SIERRA
November/December 1980
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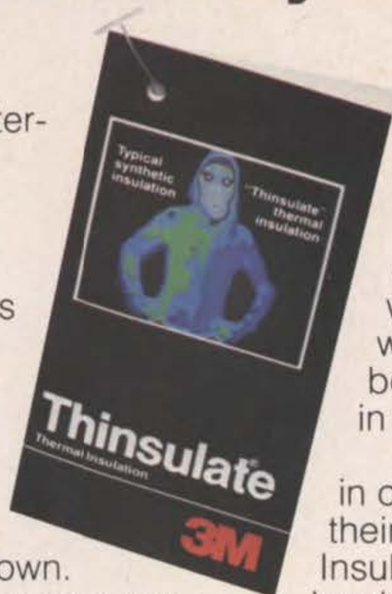

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November/December 1980

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THE SIERRA CLUB BULLETIN

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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."

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Conservationists and the "Lame Duck" Congress

DOUG SCOTT

THOUGH THE ELECTIONS are over and Congress will be ending soon, most of the Sierra Club's highest-priority conservation bills remain unresolved. Thus, the fate of these issues will be decided in the five or six weeks of the "Lame Duck" congressional session that will convene in Washington at noon on November 12.

During that session, the Sierra Club must effectively marshall environmental political force to reap the fruits of the efforts in which our members have invested so much attention and involvement over the past 22 months!

This issue of *Sierra* brings readers up-to-date on our key issues—the bills we want to press through to passage and those we've blocked thus far, but that still need close attention to assure they remain dead. Foremost among those we want to pass—if it can be adequately strengthened—is the Alaska lands bill; Edgar Wayburn presents a full report starting on page 33. Foremost of those bills we hope to prevent enacting is the Energy Mobilization Board (EMB). These bills and our other top priorities are summarized here.

We appeal to you to read these pages carefully, and then plot out a personal action plan and a schedule for making your political power felt on these issues by contacting your representative and your two senators.

The politics of a Lame Duck congressional session are unusual. The pace is hectic; legislators who have been wading slowly through the issues for 22 months must suddenly consider and vote on dozens of matters, in a hurry-up atmosphere not unlike a "sudden death overtime" at the end of a hard-fought football game.

Some members of Congress will have lost their reelection campaigns by the time you read this issue of *Sierra*. They return to Congress as free agents, no longer obligated to respond to constituent pressures. Those reelected to office may also behave as though partially free from the "constraint" of home-district concerns; in the last weeks of 1980, they are farthest in time from having to justify their actions to the voters once again.

As this issue of *Sierra* goes to press, the elections are still a week away. After the elections, politicians, the media and the Sierra Club will all be sifting through the election results, trying to divine new tides and currents in the body politic. Certainly the results of the presidential election will influence events in the Lame Duck session. Obviously, a Reagan victory would signal the advent of an administration less receptive to environmental concerns, thus enticing anti-environmental forces in Congress to delay legislation in hopes of achieving something "better" in 1981.

But amid these special circumstances, remember that most incumbent representatives will have been reelected, and senators too (only one third of whom stand for election each two years). They will be returning to Washington to take up unfinished agendas, including bills of urgent concern to the Sierra Club and other environmentalists. Your influence—through personal contacts, letters, phone calls, letters to the editor and work with your local media—can make all the difference in how they cast their votes on issues of major environmental concern.

Act now. Jot down your own personal political action plan for helping with the issues on the Sierra Club legislative agenda. The Club's volunteer leaders and lobbyists are making every effort to assure your access to the information you need, in these pages and through our recorded-message "hotlines." Our impact and influence depend on that special tide which, when gathered in full force, washes upon Washington, D.C., an unstoppable wave of environmental concern. But first we must grasp the *initiative*, adding our individual, seemingly small efforts—a letter, a call, urging a friend to write—to the momentum that collectively is the unique political power of the Sierra Club. □

Doug Scott is director of federal affairs for the Sierra Club.

The Unfinished Conservation Agenda

ALASKA The new Udall-Evans bill (H.R. 8311) proposes important strengthening amendments. If it is passed together with the Senate's weak Alaska lands bill, the combined result will be a major conservation achievement. Urge House members to *cosponsor* H.R. 8311; such visible expression of support builds essential legislative momentum. Ask senators to press for acceptance of this set of House improvements. (See page 33 for a fuller report.)

"SUPERFUND" An urgently needed bill that would speed cleanup of hazardous waste dumps, place liability for damages on the companies responsible and would compensate innocent victims, such as those at Love Canal. The House has passed basic bills (H.R. 7020 and H.R. 85); the stronger Senate bill (S. 1480), with provisions for stricter liability and full victim compensation, is under heavy attack by the chemical industry. Urge senators to pass S. 1480 without weakening the measure.

ENERGY MOBILIZATION BOARD (EMB) An extraordinarily dangerous bill (S. 1308) that would "fast track" decisions on huge energy projects. This bill was recommitted to conference committee by the House, after having passed both the House and the Senate in different versions. Last June's recommittal should mean the bill is dead. But members of Congress must be urged to oppose any effort to revive this unprecedented threat to override environmental laws.

WILDERNESS Senators, particularly California's S. I. Hayakawa, should be urged to promptly pass the landmark California Wilderness bill (H.R. 7702), already supported by Senator Alan Cranston. A Colorado Wilderness bill (H.R. 5487) has passed both House and Senate and should move quickly to final enactment; it includes also areas in South Dakota, Louisiana, South Carolina and Missouri. House members should be urged *not* to accept a New Mexico Wilderness bill that establishes too little wilderness (200,000 acres less than the administration recommended) and includes provisions that would prohibit necessary study of other roadless lands. The bill passed the Senate attached as a "rider" to an unrelated bill (S. 2261).

NUCLEAR WASTE The Senate has passed an extremely bad bill (S. 2189), at the behest of the nuclear industry. Multiple versions of two bills, H.R. 7418 and H.R. 6390, await floor action. At this point, no bill is desirable, as any combination of these versions would amount to a dangerously misleading non-solution desired by the industry to sweep this problem under the rug. Representatives should be urged to oppose this ill-considered legislation, which can receive more careful attention next year.

NORTHWEST POWER BILL The first bill to come up in the Lame Duck session (S. 885), already passed by the Senate, is scheduled for a House vote on November 12. This unsound measure, masquerading as an energy conservation bill, would actually provide federal guarantees to underwrite (and thus encourage) construction of new coal and nuclear plants in the Pacific Northwest—an area that already enjoys plentiful and cheap electricity. The bill would create precedents for undermining effective energy conservation nationwide. House members should be urged to oppose it.

BARRIER ISLANDS An important proposal is pending that would preserve barrier islands on the Atlantic and Gulf coasts by eliminating present federal subsidies that encourage accelerating development. Neither house has acted, but S. 2786 is progressing in the Senate. Urge senators to press for action on S. 2786 this year, and ask House members to support its companion bill (H.R. 5981). Members of Congress from the coastal states and Senators Bumpers (D-Arkansas) and Hollings (D-South Carolina) are key figures in this legislation.

RECLAMATION "REFORM" Another bill best left to die (S. 14) has already passed the Senate; an equally bad bill (H.R. 6520) is awaiting action on the House floor. These bills would forgive operators of huge corporate farms for violating the 1902 Reclamation Act—a law designed to promote fair water distribution and family farms. Water conservation is ignored; subsidies for users of federally-supplied reclamation water will simply encourage the construction of more wasteful reclamation dams and canal systems at taxpayer expense. Urge House members to oppose H.R. 6520 and to work for real reform next year.

STRIPMINING The Senate has twice passed amendments to weaken the Surface Mining Control and Reclamation Act of 1977. House Interior Committee Chairman Morris Udall (D-Arizona) has so far kept the Senate bills bottled up, but the coal industry may find a way to make an end-run around him, so representatives should be urged to protect the integrity of this vital act, without amendment.

WILD AND SCENIC RIVERS A relatively non-controversial package of new "instant" and "study" rivers in thirteen states has passed the House and awaits Senate action. Senators should be urged to approve this bill (H.R. 8096). □

Sierra readers are urged to do at least one of the following:

(1) Visit your representative and/or one of your two senators to discuss the issues. Work with friends to set up the meeting; seek commitments from members of Congress on each of the specific issues.

(2) Write a letter to the editor of your local newspaper discussing the unfinished environmental agenda for the Lame Duck session.

(3) Write a letter to your representative and/or your senators outlining your views on the issues.

(4) Urge another public-interest organization of which you are a member to pass a resolution about these issues that can be forwarded to your three members of Congress.

(5) Call the local offices of your representative and senators to express your views on these bills.

(6) Urge your local paper to publish an editorial about the unfinished environmental agenda.

(7) Urge your city council (or appropriate local politicians) to write to your members of Congress about these issues.

For More Information

- *24-hour recorded "hotline" messages, updated daily:*
For latest status on Alaska, call (202) 547-5550. For other issues, call (202) 547-5551.
- To report political commitments, or for more action ideas, call the Conservation Department Campaign Desk in San Francisco: (415) 981-8634.
- Members are urged to contact local Sierra Club group or chapter (see your local newsletter) or the nearest field office to join in organized efforts on these issues.

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THE SINAI

Egypt Learns to Care For Its Historic Desert Wilderness

Patricia Scharlin and Ronald Eber

WHEN THE Camp David talks between Egypt and Israel were taking place in the fall of 1978, other, less dramatic but nonetheless important discussions among conservationists were determining the future of natural and cultural areas in the Israeli-occupied Sinai peninsula. The terms of the peace treaty signed on March 26, 1979, provide for the return of the Sinai to Egypt in a phased operation to be completed in the spring of 1982.

The Sinai today is as it has always been, a vast, sandy desert with tall, red mountains, narrow gorges and occasional lush oases. This triangular piece of land, no larger than Virginia, is tied not only to the political and military settlement between Egypt and Israel, but to a human history that extends to pre-Biblical times. The face of the Sinai has not changed since earliest recorded history, except for a few paved roads across the old camel routes and the rubble strewn by modern warfare.

The Old Testament refers to the Sinai as a "great and terrible wilderness"; its name probably refers to the ancient moon god, Sin. Although sparsely settled, the Sinai has been of strategic importance to a succession of peoples since the early Bronze Age. Only 125 miles across, the Sinai's northern plain is the land bridge connecting the African and Asian continents. Here is the Sinai's only settlement, El Arish, "the place of the booths." With a population of 30,000, it serves as the marketplace for the nomadic desert dwellers, the Bedouins. From El Arish, rolling dunes of clean sand extend to the blue Mediterranean, where the coastline is marked by a narrow fringe of green palms.

The stretch of palms is civilization's most ancient pathway. Known to the Romans as Via Maris, "the way of the sea," it served as the first trade route between the old kingdoms of Egypt and Mesopotamia. Other, non-human travelers still depend on the Sinai. At this northern edge of the Sinai, facing the Mediterranean, is Bardawil Lagoon, the major stopover for migratory birds traveling between Asia, Africa and Europe. Exhausted by flights of more than 400 miles across open sea, many birds who rest there are easily trapped in hunters' nets.

Throughout history, the Sinai has been one of the world's most contested pieces of land. As a continental crossroads, it has always been of strategic importance, for along this route the pharaohs sent their armies and traders east to bring back the riches of Asia. And it was in the Sinai that the children of Israel wandered for 40 years after fleeing bondage in Egypt.

South of "the way of the sea" is Sinai's other major crossroad, first used as a route to the Gulf of Aqaba by Egyptian and Nabatian traders. In the seventh century A.D., with the rise of Islam, this road became known as Darb el Haj ("the way of the pilgrims"), and served as the major land route from northern Africa to the Moslem holy places of Mecca and Medina in Saudi Arabia. Darb el Haj leads through the Mitla Pass; this pass has witnessed battles for thousands of years. The remains of a fortress dating back to the Crusades—commanded by the Moslem warrior Saladin—occupy a high butte nearby.

Seeing the hieroglyphics scratched on the canyon walls can take the viewer on a giant leap backward through time. While climbing to the ancient turquoise mines of Sarabit el Khadim, it is easy to imagine the dry, narrow, sandstone trail as the caravan route it had been for more than 3500 years. Sarabit el Khadim was a source of beautiful jewelry for the pharaohs, and on a nearby mesa miners built a temple in honor of Hathor, an Egyptian goddess of festivity. Porters and miners, trying to copy hieroglyphics, incised unique symbols on the walls of caves nearby. These characters are believed to be forerunners of the Hebrew, Greek and Roman alphabets.

The southern part of the Sinai peninsula is composed of rugged, red granite mountains and narrow gorges that date back more than 600 million years to the pre-Cambrian period. The area is also habitat for several species of wildlife—fennec (desert fox), wolf, hyena and jackal, as well as some rare endangered species of gazelle.

Hidden deep in the mountains is the monastery of St. Catherine, commissioned by the Byzantine Emperor Justinian I and completed in 557 A.D. It stands at the foot of Mt. Sinai, or Gebel Musa, at the spot where it is believed that Moses talked to God at the "burning bush." The area also serves as home to several unusual species of high-elevation plants, the Nubian ibex and the Sinai leopard. As seen from the mountain summit at 8000 feet, the desert spreads out in

***Overleaf:** Wadi Mandala, in the Sinai desert, looking as green as it has for the last 30 years. **Left:** Date palms at Ain Um-Ahmed.*

Photographs by Neil Folberg

a blend of reds, browns and blues, touched here and there by the white morning mist. The heart of the desert is a place untouched by time, "suggesting patience and struggle and endurance," in the words of Joseph Wood Krutch.

During Israeli occupation, certain parts of the Sinai were set aside as natural areas (see p. 11). During the treaty negotiations authorizing the transfer of the Sinai back to Egypt, conservationists from several nations, including members of the Sierra Club and the International Union for Conservation of Nature and Natural Resources (IUCN), were quietly working to assure protection of these special places.

Fortunately, the Egyptians are acutely aware of the global significance of these natural and cultural sites. President Anwar al-Sadat has announced plans to commemorate the peace agreement by honoring the three major religions in a combined shrine located near St. Catherine's monastery. Monuments may draw attention to natural areas, but do not protect them. Legislation, the means to implement such laws, and most important, the support of the public are all crucial.

Egypt has already established legislation to protect wildlife and was an early signer of a convention outlawing trade in endangered species and the World Heritage Convention, intended to preserve cultural and natural areas of global importance. Taking advantage of the international ceremonies launching the World Conservation Strategy on March 5, 1979, President Sadat reaffirmed Egypt's dedication to conservation by endorsing the strategy—a global plan for sustainable growth developed by the United Nations Environment Programme in cooperation with the IUCN.

Sadat proclaimed a national strategy to protect Egypt's "natural wealth" by setting aside certain areas for protection, scientific research and tourism. He authorized the establishment of Egypt's first wildlife service, which is part of the Ministry of Agriculture. Two other decrees provide the framework for protecting natural areas in the southern Sinai and the fish and wildlife inhabiting the coral reefs and wetlands of Ras Muhammed. This area, at the southern tip of the Sinai is habitat for dugongs and a wide variety of fish. The Island of Tiran, on the same stretch of coast, is a haven for migratory bird populations and the largest population of osprey outside of the United States' Chesapeake Bay area.

Now that goals have been set and the legislation passed, a new corps of park and wildlife managers must be trained and the Egyptian people alerted to the importance of conservation—no simple task. Egyptians understand well how to utilize such scarce resources as land and water, but since arable land is so limited (only 5% of Egypt's land is cultivated, all of it in the Nile Valley), there has been no impetus to set aside arable areas as preserves for wild plants and animals.

Government decrees now support the corps of dedicated workers shaping an Egyptian conservation program. These activists come from the Egyptian Association for the Conservation of Natural Resources, the National Academy of Science and the National Board for the Protection of Nature. Mrs. Sadat, the President's wife, will supervise the implementation of the new conservation decrees.

Under the leadership of Dr. Hassan Hafez, now undersecretary of state in charge of wildlife in the Ministry of Agriculture, a training program was developed in cooperation with the U.S. National Park Service and the Fish and Wildlife Service. The Park Service conducted training workshops for the first group of field resource managers and initiated a public awareness program. These were the first steps in helping the Egyptian government establish and maintain a system of national parks and reserves to preserve habitat as well as provide recreation and tourism.

The Sierra Club was invited to participate in the first of these training workshops to help explain the importance of public participation in maintaining national parks and reserves. It was a challenge to present the American philosophy of community involvement in a way that the Egyptians found

Top: *The sixth-century A.D. Greek Orthodox monastery of St. Catherine, at the foot of Mount Sinai. Within this tiny fortress can be found a church, a mosque, wells, a library, and unrivalled collection of Byzantine icons and, beneath the floor, a half-forgotten maze of rooms, cellars and corridors. These catacombs have yielded rare artifacts and manuscripts.* ***Above:*** *Mount Sinai, a site holy to Christians, Jews and Moslems.*

compatible with their own cultural traditions. Park and wildlife managers shared their knowledge and experience with 26 Egyptian students, most of them recent university graduates of veterinary medicine, some practicing veterinarians and a few professors from Cairo University's school of agriculture.

A three-day field trip to the southern Sinai was the highlight of the week of training. It began with a day's drive, first across a pontoon bridge at the Suez Canal, near ruins of buildings and tanks—the remains of many years of warfare—along the western side of the Sinai past small oases and Bedouin settlements, then onto rough, rocky *wadis*, the dry riverbeds that serve as roads in the desert. Our caravan of four vehicles arrived at midnight at the Field Research Center near St. Catherine's monastery. The center, currently administered by the Suez Canal University, was originally built by the Society for the Protection of Nature in Israel. Remnants of the Israeli presence exist, and there was no indication that the Egyptians intended to remove them. Especially delightful was a handmade poster in the mess hall with the words of conservationist writer Wallace Stegner written in Hebrew, his name in English.

Once the Sinai nature reserves are well established and the wildlife populations begin to increase, another problem will have to be faced: the possibility that the local Bedouins might hunt the animals to depletion again. The nomadic life of the Bedouin tribes has an impact on land-management decisions everywhere in the Sinai. In the southern part of the peninsula, the Jebeliya Bedouins are known to be especially independent. The Israelis had begun to involve them in the economic life of the area, and many Bedouins have settled down as pastoralists. However, this raises the question of whether the Bedouin way of life, which has not changed for centuries, should be altered by another culture for the sake of protecting the fauna of a natural area.

Plans for economic development of the Sinai may affect the natural areas more directly than the Bedouins. Now that there is peace, the Egyptian government is turning its attention to improving the living conditions of a growing population of more than 40 million people. Plans are being made to relocate people from the heavily-populated cities along the Nile to new settlements at the edge of the desert and in the Sinai. At present, 99% of the Egyptian population lives on only 4% of the land. These proposed settlements will require electricity, water, roads and other urban necessities. The U.S. Agency for International Development is expected to provide large amounts of aid once the government confirms its plans. Offshore oil drilling in the Gulf of Suez has already fouled the white sands along the coast of the Sinai, and there is talk of bringing water from the Nile to irrigate portions of the northern Sinai desert.

Egyptian conservationists are aware that development plans could affect wildlife and natural areas. They have sought the help of American conservationists to reinforce their own efforts to convince their people of the importance of conservation. Conservation will not be an easy battle to win. The Sinai, truly a fundamental part of the world's heritage, may be an important example in demonstrating public understanding of conservation as an essential part of economic development. □

Patricia Scharlin is director of the Sierra Club Earthcare Center. Ronald Eber chairs the Sierra Club National Land Use Committee.

ISRAEL AND THE SINAI

PROTECTION of Sinai's wild places was an important priority during the thirteen years of Israeli control. The majestic mountains and beaches of Sinai provided a land-scarce Israeli public with a vast recreation and vacation area—though all the expected development pressures of modern society were present.

The Israeli Nature Reserves Authority designated many reserves along the coast and in the mountains and enacted laws to protect the abundant marine life, coral reefs and wildlife.

One of the largest reserves encompassed the high mountains of the southern Sinai. Here, at the foot of Mt. Sinai, the Society for the Protection of Nature (Israel's equivalent of the Sierra Club) led hikes and camping trips and provided visitor information—services similar to those provided by our own National Park Service. Nature and history talks were presented in the evenings by resident naturalists. The society also led wilderness trips to other parts of the Sinai.

During their tenure in the Sinai, Israeli conservationists were successful in limiting excessive coastal developments and preventing the construction of tourist facilities and a paved access road in the Mt. Sinai area. The conservationists strove to educate all visitors about the natural and historic significance of the Sinai wilderness.

Regardless of who controls the Sinai, pressures to develop will not go away. Sinai, as the first wilderness, is the responsibility of all conservationists.

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Thoughts of the Sierra Club's President

A Talk with Joe Fontaine

FRANCES GENDLIN

Fran Gendlin: *In* Sierra*'s September issue you were quoted as saying that the Sierra Club must become more political. Is this a new direction?*

Joe Fontaine: We've been political to a certain extent for quite a while. The old methods we've been using, such as asking our members to write to legislators, still have an effect, but our opponents are beginning to use the same tactics. If we want more influence in Washington, we've got to be more directly involved in political campaigns. We've got to identify environmental friends in Congress, and then do what we can to support them.

FG: *Will the Club endorse candidates?*

JF: On a trial basis. The Board of Directors gave permission to the California chapters to endorse a limited number of candidates for the state Assembly and Senate. We'll see how effective it is and how our members accept it before we do it on a national scale. Short of endorsement we'll still support national candidates who are friends. We must also educate our members about the environmental records of particular candidates, as we did in the last issue of *Sierra*. It's a very important service to our members and to the general public that reads our magazine.

FG: *At the Democratic Convention, there was a fledgling environmental caucus; delegates met with environmentalists and candidates' representatives. Is it possible to have an environmental party like some that are springing up in Europe?*

JF: We certainly want to have environmental caucuses to influence legislators and candidates, but I don't think this country's ready for a separate party based on the environment, although in the future it may be a possibility. Whether a basic change in our political system will be good for the country or good for the environmental movement is something that needs to be assessed. To say that we're going to do that, however, would be premature.

FG: *You were active in the Club when Ronald Reagan was governor. How was he, environmentally?*

JF: There were a few good things he did as governor, but generally he was very poor as far as the environment is concerned. He did stop one dam in northern California, mostly on economic grounds, although it was partly environmental, too. Norman Livermore, his resources secretary, is a good environmentalist, and he had some influence on Reagan. He did sign some good legislation, but he certainly didn't take a leadership role. Generally, most of the things he did were negative as far as the environment's concerned.

FG: *He was the only candidate in the recent presidential campaigns who refused to grant an interview to* Sierra. *As governor, did he have a particular attitude toward the Club?*

JF: We met with him once, when I was a regional vice-president for southern California. Resources Secretary Livermore had arranged a meeting for Reagan to get a look at us, to see that we were real people, to see what we were like and what we were doing. But I don't think it was with the intent of trying to do anything for us.

FG: *The elections will be over by the time this is printed, so I want to ask you about both Reagan and Carter. What kind of priority do you think Governor Reagan would give to conservation if he were President?*

JF: I think he would probably give it a low priority. If you can believe his campaign rhetoric, he would try to weaken some environmental laws. For example, he told some auto workers in Detroit that he wanted to reduce some of the regulation on the auto industry, but not for the benefit of the workers themselves in the workplace. He wanted to reduce the regulations, for example, on smog control, reduce the standards for air quality and for other things that can make it more expensive to manufacture cars. That's just one example of the kind of thing I think he would try to do as President. One of the major themes in Reagan's campaign has been to get the government out of people's lives, and that means weakened standards.

FG: *There seems to be a general notion now that people are concerned about too much regulation and government interference. Do you think the Club will have to contend with this?*

JF: Certainly, people are concerned about regulation, and they don't want the government to come in and tell them what they can or can't do. But government regulations prevent one segment of society from harming another segment; government is the arbiter between the different groups to make sure they all get along. And so we have to have regulation. In this complex modern society with its standard of living and variety of activities we must have some kind of regulation to keep us from interfering with one another's rights. I think the general public recognizes that; but politicians are making a bigger issue of it than it deserves.

FG: *What is the current state of regulation in terms of environment? In the 1980s are we looking for more regulation, or are we looking for implementation of the regulations we have? What do we need now?*

JF: A lot of good environmental legislation was passed in the 1970s, and one of our main tasks now will be to follow through, to make sure that it is implemented correctly. If we find regulation has unnecessarily interfered with commerce, private enterprise and people's personal lives, then we should try to mitigate those effects. On the other hand, if implementing important legislation requires more regulation, then we probably would support that. But it has to be done with some feeling and sensitivity to the personal rights

of people and our social fabric.

FG: *Back to the candidate. What if, by the time this is printed, Jimmy Carter has been reelected? Are conservationists generally happy with the way Carter has responded to environmental concerns?*

JF: Taken as a whole, and looking at the context in which he's operated, he has been good as far as the environment is concerned. Of course, we are pleased with his support of the Alaska legislation. By the time this is printed, I hope he will have signed a good bill for the preservation of Alaska's wild lands. But there are other areas, particularly with regard to energy, where we feel Carter has not been good. His pushing synthetic fuels without what we think is proper regard for environmental protection is not good. We feel that he could have done more to avoid some of the hazards of nuclear power. His decision to proceed with the MX missile may possibly have the greatest negative environmental impact of any project ever undertaken. So, you certainly can't say that everything Carter has done about the environment has been a plus. But he certainly has done more than most presidents, not only on Alaska, but other wilderness issues as well.

It's unfortunate that people have such high expectations of politicians; when they do only half of what is expected, people get angry and withdraw support. It's too bad people take that attitude. If you look at it realistically and at the possible alternatives we have to support these good people.

FG: *How do you think the general public currently feels about environmental protection?*

JF: The polls show that the public supports it. I've always felt that we had an easy time getting environmental legislation passed in the late 1960s and early 1970s. People were actively concerned, and there was strong support for environmental protection issues. But even then, I felt the real test would come when people had to begin to think how much it was going to cost in dollars and in inconvenience. And now that test is showing up, and we're getting some real answers from the American people about the priority they put on environmental protection. We've been in an economic crunch for the last several years, and so far the public opinion polls show that the American people still support environmental protection, even though the costs are becoming obvious.

FG: *I thought it's our position that there is no tradeoff between the environment and economics, that it's also economically sound to protect the environment.*

JF: That's right. But there are short- and long-term costs, and I think most of our

arguments show that over the long run, protection of the environment makes economic sense. The best example that comes to mind is stripmining. Certainly we can take the coal out of the ground more cheaply if we don't reclaim the land. We can just rip it out and leave big holes in the ground with piles of slag and tailings around, and it's not going to cost our generation very much. But eventually our children and grandchildren are going to have to pay the cost of having land that's worthless, land that can't produce anything for them. If the American public looks at the long-term costs and the short-term costs, I believe they'll support environmental protection so that the costs aren't passed along to future generations.

FG: *What environmental issues do you expect to become increasingly important in the 1980s?*

JF: Energy will be on our minds for a long time; I think people have not yet become fully aware of the real problems of energy shortages, or the options they have, and I think they're going to become even more important. People will also want to improve the cities they live in. Our traditional environmental concerns will still be a high priority for the American people—the preservation of national parks, our wildlands, our public lands—to ensure they stay of high quality. These traditional concerns will continue, but energy and the urban environment will occupy more of our awareness.

We also can't afford to ignore the total world environment much longer. There are things going on in other nations that will affect us. It's difficult for us to achieve environmental protection in other nations, but we must give our attention to it. Acid rain, for instance, is an important issue that affects many countries. When we burn high-sulfur coal in the eastern part of the United States, acid rain falls in Canada. I was in Alaska last summer, and there's sort of a haze in the Arctic area that people think is from industrial pollution drifting from all the industrialized countries of the northern hemisphere. There are many other examples. What techniques we can use to help achieve international protection remain to be seen, but I think we ignore it at our own peril.

