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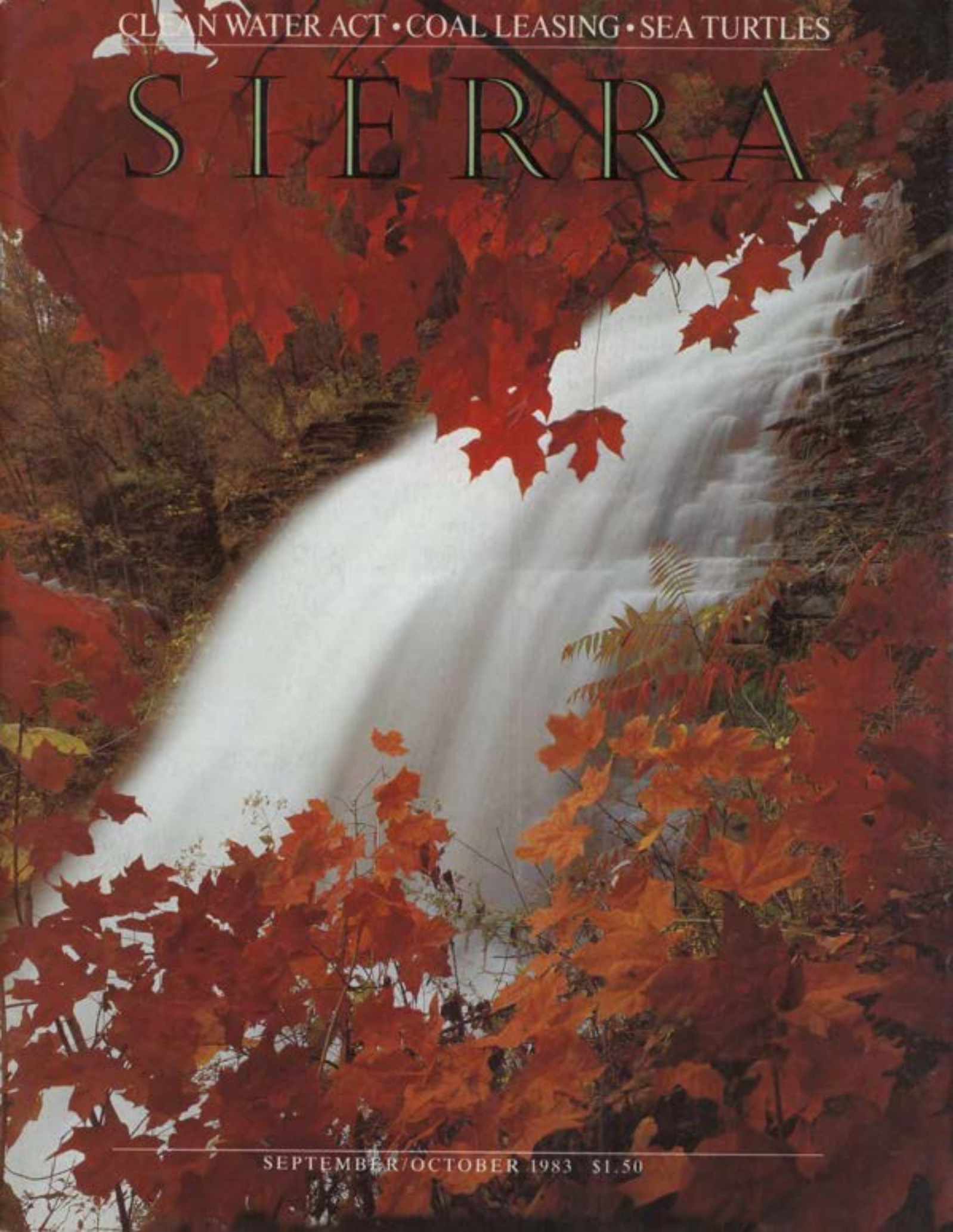

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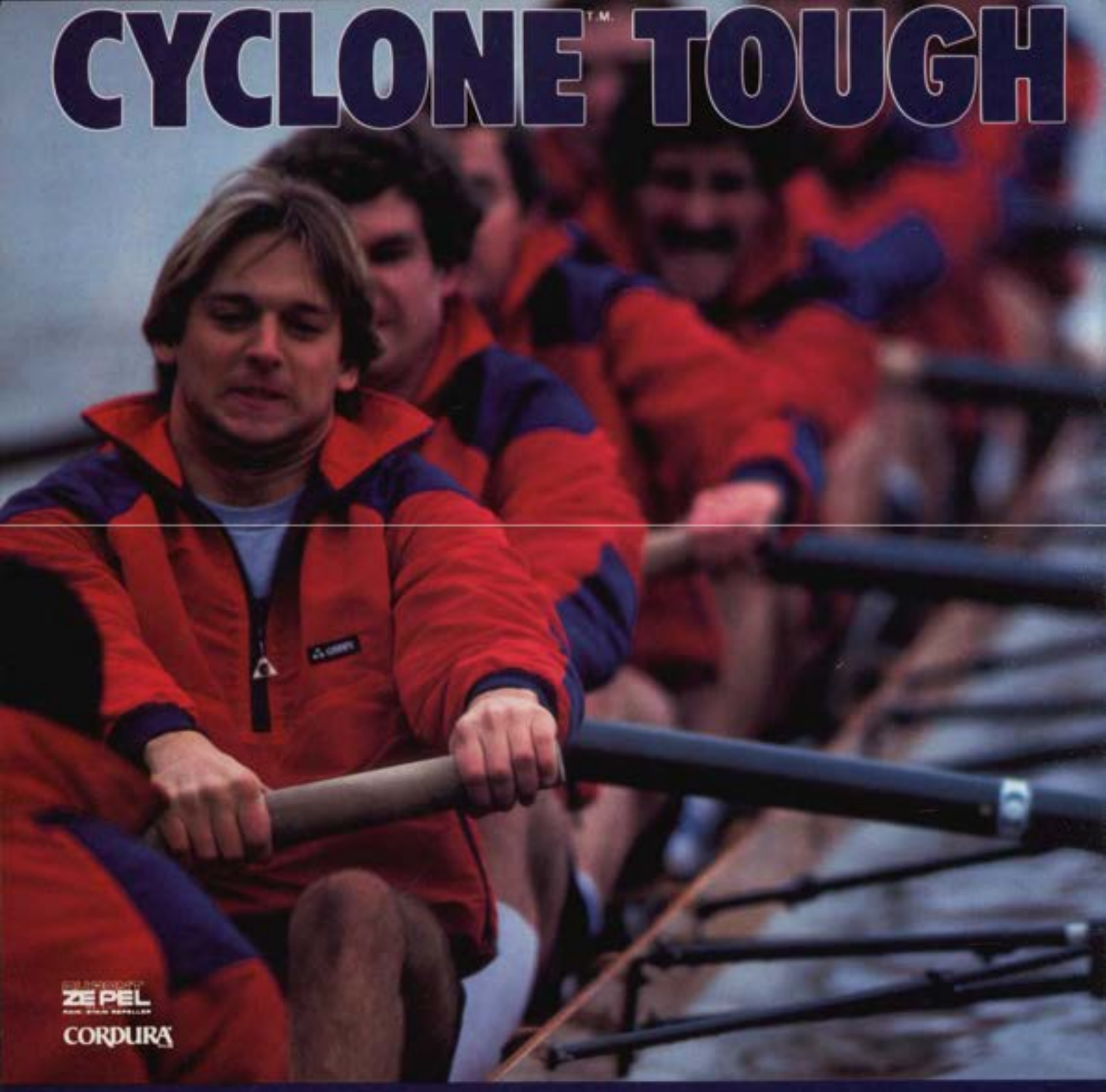

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THE SIERRA CLUB BULLETIN SEPTEMBER/OCTOBER 1983 VOLUME 68/NUMBER 5

FEATURES

DEPARTMENTS

COVER: Autumn colors at Chequaqua Falls, Watkins Glen, N.Y. Photo by David Muench.

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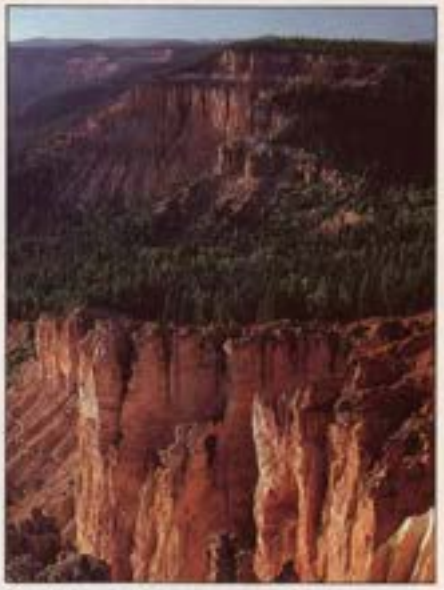

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Founded in 1892, the Sierra Club works to restore the quality of the natural environment and to maintain the integrity of ecosystems. Educating the public to understand and support these objectives is basic to the Club's program. All are invited to participate in its activities, to "... explore, enjoy and protect the wild places of the earth."

