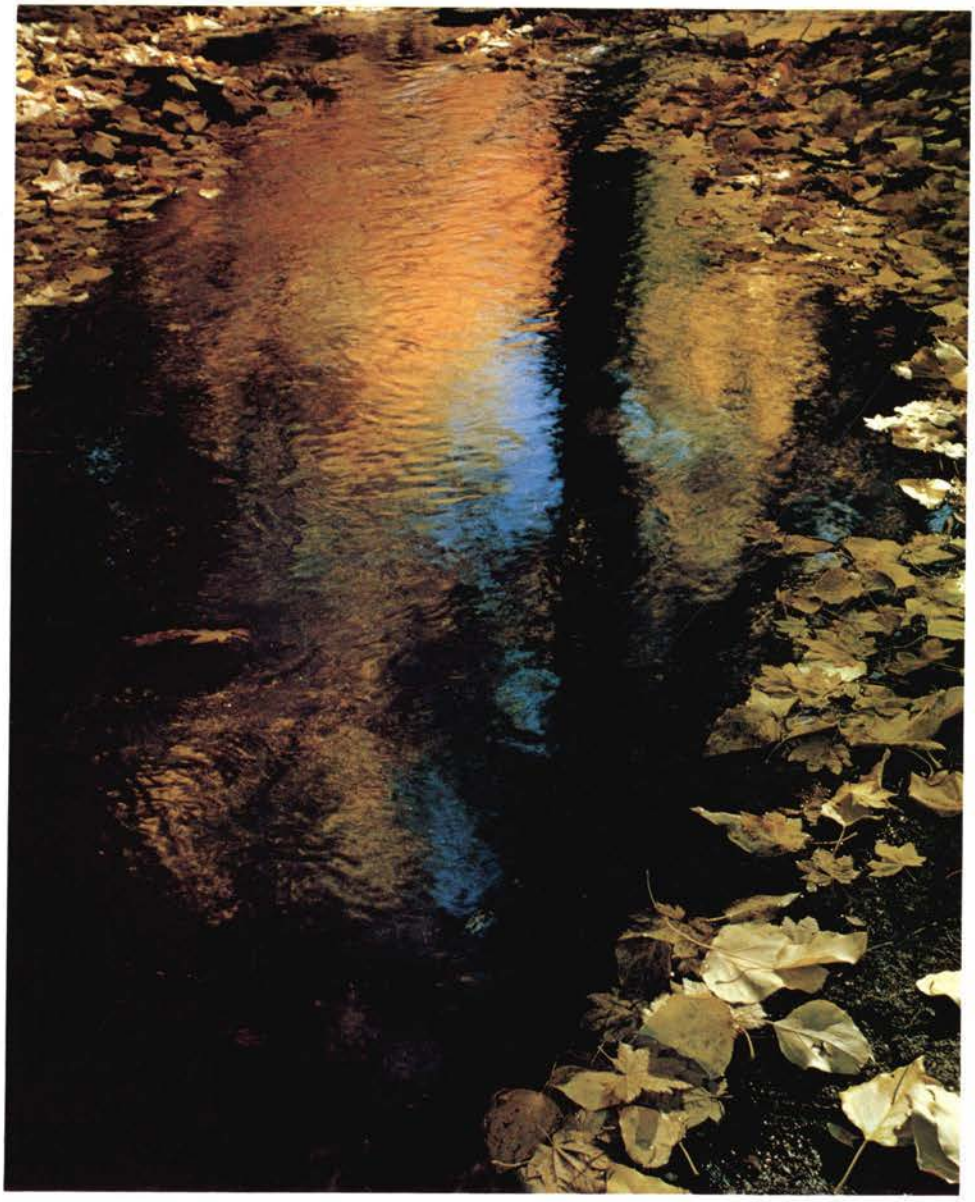


This week by week tribute, in full color, to the natural glory of our continent and the wild creatures who find in it a home, comes in a practical desk format, designed for appointment and note-keeping. Introduction by Michael McCloskey, Executive Director of the Sierra Club. The photographs are by eminent photographers such as Ray Atkeson, Bruce Barnbaum, Ed Cooper, Steve Crouch, Philip Hyde, Stephen J. Krasemann, David Muench, Galen Rowell, Dennis Stock, David Sumner, and many others. Spiral-bound at the side, individually packed in a self-shipping envelope. 6½ x 9½.

See following three pages ▸

Sierra Club Trail Calendar 1976

Mountaineering, wilderness skiing, rock climbing, backpacking, or just a wildlands ramble—this calendar celebrates all of these activities; from the training site of the 1975 K2 expedition party on Mt. Rainier to the summer glories of the Smokies; from Half Dome to the Himalayas. Photos are by William A. Bake, Ed Cooper, Bill Henderson, Philip Hyde, David Muench, Galen Rowell, and Larry Ulrich, with line illustrations and selections from the literature of the trail. Introduction on the wilderness experience by Galen Rowell. Spiral-bound at the top, hole-punched for hanging. Individually packed in a self-shipping envelope. 10¼ x 10¼.



Wilderness Calendar 1976 Sierra Club

The natural beauty of North America, through each season, as revealed in full color by photographers such as Ray Atkeson, Ed Cooper, Keith Gunnar, Stephen J. Krasemann, David Muench, David Sumner, and Hans Wendler. A special bicentennial theme of wilderness history is struck in quotes drawn from early American explorers and observers. Introduction by novelist and biographer Wallace Stegner. Spiral-bound at the top, hole-punched for hanging, individually packed in a self-shipping envelope. 10½ x 13¾.

1976 Sierra Club Calendars are ready!

(...order your 1976 calendars now by using the handy order form at the back of this issue of the Bulletin.)

The lynx, the wild mustang, the moose, the Alaskan brown bear, are among the fourteen full-color subjects, in their natural habitats ranging from Alaska to North Carolina. Photos by Fred J. Alsop, Joel Bennett, Donald Cornelius, Jeff Foott, Michael Godfrey, Keith Gunnar, Stephen J. Krasemann, Les Line, C. Allan Morgan, Galen Rowell, Bob and Ira Spring, and Ralph Williams. Introduction by Joan McIntyre, editor of *Mind in the Waters*. Spiral-bound at the top, hole-punched for hanging. Individually packed in a self-shipping envelope. 10¼ x 8½.

Amin R. Abushady—Courtesy of the United Nations

EARTHCARE

A PROGRESS REPORT

JOSEPH L. BOWEN

MORE THAN SEVEN hundred citizens of the world, from sixteen different countries, came to New York early in June to participate in the Fourteenth Biennial Wilderness Conference. There were international scientists, conservationists, and government officials, in addition to the designated representatives from nongovernmental organizations (NGOs) and other people who just wanted very much to take part. Sponsored jointly by the Sierra Club and the National Audubon Society, the very title of the conference suggested its transnational flavor and importance: "EARTHCARE: Global Protection of Natural Areas."

"Earthcare is a beautiful word," said René Dubos in his introduction to the conference. Earthcare suggests both the reverential concern we have in our hearts for the planet and the considered actions we all must perform as its caretakers. Both meanings reflect the spirit and substance of the four-day meeting. It was a conference enriched by a search for new concepts of "wilderness" perhaps unknown to those of us who reside in North America, challenging us to learn and appreciate them.

The Opening Ceremony

At the opening ceremony, the impact of *place* immediately established the "global" portion of the conference theme, for this first convening was held in the United Nations Headquarters, in the Economic and Social Chamber.

Outside, a chill wind had risen, unseasonal for June fifth, and a glimpse of the gloomy East River could be seen through the partially opened drapes. Inside the chamber, however, there was a pervasive glow of expectation. Three years before, the United Nations Conference on the Human Environment, held at Stockholm, had raised hope among the thousands who attended that at last a world environmental community had been born. This was the third anniversary of the Stockholm Conference and the third World Environment Day.

Many of EARTHCARE's officials and speakers had been active participants at the Stockholm Conference, either as official delegates of their countries or as NGO representatives. At the opening ceremony in New York, three years later, the unspoken questions were there: "What did Stockholm achieve?" and "Where are we now?" In fact, an editorial in the *New York Times*, on June 7, went so

far as to observe that EARTHCARE was meeting to "measure progress" since Stockholm.

Sierra Club members and others might consider that interpretation a bit strained. The theme of EARTHCARE was quite clear: Global Protection of Natural Areas. This was, after all, the Fourteenth Biennial Wilderness Conference—a series of meetings that began in 1949, not at Stockholm in 1972—and if there were those who spoke to deeper transnational conservation issues of the developed and developing countries, there were also

Jeff Bilotta

On behalf of his country's president, Andrés Carlos Peréz, Venezuela's Minister of Foreign Affairs Ramon Escovar Salom accepts the special EARTHCARE award from Sierra Club President Kent Gill.

speakers who did not stray from the specific issue of wilderness preservation.

At that first gathering, Nicholas Robinson, chairman of the Sierra Club International Committee, officially opened the conference. He was followed by Ismat T. Kittani of the United Nations, representing Secretary-General Kurt Waldheim who had been called to Cyprus for negotiations. Kittani spoke of the U.N.'s concern for the environment of all the regions of the world. He said, in part:

> In our interdependent world we know that no single issue or problem can be resolved in isolation. We know that the problems of the human environment embrace virtually all aspects of human life on this planet. We also know that, although the particular problems may vary from area to area, the essential ones are global and common to all. It is therefore crucial that we meet these problems with a comprehensive *and* global approach and with a shared dedication to solve them. All nations, whether they be rich or poor, developed or developing, must come to share a common concern for the human environment and be persuaded to take urgent actions to arrest and reverse the wanton destruction we continue to inflict upon it.

Kai Curry-Lindahl of the United Nations Environment Programme (UNEP), an organization created as a direct result of the Stockholm Conference and headquartered in Nairobi, brought a message from Maurice Strong, its executive director. Strong, who had been the secretary general of the Stockholm Conference, expressed his pleasure that UNEP was an honorary sponsor of EARTHCARE. His message to the participants spoke of earthcare principles and guidelines, but also stressed the importance of such nongovernmental organizations as the Sierra Club and the Audubon Society:

> The real catalyst for change is the citizen, who can express his concern by his own actions and by organizing collective action for creating sound environmental life styles and making local and national governments yet more aware of the urgency of the need. Citizen action can provide the vital impetus to create change for the better and there is no better opportunity to display citizen action than on World Environment Day. Your meeting today is a splendid example of the creative use of World Environment Day opportunities.

With this auspicious beginning, the citizens gathered at the opening ceremony listened to René Dubos' address: "Introduction to Earthcare." Dr. Dubos, professor emeritus of the Rockefeller University and a gifted author, emphasized the need to maintain the biological diversity of natural areas as the best insurance against catastrophe. For, as he said, "each natural area constitutes a unique reservoir of biological species." He also observed that the earth's energy supply comes largely from photosynthesis of sunlight by plants, at a rate of about 840 trillion kilowatt hours per year. While this is some twelve times the world level for energy consumption, doubling such consumption each decade would overtake the production of new energy by green plants within a century. This would bring about profound disturbances in the natural systems, he said. In fact, it would probably mean the destruction of life.

The final speaker at the opening ceremony was Marian S. Heiskell cochairman of the Council on the Environment of the City of New York. She presented an EARTHCARE declaration, which was open for signatures at the conference. The petition, which will be presented to the United Nations on United Nations Day, October 24, 1975, calls for an end to further violations of the earth's natural areas as a fundamental right. The declaration states:

> For the first time in Earth's history, our species has the capacity to violate the environment on a scale that endangers the existence of all species. The heedless exploitation of nature and the careless use of resources already threaten our inheritors with a world physically and spiritually impoverished. We must act now to renounce such a perilous course and to conduct our affairs in harmony with nature. The nations gathered at the 1972 Stockholm Conference . . . proclaimed that protection of the human environment is the "duty of all Governments."

The declaration concluded with the assertion that our "right to receive protection of our common global environment must be honored."

Mr. Justice William O. Douglas

Jeff Bilotta

Amin R. Abushady—Courtesy of the United Nations

From left to right at the opening ceremony: Raymond J. Sherwin; Chaplin B. Barnes (standing); Kai Curry-Lindahl; Ismat Kittani; Nicholas A. Robinson; René Dubos.

The Second Day

All sessions after the opening ceremony were held at the New York Hilton. Quickly, through the speeches given here, the various themes which permeated the conference were developed. The major and clearest task was to examine the critical problems and options we are all facing, in order to protect the earth's forests, marine environment, polar regions, wetlands, deserts, and grasslands.

After the welcoming remarks by Elvis J.Stahr, president of the National Audubon Society, and Raymond J. Sherwin, vice president for international affairs of the Sierra Club, the keynote address was given by Russell W. Peterson, chairman of the Council on Environmental Quality, who said we must convince policy makers that destruction of the planet is a distinct possibility.

Peterson began with a colorful reference to a certain misguided congressman who calls environmentalists the "frivolous posy pluckers . . . the extremists who are contributing to the destruction of free society by an impractical interference with economic growth." No, *we* are the true realists, said Peterson, for we know that the issue is not the destruction of free society, but destruction of the planet.

Perhaps environmentalists have failed to explain their motives in understandable terms, he continued. Pessimism is not new; people have been hearing predictions of disaster for centuries. But what is new is humankind's recently acquired ability to alter the planet's environments in radical and possibly irremedial ways. The natural resiliency of the earth, seemingly indestructible, is based on factors which are no longer true: small populations and simple production techniques and tools—our children will see a world population of twelve billion people in their lifetimes.There are now two million known chemical substances in use. Just one, fluorocarbon—which may be diminishing the ozone layer—was the aerosol propellant in 188 million cans in 1954. In 1974, in contrast, the figure was three billion cans in the United States alone. In the face of such increasing growth, the world's resources are being exhausted.