FG: *What do you think is the greatest present danger to the environment?*

JF: One of the perils comes from people who are interested in quick economic return, who attempt to panic the American people by convincing them to sell out the environment for a quick energy fix. I think the greatest need is for the American people to look for long-term solutions, not just quick, temporary fixes that may actually do more harm than good.

FG: *It seems like the Club will have a lot to do in the 1980s. How is the Club doing?*

JF: Our membership is still growing. It's not growing as fast as it did in the early 1970s, but it's still growing. We've held on to our gains; our members support us as strongly as ever, and we're getting into more and more issues. I think we're having more and more success in affecting Congress and the legislation it passes. I think that it's really extraordinary how much we've been able to accomplish in getting wild lands protected in Alaska. Another example is the Energy Mobilization Board that Congress rejected recently. To a large extent this victory was due to the efforts of Sierra Club environmentalists. These things are indicative of our strength. Our opponents are becoming more vigorous, learning some of our tactics, and they're putting more money into their campaigns. But that doesn't mean we're getting weaker or less effective. We affect major legislation now, and we're right in the mainstream of what is going on.

FG: *What are our current priorities?*

JF: This year the Board of Directors identified five major areas. The top priority has been preservation of Alaska lands; the second was energy; the third was preservation of wilderness and our national forests and Bureau of Land Management public lands; fourth was the protection of our coasts; and fifth was the improvement of the urban environment. And I'm sure those five major categories will be very important to us again next year, although the emphasis may change a bit. I think we have to anticipate changes in our priorities for the 1980s and in our society as a whole. Many of the major land allocation decisions, involving Alaska and wilderness for the lower 48, will be made in the 1980s. After that, we will be looking at national parks, wilderness areas and wild lands in terms of maintaining what

we've achieved; we hope to have a good system of wilderness and parks set up in this decade. We'll also have to develop new ways to deal with energy and urban problems as they arise because obviously those problems are going to get worse.

FG: *How does the Board decide on its conservation priorities?*

JF: We try to get all segments of the Club involved. Right now we are soliciting opinions from our members and staff on what the major priorities ought to be. Then we'll summarize the results and get that summary back out to members, let them take a look at it and react to it, and we'll discuss it again. At our November board meeting we should make some decisions about what our priorities ought to be in the 1980s.

FG: *In general, how does the Board decide on a position? Take nuclear power.* Sierra *prints articles that are generally anti-nuclear, and occasionally we get letters from members who support the Club and yet are pro-nuclear, who want us to print pro-nuclear articles. I respond that we don't print pro-nuclear articles because our Board has taken a position and that it's not the magazine's function to weaken the Sierra Club's position. I say that the time when somebody should make their position clear is before the Board takes a position. So how does that work? How does the Board take a position, and when can people make their views known?*

JF: Sometimes the initiative comes from the Board itself when it recognizes a need for a new policy. It may come from one of our national issues committees, or from a chapter, a regional conservation committee, a group, or maybe just an individual member. Before the Board takes any action, it wants to be assured that all segments of the Club have had a chance to make their opinions known. I don't know of a more democratic organization than the Sierra Club. When an issue comes before the Board we send it back to the appropriate committees, to the chapters and groups, to all Club entities that might be concerned about it, give them a chance to discuss it and then respond to the Board. And when all that dialogue has been completed, then the Board takes some final action. But in that way, by being as democratic as possible, at least members can say they've had their ideas considered even though they may not have been adopted.

FG: *In what direction do you, as president, want to take the Club?*

JF: I want to see the Sierra Club as strong an organization as possible. I believe that the Club is strong and effective because the volunteers and staff together make a really strong team. The staff, with no volunteer support, wouldn't be able to do one third as much as it does. Nor could volunteers without staff. We have to ensure that all segments of the Club work together as smoothly as possible. Misunderstandings that arise keep the Club from functioning as effectively as it might. So I think it's a very important thing for me to do to try to keep all segments of the Club operating smoothly and working together.

FG: *You've been in the Club a long time.*

JF: I joined in 1962. Many people join because they want to go on outings, and they become active that way, but it wasn't that way with me. I joined because I was leading a Boy Scout troop once on a hike. We had been in a national forest, and as we were coming home I spied a clearcut. There were nothing but stumps, piles of debris and bare earth. It looked like a war had gone through. And I got really mad. I knew there was a local Sierra Club chapter because I'd gone to a couple of their programs, and I had their newsletter. I found somebody's telephone number and called up and started writing letters and going to meetings. So, I've been an activist right from the beginning.

FG: *What particular environmental issues in California were you involved in—what big battles?*

JF: The one that I worked on that most Club members have heard about is Mineral King. That issue arose around 1965, and it involved my chapter, the Kern-Kaweah Chapter. I had joined in 1962, so I was in on it from the beginning. At first we thought it was such a huge project that to stop Disney from building a ski resort in Mineral King Valley was simply impossible—that all we could do was mitigate its effect. But as time went on and the conservation campaign progressed through its different stages, we finally were able to get Mineral King into Sequoia National Park. We're just now putting the final touches on it. There are a few more little things to be done, but it was a complete victory.

The issue I think I got the most satisfaction from was establishing the Golden Trout Wilderness. That was one issue that I probably worked on more than anyone else in the Club because it was just we local people who got involved. And we got a 306,000-acre wilderness area established on the Kern Plateau, in the southern Sierra Nevada—a major accomplishment for a handful of people.

I remember when I first started coming to Board meetings, at every meeting Martin Litton and various people would bring up the Kern Plateau. It was an issue I worked on for fifteen years before we finally got legislation through Congress establishing that wilderness. So I feel really good about that.

FG: *Teaching is your profession?*

JF: Yes, I teach high school—earth sciences and physics.

FG: *What do you think is the current state of environmental education?*

JF: That's a good question, because this year I'm working on an environmental education curriculum for my high school district. Here in California I've been meeting with people at the state level; I think there's good, steady progress in getting more and more environmental education into public schools. Environmental education probably won't be taught if we insist on thinking of it as a separate discipline, like math or reading or writing. Elements of environmental education can be found in every discipline that's taught. So we're trying to get environmental education taught in all the disciplines. We call it the process of infusion.

FG: *Isn't environmental education really education about values rather than any one particular subject? Isn't it about values and respect, about ethics?*

JF: Yes, I think probably the most important part of it is to develop in our young people attitudes of appreciation of and sensitivity to the environment. The most difficult things to teach are attitudes and values, and they're the most important.

FG: *What does the Sierra Club do for young people, to try and get the next generation of our citizens to be more environmentally aware than this generation, or the last?*

JF: In my opinion, we haven't done nearly as much as we should. It's not the kind of issue that is dramatic or that pulls a lot of people in to work on it. It's not quite as flashy as working on a park or a wilderness. But in environmental education the reward is a whole lifetime. As in teaching in general, the rewards aren't immediate. Your students

Continued on page 26

Georges Bank

Offshore Drilling Threatens a Way of Life

NICHOLAS LAWRENCE

THE 6:45 TRAIN from Boston to Gloucester, Massachusetts, leaves North Station just at the first glint of daybreak. The train picks up speed as it leaves the railyard, past abandoned tracks and steel fences, past giant oil tanks and a bleak housing project sprawled out to the harbor. The scenery on either side becomes greener and cleaner as the train moves into the country, stopping at Swampscott, Salem, Pride's Crossing and Beverly Farms. The conductors pace the aisles, announcing the stops with metronomic regularity.

I was aboard that train, traveling to Gloucester to interview fishermen, businessmen and residents about a major controversy besetting this scenic harbor. The controversy centers not on Gloucester, but

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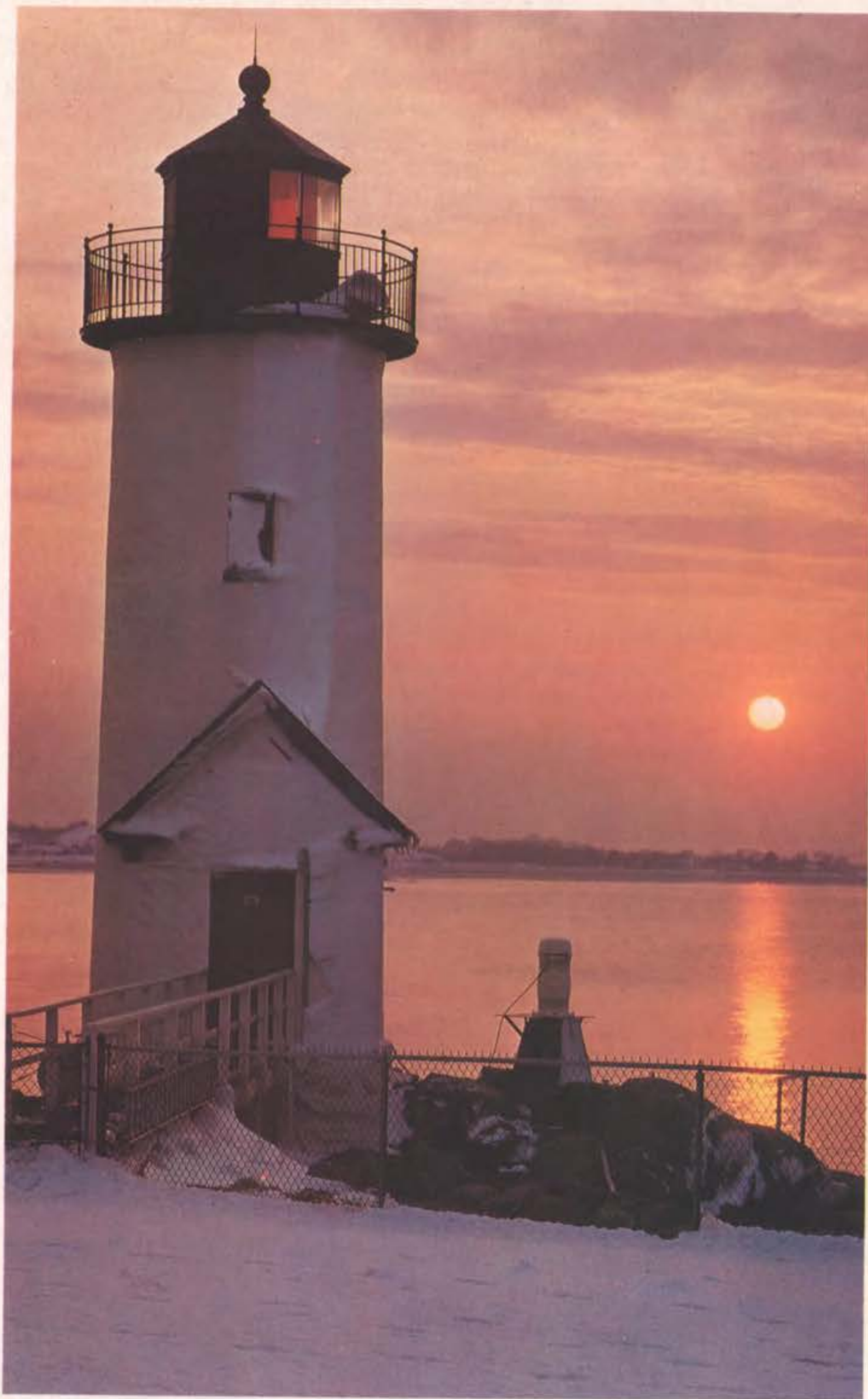

***Overleaf:** The fisherman of Gloucester, Massachusetts, emblem of a way of life threatened by oil and gas development on the rich fishing grounds at Georges Bank. **Left:** Gloucester's harbor. **Above:** Cape Ann Lighthouse at Annisquam.*

on a section of the Outer Continental Shelf, called Georges Bank, about 100 miles east of Cape Cod. Beneath the most productive fishing ground in the world is hidden an estimated 123 million barrels of oil. The question of whether or not to extract that oil has become the target of a fierce battle between environmentalists and oil companies, fishermen and politicians, and—in the most basic terms—between food and fuel.

Just how many tons of fish the Georges Bank yields is hotly debated, but a conservative estimate is that 16% of the United States' annual catch—between 3% and 7% of the world's catch—comes from this area. Turbulent, circular currents, shallow water, a diverse sediment structure and constant upwelling of nutrients all contribute to the Bank's fertility.

The oil under Georges Bank is also of national interest. President Carter has proposed increased domestic oil drilling. But no one knows exactly how much oil can be extracted from Georges Bank—123 million barrels is an optimistic guess, but not an impressive amount. This small field would be less productive, for example, than Alaska's Prudhoe Bay or the Gulf of Mexico. Oil industry experts admit that the Georges Bank's maximum yield would provide the United States with only a week's to ten days' worth of oil, at current consumption rates.

However large or small the yield of oil, there is still the danger of an oil spill occurring during drilling operations. The Bureau of Land Management (BLM) predicts that a "catastrophic" spill would be highly probable within the twenty-year life span of the field. According to the BLM, as much as 1.5 million barrels of oil could be spilled in the form of "chronic discharge" from platforms, tankers and pipelines. Both types of spills would adversely affect the health and reproduction of the marine life of Georges Bank. The oil industry claims that current technology can prevent such spillage. Environmentalists counter that spill cleanup (or containment) is impossible because of the area's rough weather.

In light of these statistics and arguments, I had decided to go to Gloucester and hear firsthand the opinions of the fishermen and townspeople on oil drilling. My primary contact was Joseph Brancaleone, executive director of the Gloucester Fisheries Commission, an organization serving as an advocate and policymaker for the fishing industry. Brancaleone had fished on Georges Bank for seven or eight years before becoming an administrator, and maintains close ties with the fishing community.

Shortly before we reached Gloucester, the train ground to a halt on a long, narrow bridge overlooking "Gloucester Draw," affording a view of tidy, white clapboard houses, weathered docks on stilts, sailboats, fishing boats and dories. The sun was high by now, sparkling off the blue waters like glinting fish scales.

Brancaleone's old blue Pontiac swerved into the Gloucester station soon after I stepped off the train. Joe wasted no time in making clear his views. "It's a hell of a situation," he told me, shaking his head. We drove to a small diner at the edge of town, and over coffee he answered my questions and kidded with some veteran fishermen at the next table.

Joe's immediate concern was for the increased traffic that the oil drilling would bring: navigation in the Georges Bank area is already difficult because of the large number of fishing craft. "Those tankers have no maneuverability whatsoever—they only turn so far and so quick," Joe explained.

Photographs by Arthur Griffin

"I'm afraid we'd just be run down."

I asked Joe about the feasibility of oil-spill cleanup with the so-called "containment facilities." He scoffed. "I'd like to know how anyone thinks they could clean up a spill in 40-below weather, 30- or 40-foot waves, wind blowing for five days straight. In weather like that, we'd just tie down everything on deck, go below, and hide."

Joe is a third-generation fisherman; his father has been fishing year-round for 30 years and is still active. "This has been a tough winter for him," Joe remarked. "On his first trip, he went out for nine days and fished only four. The winds were so fierce that a 73-inch porthole was busted."

After coffee, we got back in Joe's car and headed out to the docks. On the way Joe related how he had organized a lobbying group in November 1979 that had trucked an eighteen-foot dory from Gloucester to Washington, D.C., to protest the drilling. On the way to Washington the dory stopped in other fishing ports—Boston, New Bedford, Chatham—where it was signed by a great number of fishing alliance activists and local politicians. Bundles of fresh fish, banners and silver haddock pins were delivered to the White House. In spite of these appeals, President Carter has quietly come out in favor of the oil drilling.

Joe Brancaleone is concerned by what he feels are misrepresentations and half-truths propagated by the oil industry. The oil companies don't claim that they can adequately clean up oil spills; government, environmentalists and media agree. Joe recalled the recent disastrous spill at Mexico's Bay of Campeche. For more than six months, the "Ixtoc spill" had been gushing oil and flaming natural gas at the rate of 30,000 barrels a day—the worst drilling accident in history.

Though oil companies claim the risk of spills from exploratory drilling is minimal, such accidents can and do occur through human error and equipment failure. Joe fears the same thing may happen at Georges Bank. The poor weather of the north Atlantic would make containment extremely difficult; after all, even in the warm, calm waters of the Bay of Campeche, very little of the Ixtoc spill has been cleaned up so far.

We soon reached the wharves, and Joe maneuvered the car between trucks and equipment parked behind the Empire Fish Company.

"My cousin Tom should be around; his boat unloaded Friday. We'll see who else is in," Joe said. We walked down the dock and stepped aboard a medium-sized trawler called the *Paul and Domenic*. "She's a 70-footer, a stern trawler," Joe explained. "Also called a western rig. I fished on a side trawler, an eastern rig." In the pilot house,

Nicholas Lawrence

Above and below: *Gloucester's fishing industry is independent, hard-working and productive. Here, a day's catch is unloaded and sorted.*

Nicholas Lawrence

overlooking the rest of the boat, we met Captain Tom Brancaleone—Joe's father's cousin.

"What are your feelings about the oil drilling?" I began. Tom laughed and, speaking in Italian-accented English, said, "A big chaos—it will ruin me." He mentioned an accident the summer before between a tanker and a fishing boat. The fisherman had been fully blamed for the collision, though he was traveling in well-known fishing lanes. "Those steamers take a long time to stop," Tom explained. "It's a real problem—many traffic lanes, shallow waters." He pointed out the various traffic lanes on a map behind the helm. "Here—the Georges Shoals, Cultivators Shoals—it will be a big mess."

I asked Tom whether he himself had ever seen an oil spill. "No big ones, like the *Argo*—just heard about them." (Tom was referring to the *Argo Merchant* spill off Cape Cod in December 1976, which luckily blew out to sea and caused a minimum of damage.)

I asked Tom about the Marine Sanctuary Proposal, drafted by fishing organizations (with the support of environmentalists), that Georges Bank be maintained as a fishery. Other uses of the area, such as oil and gas exploration, would be evaluated in terms of their compatibility with the fishing industry. The proposal does not protect Georges Bank permanently from development. "Well, that sounds good and bad," Tom said slowly. "It's a big book, full of restrictions; foreign limitations, okay. But we want our freedom, above all."

With Tom's permission, I explored the rest of the trawler. One of the crew members was cleaning out the hold: a long rubber hose, hung on a crane, snaked out of the bowels of the trawler and over its side. In the stern, another man was checking the nets.

Joe joined me on deck and explained in detail how a stern trawler works. The heavy cables on the side of the rig maneuvered two enormous wood-and-iron "doors," which draw the nets behind the trawler. When filled, the nets are rolled up and the fish dumped onto the deck, where the crew cuts and cleans them, a process called "ripping." Then the cod, haddock, pollock or what-have-you are separated and placed in troughs on deck. Finally the fish are tossed below, one trough at a time, into the "slaughterhouse," where they are stored on ice. Joe remarked that his father's boat uses an average of 30 tons of ice each trip.

"Let's check the other docks and see if any boats are unloading now," Joe said.

I stepped off the *Paul and Domenic* and followed Brancaleone down the pier. Behind the Empire Fish Company, a gleaming white trawler, the *Spray II*, was being unloaded. In a six-day sojourn, the crew of the *Spray II* netted 40,000 pounds of mixed catch, mostly haddock and codfish. "This is what we call 'wetfish,' or the fresh, domestic fish taken by Gloucester boats. The larger, foreign fleets—Scandinavian, Canadian, Russian—handle the fish frozen, which isn't as good," Joe said.

Joe and I watched the catch being transferred into the Empire Fish Company and then toured the boat—a modern craft, almost brand new, in fact. As we were about to disembark, the captain held out a plastic bag of filets for Joe. Brancaleone shook his head, explaining, "No, thanks. Ever since I quit fishing I've been getting more fish from friends than I can eat, Carlo." The skipper shrugged and laughed, speaking quickly in Italian.

Joe translated this after we had left the *Spray II*. "He says the price of fish dropped 40 cents today—he might as well keep the filets. The foreign ships make things tough on us."

Our next stop was Brancaleone's office in the town armory, where he planned to meet a reporter from a local television station who was making a documentary film about

The Politics of Fish vs. Oil

MARSHA ROCKEFELLER

Georges Bank, off the coast of New England, is one of the world's most productive fisheries. Fishermen have flocked there for hundreds of years. Today boats from as far away as Japan and the USSR head for these fertile waters. Threats to the continued vitality of the fishery have increased in recent years. As the world community damages its coastal areas and fish-spawning grounds and continues to treat its oceans as disposal sites for tons of toxic substances, fisheries throughout the world suffer. This has placed increased pressure on those fishing areas still active and healthy, such as Georges Bank.

Concern about overfishing and depletion of stocks by foreign vessels was the major reason for passage of the Fisheries Conservation and Management Act of 1976, commonly known as the 200-mile limit. With the strict regulation of foreign fishing and the quotas imposed on domestic fishing by the new law, the Bank began recovering from a productivity decline.

Ironically, just as the outlook for the fishery was improving as a result of the 200-mile limit, the federal government initiated a new program that could prove to be a greater threat than overfishing: offshore oil and gas exploration and development.

Over the protests of environmentalists and fishermen, the U.S. Department of the Interior held the first lease sale on Georges Bank in December 1979. Opponents of the lease sale were alarmed by the lack of information about the effects of drilling and the potential damage to the fishery from accidental oil spills and routine discharges of toxic pollution. Though oil drillers can take certain precautions to reduce risk to the environment, these are not required by the Interior Department. Considering the tremendous international value of the fishery, the current risks of drilling far outweigh the benefits—an estimated yield of less than ten days' worth of oil and gas for the nation.

"We are especially concerned about the routine discharges from offshore oil activity," explained Dr. Robert Howarth, a marine ecologist at the Marine Biological Laboratories at Woods Hole, Massachusetts. "The circular water currents on the Bank will accumulate any toxic substances, maximizing damage to the marine organisms. The majority of fish eggs and larvae will move through the leased area, where the discharges will occur, at least once before becoming mature fish. They will all be exposed to a potentially lethal dose of hydrocarbons at a stage when they are most vulnerable."

Dr. Howarth warns, "We aren't ready for drilling on Georges Bank. The potential for severe damage to the marine environment is too great. We just don't have enough biological data yet."

For most opponents of offshore oil activity, the question is not whether the energy under the ocean should be tapped or not. The question is when, and under what conditions. They say that the future health of the fishery should be the primary goal for management of Georges Bank, and that oil and gas exploration should be allowed when there can be reasonable assurance that significant damage to the fishery will not occur.

Most environmentalists maintain that with the proper care we can have both oil and gas production and a thriving fishery. At some time in the future, it may be possible. But that time is not now. □

Marsha Rockefeller is office manager for the Sierra Club's New England Chapter and co-chairperson of the Outer Continental Shelf Committee.

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Oil and gas exploration and development on Georges Bank could result in polluted beaches hundreds of miles away; above, still-unspoiled Wingaersheek Beach, Gloucester.

Georges Bank. He would interview and film Brancaleone the rest of the morning, most likely on the *Paul and Domenic*.

The walls in Joe's office are decorated with fishing charts and calendars. One of them, from the Great Atlantic Fish Corporation, illustrated in colorful detail more than 40 major commercial varieties of fish from the Georges Bank area. In fact, there are more than 200 species of marine animals on the Bank, including a number of endangered species such as the right and humpback whales and an unusual variety of sea turtle. "I try to make my kids study these charts," Joe told me.

The filmmaker arrived minutes later, shaking hands effusively. After a lengthy interview, we all piled into Brancaleone's car, and were directed to the camera and sound crew who were waiting downtown.

The crew followed us down to the docks in their own car and unloaded their equipment on the pier. Several older fishermen working nearby raised their eyebrows with curiosity and chuckled to themselves as the long-haired young men brought out their cameras, tripods and microphones.

As the crew set up in front of the *Paul and Domenic,* the director began to go over his questions with Joe, and discussed a book written several years ago, *The Finest Kind,* by a man who spent several months interviewing fishing families—including the Brancaleones—and traveling out to Georges Bank on their boats.

The documentary began by scanning the fishing boats coming and going in the harbor. Joe estimated the size of the fishing industry: "There's roughly 120 to 150 boats, possibly more, made up of day boats, side trawlers and stern trawlers." He pointed out a few day boats nearby—the *Little Joe of Gloucester,* the *Taormina B.*—then a few side trawlers: the *Santa Maria* and the *Giuseppina Madre*.

The cameras wheeled and the soundman waved his microphone. "Get the seagulls, get the seagulls," the director whispered to his sound man. Then to Brancaleone, "Describe that boat out there—what is it doing, and who owns it?"

"That's the *Tony and Nina,* coming into port," Joe said. "I heard they're having some trouble with the crew. She's a stern dragger, steel hull."

"How about this one landing right now?" the director interrupted, just as a large trawler rammed into the end of the dock, shaking everyone.

"That's the *Cape May,*" Joe said. "She's family-owned, probably back from a week or ten-day trip. She's here for some cleaning and fresh ice."

Brancaleone went on to describe the frozen-fish freighters from Norway, Sweden, South America and Russia. "Regular factories," Joe said. "I've seen steamers from Russia—they call them 'mother ships'—four times the size of that Scandinavian rig over there." He nodded toward an enormous ship towering over the jungle of smaller craft along the wharf. On one of its tall masts flapped two flags: one blue and gold, the other the Stars and Stripes.

Another day ship, the *Peggywell,* eased out of the harbor in the distance. "That's

what we call a mosquito fleet," Brancaleone joked. "The herring and lobster boats are that size, too."

The interviewer asked about the fishermen themselves.

"As far as the future goes, the fishermen don't want to lose their jobs," Brancaleone said, looking somber. "We'll just have to sit back and pray there won't be a large spill. We need oil, sure, but let's protect Georges Bank. Fishermen have always felt they were free, but now there's rules and regulations a mile thick. But still, the boats are picking up again—we can't afford to be hurt by oil now."

More seagulls had congregated on the other side of the dock and were fighting in shrill voices over some bread scraps.

Half an hour later, Joe, the film crew and I were seated around a large white table in the Gloucester Seafood Tavern, overlooking the harbor. We were sampling a variety of Georges Bank's resources: scrod, crab, halibut and swordfish. Joe related a story of a young man injured while working on a Georges Bank trawler. His arm was severed by a moving cable, which can run out at 40 miles an hour. Miraculously, the arm was sewn back on, and he regained partial use of it. "A lot of kids are still going into fishing these days, despite the hazards," Joe said. "It's an easy decision for them—manual skills such as net-mending are passed down from generation to generation."

"About how much do you make on an average trip?" the director asked. Joe answered, somewhat reluctantly, that a successful trip earned around $20,000 for nine days, split into shares for each crew member.

"They're working night and day, remember," Joe reminded us. "It takes about 50 hours to 'steam' out to Georges Bank. Each crewman watches the radar for three-hour shifts, and when they're towing the nets, everyone's working."

Coffee arrived, and the director asked Joe a final question: "Will you ever fish there again—for just a season, anyway?"

Joe studied his water glass. "If I got a skipper sight, I'd fish year-round." ("Skipper sight" means captain of the boat.)

"You got it in your blood, right?"

"I guess you could say that."

We finished our coffee and left the restaurant, going our separate ways. As Joe's Pontiac pulled out of the parking lot with the television crew, I noticed for the first time his bumper sticker, which read "FISH not OIL on GEORGES BANK."

The Coast Guard's plain red brick building is less than a stone's throw from the Empire Fish Company and the docks where I had spent the morning.

At the entrance to the building, a uniformed guard halted me and asked what my business was. I explained that I wished to speak to some authorities on oil spill cleanup procedures and weather conditions on Georges Bank. The guard directed me toward two crewcut young men in uniform, marine safety officers, whose job is to clean up oil in the Georges Bank area.

Echoing the Brancaleones, they stressed the unpredictability of the sea and weather conditions on the Bank. "It can be nice in February—flat and calm—and terrible in June," one of the officers (they could not disclose their names) told me.