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Further Thoughts on Hydropower

Tim Palmer's article "What Price 'Free' Energy?" (July/August, 1983) pointed out the damage to our streams that will result from new hydropower dams authorized by the Public Utility Regulatory Policies Act of 1978 (PURPA). Environmental writers and organizations have long been dancing around the real solution to PURPA-caused problems, and that is the act itself. The law should be amended by Congress so that it applies hydro-development incentives to *existing* dams only. By thus amending PURPA, the rush to build dams on wild streams will dry up. If such an amendment were introduced soon, it would make an excellent campaign issue in 1984.

Edward Loosli
California Wildlife Trust
Hermosa Beach, Calif.

Tim Palmer stated that the Rhone River is capable of generating 3,000 megawatts. That number can only be a measure of *capacity*, not generation. There are scarcely any hydropower installations that run at full capacity all year long, year after year; hence generation (average power output) is almost always less than capacity, and usually substantially less.

Wallace E. Howell
Golden, Colo.

I must call your attention to an error in terminology that turned up in "Hydro: The Environmental Impacts" by Harvard Ayers (July/August, 1983). Electrical generating capacity is properly expressed in kilowatts, or megawatts, or equivalent but similarly pedestrian units. Kilowatts per hour (your coinage?) is nice, though; it suggests other fanciful units, such as horsepower per month (hpm) and acceleration per gallon (apg). But please don't refer to it as kwh, an abbreviation already claimed by another dull, everyday unit, the kilowatt-hour.

Jay Hosler
Soquel, Calif.

Older Backpackers

As an older backpacker, I found much to question in the article "Tips for the Older Backpacker" (July/August, 1983).

Author Shirley Blumberg says that one should not vary the tempo of one's pace, but rather vary the length of his or her stride. I've never observed anyone whose tempo of steps is as great on a steep uphill as on level ground, and I doubt that Mrs. Blumberg's is.

The upper limit of pack weight for a week's backpack, she then advises, should be 35 pounds for a man and 20 for a woman. Well, my pack for a week weighs 30 pounds before I add food, and a widely accepted formula is to take 1½ pounds of food per person per day. If my wife carried her half, my pack would weigh—with food but without water—more than 40 pounds, and my wife would have 9½ pounds available for sleeping bag, sleeping pad, extra clothes, raingear, windbreaker, toiletries, spoon, cup, camera, and any community gear, such as kitchen stuff, that she carried.

As for skipping breakfast, I predict that if you took a poll of backpackers, better than 95 percent would say don't do it.

Thomas Winnett
Berkeley, Calif.

The Spirit of Wilderness

I was very happy to see David Douglas's article, "The Spirit of Wilderness and the Religious Community," in the May/June, 1983, issue. His point is well taken that the religious community represents "the largest potential and untapped constituency on wilderness' behalf." Concern for the spiritual values of earth's natural wonders is one facet of that community's beliefs.

Another facet is our belief that God created this world of ours. It doesn't matter whether one believes that God created Adam according to Genesis, or that He hurled the first atom into space. We believe that we are custodians of the earth and are obligated by God to revere and care for it for all generations to come. It is an insult to God to foul the air, trash the waters, and rape and pillage resources for the gain of a few. Responsible use of the earth and conservation of its resources should be the natural concern of the religious community.

Marge Frosch
Corpus Christi, Texas

Thank you for publishing David Douglas's article. As a retired minister who has spent many, many vacations in the national parks with his family, I have followed with deep interest and concern the battle to conserve a significant portion of America's wilderness. I share Mr. Douglas's view that it is time for the religious community to join in "the effort to preserve the few remaining islands of wild country."

Donald S. Hobbs
Elcho, Wis.

I was just thumbing through *Sierra* and thinking to myself how sad it was that so much space has to be devoted to the political side of wilderness and not as much to the sustaining qualities that draw us back and back again. Then voila! your article on the spiritual side of wilderness appeared. Thank you so much.

Irene Jessen
Ithaca, N.Y.

Contrary to what Mr. Douglas says, the religious community has indeed left its mark on the nation's wilderness. A great religious fervor swept this country in 1980, leading to the election of Ronald Reagan. He wasted no time in appointing James Watt and Anne Gorsuch to carry on with our god's righteous wilderness policies.

What our wilderness areas need is *less* meddling from religious interests, not more.

Thomas Deneau
Arvada, Colo.

A Rose by Any Name

Doris and I very much appreciated and enjoyed Bob Irwin's "Observer" profile of us in the July/August, 1983, issue ("Dick Leonard: 45 Years of Club Leadership"). We noted only a minor error: Doris's maiden name, incorrectly given as Russell, was in fact Corcoran. No harm done.

Dick Leonard
Berkeley, Calif.

An editorial blooper in "*Sierra*'s Fourth Annual Photo Contest Winners" (July/August, 1983) will be very useful to me in my teaching program, but it really shouldn't have occurred.

In the "Wildflowers" category, second prize was awarded to a photo of a lobster claw that was labeled "Heliconia humilis Jacqueline." *Heliconia* is the name of the genus and *humilis* is the name of the species in the binomial system of plant nomenclature. The third name ought to be that of the person who first described the plant. In this case it was Nicolaus Joseph von Jacquin, the botanist to Austrian emperor Franz Joseph, and the man who found and described the lobster claw.

Richard A. Howard
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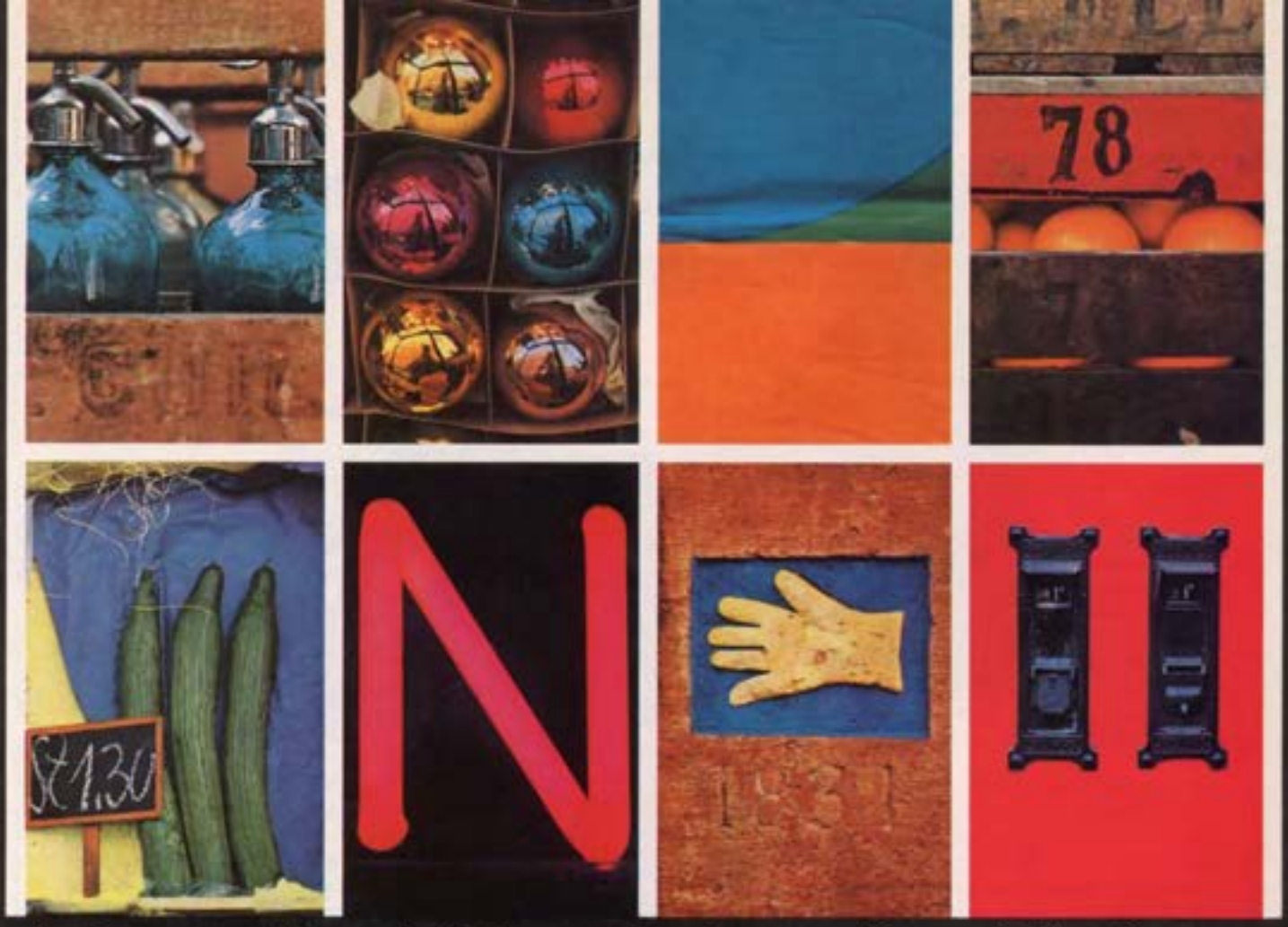

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Senate Committee Moves on Alaska Parks

ON THE EVE of Congress' summer recess, the Senate Energy Committee reported its version of S. 49, the Alaska "anti-national-park bill," as it has been termed by conservationists. This latest version of the controversial legislation would remove about 5 million acres from the Alaskan national parklands established in 1980 and would convert them to "preserves" in which trophy hunting would be allowed. The committee trimmed 7 million acres from the original legislation, which would have deleted 12 million acres from the parks. The committee gave the bill the weakest possible blessing, however, reporting it "without recommendation."