It is facts such as these that are today's realities, declared Peterson, and it is essential that environmentalists from all over the world express their concern, albeit with tact and skill. He concluded with a Declaration of Interdependence, which began "We the people of planet Earth . . ." and thus he provided a transition to the following sessions, which dealt more deeply with the interdependence and interaction of the world's societies with its ecosystems.

Transnational Flavor

The interdependence of developed and developing countries and the role each must play to ensure the survival of the biosphere was another theme that was played and stressed throughout the conference. After Peterson's address, a panel discussion on this transnational theme was chaired by Gerardo Budowski, director-general of the International Union for the Conservation of Nature and Natural Resources.

Dr. Taghi Farvar, who directs the Center for Endogenous Development Studies in Teheran, Iran, and who had spoken clearly at Stockholm of the plight and positions of the Third World, stated succinctly that the West is burdened with naiveté as to what is going on in the developing world.We must, he said, find the balance between environment and development. He mentioned that the Third World, which is only now developing, has already been hit with environmental blunders. He cited several examples, one of them being that the Green Revolution has, in some areas, changed things for the worse. In India, for instance, it has driven out small farmers and consolidated their holdings in larger farms. The unemployed farmers have been forced into the larger cities, where their lack of technological skills means they cannot find work. The cities, thus, are overcrowded with unemployed, hopeless persons. Farvar also stressed that social justice must be secured before genuine development is possible.

In this same vein, Robert G. Muller of the United Nations traced some of the technological developments which brought the world population to its present imbalance. He discussed mul-

tinational corporations which, he said, "exercise a power not controlled by us," and he cited the example of Japan's building a steel mill in Brazil to avoid air pollution at home. Tourism, he said, once considered a pollution-free way to economic growth, has grown 8½ times since 1950, to the point where today, "tourism is killing tourism."

And Roderick Nash of the University of California, a historian of American wilderness, mentioned that preservation of wilderness and wildlife depends mainly on developed nations. In Kenya, he said, national parks exist only because they are profitable, making possible tourism, Kenya's largest industry. In early America, the inhabitants were surprised that Alexis de Tocqueville wanted to visit the wilderness areas, which some of them found "boring." Today, in Nash's pungent words, "You can't 'turn on' a Masai about lions."

Throughout the day similar panel discussions were held simultaneously, which forced the more eager participants to make a choice as to their own highest priority for attendance—which wasn't always easy. All sessions were crowded and alive with information gained and given. There were discussions of the oceans and the atmosphere and of various ecosystems—deserts, temperate forests, rivers and the coastal marine environment. All agreed that again, as with nations around the globe, there is total interdependence among the ecosystems. Increasing air pollution, for instance, will tend to reduce the amount of sunlight reaching the oceans, which will then, in turn, affect both photosynthesis and evaporation, which then affects marine life and weather—and the chain goes on.

The Banquet

The large banquet, that evening, was one of the highlights of the conference. A major environmental address was given by Jay Hammond, governor of Alaska, and several awards were presented to noted persons who have contributed greatly to the cause of conservation throughout the world.

William O. Douglas, associate justice of the United States Supreme Court, accepted the John Muir Award from Judge Raymond Sherwin, former president of the Sierra Club, for his commitment to the development of environmental law. Mr. Justice Douglas, in his acceptance remarks, indicated that applications of environmental law must and will expand to protect the public welfare.

In addition, Sierra Club President Kent Gill presented a special EARTHCARE award to Venezuelan President Andrés Carlos Peréz, in recognition of his "distinguished leadership in promoting the rational use and conservation of natural areas and in advocating environmental protection as an integral part of development."

At that banquet, a major breakthrough, one with great and hopeful implications for conservation, came in the address by Alaska's Governor Jay Hammond. While it is true that a few of the nation's governors are becoming increasingly aware of environmental necessities, for one of them to address such a gathering and to express his strong desire to "create a different kind of society in our north, modern in every sense, but in harmony with nature," brought rounds of applause from the crowded room.

Governor Hammond declared:

> Though we Alaskans, like our sprawling land, are richly diverse in our life styles and our attitudes, there is between us strong agreement about some essential elements. We want to maintain the health, the beauty, the productivity of a land strong but vulnerable.
>
> No part of earth today is so isolated, and no government so powerful, that its society has change under control. Certainly not Alaska. Like a canoeist in white water, we are confronted with a need to sweep past rocks, and at times, back paddle to avoid capsizing. For, unfortunately, unlike that canoeist, we cannot haul a spluttering society up from the river for a second try. Alaska, it has been said, may well be the last chance to do things right the first time.

This, then, was a beginning answer to the questions earlier unspoken, but felt. "Where are we now?" we asked, and we knew now that changes in attitude and in actions were indeed beginning.

The Third Day

And the conference proceeded, answering more and more of the questions.

Noel Brown of UNEP said that before Stockholm, some in the Third World considered environmentalism an imperialist plot to deny the right to develop and pollute, by which the industrialized nations had achieved their economic growth. With Stockholm came involvement in a broad-

ened dialogue, a realization that human rights can't be separated from the environment.

Earlier, a message had been read from A. H. Boerma, director-general of the U.N.'s Food and Agriculture Organization (FAO), which also brought forth the conference theme. He said that we must not think of the preservation of the natural environment in isolation. It must be considered in the context of development. Several speakers, in fact, cited various "eco-catastrophes" caused by the opposite—development in isolation, without having considered environmental problems. Egypt's Aswan Dam, for instance, the building of which proliferated the snail-borne disease of schistosomiasis, is one such example; also, the spreading of super pests bred in Peru, Mexico and Central America, through the uncontrolled use of pesticides.

Canada's minister of the environment, Jeanne Sauve, observed there is continued pressure for economic growth, and to demand that this growth be ecologically sound already represents a radical change from the past.

Again, there were simultaneous symposia, four of them on savannahs and grasslands, tropical forests, freshwater wetlands, and human settlements and natural areas—and three more on "international measures for protection of natural areas."

This latter group brought Kai Curry-Lindahl back to the rostrum, where he reported on the progress of UNEP since Stockholm. Lindahl said that the UNEP governing council, which held its third annual meeting in Nairobi shortly before EARTHCARE, gave special emphasis to "Earthwatch," the UNEP system for monitoring, information exchange, and assessment to provide early warning of significant environmental risks and opportunities. One of its major components, the Global Environmental Monitoring System (GEMS), is expected to begin operations this year.

While UNEP will implement certain specific projects, its principal function will be as a catalyst in stimulating the responses of people all over the world to the critical needs of the earth.

Much of Saturday was devoted, through these panels, to "avenues of action," in support of existing programs to protect natural areas.

At the final formal session of the conference, David Brower of Friends of the Earth responded to the editorial in the *New York Times*, which opined that the tone of EARTHCARE was "somber but not despairing, urgent but not hysterical." Perhaps we need a touch of hysteria, Brower declared, for time is running out on the wilderness. He recalled that it was only ten years ago that Adlai Stevenson said that we travel together on a little spaceship Earth. Now we must each do our part, in political action and in individual effort, to care for that fragile craft.

The Last Day

On Sunday, the conference concluded with a series of workshops which plotted strategies to make the endangered-species convention effective and to advance environmental education. Again, action plans were made to support, in the most effective manner possible, conservation programs already underway.

A novel feature ended the conference—participants were able to go on any of several EARTHCARE field trips to local wild areas. There was a trip to the Jamaica Bay Refuge, a part of the Gateway National Recreation Area, and also trips to wild areas such as the coastal wetlands from New Jersey to New England, and elsewhere.

As it was begun, so it ended. Nicholas Robinson officially closed the conference and the participants departed, hopefully with a fuller understanding of the problems concerning preservation of the earth's wilderness areas, plus concrete ideas for cohesive action on the part of both individuals and groups around the world.

What was the upshot of the conference? That progress has been made, but we must not relax our efforts. Robinson summed it up well:

> Ours will be a lonely fight. Some 800 attended EARTHCARE; they were a small fraction of conservationists on the North American continent alone. They were the few who act upon as well as embrace an "Only One Earth" view. They are too few for the task; but just as the wilderness area concept gained adherents until the goal was attained, so must EARTHCARE.

Joseph L. Bowen is a freelance writer and a member of the executive committee of the Sierra Club's New York City group.

ERRATUM . . .

In the Observer column for the June-July issue, we reported that the Sierra Club had been in Mills Tower for eight years. This was a typographical error. The club moved into its present headquarters in 1903, so make that figure 72 years.—*Editor*

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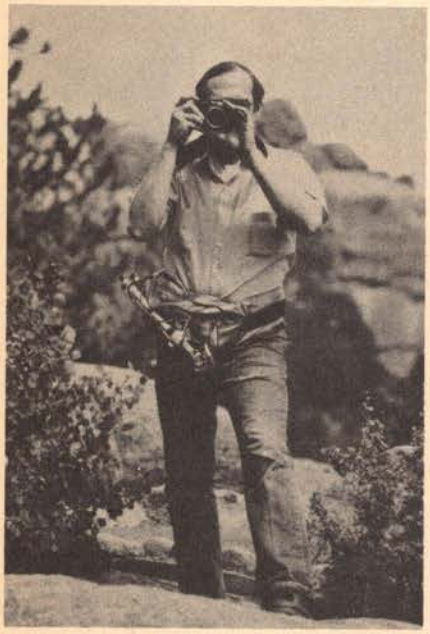

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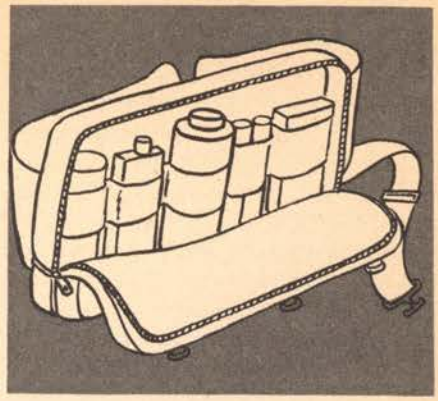

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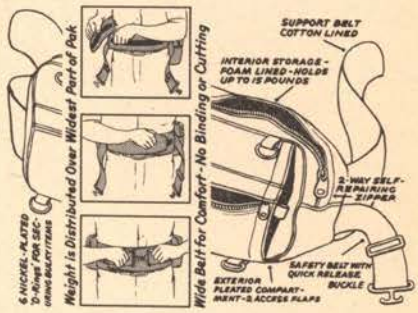

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Supertanker Regulations

Oil and Water Still Don't Mix

IN A RECENT CARTOON by MacNeely, a monstrous oil tanker, its bloated mass receding over the horizon, pokes its snout into the hopelessly narrow entrance of the newly reopened Suez Canal.

An Exxon executive believes existing tonnage of medium-size tankers and supertankers already exceeds requirements forecast for the next ten years.

Barron's financial weekly says we are seeing "the most catastrophic slump in freight rates and ship values in the annals of the sea."

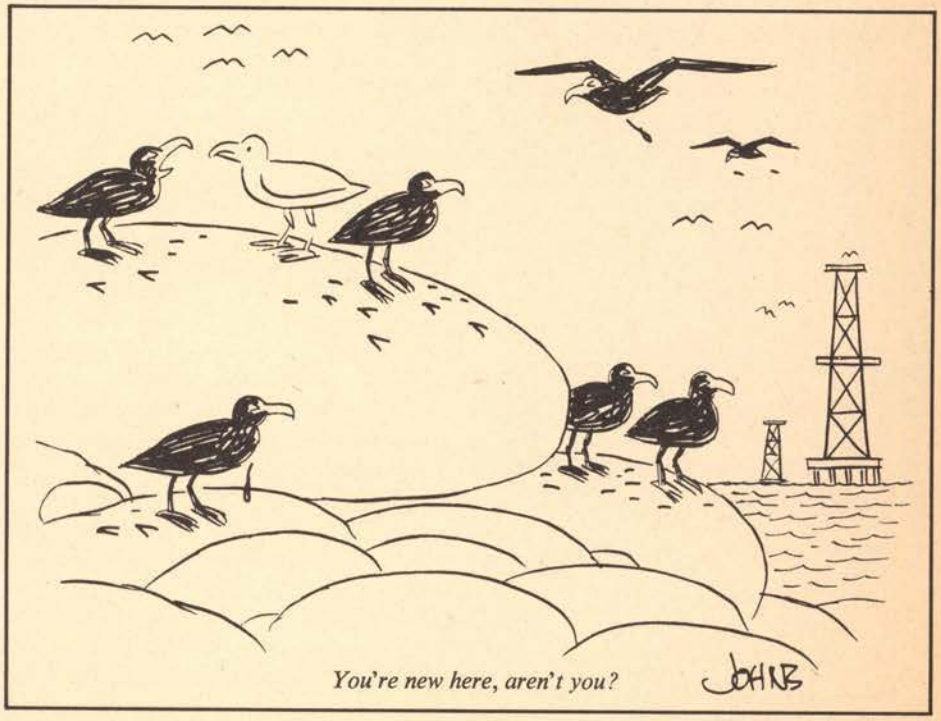
Are the "Oilbergs," as Noel Mostert, author of *Supership*, has characterized them, going the way of the dinosaur even before the United States begins building deepwater ports to accommodate them? Only a cockeyed optimist could think so. World consumption of oil is increasing. Mild winters can't be expected to go on forever. Congress has trouble enacting even obviously weak conservation measures. Estimates of U.S. Outer Continental Shelf (OCS) oil reserves have been repeatedly revised downward. In spite of a worldwide crash program in exploration, no new oil pools rivaling those of the Middle East have been found. It seems inevitable that demand will force oil prices to rise; shipping rates will go up; and the tankers currently being used as floating tank farms will renew their dangerous passage to market—wherever it may be.