Ninety-nine percent of all spills, they said, are caused by human error; the tanker equipment is rarely faulty. As members of the "Atlantic Strike Team," the officers' job is to clean up all types of spills—from serious blowouts to minor seepage. The oil companies assume little financial responsibility for the cleanup process, except for partial payments from liability insurance.

I asked them about the effectiveness of containment facilities on Georges Bank and elicited a familiar response. "It's too rough there for barriers," the more talkative officer replied. "We try to get right to the source of the oil. We use vacuum barges and skimmers, also. But these aren't always effective, especially with a major blowout, or in bad weather."

Most of the hundred-odd spills in the Georges Bank region during the past year were illegal, according to the Coast Guard. Tankers often discharge their ballast water, which contains a large amount of oil—most commonly fuel oil—on the sly, at night or far offshore. "The ships usually head offshore to clean their tanks—it's too risky close to land," the officer explained. "Very few ships are actually caught. It's a nonstop battle."

Illegal, purposeful dumping of oil into the ocean was one of the more distressing operations I had heard of in the Georges Bank area. If this behavior is any indication of the oil industry's general attitude toward the environment, perhaps that "catastrophic" spill is closer down the road than we think. Certainly no industry that covertly disposes of pollutants could be too concerned about complying with strict environmental safeguards.

As I walked out of the Coast Guard headquarters and headed back to the train station in the dusk, I felt the same sense of frustration the fishermen and the environmentalists have probably all felt for a long time: Georges Bank is slipping away from us, and no one is listening. □

Nicholas Lawrence is a student at Dartmouth College in New Hampshire. He has been a research assistant in the White Mountains and in Yosemite National Park.

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Letter From Sweden

ELLEN WINCHESTER

Hällestad, Sweden
June 20, 1980

I HAVE SPENT most of my time in Sweden trying to understand the consequences of the Swedish referendum vote on the use of nuclear power. It took place on March 23, the day my husband and I returned to Peking from two weeks at an isolated Chinese mountaintop observatory. A friend who had listened to the Voice of America greeted me with the news that the anti-nuclear movement in Sweden had lost the referendum. I didn't understand how such a total defeat was possible; *all* the options on the referendum called for an eventual phase-out of nuclear power and for limiting to twelve the number of reactors permitted to operate. So I began looking into the matter the week after I arrived in Sweden.

The first option was the most "pronuclear." Sponsored by the Conservative Party, it would authorize six new reactors in addition to the six already operating. Option one also called for an eventual phase-out of nuclear power; however, it stopped short of proposing a deadline. It won only 18.9% of the vote. Option two, sponsored by the Social Democratic and the Liberal parties, also authorized six new reactors but called for increased energy efficiency, reduced waste, and intense research and development of renewable sources of energy. Option two also suggested an end to the use of nuclear power in 25 years. It won 39.1% of the vote. Option three, the most "anti-nuclear," opposed the construction of new reactors and proposed a shutdown of existing reactors within ten years. It won an impressive 38.6% of the vote.

Five more weeks in Sweden gave me a chance to talk with proponents of each of the three referendum choices. I concluded that the anti-nuclear movement actually gained strength through the referendum process, and is still growing. This is quite remarkable in a nation that derives 70% of its energy from imported oil, and that has the world's highest per capita use of nuclear energy. The anti-nuclear trend is especially remarkable, considering that four of the disputed new reactors have already been built.

After the referendum, 500 activist delegates from all over the country gathered in Stockholm to organize a continuing "People's Campaign Against Nuclear Power." This campaign has replaced the ad hoc improvisations that preceded the referendum with a structured organization, a board of directors and an action plan.

This anti-nuclear campaign is encouraged by the fact that the 39% vote for the second option, permitting the operation of six more reactors, was also clearly a vote for phasing out nuclear power. The vote followed a spectacular Social Democratic media blitz that promised a crash program in renewable resources and an end to nuclear power in 25 years. Even the Conservative Party option, with 18.9% of the vote, authorized the operation of only six more reactors. The wording of the winning options also provides for the phase-out of nuclear power to begin earlier than the 25- to 30-year operational expectancy of reactors, if the country succeeds in substituting alternative resources for its electric power needs before then. The order of decommissioning will be determined by safety considerations.

Somehow the world press, especially in the United States and France—two countries with great interest in selling reactors to developing nations—missed all the factors in the referendum vote that make an obvious expression of Swedish distaste for a nuclear future. If we in the United States could somehow control our own nuclear industry's behavior abroad, Sweden and other countries that wish to avoid dependence on nucle-

ar power would have a better chance of success. I've been reading alarming reports in American magazines about administration and State Department efforts to weaken the Nuclear Non-Proliferation Act and make it easier for U.S. reactor vendors to sweeten their contracts with promises about reprocessing.

But not every moment of my life here has been concentrated on nuclear issues. Life in a country with one of the world's highest standard of living is remarkably soothing to a visitor just returned from the virtuous but hard, drab and rigidly regimented reconstruction of China. Nothing squalid, rickety, decayed or dirty is visible in Sweden, even in industrial areas (except air pollution). Spring makes a garden of cities, suburbs and countryside. Great sweeps of field and forest extend to the horizon. On long, low hillsides golden and green rectangles of oilseed and winter wheat crops brighten even rainy days. Food is abundant, varied and of high quality. It is also expensive. Villages seem to be transforming themselves into illustrations from Mother Goose. Even many new homes have casement windows, white plastered, beamed outer walls, and roofs that either suggest—or actually are—thatch. All this is a reaction, I guess, to the uniform city housing built ten and twenty years ago. On farms the older, long, low, white barns are in splendid condition, often forming a square around a courtyard centered by a large brick or stone house, with orchards, lawns and gardens sloping away to streams or ponds.

Even city apartment complexes and housing developments lose their uniform, modern look through landscaping or wooden decks and other ingenious architectural cosmetics. Urban interiors are both spacious and beautifully furnished, usually with a mix of Scandinavian modern and a few antiques. Even graduate students have delightful apartments, as the Chinese we have met here observe in tones of shock. It seems to me that life is as utopian in Sweden as it can get, given the common contrariness of human nature. And to top it all off, its people use only about half as much energy per capita as we do.

One of the reasons for the slicked-up appearance of Sweden's rural areas is that everyone who can afford it tries to find farmland to lease or a country house to rebuild. Sweden's farms were consolidated into large holdings in the nineteenth century (as contrasted to the strip farming around villages in some parts of Germany today), and the strong Farmers' Union makes it impossible for green-thumbed urban workers to buy small farms. So Swedish farming is as mechanized as it is in California's San Joaquin Valley or on the Oklahoma plains.

City kids can work in the potato fields in summer, and when they begin to have families, they may lease their former employer's house, his land having been absorbed into a still larger farm. On the western shore of southern Sweden the farm population is said to be dying out because farm youth cannot find wives willing to live in the country. It struck me, since most of the bachelor farmers are in their late forties or early fifties, that the solution to the problem might be a system of matchmaking. City girls today like country life—and after all, those men are not so old!

Trips by car are a special pleasure here, partly because there are so few advertising signboards. That alone is a blissful relief from Florida, my home state, where you can hardly see the natural wonders for the signs advertising them. Pastures contain more horses than I can remember seeing anywhere since my childhood, some with foals, some galloping spiritedly over a hill—right out of a Tang dynasty print. And even though Sweden seems at least as secular a country as the United States, the countryside is positively bedecked with well-maintained, lovely churches, some of which date back eight or nine hundred years.

Something that doesn't appear in the scenery—but affects the life of a working visitor—is the number of official holidays connected with religious tradition, or with an earlier, pagan time, such as midsummer night, marking the shortest night of the year, when the sky never darkens completely. The holidays are clustered around weekends, sometimes making the impatient visitor feel one weekend ends only to have another begin. Useful operations come to a halt then, things like data processing and the helpful hands of secretaries.

The archaic presence of a landed nobility came as something of a shock to me during my first visit to "socialist" Sweden fifteen years ago. Driving through southern Sweden, one sees elegant chateaux glimmering through the trees. Their owners do not seem to have to make circuses out of them to pay their upkeep and inheritance taxes, as the great families in England must do.

Despite the idyllic appearance of Sweden, I'm not blind to some defects in this heaven, natural and manmade. It rains too much, often at the wrong time so far as agriculture is concerned, and winter is too long. Visual pollution—giant powerlines and belching smokestacks—does exist. So does industrial air pollution, lots of it in some areas, although the claim is well substantiated that the increasing acidification of streams and lakes is caused by sulfur oxide transported from countries to the south. The Swedish National Society for the Conservation of Nature (70,000 members and much like a

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combination of the Sierra Club and the Audubon Society) has printed pamphlets explaining the problem and distributes them to hotels catering to vacationing Germans. Emission standards are administered by the Swedish equivalent of our EPA, and there is much concern about pollution problems, but just a glance at the yellow haze hovering over some cities persuades me their control system needs strengthening. Water pollution, I'm told, has been brought under adequate control, at least near densely populated areas.

Sweden is not really a socialist country, of course. It has a mixed economy composed of private corporations and corporations owned by state and private shareholders, like the nuclear industry. Sweden's highly centralized government was long controlled by the Social Democratic Party, now out of power but still the country's biggest party. The strength of the anti-nuclear movement is augmented by its advocacy of decentralized power, more autonomy for local governments, and more public participation in decision-making. Although Swedes have more personal control over their lives than seems visible in most other European nations, they *feel* over-supervised, and many of them see in the advance of nuclear power an inevitable increase in the tendency of government to treat them as items in a computer printout, rather than as people.

Like every other country, Sweden has serious economic problems, and the extensive strike that occurred just before we arrived considerably upset public life. It seems possible that the Social Democratic Party encouraged the strike as a means of increasing popularity with labor and to irritate the Center Party coalition now in power. Industry played into the hands of the Social Democrats by paying a substantial stock dividend shortly before the government asked for a wage ceiling, and public discomfort was prolonged by a lock-out by major employers. Inflation has caused rents and new house payments to increase sharply. Wages for skilled workers equal professional salaries, but clerks and unskilled labor have reason to feel anxious. Everybody snarls at the bureaucracy, but I have to say that I prefer the problems here to the problems in China.

In fact, through the rose-colored glasses of a visitor, Sweden looks much better to me in every way this summer than when we stayed here five years ago. Also coloring my vision is the pleasure of living in half of a beautiful solar-powered house set in a spacious sweep of rural greenery. And cool weather. Ahead of me lie two more months in China in summer, including a train trip along the old silk route to Xinjiang through parts of the Gobi Desert. A letter from China will follow. ☐

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A Talk with Joe Fontaine
Continued from page 14

come through your classroom, and then they go to college or wherever they go in their lives; sometimes you hear from those people, and they let you know that something you did directed them in the right way.

All of our chapters do try to get young people to go on outings, though. Some of the chapters in urban areas have "inner city outings" that take people out to experience the natural environment, helping to develop positive attitudes toward it. And some of our chapters have speakers' bureaus that provide people to speak to classes and other groups. I think one of our main strengths in environmental education is the fact that many of our members are teachers themselves, and I know that many of them teach environmental values in their classes. Teachers I encounter here in California are always interested in teaching environment in the classroom. So there's a lot more going on than is readily apparent, I think, and plans are being made to do even more.

FG: *We've talked about attracting children into the Club. How are we doing at getting new members in general? How should we attract new members to the Club? And are we?*

JF: We are attracting new people to the Club. We always have a certain number of people who don't renew their memberships, and we have other people who join for the first time. But our net membership is still climbing, so we're attracting more people to the Club. And we're experimenting with a lot of ways to attract new members.

FG: *Do you know why people leave the Club?*

JF: When people explain why they're leaving, the membership department puts out a report tabulating and classifying the reasons. Few people who tell us why they're leaving the Club say it's because they disagree with our policies. It may be that they can't afford the dues. Or there are other personal reasons. But very few people tell us they're leaving the Club because they disagree with our policies.

FG: *What do you think is the environmental movement's most important and effective tool?*

JF: Our membership and grassroots efforts. Of course, we try to implement our policies through different means, such as legislation. But you can't influence a legislator unless he or she thinks there are constituents out there who agree with us. We can't urge a vote for an environmental issue—unless the legislator's naturally inclined to do so—unless constituents indicate their preference. Having a good, strong membership in different states and different congressional districts is a key element in getting good legislation passed. I know from direct experience that we have changed the minds of legislators I thought we'd never be able to convince. And I know exactly why they did it. It's because our members are there, expressing their views.

FG: *So, all in all, it's still the letter writers, it's still the grassroots, it's still the work our members do.*

JF: That's right. It's really interesting. One of our members was meeting with a congressman and some of his staff, and he didn't know that she was a member of the Sierra Club. A staff member mentioned, during a report on current work, that on a particular issue the congressman's office had gotten a whole lot of mail from the Sierra Club. Our member asked how the staff knew it was from the Sierra Club. And he answered, "Because all the letters were intelligent and well-written." But he went on to say that, therefore, since they know the mail is from the Sierra Club, they lump it all together and dismiss it as a pressure group response. But it was interesting that he could identify the Sierra Club letters because they were intelligent and well-written. I've tried to point out to my own representative that people join the Sierra Club not because the Club's going to tell them what to do, but because they are concerned, and they know the Club can provide the information they want.

These people want to know when the environmental issues are coming up before the legislature, and they know we keep our members informed. So when something comes along that they feel strongly about, we can send a letter to them saying, would you write your congressman to make this point about a certain bill. We're informing intelligent, well-educated people about an issue they want to know about. They write those letters because they want to. It's really unfair for a legislator to discount letters from Sierra Club members just because they're coming from Sierra Club members. They're individual people.

FG: *And these individual people may be Sierra Club members, but they're going to vote as individuals.*

JF: That's right.

FG: *You said we keep our members informed. Do we keep them informed enough?*

JF: Considering the resources we have, I think we do an outstanding job. We could do better if we had more money available. But when you consider the array of publications and information that we send to our members, I think it's good. We have *Sierra*, first of all, that all of our members get, and every comment I've heard on *Sierra*'s been good. But *Sierra* comes out bimonthly, so some of the information obviously can't be really up-to-date. We have chapter newsletters that generally come out once a month, and so people get information about local issues as well as national issues. Then we have the weekly *National News Report* that keeps people current. That, of course, doesn't go to all our members; it goes to a selected list of people who are obviously going to take a leadership role and try to do something about the issues.

FG: *But anybody can subscribe.*

JF: Yes, it's available to anybody that wants it. We also send letters to members who are concerned about a particular issue and special letters when there's a need for action. Over the years, through trial and error, I think we've developed a really good communication system with our members, and I think the proof of that is the effectiveness we have demonstrated in getting good legislation passed. The best example I can think of is the Alaska campaign. I was in Washington when the latest legislation was brought to the Senate floor, and I was astounded at how much influence we had. Sierra Club members from different parts of the country had traveled to Washington to see their senators. I saw them go and talk to the senators, and I know that the mail was coming in because I talked to some staff people in the Senate offices, and they were amazed at how much mail they were getting on Alaska.

FG: *People have so often referred to the Club as "controversial." As we go into the 1980s, do you think it's still true?*

JF: We're often accused of putting birds and trees before people, but that's just not true. That's not what the Club is all about. People must learn to live in harmony with nature and the environment because we can't live without them. We need to protect the trees and birds and animals for their benefit and for our own, too. We can't keep letting more and more species disappear unless we want one day to wake up and find we're the only species left on earth. And we certainly can't exist all by ourselves; we must depend on a natural environment. Sometimes people get too egotistical. We tend to think the earth exists for us and for nothing else, and we're most important here. And in that attitude lie the seeds of our destruction. Unless we show some respect for nature and try to protect it, we're not going to last long either. So, we work to try to prolong people's existence on the earth and hope that they'll be able to recognize the need for a natural environment and begin to protect it—for their own good and the good of the planet. □

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"It gives you a kind of helpless feeling. I cross this contaminated river every day. You have to take what comes because you live here, you work here. I can't just up and move. I'd have to uproot myself—my whole life."

—Mary Sanford, Gallup, New Mexico

POSSIBLY THE WORST U.S. accident involving radioactivity occurred on July 16, 1979. The United Nuclear Corporation's uranium tailings dam at Church Rock, New Mexico, broke and sent 100 million gallons of radioactive liquid and 1100 tons of tailings tumbling down the Rio Puerco. The flash flood flowed about 60 miles, past Gallup and into Arizona, depositing radioactive and chemical contaminants along the way.

The Church Rock dam break is another reminder that the clean-energy image of nuclear power is a creation of pro-nuclear advertising. Uranium, the nuclear fuel, is—like coal—an ore that is dug out of the ground. But unlike coal, almost all the uranium ore is discarded before it becomes fuel for electricity generation. It goes through several steps of refinement; the first occurs when U_3O_8 (uranium oxide, also called "yellowcake") is chemically leached from the ore at a mill near the mine.

However, this process of refinement is far from efficient. When the industry has extracted what uranium it can, most of the radioactive material remains intact. The liquid and solid wastes from that process amount to nearly all of the ore's original bulk and account for 85% of its radioactivity. These wastes are discarded in "tailings piles," heaps that resemble pyramids but are, in fact, walls of radioactive and chemically contaminated sand, often surrounding ponds of radioactive wet wastes. This type of tailings dam has a history of spills, with fifteen occurring between 1959 and 1977.

The hazards of abandoned dry tailings are notorious. Carcinogenic radon gas from these piles wafts across the country, but air is not the only mode of transport for radioactive substances. Radium and other byproducts of the milling process can seep into groundwater beneath tailings piles. A sudden thunderstorm can send liquid tailings over or through the containing walls to flood fields or flow into streams.

Aside from accidents like the Church Rock dam break (not the first of its kind) uranium companies in business as usual—mining, milling and exploring—routinely consume and contaminate water. Uranium is used as a nuclear fuel because it is chemically active, highly unstable and quick to change form, from uranium-238 through thorium to radium-226, radon-222, the "radon daughters," and eventually to stable lead-206. Uranium is readily soluble, so much so that conditions have to be just right for it to settle down in host rock, as it has in the Rocky Mountain region where most of the nation's uranium is mined (New Mexico and Wyoming together account for almost 80% of production). There uranium rests in aquifers, water-bearing layers of rock, until miners move in.

When miners sink shafts into the ground, uraniferous minerals, as well as minerals containing such toxic elements as selenium, may migrate and, in contact with other chemicals, change into more soluble compounds and dissolve in the groundwater. Miners pump out this contaminated water, because the deposit must be dry before the uranium can be dug out. After purifying the pumped water until it is clean enough, by government standards, for animals to drink, the mining companies dump it into arroyos, dry stream beds, altering abruptly the quantity and quality of surface flow in that area.

According to an EPA study, radium concentrations in mine discharge "increase substantially" during mining. "Whereas natural background radium concentrations are generally about several picocuries/liter (pCi/l), 100 to 150 pCi/l appear in the effluents of operating mines. The discharge of such highly contaminated mine effluents to streams and seepage from tailings ponds create a long-lived source of groundwater contamination."

Water discharged from uranium mines is no mere trickle. In New Mexico, where about half of the nation's uranium has been mined, the discharge amounts to roughly 50,000 acre-feet a year, enough water to supply a town of 50,000 people. To those who live near uranium mines, the withdrawal of water from the aquifers has another effect: the water level in their wells gradually begins to drop.

Although uranium companies have begun to drill new wells to replace those exhausted by mining, this is a short-term answer to the immediate needs of local residents. One uranium company consultant predicted that the "drawdown" from one mine alone would spread over several counties and affect water supplies for at least 150 years after the mine closes.

In arid states, water discharged from the mines is water lost for the foreseeable future, since almost all of the discharge evaporates in dry air or is used by thirsty plants or seeps into previously contaminated streambeds. The water is, in effect, "mined" along with the uranium—consumed by the industry, a thorny political fact in western states, where water rights are subject to constant court

battles and unremitting legislative struggles.

In New Mexico, where the legislature only recently granted the uranium-mining industry the official right to dewater aquifers, the state engineer maintained that dewatering is not wasteful, because the dollar value of uranium produced per acre-foot of water is "about twenty times the value that a good farmer could produce using the same amount of water for irrigation."

Even where uranium is not mined, uranium companies still contaminate water. To find uranium, which occurs in pockets rather than in long seams like coal, companies drill holes. First they drill holes to find deposits, then they drill to determine their outlines. In 1978, uranium explorers drilled a record 47 million feet of holes (average depth: 450 feet). Each time they drill a hole, they run the risk of creating channels for water to move from one aquifer to another, so that the water can be contaminated with uranium either naturally or as a result of drilling.

Some of the consequences to water of uranium mining, milling and exploration will not occur for decades or even centuries, because groundwater moves slowly and because some radionuclides have long lives. As William Ramsay pointed out in a Nuclear Regulatory Commission (NRC) study, "Radium itself, with a half-life of 1600 years, is a long-term problem, but even more serious, the radium is continually replenished as a decay product of the isotope thorium-230, which has the relatively long half-life of about 80,000 years."

But we do not have to wait for evidence that uranium production damages water systems. In the last fifteen years, federal reports have told of:

- seepage from tailings ponds at Edgemont, South Dakota, moving into Cottonwood Creek and the Cheyenne River;
- a company operating a mill in New Mexico's Grants Mineral Belt injecting several billion liters of waste into the ground and failing to monitor its movement into shallow aquifers from which drinking water is drawn;
- effluents from mines and mills increasing radium levels at points throughout the Colorado River system.

The single most dramatic incident of contamination, the Church Rock dam break, focused attention on the carelessness with which the uranium industry disposes of tailings, and on some government agencies'—especially the state's—indifference to that carelessness.

As at Church Rock, companies have often deposited tailings in dry stream beds, common in western areas, where most streams run only part of the year. Although diversion channels are cut around the tailings ponds, the procedure practically invites trouble. Even after the Church Rock break, a New Mexico company called Bokum Resources had the audacity to propose a plan for a new tailings pond in a stream channel near Marquez. Furthermore, the company started building its mills and dams before it received a state permit, a common practice in New Mexico.

Gail Russell

A sign in three languages—English, Spanish and Navajo—warns people to stay away from the contaminated Rio Puerco. But cattle can't read.

While government regulation of tailings has been half-hearted, the 1978 Federal Uranium Mill Tailings Radiation Control Act gives legal mandate for stiffer control. Although the act still allows states the choice of regulating tailings under state or federal authority, the federal expectations will be higher than they have been in the past. There is reason to hope new tailings piles will at least be built with clay or synthetic liners to block seepage and located where they will not wash away in the near future.

Regulation of mining, unfortunately, is another story. Protecting the quality of water affected by mining has been left largely to understaffed state agencies bound by standards set under the Federal Water Pollution Control Act. These agencies are also subject to a good deal of pressure from the mining industry. In a recent major report on uranium development in the San Juan Basin region, where the uranium-rich Grants Mineral Belt is located, the Department of the Interior examined the loopholes in water regulation. Among them: no law applies to such "non-point sources" as runoff from mine spoils (waste rock dug out to get to the ore) even though, the report notes, these are significant sources of pollution.

Concluding that the federal law is adequate to protect water *if* it is backed up by state law and enforcement, the Interior Department report also concluded that the law, applied to uranium mining, "has not prevented pollution in the past."

Some companies have argued in court that the federal water law should not apply to mine discharge because it does not enter "navigable waters." Brenda McBride, an outspoken member of the Grants-area soil and water conservation board, calls this double-speak.

"The arroyo doesn't carry water anymore and the mountain doesn't shed water anymore. Then it doesn't carry radon daughters that the cows won't eat." Angered by companies' request that the state allow a higher level of selenium in groundwater, she summarized the industry's position this way: "If it exceeds the minimum allowable standard we'll raise the standard, and then we won't exceed it."

On the Navajo reservation not far from Grants, several wells were shut down because the amounts of selenium and arsenic exceeded standards for safety. A number of wells in the area have radioactivity levels that approach federal limits. These high levels could be natural, or a possible result of local mining. The industry can maintain that the water is naturally contaminated since there are no pre-mining baseline measurements to indicate otherwise. Monitoring water quality around mines and mills has been generally unsystematic and indifferent. At the Anaconda Jackpile mine near Grants, the world's largest uranium surface mine for almost 30 years, regular monitoring of air and water quality began only a few short years ago.

Careful monitoring becomes particularly important when uranium is mined by the *in situ* methods now being introduced at Rocky Mountain sites—pumping chemicals into the uranium deposit and pulling the uranium and chemical solution out through wells. On the Navajo reservation, where an *in situ* operation was being installed, Harold Tso, the tribe's environmental officer, questioned whether monitoring the wells would really work. "We don't know if strata are continuous," he said, and added, "If the contamination is from the *in situ* operation, how do you successfully decontaminate a polluted aquifer?"

In Wyoming, they are not sure that you can. The NRC recently shut down Wyoming's first commercial-size *in situ* operation briefly after chlorides, uranium and ammonia were detected in test wells. Then Wyoming Minerals Corporation was allowed to start up again with a different leaching mix, but without completely cleaning up con-

Disaster at Church Rock: The Untold Story

ALLAN RICHARDS

ON THE MORNING of July 16, 1979, a twenty-foot section of a uranium tailings dam at the United Nuclear Corporation's uranium milling operation in Church Rock, New Mexico, collapsed, spilling nearly 100 million gallons of radioactive liquids and 1100 tons of solid contaminants into the Rio Puerco. Though an emergency was not declared by the state of New Mexico or by the federal government, officials for the Nuclear Regulatory Commission (NRC) declared it "the worst incident of radiation contamination in the history of the United States."

Hours after the contaminants crashed through the walls of the dam and surged downstream toward Arizona, causing the normally low Puerco (or "Perky," as it's called by locals) to overflow its steep banks, a sampling of the river made by the New Mexico Environmental Improvement Division (EID) indicated that the level of radium was 120 times above normal; thorium (one of the most potent of all radioactive elements) was 6000 times higher than normal; and such toxic heavy metals as arsenic, selenium and sulfur also greatly exceeded acceptable standards.

The high acid content of the tailings quickly gave the river an acidity equivalent to that inside a car battery. The concentration of thorium 36 miles downstream was as high as it had been in the reservoir before the dam gave way. Within weeks, tests made at a monitoring well fifteen miles downstream near Gallup, a city with a population of 21,000, revealed that high levels of radioactive and heavy-metal contaminants had already seeped 30 to 40 feet below the surface into the groundwater.

All along the Puerco, signs were posted in three languages—English, Spanish and Navajo—by the New Mexico EID to "discourage" people from using the water. Yet fences were not erected to prevent Navajo livestock, which traditionally drink from the Puerco, from continuing to do so.

Although the EID, the Nuclear Regulatory Commission and the United Nuclear Corporation claim that the spill cleanup has been effective, a test made this past April of a well supplying drinking water to the Puerco School District in Sanders, Arizona (about 60 miles downstream from the mill), showed a sudden and dramatic rise in radioactivity. A subsequent test indicated that the levels were "at the normal federal guidelines for radioactivity in drinking water," and the first test was termed "anomalous"—a fluke. Ed Swanson of the Arizona Bureau of Water Quality Control says that the agency is "anxious about the incident—we just don't know when or where we're going to get some kind of reaction from the Church Rock spill."

Until recently, neither the government nor the industry itself enforced safety regulations protecting miners from uranium and its poisonous cousins. The legacy of this negligence has shown up in the luckless miners; more than 20% of them have developed lung cancer. In addition, mining companies were permitted to stack tons of radioactive tailings in New Mexico, South Dakota, Arizona, Wyoming and Colorado. In areas such as Grand Junction, Colorado, and Cottonwood, South Dakota, people, not knowing that the tailings piles were radioactive, hauled the solid wastes away to use in building schools, churches and houses. The result: an increase in babies with congenital defects, born to mothers living and working in those buildings, and in Grand Junction, an abnormally high incidence of leukemia.

Contaminants from the spill have already reached the Little Colorado River, and it's only a matter of time before the radioactive elements work their way into the Colorado River and Lake Mead, major sources of drinking water for the southern California area.

