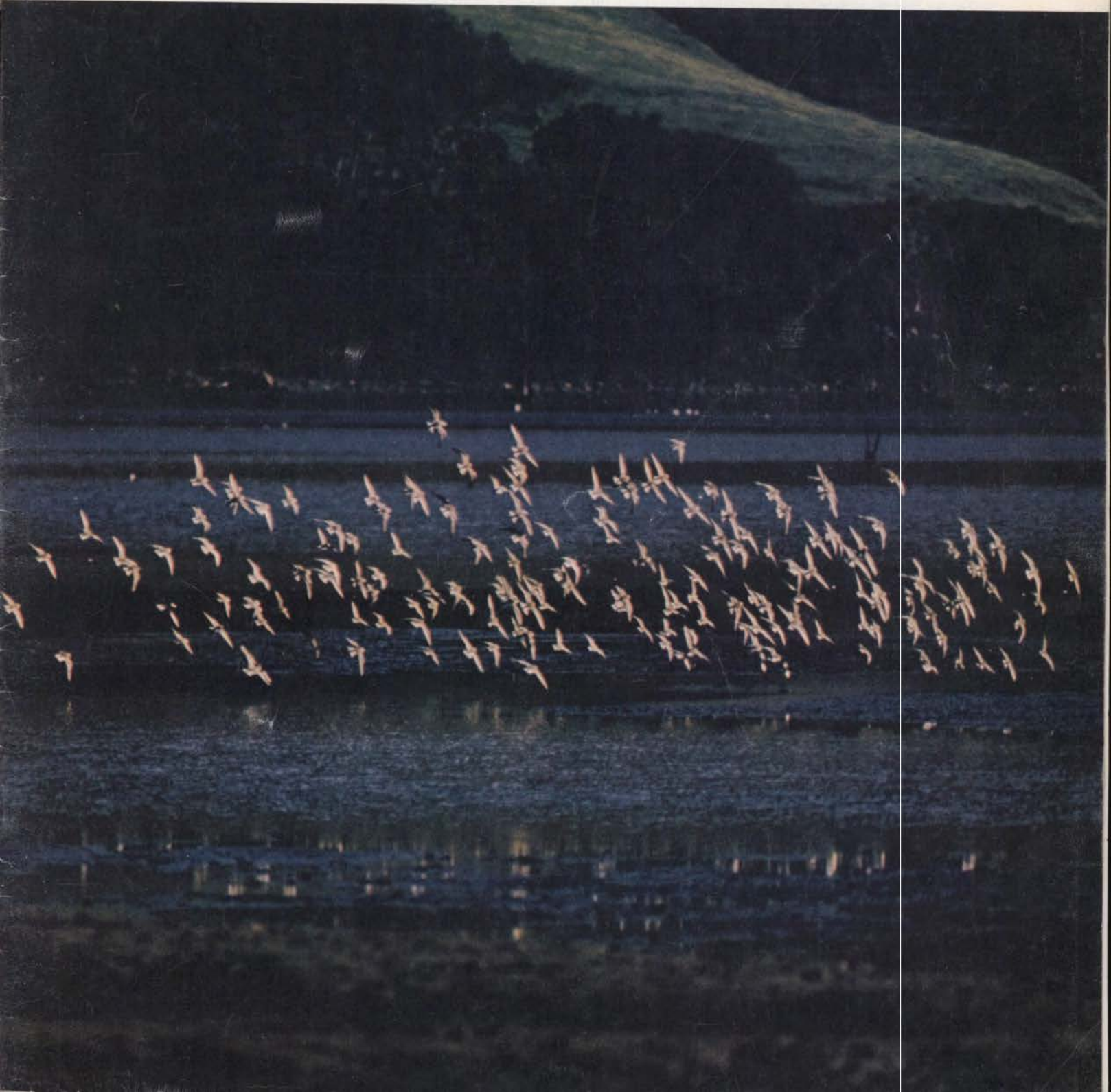


Sierra Club Bulletin

MAY 1970



CORPORATE RESPONSIBILITY AND THE ENVIRONMENT

We must confront the problem of corporate irresponsibility toward the environment. Incorporation allows the organization and concentration of wealth and power far beyond the capacity of single individuals or partnerships. Clearly, the power of modern corporations is immense—200 of these giants now control two-thirds of the manufacturing potential of this country. Some of the most important decisions affecting the environment are not made by the government or by the people, but rather by the men who wield corporate power. Too often corporate decisions involve only minimal concessions to the public interest while every effort is bent to maximize profits.

There is nothing wrong with the profit motive itself. It is wrong, however, to make it the *controlling* influence in corporate decision making. The environment must come first.

How do you resolve conflicts between the public interest in preserving the environment and the legitimate self interest of business corporations? Obviously, "no trespass" signs must be posted in some areas of endeavor where heretofore the public has been apathetically willing to accept environmental degradation as the price of so-called "progress."

The problem goes back to the basic nature of a business corporation. Viewed in one sense, the private corporation is the part of government which "got away." The first corporate charters were grants of the king's sovereign power and the notion that corporations receive special privilege from the government remains in the law today. In granting the first corporate charters the English kings placed conditions upon corporate powers but failed, for obvious reasons, to specify protection of the environment as one of the corporate purposes. This can and now should be done by enactment of a National Corporations Code and the amendment of existing Corporations Codes in each of the states.

Envisioned is a legal requirement that, in exchange for the privilege of doing business as a corporate entity, every corporation would be obligated to provide reasonable protection for the environment in every phase of its operations. This would answer the worries of corporate officers who are genuinely concerned about the environment but at the same time are unsure of the legal parameters for resolution of conflict between the legitimate desire to make a profit and the more important interest of keeping the world livable.

Amending all corporate charters in a single stroke, as this law might do, would have a heavy impact upon how corporate decisions are made. It would force inquiry into environmental affects at every stage and level of decision making. From beginning to end in every project, and from bottom to top in the corporate hierarchy, every employee would be bound to consider not just the costs and possible return from each new project or product, but whether or not the broad public interest would be served thereby. If, according to some standard of reasonableness, the manufacturing process would degrade the environment or the end product itself would pose such a hazard, the plan to produce it simply would not go forward. If it did, a suit by shareholders (on an *ultra vires* theory) could remedy the situation. To bring such a suit a shareholder would not need a majority interest and, in some instances, suits might be allowed by members of the general public not holding an equity in the corporation.

This is one method which, in conjunction with several good suggestions made by Ralph Nader in his introduction to our *Ecotactics* book, would cause private industry to forcefully assume a new attitude toward the environment. If such new attitude is not brought about, proposals now heard from a few conservationists for public takeover of business may well come to pass. Most conservationists do not advocate socialistic takeovers, and clearly we have not, but we hazard the prediction that if socialism comes to this country it will not be for any reason Marx advanced. On the contrary, it will come because business failed in its responsibilities to the environment, its responsibilities to the future and in a very real sense its responsibilities to itself.

Phillip S. Berry
President



Sierra Club Bulletin

VOLUME 55 • NUMBER 5

... TO EXPLORE, ENJOY, AND PROTECT
THE NATION'S SCENIC RESOURCES ...

Cover: Bolinas Lagoon, California, one of the last relatively unspoiled estuaries on the west coast. See page 4 for an article on the status of the nation's estuaries and coastline.

CONTENTS	PAGE
OCEANS EDGE _____	5
MAINE TIMES By Eleanor Sterling _____	8
PROBLEMS OF EXPANDING POPULATIONS By D. Wolfers _____	10
AMERICAN RIVER By Marion and Dan Kane _____	16
BOOK REVIEWS _____	21
WASHINGTON REPORT _____	23

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THE SIERRA CLUB,* founded in 1892, has devoted itself to the study and protection of national scenic resources, particularly those of mountain regions. Participation is invited in the program to enjoy and preserve wilderness, wildlife, forests, and streams.

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NEWS

POWER CONSUMPTION

Alleged power demands and utility advertising were high priority items on the agenda of the Sierra Club Board of Directors at their regular meeting May 2 and 3 in San Francisco. Concerning power needs, the Board resolved: "The Sierra Club believes that the generation and use of electricity in the United States have increased to the point where their adverse effects on the total environment are evident, unmistakable, and undeniable. All forms of electrical power generation, whether hydroelectric or by steam produced by nuclear reactors, or the burning of fossil fuels, can only destroy what remains of the beauty and habitability of the earth if allowed to continue to proliferate. The Sierra Club opposes the concept of the inevitability of continued escalation of power needs, and believes that measures to effect economies in the use of electricity must be taken without delay."

The resolution on utility advertising stated: "The Sierra Club urges immediate enactment of legislation by each of the United States to prohibit any franchised electric or gas utility, either publicly or privately owned, from engaging in any form of advertising conceived, designed or intended to cause any increase in the consumption of electricity or gas, and to prohibit any and all other activity, on the part of such utilities, to promote use of gas or electricity." The Board instructed the staff to prepare pilot legislation to end utility advertising in California and New York.

WILDLANDS

Concerning wild and scenic areas, the Board took the following actions: (1) stated that the establishment of a Big Thicket National Park in Texas must be an urgent priority in the expansion of the National Park System; (2) supported establishment of a Lopez Canyon Wilderness Area in the Santa Lucia Range east of San Luis Obispo, Calif.; (3) supported reclassification of the present Uncompahgre Primitive Area in Colorado as a wilderness with two units of 70,000 acres and 17,000 acres, respectively, and a Trico Peak Scenic Area of 50,000 acres; and endorsed the recommendation of the Greater Sawtooth Preservation Council for a Sawtooth National Park of three units — Sawtooth, White Clouds-Boulder, and Pioneer — with an adjacent national recreation area, producing a total transfer to the National Park System of approximately 1.6 million acres.

CONTINUED ON PAGE 22



OCEANS EDGE

When I was a child I was bundled up and taken along with the family and picnic basket to the sea not far from my Massachusetts home. It was almost always cool on those weekend visits and the salty wind whipped around my nose and ears and neck. But it was the wildness of the wind and its companions the sea and the sand that made me grow to love the Island. It was the sometimes murky gray-green, sometimes brilliant blue water that made my toes and heels and ankles ache because it was so cold that bade me come again and again even as I grew older. I didn't know as a child that Plum Island was threatened and that, ironically, it was threatened because of its beauty. I didn't know that men worked hard to preserve the Island as part of a Wildlife Refuge. But now I have learned all that. And, while summer homes cluster together on the shoreline bordering the Refuge, most of Plum Island itself is safe from development.

Publicly owned lands like Plum Island comprise an astonishingly small part of the nation's coastal zone. A meager 6.5 per cent of the 20,000 miles of coastline that have recreational potential in the Great Lakes-lower 48 state area are now protected. Much of the remainder is now marked for dissection by industrial, residential, and recreational development.