The superspills of the last year have been spectacular: the *Metula* asphalted 40 miles of Chilean coastline; the *Showa Maru* spilled a million gallons of oil off Singapore; the *Jakob Maersk* ran aground off Portugal, exploding with 28.5 million gallons of oil aboard; the *Spartan Lady*, loaded with 5.9 million gallons of oil—broke in two 150 miles east of Atlantic City. Yet neither the Congress nor the Coast Guard have come to grips with the need for immediate improvements in the construction and operation of oil tankers.

Currently, the Sierra Club is following at least four lines of action to reduce the number of tanker disasters: (1) lobbying Congress for uniform strict-liability oil-spill legislation for the whole country; (2) pressuring the Intergovernmental Maritime Consultative Organization (IMCO) for improved tanker regulation; (3) consulting and litigating with the Coast Guard over its development of new-vessel design and construction standards affecting maneuverability, cargo loss, and ballasting, as mandated by the Ports and Waterways Safety Act of 1972; and (4) advising the State Department concerning international aspects of tanker regulation. In all but the first of these efforts, the club is represented by the Center for Law and Social Policy in Washington, D.C.

The Deepwater Port Act of 1974 (DWP) authorized a study of uniform, strict-liability oil-spill legislation that would provide payment for clean-up costs and damages from oil spills anywhere on the U.S. coast. (The DWP act itself provides a $100-million compensation fund for spills in a port area.) Without waiting for the conclusion of the DWP liability study, Senator Warren Magnuson (D. Washington) has independently sponsored the National Oil Pollution Liability and Compensation Act of 1975, which would establish a $250-million fund, through a small user-fee-per-barrel carried, to pay for clean-up and damage costs in excess of $20 million. Owners and operators of vessels, or rather, their insurers, would pay costs up to that amount.

In a context of international anarchy with regard to oil-spill liability, and with U.S. requirements still based on an 1851 act limiting liability to the value of whatever is left of the ship after an accident, which in the case of the *Torrey Canyon* was a $50 lifeboat, the club feels that the Magnuson bill would improve the situation.



You're new here, aren't you?

The only international organization through which oil-spill-liability rules might be developed is IMCO. Impressed by the *Torrey Canyon's* clean-up claims of $16 million, IMCO in 1971 established the International Fund Convention, which is capable of paying out $36 million for a single incident. Protected by enough loopholes to give shippers almost endless opportunity for evasive court action, the IMCO fund convention has not been ratified by enough nations to bring it into force. Individual states are nevertheless using it as a model for new liability protection.

IMCO's notorious orientation to oil and shipping interests has frustrated international efforts to improve both oil-spill-liability requirements and oil-tanker operation and construction regulations. Almost four years ago, Richard Frank of the Center for Law and Social Policy protested to the Department of State the U.S. practice of sending two persons representing shipping or oil to IMCO meetings as part of the official U.S. delegation. The next time, the U.S. sent only government officials. Ultimately, in October, 1973, Eldon V. C. Greenberg, also of the center, was included in the official U.S. delegation. Frank and Greenberg have since been appointed members of the Secretary of State's Advisory Committee on the Law of the Sea, where they represent the Sierra Club, as well as other environmental groups. Frank has been advisor to the U.S. delegation at both law-of-the-sea conferences.

The first Coast Guard action in compliance with the Ports and Waterways Safety Act encouraged environmentalists to believe they were making progress on tanker regulation. The Coast Guard's Advance Notice of Proposed Rulemaking, issued on January 26, 1973, indicated its intention to require totally segregated clean ballast systems, including double bottoms, on all new tankers trading in U.S. navigable waters. Opposition from shippers immediately followed the announcement. They argued that if regulations for U.S. ships were stiffer than those for foreign ships, U.S. shipping would be placed at a competitive disadvantage, and that if stiffer regulations were applied equally to new foreign ships, it would encourage the use of the oldest and dirtiest vessels. They also argued that the benefits of segregated ballast and double bottoms had been overestimated.

In contrast, from the outset the Sierra Club and other environmental groups represented by Greenberg have supported segregated ballast and double bottoms on all oil vessels, including tank barges, trading in U.S. waters. Influencing their firm position over the years has been the fact that *normal* tanker operations, including discharge of cargo tank washings and oily ballast, account for almost 70 percent of the total influx of oil into the oceans from oil tankers. The Coast Guard's advance notice itself stated that "double bottoms would provide protection against accidental discharge caused by grounding incidents," the most common kind of tanker casualty.

As the 1973 IMCO meeting approached, industry beat the drum for the Load on Top (LOT) procedure as preferable to segregated ballast. Only 80 percent effective at best, LOT involves pumping ballast into a holding tank, where the oil residue floats to the top. Water is drawn off the bottom, and new cargo is loaded on top of the remaining oil. Greenberg, fighting back, emphasized the difficulties of LOT, its dependence on skilled crews, good weather, and oil heavy enough to resist mixing with water. He also promoted controllable-pitch propellers—particularly useful for tankers operating in coastal and harbor waterways such as Puget Sound and the Strait of Juan de Fuca—twin screws and twin rudders, and bow or stern thrusters.

To Greenberg's dismay, when the final draft of the proposed IMCO convention appeared before the scheduled meeting, it lacked much of what he had asked for. Fortunately, as modified at the meeting itself, the final convention turned out to be better—a little better—than the draft proposal.

Segregated ballast was required on all tankers above 70,000 deadweight tons (dwt). Improved monitoring and control systems for oil discharges were required for all tankers. All states were required to provide reception facilities for oil at ports where such discharges were expected, although no standards were set for operating these facilities. In spite of evidence that double bottoms would have prevented outflow from 90 percent of strandings within U.S. waters in a three-year period, they were ignored. Significantly, the convention did not spell out a requirement preventing coastal states from adopting higher standards, thus leaving the U.S. or any other nation free to do so.

Back home, the weak IMCO convention gave great aid and comfort to the shipping and oil industries. When the Coast Guard got around to publishing its long-promised Proposed Rules, in June of 1974, it had done a complete turnabout on its earlier double-bottom recommendation, even failing to back up the Department of the Interior's promise to make double bottoms required on the Alaska haul. It also failed to establish any requirements for maneuverability features. The Coast Guard's exemption of new and future construction did not match the IMCO convention's scandalous grandfathering for deliveries before December 31, 1979, but it did extend to December, 1977, handily exempting most ships that will be built for the Alaska trade.

For a year, from June 1974 to June 1975, environmentalists awaited issuance of the Coast Guard's final rule, legislatively mandated back in 1972. It took a lawsuit backed by eight environmental groups, including the Sierra Club, to extract the rule. In the period that must elapse before the rule's implementation, Greenberg has been concentrating on an analysis of the Coast Guard's draft environmental impact statement. A second lawsuit challenging the rule's adequacy is a distinct possibility.

Conformity to IMCO recommendations has also limited the value of another proposed Coast Guard rule. This one requires the piping of inert flue gases, such as nitrogen and carbon dioxide, into emptying oil cargo tanks to prevent their filling with volatile hydrocarbon vapor. The latter, formed from sludge and oil puddles, is a constant hazard while tanks are being cleaned. Tanker explosions between 1969 and 1972 accounted for 11 percent of the total outflow from all kinds of tanker casualties. Even though in the same period only 18 percent of cargo-tank explosions occurred on ships over 100,000 dwt, the Coast Guard's rule would not apply to smaller ships.

The inert-gas rule would, like the rule on construction standards, apply only to new ships and would therefore be unlikely to affect the safety of oil shipping for a decade. Yet retrofitting is no more expensive than installation during construction. A serious omission in the rule is its failure to require the use of high-quality flue gas scrubbed of sulfur dioxide and reduced in water content, although high-quality gas would reduce corrosion, a main source of the structural failure that causes the thin skinned "very large crude carriers" to break up. Greenberg has called for a revision and reissuance of the proposed rule, accompanied by a draft environmental impact statement.

Meanwhile, owners of tanker fleets are considering using the conversion of cargo tanks into segregated ballast tanks as a means of eliminating surplus tanker capacity—and sharing business. Even if the conversion is intended as only a temporary expedient, the shippers may find that they like it. After all, they, too, have an interest in a living ocean.

Ellen Winchester

EDITORIAL **Michael McCloskey**

Is Importing Oil the Problem?

THE FORD ADMINISTRATION continues to pursue the theme that the United States faces a horrible crisis in importing so much oil. Indeed, its whole energy policy turns on the "need" to reduce our dependence on imported oil (thirty-eight percent of the oil we consume is now imported), and the Administration has not entirely lost its infatuation with the ultimate prospect of energy independence.

Certainly, imports that grow too much will exact an environmental price, as will any kind of energy growth. If imports could be reduced primarily through energy conservation and by curbing demand, there might be clear environmental benefits in tapering off imports: less tanker traffic here means fewer spills in our waters. But unfortunately, it no longer seems likely that the President and Congress will get together soon to really reduce consumption. Instead, it is becoming more obvious all the time that the Administration really wants to increase domestic energy production as a replacement for foreign imports. Frank Zarb, Federal Energy Administration (FEA) chief, once even spoke glowingly of the United States' becoming a net energy exporter by 1985.

The environmental impact of oil procured abroad compared to that of new energy produced at home is, of course, hard to ascertain. But it is probable that Middle Eastern oil will be produced and shipped to *someone* over the course of time—that impact on the world environment will occur regardless of whether the United States buys the oil. It is not at all clear that domestic oil shale, given all of its environmental problems, will ever be produced unless a protectionist United States policy prods its development with subsidies. In looking at future supplies, it may well be that, barrel for barrel, less environmental harm will result from the United States' consumption of imported oil from prime fields abroad than from pushing new domestic production into deeper and deeper offshore waters, into difficult arctic environments, and into economically marginal oil-shale deposits and synthetic-fuel experiments, to say nothing of replacing such oil with coal and nuclear power, with all their problems. Moreover, every bit of energy we keep in the ground can only become more valuable should we ever want to develop it and be able to do so in an environmentally acceptable manner.

But what about the other arguments for restricting imports? The Administration claims that national security demands protection against another embargo and that our economy is suffering from the high costs of the imported oil.

The Administration has already answered the question of how to deal with interruptions of imported supplies. It supports an emergency civilian oil-storage program, and Congress is moving rapidly to pass authorizing legislation to establish a stockpile of between 500 million and a billion barrels. Depending on the size of the interruption (only half of our imported oil now comes from the volatile Arab states), such a storage reserve might last between ninety and 180 days, which should be adequate to handle most foreseeable problems. Such a reserve could probably be created within five years and located in salt-dome cavities in Texas. In the meantime, storage could probably be secured in tankers, which could lie offshore. Oil to fill the proposed reserve could be obtained either from the Navy's Elk Hills reserve or from additional imports.

The economic arguments also are melting away. Only about two percent of our overall inflationary rate last year is attributable to the rise in world oil prices, and that impact is past history in any event. FEA decries that the United States will have to pay $26 billion this year to import oil. Recent data, however, suggest that members of the Organization of Petroleum Exporting Countries (OPEC) are recycling more of their "petrodollars" here than we are paying to them, and these recycled dollars help support jobs here. One survey found that they invested $27.6 billion in the United States last year, and a recent study from the House Banking and Currency Committee states flatly that "we receive, in fact, capital inflows from OPEC in excess of our oil deficit." Reflecting this fact, figures on our basic balance of payments for the first quarter of 1975 show a $6-billion improvement over the previous quarter, with a $3-billion trade surplus forecast for this year. Other countries are also benefiting from recycling of "petrodollars": one-third has flowed into the European market and Japan has received seventeen percent.

As these facts emerge, one can only wonder how long the Administration can continue to try to use the "crisis" over imported oil to push marginal domestic energy-development projects. ●

WASHINGTON REPORT

Brock Evans

Reflections on the Strip-mine Veto

I WAS IN THE STRIP-MINE COUNTRY of Ohio, back in the soft hills of my native state, on the day President Ford vetoed the strip-mine bill. I walked through the gentle hills in the sunset, the spring wind blowing easy on my cheeks, filling the air with the sweetness of that black Ohio soil, and memories of growing up here, of my contact with this rich midwestern earth, came flowing back.

And then I remembered: beyond these hills, just a few miles away, they were strip mining, the giant machines were gouging the guts out of this land, night and day. You can see portions of the destruction from Interstate 70, the main east-west arterial across the state; this view is a shocking and abrupt contrast to the greenness of the rest of the land. You can see what is in store for much of what remains if something is not done.

I bent down, picked up and sifted through my hands a chunk of this rich earth. It should be growing food and trees forever. Why then, I wondered, did the President veto the bill? It wasn't even that strong anymore. Most of his major objections to it had been accommodated. There had been three years of work by the Congress, thousands of pages of testimony at the hearings; every detail had been gone over again and again; every argument had been carefully analyzed. President Ford claimed that jobs would be lost—but the evidence shows that many more jobs would have been created because the bill provided funds to reclaim the devastated earth. The President claimed the bill would adversely affect energy production—but the figures show decisively that there would probably be very little impact. The President claimed that we had to have strip-mined coal—but the evidence is overwhelming that well over ninety percent of all our coal reserves can *only* be deep mined.

Why, then, did he do such a thing? How could he continue to condone this destruction of the American earth, continue to appoint officials who listen only to the coal industry and who consistently overrule environmental concerns? The answer on one level is really quite simple: his action reflects his real views. When Mr. Ford was in Congress, his environmental voting record was extremely poor, and since he has been President, his environmental statements have been mostly rhetoric. His deeds—the strip-mine veto, for example—have almost always shown his disregard for environmental problems. He really doesn't *care* about these green hills and what is happening to them.

In the final analysis, the answer is more subtle; it goes directly back to us, the American voters. We must bear responsibility not only for the veto of the strip-mine act, but also for the long series of environmental depredations that have characterized the present and past administrations. In my opinion, what happened that lovely spring day as I walked the Ohio hills goes directly back to the Presidential election of 1968.