The state of New Mexico and Congress have investigated the Church Rock spill. The EID, the NRC and the United Nuclear Corporation have assured the public that the incident was actually minor in scope and that "there is no immediate danger to human health." (UNC is also responsible for a plutonium explosion in Pawling, New York, that contaminated a nearby lake.)

The most shocking thing about the Church Rock spill is that Church Rock was supposedly the best uranium tailings dam built in New Mexico, heralding a new era of safety in the uranium industry. But previously unpublicized geological factors contributed to the dam's failure. And the dam was used for 25 months instead of the 18 it was intended for, and was overloaded by 50% of its design capacity. Aerial photographs taken by the EID in March 1978 and May 1979 show that UNC operated the tailings pond incorrectly: liquids were in contact with the face of the dam instead of a beach of sand tailings. This is a crucial point; the lack of a sand barrier allowed contact between what UNC calls "an untimely presence of free liquids" and the earthen dam.

If the UNC was negligent in complying with building standards for the dam, the state of New Mexico was also remiss in licensing and inspecting it. The state, like UNC, completely ignored the instability of the dam site in its evaluations of the company's construction proposal. During construction and operation of the dam, periodic inspections by the state were never made.

Following the spill, UNC initiated a cleanup operation of the radioactive solids from the Rio Puerco. Six to ten workers equipped with shovels and 55-gallon drums were assigned to scoop the 1100 tons of solid contaminants from the riverbed. Charles Ofelt, official spokesman for UNC, claims, "It was difficult getting heavy equipment into the river because of the wet conditions and the high soft-rock canyons and we therefore had to go in with shovels . . . but we're satisfied with the way it went."

However, because of this bucket-and-shovel approach, and rain within the first two weeks after the spill, the contaminants dispersed quickly and were too difficult to reclaim. The contamination was already present 75 miles downstream and was widely distributed into groundwater by the time the state decided that the cleanup was ineffective and ordered UNC to increase its workforce in the river to 40 men. Only about 0.3% of the material spilled was ever removed from the river.

An informed source familiar with EPA activities, who worked on the post-spill monitoring of river water, offers a sobering appraisal: "The great problem in the collecting and analyzing data has been that there is a real lack of experts capable of accurately and honestly interpreting what the information means. Most officials just don't have any idea how dangerous the contamination is. There's been a lot of head-scratching going on." □

Allan Richards has written for Rolling Stone, Mother Earth News *and* Crawdaddy. *He lives in New Mexico, where he is associate editor of* Taos *magazine.*

taminated aquifers. *High Country News*, an environmental newspaper published in Lander, quoted one state official as saying, "That area is so messed up it may never get back to normal."

In its 1979 generic environmental impact statement draft on milling, the NRC offered bland reassurances derived from mathematical models and a string of optimistic assumptions. The experience of citizens and officials who live and work in uranium-producing regions casts doubt on those reassurances. Thus far, uranium's real, dirty past offers little support for a hypothetical clean future.

A local anti-uranium movement has become active in uranium resource areas. In New Mexico, a county organization led a partially successful battle to block operation of the Bokum mill, and the residents of the Navajo Indian reservation joined with Friends of the Earth in a suit to halt all uranium mining until more environmental impact statements have been prepared. Voters in Vermont and some parts of South Dakota and Wisconsin have approved moratoriums on uranium mining and exploration. Last year, a seven-year ban on uranium mining and exploration in British Columbia, Canada was imposed, following lengthy hearings by an investigatory commission. Much of the credit for this victory goes to the Okanagan Group of the Western Canada Chapter of the Sierra Club. And the Black Hills Group of the Dakotah Chapter has been particularly successful in exposing and halting uranium mining in the area. For more information, contact:

Western Canada Chapter Chair
1410 Evergreen Road
Campbell River, British Columbia
Canada V9W 3S2

Black Hills Group
Dakotah Chapter
P.O. Box 1642
Rapid City, South Dakota 57709

Although many organizations are part of the anti-uranium network, two are particularly important bases of activity and information:

Southwest Research and Information Center
P.O. Box 4524
Albuquerque, New Mexico 87106

Black Hills Alliance
P.O. Box 2508
Rapid City, South Dakota 57709 □

Carol Polsgrove is a freelance writer in Oakland, California.

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Photographs by John McComb

Doug Scott discusses strategy with Senator Alan Cranston (D-California) at a "victory party" after the Senate passed its Alaska bill in August 1980.

In July 1980 Alaska activists from more than 30 states gather in temporary grassroots headquarters, near the Capitol, to coordinate last-minute personal visits to senators. Alaska Coalition Chairman Chuck Clusen (wearing a yellow-and-blue-striped sport shirt) talks with Ed Wayburn.

At the end of a long, hot day of lobbying, grassroots activists gather to discuss results. Doug Scott serves a cool drink to Ed Wayburn. Marlin Perkins, of Mutual of Omaha's "Wild Kingdom" TV show, is at center, wearing a necktie.

Representatives Mo Udall (right, foreground) and John Seiberling (behind Udall) brief conservationists for personal lobbying in the days before the House vote in May 1979. Conservation leaders (clockwise) are Lou Clapper (National Wildlife Federation), in foreground with back to camera; Maitland Sharpe (Izaak Walton League); Mike McCloskey (standing) and Brock Evans, of the Sierra Club.

Alaska 1980
Stalemate Or Checkmate?

Alaska Coalition lobbyists huddle outside a Senate chamber in July 1980, for last-minute strategy refinements. Barbara Blake, the Club's Alaska lobbyist, is at far left. Tom Kimball (National Wildlife Federation) and Steve Young (Audubon Society) are at right.

In May 1978, in the East Room of the White House, President Carter is made an honorary chief of the Tlingit Indian tribe of Admiralty Island. To the left of the President are Theodore Roosevelt IV (Americans for Alaska), Chuck Clusen (Alaska Coalition), Chief Matthew Fred. At right are Representative John Seiberling (D-Ohio)—himself an honorary chief—and Interior Secretary Cecil Andrus.

An Alaska Coalition lobbyists' morning briefing, in July 1980. Doug Scott, coalition lobbying director, outlines the day's tasks. Among the group are the Club's Assistant Northern Plains Representative Rose McCullough (wearing a red dress, standing at door), Club President Joe Fontaine (seated at right of door) and coalition lobbying coordinator Peter Scholes (The Wilderness Society) at right.

THE BATTLE for a strong Alaska lands bill has been going on for years. Conservationists have been outspent, but seldom outwitted. Thousands of individuals and hundreds of groups nationwide organized into the Alaska Coalition have helped with the battle. The coalition includes such environmental groups as the Sierra Club, National Audubon Society, Friends of the Earth and The Wilderness Society, as well as civic groups in Alaska, labor unions, public-interest organizations and outdoor clubs. The coalition also works closely with others, such as the National Wildlife Federation. The coalition represents, therefore, a wide spectrum of grassroots voices; it has consistently urged Congress to preserve a generous sampling of our natural heritage in Alaska. On these pages we show a few pictures of the Alaska Coalition in action in Washington, D.C.

EDGAR WAYBURN

November 12, 1980. The Lame Duck session of the 96th Congress has begun, and there is still no Alaska National Interest Lands Conservation Act. It is two years beyond the deadline the Congress set for itself to enact this important legislation. It has been eighteen months since the House by an overwhelming majority passed a good, well-balanced bill, reflecting the de-

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sire of the American people to protect public lands in Alaska. And 85 days since a weaker substitute bill was passed by the U.S. Senate. It has been 41 days since a compromise package of strengthening amendments was introduced by House leaders Morris Udall (D-Arizona), Tom Evans (R-Delaware), Thomas Ashley (D-Ohio), Phillip Burton (D-California) and John Seiberling (D-Ohio).

This seems a tremendous exercise in frustration. It was, and it is. At the same time, it reflects the forces and counterforces of American democracy in action.

The Alaska National Interest Lands Conservation Act is the greatest conservation opportunity of our lifetimes. Such a proposal is bound to encounter the strong opposition of vested exploitative interests, whose activities would be curtailed in the name of the overriding national interests. Add to this the states' rights issue, with the Alaska establishment furnishing powerful, well-funded lobbies, and one has an opposition of extraordinary capacity.

The power of the opposition has been demonstrated in the Senate by Alaska's two senators. Senator Mike Gravel—who opposed any congressional action—opened the way for President Carter to take the greatest single conservation action of any administration, with the establishment of 56 million acres of national monuments (under the Antiquities Act) and another 40 million acres of wildlife refuges (under the Federal Land Policy and Management Act) in December 1978. In August 1980 the Senate was obliged to invoke cloture to stop Senator Gravel's filibuster tactics.

Senator Ted Stevens (R-Alaska) used a different approach. Under his influence the Senate Energy and Natural Resources Committee sent to the floor a development-oriented measure that would have almost completely invalidated the overall protection provided by the House-approved H.R. 39. When it became apparent that the full Senate was dissatisfied with the energy committee's bill, Stevens continued to negotiate with fellow senators. Consequently, the substitute bill passed by the Senate contains what Representative James Weaver (D-Oregon) aptly characterized as a "staggering litany of giveaways," tantamount to giving Alaska "a most favored state" status. Some examples of the provisions of this Senate bill:

- The state of Alaska would be granted 1.7 million acres within the boundaries of the conservation-system units and be virtually guaranteed future state inholdings in parks and wildlife refuges; this, and other unprecedented provisions, would wreak havoc with federal management.

Jack Hession, the Club's Alaska Representative.

- The state could "overselect" 25 percent more than the generous 104 million acres already granted it, relinquishing some selections in exchange for others.
- The Executive Branch would no longer be permitted to make emergency land withdrawals. Future withdrawals would require congressional ratification.
- Alaska would receive 90% of the revenues from oil and gas leasing on wildlife refuges. All other states where such leasing occurs are given 25%.

On October 2—the very afternoon Congress recessed for election campaigning—members of the House of Representatives responded by introducing H.R. 8311, the Udall-Evans bill. In his introductory remarks, Representative Udall stated, "Today I am introducing a bill that contains a package of proposed amendments that many of my colleagues believe provides a blueprint for a comprehensive settlement of the many and complex issues still separating the House and the Senate on the Alaska lands bill." The bill, which proposes revisions to the basic text of the Senate-passed bill, tries to give something to all interests.

- For sport hunters, the hunting-preserve acreage in the national parks would be expanded over the acreage in the Senate bill by nearly 1 million acres, opening lands in the Wrangell-St. Elias, Denali and Lake Clark national parks.
- For oil and gas development, the Arctic

National Wildlife Range would be subject to seismic testing; Congress would decide in six years whether to proceed with full-scale exploration.

• For the timber industry, a timber cut of 450 million board feet per year (higher than the previous ten-year average) would be mandated in Southeast Alaska's Tongass National Forest, and $40 million annually in federal funds would be made available to assure that objective.

• For mining interests, a series of privileges would be granted and a transportation corridor mandated across the Gates of the Arctic National Park wilderness.

• For the state of Alaska, the new bill would allow most of the giveaways Representative Weaver alluded to—among 35 million acres of federal lands to be conveyed to the state, including 2.5 million acres the state currently does not have legal right to select. The state would be permitted to overselect federal lands throughout Alaska, with the exception of conservation units. The state also would be given an additional ten years to complete selections of land granted by the Statehood Act.

In the national interest, an additional 3.5 million acres of wilderness would be preserved, Copper River, Teshekpuk and Utukok wildlife refuges would be designated, and refuge status restored to areas in the Yukon Flats and the William O. Douglas Arctic National Wildlife Refuges. The eastern West Chichagof, Karta and Rocky Pass areas in Southeast Alaska would be protected; Shee Atika native corporation's land selections on Admiralty Island National Monument (for logging) would be removed. Also, wilderness exclusion in Misty Fjords National Monument for the U.S. Borax molybdenum mine would be reduced.

This is not the overwhelming victory to which the American people are entitled. But in the sometimes circuitous peregrinations of American democracy it seems the best that we can muster in November 1980.

We are now in the final session of the 96th Congress. With so little time left, what will the outcome be? Reflecting the wishes of the American people, the House has reiterated its determination to put into law as strong a measure as possible. The ball is in the Senate's court.

Remember, the opposition is fully aware of the situation. But if all of us once more —and right away—tell our senators and congressmen that we want an Alaska National Interest Lands Bill even stronger than H.R. 8311, with its limited improvements. Your voices can yet be heard and reflected in stronger legislation—to enable this long campaign to reach a successful conclusion. □

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Illustrations by Kirk Caldwell

Snowshoeing With Children

JEAN McLEOD

SNOWFLAKES FELL STEADILY through the day and into the night. By morning two feet of new snow blanketed the ground outside our house.

"Yippee!" shouted our children. Four-year-old Janet and six-year-old Kevin quickly excused themselves, after gobbling down breakfast, and dressed for the outdoors. So did their parents. After gathering the various pairs of snowshoes and strapping them on, we opened the front door and walked out into an enchanted land covered with sparkling powder.

The children led the way as they trudged over to explore the white blob that stood where we parked the car. Then the whole family moved on to the woodlot beyond our house where we spent the next hour following a familiar path under tree branches heavy with new snow. The morning was quiet, except for the noisy blue jays complaining of the intrusion. We followed rabbit tracks that crisscrossed the path.

Snowshoeing has many advantages over other winter activities for families with small children. If you live in snow country, the sport can take place just outside your door, or in the city park, or along a footpath. It is easy to learn and can be done for an hour, a morning, or a full day.

Best of all, snowshoeing is not expensive after the initial cost of the snowshoes and bindings. And even those expenses are much less than such sports as Alpine or cross-country skiing. If you live in an area with snowy winters, children will already have the necessary outer clothing—no need to buy special boots or jackets for snowshoeing.

There are four basic snowshoes.

The **Bearpaw** is oval shaped, one and a half to two times as long as it is wide, and does not have a tail. It is noted for ease in turning and convenient for short winter walks in the woods.

The **Maine** (or Michigan) snowshoes look a lot like long tennis rackets. They are turned up in front and have tails in back. They are best suited for cleared forest trails and for open areas.

The **Yukon** (or Alaskan) trailers are long and thin. The front edge is sharply upturned, excellent for deep snow and in open country.

The **Green Mountain Bearpaw**. Narrow, like the Yukon, but without a tail. Rounded front and back, with a small turnup in front.

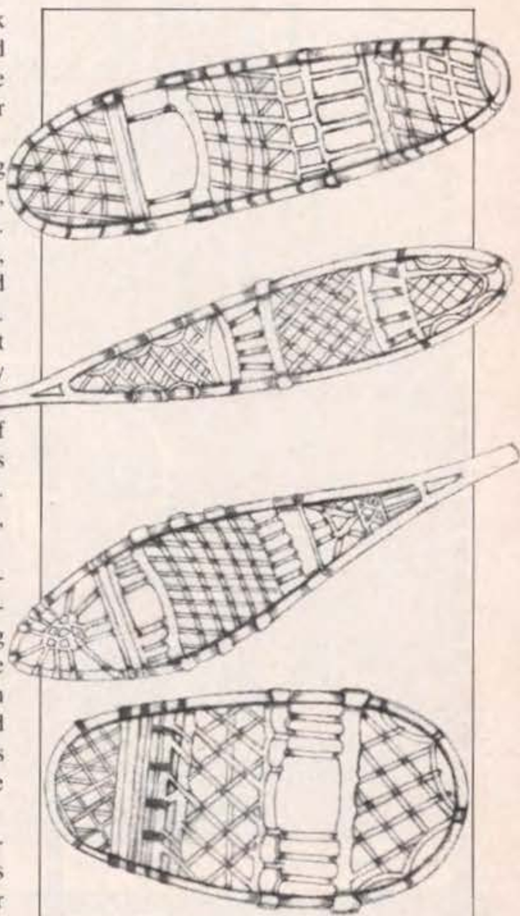
As for deciding which snowshoes are right for you and your children, let me relate my own experience.

When my husband and I first thought of buying snowshoes, we heard of bearpaws and thought they would best meet our needs. We drove over to the shack of an old trapper, C. P. Smith, who sold snowshoes.

"You don't want bearpaws," he exclaimed. "What you want are Yukon trailers." He promptly showed us a pair leaning up against his shed. Since C. P. had only the larger size, for people weighing more than 140 pounds, we bought them for my husband and agreed to come back in a few weeks when a new shipment arrived, so that we might buy the smaller size for me.

When we did return and ask for the Yukon snowshoes, old C. P. Smith looked us straight in the eyes and said with a poker face, "Oh, you don't want those. You want the Green Mountain bearpaw." He then expounded on the good qualities of that design, showing us the pair he conveniently had around back.

The fact is that choosing snowshoes becomes a matter of personal preference (or the preference and stock of the seller). They all have merit and you can get around on each of the types. However, having tried all four kinds, I prefer the Maine showshoes for general use on trails and open areas. (Plastic snowshoes, incidentally, are almost worthless.) I would also recommend this kind for



Snowshoe types: Top to bottom, the Green Mountain Bearpaw, the Yukon, the Maine and the Bearpaw.

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children. The short tail at the back helps keep the shoes pointing straight ahead and yet they are easy to handle making turns.

When buying snowshoes for children, insist on buying shoes that are made especially for them. If your sporting goods store does not carry children's snowshoes, the salesperson can probably order them for you.

Regardless of design, snowshoes are only as good as their bindings. There are different styles available.

The **A style** ties over the toe of the boot and straps around the heel.

The **H style** buckles over the toe and has a heel strap. The full instep provides extra support.

The **Howe style** has a toe cup that prevents

forward movement of the foot and fastens the foot more securely to the snowshoe.

From my own experience, both H style and Howe style are acceptable. However, because bindings come in one size only, adjustments have to be made when fitting them to children's snowboots. Use a punch or an ice pick to put a few more holes in the leather straps.

Once while snowshoeing with another couple, I was constantly aware of how much trouble they had walking on the snow. On closer examination, it was easy to see why. The bindings did not hold the boot to the snowshoe, and their feet slipped all around the surface. By all means, buy good commercial bindings at the beginning and avoid headaches later on. There is little that frustrates the wearer more quickly than ill-fitting equipment.

The only other equipment you might want to use is a ski pole in one hand. It helps provide balance, especially when walking on hills and side slopes. However, a small child may find it a hindrance and do better without one.

Once equipped for snowshoeing, how do you begin? Simple. Just do it.

Walking on snowshoes is easy to do, but

takes some practice. You must walk with feet wider apart because of the snowshoes' size. Lift your foot up and forward. Do not try to lift the snowshoe. It drags along as the leg moves forward.

When our two children were little, my husband and I backpacked them when we went for winter walks on snowshoes. Since it is so much like walking, we knew we would never hurt the children by falling back on them. At first, we took short walks around our neighborhood. As we became more comfortable on snowshoes, we ventured on longer treks into the national forests and state parks. Kevin and Janet, at ages 2½ years and nine months, sat contentedly in their carriers as we transported them along forest paths, spotting snow buntings and discovering beaver dams embedded in frozen mountain ponds.

At age four, Kevin got his own pair of Maine snowshoes. My husband and I watched anxiously as he started to walk in them. We wanted him to have a good experience, and he did. Kevin started off before we could get his sister into her backpack. We spent a delightful half-hour snowshoeing through the woods with Kevin in hot pursuit of the rabbit tracks patterning the snow.

Janet got her own snowshoes a year later at age three, and, like her brother, she quickly learned to walk in them.

When snowshoeing with young children, there are a few commonsense rules to follow.

1. Fit the boots to the bindings before the first outing. Then, on snowshoe day, you need not spend an hour adjusting bindings while the children are dressed for the outdoors and impatient to go.

2. The first time out, plan a half-hour walk in a level area. After the children have been on snowshoes for that length of time, there will be a few adjustments to make on the bindings. At that point, wind up the day's activity.

3. Choose a pleasant day, warm and sunny enough not to freeze fingers or cheeks.

4. Carry some snacks in your pocket (perhaps chocolate, raisins or shelled sunflower seeds). Stopping at intervals to eat a snack reminds the children of how far they have come.

5. As the children become more proficient at walking, you can plan longer and more ambitious trips.

On every snowshoe outing, you can introduce your children to beautiful winter scenes, get good exercise, and share a special family time together. □

Jean McLeod, a nursery school teacher and writer, lives in the Black Hills of South Dakota.

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David Halsey

A Guide to Equipment

Cross-Country Skiing

NED GILLETTE

David Halsey

*One of the special joys of cross-country skiing is that it can truly be a group experience. You can ski and talk at the same time. **Left:** Happy skiers at a resort in northern Minnesota clown for the camera. **Above:** Lunchtime for a group of skiers near Elk River, Minnesota.*

IT IS ASTONISHING how long it takes even experienced skiers to evaluate equipment and find the gear that best enhances their style and level of skiing. The best thing I can do is give you some suggestions on how to find good equipment. Most important, be willing to bend the ear (and flex the ski) of an experienced cross-country ski instructor in an expansive mood. I cannot emphasize this strongly enough: it is only by practical on-snow experience with equipment that you'll find what is right for you.

As a buyer, you should be interested in two things: performance and durability. You are a skier, not a scientist. Don't get caught up in picky technical questions. It really doesn't matter to you what the chemical makeup of P-Tex 2000 is. It *does* matter how it will perform and how long it will last—characteristics that count out on the trail.

Many folks want one set of skis or boots that will be suitable for racing as well as mountaineering. This simply isn't possible. If you can afford only one set, get what is appropriate for the toughest skiing you plan. In all probability you'll find the sport enjoyable enough to buy a second, more specialized pair later.

Whether you are a beginning skier or a citizens' racer, here are a few guidelines to follow for asking questions and selecting equipment.

To wax or not to wax? Waxing can improve the skiing, but waxless skis may be more convenient in areas with frequently-changing snow conditions.

SKIS

In choosing a pair of skis that is right for you, determine what your skiing style is, then match it with the appropriate ski. Here are a few decisions to be made before you even walk into the shop:

A. What speed will you ski?
  1. Athletic (citizens' racer)
  2. Active (fast touring)
  3. Casual (slow ski walking)

B. How many times will you ski during the year?
  1. More than 15 times
  2. Fewer than 10 to 15 times

C. Where will you ski?
  1. In tracks
  2. Off-track

D. What is your downhill ability on X-C skis?
  1. Aggressive carved turns
  2. Slow skidded turns
  3. Prayer

E. What base do you want?
  1. Waxable for performance
  2. Waxless for convenience

F. What is cross-country skiing to you?
  1. Sport
  2. Recreation

As a general rule, if you answer number 1 to these questions (lower total score), you are a more aggressive skier and can handle high-performance skis: narrower, lighter, stiffer cambered, with less sidecut, a softer and shorter tip, and less torsional stiffness in the tip. However, realize that the opposite criteria are appropriate for cruising, easy, skiing. (*Note:* In this test, many off-track skiers are "aggressive," so forgive this little inconsistency!!)

Bases—waxable or waxless: An important decision is whether to buy waxable or waxless skis. You can eliminate half the skis on the market by deciding whether you want the performance and adaptability of a waxable ski or the convenience of a waxless ski. A waxless ski will seldom outperform a well-waxed ski, but it will always outperform a poorly waxed ski. Two-wax systems do simplify waxing, but if you view waxing as a hassle, don't hesitate to go waxless. Keep things in perspective: it's more important to be out there skiing than to be skiing on a particular type of ski.

The base material of a ski should be durable, reasonably fast, able to hold grip-and-glide wax, and easily repaired and maintained. For ordinary ski touring, select a base that demands little day-to-day care; leave the sophisticated bases that require lots of preparation to the racers.

The following information concentrates chiefly on the pros and cons of waxless skis, not because I'm pushing you in that direction (quite the contrary, actually) but because I think you need a thorough understanding of the waxless concept before making a decision. There is no better feeling in the world than speeding down a well-prepared trail on skis that are perfectly waxed. A waxless ski will never provide that feeling. You just have to decide whether optimal performance is worth learning how to wax.

I think 50% of the skiers in this country ought to be using waxless skis, but I also think everyone ought to know what is gained or lost by going waxless. Mike Brady, who brought a lot of the European knowledge of cross-country skiing to this country, states the case this way: "When waxable skis are easy to wax—say in powder or spring snow—waxless skis have no advantage. Only when it's difficult to wax skis, such as in transition conditions (32°F./0°C.), do waxless skis have any measurable advantage." Waxless skis have been used successfully in international racing to overcome difficult waxing problems. Bill Koch had the third-fastest leg in the 1976 Olympic relay, and Norway's Per Knut Aaland won a silver medal in the 1979 Holmenkollen 50 km. Is this a hint of things to come?

Although many waxless skis are effective under certain conditions, don't expect miracles from them. Their base designs offer only a single solution for a variety of snow conditions you will meet out on the trail. As Harold Bjerke of Swix Sport International (a major wax manufacturer) says, "Just remember that using a waxless ski is like playing 18 holes of golf with only the putter."

Besides the sacrifice of performance to convenience, another trade-off with waxless skis involves time: you save waxing time, but you usually have to work harder. Waxless skis are usually a bit draggy, requiring more effort to push them forward. And they often backslip on hills, so you have to sweat to get to the crest.

For the right people, waxless skis are great. My mother got into cross-country about ten years ago when she quit Alpine skiing. She found at first that she didn't ski as much as she would have liked to; waxing was a hassle for her. A new pair of waxless skis solved the problem, and now she skis twice as often. I own a couple of pairs that I use when the waxing conditions are difficult or when I have only a few minutes to ski.

Waxless skis are also the logical choice for people who shuffle only a few miles, for occasional skiers who want convenience, for those who ski in areas, such as the Northwest and California, with lots of 32°F./0°C. weather and rapidly changing snow conditions, and for enthusiasts who ski well but want a pair of skis for transitional snow. They're good, too, for kids who are just beginning to ski, but be careful not to buy a

child's ski that has too long a waxless pattern—if the child isn't heavy enough, the ski won't slide downhill.

There are so many waxless skis on the market today that I find it more confusing to pick the best waxless concept than to select the right wax for the day. You name the geometric design, and manufacturers have tried it. In my opinion, the future will bring great strides forward in waxless skis that are smooth-bottomed and don't wear out, have good glide, turn easily, have base patterns about the size of average snow crystals, and can adapt somewhat to snow hardness and moisture content—in other words, similar to waxable performance. This ski is still in the planning stages.

It's not simply the *kind* of waxless base put on by a manufacturer that makes a difference in performance, but also the way it is *attached* to the ski and the way the design and camber of the ski itself enhance the pattern. For instance, some factories apply too much heat and pressure to their ski molds, resulting in a flattened pattern and little on-snow grip. Further, brands of mohair skis differ: some work, others are disasters; it makes a tremendous difference where the mohair strip is placed, how long it is, how far the hairs stick out, how stiff the hairs are and what kind of glue is used. Steps, scales, rounds, diamonds, crowns and smooth bases all vary among manufacturers. Selecting a good waxless ski is tricky; my advice is to try out as many types as you can from rental programs, ski in the typical snow condition of your area, then obtain the help of a good salesperson in making a decision.

Waxless skis are usually used by folks whose main problem is getting up hills. Choose a ski that has good gripping capability and a camber soft enough so the grip section of the ski will firmly contact the snow. Remember that patterns on the bases of skis make skis somewhat harder to turn while skiing downhill. So don't fail to include some downhill runs in your testing. (A while ago a major ski manufacturer introduced a waxless pattern that resisted even experts' efforts to turn the ski right or left.) A final note: waxless skis are usually sold to people who just want something to get around on. Regrettably, there are many skis on the market that make this impossible. Take the time to find a ski that will really work for you.

Waxless skis are not maintenance-free. For best performance (although not essential) the tips and tails of polyethylene-based skis should be prepped with glider wax to enhance the glide. Some wax companies are offering special spray glider waxes for increased speed on waxless skis in dry and wet snow conditions. Silicone speed spray will help prevent the frustrating tendency of some waxless skis to collect ice in the pattern or between hairs. In spring conditions, waxless patterns will pick up old klister wax and crud along the trail, making skis sluggish. Liquid wax-remover rubbed on with a rag will cure this problem.