Doug Scott, the Sierra Club's director of federal affairs, reaffirmed the Club's determination not to allow a single acre of the Alaskan national parks to be opened to sport hunting. "Defeat of this measure once and for all will remain our highest priority when Congress returns in mid-September," Scott said.

Concerned readers are urged to contact their senators in opposition to this bill. (Address: Senate Office Building, Washington, DC 20510.)

Wildlife Refuges Opened to Oil and Gas

The Interior department is moving ahead with a plan to open between 1 and 4 million acres of National Wildlife Refuge lands to oil-and-gas leasing. Some 177 lease applications have already been filed, and that number is expected to double by the end of summer.

The proposed leasing scheme is one element of Interior secretary James Watt's program to expand the economic uses of the National Wildlife Refuge System to include increased grazing, farming, and timber cutting; a concessionnaire program; and oil-and-gas leasing.

By law all uses of refuge lands must be "compatible" with wildlife protection, but the judgment of compatibility is left to the Interior secretary.

The department's new regulations allow oil-and-gas leasing on those refuge lands acquired from private landowners. Environmentalists see the distinction between these lands and those derived from the public domain as arbitrary. Rep. John Dingell (D-Mich.) has said that he will ask the General Accounting Office to investigate.

Mono Lake Bill Passes House

Legislation passed the House on July 18 designating Mono Lake and 68,000 acres of the surrounding Mono Lake Basin as a National Scenic Area to be administered by the U.S. Forest Service. The bill, H.R. 1341, was sponsored by California Reps. Richard Lehman (D) and Norman Shumway (R) and 80 other representatives, including many from Southern California.

The bill protects the area from timber harvesting, geothermal leasing, and most mining, while steering clear of the issues surrounding water diversions from the basin by the city of Los Angeles, which issues are now before the courts. The bill also authorizes a study of the lake by the National Academy of Sciences, including determination of the water level necessary to support wildlife populations at the lake.

Courts Take Up Offshore-Oil Questions

The U.S. Court of Appeals in Washington, D.C., has dismissed a challenge to Interior secretary Watt's ambitious plans for oil-and-gas leasing on the outer continental shelf (OCS). The suit, filed more than a year ago by the states of California and Alaska and by the National Resources Defense Council and the Sierra Club, alleged that Watt's five-year leasing plan did not properly balance the environmental consequences of exploration and development with other resource values.

In another OCS-related decision, the U.S. Supreme Court has agreed to consider an appeal by the Reagan administration and the oil industry of lower-court rulings about offshore leasing in California. In August 1981 a district court in that state ruled that the Department of the Interior is required to

More than 50,000 acres would be cut from Alaska's Aniakchak National Preserve for the benefit of a few trophy hunters if S. 49, the "anti-national-park bill," is approved in its present form.

Keith Trexler

conduct an environmental review before the sale of any leases, as this is the only stage when the project can be reviewed as a whole. The industry and the administration contend that the sale of a lease has no environmental impact in and of itself, and that an environmental assessment should be conducted only after oil and gas are discovered.

Wilderness "Axe" Beheads Wyoming Roadless Areas

Earlier this year the U.S. Senate passed the so-called Wyoming Wilderness Act without a single hearing. Conservationists call this bill the "Wyoming Wilderness Axe" because it would commit more roadless land to development than it would protect as wilderness.

In testimony before the House Public Lands subcommittee, which began its consideration of the bill in July, Wyoming Governor Ed Herschler (D) made an appeal for a better bill—with additional areas to be designated as wilderness and without the "release" language, which would preclude any consideration of wilderness by the Forest Service for more than 30 years. During the entire daylong hearing, only two witnesses spoke in favor of the bill; both were from the oil industry.

The bill as introduced would designate only about 600,000 acres of wilderness in Wyoming and would release 3.4 million acres of roadless national-forest land to development.

Neither additional hearings nor action on the bill are likely for the rest of the summer. Concerned readers are urged to contact their representative to express opposition to the Wyoming Wilderness Act (H.R. 1568 & S. 543) in its present form. (Address: House Office Building, Washington, DC 20515.)

EPA Softens Its Stand on Air-Quality Sanctions

When former Environmental Protection Agency Administrator Anne Burford announced last February that she was forced to apply economic and construction sanctions against some 200 counties that had failed to meet air-quality standards, the proposal was met with sharp criticism from several quarters. (The sanctions included withholding of federal funds for highway construction and banning new facilities that would cause air pollution.) Environmental groups accused Burford of trying to erode support for the

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Clean Air Act, and the House of Representatives voted to block her proposal.

Burford's successor, William Ruckelshaus, announced in June that he will impose sanctions on only those communities that have not made reasonable efforts to comply with air-quality standards. Under this interpretation, only 40 counties would stand to be penalized. "In abandoning Burford's extreme position of penalizing counties unfairly, Ruckelshaus has adopted the more reasonable strategy advocated by environmental groups," said David Gardiner, a Sierra Club representative in Washington, D.C.

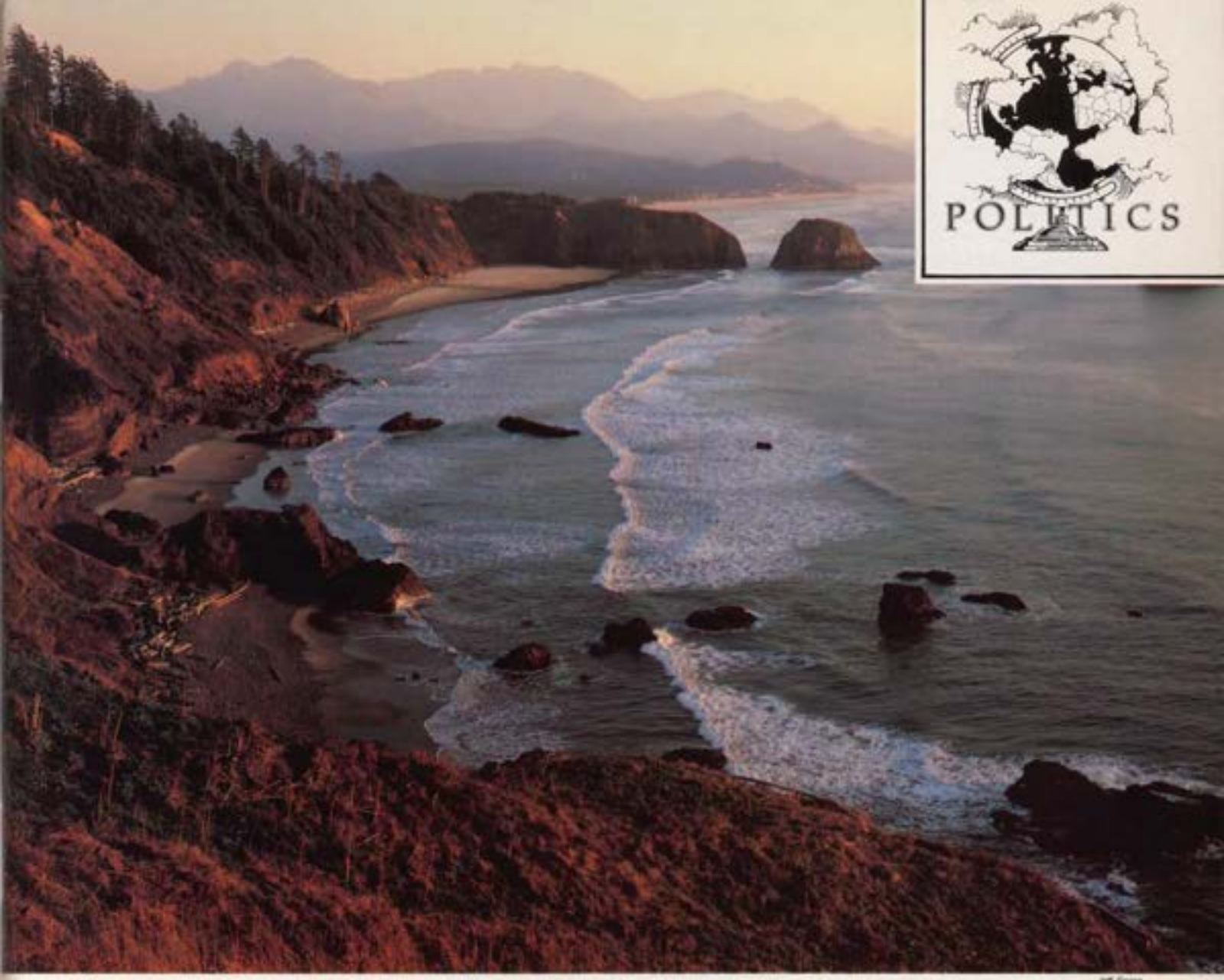
Consensus Grows on Causes of Acid Rain

A report from the federal Interagency Task Force on Acid Precipitation was released in early June. The report contained the Reagan administration's first acknowledgment that man-made pollution, rather than natural sources, is the primary cause of acid rain. The report summarizes the findings from the first year of a congressionally mandated 10-year study.