Richard Nixon won the Presidential election by a margin of only several hundred thousand votes. His environmental record and interest and concerns were known to be extremely poor. His opponent, Senator Hubert Humphrey, had a much better environmental record, one of demonstrated commitment on many levels. But the overriding issue then was simply one thing—the Vietnam War. And because of Humphrey's ties with the previous administration, he was considered to be pro-war, as was Mr. Nixon. This is important, because it means that at least 100,000 or 200,000 persons considered the war issue to be the *only* issue. And because there seemed to be no difference between the candidates on this point, other important differences were lost in the debate over the war. Thus, those several hundred thousand who might have supported Humphrey, voted for splinter candidates who had no chance of winning. This was Mr. Nixon's margin of victory, and Gerald Ford, of course, is the appointed successor to Mr. Nixon.

We have paid and paid for this switch of votes. We have paid for nearly eight years now, and we will continue to pay for generations. We have paid in the political maneuvers to defeat any land-use bill. We have paid in the persistent efforts to weaken the clean-air laws. We have paid in the impoundment of federal funds that might have purchased parklands. The devastated lands in the redwood region, which could have been part of the national park, are a direct consequence of this vote. We have paid in the endless stream of appointments of officials who listen only to industry, and who care nothing about environmental values. It is the American earth that has paid the terrible price, even more than we.

And that is the lesson, I thought to myself, walking through the sweet Ohio countryside. The strip-mine veto is only the latest in a series of acts that exhibit an extraordinarily callous disregard for environmental values; it will not be the last. If environmentalists hope to do a more effective job of rescuing this land, we must learn to discriminate between candidates for office, to look at their environmental records. Other issues are important, too, but I hope enough of us care about our planet to make these concerns come first—at least some of the time.

REGIONAL REPS REPORTS

Midwest: Growing Pains—the Indiana Dunes Revisited

THE INDIANA DUNES are located at the southern tip of Lake Michigan between Gary and Michigan City and comprise a uniquely valuable natural and scenic resource readily accessible to metropolitan Chicago. They are a remnant of the Wisconsin Glaciation, when a huge ice sheet covered much of the upper Midwest. When the last of the ice retreated northward, about 15,000 years ago, it left behind three distinct shorelines and dune ridges that marked the varying levels of ancient Lake Chicago. These are the Indiana Dunes.

Today, this stretch of shoreline contains a fascinating variety of natural features, ranging from the younger beaches and shifting dunes to the higher, older dune ridges, which are now covered with vegetation; from sunny cattail marshes, wet prairies, and bogs to shady woodlands. Plant species from both the eastern and western United States grow here side by side with species more characteristic of arctic and tropical regions. In all, well over a thousand species of plants have been identified in this area. The wildlife is also rich and varied.

Citizen effort to save this area stretches back over fifty years. Stephen Mather, the first director of the National Park Service, was persuaded in 1916 to recommend that a national park be established to preserve the Indiana Dunes, but it wasn't until 1966 that Congress created the Indiana Dunes National Lakeshore. Mather's original proposal was for a 13,000-acre park, covering twenty to twenty-five miles of shoreline. In 1923, a state park was established, but it only included 2,182 acres and three miles of shore. With the creation of the National Lakeshore in 1966, the protected area was increased by 5,600 acres and ten miles of shore, but because of pressure from private interests, key portions of the dunes area were left outside the boundaries.

This is a critical year for the Indiana Dunes National Lakeshore. Pressure is increasing for industrial development of the lands not yet protected as part of the park,

and unless Congress acts this year to include these lands within the National Lakeshore boundaries, the opportunity to preserve the remaining undeveloped portions of this rich and unusual dune formation may be lost forever.

There are three principal reasons for expanding the Lakeshore: First, important natural features have been left out of the park. Among these are the 330-acre Hoosier Prairie, several spectacular dune formations, a great blue heron rookery, the Lake-Border Terminal Moraine, and the Beverly Shores "island," which now interrupts the largest contiguous section of the National Lakeshore. Second, the acquisition of buffer zones is essential to protect the existing park. Third, the park is now being visited by some 900,000 people a year. Because of the area's national appeal and because of its proximity to a large metropolitan region, the number of visitors can be expected to increase. Additional acreage is necessary if only to absorb and serve this influx of visitors.

In 1971, Representative J. Edward Roush (D. Indiana) introduced legislation to enlarge the park by some 6,900 acres; this bill was reintroduced in 1973 and again in 1975, but was scaled down, by about 1,500 acres, to 5,400 acres. Also, this spring, Representative Floyd Fithian (D. Indiana) introduced a bill to add some 4,600 acres to the park. Both the Roush bill (H.R. 4926) and the Fithian bill (H.R. 5241) would roughly double the size of the National Lakeshore. A major purpose behind the inclusion of the lower acreage in the Fithian bill was to avoid obstructing industrial growth and development in the vicinity of the park, and most of the reduction in acreage involves lands along the Little Calumet River corridor which are owned by Bethlehem Steel.

The major opposition to the bills comes from steel and utility interests that own lands within the proposed expansion area. Disputed areas owned by Bethlehem Steel, National Steel, and U.S. Steel include beach, dune, and river valley areas. Inland Steel also has sizable holdings in the area, but has expressed no opposition. Although the Fithian bill includes substantially less of Bethlehem Steel's holdings in the Little Calumet River valley than does the Roush bill, the company continues to seek additional deletions. National Steel wants to use low-lying areas of its property for industrial sludge lagoons and proposes to use other land for light industry and an office building, which would occupy one of the best dune areas and the last uncommitted quarter-mile of natural shoreline in the county.

Northern Indiana Public Service Company wants its entire 641 acres deleted. They intend to construct a nuclear power plant in the area, and claim that the inclusion of at least some of these lands would jeopardize the license granted to them by the Atomic Energy Commission. That license, however, was recently revoked by the 7th Circuit U.S. Court of Appeals, largely because it was granted on the premise that the National Lakeshore could be used as a required buffer area for the atomic plant.

Over 65 witnesses testified in June, 1974, at hearings on expansion of the lakeshore held by the National Parks and Recreation Subcommittee of the House Interior Committee. Three-quarters of them favored full enlargement of the park as proposed by the Roush bill. The subcommittee reported the bill favorably to the full Interior Committee in October, but the lack of a quorum on three occasions kept the full Interior Committee from considering the bill before Congress adjourned.

This year. the House subcommittee held hearings early in May on both the Roush and Fithian bills; later that month the subcommittee conducted a field inspection of the area. At a July 15 session, amendments that attempt to strike a balance between the Roush and Fithian bills were to be offered by Representative John Seiberling (D.Ohio). The Sierra Club has expressed support for the Seiberling amendments, as have several other national environmental organizations.

These amendments would conserve approximately 200 acres of dunes and 100 acres of stream frontage out of the 900 acres excluded from the Fithian bill; in addition, the amendments would add a supplemental 500 acres of dunelands next to the lakeshore, in order to achieve a park enlargement of approximately the same size as that proposed by the Roush bill. It is expected that the steel companies will attempt to have further amendments introduced to delete areas included within the two bills. An Indiana Dunes expansion proposal in some form should reach the floor of the House this fall.

In the past, special interest groups have shown that they have the political clout to stymie attempts to complete the Indiana Dunes National Lakeshore. If this happens again this year, then the bulldozer may effectively preclude any opportunity for the park's potential to be fully realized. The dunes are a national treasure of incomparable value, and the strong support of individuals nationwide will be necessary to ensure their preservation.

Patricia S. Record

Alaska: The Ultimate Test

RUNNING ON A PLATFORM of environmental protection and careful management of Alaska's economic growth, Jay Hammond achieved the greatest upset of the state's political history. Now, six months into his term as governor, his record includes numerous excellent positions on major environmental conflicts.

On oil and gas development, for example, Hammond has said he may sue over the Interior Department's planned sale this year in the Gulf of Alaska, environmentally the riskiest of all the U.S. Outer Continental Shelf (OCS) areas, unless Interior delays the sale until coastal-zone planning and environmental studies can be completed. He also is working to revoke oil and gas leases made in fisheries-rich Kachemak Bay by the previous state administration. His administration's environmental impact analysis of proposed leasing of state offshore lands in the Beaufort Sea cautions against leasing now, given the hazards to this unique ice-bound ecosystem. (This "environmental assessment" is itself a major innovation—one not required by state law.) His support for a tax on proven oil reserves, recently enacted by the state legislature, will yield revenue that should allow the state to meet its expenditures until the Alaska oil pipeline royalties begin in 1977, and to undertake coastal-zone planning and environmental studies for state submerged lands.

Hammond is also opposed to the Arctic Gas consortium's intent to route a natural-gas pipeline from Prudhoe Bay across the Arctic National Wildlife Range. His administration is headed toward a showdown with the timber industry and Forest Service over mismanagement of the Tongass National Forest. The governor rejected Interior's proposed network of oil and gas pipeline corridors covering the entire state. The state's twenty-year highway plan, a network of roads crisscrossing the state, is being re-evaluated by the commissioner of highways, an expert on transportation.

There have been some temporary setbacks. The state legislature rejected Hammond's top-priority coastal-zone management and department-of-transportation bills, and the governor's handling of the aerial wolf-hunting issue has disappointed many of his most enthusiastic supporters.

The administration's strong coastal-zone management proposal was scuttled by municipalities, by the oil and gas lobby, and, most notably, by native regional corporations who will ultimately own thousands of miles of Alaska's coastline. These corporations are currently engaged in joint ventures with the major oil and gas companies for exploration and development of potential petroleum reserves.

As good as the governor's record has been thus far, he faces his ultimate test this summer when he must decide what position to take on the national-interest lands issue now before Congress. An administration task force is preparing options, and Hammond is expected to make his decision soon, so that a state bill can be introduced before the August inspection trips by the Senate and House Interior Committees.

Options being considered center on two key features: the amount of national-interest acreage that will be recommended for the highest degree of protection in the National Park, Wildlife Refuge, and Wild Rivers Systems; and the role of a proposed federal-state commission in the cooperative management of buffer areas (some state-owned) surrounding the "core" acreage in the three conservation systems. Since the need for cooperative land-use planning for the buffer areas is assumed by everyone—the Interior Department's d-2 bill as well as the one supported by conservation groups both incorporate such mechanisms—the real issue is how large the three systems' core areas should be. Opinions range from the minimal 14 million acres (mostly ice-clad) in the Forest Service's bill, through Interior's 64 million acres, to the 106 million acres in the conservationists' bill.

Within the Hammond administration, one faction favors a state d-2 bill that maximizes the power of the cooperative management commission and gives most of the small core areas to the Forest Service and the Bureau of Land Management. Most conservationists within the administration propose large core areas in the three systems and are wary of a commission dominated by developers empowered to classify and regulate d-2 lands.

Hammond is known to favor strongly both cooperative management and planning of federal and state lands, and the protection of lands whose primary use is for fish and wildlife habitat. The question now is how he will combine both concerns in a state bill featuring large core areas in the three systems, plus an effective mechanism for cooperative planning and management, oriented toward fulfilling, rather than subverting, conservation goals.

Compared to the issue of national-interest lands, the positions his administration has taken, as good as they are, will be very small footnotes to U.S. conservation history. There is now a historic opportunity to preserve permanently in public ownership scores of millions of acres of unspoiled Alaska. Governor Hammond's vigorous support for this effort in Congress is essential.

Jack Hession

NEWS VIEW

Ford lifts poison ban

On July 18, after a recent recommendation from the Domestic Council, President Ford amended the 1972 executive order banning predator poisons on the public lands. The new order will allow for "experimental" use of sodium cyanide (formerly only "emergency" use was authorized) for one year. During that time, research involving the use of toxic collars will be conducted on the public lands under the auspices of EPA. The collars will be placed around the necks of tethered sheep and are billed as predator selective since only those animals who attack the sheep will be poisoned. It is theorized that coyotes will be more prone to attacking these tethered animals, thus protecting the flock. In a separate action two days before the President's announcement, the Environmental Protection Agency published its intention to hold formal administrative hearings in Washington, D.C., on August 12-15, to determine whether there is sufficient new evidence to warrant modifying its March, 1972, order cancelling and suspending registrations of sodium cyanide for predator control. The hearings were prompted by the receipt on July 7 of an application from the Department of the Interior to register sodium cyanide capsules in the M-44, a spring-loaded ejector unit used against coyotes and other livestock predators.

Paul Swatek appointed associate conservation director for club

Paul Swatek, treasurer of the Sierra Club for the past two years, has been named associate conservation director, filling the vacancy left by Larry E. Moss, who resigned his position to become deputy resources director for the state of California. Swatek, former chairman of the New England Chapter of the club, has been working professionally in the environmental field since 1970. As director of environmental affairs for the Massachusetts Audubon Society, he has been deeply involved in issues affecting energy policy, transportation policy and wetland protection. He is the author of *The User's Guide to the Protection of the Environment*. Swatek resigned his post on the board of directors to accept this staff position.

Federal report blasts timber-industry practices

In one of the most damaging indictments of poor timber-management practices by the private forest-products industry ever issued, a prestigious Library of Congress report warned that timber lands, including national forest lands, in the Pacific Northwest are being liquidated much faster than they are growing back. The report, prepared by the Library of Congress Congressional Research Service at the request of Representative James Weaver (D-Oregon), revealed that in Oregon the private timber companies are cutting their forests *five times faster* than they are growing back, and in Washington *over twice as fast*. At this rate, according to Robert Wolff of the Library, Oregon's existing private timber lands will last only seventeen years and Washington's only twenty-three years. According to the report, this fact increases the need for restrictive log-export legislation, so that the scarce remaining timber reserves will not be shipped overseas.