One wax company is even planning to market a waxless grip wax for special snow conditions and for use when the base pattern wears out. If they're not careful, they'll invent wax all over again!

Length: The old rule of measuring a ski to the wrist of your arm lifted straight above you head still holds true in cross-country. A longer ski is faster and more stable but less maneuverable. I wouldn't use a ski any more than 10 cm shorter than the normal length in an effort to gain more maneuverability. And don't go shorter than normal length if you plan to race—you'll need the speed and stability.

Width: Wider skis are more stable, stronger and provide more flotation in deep snow but are slower in tracks.

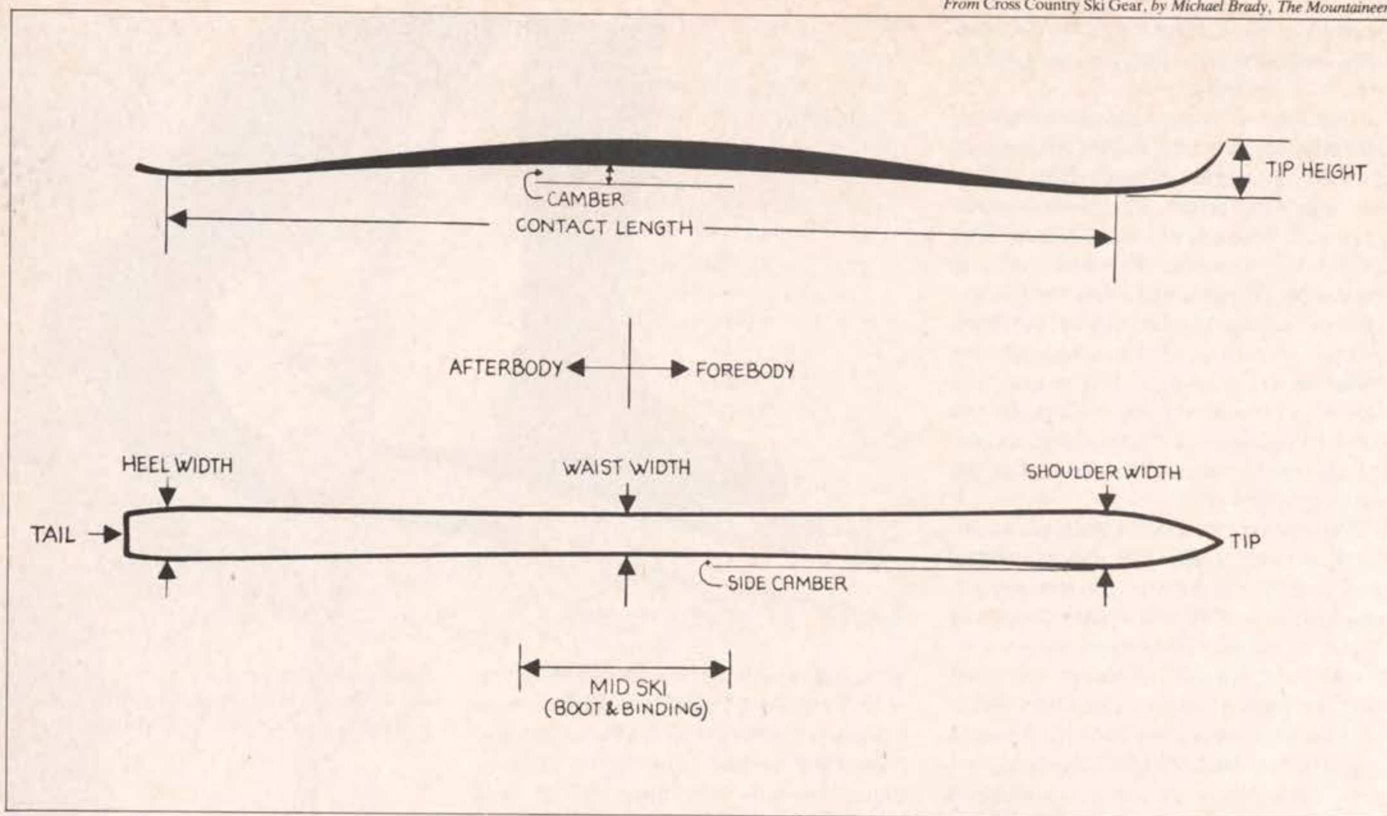
Weight: Lighter means faster in tracks. Heavy skis don't necessarily mean stronger skis. Light equipment allows you to ski with more sensitivity; when you do something right or wrong, you feel it right away. For long tours and heavy packs you usually need sturdy equipment (although we skied 1250 km in the Arctic on skis only 47 mm wide!). But for track skiing at touring centers, don't overlook the fact that your technique is to a large extent a result of your equipment. You are what you ski on. Those of you who jog know that running with light shoes allows you to go faster, longer and more easily. A bit of speed over the snow will put X-C into an entirely different perspective

Tip flex: To determine this in the shop, simply pull the tip toward you with one hand

Keith Gunnar

Lightweight, flexible cross-country boots (protected from snow, as above, by gaiters) make for relatively easy, if not entirely effortless ski touring.

From Cross Country Ski Gear, by Michael Brady, The Mountaineers



The anatomy of a ski.

while feeling the body of the ski with the other hand flat on the ski. Softer tips are faster in machine-set tracks. Stiffer tips are more stable for touring and for holding off-track downhill turns. A longer tip, extending farther into the body of the ski, is better for touring and more forgiving since it follows the terrain more easily; shorter tips are better for forceful racing.

Tip splay: Squeeze the skis together, bottom sides together. If the tips splay apart down into the body of the skis, they will not track well or turn easily because you will be actually skiing on less than the entire functional area of the ski. You're guaranteed a squirrelly ride down any hill.

Torsional stiffness: Twist the ski tip to the left or right as though you were trying to unscrew the tip from the ski. Stiffer tips give better edge-holding ability for touring, especially on hard-packed snow; softer tips are better in tracks because they tend not to catch on the sidewalls and to ride out of the track.

Camber: Camber is the arch of a ski that distributes your weight over the running surface. When skis are placed bottom to bottom and pressed together, a soft pair will be easy to press together, a stiff pair quite difficult. Each length of ski is given a camber stiffness that is correct for the average weight of a skier who would use that length. For instance, most 210 cm skis are cambered for 165 to 175 pounds, the average weight of a 5-foot-11-inch male human. But all pairs within a given length of one brand vary a bit, and brands themselves vary, so if you are light for your height, you should choose a ski with softer camber. Occasionally you must select a shorter ski to get a softer camber.

Racers prefer stiffly cambered skis. They're faster because their pressure-distribution patterns keep the base's waxed center section, by and large, up off the snow when the skis are equally weighted, as on downhills and flat stretches of double-poling. When the racer kicks and presses down on one ski, the center portion of the base is pressed onto the snow, providing grip. These skis demand energetic kicking action on well-prepared tracks. (Super-stiff skis are used in klister conditions, softer skis in powder snow.) Stiffer skis also provide positive edge control but demand an expert skier to make them turn.

Softer skis are more forgiving since they are easier to flatten, thus allowing the wax or waxless pattern to bite readily into the snow for uphill grip. They provide better grip for off-track cruising in deep snow and are more easily turned in slow-speed skiing. If I had to choose, I would buy a ski that is a little too soft rather than too stiff. A softer ski may be a little slower, but at least you can make it up the hills with ease.

Sidecut: Many X-C skis are designed to be wider at the tip and tail than at the center. This is called sidecut, or side camber. To identify it, place the sidewalls of the skis together to see how much space is between the skis' midsections. A light touring ski usually has 2 to 7 mm of sidecut, while a

touring ski is cut with 5 to 10 mm. A ski must have adequate torsional stiffness in the tip to utilize sidecut.

It is assumed that more sidecut (within limits) means the ski will track better and wander less in nontrack skiing. Sidecut also helps in holding a turn (bringing you around) and in providing stability at higher speeds. Less sidecut is faster on race tracks (less drag of the tail flaring). It is better in slow pivoting turns because it starts the turn more easily, but it doesn't hold as well during the turn.

Frankly, the verdict on sidecut isn't in. But generally speaking you'll find touring skis with sidecut and racing or light training skis with little or none.

Matched pair: Squeeze the skis together and sight down the closing line. Do they close at the same rate?

Of course no single characteristic makes a ski. Everything must work together if a ski is to perform for your intended use. Try to get the skis out on the snow (demo skis from rental programs are your best bet) to find out for yourself. If you've skied on a friend's skis that seem to have the right camber for you, take them along when shopping. Check cambers by pressing together one of the friend's skis and one of those you're considering buying.

Repairs you can do youself: 1. Gouges in bases: Sharp rocks can cause deep scars in the base of your polyethylene skis. To repair them, dry the base and clean all old wax and grit from the area to be repaired. Trim away any flaps of base material hanging from the wound. Light the end of a P-tex candle, and allow it to drip on a fireproof surface until the drippings are soot-free. Hold the candle about 1/4 inch above the base of the ski and fill the scratches. After the patch has cooled and hardened, use a metal scraper to remove the excess. Smooth with fine sandpaper or steel wool.

2. Cracks in sidewalls: Use epoxy glue to seal the opening and to prevent water from seeping into the core. This is not a structural failure.

3. Loose binding screws: These can occur if holes originally are drilled too large. Simply plug the holes with steel wool mixed with epoxy, then put the screws back in.

4. Delamination: Carefully clean the damaged area and pry open as far as possible. Spread epoxy over the surfaces, pushing it as far into the delamination as possible. Squeeze out surplus epoxy, wrap with wax paper, and place wood or metal splints on either side of the ski to act as a form for even pressure. Clamp snugly with C clamps, being careful not to press out all the glue.

Summer Storage: Give your skis a coat of glider wax on the full length of the base, and leave it unscraped. Then just set them

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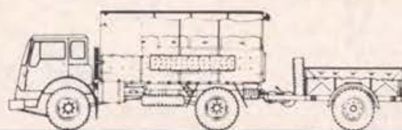

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to lean against the wall in a cool, dry room.

BOOTS

Cold, wet and sore feet make cross-country skiing unpleasant, so if you're on a budget, spend your money on high-quality boots and skimp a bit on other items of equipment. You get what you pay for in performance and durability.

Quality boots for cross-country skiing are flexible fore and aft for ease of striding and climbing, but are torsionally rigid to resist twisting off the ski when making downhill turns, thereby providing maximum control. So a good boot is both flexible and rigid, seemingly contradictory characteristics that are built into top-line boots only. Stitched-sole boots will provide the maximum lateral stability, but they are expensive. Some of the high-topped, thick-soled kinds are also rigid if they have a stout wood or metal shank under the instep, but check them out carefully by twisting the sole in your hands before buying them. Downhill gives people the most problems in cross-country skiing, mostly caused by wearing cheap boots with flimsy soles that allow your heel to slide off the ski as you initiate a turn, thus canceling any direct transferral of steering power from your legs to your skis. Special heel devices are now available that allow free heel lift for flat striding and laterally lock your heel into a V-shaped piece of plastic for downhill sections. They are simple and very effective but can't compensate for an insubstantial boot.

This article is excerpted from the book Cross-Country Skiing *by Ned Gillette, published by The Mountaineers, Seattle. Copyright © 1979. Reprinted by permission. Readers interested in more specific information about cross-country equipment should also refer to* Cross-Country Ski Gear *by Michael Brady (The Mountaineers, 1979).*

Before you buy, make sure that your boots and bindings have the same measurements. Most boots are 75 mm across the toe, though this may vary—racing boots are somewhat narrower. Check, also, to see that the sole is securely attached to the upper and that the pin plate at the toe is well fastened to the sole.

Full-grain leather costs more but is warmer, more water resistant, more comfortable and more durable, yet still breathable so perspiration can escape. Several synthetics, simultaneously waterproof and porous, are on the market as well.

The ideal fit is like that of a comfortable street shoe you wouldn't mind walking in for several miles. This requires a snug fit at the heel and instep, with plenty of width for toes to wiggle freely for warmth. When the boot is flexed forward it should not crease painfully across the toes; small creases are more comfortable. A proper insole will be warm, durable and will absorb moisture. Make sure the heel counter is durable and comfortable. Fleece-lined boots look warmer, but an extra-light pair of socks will do the same job in an unlined boot—and the boot will dry out faster.

The 75-mm boots are the old standby for all-purpose skiing, wilderness touring and 3-pin downhill skiing. The new nylon-soled racing boots provide more freedom of movement on the flat and increased downhill control compared to the older 75-mm boots. Besides foot fit, the main question is how tightly the boot engages the binding and how quickly the nylon sole wears down and grows weak, causing loss of downhill control. For a test of durability, we used 50-mm high-topped racing boots for the skiing portion of a circumnavigation of Mt. McKinley. They held up well, even under the stress of carrying 80-pound backpacks. But I wouldn't recommend them for this use!

Remember that the new racing boots are a specialized design for a specialized purpose—fast skiing in tracks. They're inadequate for walking any distance on a road at the end of a tour and downright dangerous if you have to do any scrambling over rock. They're also generally not as warm or water-

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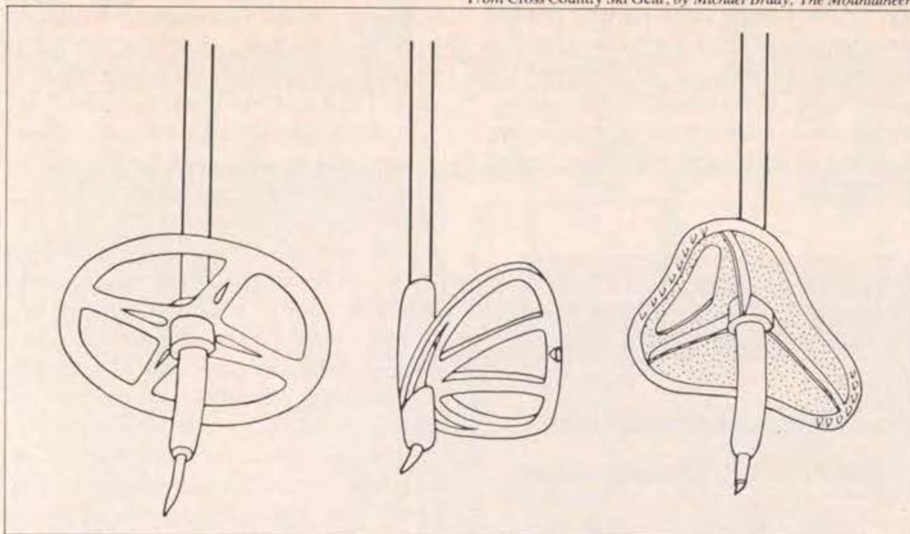
To guarantee reservations between December 1 and Easter, send full payment to Clair Tappaan Lodge, Sierra Club, 530 Bush Street, San Francisco, CA 94108, (415) 981-8634. Weekend rates are $27.00 for Friday night's lodging through Sunday dinner. Reduced weekly rates are available. A Clair Tappaan bus will be available from the Bay Area on five weekends this winter. For dates, departure location and cost, contact the Club office.

Plan now for an exciting and friendly stay at your High Sierra lodge. Cross-country ski rentals available, as are lessons for both cross-country and downhill skiing.

From Cross Country Ski Gear, by Michael Brady, The Mountaineers



Different pole basket shapes are suited to different uses. The small, round basket at left makes prepared-track skiing easier. The asymmetrical, "hoof-shaped" basket in the middle aids fast-track skiing or racing. The lightweight triangular basket at right is suggested for racing or fast touring.

tight as heavier 75-mm boots, although an overboot is an easy solution. Consider the innovations in downhill boots and binding and in running shoes in the last five years; my guess is that similar advances in cross-country skiing footwear are on the way.

BINDINGS

Here we're talking about the touring and racing varieties. For most cross-country skiing all you need is a toe binding, and by now it's pretty hard to find a truly bad 75-mm. If you're after the newer rigs and choose one of the 50-mm variety, you'll find a number of compatible bindings from different manufacturers. Other manufacturers offer a binding that fits only the boot they also make.

POLES

Poles are often overlooked, but they are an integral part of your skiing. Many beginners feel awkward with their poles because they are too long or too short or have straps that can't be properly adjusted. The right pole will help you ski better and provide a good percentage of your power in addition to helping you balance. Proper length should bring the top of the pole snugly up under your armpit.

You'll want a solid, wide basket for touring so it doesn't sink into the snow too much (although it will tend to lever the pole out on steep slopes) and a rugged stainless-steel tip. The new hoof-shaped racing baskets are good for just that—racing or fast track skiing. But try to use them for downhill checking or for supporting a kick turn on steep slopes, and they'll skitter over the snow instead of sticking in. The shaft can be of tonkin cane, aluminum or fiberglass. Whatever material you choose, make sure it provides strength, rigidity and a good swing weight. The technology of racing poles is now sufficient to keep an equipment-obsessive entranced for days.

BACKPACKS FOR SKIING

Skiing with a pack is never as pleasant as skiing free, but for all-day tours it is neces-

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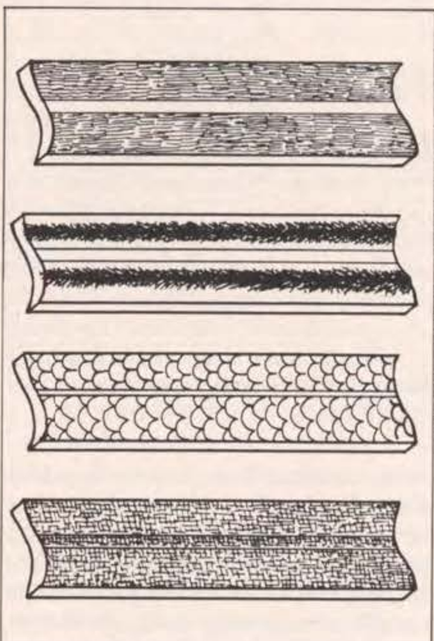
sary to bring along extra clothing, waxes, map, sunglasses and a few things to eat, as well as a spare tip in case of a broken ski, a space blanket and matches for emergencies. Include tape—adhesive tape for blisters and strapping tape for repairing broken equipment. Tape is an instant all-inclusive repair kit. (People have even been known to tape bindings back onto skis!)



Typical ski bases, top to bottom: polyethylene waxable, hair-strip waxless, pattern waxless and composite material waxless.

A good-sized fanny pack may well be all you need for fast tours close to home; it hinders skiing movement very little. But for ventures farther afield, you'll want a bit more capacity. I prefer a day pack that is fairly tall but not too wide, so my arms can swing freely. I've found that most climbing rucksacks are a pretty good bet: they're roomy enough to avoid having to cram everything in so tightly that you end up with a tight, uncomfortable "ball" on your back.

The problem on multi-day treks is how to carry all the gear and still enjoy the experience. The first step is choosing a larger pack that is comfortable, stable and simply designed. Most designers get carried away with the process of designing and forget that serious backpackers want only what is necessary out on the trail. Remember that you'll be operating cords and buckles on the trail with cold hands or mittens. Intricate systems often let you down when you most need them. For control while touring, stay away from packs that roll with every skiing movement. Choose one of the specially designed soft packs or interior-frame packs that "cling" to your body. This is especially critical in downhill skiing; a loose pack will exaggerate any error you commit, often throwing you off balance and leading to bruising or dangerous falls. The totally soft packs are more stable but more difficult to pack. The manner in which they are packed forms the frame. Be careful not to have hard objects jabbing into your back. Consider packing a sweater along the side against your back for padding.

I like soft packs best for medium-weight loads. For heavy and larger loads on extensive tours, I use an interior-frame pack that helps to distribute the load more comfortably. Important for ease of carrying loads is a sophisticated yet simple arrangement by which an auxiliary strap "picks up" the weight off your shoulder straps, thereby lessening the pressure on your shoulders, especially while poling. (The trade-off here is that the pack tends to sway a bit more.) A sternum strap links the two shoulder straps across the chest, further freeing shoulder movement and eliminating sway. Make sure all straps can be adjusted while you are skiing. A wide waist belt, padded at the hips and easily closed by Velcro or quick-release buckle, further fastens the pack so it almost becomes part of your body.

Make sure that pockets are removable so you can use the pack for faster skiing and complete poling extension if you wish. Side straps that can be used to carry skis on your pack are useful if you have to walk the last few miles of the tour. Compartmentalize your gear by packing certain similar things in nylon stuff sacks and labeling each. In this way you'll maintain some order when unpacking at your campsite. Pack heavy items low and closest to your back for maximum stability. Items needed during the day should be placed on top for easy access.

As you might suspect, skiing with a heavy backpack requires considerable adjustment in your technique.

Weight on your back accentuates any mistake, so the key is not to make any mistakes. I ski very conservatively with a heavy pack, often electing to make a series of traverses down a slope rather than link turns. Unless I require additional pushing power uphill, I use my poles relatively little in comparison to skiing without a pack and I keep my hands low as though I were walking. Since packs press down on the muscles running across the top of the shoulders, raising the hands high in front brings fatigue faster. Falling with the persuasion of a big pack is never subtle. Try your utmost to maintain your balance, but when all is obviously lost, let go and relax, trying to avoid jamming head and shoulders into hard snow or rocks. □

Ned Gillette has taught Nordic and Alpine skiing, raced on the U.S. Ski Team and serves as an advisor to the ski industry.

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Highway Robbery

New Jersey's Watchung Reservation and Interstate 78

GEORGE E. SCHINDLER, JR.

THOUGH NORTHEASTERN New Jersey has little open space, it boasts one of the best parks in the New York metropolitan area, the Watchung Reservation, in Union County. Only 26 miles from Manhattan, Watchung's serenity is threatened by the proposed expansion of Interstate 78, whose concrete has already reached points near the east and west ends of the park.

Watchung Reservation accommodates some one million visitors per year, but despite this heavy usage, its 2000 acres still provide a natural woodland experience to the citizens of Newark, Elizabeth, Plainfield and the other nearby crowded communities.

The park is mostly wooded and contains a small lake and several ponds, springs and brooks that support a rich variety of plant and animal life. Visitors can hike many miles of trails (including the ten-mile Sierra Trail designed by Club member Walter Wells) or ride horseback along twelve miles of bridle trails. Within park boundaries is a deserted village that in earlier times housed first a paper mill, then a resort. A museum features a heavily utilized nature education facility for the region. Another significant Watchung resource is the Baltusrol wellfield; it supplies two million gallons of potable water daily to nearby cities but may become contaminated by highway runoff if I-78 is expanded.

Federal agencies are now inspecting the New Jersey Department of Transportation's Final Environmental Impact Statement, and no decision on I-78 is expected for several more months. Conservationists feel that there are already enough highways in a state that averages more than four miles of road for every square mile of land. They point out that the region has survived without this section of I-78 for many years with no detectable harm to the local economy.

Proponents of I-78 believe that the highway expansion will speed truck and auto traffic and stimulate commercial and industrial development in western New Jersey. Conservationists remark that slicing off a piece of Watchung Reservation and subjecting much of the rest to highway noise, increased flooding, and air and water pollution would degrade park values so badly that few natural amenities would remain.

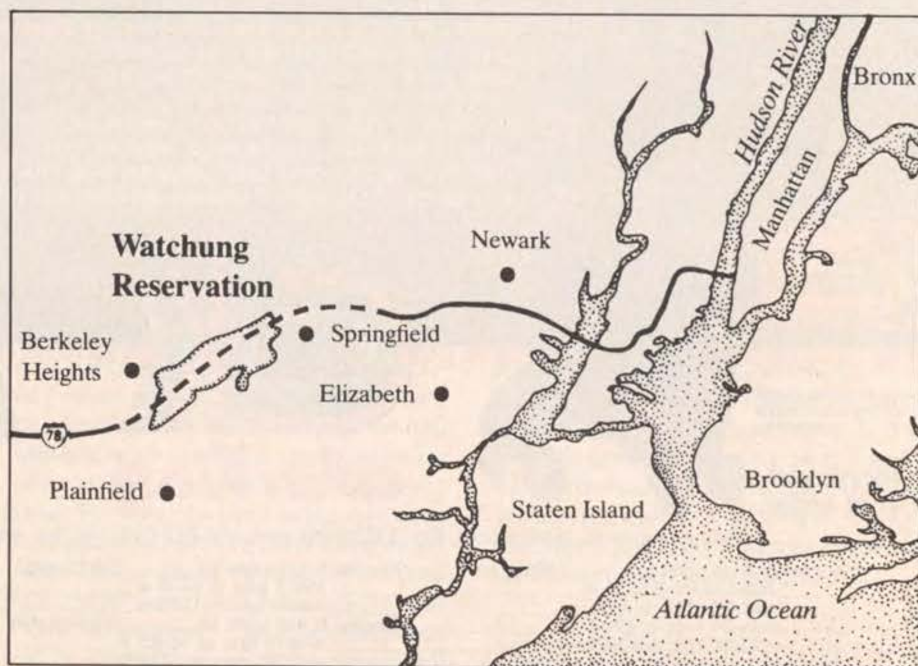
At this writing, there have been no public hearings on I-78 for four years, and none are planned. It is time for concerned conservationists to speak up. Write or telegraph:

Secretary Neil Goldschmidt
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590

Commissioner Louis J. Gambaccini
New Jersey Department of
Transportation
1035 Parkway Avenue
Trenton, New Jersey 08625

Tell them there's no place for interstate highways in parks, especially in the irreplaceable Watchung Reservation, in the overcrowded northeast region of the nation's most densely populated state. □

George E. Schindler, Jr., is the conservation chairman of the Loantaka Group of the New Jersey Chapter and a member of the New Jersey Natural Areas Council.



Map by Rik Olson

If the controversial 5½-mile stretch of highway is completed, 3 miles of it will pass through Watchung Reservation, severing about 125 acres of irreplaceable parkland.

1981 Spring Outings

As always, our Spring Outings are largely concentrated in the warmer parts of the country, with a goodly percentage in the desert. But there is something here for almost everybody, ranging in effort from the strenuous to the downright slothful. You'll find backpacking, boat trips, biking, skiing, service trips and base camps—even trips to Hawaii.

Sierra Club trips average from 12 to 30 members and are generally organized on a cooperative basis; trip members help with the camp chores, including food preparation and cleanup, under the direction of a staff member. First-timers are often surprised at the satisfaction derived from this participation. To determine which outing best fits your needs, read the following trip descriptions carefully and see "For More Details on Spring Outings." Reservation requests are being accepted now for all spring trips. See "Reservation Cancellation Policy for Sierra

In the Superstition Mountains.

Club Trips" and trip application form (p. 57).

(283) Maine Backcountry Ski/Snowshoe Tour—January 4-10. Leader, Fred Anders, 222 N. East St. #2, Amherst, MA 01002. Cost: $155.

East of Moosehead Lake lies one of the largest wilderness areas in the northeast. Our base cabins on Long Pond are six miles from the nearest paved road. The area is surrounded by several mountains in the 2000-3000-foot range. All personal equipment must be skied or showshoed in via old logging roads. Day trips include Gulf Hagas Gorge, Trout Pond, Long Pond rapids and the Appalachian Trail. Snow, spruce and fir trees—and cold, crisp days—are assured.

(285) Adirondack Ski Touring, New York—January 25-31. Leader, Walter Blank, Omi Road, West Ghent, NY 12075. Cost: $220.

Trips will be conducted daily for all levels of skiers in a series of cross-country tours in the Adirondack Forest Preserve. There will be opportunity to upgrade the level of your skiing and visit remote areas of the Adirondack Park in mid-winter. The first four nights will be spent in a lodge on a wilderness lake, with main meals at the lodges and lunch on the trail. The last two nights, trip members will ski to remote cabins heated by wood stoves. Pack and sleeping bag are required for the last two nights. Skis may be rented. Leader approval required.