Researchers from the 12 participating federal agencies concluded that emissions of sulfur dioxide and oxides of nitrogen from power plants, factories, and vehicles are the major sources of acid precipitation, and noted further that some lakes and streams have been damaged. The report, however, fell short of recommending that any action be taken, reflecting instead the administration's contention that yet more data need to be collected.

In late June the National Academy of Sciences released a major report on this subject, calling for a 50-percent reduction in sulfur-dioxide emissions to achieve reductions in acid rain. Among the report's conclusions: The control of acid rain will require a program of emissions reduction in all 31 states east of the Mississippi River; long-distance transport of pollutants is a major cause of acid precipitation; sources both far from and near sensitive areas must reduce emissions.

A bill establishing an acid-rain-control program was introduced in the House on June 22 by Reps. Gerry Sikorsky (D-Minn.), Henry Waxman (D-Calif.), and Judd Gregg (R-N.H.). The bill, H.R. 3400, mandates a 10-million-ton reduction in sulfur-dioxide emissions and a 4-million-ton reduction in oxides of nitrogen in the lower 48 states. Action is expected in both the House and the Senate on clean-air legislation, including provisions to control acid rain, following the August congressional recess. □



Coastal protection is the theme of Coastweek '83. Above: sunset at Ecola Beach, Ecola State Park, Ore.

COASTWEEK '83: Celebrating Our Shores

SAMUEL SAGE AND SHIRLEY TAYLOR

MUCH HAS BEEN ACCOMPLISHED since 1980, the "Year of the Coast." Undeveloped coastal barrier beaches will no longer be developed with the aid of federal subsidies. New public parks and beaches have been established. Marine and estuarine sanctuaries have been designated. Wetlands regulations are in place in local communities and in some states.

Last fall, Massachusetts communities celebrated Coastweek. This fall, under the leadership of Barbara Fegan, chair of the Citizen Advisory Committee to the Massachusetts Coastal Program, coastal communities will be celebrating COASTWEEK '83 between October 9 and 16. COASTWEEK '83 is a great excuse to swim, sun, boat, and otherwise enjoy America's coasts. It's also a time to evaluate the state of coastal protection.

The 1980 Year of the Coast identified some key issues requiring urgent attention:

- Urbanization of coastal areas (70 percent of our population live within 50 miles of some coast);
- Conservation of wetlands that spawn wildlife and help to control flooding (see "Strengthening Wetlands Protection," page 41);
- Protection of fragile barrier islands and beaches;
- Competition between the nation's need

for energy (with attendant offshore drilling, refinery construction, and tanker spills) and the need for preserving coastal resources (including vital fishing areas such as Georges Bank off southern New England);
- Ocean dumping of toxic wastes, sludge, and other pollutants;
- Industrial development, including nuclear-power plants, in sensitive areas;
- Recreational access to coastal areas;
- Redevelopment of decayed urban waterfront areas.

COASTWEEK '83 will continue to address the issues defined in 1980. Many Sierra Club chapters and groups will be participating in COASTWEEK '83. An eight-page pamphlet, "COASTWEEK Idea Packet," is available from Carl Holcomb, Route 2, Box 385, Blacksburg, VA 24060.

Samuel Sage is a former executive director of the Club's Atlantic Chapter. Shirley Taylor heads a national committee of volunteer experts on coastal issues.

THE KLAMATH FOREST PLAN
A Clear-Cut Precedent?

PATRICK CARR

THE FUTURE OF our national forest system—some 190 million acres of public land—is being decided now. For many years these lands, largely undeveloped, were managed on a custodial basis; but this began to change in the 1950s and 1960s as timber harvests increased dramatically. Widespread clearcutting, degrading wildlife habitat, scenery, and streams and rivers, aroused concern that our national forests might gradually be reduced to little more than fields of stumps. By 1976, when Congress found that 15 million acres of formerly productive national-forest lands lay cut over and barren, it appeared that conservationists' worst fears of Forest Service mismanagement were coming true.

Congress responded the same year by passing the National Forest Management Act (NFMA), requiring that each national-forest unit (there are 154) develop a plan for managing its resources to provide for all multiple uses. Forest plans must be revised at least every 15 years, but their basic goals extend for 50 years.

Seventy-five percent of the Klamath National Forest's roadless lands would be developed under the terms of a proposed management plan. Timber cuts would also increase.

Among its provisions, the NFMA limits certain timber-harvest activities. Clearcutting may occur legally only where it is found to result in "optimal" provision for all multiple uses, not just timber harvesting. Forest stands may be cut only if they can be successfully replanted within five years. Perhaps most important, forest plans must be prepared with extensive opportunities for public participation and review.

Seven years after its passage, the impact of the NFMA on actual Forest Service practices remains questionable. Only a handful of forest plans have been released to date, all but one of them still in draft form, and most of them give logging, mining, and energy production strong priority over wildlife, recreation, and other uses. Clearcutting, euphemistically called "even-aged management," is proposed as the main timber-harvest technique.

The Reagan administration recently proposed regulations requiring that forest plans reconsider all roadless lands for possible development. This proposal follows two previous roadless-area-review programs (RARE I and RARE II) that were intended to resolve the question of which lands should be protected and which should be developed. This "RARE III" threatens the destruction of hundreds of thousands of acres previously recommended for wilderness designation, and makes doubly important the active involvement of conservationists in forest planning. Unfortunately, many activists remain unaware of the issues at stake, and don't know how to participate in the planning process.

Northern California's Klamath National Forest provides a good example of the prob-

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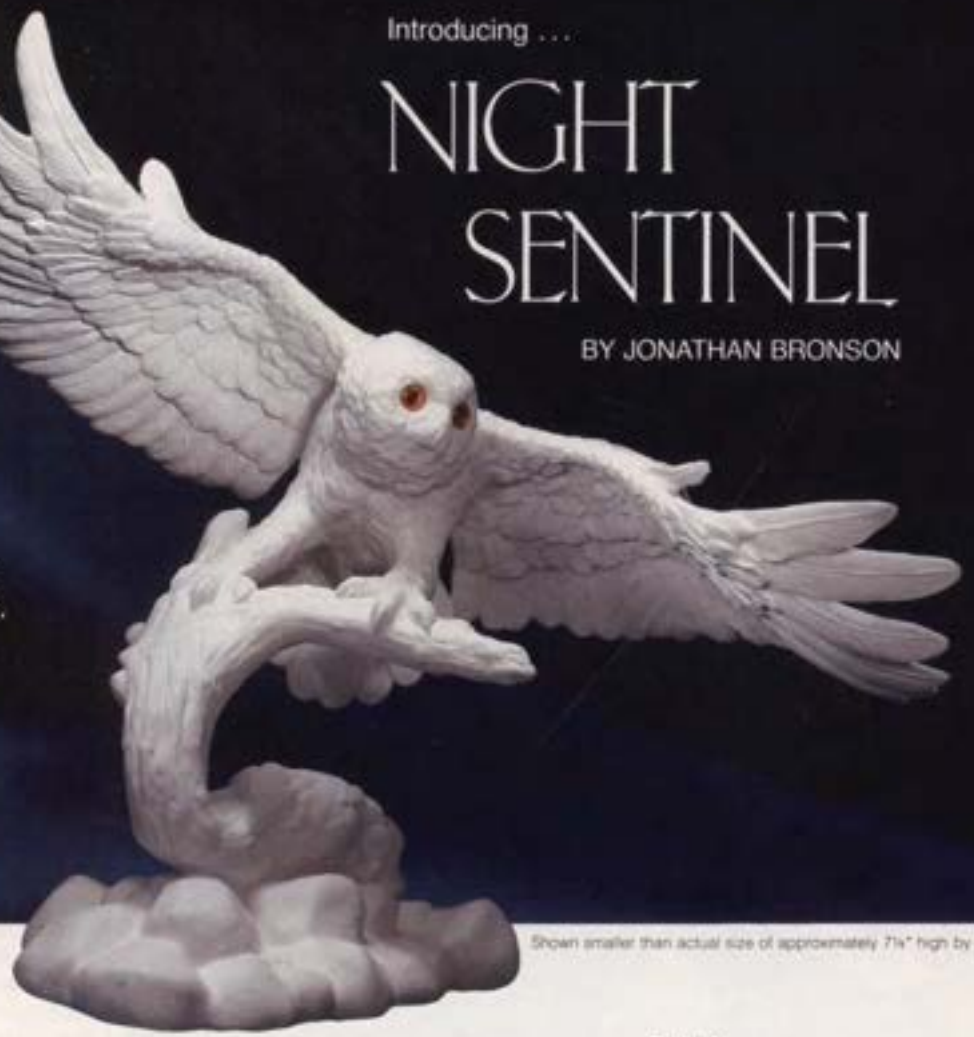

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To represent the luminous eyes of this impressive creature, the sculptor has chosen golden citrine gemstones. The stones were selected because they add the proper degree of luster and life to the work. And the combined effect of pure white bisque with golden citrine produces a contrast seldom found in bisque sculpture.