Hathaway—in and out

On July 25, after little over a month in office, Secretary of the Interior Stanley K. Hathaway submitted his resignation. In a press release announcing his decision, the former Wyoming governor stated that his action was in the best interests of the nation since, according to his doctors, he would not be able to perform his duties as secretary for some time to come. Hathaway entered Bethesda Naval Hospital on July 15 suffering from depression, physical exhaustion, and diabetes. The Senate approved Hathaway's nomination on June 13, after a difficult confirmation battle in which his com-

mitment to the environment—especially his development-at-all-costs approach to energy problems—was seriously questioned by conservationists. Although he was confirmed, the strength of the environmentalists' position was reflected in the 60-36 vote. Such opposition to a cabinet appointment is most unusual. Hopefully, President Ford will keep this in mind when making his next nomination, and choose a man who can administer the Interior Department's programs with the highest degree of responsibility toward the environment.

The National Park Service gets the message—keep Yosemite wild

The message from citizens who spoke at forty-three Yosemite National Park Master Plan workshops throughout the state of California and in seven major cities nationwide was clear—Yosemite must be preserved. The National Park Service conducted these workshops to elicit public comment on the formulation of a master plan for the park. Individuals, as well as representatives of the Sierra Club and other environmental organizations, consistently called for reduction of urbanized development in Yosemite Valley and criticized efforts of the concessionaire to promote commercialization of the park. Speakers also called for wilderness designation for much of the area surrounding the Valley.

Estimates of OCS oil revised downward by USGS

After three unsuccessful attempts by Congress to override Presidential vetoes, another confrontation appears in the offing over legislation to update the laws governing oil exploration and development on the outer continental shelf (OCS). Bills now before both the House and the Senate would considerably revise OCS leasing procedures, though none in its present form embodies all of the changes that environmentalists would like to see. The Administration opposes all new legislation, and Commerce Secretary Rogers C. B. Morton said that the legislation would simply create more delays in providing energy.

The new legislation would give the Coast Guard authority to enforce OCS regulations. The present practice is to allow the Department of the Interior to both lease the lands *and* to issue and enforce regulations to be carried out by oil companies pursuant to the lease agreement. Taken together, the bills contain other significant features approved by environmentalists—the partial separation of federal responsibility for overseeing the exploration and development aspects of OCS operations, the initiation of a federal exploration program, the provision of a greater role for the National Oceanic and Atmospheric Administration in developing "baseline" studies, an increase in the degree of state participation in the leasing process, and mechanisms to lessen the potential impact of offshore oil activities.

EIS required for Great Plains strip mines

The Department of the Interior and eight federal agencies must consider preparing an environmental impact statement (EIS) for strip mines and related energy developments in the Northern Great Plains, according to a decision issued on June 16 by the district court of appeals in Washington, D.C., in a suit brought by the Sierra Club and the National Wildlife Federation. Although the court did not require that the statement be prepared immediately (thus letting the agencies decide when the time is "ripe"), it did uphold the plaintiffs' contention that the energy-development program outlined by the government for the Northern Great Plains, including strip mining over 900 square miles of land and construction of more than forty coal-fired power plants, constitutes a major federal action and therefore requires an impact statement under the terms of the National Environmental Protection Act. The agencies must report back to the court when a decision is reached on preparing the statement. A temporary injunction prohibiting approval of mining plans and railroad rights-of-way remains in effect until the environmental groups have an opportunity to respond to the government's decision.

Federal court requires EIS on annual budget for wildlife refuges

A recent court decision will require, for the first time, an environmental impact statement (EIS) on a federal annual budget proposal. Judge John Pratt, of the Washington, D.C., Federal District Court, accepted virtually all arguments of the Sierra Club and the National Parks and Conservation Association (NPCA) regarding the need to file an EIS on the annual budget for the National Wildlife Refuge System, which is administered by the U.S. Fish and Wildlife Service. In addition, the judge required the Office of Management and Budget to comply with the National Environmental Policy Act in issuing their own regulations for preparing, considering, and disseminating impact statements. "It goes without saying," Judge Pratt said in his decision, "that budget decisions have a direct bearing on how the refuge system will be staffed, managed, and maintained."

KAIPAROWITS (*Cont'd from page 8*)

- Transmission lines to carry power to California and Arizona stretch 1,443 miles, and will require 5,300 steel towers 140 feet high, 12 new microwave radio relay stations, and 1,500 miles of permanent access roads.
- Limestone is required for the SO_2 scrubber system and mine-rock dusting. A quarry is located 16 miles northwest of Bryce Canyon National Park. An estimated 237,000 tons per year are needed, transported to the plant by 25-ton trucks requiring some 30 trips per day through the national park.

The preliminary Environmental Impact Statement (EIS) on the Kaiparowits, prepared by the Bureau of Land Management (BLM), is almost ready to be sent to the bureau director. A final decision from the Secretary of the Interior is anticipated by January, 1976.

The following statement on the effects of air pollution as a result of the Kaiparowits project is from the preliminary EIS:

> By far the most severe impact in the study area and conceivably to the entire region is the visual pollution created by smoke and other airborne particulates emitted from the plant. In spite of the great effort put forth at the Navajo plant to reduce these emissions, there is a definite plume or dark cloud drifting on a horizontal plane for many miles from just the one generator unit. When the two remaining units at the Navajo plant are operational, a permanent haze could be created which would significantly reduce visibility and have a devastating effect on the sky-landscape relationship as well as obscuring many of the geologic formations which are important for the total scene of this area. If this visual pollution consistently drifts into the nationally and internationally important scenic areas such as Grand Canyon, Rainbow Bridge, Lake Powell, Zion Canyon, Bryce, Arches, Canyonlands, etc., the effect on the panoramic viewing values could be catastrophic. . . . There is enough evidence from the one unit operating at the Navajo plant and the units operating at the Four Corners plants to cause grave doubts on the capability of clearing up the emissions to a point where they will not have a serious adverse visual effect.

The Kaiparowits EIS also indicates that an estimated $230,000 per year in damages could be incurred by users of the lower Colorado for each milligram-per-liter increase in river salinity. A projected population increase of 15,000 people in Kane County could cause increased off-road vehicle, hunting, and fishing activity, the statement says. "An estimated increase of 13,700 man days of hunting, 15,000 of fishing, and 40,000 of off-road vehicle use could be expected within a 100-mile radius of the new town site."

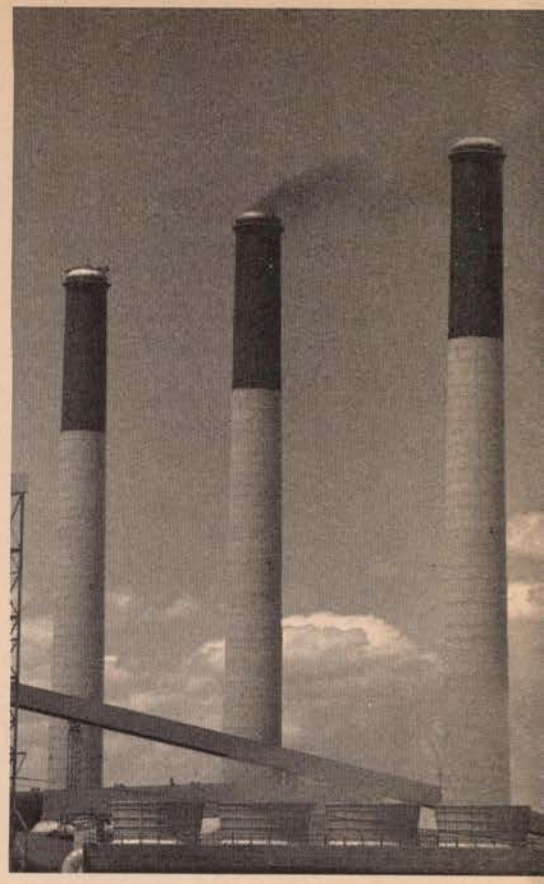
The document adds that a proposal for a system of all-weather roads could "essentially ruin the [Kaiparowits] area for back-country type recreation use." It says, "There would be the danger that mercury discharged by the project, added to the naturally high mercury level of the Colorado River and mercury from the Navajo plant, could jeopardize the sport fishery of Lake Powell by mercury contamination in game fish."

Design vs. Operating Efficiency

Environmental controversies increasingly seem to resolve themselves into disputes over numbers, a quick thrust and parry with statistics that can leave the layman bewildered if not necessarily wounded. Among the more misleading figures cluttering up the arena in which battles like the one over the Kaiparowits plant are being fought are those concerning the design efficiency of pollution-control equipment. "Our equipment," say the company PR men, "is designed to remove 99.5 percent of the fly ash, and 90 percent of the SO_2." What they don't say is that the equipment cannot and will not operate at design efficiency except for short periods of time under ideal conditions.

Although estimates vary, most engineers seem to agree that a precipitator rated at 99.5-percent efficiency will probably operate over a long period of time at about 97-percent efficiency. Is 97-percent versus 99.5-percent efficiency a significant difference? Yes, it is, for Kaiparowits will emit roughly 12 tons of fly ash per day at 99.5-percent removal. At 97-percent efficiency, it would emit *six times* that amount, or 72 tons per day. There's many such a slip between the engineer's slide rule and the flashing strobe light on top of the 600-foot smokestack.

So much emphasis is given to emission control that another serious aspect of coal-fired power plants is often overlooked—disposal of waste material. What happens to the fly ash caught by the precipitators, and the limestone sludge from the wet scrubbers? Kaiparowits would produce about 2,400 tons of fly ash and 310 tons of limestone sludge every day.



Where would it go? First into a nearby canyon, and from there eventually to Lake Powell, Jewel of the Colorado. What might Lake Powell look like after an enormous flash flood, commonly called the 100-year flood, washed the gunk into its waters? "It can't happen," say the designers. But designers said the Titanic couldn't sink.

Planning for the Energy Boom

Any planning done for absorbing the energy boom has been totally in an isolationist mode—impacts of power plants, mines, roads, ash-disposal areas, quarries, gravel pits, new cities, and increase in the populations of small towns—and is being done for one plant at a time, rather than by considering the cumulative effect of plant after plant after plant on the entire Colorado Plateau and surrounding area.

A state land-use planning referendum, which called for a study but provided no enforcement authority, was defeated in Utah in 1974. Burt Carl-

son, state planning coordinator, and chief energy and planning advisor Calvin Rampton say, "Utah is having to decide what it is going to be. There is a strong conservative element in the state that says it is going to come out all right. There are others of us who dispute this—it isn't just Kaiparowits; it's the whole blooming state. People don't understand what that means. We have been promoting growth for God knows how long—the question is, can we control the growth?"

Although an attempt has been made to plan for the sudden influx of people that will occur in southern Utah when the plants and mines are under way, such planning has been restricted largely to questions of providing essential facilities. Little attention has been paid to the equally important social and cultural conflicts that may occur when a large, urban-oriented labor force is thrust suddenly in the midst of southern Utah's devoutly Mormon rural communities. Few people realize how soon it will happen or the magnitude of the problem when it does, but some local residents already have misgivings about what the arrival of thousands of people will do to the traditional values and lifestyle of the region.

What Kane County can expect if the Kaiparowits project goes through is already evident in Rock Springs, Wyoming, site of the Jim Bridger plant. The population has doubled. Caseloads at the county mental health facility in Rock Springs have increased tenfold in the past five years. Emergency hospital room admissions are up 333 percent. Since the boom began, the Rock Springs Police Department has experienced an increase from 8,800 calls a year in 1970 to over 36,000 calls last year. Major crime, including rape and armed robbery, have skyrocketed.

While some local merchants applaud the increase in business, others wish they didn't have to compete with big industry wages to attract workers. Even Growth-at-Any-Cost Stanley Hathaway, former Wyoming Governor and until recently Secretary of the Interior, noticed the Rock Springs problem. It was "too much too fast," Hathaway admitted. "Once you prime the pump of free enterprise, it doesn't stop where you want."

Gillette and Hanna, Wyoming; Colstrip and Lame Deer, Montana; and, to a lesser extent, Page, Arizona—these places all echo the experiences of Rock Springs. And so, we must assume, will Kane County, Utah, if the Kaiparowits project becomes a physical reality. For the problems that accompany the transformation overnight of an isolated rural community to a small suburb can only be slightly moderated by advance planning; time is far too short in such instances to do more than merely recognize the possibility of a wound and get the bandages ready. Given the lack of foresight and experience of local politicians and planners in dealing with such problems, given their unwillingness to accept state and regional assistance in planning, and given the fact that they are, for the most part, spoon-fed data by the developers themselves, any hope that the experience of Kaiparowits City will differ substantially from that of Rock Springs is futile.

Site of probably more energy resources than any other state, Utah's planned coal-fired power plants will outnumber and outsize those of all other southwestern states combined. Ironically, southern Utah contains more national parks and monuments than any other area in the nation. Spurred by visions of wealth, Utah's provincial elected officials are actively wooing the powerful developers—a romance that many foresee will be fraught with ugliness and court fights which will eventually lead only to southern Utah's physical and moral degradation. In effect the Colorado Plateau, with all its national parks and scenic areas, has been zoned "industrial."

Despite the evident social and environmental problems that are bound to follow hot on the heels of the power plants, Utah politicians seem to be bending over backward to attract the power industry to the state. Environmentalists, of course, would prefer that they forget the whole thing, but as long as the politicians are intent on industrializing southern Utah, at least they could exercise some enlightened self-interest on the taxpayers' behalf. But unlike some neighboring states, Utah is not asking the power companies to foot the costs associated with the development of plants and mines. Instead, in an energy bill package passed in the 1975 Utah legislature, the power companies were required only to *prepay* specified taxes, which would be used to construct various support facilities prior to the actual construction of the power plants. The companies could then write off these tax payments at a later date when the power plants were completed and generating both electricity and income. Utah politicians don't seem to realize that they have the power companies at a disadvantage: that they have the resources and are in an excellent position to make the companies pay for them. As it is, they have chosen to finance the destruction of southern Utah themselves.