In the last 20 years much of the country's population has abandoned rural towns for metropolises (the nation's largest border the sea or the Great Lakes), and pressures for shoreline space have increased steadily. By the year 2000, 70 per cent of the U.S. population will reside on the coast. Jetports, nuclear powerplants, business and industrial centers, oil refineries, apartment complexes, private homes, boating marinas and recreational parks—all now compete in a frenzied game of musical chairs for a plot of land by the sea, and the music will get faster with time.

The game is serious. And it is a deadly one. The value of the coastal zone is immeasurable, and its loss affects the welfare of the entire country. As the transitional boundary between land and water, the coastal zone includes vast estuaries and wetlands, where fresh water from the land blends with salt water from the sea. These marshes provide food, shelter and spawning grounds for fish and wildlife. Seven out of 10 of the most valuable fish species in America spend all or much of their lives in estuarine waters, and 70 per cent of our commercial fishing is done in the coastal zone. Marsh grasses are barriers against wind and water erosion, as well as havens for migrating birds. Wetlands act as buffer zones against stormy seas and help control floods.

Dredging and filling estuaries can alter the hydro-

logic cycle, adversely affect water supplies, create flood hazards, and increase the polluttional effects of effluents. Whole environments for fish, shellfish and animals are wiped out by this method of aquatic genocide. "Until recently, unless useful as deepwater ports, estuaries have been ignored by man as unsightly blemishes on nature's beauty," writes Wesley Marx in *The Frail Ocean*. "This indifference has allowed them to flourish in a natural state, whereas forests have been axed and hills leveled. Today, because of their treasured seaside location, estuaries are on the frontline of development. They have qualified for burial by earth fill, better known as 'land reclamation'."

At present, there is no one body on the federal, state or local level to control coastal zone development. A recent Presidential Advisory Commission report notes: "Rapidly intensifying use of coastal areas already has outrun the capabilities of local governments to plan their orderly development and to resolve conflicts." According to a Department of Interior report, "There are numerous federal, state and local laws and regulations related to the management of the estuaries and the Great Lakes . . . (but) there often is inadequate coordination among the programs of the various agencies, and duplication and conflicts are common."

For lack of such management, we are paying a high price. Lost in the competition so far are more than half a million acres of estuarine habitats which have succumbed to pernicious dredging and filling. A Fish and Wildlife survey shows 50 per cent of the nation's estuaries have been moderately modified by man, 23 per cent severely modified, 27 per cent slightly modified. All have been touched. California leads the states: 67 per cent of its estuaries are gone.

Recognizing the environmental, esthetic, and perhaps most of all—the economic—value of the coastal zone, Congress authorized three studies under the Clean Water and Restoration Act of 1966 and Public Law 90-454 enacted in 1968 to help determine a coastal management policy. The first study, *Our Nation and the Sea*, was completed in 1969 by the Commission on Marine Science, Engineering and Resources; its directive was to examine the nation's stake in developing and preserving the coast and, on the basis of its findings, formulate a national program for marine affairs to meet present and future needs. A second study, the National Estuary Study, part of which was released in April, was conducted by the Bureau of Sport Fisheries and Wildlife to inventory and study estuaries and their resources, and determine

which ones should be protected. A third study, the National Estuarine Pollution Study, is being conducted by the Federal Water Pollution Control Administration to analyze various aspects of estuarine pollution and to recommend a program for the preservation, study, use and development of estuaries; it is to be released soon.

Our Nation and the Sea has been out for over a year; it is the most comprehensive study on its subject ever done. It evaluates our relation to the sea and its shores and proposes hundreds of specific programs to enhance it. However, these recommendations aren't being taken seriously by the Nixon Administration. "Rather than opportunity, oceanography is still looked upon at the White House as a bothersome stepchild," declared Senator Ernest Hollings, chairman of the Senate Subcommittee on Oceanography, on the floor of Congress recently. "President Nixon treats oceanography with slightly more dignity than the board of tea tasters."

The report proposes the establishment of an independent government agency, a National Oceanic and Atmospheric Agency, to coordinate some 22 government agencies now working separately in oceanic research and marine affairs. The Interior Department, unhappy with the proposal, feels its oceanic jurisdiction is threatened. And the Budget Bureau contends an NOAA would cost too much. According to Senator Hollings, Mr. Nixon has instructed two committees to duplicate the original Commission's review of present oceanographic programs (which took two years to complete), in less than half the time, and to come forth with a more economically feasible recommendation.

Our Nation and the Sea also recommends a grant-in-aid coastal management program for states. States would engage in long-range development studies; they would monitor present demands on the coast, predict future demands, and work in cooperation with local governments for practical solutions. The federal government would provide financial aid both for research, planning, and implementation of the master plan. It would review state plans, to be sure they were in tune with the natural processes in the coastal zone.

If environmentally sound, the grant-in-aid system could solve the problems of our corroding coastal zone. It would focus responsibility and action on states, yet it would insure federal supervision. A number of bills have been introduced to Congress to establish such a program, and the major differences between them are the degree of federal supervisory authority and allotted funds. Among them are Sena-

tors Magnuson and Hart's bill (S. 2802) which would provide \$75 million, and Senator Tyding's and Representative Giaino's bills (S. 3460, H.R. 16155) which would provide \$125 million. Bills supported by the Administration are Senator Bogg's and Representative Fallon's (S. 3183, H.R. 14845) which would provide only \$2 million for the program. These bills are now in committee.

California has initiated legislation that could conceivably fit into any grant-in-aid program. Proposed before the State Legislature are bills to establish a California Conservation and Development Commission, which would act like the heralded San Francisco Bay Conservation and Development Commission, screening proposed development along the entire state coast. The Commission would have power to regulate land modifications from three miles offshore to half a mile inland, and while a master plan is being formulated, would have interim authority to issue or deny building permits. Members of the CCDC would be drawn from federal and state agencies with particular interest in the coastal zone, as well as from the fields of conservation, education, ecological sciences, recreation, industry and planning.

The San Francisco Bay Conservation and Development Commission possesses more control over one estuarine area than any other agency in the country. Its establishment in 1969 was considered a landmark in conservation history. Other states that have significant drainage and fill control are Massachusetts, Connecticut and North Carolina. Recently, Florida set aside 26 estuarine areas as aquatic preserves. All of these programs could easily be incorporated into the format of a federal grant-in-aid program. Their enforcement could be guaranteed with federal financial assistance.

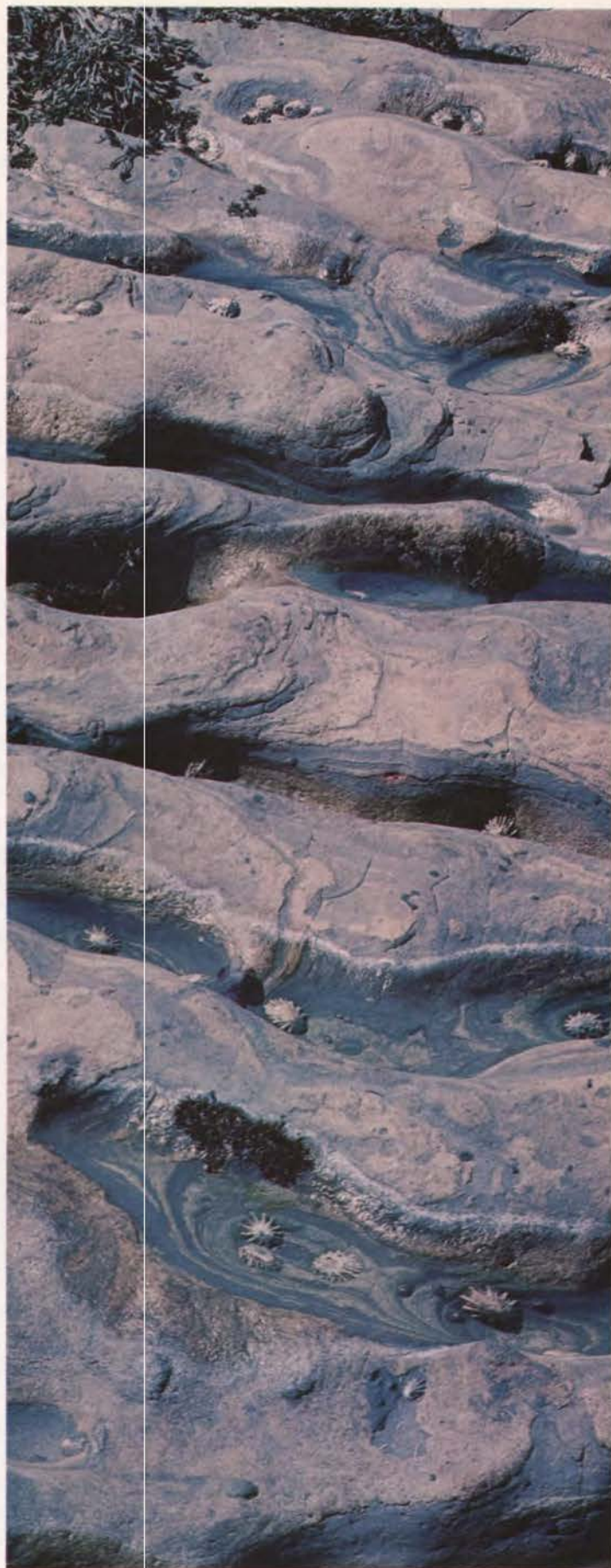
"It is an interesting thought that a particular particle of water moistening one's toes on a Carolina or New Jersey beach may have engaged in considerable global travel: it may have also dampened the toe of a South Sea Islander, and that of a penguin in Antarctica; that same particle, earlier in its travel, may even have contributed to the drowning of Pharoah's Army in its disastrous attempt to follow the Children of Israel across the Red Sea." The quote is taken from *This Great and Wide Sea*, by R. E. Coker, and it beautifully illustrates the longevity of the sea, and its ubiquitousness on the planet earth. Over 70 per cent of the earth is sea-covered; the same water that is in the ocean often travels through the atmosphere in the form of water vapor. Man's world is a "water world," said Rachel Carson, and she was right.

It doesn't much matter if a coastal zone master plan is formulated, and if estuaries are made into parks and refuges, if the sea that flows in and out of the wetlands is polluted. An oceanographic master plan is needed. The impetus to develop the supposedly vast resources of the sea poses the danger of reckless exploitation. Oil, minerals, natural gas and nutrients may be drawn from the sea in huge quantities before the end of the decade.