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lems commonly encountered in forest planning. The Klamath covers 1.7 million acres of heavily forested land stretching from the rugged Siskiyou Mountains to the rolling Cascades plateau. The Klamath River supports the largest existing anadromous fishery in California, while the forest itself is home to more than 350 animal species, including bear, elk, wolverine, bald eagle, and peregrine falcon. The western portion of the region is divided by the rugged, highly scenic Salmon, Trinity, Scott, and Siskiyou mountain ranges, and is crossed by the Pacific Crest Trail. Diverse plant communities more commonly found in the Sierra Nevada, Cascades, and Coast ranges intermingle here, and the area now supports the greatest variety of coniferous trees in North America, along with 47 species of rare and potentially endangered plants.

Timber harvests have occurred along the Klamath at an average rate of 20,000 acres cut each decade, and still the dense old-growth forests of the river's lowlands have enabled this area to rank among the top ten timber-producing national forests. Despite all the logging, more than a third of the forest remains roadless, including the 200,644-acre Marble Mountain Wilderness.

The draft of the Klamath National Forest Plan was released for public review in December 1982. An accompanying draft environmental impact statement projected the environmental consequences of implementing the proposed plan, and compared eight alternative proposals judged by the Forest Service to reflect a wide range of management options. Conservationists were immediately dismayed to find many similarities among all the alternatives: Logging was to consist almost entirely of clearcutting; herbicides and pesticides were to be heavily used on commercial timberland; and it was predicted that water quality would deteriorate greatly as a consequence of pursuing all but one of the alternatives.

The proposed plan itself called for "departing" from the long-standing Forest Service policy of harvesting a "nondeclining even flow" of timber—that is, cutting timber at a steady rate that is less than the annual level of timber growth. The Klamath's annual timber cut would immediately rise by 50 million board feet, dropping by 100 million board feet 20 years later. Such "departures" are allowed by the National Forest Management Act only "in order to meet overall multiple-use objectives"; yet the reasons given for the Klamath departure relate to only one of the forest's many uses: timber production. The Forest Service justified the increased cut by citing decreased timber harvest from cut-over private lands, and by arguing that a temporary increase in sales from the Klamath is needed to maintain

the "community stability" of local timber-dominated economies.

In 20 years, Forest Service reasoning goes, private lands will be reforested with second-growth trees, and Klamath harvests can then be permitted to decline. Unfortunately, there is no evidence that private harvests will indeed rebound; in fact, the Forest Service's own studies have indicated that the opposite may well occur. Local communities would face massive unemployment and social disruption if the Klamath harvests were to drop while private lands continue unproductive.

The proposed "departure" appears even less well-suited for multiple-use purposes as the impacts of increasing the timber cut are examined. With much of the dense lowland forests already cut, most timber sold would be from lower-quality, high-elevation forests. The area cut would increase from an average of 20,000 acres during the first decade to 140,000 acres by the end of the second, and three fourths of the forest's unprotected roadless lands would be developed. Stream sedimentation caused by logging, road building, and mining would increase by 800 percent, and 17 rare plant species would face possible extinction. The Klamath's high scenic quality would deteriorate dramatically, with the forest coming to resemble a mosaic of clearcuts linked by 1,220 miles of new logging roads.

Local conservationists acted quickly to lobby for a better plan. Members of the Sierra Club's Redwood Chapter, the Redwood Region Audubon Society, and other organizations combined efforts to form the Klamath Plan Coalition. The coalition found itself faced with several major tasks. The importance of the Forest Service plan had to be publicized, to guarantee a large response and to show the intensity of public interest in the Klamath's future. Coalition members collaborated on a four-page review of the plan that was mailed to 3,000 local conservationists. Public workshops were held to discuss the plan, and the North-coast Environmental Center in Arcata, Calif., distributed informational articles on forest planning. These measures succeeded: The Forest Service soon announced that the 90-day public-comment period would be extended by two months, due largely to the widespread interest expressed in the plan. (The release of the proposed "RARE III" regulations during the review period also delayed the planning process.)

Just to comprehend parts of the plan was a major task. To aid in understanding the vital area of forest economics, Jim DePree, a professional forester, and Cascade Holistic Economic Consultants (CHEC), a natural-resource consulting firm, were hired to review the plan. After analyzing internal For-

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est Service documents and working directly with forest-planning staff, both DePree and CHEC's Randal O'Toole determined that the Forest Service's economic justification of the plan was based on a number of erroneous assumptions. Growth rates of existing trees in the forest appeared greatly overestimated; in one case, it was predicted that an old-growth stand would more than double its volume in just 20 years, while another would supposedly multiply eightfold in 100 years. The value of second-growth timber was also overestimated. The consultants concluded that unless these and other errors were corrected, the true costs and benefits of the Klamath National Forest plan could never be determined.

Armed with both this knowledge and the results of their own analyses of the plan, conservationists presented written comments to the Forest Service and testified at public hearings. Petitions bearing more than 2,000 signatures were submitted, asking that the proposed departure timber cut be dropped from the plan. Local conservationists had clearly aided in expressing the public's deep concern for the Klamath's future, and had laid the groundwork for administrative or legal appeals that might prove necessary.

It is not yet clear what the Forest Service will decide for the Klamath. A supplement to the draft plan, evaluating the so-called "RARE III" plan, is expected to appear this fall, with the final plan due sometime after that. It is also unclear whether the Klamath's proposed policy departure will set a trend to be followed by other national forests—most of which will release their own plans in the next year. What *is* clear is that conservationists need to be watching to find out.

Patrick Carr is a Sierra Club staff intern specializing in land-use issues.

COAL LEASING
More Reagan Giveaways

BROOKS YEAGER

THE INTERIOR DEPARTMENT plans to lease an estimated 16 billion tons of coal by September 1984, only 2 billion tons less than the total amount leased by all 11 administrations since the passage of the Mineral Leasing Act of 1920. This unprecedented policy of dumping coal into an already depressed energy market has raised questions among industry observers as to whether the government can possibly receive fair market value for the public's coal, as is required by the Federal Coal Lease Amendments of 1976.

At the same time, the pace at which these huge sales are being prepared has caused a breakdown of the Interior department's land-use-planning and environmental-review process. The proposed sales include many environmentally sensitive areas and exhibit a disregard for potential resource conflicts.

If the Reagan administration has its way, this incredible quantity of coal will be leased with little or no meaningful environmental review. Lands containing priceless cultural and natural resources will be scheduled for strip mining. Laws requiring careful land-use planning will be circumvented or ignored. The public's coal will be sold for a mere fraction of its real worth. Coal companies and international energy conglomerates will make a financial killing. And the public interest in the careful development of America's resources will be irreparably damaged.

The federal government owns almost one third of the nation's coal reserves. Most of the federal holdings are on public-domain lands in the western states. Historically,

most U.S. coal production has come from private reserves in the Appalachian and midwestern states, but the portion produced from federal reserves in the West has, until recently, been steadily growing. While much of our eastern- and central-states coal is mined underground, the predominant mining technique in the western coalfields has been strip mining.

The process by which the federal government transfers the public's coal reserves for development by private companies has long been a matter of controversy. After Reagan's election in 1980, decades of progress in coal-leasing policy were swept away. A series of laws had previously implemented important policies, including:

- Competitive bidding for future coal leases;
- The requirement that the federal government obtain "fair market value" for public coal;
- A "diligent development" requirement that companies purchasing coal leases actually mine the coal rather than simply hold the leases for speculative resale;
- Comprehensive land-use planning for coal lands;
- Uniform federal standards for regulating strip mining and mine reclamation.

Then came the 1980 election. The new president's team came in with an ideological aversion to government "interference" in the operations of the so-called free market. The government would no longer set energy goals, or even make market-influencing predictions. Interior secretary Watt acted expeditiously to tailor a new federal coal-leasing program in tune with the administration's philosophy.

Instead of setting sales levels based on projected demand, Interior would lease coal to meet "industry's demand for reserves." Instead of starting with comprehensive land-use plans, the leasing process would be based on industry's "expressions of inter-

Gordon Anderson

The rugged Pink Cliffs area of the Alton Hills, adjacent to Utah's Bryce Canyon National Park—among the areas of scenic or scientific value that the Department of the Interior has proposed be opened to coal leasing at bargain-basement prices.

est." Environmental unsuitability would no longer be used as an early-screening device to exempt areas from leasing. In other words, the public's coal would be leased when and where the coal companies wanted it leased, and in the amount they desired.