(286) Superior-Quetico Ski and Snowshoe, Minnesota/Ontario—March 1-7. Leader, Stu Duncanson, 1754 Ryan Ave. W., Roseville, MN 55113. Cost: $275.

Cross-country ski or snowshoe, listen to the wolves, take photographs, sketch, or enjoy the beauty of the frozen north. Our base camp will be on the Gunflint Trail, 30 miles from Grand Marais, 1 mile from the Boundary Waters Canoe Area and about 3 miles from the Canadian border. We will be taking day trips from our cabin-based camp, with overnight trips if desired. No experience necessary. Minimum age is 15.

(26) Spring on Maui—April 10-18. Leaders, Lynne and Ray Simpson, 1300 Carter Rd., Sacramento, CA 95825. Cost: $410.

Come out of winter hibernation and join us on Maui. We will car camp near beaches and within Haleakala National Park. Day hikes and swimming in the tropical Pacific will be available. Commissary duty is shared by trip members; a sampling of unique and delicious island fare will be included. One overnight hike is planned to the Haleakala crater. (Trip cost does not include airfare.)

(27) Crater Lakes Cross-Country Ski Tour, Oregon—April 11-17. Leader, Bill Bankston, 524 N. 16th St., Springfield, OR 97477. Cost: $165.

We will camp at the roadhead for the first three days, taking day trips to acclimatize to snow conditions and check our equipment. We will then carry all our gear on a four-day journey following the park road around the lake—38 miles. Views of the lake and Wizard Island are scenic in their mantle of snow. Weather can be stormy and we cross one small avalanche area. This trip will be a good opportunity to extend your winter camping abilities; some previous skiing and winter camping experience is needed. (Rated MS).

(28) Natural History of the Anza-Borrego Desert Base Camp, California—April 12-18. Leader, Bob Miller, c/o Chemistry Dept., Sacramento City College, 3835 Freeport Blvd., Sacramento, CA 95822. Cost: $190.

Our camp will be located near Borrego Springs, some 90 miles northeast of San Diego, in California's largest state park. The outing is designed for those who would like to explore and study the natural wonders of the living desert. We will use members' cars to radiate out to various points of interest where our easy day-hikes will begin.

Philip Dangel

Philip Dangel

(29) Superstition Wilderness, Tonto Forest, Service Trip, Arizona—April 12-18. Leader, Rod Ricker, P.O. Box 807, Cottonwood, AZ 86326. Cost: $75.

This is a knapsack-oriented trail maintenance trip in the seldom-used eastern part of the Superstition Mountains. We will move our base camp and have time for several side trips. Expect warm days with desert flowers in the lower elevations and a slight chance of snow in the higher elevations.

(30) Pioneers and Ladyslippers Base Camp, Great Smoky Mountains Park, Tennessee—April 25-May 2. Leader, Dave Bennie, 2405 Churchill Dr., Wilmington, NC 28403. Cost: $175.

Hiking in and around historic Cades Cove during the height of the wildflower season, we will pass through all ecosystems from 2000 to 6000 feet, and visit special places like Ladyslipper Lane and Trillium City. One day will be spent visiting restored pioneer structures and exhibits. Our wilderness camp sits in a private preserve at the edge of the park. Hikes will be moderate to strenuous, covering up to 10 miles with up to 2500-foot elevation gain. Minimum age is 16 (solo) or 12 (with parent).

(31) Oregon Coast to Cascades Bike Tour, Oregon—May 16-23. Leader, Bill Bankston, 524 N. 16th St., Springfield, OR 97477. Cost: $165.

We will cover 350 miles in 7 days—camping at state, forest, and private campgrounds, buying and cooking meals from grocery stores along the way. Our tour goes up the coast from Florence to Newport, through the coastal range to Corvallis, down the Willamette Valley to Eugene, up the McKenzie River, over the Cascades at Old McKenzie Pass, through Bend and LaPine on the high Oregon desert, and back into the Cascades to Odell Lake. Light to moderate traffic, sunny to rainy weather. (Rated M.)

(32) Grand Canyon Preserve Trail Project, Kaibab National Forest, Arizona—May 21-31. Leader, c/o Kelly Runyon, 624 Valle Vista, Oakland, CA 94610. Cost: $75.

The canyon country of North Kaibab Plateau offers the beauty of the desert in springtime . . . and the challenges. In the depths of Sowats and Jumpup canyons, in the Grand Canyon Preserve, we will build, upgrade and maintain trail through a little-known proposed wilderness area. Sandstone bluffs, cool nights and mornings, pure air and desert wildlife are ours to see and explore.

(33) California Wine Country and Coast Bike Tour—May 23-31. Leader, Paul Von Normann, 732 S. Juniper St. Escondido, CA 92025. Cost: $170.

Cycling from beautiful Golden Gate Park and across the Golden Gate Bridge we begin our self-contained journey through the Napa Valley vineyards, taking in a tour or two, winding our way on up through the redwoods to the coast. We will follow Highway 1 along the Pacific Ocean to complete our 345-mile loop trip. Averaging 45 miles per day, along with one layover day, will enable the experienced bicycle tourist ample time to explore and enjoy many of the unique features of this area.

(35) Natural History of Mono Basin Base Camp, California—June 13-20. Leader, c/o Ray Des Camp, 510 Tyndall St., Los Altos, CA 94022. Cost: $190.

Hidden in the starkness of Mono Basin are myriad interesting and beautiful experiences. Camp is in a cottonwood grove at meadow's edge and overlooks Mono Lake. From here we will travel into the Sierra as well as the desert, visiting mines, hot springs and Mono Craters. The lake itself is in critical danger of being destroyed unless a plan is quickly developed and implemented which will increase its water level and protect endangered bird and plant life.

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Write For Your 1981 Outing Catalog

The Outings described in these pages are only about 10% of the total planned by the Sierra Club in 1981. Write today for your free copy of our complete 1981 catalog, published in mid-January. (The catalog will automatically be mailed to all Sierra Club trip participants in 1978, 1979 and 1980, but do let us know if you've moved.)

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Backpack trips offer the greatest freedom for exploring wilderness because everything you need is on your back. Young and old are today showing an eagerness for the adventure, solitude and personal challenge of backpacking. Sierra Club trips provide all these rewards as well as the example of how to backpack knowledgeably and comfortably. Backpacking is strenuous activity, however. For a trip of a week, the starting load may weigh from 35 to 40 pounds, but the exhilaration and extra physical effort make you feel more a part of the wilderness. With today's new designs in backpacking equipment, almost anyone in good health and physical condition can enjoy backpacking.

All trips require members to help with the cooking and camp chores, although the leaders provide commissary equipment and food. Trip members bring their own packs, sleeping bags, shelter and clothing.

Trips are rated as leisurely (L), moderate (M), or strenuous (S), or levels in between, by the individual leader. The ratings are made as accurately as possible on the basis of total trip miles, cross-country miles, the aggregate climb, the difficulty of the terrain and its elevation.

Strenuousness is measured also in less obvious ways. On desert trips members are often required to carry liquids that significantly increase their pack loads. Canyon trips entail steep descents and climbs, and temperatures may vary considerably from top to bottom.

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the leader approve each trip member based on responses to questions about previous backpacking experience and equipment. If you lack experience or have never backpacked at high elevations for any length of time, you may qualify for one of the less strenuous trips by going on weekend backpack outings prior to the trip. Unless otherwise stated, minimum age on backpack trips is 16, although qualified youngsters of 15 are welcome if accompanied by a parent.

(36) Superstition Wilderness Traverse, Arizona—March 22-28. Leader, Edith Reeves, 1739 E. San Miguel Ave., Phoenix, AZ 85016. Cost: $155.

The western boundary of this 125,000-acre wilderness area lies 40 miles east of Phoenix, where legends of the quest for gold are many. This is a uniquely photogenic region of rugged mountains, twisting canyons, ancient Indian ruins and varied desert vegetation. We will see flowers if spring rains are plentiful. Rated moderate to moderately strenuous, depending on your condition. (Rated M-MS.)

(37) Rincon Mountains, Saguaro Monument, Arizona—March 29-April 4. Leaders, Sid Hirsh, 4322 E. 7th St., Tucson, AZ 85711; Missy Rigg, 1607 N. Bryant, Tucson, AZ 85712. Cost: $140.

Going from the desert floor to the top of these mountains is ecologically equivalent to traveling from Mexico to Canada. Temperatures could vary from the 30s to over 90. We start in a forest of saguaros and wander 6000 feet upwards into a forest of fir. Plant and animal life is tremendously varied. All backpacking will be between 7 to 12 miles, with uphill elevations between 1000 and 3000 feet. Packs can be heavy. We will be carrying fuel, and some water. (Rated MS.)

(38) Grand Canyon, Arizona—April 11-18. Leader, Tom Pillsbury, 1735 Tenth St., Berkeley, CA 94501. Cost: $210.

This will be a strenuous backpack trip over unmaintained trails and cross-country in Grand Canyon National Park and nearby regions. There will be no layover days. Some use of climbing ropes may be necessary. (Rated S.)

(39) Spring Wildflowers, Ishi Backpack, Lassen Forest, California—April 11-18. Leader, Nancy Morton, 230 W. 7th Ave., Chico, CA 95926. Cost: $125.

As we walk down Mill Creek and cross over to Antelope Creek in the Mt. Lassen front country, we should see the peak of the wildflower display. This is the only foothill wilderness left in California and we'll see it as the Yahi Indians did. We'll have a food cache, and one layover day to explore side canyons and flora, trace our Indian heritage, or just relax. (Rated L-M.)

(40) Ventana Wildflower Special, Coast Range, California—April 11-18. Leader, Bob Berges, 974 Post St., Alameda, CA 94501. Cost: $140.

Spring is a marvelous time to stretch your legs on the pleasant trails near Big Sur and take in the fine botanical displays. A lightweight flower book is appropriate to the leisurely-to-moderate pace of the trip. Camps vary from the high (4000-foot) ridges to shaded river valleys. Our layover day will be spent in the very pleasant confines of Redwood Creek. A short side trip will enable all interested members to enjoy the sweeping view from South Ventana Cone (4965 feet), the highest summit in the Ventana Wilderness. (Rated L-M.)

(41) Rainbow Plateau, Northern Arizona—April 12-18. Leader, Jim De Veny, 5307 E. Hawthorne St., Tucson, AZ 85711. Cost: $205.

Lying west of Navajo Mountain on the southern shore of Lake Powell, the Rainbow Plateau is sandstone-dome country laced with narrow canyons separated by high mesas. We will see upper Forbidding Canyon, Aztec Creek and Cummings Mesa on this trek through the Navajo slickrock wildlands. The trip will consist mostly of cross-country hiking, and should cover approximately 55 miles. (Rated MS to S.)

(42) Rainbow Bridge-Navajo Mountain, Navajo Reservation, Utah—May 3-9. Leader, Nancy Wahl, 325 Oro Valley Dr., Tucson, AZ 85704. Cost: $180.

Navajo Mountain, sacred to the Indian, stands mostly in Utah, just north of the Arizona border. The trail contours the west side, dropping down 2000 feet into sculptured sandrock canyons. There will be spectacular views to the north as we circle the mountain. (Rated MS.)

WATER TRIPS

(47) Whale Watching, Magdelena Bay, Baja California—March 1-7. Leader, Ruth Dyche, 2747 Kring Dr., San Jose, CA 95125. Cost: $820.

This is one of the largest gray whale mating grounds in Baja and allows us to observe unobtrusively the breaching, fluking and sky-hopping of these magnificent animals. We will camp on the beach in comfortable tents and will observe the whales from skiffs

which will transport us onto the bay. There will be ample time for exploring, shelling, beachcombing and birdwatching. A large variety of birds nest in the area. A qualified naturalist will accompany the trip. Cost includes round-trip air transportation from San Diego.

(43) Kanab Canyon/Thunder River, Grand Canyon, Arizona—May 9-16. Leader, Peter Curia, 1334 W. Willetta, Phoenix, AZ 85007. Cost: $175.

The north rim of Grand Canyon offers an unforgettable series of vistas, ranging upwards from the merely spectacular. Starting and ending with the Esplanade, we will visit Scotty's Hollow, Whispering Falls and Deer Creek Falls, as well as Thunder River. Neither words nor pictures can describe these places, but a lucky few will have them indelibly imprinted on their memories after this trip. (Rated S.)

(44) Capitol Reef Park, Utah—May 17-23. Leader, Gene Andreasen, 183 S. Orange Drive, Los Angeles, CA 90036. Cost: $180.

Far from population centers, Capitol Reef is one of our newest national parks. Colorful layers of a sedimentary rock deposited from Permian through Cretaceous periods of geologic time, are laid bare here. We will cross the reef, following a stream from piñon-juniper forest on the west to slickrock desert on the east. (Rated L.)

(45) Canyon de Chelly National Monument, Arizona—May 31-June 6. Leader, Don Lyngholm, Box 103, Flagstaff, AZ 86002. Cost: $245.

Canyon de Chelly is in the heart of the Navajo Reservation in northeastern Arizona. It has a long, exciting history of Anasazi, Hopi and Navajo habitation. We will observe and discuss southwestern Indian culture, past and present, and also investigate the varied plant and animal communities found here. Elevations range from 6000 to 7200 feet. (Rated M.)

(48) Scenic Suwannee River Canoe Trip—March 15-21. Leader, Rick Egedi, 117 Hawkins Ave., Somerset, KY 42501. Cost: $335.

Starting northeast of Fargo, Georgia, where the Suwannee River rises from Okefenokee Swamp, we will canoe 10-15 miles per day through Class 1 slow currents to White Springs, Florida. The upper stretches of the river are very wild and scenic, and best seen from a canoe. Come and enjoy the warm sunny days, cool nights and spectacular scenery. There will be one stopover day for swimming and relaxing.

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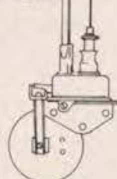

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Suitable for novice through advanced canoeists.

(49) Gila River Boat Trip, New Mexico—April 5-11. Leader, John Ricker, 2610 N. 3rd St., Phoenix, AZ 85004. Cost: $265.

We will take advantage of the spring run-off to run the white water of the upper Gila River. The trip will start at Forks of the Gila, run through Gila Canyon and end just below the proposed site of Hooker Dam. This section of the river is in the Gila Wilderness area. Rubber rafts will be provided. Those with experience are encouraged to bring kayaks or inflatable boats. No open canoes will be permitted.

(50) Dismal Swamp Canoe Trip, Virginia—April 12-18. Leader, Jim Clarke, 402 Burgundy Dr., Rockville, MD 20850. Cost: $170.

South of Norfolk, Virginia, running into North Carolina, lies the Great Dismal Swamp, an area of lowlands, lakes and rivers (none dismal). Mid-April is an ideal time for observing the wildlife and budding flora, and prior to the mosquito season. We will stop and talk with a local resident and learn of the area's history and future. Two layover days are planned for exploring the local area. Several car shuttles are needed to explore this diverse area of flat-water canoeing.

(51) Sea of Cortez Sailing Adventure, Baja California—April 13-19. Leader, Blaine LeCheminant, 1857 Via Barrett, San Lorenzo, CA 94580. Cost: $455.

From a base camp at Mulege on the Bay of Conception, we will experience seven days of superb sailing along the coast of the Baja peninsula. We will master the art of sailing and work our ketch-rigged boats to untouched beaches both on the main coastline and on offshore islands. We will hunt for lobster, fish for marlin and tuna, and camp on deserted islands. Canoes and kayaks will be available for cove explorations and day-trips. The trip begins and ends in Loreta, Baja, Mexico. Numerous travel options to Loreta are available.

(52) Grand Canyon Oar Trip, Arizona—April 16-29. Leader, c/o Ruth Dyche, 2747 Kring Dr., San Jose, CA 95125. Cost: $1195.

This is perhaps the most sought-after river experience in the world. The Colorado River flows through canyons which reveal the history of the earth. We will travel through exciting white water as well as calm quiet stretches. We stop frequently to hike, and to explore hidden canyons and Indian sites normally missed on commercial trips. Each raft carries only four to five people and a professional oarsman. Minimum age is 15 (18 solo). Cost includes round-trip transportation from Flagstaff, Arizona.

(53) Birds of Prey, Snake River, Idaho—May 3-7. Leader, Steve Anderson, 1082 Lucot Way, Campbell, CA 95008. Cost: $485.

Attention bird-lovers! This 81-mile stretch of the Snake River in southwestern Idaho is a unique ecosystem that hosts the world's densest known population of raptors. Each year over 1000 birds—including golden and bald eagles, kestrels, hawks, owls, and falcons—nest here. This leisurely float trip down a calm reach of the Snake is designed primarily for the spotting and photographing of these birds. An ornithologist will accompany the trip. Trip cost includes round-trip transportation from Boise.

(54) Canoe-Backpack Combo, Grand Canyon of Pennsylvania—May 3-9. Leaders, Marjorie Richman, 8106 Whittier Blvd., Bethesda, MD 20034; David Lesko, 1427 S. 28th St. #2, Arlington, VA 22206. Cost: $230.

This trip features two perspectives of the Grand Canyon Gorge in north central Pennsylvania. We will canoe Pine Creek where it tumbles through the gorge past waterfalls, and view osprey and heron. After a layover day, we will backpack the 25-mile West Rim Trail and view the gorge from the top. The forested trail is moderate, and features 150-year old trees, as well as wildlife and canyon views. Participants must be able to handle Class 2-3 rapids. Canoes will be provided.

(55) Pine Barrens Canoe-Backpack, Pinelands Reserve, New Jersey—May 3-9. Leader, Herb Schwartz, 2203 St. James Pl., Philadelphia, PA 19103. Cost: $185.

Located surprisingly near New York and Philadelphia, this 2000-square-mile wilderness remains a sand-bedded forest with cedar swamps and canoeable rivers. Once a colonial industrial area, its bog-iron furnaces supplied Washington with cannonballs. This vanished society is recreated in the restored town of Batsto, where our trip begins. We'll circle the heart of the Pine Barrens, hiking through ghost towns, cedar swamps and cranberry bogs, then canoeing on tidal water through bird-filled coastal marshes and dark cedar-water rivers.

Advance Notice: Inside Passage Sailing Trip, British Columbia, July 25-August 2. Write to the Outing Department for more information.

For More Details On Outings

Outings are described more fully in trip supplements which are available from the Outing Department. For more detailed information on a trip, request the specific supplement for that outing. Trips vary in size and cost, and in the physical stamina and experience required. New members may have difficulty judging which trip is best suited to their own abilities or interests. Don't be lured onto the wrong one! Ask for the trip supplement before you make your reservations, saving yourself the cost and inconvenience of changing or cancelling a reservation. The first five supplements are free. Please enclose 50 cents apiece for the extras. Write or phone the trip leader if any further questions remain.

Clip coupon and mail to:

SIERRA CLUB OUTING DEPARTMENT
530 Bush Street
San Francisco, CA 94108

Sierra Club Member ☐ Yes ☐ No

Send Supplements: #___ #___ #___ #___ #___
(by trip number)

Name __________

Address __________

City ________ State ______ Zip ______

Enclosed is $____ for supplements requested over 5 at 50 cents each.

Sierra Club Outing Reservation Form

Sierra Club Outing Reservation Form

MEMBERSHIP NO.	Trip number	Trip name	Departure date

Print Name: Mr. Mrs. Ms.	FIRST	LAST	DEPOSIT ENCLOSED $	(Leave blank)	No. of reservations requested

Mailing Address

If you have already received the trip supplement, please check. ☐

City	State	Zip Code	Residence telephone (area code)	Business telephone (area code)

PLEASE PRINT **YOUR** NAME AND THE NAMES OF ALL FAMILY MEMBERS GOING ON THIS OUTING	Age	Relationship	Membership No.	How many trips have you gone on? Chapter	National
1.					
2.					
3.					
4.					
5.					

MAIL TO: SIERRA CLUB OUTING DEPT.—P. O. BOX 7959, SAN FRANCISCO, CA 94120

MEMBERSHIP NO.	Trip number	Trip name	Departure date

Print Name: Mr. Mrs. Ms.	FIRST	LAST	DEPOSIT ENCLOSED $	(Leave blank)	No. of reservations requested

Mailing Address

If you have already received the trip supplement, please check. ☐

City	State	Zip Code	Residence telephone (area code)	Business telephone (area code)

PLEASE PRINT **YOUR** NAME AND THE NAMES OF ALL FAMILY MEMBERS GOING ON THIS OUTING	Age	Relationship	Membership No.	How many trips have you gone on? Chapter	National
1.					
2.					
3.					
4.					
5.					

MAIL TO: SIERRA CLUB OUTING DEPT.—P. O. BOX 7959, SAN FRANCISCO, CA 94120

Sierra Club Trips

Reservation/Cancellation Policy

Eligibility: Our trips are open to Sierra Club members, applicants for membership and members of organizations granting reciprocal privileges. You may include your membership application and fee with your reservation request.

Children must have their own memberships unless they are under 12 years of age.

Unless otherwise specified, a person under 18 years of age may join an outing only if accompanied by a parent or responsible adult or with the consent of the leader.

Applications: One reservation form should be filled out for each trip by each person; spouses and families (parents and children under 21) may use a single form. Mail your reservation together with the required deposit to the address below. No reservations will be accepted by telephone.

Reservations are confirmed on a first-come, first-served basis. However, when acceptance by the leader is required (based on applicant's experience, physical condition, etc.), reservations will be confirmed upon acceptance; such conditions will be noted. When a trip is full, later applicants are put on a waiting list.

Give some thought to your real preferences. Some trips are moderate, some strenuous; a few are only for highly qualified participants. Be realistic about your physical condition and the degree of challenge you enjoy.

The Sierra Club reserves the right to conduct a lottery to determine priority for acceptance in the event that a trip is substantially oversubscribed shortly after publication.

Reservations are accepted subject to these general rules and to any specific conditions announced in the individual trip supplements.

Deposits: The deposit is applied to the total trip price and is NONREFUNDABLE unless (1) a vacancy does not occur or you cancel from a waiting list, (2) you are not accepted by the leader, (3) the Sierra Club must cancel the trip.

Trips priced to $499 per person	$35 per individual or family application
Trips priced $500 and more per person (except trips listed as "FOREIGN")	$70 per person
Trips listed under "FOREIGN" section	$100 per person

Payments: Generally, adults and children pay the same price; some exceptions for family outings are noted. You will be billed upon receipt of your application. Full payment of trip fees is due 90 days prior to trip departure. Trips listed under "FOREIGN" section require payment of $200 per person 6 months before departure. Payments for trips requiring the leader's acceptance are also due at the above times, regardless of your status. If payment is not received on time, the reservation may be cancelled and the deposit forfeited.

No payment (other than the required deposit) is necessary for those waitlisted. The applicant will be billed when placed on the trip.

The trip price does not include travel to and from the roadhead nor specialized transportation on some trips. Hawaii, Alaska, Foreign and Boat trip prices are all exclusive of air fare.

Transportation: Travel to and from the roadhead is your responsibility. To conserve resources, trip members are urged to form car pools on a shared-expense basis or to use public transportation. On North American trips the leader will try to match riders and drivers. On some overseas trips, you may be asked to make your travel arrangements through a particular agency.

Cancellations: Notify the Outing Department by letter or by phone if you must cancel from a trip. Any refund will be based on date this notice is received. Refunds *less the nonrefundable deposit* will be made as follows:

1.	60 days or more prior to trip	full amount of remaining balance
2.	14-59 days prior to trip	90% of remaining balance
3.	4-13 days prior to trip	90% of remaining balance if replacement is available from a waiting list. 75% of remaining balance if no replacement is available from a waiting list.
4.	0-3 days prior to trip	no refund.
5.	"No-show" at roadhead, or if you leave during a trip	no refund.

The Outing Program regrets that it cannot make exceptions to the cancellation policy for any reason, including personal emergencies. Cancellation for medical reasons is often covered by traveler's insurance, and trip applicants will receive a brochure describing this coverage. You can also obtain information from your local travel and/or insurance agent.

Transfers: A $35 fee is charged for transfer of any confirmed reservation on a trip priced up to $499. Transfer of a confirmed reservation from a trip priced $500 and more per person or a transfer 0-3 days prior to trip departure is treated as a cancellation. No transfer fee is charged if your application is pending the leader's acceptance, or if you transfer from a waiting list.

Medical Precautions: On a few trips, a physician's statement of your physical fitness may be needed, and special inoculations may be required for foreign travel. Check with a physician regarding immunization against tetanus.

Emergency Care: In case of accident, illness or a missing trip member, the Sierra Club, through its leaders, will attempt to provide aid and arrange search and evacuation assistance when the leader determines it is necessary or desirable. Cost of specialized means of evacuation or search (helicopter, etc.) and of medical care beyond first aid are the financial responsibility of the ill or injured person. Medical and evacuation insurance is advised, as the Club does not provide this coverage. Professional medical assistance is not ordinarily available on trips.

The Leader Is in Charge: At the leader's discretion, a member may be asked to leave the trip if the leader feels the person's further participation may be detrimental to the trip or to the individual.

Please Don't Bring These: Radios, sound equipment, firearms and pets are not allowed on trips.

Mail Checks and Applications to:
Sierra Club Outing Department
P.O. Box 7959, Rincon Annex
San Francisco, CA 94120

Mail All Other Correspondence to:
Sierra Club Outing Department
530 Bush Street
San Francisco, CA 94108
(415) 981-8634

ASCENT OF TYPEWRITER FACE

David Gancher

MIST SWIRLED AROUND the towering column that climbers call Coffee Cup as the party of fingers began the arduous ascent from the lap's floor. The first reach gained us the overhang; then we followed the cracks of a desk drawer, then a technical reach to a brass pull outcropping onto an unbroken blank wall of flawless mahogany. Though the total height was something less than a foot, the fingers still had to surmount an altitude equivalent to more than four times their own elevation. Too low for a helicopter rescue. Just as dawn broke over the Selectric Range, our party of eight fingers and two native thumbs finally gazed up at the column-figured complex formation of Typewriter Face: the final frontier.

How many other fingers, hands had climbed this same formation? Thousands perhaps. Perhaps many thousands. But still it remained virgin territory. Though the routes were known and touch-typing an increasingly respected technique of finger-mountaineering, the variations on the same theme—fingers versus language—were endless. Royal "Typewriter" Ribbons put it best: "Give a million monkeys a million pitons," he theorized, "and someday one will write an article for *Ascent*." And design a backpack for REI, I bitterly added as my thumb stumbled across the space bar for the thirteenth time in as many sentences.

The weather was calm, luminous yet ominous as the index took the lead for the first ten-pitch, forcing its way up the crack between the "n" and "h"—a route pioneered years before by Remington, Underwood, Olivetti, giants of a bygone era. Finger-mountaineering had been different then, was the thought that suddenly invaded my mind: like ants, or maybe wind. They were cruder, more mechanical. Carriages had to be thrown by hand; ribbons were made of unwieldy cloth. Often a single paragraph could take a full week.

We were luckier, smarter, richer and better-fed. But still a deadly acid torpor, unseasonable and unwelcome, rapidly spread across the keyboard. We had reason to fear. We had our fear to reason with. We had corrasible bond, pitons—and ezerase if all else failed. We hung our hammocks then from the forks of the "y" as the sky lowered, and nounless adjectives—flabby, pointless—poured down on us.

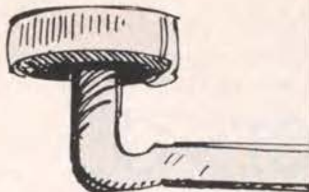
I was cold, very cold. Until that moment, I had thought that "cold" (adj.) was a synonym for "frigid" or "chilly." (The noun was a different story; perhaps I will tell it one day.) I knew nothing. I had not experienced real cold, the cold that lives in the mountains and only comes down to pick up its mail. The real cold that pours up your sleeves, the cold that won't go away. My fingers were growing numb. The question was: Would hypothermia win? And if it did, could I spell it? Would the fingers fall from the keyboard with tiny, wordless screams? Would my final paragraph end broken in a jumble of meaningless, descendingly lower-case consonants?