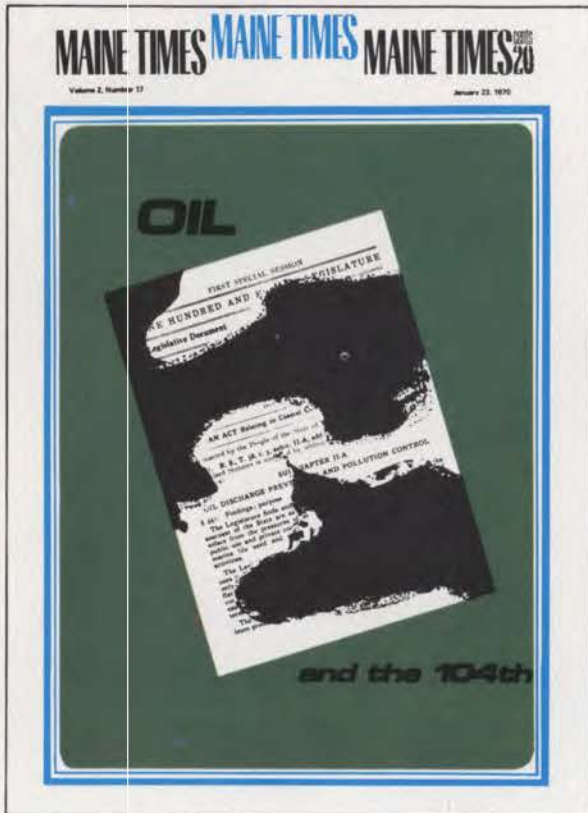
Who owns drilling rights to sea beds? What country or countries should control which waters? The United Nations is pondering such issues, hoping to prevent world competition in a sea-profits race. In 1958 it was internationally agreed that a nation's jurisdiction over the continental shelf extends to a depth of about 650 feet or "beyond that limit to where the depth of the superjacent waters admit to the exploitation of the natural resources." Because of technological advances, however, oilmen can now explore ocean beds to 1,000 feet or more, and recent *Oil & Gas Journal* predictions put that figure at 4-6,000 feet within 10 years. In effect, the 1958 agreement licenses the plunge.

The oil and gas industry holds one of the strongest lobbying arms in the country. Unfortunately, the Department of Interior is reflecting these interests, and is pressing for further expansion of the country's continental shelf jurisdiction to a point where the shelf begins to rise from the ocean floor — a point which varies in distance from the coast from 5 to 500 miles. The Defense Department, on the other hand, would limit our jurisdiction to no more than 50 nautical miles offshore, or a depth of 650 feet, whichever is greater. Not that Defense is acting out of conservationist sympathy. "The ocean depths of the world provide an immense hiding place from which any nation, any target, can be attacked," claims a Bureau of Naval Personnel promotional booklet.

Getting a good coastal and oceanographic protection and management program through Congress won't be easy. It will probably be one of the major conservation fights of the decade. Every segment of society has a stake in the sea, and it will be difficult to work out an environmentally sound plan. *Our Nation and the Sea* warns: "A time of decision is here. Multiple pressures force the nation to turn to the sea, and multiple opportunities await the seaward turning. The time of decision is not for the federal government alone State and local governments, industry, academic institutions, and the American people must share in decision and action." —E.R.



MAINE TIMES



By Eleanor Sterling

If you already happen to subscribe to the weekly *Maine Times*, yours is one of the 20,000 households in 47 states and 30 foreign countries being alerted to conservation problems every Thursday morning by an unusual year-and-a-half old environmental newspaper of issues, opinion, and investigative reporting—a bold, handsomely photo-illustrated “maga-paper” that has drawn national attention for its concern with environmental polluters whose careless exploitations of air, land, water, natural resources and historical heritage threaten the State of Maine as well as the entire northeast region.

Written largely by Editor John N. Cole and Publisher Peter W. Cox, the *Maine Times* bravely sallies forth on Thursdays from an antique red-brick building with the words BANK not yet quite faded on the front, set on a Topsham hillside overlooking the roiling falls of the Androscoggin River.

With only two full-time reporters, but a ready supply of agile one-shot writers and photographers, the *Times* has become that occasional paradox of the

publishing world, a young newspaper doggedly crusading close to home while thumbing its nose at protesting advertisers — and getting away with it.

“We’ll talk about anything and everything that interests us,” says Cox, “and we send very polite letters to griping advertisers reminding them that we have been clear on what we stand for from the beginning. There was never an indication that we’d do anything for an advertiser, or that we’d expect them to do anything for us except pay their bills. We started fresh and stuck to it.”

Cox and Cole use conservation as the single theme binding their local and national readership, young subscribers and old, liberal or conservative. Cox explains, “People who get mad at our other articles on rock singers, public health, education, art criticism, and so on, can still appreciate what we’re trying to accomplish in the area of conservation. From the beginning, we *intended* to become *the* environmental newspaper of Maine, an official organ that treats the whole state as a single community of a million people.”

With lively headlines, dramatic photographs, and a cheerfully independent attitude, the *Times* alerts its readers to the week’s environmental toll in Maine and elsewhere: oil spills, the downgrading of a stream for commercial use and abuse, sudden fish kills, the razing of historic wooden buildings on state-owned land. The staff keeps track of state and federal legislation and government proposals and confusion; should enactment of long-needed legislation be slow or uncertain, Cole and Cox are quick to draw attention to the facts. And should a private citizen donate land for a bird sanctuary, or a group of amateur conservationists form a Preservation Trust and sponsor a fundraising clambake to purchase a bit of wildland threatened by commercial development, the *Times* is equally quick to offer editorial support and promotional backing.

Both Cole and Cox have edited other Maine newspapers, weeklies and dailies. They know the problem of arguing for intelligent conservation while groping for information, a problem most newspaper editors and publishers pass on to their readership. Now, in their own *Times*, they feel they have achieved a successful clearinghouse of facts and opinion concerning their own state. And, rather than ever enlarge to becoming a regional newspaper, the *Times* would prefer to see its formula duplicated in other areas of the nation, state by state, among weekly newspapers whose staffs have increased expertise on a series of ever-smaller topics.

The State of Maine, a vast land area barely-popu-

lated by those one million people Cox referred to, most of whom live in a relatively-narrow coastal strip, is the Yankee home of the old political truism, "As Maine Goes, So Goes The Nation." It is ironically apt, then, that Maine should contain a multitude of major national conservation problems in microcosm—which must be one of the reasons why the *Times* has such a fascinated readership in distant places. Our most northeasterly state, remote Maine is the last state on the upper Eastern seaboard to be industrialized. But the ultimate arrival of high-risk industries like aluminum and oil, the continued existence of major domestic water and air polluters such as the paper industry and commercial processors of sugar beets, lumber, and potatoes, the advent of potential thermal polluters via atomic power plants, and occasional wilderness polluters like the appearance of a sudden army of massed snowmobilers, keep the *Maine Times* pages lively.

Faithfully, the newspaper harasses would-be destroyers of Maine's environment, pressuring and persuading highly-placed opinion makers as well as the man on the street.

Times reporter Aime Gauvin and Bangor photographer Bob Allen, collaborating on a film devoted to Baxter State Park and its creator, former Governor Percival P. Baxter uncovered a destructive plan for the recreational use of Baxter wilderness areas through the opening of many roads and trails to snowmobilers.

Commented Editor Cole in the same issue: "Percival Baxter was no starry-eyed idealist. He was a practical, pragmatic man who understood the intrinsic value of wilderness and used his power and wealth to preserve it. He employed the ultimate legal weapons at his disposal as man and Governor to fortify his park against machines. His language is as clear as possible. Forever wild means precisely that—forever wild."

The *Times* then continued to campaign with cartoons, interviews with the 3-man Baxter Park Authority, and illustrated side-articles on snowmobiling as an aspect of invading commercialism rather than high sport. Readers who may never have thought much about a snowmobile causing havoc in the wilderness were encouraged to write letters of protest and place telephone calls and telegrams, and in successive weeks the newspaper single-handedly mobilized public and official opinion toward a total snowmobile ban in the Baxter wilderness.

Reflecting local interests, the *Times* is likely to report dispassionately, for the benefit of its total read-

ership, on the fate of a single anonymous elm tree in a neighboring town.

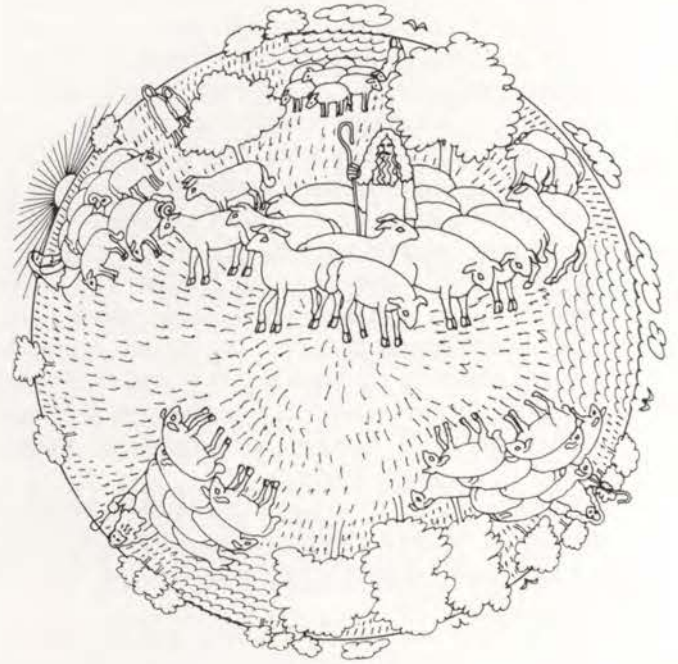
Larger issues reviewed and pursued to completion by the *Times* include the closing down of a couple of fly-by-night paper mill activities aimed at short term profits and long term pollution, the beginning of a Saco River cleanup by pinpointing 39 specific pollution sources along the river's entire length, and new official support for stringent legal safeguards against indiscriminate chemical spraying, mining, offshore oil drilling and refining.

Cole adds, "The trouble is, most Maine people can't believe the oil companies can find something up here now they couldn't find 100 years ago. They don't understand much about the impact of technology."

A key trouble-spot is Machiasport, where the Sierra Club has already approved a resolution opposing present plans for the development of an oil refinery and deep water port in the middle of one of the last commercially untouched areas of the Maine coast. Despite exceptionally thick fog hazards and tricky currents that make tanker mishaps and oil spillage practically inevitable, three oil companies seem determined to proceed with plans to establish Machiasport refineries. Dutifully, the *Times* keeps track of their progress. "Atlantic-Richfield Company, which has options on 3,500 acres of land in nearby Machiasport for an oil refinery has awarded a contract to Frederic P. Harris Inc. of New York to conduct an oceanographic survey for its deep-water terminal. The work, to cost more than \$50,000 will take about three months and will include offshore studies and preliminary engineering recommendations for docking, pipelines, and other facilities. Findings will show the feasibility of the harbor for terminal accommodating vessels of the 300,000-ton class, a larger facility than anything now operating in the United States. The terminal site being considered is about two miles off the mainland in about 100 feet of water, deeper than any existing U.S. port. Use of two offshore islands is being considered . . . Twelve and a half miles north and in from the port, Atlantic-Richfield is considering a \$250 million refinery capable of handling 100,000 barrels of oil a day. The company announced it would present a copy of its hydrographic report to the State of Maine upon completion."