Approximately 2 billion tons have already been leased under the new rules. The most famous—and controversial—of the Watt coal sales were held in April and October of 1982 in the rich Powder River Basin of northeastern Wyoming and southeastern Montana. The department leased more than 1.6 billion tons of coal for an average price of 3.5 cents per ton.

Within days after the sale was closed, accusations that key bidding information was leaked and questions about the low selling price began to be heard. The sale had been justified by the need to expand coal-industry competition; yet only one new bidder participated. Of the 13 tracts offered for sale, two got no bids at all, eight received only one bid, and only three got more than one bid. Observers cited depressed market conditions in the region and a glutted national market as reasons for the failure of the sale. The General Accounting Office, Congress' budget watchdog, charged that Interior had received $100 million less than the actual fair market value of the coal, and recommended that Secretary Watt cancel any leases for which fair market value was not received.

Meanwhile, congressional concern with the management of the coal-leasing program was growing. A move to defer future coal sales was narrowly defeated in June, but legislation has been introduced in both houses to defer any further coal leasing until Interior makes a series of changes designed to ensure that the public will get fair market value for its coal. In the House, Interior Committee Chairman Mo Udall (D-Ariz.) and subcommittee chairmen John Seiberling (D-Ohio), James Weaver (D-Ore.), and Edward Markey (D-Mass.) have introduced a deferral bill, H.R. 3018. The Senate companion bill, S. 1247, has been introduced by Sen. Dale Bumpers. (D-Ark.).

Congress has already set up a commission to examine the problems of the coal-leasing program and to recommend changes in policy. In mid-September the Senate will consider an amendment to delay all further coal leasing until Congress has considered the recommendations of the commission.

Unless stopped by congressional action, Secretary Watt plans to hold five huge lease sales before October 1984. In the currently scheduled order, the five are: the Fort Union sale in North Dakota and eastern Montana, the San Juan River sale in northern New Mexico, the Uintah-Southwest sale in Utah and Colorado, the Green River-Ham's Fork sale in northwestern Colorado and central Wyoming, and a second Powder River sale. Experienced coal-industry observers are skeptical that "fair market value" can be obtained in the face of what amounts to a strategy of dumping coal in a slack market. They point out that there are already 616 federal coal leases in private hands, of which only 111 are presently under development. Nationally, poor market conditions have forced 75,000 coal-industry employees—31.6 percent of the industry's workforce—out of their jobs.

Environmentalists are even more concerned about the pace of the new leasing program. Interior is planning lease sales without an adequate understanding of the impacts. Some examples:

- Although the New Mexico State Histor-

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The photo above was taken on top Mt. Eisenhower, the seventh summit reached during our five-day trek. We may look a little tired, but happily so. After miles of hiking over rock, ice and snow, our gear held up all the way. (And so did we.)

Back row (from left to right): Judy Lessard, Data Processing Operations Manager; Chris Landry, Telephone Sales; Joe Siemons, Salesperson-Burlington; Glenn Spencer, Mail Order Receiver; Bill Houlihan, Buyer; Michael Massari, Salesperson-Ardmore; Vicky Morse, Salesperson-North Conway; Rich Amodio, Store Manager-Long Island. Front Row: John Bragg,* Traverse Leader, Tom Haas, President.

*John Bragg, is a manufacturer's representative for several outstanding backpacking lines, such as Marmot Mountain Works, Chuck Roast, Climb High and Gregory Mountain Products.

EMS

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ical Preservation Office estimates that there may be as many as 2,000 undiscovered archaeological sites within the proposed San Juan Basin sale area, no comprehensive survey has been undertaken to identify and protect these cultural resources. The BLM has instead relied on a computer model to predict "where sites may occur," leaving the actual surveys to the coal companies, to be conducted *after* the leases have already been issued.

- Among the tracts in the "preferred alternative" for the Uintah-Southwest sale are five tracts in the Alton coalfield, immediately adjacent to Bryce Canyon National Park. The Sierra Club has petitioned to have this area declared unsuitable for mining under the provisions of the Surface Mining Act. Approximately two thirds of the area was designated unsuitable under the Carter administration. The remaining portions are the subject of a pending court suit.
- Seven of the 22 lease tracts in Uintah-Southwest's "preferred alternative" lie within important municipal watersheds. In a July 1982 letter to the BLM, the Southeastern Utah Association of Local Governments complained that scant attention was being given to the potential degradation of these watersheds by coal mining: "In Southeastern Utah water is considered our most precious natural resource. . . . Once a water supply is lost, it cannot be replaced. . . . [It] is not reasonable or necessary to lease additional coal in environmentally sensitive areas."

Reaction to the environmental excesses of the Reagan coal-leasing program has been strong. In April, more than 500 farmers, union miners, and other concerned citizens at an all-day congressional hearing in Santa Fe, N.M., called for the deferral of the proposed San Juan sale. In June, environmentalists and ranchers from Montana and North Dakota came to Washington, D.C., to argue against holding the Fort Union sale. Environmentalists, including the Sierra Club, have joined with western farmers and ranchers to challenge the new coal-leasing regulations in a major lawsuit. At the same time, two environmental groups, the National Wildlife Federation and the Natural Resources Defense Council, are threatening to challenge the legality of the Interior department's processing of the remaining Preference Right Lease Applications. Support for a sales deferral is building in Congress. Whether or not the Reagan administration's environmentally damaging giveaway of federal coal can be stopped remains to be seen.

Brooks Yeager is a representative in the Club's Washington, D.C., office, where he concentrates on energy issues.

SAVING CITY PARKS
A Success Story

MEG MAGUIRE

CONGRESSIONAL IRONY NEVER ENDS. One committee knows not what the other does. While the Senate Environment and Public Works Committee is discovering the need for massive reinvestment in the nation's "infrastructure"—roads, sewers, water mains, public buildings and parks—the Interior Appropriations Committee may well provide no funds in 1984 for the country's first infrastructure-replacement program, the Urban Parks and Recreation Recovery Program (UPARR).

UPARR was one of the few initiatives of President Carter's urban policy to pass Congress, doing so as Title X of the massive National Parks and Recreation Act of 1978, under the sponsorship of the late Rep. Phillip Burton (D-Calif.). The need for UPARR was established in the *National Urban Recreation Study of 1977*, which concluded that the top priority for America's older parks systems should be reinvestment in existing deteriorated facilities. Park systems throughout the country were falling apart, and few had realistic plans for recovery. UPARR was authorized at $725 million for five years, with any unspent funds to be available in subsequent years. At present there is still $540 million that Congress can appropriate. Applications for 1983 funds are estimated to be between $90 million and $100 million, a fraction of what the eligible cities say they could use if funds were made available.

Three kinds of grants can be made to cities on a 70-percent/30-percent matching basis under the UPARR Program. About one fifth of the funds can be used for planning and innovation; four fifths are earmarked for rehabilitation of and capital improvements to existing facilities.

Planning grants have helped cities and counties computerize management and visitor information, forge new relationships with the private sector, develop strategies to cope with major funding losses, and survey community needs. New York City, for example, structured new program agreements with nonprofit groups. Philadelphia developed a budget system for grass mowing that is now a model for other city services.

Innovation grants have aided Revere, Mass., in the development of a Senior Citizen Maintenance Corps and helped Los Angeles County to set up a tool library and an assistance program for volunteers. Pascagoula, Miss., built an innovative adventure playground for both handicapped and

Trust for Public Land

The Urban Parks and Recreation Recovery Program has helped preserve badly needed open space within America's cities. Above: Historic Portsmouth Square offers sunlight and elbow room to residents of San Francisco's congested Chinatown.

ablebodied children (one of 11 Presidential Partnership Award winners selected from thousands of national entries). And in Gulfport, Miss., and Chicago, a school and an armory were adapted for recreation.

Rehabilitation grants have contributed to reforestation, restoration of lakes, and repair of the Conservatory of Flowers in San Francisco's Golden Gate Park; to critical repair of important community recreation centers in Detroit; and to improved access for the handicapped to 36 of Seattle's parks, trails, and community centers. Nationwide, UPARR is helping distressed cities salvage existing facilities before they must be abandoned altogether.

At the congressional oversight hearings on UPARR in 1981, 21 mayors testified personally about the benefits of the UPARR Program to their cities. Mayor Charles Royer of Seattle, now president of the National League of Cities, said:

"This program represents the first time the Department of the Interior has been brought into the effort to save—literally save—the parks systems that have been built up by the investment of people living in cities for years and years. . . . It is one of those good programs that really work. . . . It pulls in the Interior department, the federal government, and gets its priorities aimed at cities in a way that will result in stronger neigh-

SIGHTINGS

Charles Lyman

Sierra Club members from the New York City Group and the Atlantic Chapter gathered signatures at Bear Mountain State Park, N.Y., in opposition to a proposal by the Palisades Interstate Park Commission to permit deer hunting in adjacent Harriman State Park. Club and community opposition contributed to PIPC's withdrawal of the proposal last March.

borhoods and, therefore, stronger cities."