If Utah's legislature is intent on opening up the Colorado Plateau to coal mines and power plants, it could at least watch out for the interests of its constituency to the extent of imposing a minimal set of requirements on any power company intent on doing business in the state. A suitable letter from the state might read as follows:

> Dear Power Company:
> Greetings. We are delighted to inform you that the Governor of Utah and other elected officials have unanimously agreed to accept your proposal for coal-fired power plants in southern Utah, providing: (1) you guarantee pollution site emissions controls as stringent as those in force at the most restrictive location at which the exported electricity will be used; (2) you agree to deposit immediately with the state funds that will pay for all planning and utility development, etc., as specified by the State Planning Department, as an outright grant with no rebate; (3) you agree that all coal will be deep mined; no stripmining; (4) you establish a bond of $1 billion for each plant, non-returnable, for cleanup of unavoidable damage to the state and its residents resulting during the 35-year lifetime of the power plant; (5) you provide $250 million to the state for welfare costs when the plant closes down and the tax base of the state is removed.
> P.S. If you would now like to build your plant in Los Angeles, we will be happy to ship you the coal at a reasonable cost.

The question of who pays the bills is intriguing for what it reveals about the attitudes of Utah's politicians, but is one that environmentalists are hoping to avoid having to ask at all. For no matter who pays, it will not be enough. The great parks of southern Utah are not merely the property of the state legislature or even of local residents, but of the entire American public—they are *national* parks and *national* monuments. What's more, these vast mesas and slickrock canyons are unique and ultimately are part of what one generation of humankind should bequeath the next—intact. ●

Can Quotas Save the Whales?

JUANITA WINT

THE INTERNATIONAL Whaling Commission (IWC) ended its annual meeting in London on June 27 with what appears on the surface to be a reasonable strategy for saving whales from inevitable destruction. The "New Management Procedure" establishes three management categories for whales:

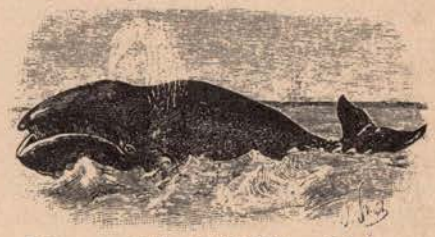
1) *initial-management stocks,* which can be reduced within certain prescribed limits. (These are stocks whose populations are above maximum sustainable yield—MSY—which is defined as the point at which a balance is struck in an exploited stock between the rate of reproduction and rate of fishing. Up to a point, this is achieved through a population dynamic in which the rate of reproduction increases as compensation for fishing mortality.)

2) *sustained-management stocks,* whose populations are hovering at or near MSY; and

3) *protected stocks,* whose populations are now below MSY and off-limits to fishing. A population would drop into the protected category if it were to fall ten percent or more of MSY below MSY. The Japanese wanted this figure set at twenty percent but were defeated.

Other notable IWC actions included the division of the Antarctic into six management areas, an increase over the three areas established last year. The idea here is that the more management areas there are, the less likely it is that individual stocks will be decimated. Also, for the first time, kill quotas were set for *all* the world's oceans. Finally, the IWC decided that an initial-management stock could not be fished until satisfactory research on whale population levels had been done.

Sustained-management stocks were identified, and quotas set for fin, minke, sperm, sei, and Bryde whales, based for the most part on the recommendations of the IWC's scientific committee, which met in December in La Jolla, California. (Other "great" whales—the blue, bowhead, right, humpback and gray—have been totally protected for some years, but only achieved this status after the industry had driven them to commercial, and possibly biological, extinction.) The total quota for 1974-75 was 37,300 animals. For the 1975-76 season, the total is 32,578, some 4,700 less than last season. The actual reduction in animal deaths will be around 8,500, however, as there were no quotas previously for the North Atlantic, or for the land-based whaling stations on the Brazilian and South African coasts. If we add kill figures from these formerly omitted areas to last year's quota, the total, 41,115, is a more realistic figure with which to compare this year's quota.



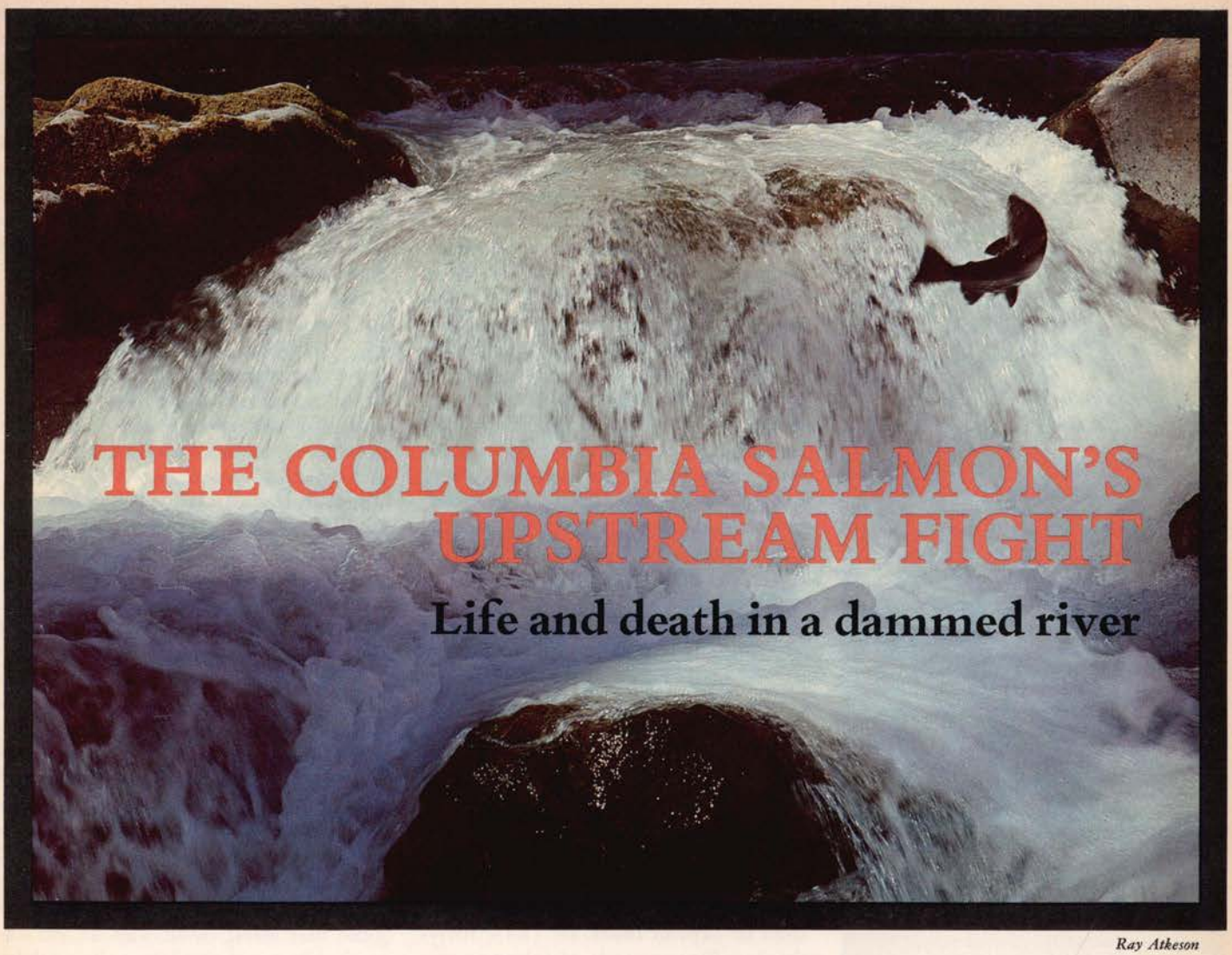
Japan and the U.S.S.R., which conduct most of the world's whaling, voted against many of these individual measures, but did not object formally. They have ninety days to do so and if they do object, they will not be bound by the IWC's rulings. The Japanese did not bring up the subject of harvesting gray whales, as it was previously rumored.

So, taking all this "good news" into account, where are we? Or, rather, where are the whales? Conservationists, the United States government, and the United Nations have for years advocated a ten-year moratorium on whale killing—a time to gather data and allow populations to recover. The Sierra Club and other environmental organizations have been boycotting Japanese and Soviet products to this end. We did not get a moratorium. In fact, it was not even on the agenda. So for those who believe that the killing of whales must stop, even temporarily, the meeting was a failure. What we did get was a mechanism that will allow the killing of whales to continue while, in theory, protecting them from extinction. For those who believe in "management" of species, this sounds good. Claims by some, however, that this system will make it "virtually impossible for any whale stock again to be threatened with extinction" seem a bit too optimistic. The mechanism may be sound, but the base upon which it is founded is extremely shaky. The problem is that all these statistics may be based on faulty population data and possibly erroneous assumptions concerning population dynamics. The population statistics are little more than guesses. Furthermore, the raw data are provided by the whalers. The IWC claims that more work is planned for this area, but will it really be done? And done *in time?*

The new quota model assumes that stocks now depleted, or which may become depleted, will revitalize under this system—we don't know that. The only whale species ever to recover from near-extinction is the gray. Whether or not the others can or will recover remains to be seen. Another serious problem is enforcement—there isn't any. The IWC does have an observer program of sorts—Japanese observers on Russian boats, Russian observers on Japanese boats. And if either country raises a formal objection to the IWC ruling, it is not bound by the agreement at all. But if Japan were to object, a possible U.S. embargo of its fisheries products, under the Pelly Amendment, would be more disastrous economically than the loss of its entire whaling industry.

At this point, it can hardly be claimed that the IWC has struck any great blows for whale conservation. It was established as, and has continually proved itself to be, an arm of the industry. Further, the MSY concept may turn out to be merely a fancy name for killing the maximum whales possible without arousing public protest.

So the question becomes, shall we continue to fight for a moratorium? Shall we continue the boycott? The answer is yes. If we truly want to save the whales, we have no choice. We can hope that the current trends at the IWC will continue; we can hope for better population data; we can hope that the new system will work; we can even work with them to make the best of the political realities of the present situation—but we must not lose sight of the goal. We must not allow ourselves to become so occupied with mechanisms and statistics that, while our heads are turned, the whales vanish. ●



THE COLUMBIA SALMON'S UPSTREAM FIGHT

Life and death in a dammed river

Ray Atkeson

ANTHONY NETBOY

THE COLUMBIA RIVER, which drains an area of 250,000 square miles (2½ times the size of Oregon), was originally one of the richest salmon and steelhead trout rivers in the world. Such prolific sources of food, obtained with very little effort in the teeming rivers, provided the Indians in Northern California, the Pacific Northwest, British Columbia, and Alaska with the staple of their diet.

When the first white men, such as Lewis and Clark, explored the Columbia, they were astonished at the wealth of the rivers. Salmon in numbers beyond counting ran up nearly all the hundreds of tributaries and subtributaries of the Columbia and Snake rivers, which drain large parts of Oregon, Washington, British Columbia, Idaho, Montana, and bits of Nevada and Utah. Some of these salmon streams are mere creeks that a tall man can step across without jumping.

The Indians regarded the salmon as supernatural beings and propitiated them with suitable rites and prayers. Salmon are anadromous fish: they are born in freshwater, where they spend from a few weeks to one or two years, depending on the species, then descend to the sea as fingerlings (or smolts) only a few inches long. There they wander for one or two years, sometimes more, over thousands of miles, growing fat on the rich nutriment of the ocean, and eventually return (by an uncanny means of navigation that is still a mystery to us) to their home streams to spawn.

The Indians believed that the fish that thronged the streams and returned with surprising regularity every year lived in a great house under the sea, where they went about in human form, feasting and dancing like men. When the time would come for the run, they would dress in garments of salmon flesh and reappear in the rivers. Once dead, the spirit of each fish would return to the house beneath the sea. If its bones were returned to the water, the salmon spirit would resume his human form with no discomfort and would return in the spring, summer, or fall, at the appointed time.

This concept of a food god who comes back to earth every year to sacrifice himself for the benefit of mankind is a universal culture myth found among both sophisticated and unsophisticated societies. As a matter of fact, it has much in common with the Christ story, as it is interpreted by many scholars.

The Indians believed that since the salmon's migration was purely a voluntary act, it behooved human beings to be extremely careful not to offend them, for they could refuse to return. Among nearly all the Pacific Coast tribes, the taking of the first salmon

each year was celebrated with great ceremonies and restricted by various taboos; if the fish were to be taken in a weir, its construction was accompanied by rituals, religious chanting, prayers, and dances.

The white man comprehended neither the Indians' veneration of their food animals nor their innate sense of conservation, which was so well expressed to me by a Tlingit Indian in Sitka, Alaska, a grandson of a chief: "My father warned us," he said, "that we must never take out of the river more fish than we need. If we disobeyed this rule, we were sternly punished." He said that when he grew up he was amazed to see the white men waste tons of salmon, throwing them back into the sea, because the canneries could not handle them.

Large-scale fishing in the Columbia River began in 1866, when the brothers Hume and their partner Andrew Hapgood, who had built the world's first salmon cannery on a raft on the Sacramento River, went up to the Columbia and built a cannery at Eagle Cliff, on the Washington side of the river. By 1873, there were eight canneries on the river, and by 1883, a high of fifty-five was reached. Astoria was the center of the salmon industry, a title it did not hold very long, since the riches of the Alaskan rivers were soon discovered and a mad rush ensued to exploit them. In 1883, forty-three million pounds of salmon were taken from the Columbia and 630,000 cases of forty-eight one-pound cans were packed. This record was achieved again only once or twice.