A month earlier, the Sierra Club had issued a proposal that the Federal Government buy the development rights to the northern Maine coast at a price high enough to justify state abandonment of plans to locate heavy industry there—emphasized in the *Time* reports of the state's insistent failure to act decisively.

PROBLEMS OF EXPANDING POPULATIONS



By D. Wolfers

The current human ecological crisis derives from the great technical advances by which man has placed himself in the position of a (self)-protected species for whom natural ecological regulation is suspended. Inevitably his numbers have increased to the point where all the resources of the Earth cannot supply his wants.

There have been four distinct forms of organization of human life — arboreal, pastoral, agricultural and technological — and each change from a more primitive to a more advanced organization has been accompanied by the disturbance of an established population balance, followed by a phase of rapid growth, and then the re-establishment of demographic stability. We are at present involved in the latest of these transformations and, with the limited perspective of the human life-span, have difficulty in seeing how it will end.

In each of the three past states of demographic balance, corresponding to arboreal, pastoral and agricultural society, that balance was determined by

natural principles so that, growth being inhibited by the unchanging abundance of resources, death rates automatically adjusted to the prevailing birth rate. This adjustment did not mean that birth and death rates were the same every year, but there were periodic peaks of deaths, brought about by famine, epidemic or war, which irregularly restored a supportable population density. The current imbalance is likely to be resolved on similar terms if direct action is not taken to avoid it. But we now have the technical and social means of restoring a balance on terms more acceptable to human aspirations than the natural balancing mechanism.

Population trends in the 10,000 years of the agricultural phase show that throughout this period minor improvements in the availability of resources made possible slow but distinct growth of world population at a rate somewhat less than one per thousand per year. Meanwhile, high birth and death rates (about forty per thousand) prevailed constantly, and populations



ILLUSTRATIONS: VERNON KOSKI

were everywhere and at all times “young.”

Early Disturbances of Balance

The first stirrings of disturbance of this balance are now seen to have begun in about 1650 when, in response to quite small improvements in agricultural practice, and perhaps also political organization, the rate of growth of world population more than trebled to about three per thousand per year. This change occurred simultaneously in Europe and Asia. In 1750, with the agricultural revolution in full swing and the effects of the industrial revolution beginning to be felt, it is clear that a major discontinuity had occurred in those countries that were affected; growth rates started increasing to levels like ten to fifteen per thousand per year. By now, production was leaping ahead of consumption and the determining factors of rates of growth ceased for the time being to be economic and became biological; the link between birth and death rates was broken and they were able to act as inde-

pendent variables.

The first effect of this change was the disappearance of mortality peaks. Food production and distribution had so improved that adverse seasons no longer produced famine, and nutritional standards had so changed that even though conditions of crowding and sanitation may have been worse than ever, epidemic disease was no longer able to decimate populations. Political organization had become so macroscopic that the toll of warfare became too selective to have important demographic consequences. Next came a steady decline of annual death rates in response to innovations in environmental sanitation and curative medicine and rising standards of nutrition — a process still continuing although with diminishing returns. The third effect, delayed for more than a century after the initiation of the first, was the long steady decline in birth rate, stretching in the United Kingdom over the whole period 1880-1930. No contemporary analysis of the causes of this decline exists, but it is safe

to say that it reflected the adjustments made by individuals to radical changes in conditions of economic and social competition. An important secondary effect of this decline in birth rates was the transformation of the population to an older age-distribution, with a consequent braking effect on the decline in death rate and a temporary alleviation of the dependency burden.

From 1930 onwards little change has been registered in the demographic indices of developed countries, growth rates fluctuating between three and ten per thousand per year, with manifest full independence of death rates from birth rates.

The Developing World

Although such high growth rates cannot continue for ever, they can be sustained for some generations without bringing inevitable disaster. The current crisis arises from a recognition of the potential consequences of continuation of the quite different trends in the developing world.

By the beginning of the twentieth century, moderate growth rates of about ten per thousand prevailed in most agricultural lands. This situation reflected the pacification, aggregation and administration imposed by the colonial powers and tutelary agents. Public health advances, particularly in tropical medicine, began to reduce the force of epidemic scourges, and the concept of famine relief made some progress. It is, however, only since the Second World War that a manifestly insupportable imbalance has been recognized. Countries which in 1939 were economically and socially stagnating in subsistence agriculture emerged in 1945 with political groups determined to speed them into the maelstrom of the modern world. Not only was production set for continuous expansion and mechanization, but a new spirit of interdependence led to the limited redistribution of foodstuffs under the aegis of United Nations agencies and with the help of food surpluses in advanced countries. Although violence was involved in the achievement of political independence by many developing nations, the previous pattern of recurrent tribal raiding was prohibited by the consolidation of what were in pre-colonial days dozens or hundreds of autonomous groups into large nation states. With neither famine nor war to restrain numbers, the importance of the spectacular application of preventive medical techniques (often, as with DDT and penicillin, developed during the Second World War) was enhanced, and death rates declined throughout the world at an unprecedented rate.

Rate of Growth Today

Growth rates in developing countries at present vary between twenty and forty per thousand per year, representing, on exponential projection, periods of doubling of between 18 and 35 years. The most generally accepted estimate of the current growth of world population is twenty-one per thousand (doubling every 33 years) with a strong accelerating trend. Estimates of the probable future of development of world population prepared by the UN Demographic Division suggest a total of 7,000 million by the year 2000 compared with the present 3,500 million.

The expansion of a species ten-fold in a mere fourteen generations is, of course, a remarkable success story — in view of the complexity of human requirements it is almost a miracle of adaptation. Furthermore, there can be no doubt that when the limits of sustenance are reached the increase will be arrested by the customary balancing mechanisms of ecological logic.

Although some people believe that the problem can therefore be safely left to solve itself, the likely resolution without deliberate action is not the introduction of low birth rates but the restoration of high death rates. The spontaneous orderly unfolding of a demographic-economic transition is most improbable in the circumstances of the developing world, for the cause and effect sequences which led to the slowing of European growth are all running in reverse. Population growth, death control and the expansion of the labor force are proceeding rapidly while those whose job it is to increase economic growth, birth control and employment opportunities strive to keep pace. The problems of capital formation are particularly acute, for not only are the demands for capital inputs to support the expanding population crippling, but the ruthless reservation of resources for capital at the expense of consumption, which darkened the lives of town dwellers in nineteenth century Europe and starved the peasants of Russia in the 1930s, is no longer morally acceptable. By increasing the denominator of every fraction, be it literacy rate, doctor-patient ratio, proportion of labor force gainfully employed, or income per head, a rapid rate of population growth leaves government and people producing frantically in order to maintain their situation. Although economies of scale may accrue as the population increases in some countries, in most the scale is already so great that no real effect of this kind can be demonstrated. While in some countries with vast hinterlands no perceptible change is taking place in the ratio of population to natural resources, in others

this ratio is becoming critically high, and in yet others, principally small islands, actual space is running out. Because the flow of international migration is blocked in almost every channel and will surely remain so, these islands are experiencing the crisis in its most acute form. Because of these considerations, if no action is taken to limit population growth it is likely to continue with no substantial change in standard of living or national economy until the problem becomes too great to cope with and the system itself collapses under the administrative burden of numbers and the disappointment of perpetual deferment of hopes. If this should happen, large tracts of the Earth will return to jungle law, de-population will take place and an entirely new set of problems will arise.

This catastrophe is not an immediate prospect, nor likely to occur on a world-wide scale. Some favored developing countries, such as Singapore, Venezuela and Israel, have rates of economic growth large enough to sustain the chain reaction of development long enough to produce the social changes which we assume to be sufficient to stimulate spontaneous fertility limitation; others are sufficiently sparsely populated in relation to their resources to be able to grow rapidly for a very long time before there is a qualitative change from rural poverty to chaotic destitution. But these countries will, if they do not act soon to limit growth rates, have missed the only foreseeable opportunity to build graciously advanced societies free of the tragic squalor which has accompanied industrialization and demographic transition in the western world.

World Situation

While each country faces its own population dilemma, the world as a whole is not exempt. The "green revolution" has given a temporary advantage in the race to keep world food supplies from becoming yet more inadequate to meet growing needs; modern public health makes it difficult to visualize uncontrollable pandemics sweeping the world; nuclear weapons appear at present to be held under firm restraint. The crucial areas of world concern are now atmospheric pollution, shortage of water and the potential exhaustion of minable minerals. In these respects we live in a fool's paradise where each has faith in the ability of the others to solve problems too difficult for himself. Aesthetically too, and in relation to the intangible "quality of life", more and more people, unable to visualize institutions which can preserve what man has held valuable in the past into a teeming future, view that future with perhaps unwarranted despair.

Action is, however, being taken. In almost all cases this takes the form of family planning programs, fully organized by government, supported by government or permitted by government. The pattern of introduction of these programs was, only 10 years ago, a rather unedifying spectacle in which enthusiastic voluntary agencies seemed to drag suspicious governments into a series of tentative steps. Only after feeling their way for some years did governments come to embrace programs enthusiastically. This situation is now changing, and genuine government leadership is appearing in an encouragingly large number of countries.

Government reluctance, and in places opposition, stems from several considerations, of which the fear of provoking opposition and courting unpopularity is the least realistic and the most important. It is in dispelling the myth that most peasant populations would be outraged by exposure to birth control services and propaganda that the social survey has made its outstanding contribution to the solution of the problem. Sample surveys, referred to as KAP surveys (knowledge, attitude and practice), conducted in dozens of different settings, seem to have uncovered a very strong demand — commonly 70 to 80 per cent of female respondents — for the facilities for controlling fertility, and to have demonstrated that, almost regardless of the situation prevailing, most couples want relatively small families (three or four children). There have been some exceptions to these generalizations, particularly in tropical Africa.

Difficulty also arises in countries where political power is shared between two or more ethnic or tribal groups of approximately equal numbers. In these circumstances each group fears that their own members, by adopting family planning, will encompass their ultimate political extinction. The view is quite widely and influentially held in Africa and Latin America that "population control for the developing countries" is a manifestation of similar tribal thinking on a global scale by the developed countries, and this naturally is responsible for bitter opposition.

The unreal basis of official Roman Catholic thought on the subject hinders developments in predominantly Catholic countries, but family planning programs with declared health and welfare objectives substituted for demographic aims are making headway.

Outcome of Programs

It is too early to make more than the most tentative predictions of success or failure for family planning programs, and it is likely that some will be successful and others fail. The population control objective requires that two stages be accomplished. First, the

adoption of birth control by most of the population efficiently enough to ensure that births correspond closely with numbers desired, and, second, the reduction of numbers desired to the level where development success is assured.