In his first three weeks in office, Interior secretary Watt vowed to kill UPARR, the Land and Water Conservation Fund, and the Historic Preservation Fund, and immediately abolished the agency that administered these programs and that had close ties to cities and states—the Heritage Conservation and Recreation Service. During the past two years, the administration has consistently misrepresented UPARR and its accomplishments in testimony before Congress. But Congress has always come through, though not at an adequate level.

The 1984 appropriation could either spell the end of UPARR or breathe new life into it. The Urban Parks Coalition, an ad hoc group, hopes to help. The coalition scored an initial victory by obtaining $40 million for the UPARR Program in the 1983 jobs bill, and now hopes to equal that appropriation in 1984.

The coalition was formed to halt urban-park deterioration (see "Revitalizing Urban Parks," November/December, 1982) and to support jobs programs that provide environmental benefits. Three public groups—the National Parks and Conservation Association, the National Recreation and Park Association, and the Trust for Public Land—joined with a private foundation to provide seed money to the coalition. Eight cities have helped support the coalition through the summer.

The coalition educates newer members of Congress about the program and its importance to their communities; it informs senior members of the impressive track record of the program. As of this writing, a $10-million appropriation for 1984 has passed the House. But the Senate bill contains nothing. Now House and Senate conferees must decide how (or if) UPARR will be funded.

In his eloquent extemporaneous testimony before the Subcommittee on Oversight and Investigations in 1981, Mayor Jake Godbold of Jacksonville, Fla., said:

"I dislike . . . people [who] sit in Washington and tell me we don't need urban parks, when they don't know a damn thing about them. They have never been in an urban park in their lives, and they don't appreciate what such parks really mean.

"The people I represent do not own cars; they don't need gas. They will never see Yellowstone in their lifetime. . . . Their parents grew up on urban playgrounds, they were brought up on them, and their kids are being raised on them—but they are the same playgrounds.

"These kids and their parents can't understand it when they pick up the paper and read that Congress is passing legislation to provide millions of dollars to countries they have never heard of before . . . when they

can't even get a valve or a pump to reopen the local swimming pool. They can't get lights so they can play at night in the ballpark. Can you imagine that kids in Jacksonville do not have a softball diamond to play on because the light poles are so rotten that the wind may blow them down?

"UPARR allowed us to go back and redo parks, to open up swimming pools so kids don't have to swim in polluted creeks, and to provide safe places to play."

UPARR begins to address these needs. It is a fine, small program, efficiently administered, targeted to areas of greatest need . . . in short, a true environmental success. It would be a sad irony if it were to vanish.

WHAT YOU CAN DO: Readers are urged to write to their senators and representatives to express support for the Urban Parks and Recreation Recovery Program and to advocate strong congressional support of the program in 1985. Familiarity with the needs of park agencies in your locality will enable you to make these needs known to the members of Congress you contact.

Meg Maguire, a former deputy director of the Heritage Conservation and Recreation Service, is a principal in the Washington, D.C., communications-production firm of Maguire/Reeder, Ltd. She has written for numerous publications.

GUARDING DOGS So Sheep May Safely Graze

CAROL M. COCHRAN

IN THE HIGH MOUNTAIN VALLEYS of northern New Mexico, Hispanic sheep-ranchers cling to their old traditions, grazing sheep on the small farms that are remnants of lands deeded to their families hundeds of years ago by the King of Spain. Life there is tough, and even modest losses of sheep to predators can be disastrous. But rather than sell out to developers who want this wildly beautiful country for second homes and ski resorts, the ranchers are trying to revitalize their industry in ways that do not harm the environment.

For years, a standard answer to the controversy surrounding the relationship between coyotes and sheep has been the use of Compound 1080, a substance (sodium monofluoroacetate) that poisons coyotes—and any other animal that eats it. Environmentalists and ranchers have opposed its use

© Mark J. Palmer

Meeting at a March 22, 1983, congressional hearing at Mono Lake, Calif., on the proposed Mono Lake National Monument are (from left) Barbara Blake, Sierra Club Southern California representative, and Reps. Jim Moody (D-Wis.) and Jerry Lewis (R-Calif.).

because the poison is indiscriminate, posing serious dangers to other wildlife, including eagles and foxes. (See "Compound 1080—Poison Returns to the Range," November/December, 1982.) Another approach has been trapping, but this method of coyote control is at once expensive and relatively ineffective.

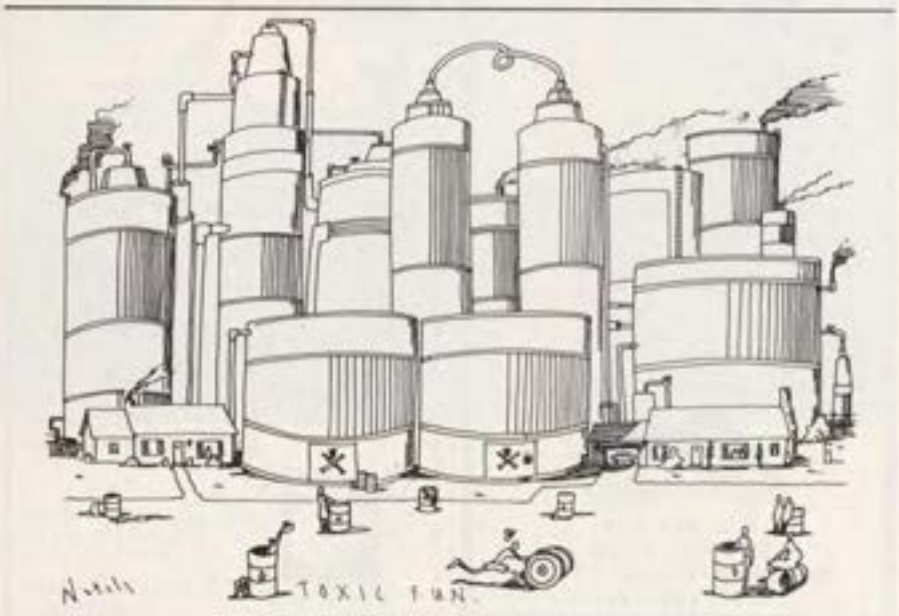
To cut losses from predation, New Mexico ranchers have turned to an innovative yet ancient solution. Shunning poisons and traps, they are relying increasingly on an Old World tactic: using dogs to guard their flocks. The Spanish, centuries ago, used guarding dogs on these very same lands. Descendants of these dogs were recently brought to New Mexico by Dr. Ray Coppinger, who, with his wife, Lorna, and his assistant, Jay Lorenz, runs the Livestock Guarding Dog Project of the New England Farm Center at Hampshire College in Amherst, Mass. These dogs join the 500 that project personnel have placed throughout the United States and Canada. Although Coppinger's project and research are the most extensive of their kind, the U.S. Sheep Experiment Station in Dubois, Idaho, has also supported a large-scale guard-dog program. Many private breeders supply dogs to ranchers. Practically unknown in this country until the mid-1970s, guarding dogs are now, according to some reports, the hottest item in predator control.

The dogs save sheep, but they also save wildlife. A coyote or lion, loathe to tangle with a hundred-pound dog, goes elsewhere for its supper and thus avoids the wrath—the poisons, bullets, and traps—of the rancher and his agents. Because it is nonlethal, environmentalists support this method of predator control. Both the Sierra Club's Rio Grande Chapter and the Southwest Regional Conservation Committee have helped pay for placing Coppinger's dogs in northern New Mexico; this assistance is the only financial help given the dog project by any conservation organization so far.

Livestock guarding dogs differ in appearance and behavior from the herding dogs used to move sheep. Herding dogs, such as the border collie, are small, quick animals, responsive to a shepherd and predatorlike in their relations with the sheep toward which they dart, nipping heels and sometimes throats. With their pricked ears and sharp snouts, they even resemble the coyote physically.

Guarding dogs, on the other hand, look and act rather like sheep. They are large, with floppy ears, blunt muzzles, and usually light-colored, shaggy fur. They are placid and remain rather aloof from and independent of humans. They prefer the company of sheep, following them by day and bedding down with them at night. They don't herd or control the flock; they react to any unfamiliar stimulus by barking, and that is generally the most that happens. A well-guarded sheep pasture is a quiet, uneventful place.

A good guarding dog is attentive, protective, and trustworthy, meaning that he will not harm the sheep himself. This behavior is enhanced by training and management techniques, but Coppinger believes it is largely instinctive. To obtain good breeding stock, Coppinger travels to Europe and the Near East and buys dogs right off the fields they work. He favors breeds with centuries of guarding experience. Visiting old churches in the places he travels, Coppinger sometimes finds pictures of his breeds of dogs in medieval frescoes: the Shar Planinetz of



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Yugoslavia, the Anatolian shepherd of Turkey, and the Italian Maremma. The Great Pyrenees, the Komondor, and the Kuvasz are breeds often used by others. Coppinger's theories on the genetic basis of guarding behavior have been challenged, however, by Dr. Hal Black of Brigham Young University, who points out that Navajo guarding dogs, a ragtag collection of various sizes, shapes, and ancestries, are trained, not bred, to keep coyotes away.