I suddenly wondered what I was doing here. Why was I not at home, warm, snug, whittling pitons before a warmly flickering television? What were the deeper typos that drew me back, time and time again? I wondered if I couldn't write only about solo climbs and hole up in Chowchilla with a typewriter, a moll, a sunlamp, a tub of ice and a full case of mumps instead of trying to type on a freezing mountain ledge in the middle of the alphabet. Sleep was slow to rappel from the summits into the chimneys of my mind.

The next morning, things looked better. I was in Miami. But no—that was a rogue phantasm, a brain-edema illusion. I cleared my head. I cleared my throat. A sudden break in the clouds revealed, far above, our goal: the paper—pristine, unblemished, untouched, and other adjectives too tedious to recount. It seemed balanced in the glacial grips of a dread, granitic roller. Exactly a century before, at 8:27 a.m., John Muir had described this unusual formation: "Though the hands of angels running through the hair of the infinite," he posited, "might pause while all nature in conclave solemn the spirit of the mountains themselves in glee ecstatic proclaimed," he proclaimed, "still would I climb. And climb I still," he still continued.

As the sun rose over the distant peak that climbers call Beige Telephone on the eastern horizon, our spirits quickened. Unseen,

Illustration by Bill Prochnow



on the horizon, a helicopter restlessly prowled, like a phantom dragonfly. Its flat, tropical flap came to us like rumors of war across a documentary, Baltic skyline.

We were in trouble, and we knew it. Our ropes were unshown. Our period was faint. Our ribbon was running out, our tabs were crambed, our slots unfilled, our stamina severely taxed by Proposition 13, our credulity taxed by the state. Our advances had retreated, our royalties overthrown. Our enthusiasm waned as our ears waxed. The ice was as rotten as Canadian wine.

B.P.

Now—as the fluffy adjectives and blunt metaphors gave way to the stinging sleet of adverbs, we began to wonder. Would the final, the ultimate attempt on Typewriter Face remain frustrated by the rain of apathy, the rein of inhibition, the reign of tears? Or would the sky finally clear, the platen rolling, phrases falling from the frigid digits of creativity, the glacial wall of editorial license scoured clean by freshets of spring-like verbiage amid the granitic pronouns?

Friends had warned me about this climb. "Your fingers will never make it clean," they said. "Don't do it. You'll never get past the rapid backspace, and even if you do, the mountain gods all speak Bulgarian." Again, Royal "Typewriter" Ribbons put it best. "The Selectric Range has seen them all, and still it remains unqueried." Nonetheless, we persevered.

Six drafts it took, and one finger had to descend—it had an early train to catch. Many an adverb met early excision, and the bindings on our semicolons broke repeatedly and had to be mended by makeshift conjunctions. Too bad. But finally, one last stormy paragraph in the middle of the Fallible Galleys, we stood—humble, yet arrogant; wordless, yet prolix—on the very summit. We had withstood all the challenges, the heavy weather that the Selectric Range throws at every finger mountaineer—Index, Mar Rel, Tab CLR and SET, Back Space and Shift, yet here we were.

God, it was good to be alive. □

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On the Rivers of Canyonlands

WILLIAM GRAF

In 1837, when Denis Julien, a fur trapper from St. Louis, paddled his canoe through Labyrinth and Stillwater canyons in what is now southeastern Utah, he found still waters, beaver slapping their tails on beaches and sand bars, and a wilderness so remote that few Indians ever passed through it. The unspoiled waters, the beaver and the wilderness are still there to be enjoyed by those willing to paddle or row 60 or 100 miles from the towns of Green River or Moab, but the silence and the solitude may soon evaporate in the mechanical roar of engines. The Park Service is currently formulating a river management plan for Canyonlands National Park, which includes some of the most stunning sections of the Green and Colorado rivers. And a major decision is currently pending—whether to permit the use of motors on the wilderness rivers.

Stewart M. Green

This pictograph, found along Canyonlands' Salt Creek, has been nicknamed the "All-American Man" for its patriotic decoration.

Much of southeastern Utah contains such valuable economic resources as coal, uranium, oil shale, tar sands and vanadium. But Canyonlands has resources of a different kind, as suggested by the public law that created it.

Of all the national parks in the conterminous states, Canyonlands offers one of the best opportunities for one essential resource: solitude. The rugged character of the region's landscape and its remoteness have long protected it from infringement.

When the park was created in 1964, the Park Service intended to manage it as a primitive zone, without extensive development. Roads, except for two short entrance routes, have remained unimproved: travel throughout most of the park is either by foot or by four-wheel-drive vehicle. The park's low level of development, however, irritates local residents who want tourist-oriented development expanded. San Juan County, which contains part of the park, even withdrew "diplomatic recognition" of the Park Service, an action whose only practical impact was to prevent agency personnel from serving as deputy sheriffs. This is a clear expression of the differences between the local politicians bent on development and the federal organization charged with preservation.

The park is centered on the confluence of the Green and Colorado rivers, which form a Y-shaped junction. The Colorado flows from the northeast, draining the meltwaters from the Rocky Mountains of Colorado. The Green River flows from the north, bringing silt-laden runoff from western Wyoming. The combined rivers plunge southwest through Cataract Canyon, into the river that is not a river: Lake Powell behind Glen Canyon Dam. For more than 20 million years, the rivers have excavated the red, white and buff sandstones, creating canyons of immense proportions. First, an area more than 35 miles across and 1000 feet deep was cut away, and still the rivers cut down, incising a series of narrow inner gorges 1300 feet deeper.

The rivers sustain habitat that is unusual in this generally arid land. As the only major water sources for miles in any direction, the Green and the Colorado provide sustenance for blacktailed deer, beaver, bobcats and cougars; desert bighorn sheep range from the river bottoms to the mesa tops, and migratory birds, including ducks and geese, are common at some seasons. Among the

most striking sights on the rivers are egrets and blue herons, their great wings slowly dipping and rising as they fly over the rivers and between high canyon walls. Doves rustle the leaves of willows and cottonwoods along the banks and, at seeps, maidenhair fern, columbine, monkey flowers and primrose vie for attention with the colorful rocks.

The Fremont and Anasazi cultures shared the rivers and cliffs of Canyonlands as a common frontier at the first millenium A.D. The Fremont peoples left ghostly pictographs of their hunts on canyon walls. The boldness of the colors has faded, but the mystical quality of the figures reaches across the centuries. Fields of jimsonweed flourish in canyon bottoms, recalling the gardens of the Anasazi, who cultivated the plant for medical purposes almost 1000 years ago.

After the rivers of this remote country served a few adventurous fur trappers in the 1830s and 1840s, they lay unknown and little frequented; the Navajo and Utes visited the rock wilderness mostly to collect piñon nuts and juniper berries on the more accessible plateaus. In 1869 and 1871, John Wesley Powell and several small groups of explorers described the fantastic landscapes for an astonished outside world. Riding in a chair lashed to the deck of one of his boats, Powell may not have been one of the wisest boatmen ever to ride the river, but his courage in challenging the then-unknown dangers of rivers still inspires river runners.

The waters of the Green and the upper Colorado are quiet, almost glassy, above The Confluence. Sandbars scattered throughout the channels make it possible to literally walk the river during late summer. Below The Confluence, in abrupt contrast, the tumultuous Colorado begins its wild plunge through boulder-strewn Cataract Canyon. The brown, sediment-laden water—which seems as thick as paint—roars over a ladder of rapids, plunging into huge holes river runners call "eaters" because they eat anything that floats, including boats and people. Downstream from the dreadful holes are standing waves where the rushing water, deflected from the riverbed, forms a constant curl as tall as fifteen feet above the usual river level. An inscription left by the unsuccessful James Best expedition of 1891 is a fitting epitaph for so many craft that entered Cataract Canyon but never managed to leave: "Camp #7, Hell to Pay, No. 1 Sunk and Down."

The legacy of the Canyonlands rivers is this strange combination of quiet waters above and riotous rapids below. River runners come primarily to challenge the rapids of Cataract Canyon; inflated rafts carry 80% of the Cataract-bound traffic down the Colorado River from the town of Moab or from

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Top: *An aerial view of the confluence of the Green and Colorado rivers.* ***Above:*** *Rafting thrills on the Colorado at Cataract Canyon.*

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a put-in ramp at Potash, an industrial installation 47 miles upstream from The Confluence. The remaining traffic comes down the Green from the town of Green River, 117 miles upstream, or from a put-in ramp at Mineral Canyon 52 miles from The Confluence. Thus it is necessary to float 50 miles or more on flat water before running 14 miles of rapids. Another 30 miles of travel on Lake Powell awaits boaters at the end of the white water. During low-water periods of late summer and autumn, sandbars impede even canoeists on the Green and on the upper Colorado.

In recognition of the increasing demand for white-water recreation in the Colorado River basin, the Park Service in 1973 established a limit of 6600 users per year on the rivers of Canyonlands. Permits were divided among private users and 19 commercial outfitters. Through the 1978 season, demand had not yet met this maximum figure, though use is increasing so rapidly that the limit will probably be reached by 1982.

The increasing numbers of river users present problems addressed in the river management plan now being formulated by the park staff. For example, there are a number of popular spots where most river parties stop to see some item of special interest: an Anasazi granary perched on a rock ledge, a settler's cabin tucked among the cottonwoods or a surveyor's monument overlooking the river. Frequent foot traffic has worn multiple trails between some of these sites and the river, destroying vegetation and detracting from the wilderness experience. At several sites, the Park Service proposes eliminating all but one access trail, but unless river users are aware of the problem and control their own activities, continued decline in environmental quality near the river is unavoidable.

The protection of riverside biotic communities is especially difficult near popular camping areas. During low-water periods, exposed sandbars provide ideal camping sites. But in some reaches of the river and at some water levels, only the river's banks and higher ground are suitable campsites. Here, the problem of trampling small plants and breakage of larger ones is severe. Preservation of these areas depends on camps being set up only on sandbars or in a very limited number of sites away from the river channel.

Human waste, refuse and campfire ashes are also problems addressed by the Canyonlands planners. Various strategies are available, from burial at selected sites to a rigorous "everything that goes in must come out" policy: the crucial point is that no waste materials be left in the wild areas of the rivers. Human waste and refuse are effectively transported out of the Grand Canyon,

and the practice must become widely accepted on the Green and Colorado rivers in southern Utah. Campfires must be restricted to fire pans, and ashes carried out of the area by users. When left behind on bars and beaches, ashes remain until the following year's spring floods; if left at high-level camp sites, they simply accumulate in unacceptable quantities.

The solution to these problems—the multiple trails, destruction of native plants, and wastes—involves two key elements: the new Park Service regulations and the cooperation of wilderness users. Unless the Park Service receives strong public support for their protectionist approaches, the riparian environments along the rivers will be damaged to the point of losing their essential wilderness characteristics. And, in each case, the individual visitor must accept the responsibility of maintaining the quality of the environment.

In Canyonlands, preliminary workshops with public and commercial participation show that the point of greatest controversy in the river management plan is whether or not motors will be allowed on the rivers. The question of allowing motors on rivers supervised by the Park Service has been answered for other parts of the Colorado and Green river systems in Grand Canyon National Park and Dinosaur National Monument. In Dinosaur, motors have been prohibited for several years, and in the Grand Canyon they will be phased out gradually.

In Canyonlands, however, the battle lines between proponents of motors and those of oars are markedly different. Because of the long distance over flat water before and after the rapids in Cataract Canyon, people interested in white-water experiences spend much of their river trips doing something other than running rapids. Motors permit these parties to traverse the flat water on the upper rivers and on Lake Powell, below Cataract Canyon, in a half to a third of the time it would otherwise take. Most (but not all) outfitters who run motors in the area resist eliminating motor use on purely economic grounds; they have large investments in motorized equipment, and motorized trips allow them to carry more passengers in a shorter time.

In workshops held in the spring of 1979, the majority of participants favored a "free choice" approach to the question, suggesting each party should be able to select the mode of travel desired. Most of those who participated in the process by mailing in workbook questionnaires, however, favored a no-motors policy. A major problem with the "free choice" method is that there is no such creature. When a motorized party encounters an oar-powered party, the oar-

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A major problem with the "free choice" method is that there is no such creature.

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Top: One of the archaic Anasazi grain silos in Canyonlands. *Above:* Moses, a 500-foot spire in Taylor Canyon, a few miles from the Green River.

powered group has lost its choice of a quiet, serene voyage. Such encounters involve more than a few moments' discomfort; the motors can be heard many miles away echoing down narrow canyons. If, as often happens, the oar-powered boat is passed by many motorized craft, the voyage becomes not a silent float down silent canyons, but a series of noisy interruptions. If, conversely, a no-motors policy is adopted, freedom of choice is likewise eliminated.

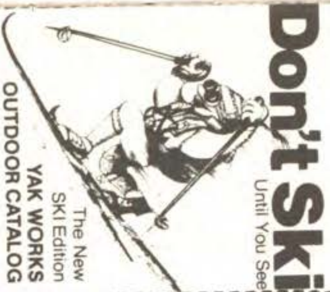
A major attraction of Canyonlands is the remote, quiet, slow-moving rivers that contrast with the violent rapids below The Confluence. Use of motors on these quiet reaches destroys perhaps the most important wilderness experience that Canyonlands has to offer. People who want a short, fast trip through white water in southeastern Utah can run Westwater Canyon in two days, several miles upstream on the Colorado River, outside the park boundaries. Long reaches of quiet water can thus be avoided.

Some canoeists depend on motorized craft to pick them up after paddling downstream to The Confluence. But such pickups can also be accomplished by four-wheel-drive vehicles at Millard and Mineral canyons on the Green, and at Lathrop and Lockhart canyons on the Colorado.

For the long trip on Lake Powell from the foot of the Cataract Canyon rapids to Hite Marina, the take-out point, motors are preferred by nearly everyone. The windswept lake is outside park boundaries, and since it is already substantially artificial and has other motorized boating, the remaining wilderness character of the area would not be further threatened by motorized rafts. Yet, eliminating motors on the rivers in the park would not prohibit river runners from carrying motors through the park and then mounting them upon reaching the lake. Some outfitters and private parties already use this strategy.

The similarities between Glen Canyon and the canyons just above The Confluence are significant. Each area offered soaring sandstone cliffs, gently moving rivers, sandy bars and beaches, homes for wildlife, remote isolation, and haven for the harried soul. We are diminished by the loss of Glen Canyon, drowned by Lake Powell behind Glen Canyon Dam and populated by powerboat recreationists. Unless conservationists are vigorous in their defense of the wilderness rivers of Canyonlands, they will be lost, too, drowned by the roar and fumes of the internal combustion engine. □

William Graf is an assistant professor of geography at Arizona State University, and has helped the Park Service develop management plans for Canyonlands National Park and other wild areas.



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Politics and History: Two Views of Our National Parks

ROBERT CAHN

Parks, Politics, and the People, by Conrad L. Wirth. University of Oklahoma Press, Norman, Oklahoma, 1980. Cloth, $19.95.

National Parks: The American Experience, by Alfred Runte. University of Nebraska Press, Lincoln, Nebraska, 1979. Cloth, $16.50.

WHEN CONRAD L. WIRTH retired as director of the National Park Service in 1964, he told his Park Service associates that he was going to write a book about his 36 years of government service. Sixteen years later his autobiography has finally emerged, the delay partly because Connie Wirth's active retirement keeps him busy in park and recreation activities.

Those associates who have been awaiting this book will not be disappointed, for it is loaded with detail about Wirth's days as head of the Park Service and his earlier work in the Civilian Conservation Corps. It also contains valuable material for historians and political scientists. The experiences so profusely detailed in this long book are, as Connie Wirth says in his preface, "illustrations of the problems that arise in public administration and of how they are approached and resolved." But one word of warning to anyone who might be looking for colorful stories about the national parks: This book is not—and does not pretend to be—a saga of park adventures. Rather, it is an exhaustive account of the administrative side of park management, reflecting the fact that Wirth was based in Washington, D.C., throughout his entire Park Service career.

Connie Wirth started his federal service career in 1928 as a land planner for the National Capital Park and Planning Commission. In 1931, he was hired by the National Park Service's second director, Horace Albright, to be assistant director in charge of land planning. When the Civilian Conservation Corps was organized in 1933, Wirth was detailed to the CCC to organize and head its activity in state parks. More than a quarter of the book describes this CCC experience. Those not familiar with the CCC may be surprised at the amount of valid conservation work done between 1933 and 1942; projects were undertaken in 655 national, state and other park areas. While Wirth admits the operation had faults, he believes "the good it did for the boys and the country" warrants the establishment of a similar organization today on a permanent basis; he describes in detail how such a system could work.

Wirth was selected in 1951 by Interior Secretary Oscar Chapman to become director of the National Park Service, and he served just over twelve years. While this makes him the longest-tenured of the eleven directors in the history of the Park Service, actually Stephen Mather headed the national parks for fourteen years. But Mather held the title of Assistant to the Secretary of the Interior during his first two years, until the National Park Service became an official entity in April 1917.

A large part of the book deals with the Mission 66 program, which Wirth views somewhat differently than do critics within the Sierra Club and other conservation organizations, who objected to its emphasis on roads, buildings and other development in the national parks. Although Park Service Director Newton Drury had protected the natural resources in the parks from wartime exploiters, by the end of World War II the Park Service had lost many of its top people. Its budget had dropped to $5 million, which could not provide even minimal protection for the 180 Park Service areas then existing. Facilities were becoming obsolete while visitor use was increasing tremendously. By 1955, the parks faced a crisis—more than 50 million visitors and not enough funds or staff to run the parks. Wirth was quoted in the *Reader's Digest* warning the potential visitor that a trip to the parks in 1955 was likely to be fraught with discomfort, disappointment, even danger: "It is not possible to provide essential services. Visitor concentration points can't be kept in sanitary condition. Water, sewer and electrical systems are taxed to the utmost. Protective services to safeguard the public and preserve park values are far short of requirements. Physical facilities are deteriorating or are inadequate to meet public needs. Some of the camps are approaching rural slums." Bernard De Voto, writing in *Harper's*, urged that half of the parks be closed and that all funds be devoted to those left open to the public.

Wirth tells how he borrowed tactics from the Bureau of Reclamation, the Bureau of Public Roads and the Army Corps of Engineers—all masters at getting huge sums of money annually by devising projects that couldn't possibly be completed under a single appropriation. The Park Service was accustomed to giving Congress a budget for relatively small projects to be undertaken in a single year, projects that often were cut out of the budget because they were not sufficiently appealing to the appropriations committees that reviewed Park Service requests.

Wirth's answer was to submit one all-inclusive, long-term program that not only would meet current needs but prepare for 1966, when 90 million visits were expected. The Mission 66 concept was unveiled at a White House cabinet meeting in January 1956. After Wirth and his associates made their presentation for a ten-year park development program costing $786 million (it actually cost over $1 billion), President Eisenhower remarked, "Why was not this request made back in 1953?" Eisenhower gave his approval and agreed to recommend the program to Congress.

Congress approved Wirth's plan, and during the ten-year period, 359 miles of trails

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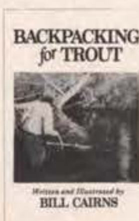

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were reconstructed and 577 miles of new trails built; 575 new campgrounds containing 17,782 campsites were added; 426 new water systems and 432 sewer systems were constructed, and historic buildings were rehabilitated. Other projects Wirth cites as achievements—but that were viewed with apprehension by many conservationists who opposed development within the parks—included construction of 1500 new parking areas with capacity for about 50,000 additional cars, reconstruction of 1570 miles of existing roads and construction of 1200 miles of new roads.

Wirth does not describe the controversy surrounding the Mission 66 program other than to give a brief account of the Sierra Club's opposition to widening and improving the Tioga Road in Yosemite, which he attributes to a change in the Club's leadership. The Sierra Club had approved the project in the 1930s, says Wirth, but changed its views twenty years later, under the leadership of David Brower. Wirth's version of the Tioga Road flap differs from Ansel Adams' account, as reported in *Sierra* (May/June 1979, p. 46). According to Adams, the Club had gone along with the earlier plans for a narrow Tioga Road. But when the most difficult section was started in the 1950s under the Mission 66 program, the Club objected to the widening of the road, as well as to its route near Tenaya Lake. Adams sent strongly worded telegrams of protest to the Secretary of the Interior and to Wirth, demanding that a section of road along Lake Tenaya be relocated where it would not do damage. Although Wirth did agree to some minor changes, he ordered the Tenaya Lake route to be built as planned.

Connie Wirth reports in detail his feud with Assistant Secretary of the Interior John Carver, and recounts Carver's infamous 1963 speech at a Park Service meeting in Yosemite, when Carver criticized the Park Service "mystique," likening Park Service loyalty to the Hitler Youth Movement.

In a potpourri chapter at the end of the book, expressing some of his feelings, Wirth classifies conservation organizations in a half-dozen categories: 1) Pests, 2) Endrunners, 3) Followers, 4) Constructive thinkers, 5) Professionals and 6) Consultants. He does not, however, identify which organizations fit into which categories. "Some conservation organizations are always looking for a fight," he writes. And he adds that there have been good organizations that supported the efforts of the Park Service, but nevertheless "turned against the Service when their leadership changed." To illustrate this point, Wirth refers to the Sierra Club's policy shift on the Tioga Road.

Wirth also expresses candid views about the politicization of the Park Service, starting with the Eisenhower administration's action placing top personnel in a "Schedule C" category of political appointments not protected under Civil Service regulations. And he includes an exchange of letters in which the Civil Service Commission challenged the Nixon administration's appointment of White House political advance man Ronald Walker as director of the Park Service in 1974.

THERE IS MUCH that is interesting about the politics and motivation behind the establishment of our national parks, as described by environmental historian Alfred Runte—even if you disagree with his premises, as this reviewer does.

Runte believes that to guide the future of our national parks we must first understand the social and cultural forces that created them, but he argues that "the national park idea evolved out of the concern for natural wonders as monuments rather than from appreciation of the value of landscape in its broadest sense, both animate and inanimate."

Runte has done a great deal of research to develop his thesis—that public support for establishing national parks grew out of people's pride in scenic wonders, not out of concern for preserving the wilderness and ecological values, and that most of the early parks, at least, were established because the land they occupied had no commercial or agricultural value anyway. He states quite accurately, for instance, that the land that was to become our first national park, Yellowstone, was not in 1872 of prime commercial or agricultural value and not sought by development interests, and thus not difficult for Congress to set aside.

But that kind of pragmatic reasoning did not enter into the motivation of those early explorers who decided that the natural values should not be owned in fee by any individual, but rather, in the words of Cornelius Hedges, "This great wilderness does not belong to us. It belongs to the nation. Let us make a public park of it and set it aside . . . never to be changed, but to be kept sacred always."

I do not see the value in trying to build a case, as Runte seeks to do, that national parks evolved out of an inferiority complex among Americans because they didn't have any castles, ruins or abbeys of great significance, as did their European ancestors, and

that they thus turned to grand natural monuments such as giant redwoods and unique cliffs and mountains as a way to show that our nation was great.

Whatever sentiments motivated those pioneers who helped make national parks an American ideal, that ideal has become perhaps our finest international export. And it must be evident today that it is an ideal that has caught fire with the American public. The national park system and the conservation ethic grew side by side over the past century and, along with preservation of wilderness and endangered species, are firmly entrenched in the values of the present generation. Otherwise, how can one account for the nationwide insistence on protecting Alaska's wild lands?

The best part of Runte's book, to me, is his disclosure of how few of our national parks have been established on the basis of ecological integrity. It was not by accident, but by design, he writes, that Congress refused to accept or retain parklands that contain known mineral reserves, timber and other natural resources. Possibly an overstatement, but certainly a major factor in the restricted boundaries prescribed in the original Redwood National Park legislation, for instance, and evident in the long fight over boundaries and management for new national parks in Alaska.

His analysis of a need for national parks that are more than just scenery is extremely useful. Runte says the establishment of Everglades National Park marked the first unmistakable pledge to total preservation and a willingness to accept a major national park lacking great mountains, deep canyons and tumbling waterfalls. The preservation of plant and wildlife habitat motivated the establishment of Everglades, even if it was still somewhat short of being an ecologically complete unit.

"Not until the substitution of environmentalism for romanticism would the American public be reeducated to understand that the magnificence of the parks physically distracted attention from their ecological shortcomings," Runte concludes. "Given the sincerity of fears that mankind might perish without the knowledge locked up in wilderness, at least this much seemed certain: The United States could not afford to wait another 100 years to preserve the land for what it was instead of what it was not." □

Robert Cahn is a Pulitzer prize-winning writer and author of Footprints on the Planet.

The Trouble with Tourism

TRUDITH SMOKE

Tourism: the good, the bad, and the ugly, by John E. Rosenow and Gerreld L. Pulsipher. Century Three Press, Lincoln, Nebraska, 1980. Cloth, $17.95.

TOURISM IS THE NATION'S third-largest industry (after food and construction), employing some 5.75 million people. It is one of the economic sectors hardest hit by energy shortages and pressures of development, many of which are explained in detail in this solution-oriented book. Rosenow and Pulsipher explore the problems created by the rapid expansion of communities and parks, and recommend positive growth through careful planning.

With proper planning, the authors believe, tourism can contribute more than cash and headaches to an area; it can heighten awareness of the need to preserve historic sites, wilderness and the quality of life in our cities.

On the most basic level, planning should maintain a setting's unique features. A tourist area can easily be ruined by its own success, as occurred in St. George, Utah, a community once known for its historic Mormon temple, shade trees and grassy footpaths. Quick growth soon brought palm trees, neo-Spanish architecture, many new roads and garish signs that blocked the few remaining scenic views. Historic structures could have been adapted to modern uses and areas of natural beauty incorporated into the community; instead, the lack of farsighted planning threw the natural and cultural ecologies out of balance.

Twenty years ago, downtown Savannah was a badly deteriorated slum; industrial promoters planned to raze the old buildings and give the city a new, modern image. In opposition to this move, seven Savannah women formed the Historic Savannah Foundation; its first project was the restoration of Davenport House, a fine Georgian home condemned to make room for a parking lot. To date, nearly three square miles of downtown property and 800 buildings have been reclaimed. As a result, tourist spending in Savannah has increased from a few million dollars in 1962 to more than $50 million in 1974. The authors point out, too, that preservation need not curtail economic growth. This tourist income supports many of the

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businesses—and the residents—inhabiting the restored buildings. Conservationists went into the real-estate business and preserved the charm of Georgia's oldest city.

Special community features may be difficult to identify, and the appropriate action to preserve them may not be obvious. The authors suggest Community Personality Planning, a four-step guide for activists that includes 1) delineating distinctive features, 2) plotting critical zones, 3) establishing use objectives, and 4) formulating specific action programs. Activists can begin by listing historical resources, urban and rural landscape features, ethnic and cultural events, recreation areas, natural and scenic resources, rivers, streams and land forms.

Out of this mass of information, community preservationists can select the areas most deserving of attention. Next, the plotting of critical zones will indicate the areas with the most to gain from careful development. Activists can then design a specific action plan—a one-day community cleanup, new sign-control ordinances, or a major preservation or redevelopment project, for example.

This concept of overall planning should extend to our system of national parks. Here the goal is not planning for growth, but rather reduction of park overuse. The National Park Service must reduce some services to maintain the ecological balance in congested areas. In the late 1970s, the national parks were visited by some 250 million people each year. While this patronage brings substantial income to the towns nearby, the visitors also contribute to land, air and water pollution. The authors suggest expanding the national park information system to encourage tourists to visit the lesser-known parks; such a service could easily be supported by charging park entry and user fees. Based on current usage, a $1.50 fee, uniformly applied, would generate some $360 million annually.