The first is certainly an easier objective to attain than the second, but, except in a few cases, which as they appear come to be described as special, there is little encouraging to report yet. For reasons related to the austerity of Christian morality, contraceptive technology has received far too little attention from scientists in the past. The crisis has arrived when we have no satisfactory techniques of contraception to offer the clients recruited in these programs. Methods which have proved successful for highly motivated western populations are either too difficult or unpleasant for the mildly motivated to use regularly (diaphragm, condom); have too many unwelcome side-effects (IUD, pill, injection); require an unrealistic degree of cooperation (pill) or are too ineffective (coitus interruptus, spermicidal preparations). Although many millions in the developing world are struggling to use these methods, follow-up studies show that no more than half are able to persevere with any one method for a prolonged period. The techniques of sterilization, particularly of males, are much more satisfactory, but their adoption requires a finality of decision which few can muster until their family sizes are already excessive. The uncertainty of survival in areas where rates of infant mortality are high is, of course, a further deterrent.

The demographic history of Japan in the 1950s and contemporary East Europe shows that the practice of abortion alone is capable of producing dramatic effects on the birth rate, but the applicability of this to less developed countries is dubious. Neither the level of motivation nor the availability of medical services is of the same order in most of these. Additionally, stubborn adherence to rigid interpretations of the sanctity of life, particularly in Moslem and Catholic countries, rule out this method at present.

It is not known whether the availability of more acceptable forms of contraception (and much current research is being devoted to their development) would have a favorable effect on the numbers of couples adopting contraception, but it is certain that it would enhance the effectiveness of practice of those who do.

The discrepancy between the proportions of any population studied who assert their willingness to practice contraception and those who actually do so when it is offered is very large, and offers a great challenge to the social scientist and psychologist to un-

ravel the complexities of decision taking involved. One of the least understood factors is the part played by males in this process.

Family planning programs with demographic objectives are recent innovations. The earliest was in 1952 (India) but remained in very low gear till 1964. The real history of such programs dates back only to 1962. So far very few participating countries have recorded substantial gains, and there is no lack of critics who attribute these to factors other than deliberate programs. Although no change has been recorded in the birth rates of countries such as India and Pakistan, it should be remembered that in these countries vital registration is grossly defective, that changes in the age structure of the population are producing conditions favorable to increasing birth rates and that millions of couples have attempted birth control for the first time during the past few years.

High Fertility Favored

The complementary task of introducing the "small family norm" has, in spite of considerable effort, met even less demonstrable success. While families of three children or fewer "fit" urban, industrialized societies which put premiums on higher education and provide comprehensive welfare services, it is the large family which until recently has enjoyed advantages in the rural environment which still prevails for 80 per cent of people living in developing countries. Free labor for the farm and the security of numbers and continuity in ill health or old age were the principal economic gains, while the extended family system spread the very light burdens of child-rearing in such a way that each additional child was almost no extra burden. Because very high levels of child mortality prevailed until recently, it is not surprising that a mutually supporting structure of social, moral and religious doctrine has developed to protect and advance the ideal of high fertility. It matters little that, after a generation of rapid increase, fragmentation of farms has become more important than labor supply, and after a generation of independence the burden of education is growing to rival the benefits of mutual support; the time scale of change in social and economic institutions is now far more contracted than that of change in cultural outlook. Automatic reacculturation cannot be relied on, and the task of changing attitudes falls to the propagandist, the educator, and perhaps soon the tax gatherer.

The "small family norm" will not, of course, make any headway where extreme levels of child mortality prevail, so that a precondition of lowering birth rates is the necessity to lower death rates. The most urgent

preparatory task is to improve the coverage and standards of maternal and child health services in rural areas of the developing world; this is, of course, enormously costly. It is only, however, in the context of a secure and comprehensive health service that family planning can cease to be a foreign gimmick and become a settled part of life.

Campaign Media

Posters, films, radio talks and earnest face to face encounters multiply throughout the developing world to bring the message that two or three children are enough, but, in the hectic urgency of this campaign, time has not been found to evaluate the efficacy of the media used. The possibility of attempting to indoctrinate school children is at last being canvassed, but there is resistance because of the sexual component involved. School activity, to be effective, must take place in primary schools, because too few children attend higher grades for a campaign to have worthwhile results. Numerous suggestions for giving financial incentives to parents to have small families or imposing penalties on those who have large ones have been made. Almost without exception these prove relatively easy to implement in the highly organized money economy of an industrial state, which does not need them, but quite impossible in areas of subsistence agriculture where taxpayers form a small élite of the population. Meanwhile, the world is not ready to surrender another of its primitive freedoms by accepting the introduction of licenses for childbirth.

Although many programs express their objectives in terms of the attainment of specific rates of growth by a certain date, few if any of these objectives have a more rational basis than the hope that the objective can be attained. So many ecological studies have been made too late that there is clearly a great urgency for the revival of studies of optimal population growth so that, when conditions are achieved which permit the induction of massive changes in fertility, a rational policy will be possible.

The situation at present is undeniably confused, with hope and despair about evenly balanced. This is inevitable in the first decade of serious attempts to deal with a problem of this size. Clear outlines of the tasks to be performed are, however, beginning to emerge. Of these, surely the most difficult and most important is to reduce child mortality as far as possible and provide a comprehensive network of health services throughout the developing world. This is the carrier wave for broadcasting family planning. A process of re-acclimatization must be accomplished, and this implies indoctrination of populations at impression-

able ages — in early school years, and as a corollary it implies bringing the whole child population to school. To these extents, medical and educational, population control depends on progress in development. There are, however, activities which may bring results in relatively unpromising situations. It is agreed that too frequent child-bearing is physically harmful to women, and this may form the basis for the adoption of a more authoritarian attitude to the prescription of contraception by members of the medical profession and their agents. Were the provision of contraceptive techniques as routine a part of the after-care of childbirth as iron for the treatment of anemia, or insulin for diabetes, great results might be achieved even in areas now hopelessly unprepared for radical social change.

Impact of Abortion

The liberalization of abortion laws will likewise have an impact, although necessarily one which is dependent on the availability of competent services to perform operations. Meanwhile the search for reliable and safe medical abortifacients must be pursued, as must the search for better contraceptives.

It is not easy to assess the ultimate impact of the torrent of "educational" material now inundating adult populations in the developing world. There are good reasons to believe that this insistent reiteration may, after a relatively long time, quite suddenly bring about a change in popular attitudes. Familiarity and legitimation are powerful agents for the dissolution of resistance. Patience is therefore important.

If we look more than a generation or two ahead, we are forced to come to terms with the ecological basis of the problem. At present the human race is appalled by the recognition of its dramatic rise to maturity with the accompanying achievement of the potential for self-destruction, for irretrievable pollution of the environment, and for exhaustion of key materials as well as for over-crowding itself. An age of centralized planning is on us as part of the unavoidable logic of development and progress. That planning already involves production and agriculture, education and welfare, research and development, distribution and transportation, the siting and distribution of population and countless other aspects of our lives. It is inevitable that it will soon come to embrace the numbers and then the quality of population, for all else will come to depend on these.

Mr. Wolfers is with the Population Bureau, London, England. This article is reprinted from Nature magazine, February 14, 1970.

The North Fork of the American River from The Cedars to Colfax remains one of the last undisturbed stretches of wild river in the Northern Sierra Nevada. For nearly forty miles, the river winds through a scenic canyon, inaccessible except by foot trails which wind precipitously along tributaries and through notches to the canyon floor. Except during heavy spring runoffs, the water runs perfectly clear on its pebble bed, potable throughout and free from contamination. The North Fork originates in the western part of Placer County near Lake Tahoe and joins the Middle Fork at Auburn to form the American River. The river generally flows west to southwest and is bounded on the north by the watershed between the American and Yuba River basins along which runs Interstate 80, and on the south by the Foresthill Divide, whose back country separates the North Fork from the Middle Fork and Rubicon Rivers.

From the towering cliffs of Royal Gorge and Giant Gap to the spacious meadows and pine forest of Green Valley, the entire length of the North Fork affords unparalleled vistas of Northern Sierra terrain. The river here forms an important wilderness river fishery for native rainbow trout and other species, and lies within the heart of the Blue Canyon winter deer range. Along the tributaries, picturesque mines and placers long abandoned and reclaimed by nature testify to the rich human history of the area. On river camps and bars, remnants of old vineyards and orchards bring to mind the flourishing settlements of mining days where some of the most prominent men of the state and some of the roughest went to seek their fortunes. Names such as Humbug Bar, Rawhide, Euchre Bar and Mumford Bar carry stories that have survived long beyond the events which gave rise to them.

At Giant Gap, about two miles south of Alta and ten miles northeast of Colfax, the river has cut a spectacular 3,600-foot gorge. At this location, the Placer County Water Agency proposes the construction of a 550-foot dam to impound 288,000 acre-feet of water in a reservoir with a maximum surface area of 1,475 acres when full. The proposed reservoir will completely inundate ten miles of the North Fork and three miles of its tributary, the North Fork of the North Fork. Furthermore, the project will irreversibly deface and scar the river canyon for twelve miles downstream with streamflow depletion and an immense 16-foot wide tunnel. The tunnel will deliver water under pressure to a 60,000 KW powerplant to be installed just above the high water level of the 2.5 million-acre-foot Auburn Dam Reservoir now under

construction. As currently planned, Giant Gap Reservoir will suffer a severe annual drawdown well over 100 vertical feet, leaving a "bathtub ring" of monumental proportions.