What was Astoria like in those days? It was a bustling, polyglot wooden town, with far more men than women in it. Mont Hawthorne, a cannery foreman who started his career there in the bonanza year of 1883, tells us in his memoirs that Astoria was built on pilings, that "the streets were made like wooden bridges." Canneries lined the waterfront and close to them were the bunkhouses of the Chinese, who did most of the work. Chinatown was festooned with colorful lanterns and bright red streamers and looked like a miniature Hong Kong. There were plenty of saloons and brothels, and a certain amount of danger lurked in the streets.

When the canneries were in operation, Astoria exuded the sickly smell of dead fish. As there were no sewers or other means of disposing of the offal, it was thrown into the sea (and sometimes the river); when more fish were landed than the canneries could process, tons of salmon went there too. When the tide changed, the dead fish would drift back to shore, and bears would come out of the surrounding woods to feast on them. The Chinese worked in the canneries up to nineteen hours a day seven days a week, for fifteen dollars a month with board and lodging. Finns, Swedes, Indians and Americans did the fishing. The Chinese were recruited in their homeland by native labor contractors who brought them to the United States and dealt directly with the canners. This was the pattern of the industry up and down the Pacific Coast. Eventually, labor laws cut working hours down to twelve a day.

In time, labor-saving devices were introduced, notably a machine which removed the entrails, tails, and fins and prepared the fish for cutting and canning. It was appropriately, if by our standards insensitively, called the "Iron Chink." Later came automatic filling, vacuum sealing and labeling machines, so that by 1910 some 2,000 cases could be packed in ten hours for less than what 800 cases formerly cost.

Many men became rich on the Columbia as the fishery was intensively exploited. Every conceivable kind of gear was used, with almost no restraint by regulatory agencies. As the runs declined, some of the companies moved up to more lucrative areas—to Puget Sound, British Columbia, Alaska. The only company among the originals in Astoria still in existence is the Columbia River Packers Association, whose label, "Bumble Bee," became famous around the world. Despite overfishing, the Columbia River salmon runs held up fairly well for several decades. At first, only chinook, the largest species, weighing up to a hundred pounds, was taken, but as its stocks declined, canneries accepted all the other species—chum, sockeye, coho (called silvers), and steelhead trout.

Meanwhile, the Army Corps of Engineers and the Bureau of Reclamation (BuRec), looking for new waters to conquer, were making exhaustive studies of the Columbia River system and were planning to build multi-purpose dams at strategic places to produce electricity, impound water for irrigating arid lands, control

floods, and provide a navigation channel as far as Lewiston, Idaho, a feat that was accomplished only this year with the completion of Lower Granite Dam.

No dams were started, however, until President Franklin D. Roosevelt took office in 1933. He ordered the Corps, as an emergency public-works measure not requiring congressional approval, to build Bonneville Dam on the lower river, and the BuRec to build Grand Coulee on the upper river. Grand Coulee was to be the world's largest dam, too high to permit fish to be passed over it. So several hundred miles of prime salmon water, backing far up into British Columbia, would be blockaded to the migrating fish.

Earlier, when the Corps had released its designs for Bonneville dam, it was discovered that no plans had been made to get fish over this seventy-foot hurdle. When this apparent oversight was brought to the attention of the chief of the Corps, he was reported to have said, "We do not intend to play nursemaid to the fish!" One can imagine the hullabaloo this remark generated in the Pacific Northwest. Had this arrogant attitude prevailed, the entire salmon and steelhead resource above Bonneville would have been wiped out at a stroke. As in many other instances, the Corps of Engineers had to bow to public opinion, and a team of biologists and engineers was brought in to design the famous Bonneville fish ladders—the first time anywhere in the world that anadromous fish were helped successfully over a major dam. Thus began a new era in the history of the fishery—that of the dammed Columbia.

As the dams began to rise on the Columbia, the problem was, in simple terms, could we have fish and power too? The engineers assured us we could; the biologists as a whole were skeptical. When I first became interested in the salmon, in 1953, Harlan Holmes, a biologist who helped design the Bonneville fish ladders, said he did not think we should build any more dams on the Columbia if we wished to save the fishery. As an employee of the Bonneville Power Administration (BPA), the agency that markets the power from all the federal dams in the Pacific Northwest, I thought his attitude was strange. In the report I wrote for BPA on fish versus dams, which was published as a book in 1958, I concluded that with the technology available we could keep the fish runs at a high level even if we built the dozen dams the federal agencies and nonfederal utilities had on the drawing boards for the Columbia and its main tributary, the Snake River. Today, I am inclined to believe that Holmes was right.

The dams have risen fairly rapidly during the past twenty-five years, so that now there are only about fifty miles of free-flowing water in the Columbia River above Bonneville. On the Snake River, Idaho Power Company built three high dams in the 1950s and early 1960s, and the federal government, four. All the federal projects are equipped with fish ladders. Idaho Power Company's Brownlee Dam has a unique "skimmer" device designed to get the fish over the impoundment, but it has been a failure; the other company dams, Oxbow and Hell's Canyon, have no fish ladders and as compensation, the company built a hatchery to produce salmon for restocking the rivers.

Ray Atkeson

Running the Bonneville ladders

If you fly over the Columbia, you may be astonished to discover that it is no longer a brawling, fast-paced river, but rather a series of slackwater lakes. Salmon heading for their spawning grounds in northern Washington must climb nine dams with a cumulative elevation of some 900 feet in order to reach their home streams —and they will mate nowhere else. These fish are said to have enormous stamina, but the ordeal they must endure is fatal to a considerable proportion of the migrants. The juveniles, only a few inches long, have to descend as many dams on their way to the sea, going over the spillways or through the turbines where many are killed. Losses of both juveniles and adults are fairly high at each impoundment.

The fish once had the freedom of the river and could move with relative ease, even through such treacherous stretches as Celilo Falls. Here, the Columbia once flowed over the edge of a massive geologic formation and dropped into a long, narrow, steep chasm some eight miles long, consisting of protruding rocks, small islands, and rugged waterfalls. Here, the Indians had fished for centuries. Celilo Falls was drowned when the Dalles Dam was built in the 1950s.

Now that the rivers are dammed, water levels are determined by the hydrologists and engineers who work for the Corps of Engineers or the Bonneville Power Administration, which markets the energy. Fish have a low priority to these men. At BPA, where I worked, they usually regarded the salmon as nuisances that interfered with the production of "reddy kilowatts." As a result, water levels are too low at times for fish to migrate upstream. As more generators are installed at the power houses, this problem will be aggravated.

Moreover, the reservoirs confront migratory fish with other hazards. The increase of predators, such as the species called "squaw" fish, since the river has been converted into a series of lakes, has taken a heavy toll of young salmon. Worst of all, there is a dangerous supersaturation of nitrogen gas in the water because the long succession of pools no longer provides the current necessary for rapid release of dissolved gases. Fish moving in such waters are prone to bubble disease, which is similar to the "bends" in deepsea divers. Millions of juvenile and adult salmon and steelhead trout have been killed by bubble disease in recent years.

As an example of what nitrogen gas and other impediments to fish navigation have done, we may look at the Snake River runs. Before the dams were built, the return of chinook to their home streams averaged four percent of the smolts that went downstream, but by 1973, less than one-half of one percent were coming back. Steelhead used to return at the rate of six to seven percent, but by 1973, less than one-third of one percent were returning, thus presaging the disas-

trous fishing seasons of 1974 and 1975. It was estimated, for example, that in 1972, out of five million salmon and steelhead smolts leaving the Snake River, only 500,000 reached the sea. Since only a tiny fraction of the fish who eventually reach the Pacific come back a few years later to spawn, there were obviously not many adult salmon and steelhead in 1974 and 1975.

Costly emergency measures have been taken in an effort to halt the decimation of the runs. Slotted bulkheads, called "flip-lips," were installed by the Corps of Engineers at some of the dams as a means of lowering the levels of dissolved nitrogen, but apparently they did not work. The next step was to trap the young fish as they reached the dams and to truck them some 350 miles around the dangerous reservoirs. This year, more than one million young steelhead and salmon were hauled around Snake and Columbia River dams and released below Bonneville. The National Marine Fisheries Service, which handles this program, believes that it "should prove a major factor in preserving the Snake steelhead run until other fish immigration problems have been resolved."

Overfishing in the early days of the fishery, dams, pollution of some rivers like the Willamette, destructive logging, grazing, and farming practices that precipitate the flow of silt into the rivers—all combined to produce a sharp decline in catches from the time Bonneville Dam was completed, in 1938, to about 1960. Two species, once plentiful—chum and sockeye salmon—had by 1960 virtually disappeared; commercial catches of chinook dropped from twenty million pounds or more per year in the 1920s to less than five million pounds in the early 1960s; coho catches fell from around five million pounds in the 1920s to a few hundred thousand pounds in the late 1950s—in 1960, only 16,000 coho were caught! By 1960, there were eight canneries left on the Columbia, and their pack was less than 100,000 cases a year, compared with 440,000 cases two decades earlier.

To compensate for the destructive effects of the dams, Congress created in 1946 a broad-scale and well-funded Columbia River Fishery Development Program. It includes: (1) a massive artificial propagation program; (2) removal of stream obstructions in order to permit fish to migrate; (3) screening of water diversions (for irrigation) and construction of fishways at waterfalls; and (4) transplantation of races living in the upper watershed to downstream areas.

The results of this expensive undertaking began to be seen by the middle 1960s, chiefly in the remarkable breakthrough in artificial breeding of coho, steelhead trout and, to a lesser extent, chinook salmon. There had been hatcheries on the Columbia since the late 1880s, but they apparently contributed relatively little to the resource until a new type of feed, the Oregon moist pellet, was developed in the 1950s by scientists of Oregon State University and the Oregon Fish Commission. This new feed produced stronger fish that were better able to cope with adverse manmade conditions in the rivers and seemed to fare better in the ocean. Pellet feeding is now standard in salmon and trout

hatcheries all over the world.

Around 100 million smolts are now released annually into the Columbia River system. In fact, a large proportion of the Columbia River coho and chinook caught in freshwater as well as along the Pacific coast, from San Francisco Bay to southeastern Alaska, are the products of hatcheries in Oregon, Washington, and Idaho. Coho reared in rivers feeding the Great Lakes originally came from eggs brought from Oregon.

Coho catches jumped sensationally beginning with the late 1960s; fall chinook also increased, while the spring and summer runs of these fish barely held their own or declined. This year and last, so few spring and summer chinook returned to the river that fishing for them was prohibited. Incidentally, since the majority of coho spawn in rivers below Bonneville, they are not in so great danger from bubble disease, pollution, and other manmade adversities as are those species which spawn above Bonneville.

The expenditure of some $300 million by the federal government, and perhaps as much as $75 million by nonfederal utilities and the states, for fish ladders at the dams, hatcheries, research, transporting juvenile fishes around dams, flip-lips, stream clearance, and so on, brought the decline of the Columbia River fisheries to a halt about a decade ago. Without this massive infusion of money, it is doubtful there would be many anadromous fish left in the watershed. (A statement I once made at a meeting that probably every salmon taken out of the Columbia River may be worth its weight in gold was not seriously challenged by the engineers present.)

The appearance of bubble disease in recent years has dampened the optimism of fishery biologists and, like many other people, they wonder if we can develop all the power potential of the Columbia and have fish too. In short, the outlook is not as bright as it was, say, only five years ago, as I have noted when attending save-the-salmon meetings held from time to time by high-level officials.

I think the time has come, therefore, to reassess our values in developing our salmon rivers. Americans destroyed the Atlantic salmon runs in New England, and efforts to restore them, at a cost of many millions of dollars, have so far been a failure. We must prevent the Columbia River resource, now sliding downhill again, from going the same way. To reverse this trend, we must give a higher priority to the fish in the use of the waters.

About thirty percent of all the power generated at the federal dams is sold to the aluminum industry, which provides relatively few jobs, pollutes the environment, and is in the West only because it can buy power here at bargain-basement rates. Its raw material must be brought all the way from the West Indies. An aluminum smelter with four or more potlines may use as much electricity as a city the size of Tacoma, Washington! Many people feel that the price paid for development of our rivers is too high, not only in the loss of food and sport fish but in environmental deterioration by power-using industries. For instance, the salmon runs of the Willamette River were drastically reduced by pulp-mill pollution and raw-sewage disposal until state and federal laws forced both municipalities and industries to keep their wastes out of the water.

We should, I think, look ahead and prevent certain conditions from occurring which would further reduce the wealth of our rivers. If more nuclear plants are built, like Trojan, which is now rising at Rainier, Oregon, the possibility of massive fish kills increases, especially in case of an accident that would discharge lethal poisons into the water. No nation except France has so far been foolish enough to build nuclear plants on productive salmon rivers. Further, we should prevent any utility from acquiring the right to harness the last free-flowing waters of the Columbia or dam that magnificent portion of the Snake River, below its confluence with the Salmon River, which has long been eyed by the dam builders. Some day, perhaps, society in its wisdom may decide that it needs a valuable renewable resource like the salmon more than additional power which is wantonly used. It is even conceivable that some of the marginal dams, as on the Snake, may one day be destroyed in order to increase our salmon populations.

Anthony Netboy's recent book, The Salmon: Their Fight for Survival, *is the definitive treatment of the contemporary plight of the salmon.*

MARSHALL KUHN

The Sierra Club...

Remembering the Early Years

ON JUNE 4, 1892, twenty-seven men gathered in the office of Attorney Warren Olney at 101 Sansome Street, San Francisco, to sign the Articles of Incorporation of the Sierra Club.

Article III stated that the purposes of the club were "To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and cooperation of the people and the government in preserving the forests and other natural features of the Sierra Nevada Mountains."