A 1971 study estimated that in that year, visitors to the national park system spent $11.1 billion, of which $1.6 billion was returned in federal taxes—more than ten times the 1971 federal appropriation for the NPS. So, aside from the intangible value of the parks, their money-making role should not be ignored.

Eighty-five percent of American tourists travel by automobile, and auto costs represent a hefty 70% of all tourist expenditures. Rosenow and Pulsipher maintain that the use of smaller, more efficient cars is essential to the survival of the tourist industry. The authors see as equally important the development of economical and convenient mass-transit systems in urban areas and suggest that providing bus service to national parks would lessen the traffic there. Using the European system as a model, passenger rail service must be improved.

Despite the obvious need for upgrading the nation's railroads, last year Congress approved by default Amtrak's request to discontinue service along nearly half of its 22,500-mile system—a clear example of bureaucratic and congressional irresponsibility. Between January 1973 and January 1974, while auto usage declined 4.2%, rail traffic increased 35.5%. The improvement of intercity rail passenger service would provide an attractive and energy-efficient option for tourists. Further, the authors mention that group tours by bus can offer relaxed travel, fuel savings, and the unique experiences that only prearranged group travel can provide.

Rosenow and Pulsipher predict that future tourists will travel by small car, bus or train to recreational areas and will increasingly visit attractions fairly close to home. These vacations will still offer those travelers the means to discover their heritage and the scenic wonders of this nation.

This thoughtful and well-researched book offers solutions in a somewhat dry manner that may not be to everyone's taste. This is unfortunate; the chapters on America's cities, community personality planning, park management, energy and the "new tourism" offer a large number of examples and a well-rounded perspective of tourism. Photographs and charts are effectively integrated throughout the text. This book shows how we can make a commitment to conservation, preservation and, above all, appreciation. □

Trudith Smoke is a professor at Hunter College in New York City and a freelance writer.

An Agenda for Survival

ELAINE DE MAN

How to Save the World: Strategy for World Conservation, by Robert Allen. Barnes & Noble Books, Totowa, New Jersey, 1980. Cloth, $12.95.

IMAGINE TRYING to convince simultaneously a woman in Gambia, scavenging every day of the year for firewood, and an affluent land developer of their mutual need to conserve. Try telling a fisherman that the size of his catch depends on land-management practices, and a midwestern farmer that the quality of a Peruvian fishery influences the price of soybeans. Such apparently unrelated phenomena are the subject matter of Robert Allen's *How to Save the World*, a popular version of the World Conservation Strategy.

This ambitious work was prepared by the International Union for the Conservation of Nature and Natural Resources (IUCN) and funded by the United Nations Environment Programme (UNEP) and the World Wildlife Fund (WWF). Contributions were also made by the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Educational, Scientific and Cultural Organizations (UNESCO). More than 700 scientists from all over the world were consulted in the preparation of this pioneering global conservation document.

Using frightening but accurate facts and figures, and citing specific incidences of poor management practices, this book gives the reader the information necessary to make sound environmental decisions, and to inform skeptics of the gravity of the situation and the need for immediate action. The book is more than just another horror story; it provides some grounds for hope that the world can be saved. But we must choose priorities and apply solutions to the problems at hand.

Any solution requires an accurate assessment of the problem; so far the severity of global environmental threats has not been adequately appreciated. Here the blame must be shared by developing and industrial nations alike. Their motives are quite different, but the result is the same: destruction of habitat and loss of genetic diversity. The rural poor are compelled by their poverty to destroy their very means of survival, while major industries' overexploitation and poor management continue to shrink the resource base on which they depend.

Unfortunately, the concept of conservation has been mistakenly linked with a reactionary mentality and is assumed to oppose all forms of development. But, as *How to Save the World* points out, conservation and development are mutually supportive and must be integrated. Patterns of development must be designed and applied to conserve the life resources essential for human survival and well-being. The World Conservation Strategy would put conservation in the hands of governments and associated agencies, developers and industry, city dwellers, farmers and the rural poor. Often

misconceived as a luxury only industrial nations can afford, conservation is proving increasingly important to the survival of civilization.

The need for food to sustain an ever-growing population takes precedence. The need to reserve the most suitable land for crops is paramount; sound management is required to prevent the further loss of soil and misuse of grazing land that spread desertification. Yields from fisheries must be sustainable; this means calling a halt to overexploitation and beginning better management of coastal wetlands, a resource critical to most fisheries.

An essential part of maintaining our food supply is protecting genetic diversity. Wild plants and animals are a storehouse of genes to be introduced when cultivated species are threatened by changing conditions and new pests. The probable extinction of at least half a million wild species by the end of the century will destroy a rich genetic heritage.

The threats come from all sides: habitat is destroyed, species are removed by collectors and poachers, as well as by zoologists and researchers. Whole species are decimated—sea turtles, for example—for the commercial production of luxury items. Though one might rationalize that the sale of tortoise shell ostensibly supports the poor in the underdeveloped nations where the animals are captured, the sad truth is that most of the money goes to middlemen in Europe, Japan, Hong Kong or Singapore.

There are many long-term, sustainable advantages to protecting plant and animal species for nonfood uses. Both plants and animals are used directly in the manufacture of medicines and other drugs. Allen's book details the value of lungfish to open-heart surgery, the importance of the black bear to the study of kidney failure and the relation of the Mexican yam to family planning. Allen also indicates that only a small percentage of all species have been considered for possible use in medical research.

Animal and plant research has proved useful to technology and industry as well. The study of fireflies led to the development of a light that doesn't give off sparks or heat, and a look at polar bear physiology has aided in the design of cold-weather clothing for humans. Jojoba seed oil is an essential lubricant for automobile transmissions. And if we preserve our wildlife, we will discover more ways to study and use them intelligently.

Many developing countries have substantial natural resources that may, unfortu-

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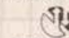

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With a Foreword by H.R.H. The Duke of Edinburgh, K.G., K.T.

Sir Peter Scott—recently named Master Wildlife Artist 1980—has achieved fame as a painter of wildlife, as the founder of the Wildfowl Trust, and as one of the world's leading conservationists. Many of Scott's finest works are included here along with some fascinating pages from his sketchbooks, and in the text he discusses his efforts to save the earth's natural heritage. With 100 illustrations, 36 in full color. $19.95

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nately, be lost to the pressures of industrial development or tourism. As these countries scramble into the twentieth century, they may inadvertently destroy the very resources that have fueled and supplied such development.

The World Conservation Strategy would give industry the responsibility for ensuring sustainable yields. It urges industry and business to assist in the establishment and maintenance of protected areas for preservation of the naturally occurring compounds they rely on. It may seem like asking the fox to guard the hen house—but who has more to lose when all the chickens are gone? We must hope and assume that good judgment—with an eye toward long-term gains—will prevail.

The World Conservation Strategy explains why the modern world cannot expect to survive without sound conservation practices. Rather than calling for a halt to development, the plan suggests that more time and consideration go into environmental planning, in order to make optimum use of the resources available. While many solutions to existing problems are enacted at the governmental level, there is a great deal an informed citizen can do to determine and maintain conservation priorities.

Robert Allen sums it all up best when describing tribal peoples' conflicting needs and desires. For them, as for us, a combination of conservation and development will provide ". . . the best of both worlds, or no world at all." □

Elaine De Man is a research biologist who specializes in enviromental influences on animal behavior.

Brief Reports

Going to Extremes, by Joe McGinniss. Alfred A. Knopf, New York, 1980. Cloth, $11.95.

Henry Gannett, the geologist, once cautioned people not to visit Alaska too young, lest the rest of their lives be spoiled for enjoyment. Now a new book vividly describes what life is really like in Alaska for those who do more than just visit. It is a hard life, very hard, with extremes of cold and isolation both for the Natives and for those who go there and who—for better or often for worse—choose to stay. In some sense Gannett's words remain true, for these people admit to being spoiled for anywhere else. Joe McGinniss, author of *The Selling of the President, 1968*, spent almost two years

traveling around Alaska, concentrating on the people, getting to know and understand them, listening to their stories—why they went, how hard it is to thrive on our nation's last frontier, how much harder it would be to leave this demanding, yet strangely fulfilling land. Some make a living from the frontier, others don't; but most are unwavering in their fierce determination to stay. There are a few, those who didn't understand the rigors of Alaska or whose jobs were too frustrating, who are equally determined to leave. For them, the true frontier life proved to be too much.

The pipeline is a big factor for many who look for easy money, but the work is isolated and long, with few other, more human rewards. Many find refuge in alcohol, including Natives and some who seem confused about where they belong, in relation to the Outside and their future in Alaska.

The weather is a constant topic of conversation for all, a looming presence in the survival through the dark winter days and the intense, unrelenting cold. So too is the state of Alaska discussed, for Alaska itself, despite the extremes it comprises, is the real reason people come—and the reason they stay.

This moving and absorbing work gives a fine insight into the Alaskans' effort to lead full lives in a surrounding that is demanding and bleak, yet incredibly beautiful and inspiring. One man's comment seems to sum it up: "There is no question," he said, "that this place is outrageous. . . . The secret is, it's so bad that it's good."

Climbing styles change, but mountains do not. So, too, styles of writing about climbing change, even though the cast of climbers may remain the same. Two classic books, Thomas Hornbein's *Everest: The West Ridge* and Rick Ridgeway's *The Last Step: The American Ascent of K2*, describe risky, innovative Himalayan climbs. And they both involve several of the same participants, most notably Jim Whittaker, the first American to climb Everest, the leader of the unsuccessful 1975 attempt on K2 (the subject of Galen Rowell's *In the Throne Room of the Mountain Gods*) and of the successful 1978 American expedition to the same mountain.

The Last Step: The American Ascent of K2, by Rick Ridgeway. The Mountaineers Books, Seattle, 1980. Cloth, $19.95 before December 31, 1980; $25.00 in 1981.

The Last Step is the story of the successful 1978 American K2 expedition, by one of the four climbers who reached the summit. It is a riveting, heart-stopping account of a 67-day human triumph and ordeal.

Ridgeway's enthusiasm and good sense, rather than his mastery of a high-minded literary approach to the subject, make the book accessible and impressive. The primary concerns are present: the cumbersome logistics of a major climb, the vagaries of weather, officials and luck, the knotty, shifting personal alliances of the party, a last-minute escape from death. Despite the drama, Ridgeway concentrates on the personal dimension of the struggles, concluding that "we had no gallant knights conquering new worlds . . . but ordinary people with ordinary weaknesses." Perhaps Ridgeway thinks so; most readers will find the cast of climbers extraordinary, authentic heroes.

Everest: The West Ridge, by Thomas F. Hornbein. The Mountaineers Books, Seattle, 1980. Cloth, $17.50.

The original edition of Hornbein's classic mountaineering tale of the 1963 American Everest expedition is now a rare book. The Sierra Club's lavish exhibit-format volume exists in only one edition—virtually unobtainable today, though a friend recently found a used copy in "fair" condition for $150. The Mountaineers' new edition is a standard-sized book; the photos are fewer and smaller. But in a way this edition reveals even more clearly that the text is also a rarity, a well-written, important tale of adventure and courage.

The book chronicles the first ascent of Everest via the West Ridge, at the time "the biggest possible thing still to be accomplished in Himalayan mountaineering," according to the expedition's leader. The passing years have not dulled the account's intrinsic suspense, and many of the stirrings of a new, elegant and spare style of mountaineering can be detected. *Everest: The West Ridge* is arguably the quintessential climbing classic of our times; it set the standards by which subsequent mountaineering books have been judged. A straightforward narrative of an amazing climb, its style is unembellished, its tone only slightly grander than matter-of-fact. The deeds speak for themselves but also suggest an emblematic dimension, a sense that this sort of adventure is an archetype of courage and idealism. The text does not, however, meander into the metaphysical and does not neglect the human dimension. The relationships of the men to each other is as crucial to the climb—and the book—as their collective prowess. □

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FOR YOUNGER READERS

A Puzzle for Winter

JOHN K. YOUNG

HOW MANY of the cross-country skiing terms on the list can you find hidden below? Work in a straight line across, up and down or diagonally. Some of the words are spelled backwards! Do you know what these terms mean? If you don't, your dictionary will help. (Answers on page 74).

Avalanche	Kick	Novice	Soar
Bent	Laminate	Patrol	Snow
Cant	Latex	Pole	Snowplow
Gelande	Lefse	Polyethylene	Torsion
Glide	Marathon	Powder	Tour
Grip	Medal	Rent	Traction
Herringbone	Mica	Skiing	Trail

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T	H	A	I	N	E	E	I	R	R	D	A	R	P
L	M	C	V	L	O	R	T	A	P	A	A	N	A
C	A	E	O	A	I	V	W	A	O	I	O	N	T
W	R	P	R	I	L	O	I	T	L	E	F	S	E
E	A	I	P	O	L	A	T	C	Y	N	R	S	T
D	T	I	O	P	L	A	N	U	E	G	L	E	O
S	H	T	W	K	I	C	K	C	T	A	A	R	U
T	O	O	D	E	H	R	I	C	H	L	M	E	R
C	N	O	E	N	D	T	G	E	Y	E	I	E	M
S	S	T	R	B	W	I	G	E	L	A	N	D	E
N	O	I	S	R	O	T	L	R	E	T	A	I	D
G	N	I	I	K	S	A	Q	G	N	U	T	E	A
E	N	O	B	G	N	I	R	R	E	H	E	A	L

John K. Young is a freelance puzzle writer in Braintree, Massachusetts.

The Grassroots Connection: A New Sierra Club Service

ROBERT IRWIN

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- Channelizing a flood-prone stream,
- Uranium mining in a roadless area,
- Transforming a fishing harbor into an oil tanker port, or
- Constructing a hospital in an urban nature preserve.

If such an environmentally threatening project should be proposed for your community, where can you turn for help or guidance?

Your first source of information and guidance is your local Sierra Club chapter or group. Your chapter or group conservation chair can provide advice about the best strategy to adopt, can suggest available resources and can refer you to local Sierra Club or other environmental activists. (As members, you should be receiving the publications of your group and chapter, and these newsletters generally include the phone numbers of club leaders.) You may also wish to contact the members of the Sierra Club Regional Conservation Committee (RCC), who are familiar with the environmental issues in your region and will know others with similar concerns. In addition, if there is a Sierra Club field office in your area, you can contact that office for advice and referrals. (The RCC chairs and field offices are listed on *Sierra*'s masthead.)

To complement these local resources, the Sierra Club's Conservation Department is initiating a new service, "Grassroots Connection," to assist communications among activists nationwide and to develop a better overview of local Club activities. Grassroots Connection will be a tool for sharing environmental campaign experiences, ideas and strategies.

Grassroots activists in communities across the nation have had to contend with problems similar to the ones you face. Some have succeeded; others have failed. In either case, their experience in handling environmental problems could be of inestimable value to activists confronting similar situations. There would be no need to stumble through a tedious trial-and-error process if such experience could be shared. And it can.

The Conservation Department has been compiling a series of lists of activists involved in many of the Club's top-priority environmental campaigns. In addition to being a central clearinghouse for issue information and political methods, this resource makes that department uniquely qualified to offer a switchboard service—to help put people who have handled similar problems in contact with one another.

To obtain help from the program, you will need to provide information about the nature of the problems, community attitudes, the proposed timetable and the strength of the opposition. You might want to outline what has already been done in support/opposition. Indicate the areas where information would be helpful, and where advice is needed. Give your name, address and phone number and mail your request for help to the Grassroots Connection, Conservation Department, Sierra Club, 530 Bush Street, San Francisco, CA 94108. Requests for help will also be accepted by phone. Call 415-981-8634, ext. 506.

You will receive suggestions as to who you can contact for the advice and help you need. All requests of this nature will be kept on file in the Conservation Department together with the referrals that were made to each. Later, some successful referrals may be featured in this column.

An Astounding Win for Natural Areas

Illinois conservationists still can't believe it. For the first time ever, a state natural areas acquisition budget has been presented and approved. This year the state legislature approved the entire $2.6 million requested by conservationists—in 1979, not a cent had been given to the Department of Conservation (DOC) for land acquisition of *any* type. Though Illinois is one of the nation's most prosperous and populous states, it has been

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Iceland: 16 days, June 12, July 3 & Aug. 7 • **Islands & Highlands of Scotland:** 23 days, May 29, July 10 & Aug. 21 • **Spain:** 18 days, Apr. 17 & Sept. 4.

Asia and Africa

Indonesia: 24 days, July 14 & Sept. 8 • **The Himalayas:** 25 days, Mar. 19 & Oct. 8 • **India:** 21 days, Jan. 31 & Oct. 31 • **Sri Lanka:** 18 days, Feb. 19 & Nov. 19 • **Kenya:** 23 days, Feb. 5, July 23 & Oct. 22.

Oceania and Australasia

Australia & New Zealand: 30 days, Jan. 31 & Sept. 19 • **New Zealand & the Milford Track:** 22 days, Feb. 20 & Nov. 13.

For a complimentary copy of the newest Directory of Worldwide Nature Tours outlining the entire program, write to Questers or see your Travel Agent. If you are interested in a specific tour, request the Detailed Itinerary. Exploratory expeditions and special tours are announced from time to time in our newsletter Nature Tour Notes, *sent free to all on our mailing list.*

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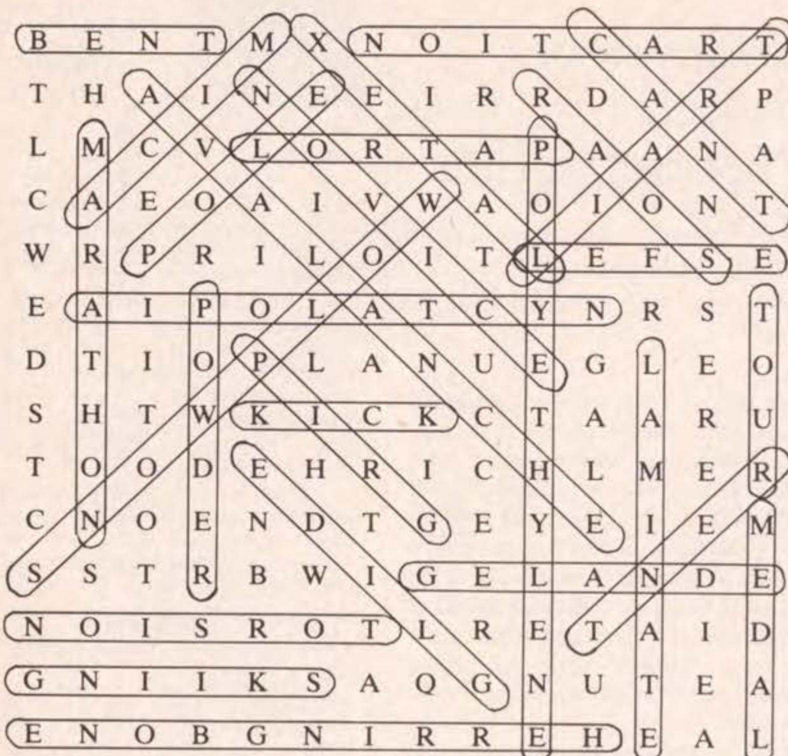
Solution to Puzzle on Page 72



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surprisingly inactive in providing parks, preserves and other open space for its citizens. "Illinois is the most completely developed state in the union," writes Steve Parker in *Lake and Prairie*, the newsletter of the Great Lakes (Illinois) Chapter. "Our land has been plowed, farmed, stripped, paved, factoried, urbanized and subdivided from lake to muddy river."

Governor James R. Thompson startled a joint session of the legislature last spring by calling for a new initiative "to set aside land in its natural state." He cited a series of *Chicago Tribune* articles, "Illinois—Wasteland in the Making," that created strong public support for such a plan. In his address to the legislature, the governor had emphasized the need for fiscal restraint, and word soon leaked out that the state senate appropriations committee planned to cut not only the $2.6 million for the acquistion of natural areas, but also the entire DOC land budget of $6 million. Opposition came immediately from conservationists, sympathetic politicians, newspapers, DOC staff and, for the first time, the governor's office. The state senate agreed to restore $4.9 million. More pressure. By the time the state assembly voted on the DOC funding, the appropriation had been pushed back up to $5.72 million. In fiscal 1981, 22 natural areas will be purchased under the $2.6 million acquisition program.

Illinois' astounding conservation success was the culmination of some two decades of persistent work by scores of volunteers. Great Lakes Chapter member Steve Packard points out that to ensure continued success, conservationists must obtain the support of a wide variety of people. He adds that the politics of confrontation have worked in the past to save a bog, a patch of prairie or a stand of virgin hardwood. But now, when hundreds of such areas must be spared from dredge, plow and chainsaw, the most efficient conservation tool is the Illinois Natural Areas Plan.

Illinois environmentalists agree that the man responsible for motivating and sustaining the state's natural areas preservation effort is George Fell, founder and head of the Natural Lands Institute in Rockford, Illinois. Fell has been active in preserving endangered natural areas since the late 1950s. He persuaded a number of private individuals and institutions to set aside land as nature preserves or sanctuaries and he lobbied successfully in the state legislature to enact a Nature Preserves Act in 1963, which authorized the establishment of the Nature Preserves Commission. At first, the commission received only token funding from

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the state, so Fell found financial support from private sources, and the commission began planning a state nature preserve system. The nine-member commission has attracted competent and influential members from all parts of the state over the past eighteen years. Warren Dewalt, the commission's past chairman, attributes its success to its balanced composition of environmental activists and members of the business community.

George Fell has continued to play an important role in maintaining the commission's effectiveness. He has recruited the unpaid commissioners and helped build up a corps of specialists who have provided much of the technical data for the Illinois natural areas programs and for the Natural Areas Commission.

By the early 1970s, under the leadership of John Schwegman, several prime natural areas had been acquired by the state. Goose Lake Prairie State Park—in the shadow of the Dresden nuclear power plant—has impressive stands of such native prairie plants as rattlesnake master and big blue stem grass. By and large, though, the acquisition process was essentially formless. A priority system had to be established lest some of the most valuable areas be developed.

By 1973 it became evident to the commission that an inventory of all the state's natural areas was necessary if Illinois was ever to have a nature preserve system representative of the variety of landscapes that could be found. Bogs, savannas, prairies, forests, cliffs and bluffs, marshes, beaches and ponds—each ecosystem had to be listed and imminent threats to its continued existence noted.

The state legislature granted $500,000 toward this inventory survey, which began in 1975 under the direction of John White of the University of Illinois. With the help of hundreds of volunteers, the survey was completed by the end of 1978. Of the thousands of natural areas considered, 1089 were recorded in the survey, of which 610 were deemed worthy of preservation and incorporated into the Illinois Natural Areas Plan.

For the first time in 70 years—when Daniel Burnham designed a far-sighted plan for Chicago's lakefront, parks and forest preserves—Illinois again is showing the way in conservation with the implementation of its first-of-a-kind natural areas plan. A copy is available from the Illinois Department of Conservation, Division of Planning, 601 Stratton Building, Springfield, Illinois 62706. Ask for the *Illinois Natural Areas Plan: To Preserve and Protect Our Heritage.* □

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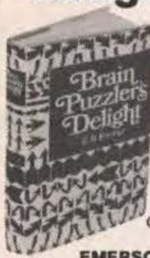

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Channel Islands Become a Marine Sanctuary

After years of indecision by three administrations, President Carter has designated as a marine sanctuary a six-mile area around California's Channel Islands. The islands have been a national park since February 1980. Sanctuary designation will help to protect the six islands from oil spills, and drilling and prospecting for oil and gas will be prohibited. Recommended by the National Oceanic & Atmospheric Administration and opposed by oil interests, the sanctuary is the first to be set aside on the Pacific coast.

Massachusetts to Protect Barrier Islands

Governor Edward King of Massachusetts has signed an order designed to protect that state's barrier beaches. The order bars state approval of new buildings on barrier beaches and islands, and it also prevents rebuilding structures damaged by storms. This order puts Massachusetts well ahead of the federal government. Neither the House nor the Senate has yet passed the proposed federal barrier-islands legislation—a high priority on the Club's agenda for the Lame Duck session of Congress (see p. 4 for more details).

Chaining Changes in Utah

During the past year, much concern has been expressed over the chaining of Utah's Grand Gulch Plateau. Chaining, a process in which a heavy chain is pulled between two tractors to clear trees for "rangeland improvement," has destroyed or damaged approximately 30 archaeological sites dating from A.D. 500 to A.D. 1150. Technical assistance for the chaining was provided by the federal Soil Conservation Service (SCS); several state and federal laws were ignored in the process. Because of the "checkerboard" effect produced by the chaining, the surrounding BLM lands were dropped from the ongoing BLM wilderness review.

But the tide has begun to turn. Because of conservationist protests, the SCS has now taken responsibility for protecting archaeological sites on non-federal lands. Utah's SCS office hired an archaeologist, and new federal regulations will be proposed soon. This progress can be seen as a victory for conservationists and archaeologists who worked together on this issue.

Club to Work with EPA on Groundwater Strategy

The Environmental Protection Agency has awarded grants to several public-interest groups to promote public education and involvement in the development of a policy regarding management and exploitation of groundwater. The Sierra Club is one of five organizations to receive a grant, which will enable the Club to award about 20 travel scholarships for environmentalists to attend workshops and hearings on EPA's proposed groundwater protection strategy. For more information, please contact Jessica Radolf, Groundwater Project Coordinator, Sierra Club, 530 Bush St., San Francisco, CA 94108.

BLM Issues Inadequate Plan for California Desert

In 1976 Congress declared the California desert a special national resource in critical need of immediate protection and long-range planning. A special section of the Federal Land Policy and Management Act established the 12.5 million-acre California Desert Conservation Area and directed the Bureau of Land Management (BLM) to prepare a comprehensive plan for it. In April 1980, the BLM issued a draft environmental impact statement outlining alternatives for managing the California desert. Environmentalists then commented on its extensive inadequacies.

On October 1, the BLM issued a Proposed California Desert Plan and a final EIS, with 50 days for public comment ending in late November. This plan will guide the management of California's desert lands for the next 20 years and will set a precedent for subsequent BLM plans for other lands in the West.

Although the new plan is superior to previous drafts, it still fails to provide a reasonable level of resource protection. Moreover, off-road vehicle advocates and others have launched a nationwide campaign to weaken the plan further. There is still time for you to help. Write to: Bureau of Land Management, Box 5555, Riverside, CA 92517. Make the following points: (1) Additional areas should be recommended for wilderness. (2) More land should be designated as "areas of critical environmental concern." (3) Recommend the formation of a Mojave National Park. (4) No new areas (such as the proposed Rasor Ranch Area) should be opened for unrestricted off-road vehicle use.

Coastal Act Clears Congress

A scaled-down version of the reauthorization of the Coastal Zone Management Act passed the House on September 30 and the Senate on October 1, both by voice vote. The bill now awaits the President's signature. The final version trimmed $75 million a year from authorizations for coastal planning grants, but established new state grant programs to revitalize urban waterfronts and to help coastal cities adversely affected by energy development. President Carter is expected to sign the bill.

Club to Sue Polluting Power Plants

The Sierra Club has given official notice of its intent to file suit against 20 major electric utilities that are violating standards of the Clean Air Act. All of the 20 violators are listed by the U.S. Environmental Protection Agency as emitting illegal amounts of pollution. The Clean Air Act places responsibility for enforcing air pollution standards on the EPA and on individual states, but it allows concerned citizens to sue for enforcement.

Most of the 20 violating utilities are in midwestern and eastern states. Several midwestern utilities emit large quantities of sulfur dioxide, which is carried by the prevailing winds to contribute to serious acid rain problems of the northeastern states and Canada.

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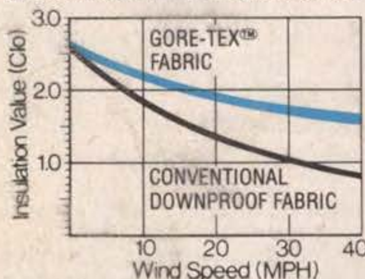

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