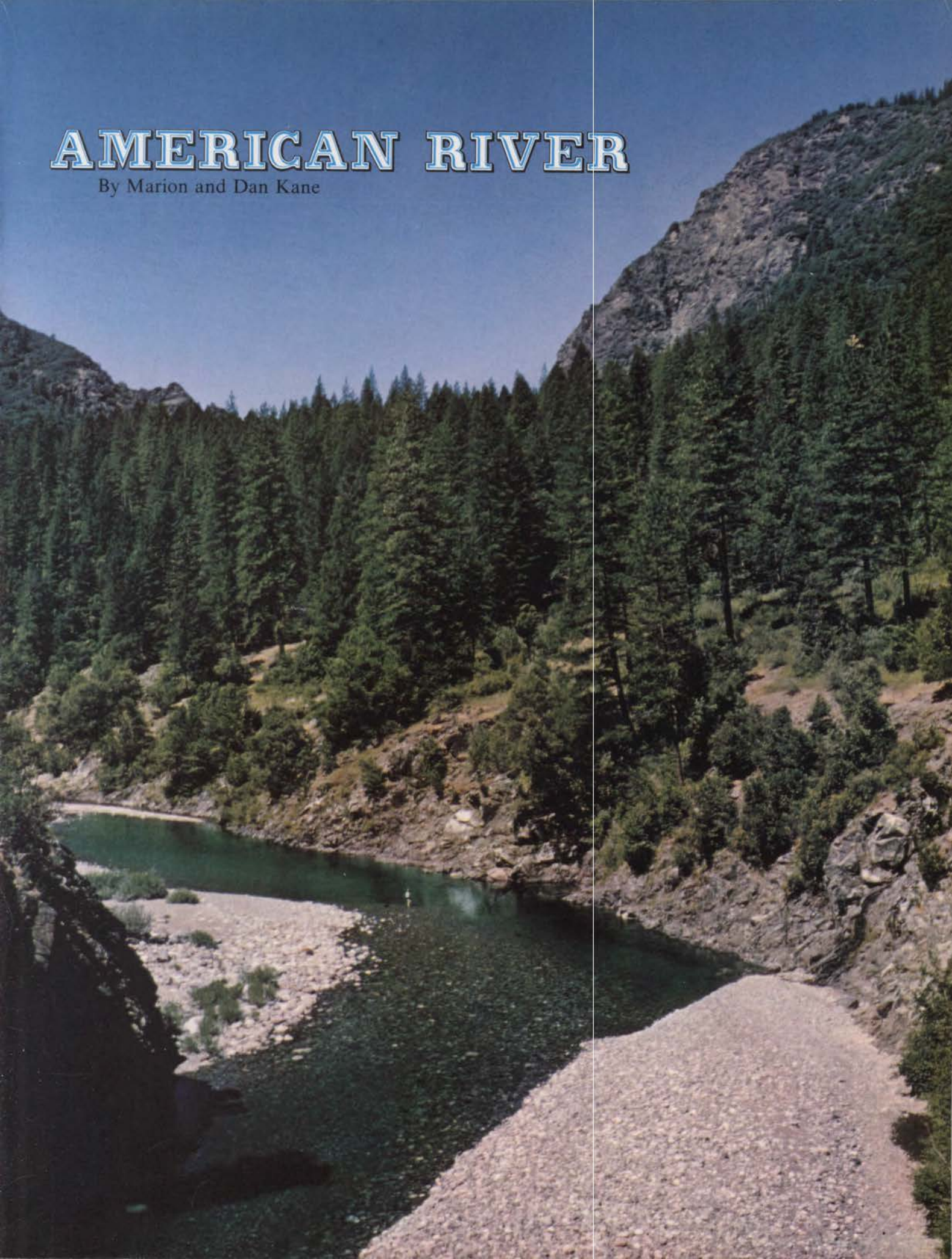
All of the other major tributaries of the American River have already been impounded by one or more dams: The S.M.U.D. Project and El Dorado Project on the South Fork, Hell Hole Reservoir on the Rubicon, French Meadows Reservoir, Ralston Afterbay and Oxbow Powerhouse on the Middle Fork, and last but not least the mammoth Auburn Reservoir which will encompass a shoreline of 140 miles, inundate 25 miles of the Middle Fork, and back up the North Fork 23 miles from Auburn all the way to Colfax. The huge Folsom Reservoir immediately downstream from the Auburn Dam site encompasses over 100 miles of shoreline. At the groundbreaking ceremony for the Auburn Dam in 1968, then Assistant Secretary of the Interior Kenneth Holum predicted that the Auburn-Folsom development would be the "greatest recreation complex in California" when completed in the mid-1970's, drawing ten million visitors annually. The entire County is spotted with numerous other large reservoirs and lesser man-made lakes.

The Placer County Water Agency presently harbors plans for damming or diverting most of the remaining untouched streams and tributaries in the County. Certainly, a county planning agency such as the Placer County Water Agency should not become another Army Corps of Engineers or Bureau of Reclamation, transfiguring the entire watershed, sloping west from the Sierra summit into an inglorious plumbing system. The Giant Gap dam proposal, an unnecessary extravagance to the detriment of a precious natural resource, must be reconsidered and rejected.

Nothing about the proposed Giant Gap dam and reservoir project is favorable. The walls of the deep gorge will slope almost vertically into the reservoir, rendering it practically inaccessible and reducing the recreation potential of the area. Studies by the California Department of Fish and Game indicate that the reservoir will destroy the river fishery for trout and other species and itself be a very poor reservoir fish producer. Proposed minimum water release schedules will be insufficient to sustain the fishery in the stream below the dam site. The reservoir will also have a significant impact on the winter deer range of the Blue Canyon herd, eliminating Green Valley where a herd of 1,000 animals finds subsistence and forcing the herd into other ranges already overgrazed. Upon completion of the Auburn Reservoir project, the North Fork will remain the only major spawning

AMERICAN RIVER

By Marion and Dan Kane



area for kokanee salmon and trout because of diversion dams already blocking the Middle Fork, Rubicon River and other important spawning streams. A dam at Giant Gap would effectively eliminate all fish runs originating from Auburn Reservoir. Pollution from construction of the dam, tunnels and access roads will be significant because there are no sites to deposit debris. Debris must be hauled out or dumped in the canyon and river, and undoubtedly the latter expedient would be adopted. This in addition to the inundation of miles of beautiful and rugged canyon and the disfiguration and impairment of additional miles of streambed, all for the modest sum of \$45 million plus another few million for facilities to transport the water. And for what? A powerplant already overshadowed by the Folsom-Auburn complex, to further increase unnecessary power capacity for the foreseeable future; and water for Colfax Ridge that can more easily be obtained from a variety of alternate, less destructive sources. Project planning engineers for McCreary-Koretsky Engineers who have been employed by Placer County Water Agency to study the project have set forth alternate sources, more favorable to Placer County.

Nor does stewardship by the Placer County Water Agency inspire confidence if past experience is any indication. On December 23, 1964, the partly completed Hell Hole Reservoir Dam gave way under impounded runoff from heavy rain setting loose a devastating surge of water reaching 75 feet in height and traveling 22 feet per second, which scoured the entire length of the Rubicon River to its confluence with the Middle Fork American 34 miles away. The flood surge left behind a treeless gully of landslides, mud flows, boulders, rubble and rockfill debris, and then raged on through the Middle Fork and North Fork American River before containment in Folsom Lake sixty-one miles downstream. In brief, Hell Hole meadow and the Rubicon were destroyed. As if that weren't enough, the rubble from dam construction buried the river for several miles so that the mighty Rubicon now flows underneath.

The heavy hand of the Placer County Water Agency has also reached the Middle Fork where four-and-one-half miles of river between Brushy Canyon and Oxbow Reservoir have been seriously damaged and scarred by a tunnel and accompanying tunnel spoil from an Agency project. Tunnel spoil and other debris from construction of the Ralston Ridge Tunnel were dumped at a Brushy Canyon disposal site and gunite was applied over the 200,000 cubic yard pile. It didn't hold. The entire accumulation of excavated

rock and muck, water hose, steel cable, electrical wire, railroad track, angle iron, drill bits, rubber boots and shovels discharged into the Middle Fork filling trout pools, raising the stream bed three to ten feet, obliterating vegetation, and causing turbidity, siltation and increased water temperatures for four-and-one-half miles to the Oxbow Reservoir. Trout habitat has been reduced by 66 per cent while the trout population has fallen 84 per cent. In an unpublished report of the California Department of Fish and Game, damage to the trout fishery was estimated to exceed \$70,000. Beyond that, this report adds:

"The computation of monetary loss resulting from the stream damage does not take into consideration the great aesthetic loss that has occurred to the stream. The stream above Brushy Canyon is well-shaded and the banks are covered with lush growths of alder, ferns, and elephant ears. Pools are deep and emerald green in color. Downstream from Brushy Canyon a desolate wasteland of rubble, rock piles, rusting pipes, and construction equipment greets the angler."

The river bed damage, habitat degradation and aesthetic loss is long term and cannot be corrected.

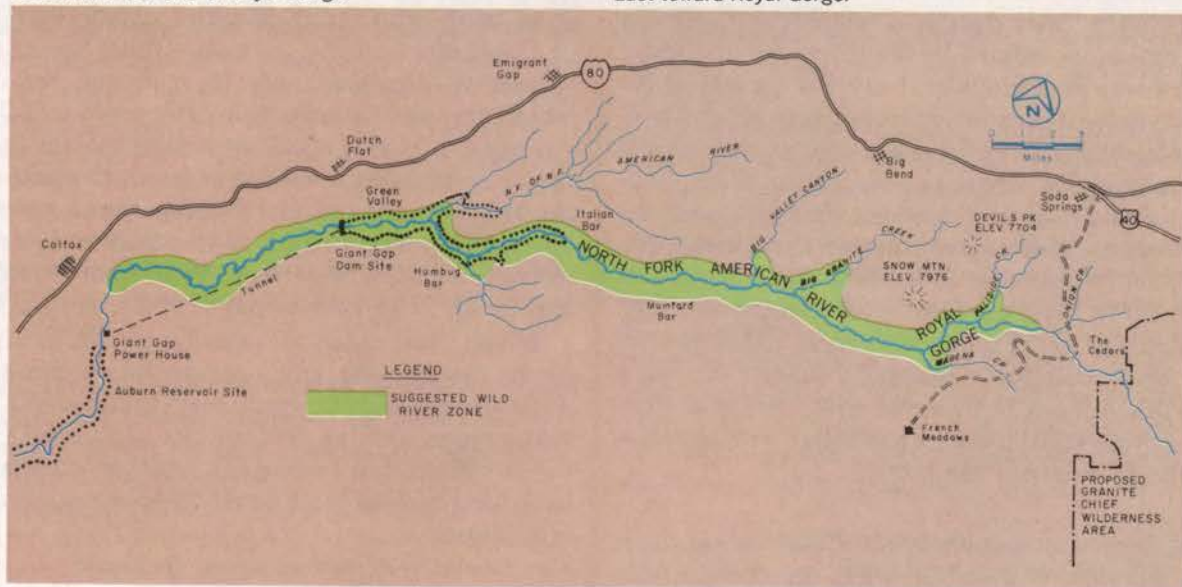
The Placer County Water Agency admits to a legal obstacle to the proposed Giant Gap project, namely, that it may not be possible to obtain water rights to a sufficient quantity of the North Fork flow to provide a minimum of 15,000 acre-feet of water per year for consumptive use. The Agency is ready with a back-up plan, however, for filling the Giant Gap Reservoir by diverting the South Yuba River from an entirely different watershed into a tributary of the North Fork of the American River through a 2.4 mile, \$2.5 million tunnel pursuant to an agreement with the Yuba County Water Agency. But even this back-up plan is not free of problems because the agreement permits diversion only when Lake Spaulding is spilling. During the spring of 1968 not a drop was spilled out of Lake Spaulding. The water obtainable by diversion from the South Yuba is therefore uncertain at best. Moreover, the water diversion proposed to fill the projected Giant Gap Reservoir would deplete the natural running flow necessary to sustain the fisheries of the South Yuba River. Fortunately, state funds would probably not be available for the Giant Gap project under the Davis-Grunsky Act because of the destructive effect on fish and wildlife and the absence of any significant recreation potential. Additional projects proposed by the Agency include massive alteration by dam and diversion of the major tributaries of the North Fork.