The charter membership totaled 182 and included many faculty members from the University of California, Mills College, and the newly formed Stanford University, along with numerous men prominent in the business and cultural life of San Francisco. One of the few female charter members was Wanda Muir, whose father, John, was elected president, a position he held until his death in 1914.

To understand why the club was organized at this particular time, we must go back to the 1850's and 1860's when the newly discovered Yosemite Valley was fast becoming a tourist attraction. Its scenic marvels were such that protective legislation was introduced in Congress and signed by President Lincoln in 1864, ceding the federally owned Yosemite Valley and the Mariposa Big Trees Grove to the state of California to become its first state park. The park was managed, or mis-managed, depending upon one's point of view, by a board of commissioners, over which the governor presided.

Early photographs of Yosemite Valley reveal the presence of several hotels as well as a mill, farms and other developments which some sensitive observers at the time felt were out of place.

Other portions of the Sierra Nevada also were being explored during these and later decades, both by those who reveled in their natural beauty, and by those intent on commercial exploitation. The latter were principally sheepmen, cattlemen, lumbermen, and mining prospectors. To denude this land of its trees and other vegetation by lumbering or grazing would have destroyed the watershed that provided the fundamental irrigation system of the Central Valley, soon to be the world's most productive fruit orchard and vegetable garden.

Thus, in 1890, efforts of pioneer conservationists resulted in two congressional acts, which were signed by President Benjamin Harrison within five days of each other. The first bill established Sequoia National Park and General Grant National Monument. The second bill expanded Sequoia and established Yosemite National Park, which encircled the state-controlled Yosemite Valley and Mariposa Big Trees Grove. In 1891, the Forest Reserves Act—the forebear of the national forests—became law.

For a number of years, there had been increasing sentiment favoring the formation of a voluntary group of citizens committed to the preservation of California's mountain heritage. The

incorporation of the Sierra Club in 1892 was a logical consequence.

The club immediately became involved in defeating a proposal in Congress that would have reduced drastically the size of Yosemite National Park, then just two years old. It became readily apparent that the club would not only have to contend with commercial interests but also with all levels of the government itself, if its purposes were to be achieved. The following year, the "Sierra Forest Reserves," which had been advocated by the club, were established, covering much of the area between Sequoia and Yosemite. The next successful "battle" culminated in 1905, when the state legislature voted to cede Yosemite Valley and Mariposa Big Trees Grove back to the federal government, an action which was accepted by Congress the following year.

The club's final major legislative fight during this early period was to become its most famous: this was the battle over the Hetch Hetchy Valley. Formed by the Tuolumne River and scoured by an ancient glacier, the Hetch Hetchy lay entirely within the boundaries of Yosemite National Park, and though less known than Yosemite Valley, rivaled it in beauty. The city of San Francisco wanted to dam the Tuolumne, thereby flooding Hetch Hetchy, in order to provide water for a growing population, and was lobbying Congress for legislation that would authorize the dam. The club opposed the project and fought back vigorously—but to no avail. The

battle lasted twelve years and ended in bitter defeat when, in 1913, San Francisco got its dam. In the course of this battle, the Sierra Club achieved its first national recognition and an historical relationship between Yosemite and the Club—one which lasts until this day—was begun.

John Muir died the following year, closing an era in the club's history. During this first 22 years, the club had consistently supported the creation of national forests and parks and had urged the preservation of coastal redwoods at Big Basin and the giant sequoias at Calaveras Big Trees.

To serve its increasing membership, the club maintained a downtown office in San Francisco, began publishing the *Sierra Club Bulletin* in 1893, produced maps of the Sierra regions, devoted much effort to mountaineering, and placed climbing registers on the summits of scores of peaks.

Club Outings

John Muir's spiritual successor was William E. Colby, who served the club in many capacities for six decades. He organized and led the first annual outing in 1901, held at Yosemite Valley and Tuolumne Meadows. In 1902, the outing was in the Kings River region; the following year, at the Kern River. In 1905, the outing was for the first time held outside California, with an ascent of Mount Rainier.

The charming photographs which accompany this article portray these early outings which had far more participants than any individual outing today. In 1903, for example, outing participants totaled 210, almost one-third of the club's 663 members. One hundred and thirty-nine of them made the ascent of Mt. Whitney.

While the hiking and climbing were about the same as now, the early outings featured tents, army cots, Chinese cooks using metal ranges, and the opportunity to pay to have one's laundry done. The 1902 outing lasted five weeks, and to accommodate the nearly 200 persons encamped, the transportation of 25,000 pounds of personal baggage and camp equipment was required.

The outings were extremely popular and were more responsible for the annual growth in club membership than any other factor. Colby issued a word of caution, however, pointing out that while the outings gave club members the opportunity to experience wilderness first hand, it was even more important that the club instill a lifelong commitment to the preservation of the mountain environment even when the member could no longer participate in the outings.

There are club members and ex-members living today who can recall these early outings and who have memories of encountering John Muir

on the trail, or hearing him at the campfire, spreading the gospel of conservation.

The History Committee is trying to preserve the records of the club's activities since its founding. Any members who have photographs, letters, diaries or other memorabilia, based either on their own participation or that of their parents or grandparents, are encouraged to send these materials, either in original or photocopied form, to: Sierra Club History Committee, 1050 Mills Tower, San Francisco 94104. These items will then be placed in the "Sierra Club Papers" at the Bancroft Library, University of California, Berkeley, where a large volume of club archives has already been organized.

Local chapters and groups are urged to safeguard their own records by depositing them in a local library, university, or other institution, where they can be maintained for future use. The purpose of such safekeeping is twofold: first, the personal element—the nostalgic remembrance of experiences and battles fought in company with others of like sentiment; second, the study of what has gone before may help us to improve our "batting average" in the struggles that inevitably lie ahead in our common efforts to protect the natural scene for future generations.

Marshall Kuhn is chairman of the Sierra Club History Committee.

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IMPORTANT NOTICE TO MEMBERS:

Effective June 15, 1975, all previous order forms will be obsolete. With this order form, and all order forms to follow, member prices for books and calendars are discounted at 10% of the retail price. The new pricing schedule includes free postage and handling. This policy was established to meet the rapidly rising costs of warehousing and postage rates. To facilitate order processing, *it is imperative that members discontinue using ALL order forms prior to this one.* Your cooperation will be greatly appreciated.

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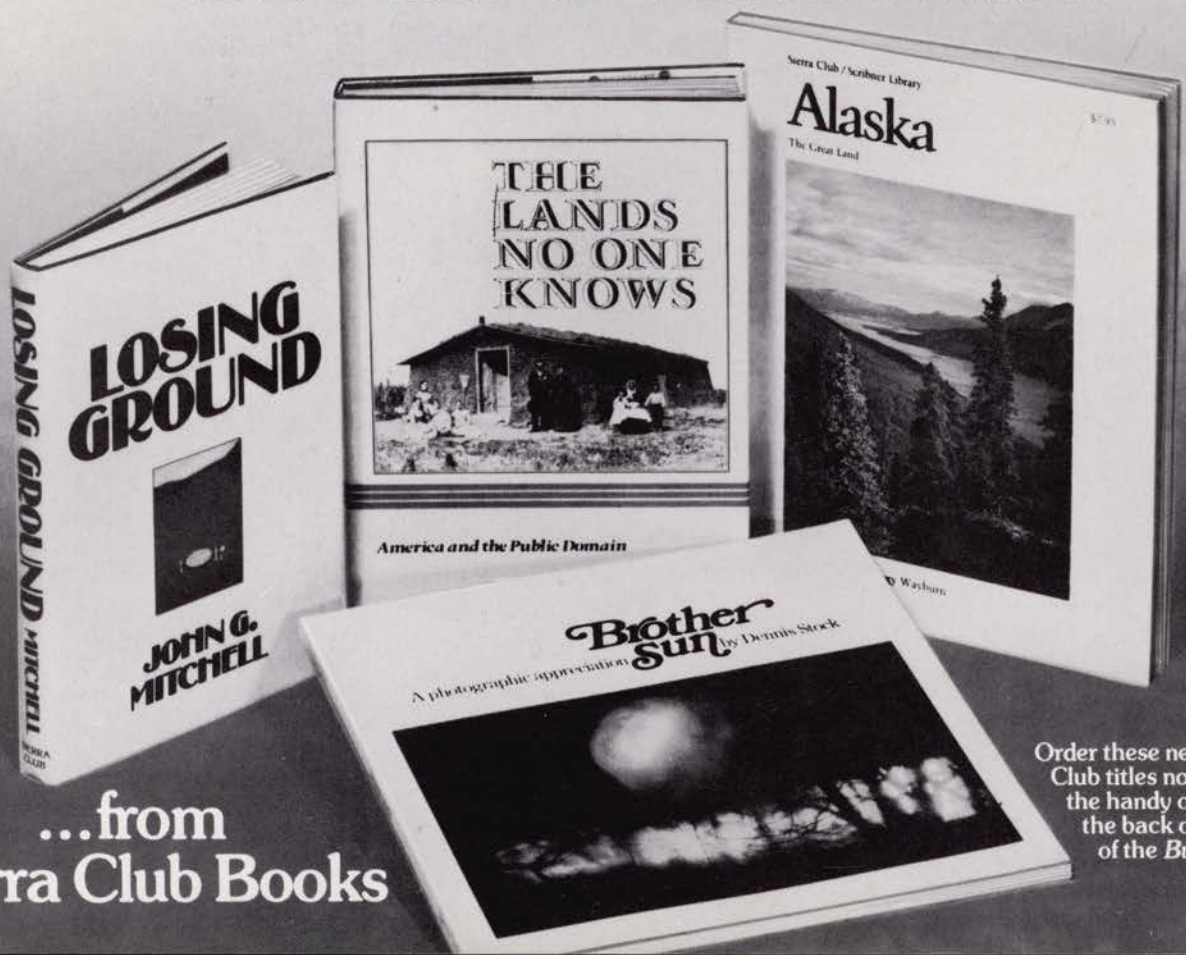

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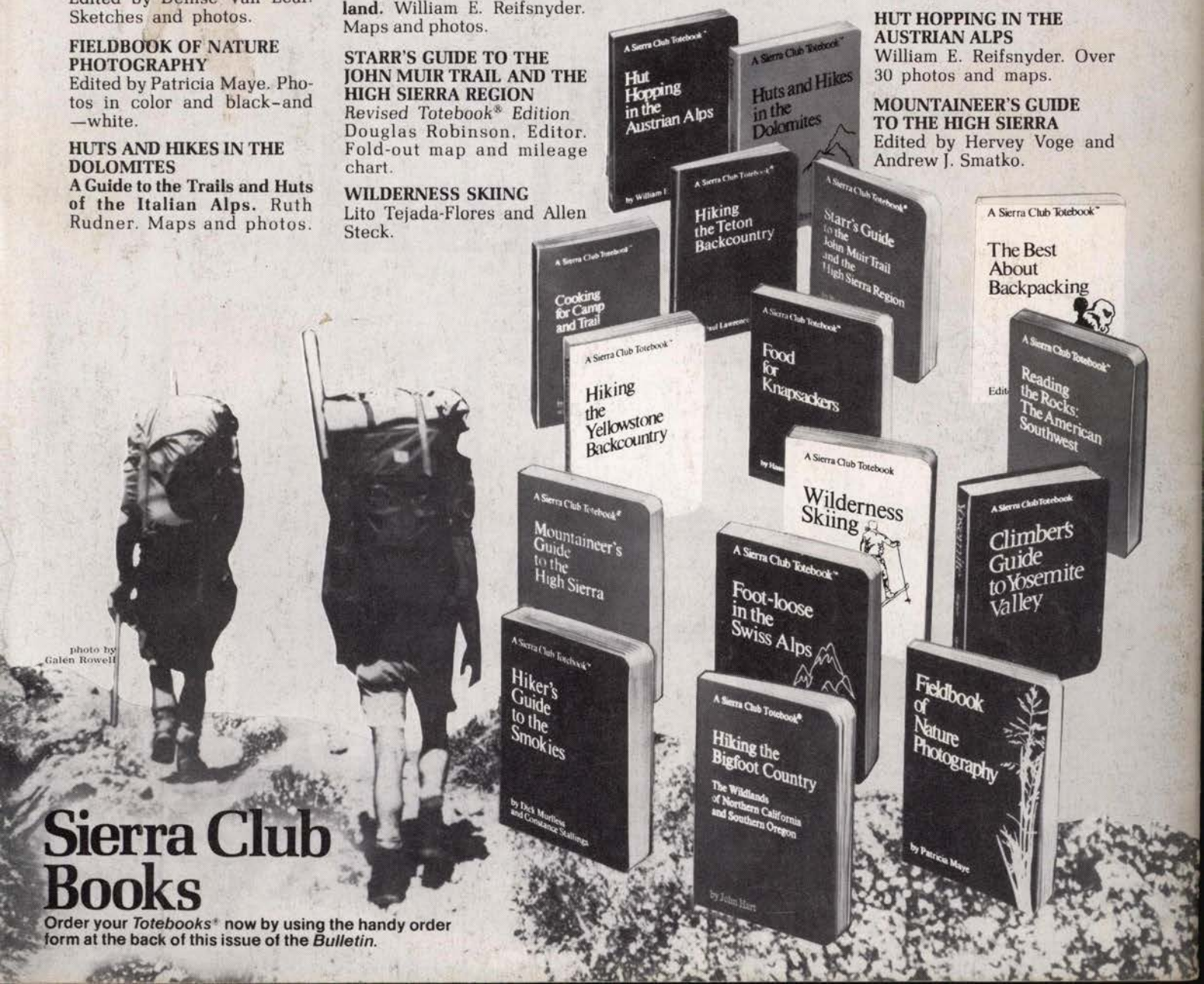

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