Waterfall, lower end of Royal Gorge.



East toward Royal Gorge.



Placer County's 1969 Grand Jury has recommended that no further funds be expended at this time for further feasibility studies on the Giant Gap Project because present available sources of water are adequate to meet projected needs at Colfax Ridge at least until 2020.

Other perils await the North Fork of the American River. Promoters of a Westville skiing complex under development in the Foresthill Divide have proposed construction of an additional access road from Colfax along the North Fork to Giant Gap, then over to the ski area. Moreover, Southern Pacific Co., the railroad which owns much of the land along the North Fork recently established a direct subsidiary, Southern Pacific Land Co., for the purpose of commercially exploiting its vast land holdings in California.

For these and many other reasons, the California Department of Fish and Game concludes: "It is our opinion that the North Fork of the American River upstream from Auburn Reservoir would best serve the long term public interest if it were set aside as a wild river in order to perpetuate outstanding fish, wildlife, scenic, and recreational values." In its California Fish and Wildlife Plan, the Department points out that free-flowing rivers and their associated resources are in short supply in the state and that "their flow cannot be measured in dollars or acre-feet." In 1966, the Wild Rivers study team of the National Park Service also recommended to the California Legislature that the North Fork of the American River be studied as a candidate for inclusion in the Wild Rivers System.

According to the federal Wild and Scenic Rivers Act of 1968, a "wild river area" eligible for inclusion in the system is defined in the following language: "Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America." A more suitable description of the stretch of the North Fork between Colfax and The Cedars could not be found. Certainly, at least, this section of the River qualifies as a "scenic river area," defined in the Act in a manner similar to a wild river area, "but accessible in places by roads." Inclusion within this Act can be achieved either by act of Congress or by an act of the state legislature with approval from the Secretary of the Interior.

Daniel Kane is a member of the Club's Legal Committee; his wife, Marion, helps edit the Outings issue of the Bulletin.

CONTINUED FROM PAGE 9

Few persons seriously doubt that the oil industry will gain entry to Maine's ports, but the *Maine Times* is fighting hard for legal safeguards, rousing public concern that may ultimately save the Maine coastal areas from total despoilment.

Typical of the *Times'* tying news items of national importance to items of local interest was the paper's treatment of pesticides and other "high-danger" chemicals. A featured article on the Dugway, Utah sheep kills went on to offer a complete, minutely-detailed explanation of how many of the various chemicals work.

As for the straight business of organizing and running a newspaper, Cox, who shares financial as well as editorial control with Cole, points out, "Other papers have a 60-70 per cent advertising ratio; we turn the ratio around and have 20-30 per cent and the rest is editorial. Since we're not locked into any formula, we can try new things every week, if we want to, and we don't have to have a board meeting about it."

And as Cole explains, "A paper like this has to be done from great feeling, by someone who lives in a state and loves it."

Together they have worked out a successful formula that uses new, modern equipment most effectively "We use IBM Selectric typesetting and compositing, wide-measure columns, and ragged edge rather than justified margins. We schedule our workload all week long, producing a weekly backlog of material, and we found a place that does our printing instead of us having to invest in a ½-million dollars worth of equipment or, worse, do the usual job printing that ties up most small print shops. It took a capital investment of \$10-12,000 for us to start out — print the first issue — and we distribute only by mail and newsstand, which keeps our production costs down to 2.2 cents per copy, 1.2 cents of which is the postage. Profits," they say proudly, "will really begin to show above the 10,000 mark, and that usually takes a new paper about two years. It took us less than one year. We were averaging \$250 per week in ad revenues last year and its up to a phenomenal \$1,000 a week now!"

Which must mean that the *Times* can be counted on to discuss our environment honestly and our despoilers critically for many years to come, and, sadly, that anyone wishing to duplicate the Cole-Cox editorial-publication formula in another state needn't look further than the nearest bilge-water stream for inspiration.

Eleanor Sterling is a free-lance writer.

BOOK REVIEWS

GOLD HUNTER — The Adventures of Marshall Bond. By Marshall Bond, Jr. Illustrated. 258 pages. Albuquerque: University of New Mexico Press. \$8.50. Marshall Bond, Jr., a long-time Sierra Club member, tells in this highly entertaining book the adventure of his father's life. Marshall Bond (1867-1941), a Yale graduate, participated in many of the colorful and exciting episodes in the final chapter of the opening of the West. An ardent outdoorsman, a lover of wilderness and friend of John Muir, he spent most of his life in the mining regions of Colorado, the Klondike, British Columbia, Nevada, California, and Mexico. Jack London based *The Call of the Wild* on Bond's dog. He knew most of Billy the Kid's gang. He was nearly killed by Pancho Villa. His letters from the booming mining camps are vivid, amusing and of high literary value and historic interest. The book is filled with an extraordinary array of characters — prospectors, explorers, writers, bandits, noblemen and eccentric millionaires. It is a well-told tale of high adventure revealing the warmth, zest and humor of a truly remarkable man.

YOU'RE STANDING ON MY FINGERS. By H. Warren Lewis. Illustrated. 268 pages. Berkeley: Howell-North Books, 1969. \$5.95. This book takes the reader on a delightful excursion with the H. Warren Lewis family through many mountain ranges of the United States and Canada. Over a fourteen year period the Lewises have kept journals of their trips. The result is a warm book, richly spiced with humor and mountain climbing jargon, a story for all ages.

FIELD BOOK WIND RIVER RANGE. By Orrin H. and Lorraine Bonney. Illustrated. 206 pages. Houston: Orrin and Lorraine Bonney, 1968. \$3.95, paper. If you're planning a trip to the Wyoming mountains this year be sure to take along this useful paperback, now in its second edition, that the Bonneys have prepared from many summers of experience in Wyoming. It covers the Bridger, Glacier, and Popo Agie Wilderness Areas, and the Wind River Reservation, and includes information on highway approaches, campgrounds, trails, outfitters, and distances. Recently it received first prize by the Outdoor Writers' Association for books on recreational camping.

THE PACIFIC SALMON FISHERIES, A study of Irrational Conservation. By James A. Crutchfield and Giulio Pontecorvo. 220 pages. Baltimore: The Johns Hopkins Press for Resources for the Future, Inc., 1969. \$6.00.

Our Pacific salmon fisheries, like many others, are economically absurd. Characteristically, as a commercial fishery evolves, the boats keep increasing until their average profit approaches zero. This "free entry" system pauperizes the

fishermen, weakens the economy, and wastes precious capital. The solution — limiting boats to an appropriate level — is obvious. Unfortunately, it's about as hard to sell as last year's salmon.

This book describes the economic plight of Pacific salmon fisheries, with much supporting data and excellent discussions of fishery and economic theory. It should be required reading for fishery administrators and biologists, if only to rattle all the old stereotypes in their management closets.

This whole problem of irrational fishery economics needs more attention than it is getting. The resulting hardships for commercial fishermen and the senseless multi-million dollar losses to the fishing industry and to the national economy each year are staggering. The authors propose a plan for reducing the number of boats which harvest salmon in Puget Sound, and suggest that fishery administrators should implement it, to show what can be done. At first this seemed reasonable. Then I began to wonder if they hadn't obscured a key issue with a plausible assumption which may be invalid. Who is responsible for solving these economic problems? Perhaps the men who regulate the harvest of Puget Sound salmon feel they are. If so they are a different breed from the ones I have been observing in California for twenty years. The latter have generally accepted responsibility for the marine resources, but not for the social welfare of the fishermen or the economic problems of the industry. Those were someone else's concern. Moreover, existing laws and policies spell out their roles that way. And why should they embark on non-resource crusades like economic reform? Most of them already face enough apparently insoluble social problems to last a career, with commercial and sports fishermen fighting over the same resources, and foreign fishing vessels on the horizon.

If fishery administrators don't provide the badly needed leadership, who will? Probably not national government, because the coastal states regulate marine resources, and they rarely welcome federal intervention. Even so, a president's study commission is worth considering. Probably not state governments, either, short of radical changes in regulatory philosophies and mechanics. So here's another frustrating case in which everybody's resource problem is nobody's resource problem. Perhaps a big philanthropic foundation could get the issue off dead center with a major study — not of the economic problem, which is already well-defined, but of its effective solution. Potential economic and social benefits clearly justify such an effort.

Alex Calhoun
Chief, Inland Fisheries Branch
California Department of Fish and Game

1970 HONORS AND AWARDS

The John Muir Award was presented to George Marshall by President Phil Berry at the Annual Club Dinner May 2, in recognition of his contributions to preserving the American heritage of wilderness. Marshall was cited for "those rare qualities of mind, heart, and spirit which carry forward the work of John Muir in preserving and protecting those superlative areas epitomized in our national parks." The William E. Colby Award was presented to Robert Howell in recognition and gratitude of his long continuing service of working for the internal welfare of the Club.

Special Achievement Awards went to Orrin Bonney, in recognition of his contributions in raising the Lone Star Chapter to a stature where it has successfully combated threats to the environment of the state of Texas; to Don Harris and Fred Fisher (jointly), for their efforts in organizing and administering the Club's legal program and for laying the groundwork for the Club's legal Defense Fund; to Keith Roberts, for his outstanding support of the Club's purposes, particularly in working to preserve the natural environment of Maine; to Anthony Ruckel, for his outstanding success in obtaining a landmark court decision which may affect the success of the wilderness concept for present and future generations; to Dwight Steele, for outstanding work in coordinating efforts to save San Francisco Bay; to Peter Tolles, in recognition of his unique and successful methods of spreading conservation alerts. The newly established Francis P. Farquhar Mountaineering Award was given to Norman Clyde and Al Steck, "for achievements in climbing, leadership, technique, and contributions to the Club's Mountaineering activities."

OIL AND PUGET SOUND

In the wake of two major developments concerning the future of the oil industry and Puget Sound, the Sierra Club Board of Directors resolved, "The Sierra Club is opposed to exploratory drilling for oil in Puget Sound, to construction of a pipeline in the Puget Sound area of oil refineries to process Alaskan oil, and to construction of a pipeline through the North Cascades to eastern markets." Recently the Washington State Department of Natural Resources received an application from an attorney representing an oil company to open up 140,000 acres of state tidelands and 10,000 acres of state uplands in Puget Sound. Action on the request is expected in June. A second development,

one directly related to what happens with the Alaska pipeline, is a plan by Atlantic Richfield and other oil companies to vastly expand their present refineries in Washington to handle the Alaskan oil. "If the pipeline goes through, the result will be one million barrels of oil a day on super-tankers into northern Puget Sound and at least six more new giant refineries," Brock Evans, the Club's Pacific Northwest representative, told the Board. Evans also forecast pipeline construction from Puget Sound to an eastern terminal, possibly Chicago.

CLUB OFFICERS

Phillip Berry was elected to a second term as president of the Sierra Club at the annual reorganization meeting of the Board held May 2 and 3 in San Francisco. Other officers are: William Siri, 1st Vice President; Edgar Wayburn, 2nd Vice President; Raymond Sherwin, Secretary; and Charles Huestis, Treasurer. Honorary officers are: President, Francis P. Farquhar, and as Vice Presidents, Horace M. Albright, Phil S. Bernays, Dr. Harold C. Bradley, Lewis Clark, Newton Drury, Randall Henderson, Charlotte Mauk, and Dr. Robert G. Sproul.

1970 ESCALANTE OUTING

There will be a Conservation Special High-Light Trip into the Escalante wilderness September 20-October 2, 1970. The trip will explore this wild, serene country of red Navajo sandstone cliffs, sculptured and carved by ages of wind and water action and striped in fantastic vertical patterns, in brilliant hues of yellow, orange, black and brown. These towering red canyons are brightly accented by wildflowers, birds and cottonwoods showing their autumn colors in the warmth of the fall sunshine. Trip members can climb up into Stevens Arch, majestic on the skyline and one of the largest in the Southwest, rising spectacularly above the river which carved it out of the sandstone. The trip will include a visit to the Golden Cathedral with its reflecting pool aglow in the sunshine, the mysterious and gloomy Cavern of Darkness and visits to the side canyons into Moody Creek, Scorpion Gulch and Fools Canyon. Colorful overhanging canyon walls reminiscent of Glen Canyon and the view overlooking the Escalante River and Coyote Creek with Stevens Arch in the distance will linger in the memory of all who visit this remote wilderness. Following the usual High-Light format, every other day will be a layover day. For further reading on the Escalante region, see the December 1969 Bulletin; *Audubon Magazine*, September 1969; and *Natural History Magazine*, November 1969. For further

information on the fall trip, write the Club Outings Department for the trip supplement.

NOISE PROTECTION

The Sierra Club Board of Directors adopted the recommendation of the Angeles Chapter regarding the responsibilities of city, county, state and federal governments to: (1) encourage and sponsor large-scale research projects on noise control, including development of quieter jet engines, mufflers for diesel engines and noise insulation for buildings, (2) use predicted noise levels surrounding new or expanding airports, VTOL and STOL ports, in location of facilities, establishment of flight patterns, and in creation of zoning laws to restrict residential development in areas most seriously affected; (3) develop legislation to designate an agency, free of operating or program responsibilities, which has clear cut legal responsibility for controlling noise levels; and (4) provide those agencies which have been given the responsibility for enforcing noise ordinances with sufficient funds and manpower to exercise that responsibility. The chapter recommendation also suggested requiring inclusion of noise control standards in building codes; including noise limits in government specifications for aircraft and autos, etc.; and prohibiting the operation of civil aircraft under conditions that produce sonic booms audible at the surface of the earth.

POWER PROJECTS

The Sierra Club Board of Directors passed resolutions opposing the construction of a nuclear power generating facility near Davenport, California, and in favor of postponing for at least four years expenditures for design or construction of a nuclear power facility near Eugene, Oregon. In addition, the Board went on record as opposing both the Navajo (Arizona) and Kaiparowits (Utah) projects to strip mine low grade fossil fuels and to construct power plants for the purpose of supplying power to Los Angeles.

POWER PLANT SITING

A vigorous Sierra Club fight against AB 818, a bill before the California Assembly that would have established power plant siting as the highest priority for land use along the California coast, ended successfully May 6 when the Assembly Committee on Natural Resources refused passage of the bill on a split voice vote. The bill to create a power plant siting committee directed the committee to seek the most economical source of power and to proceed with haste; there was no mandate for protection of the environment.

WASHINGTON REPORT

Earth Day fallout is becoming evident in governmental reports and decisions. These indications of environmental concern may not represent a monumental reversal of bureaucratic practices, but they do represent recognition of specific problems and are responsive to citizen concern.

Two cases are illustrative. Perhaps the most significant was the announcement by Interior Secretary Walter Hickel of a new forest management plan for the highly-productive 2.4-million acres of Western Oregon timber lands managed by the Bureau of Land Management. Hickel's announcement called for a cut-back in the annual allowable cut and implementation of a plan giving greater consideration to environmental protection.

"I feel strongly that the time has come to completely recognize the environmental aspects of timber harvesting," Hickel stated. "While we are obligated to a course of sustained yield timber management, we also have obligations to other forest uses and to the environment. I am convinced that some of these forest lands now have higher value for recreation areas and scenic beauty, and for streamside corridors that serve these needs and also protect soils and water quality."

The extent of timber-harvesting reduction on these federal lands has not been fixed. An Interior announcement indicated a decline of about 12 per cent to a level of 1.165-billion board-feet a year, but it is known that a cutting level of 933-million board-feet would be in line with what the area can maintain on a sustained-yield basis. Whatever the eventual size of the reduction, BLM Director Boyd Rasmussen has assured increased protection throughout this Western Oregon region, possibly the most productive timberland in the nation.

He said the plan provides for protection of 78 existing BLM recreation sites, as well as 172 identified recreation areas yet to be built; protection of 47 miles of wild and scenic rivers, 2000 miles of protective

streamside corridors, 3000 acres of scenic areas, 108,000 acres of critical watersheds and fragile sites, 118,000 acres of improved forage for wildlife and livestock. The plan is based on a complete re-inventory of the 2.4 million acres of BLM holdings, Rasmussen said.

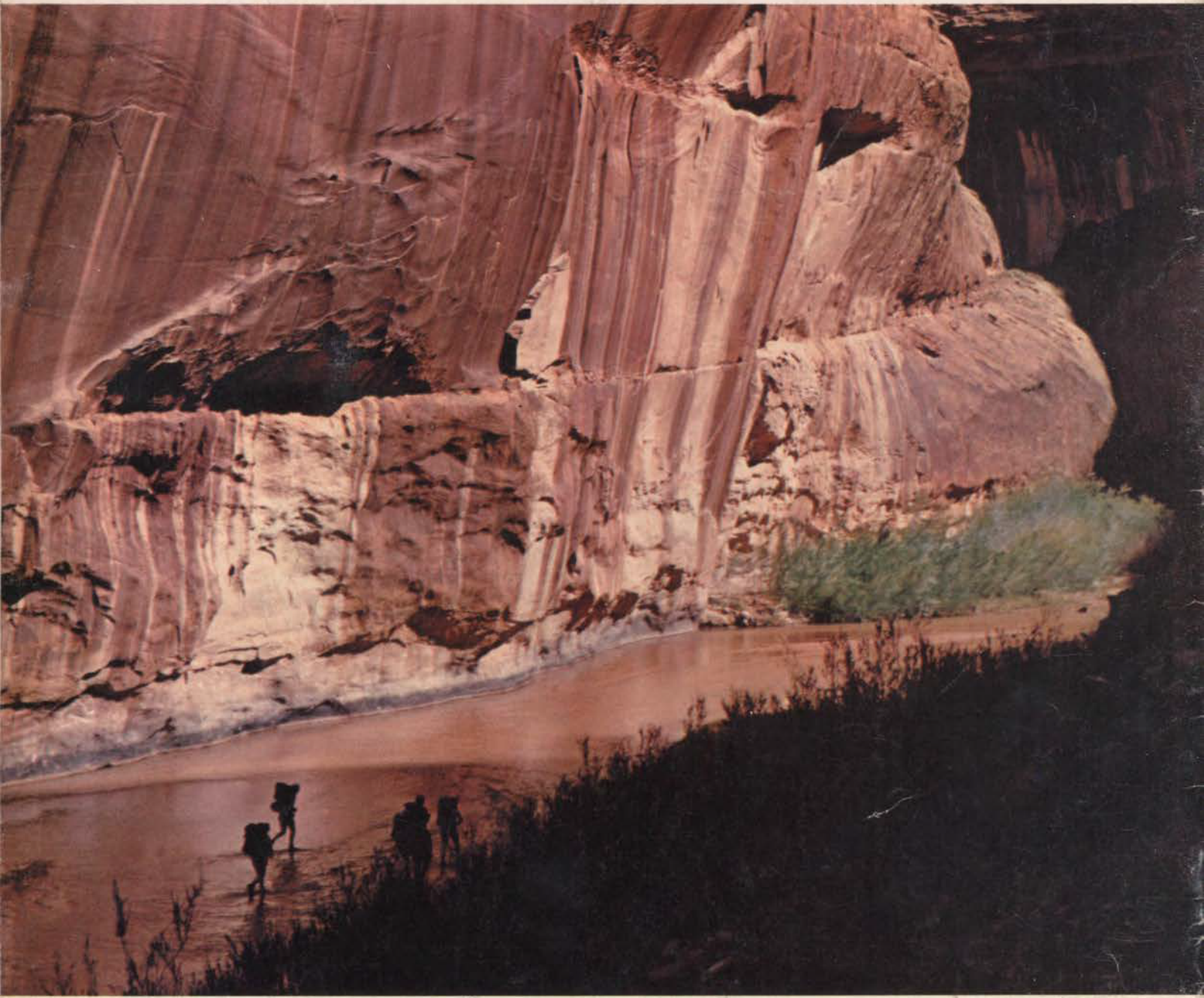
Conservationists have been invited by Rasmussen to offer comments on the program. And they should. A case can be made for more protection.

A somewhat related development was issuance by the Federal Water Quality Administration of a detailed report pinpointing logging activities in the Pacific Northwest as one of the region's most serious sources of water pollution. Issued by the agency's Pacific Northwest Regional Office in Portland, it criticized logging practices on both private and federal lands.

The report said: "With about 1,000,000 acres of forest land being cut each year (360,000 acres of this by clear-cut logging) in Oregon and Washington alone, there is far too much evidence of improper, low-cost logging operations resulting in debris-clogged streams running turbid with silt-smothered spawning gravels and banks stripped of the shade to protect cool waters. Carefully planned and managed logging operations must be the unvarying rule if water quality is to be protected."

Regional Director James L. Agee said that federally controlled logging programs to abate water pollution must be more far-reaching and instituted more promptly. The 40-page report spells out logging practices which must be involved if forest land streams are to be saved from further adverse pollutional impacts.

This, of course, is strong language to emanate from a federal office in an area where the forest products industry dominates the economy and community life. Hopefully it is a sign of the times. If so, it will belie the claims of many that the call for environmental action may become a passing fad. — W. Lloyd Tupling



Conservation Special High-Light Trip to the Escalante Wilderness — see page 22