Guarding dogs protect flocks, Coppinger believes, because they establish social bonds with the sheep, rather than with other dogs or with people. Guarding dogs will groom, play with, and even court sheep—behavior that both expresses and maintains the social bond. The sheep accept this behavior because the dogs do not look or act like predators, and the dogs act this way because they have been raised with sheep and treat them as family.

Guarding-dog tradition holds that very young pups should be suckled by ewes. Coppinger tried that and found the results negligible, but he does make sure his pups grow up with sheep. The pups are reprimanded when they leave the sheep, play with other dogs, wander to the farmhouse, or otherwise misbehave. The dogs can be socialized to any livestock they are to guard: goats, chickens, pigs, cattle. This socialization is the main training Coppinger's dogs receive in preparation for their tasks, although later, when placed on a farm, they must receive additional training for the specific conditions there. The Navajo train their dogs similarly.

Most predators of sheep are canids (coyotes or dogs); guarding dogs are so effective because they share canid behavior, making the signals between guard and predator clear. The coyote may learn to avoid baits and traps, to climb over or dig under fences; he may slyly adapt to taste or noise warnings; but he has a tougher time outwitting a dog whose behavior is as flexible as his own.

Coppinger's dogs will probably be successful for the same reason in northern Minnesota, where they have begun protecting cattle from wolves. But Coppinger has always wanted to test the dogs with cats, and soon New Mexico may give him the opportunity. There, in an effort to protect mountain lions from wholesale slaughter as predators, the state Department of Game and Fish may finance a guarding-dog project in the southern part of the state, where lions are abundant. This is a real about-face for a department that only a year ago wanted to pursue and kill lions in New Mexico's national parks.

Each year, questionnaires returned from Coppinger's cooperating ranchers reveal

their increasing satisfaction with the guarding dogs. In 1982, 63 percent of the responding ranchers who had experienced predation indicated that the rate was reduced since they'd begun using the dogs; 34 percent said they went from high losses to none at all. One rancher in Colorado, whose two dogs guarded several thousand ewes and lambs under open-range conditions so vast that the sheep were herded by helicopter, reported a dramatic reduction in losses—from 279 animals to 50 in one year, and to nine the next. In Oregon, two dozen young dogs stationed on properties around the state saved $35,000 worth of lambs their first year and are expected to save $100,000 worth in their second. In New Mexico, where his dogs are still puppies, rancher Antonio Manzanares has experienced no predation since receiving his two Anatolians. A dog must save five or six sheep a year to justify its purchase (or lease) and maintenance. Most are quite clearly cost-effective.

The right dog with the right training can guard under nearly any condition. Western sheepmen and predator-control officials commonly claim that the dogs won't work on the open range or on the very large pastures prevalent in the West. But they're wrong. The dogs can work on open range and pastures of many thousand acres, with the same success rates as dogs in smaller pastures. They work best if the sheep flock at least some of the time, but they can be taught

SIGHTINGS

At the National BLM Conference in Salt Lake City, Utah: Maggie Fox, Southwest rep (left rear) and Rob Smith, assistant SW rep; Joni Bosh, Grand Canyon Chapter; Kirk Cunningham, Rocky Mountain Chapter; Terri Martin (back to camera), National Parks and Conservation Assn.; Beth Medrano, Grand Canyon Chapter; and Doug Shakel (right front), SWRCC chair.

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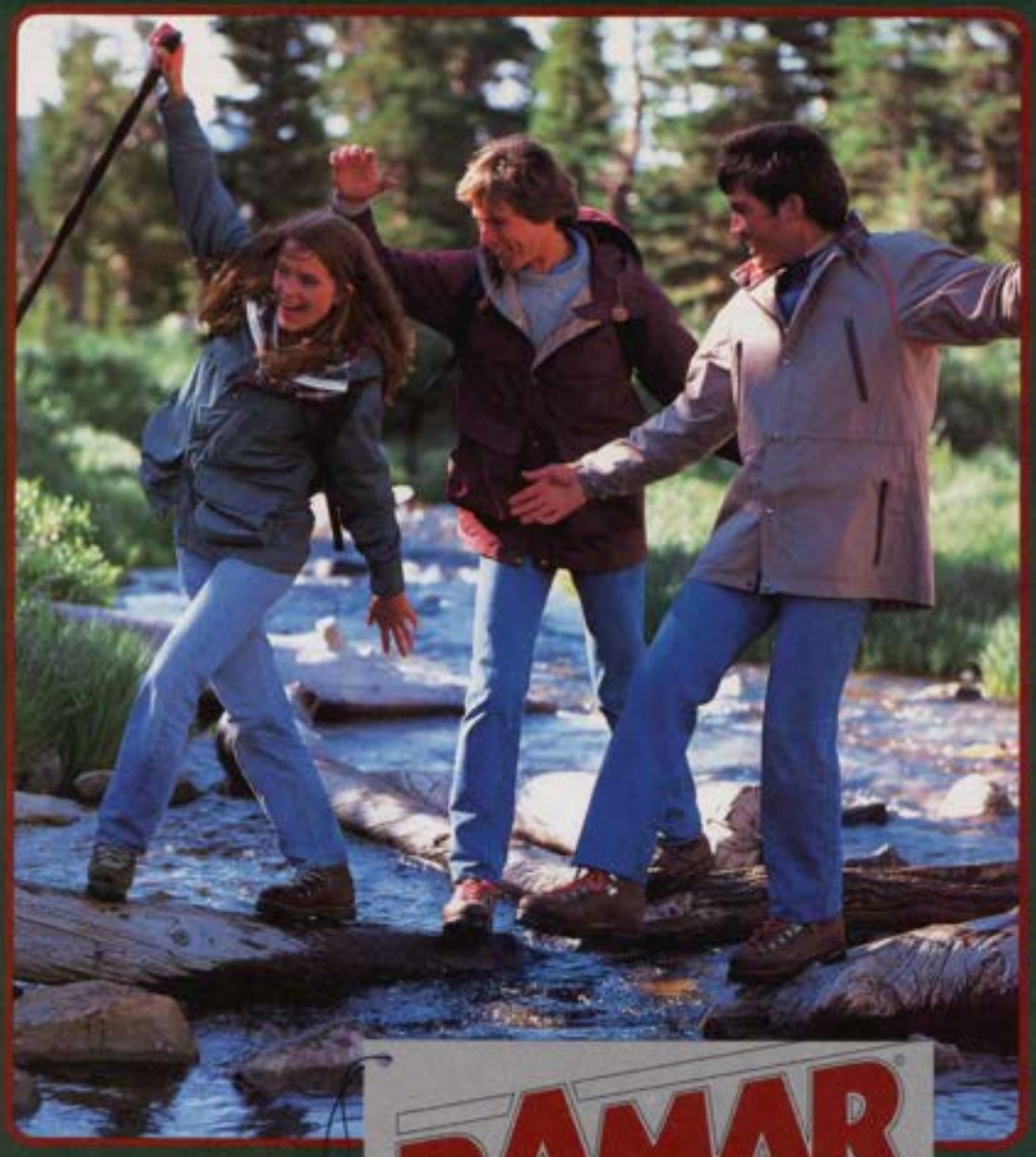

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Only two situations might preclude the use of dogs. One is the small suburban operation where the dangers and distractions are many and where a dog's protectiveness may get him into trouble. Nor would dogs be useful to ranchers who treat sheep as wild animals, letting them wander across vast and remote country, collecting them once a year to sell them. Such ranchers forego all management, dogs included.

The principal disadvantages of using dogs are that the dogs, as juveniles, require training and that they have a high mortality rate, although perhaps no higher than that of all domestic dogs. Fifty percent of Coppinger's dogs live to be three-and-a-half years old; many succumb to accidents, while others are culled. Accidents account for most mortality. Dogs have pulled M-44s (exploding bait) and stepped into traps, and in Oregon they have been poisoned, probably by bootlegged 1080. Many accidents can be prevented by training and closer supervision of young dogs, and Coppinger is educating ranchers to do this.

Some dogs have bitten people because they cannot distinguish between an intruder and a friendly hiker. These conflicts too can be minimized. A backpacker who meets an unsupervised guarding dog should ignore the dog and go around it. The barking is generally a bluff, but the dog will become aggressive if it feels challenged by a direct stare or a waving stick, or by someone who gets between it and its food supply or its flock.

The U.S. Department of Agriculture has given Coppinger some funds and has sponsored a guarding-dog project run by Dr. Jeff Green at the U.S. Sheep Experiment Sta-

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tion in Idaho. But generally government agencies have ignored the dogs and put their money into lethal methods of predator control. Now there is evidence of an antidog conspiracy of sorts by a publicly funded group of western scientists and government agents founded to research predator-control techniques—the WRCC-26 Committee for the Management of Predators in Relation to Domestic Animals. Far from being an objective and scientific body, this committee became a lobbying agent for reregistration of 1080 when about a third of its members testified in favor of the poison at last year's EPA hearings on the matter.

Despite the official reaction, more and more ranchers want dogs. In Texas, ranchers swear they cannot stay in business without them; their demands exceed Coppinger's supply, so they have begun breeding their own dogs. In New Mexico, two of 15 ranchers participating in a toxic-collar (1080) experiment dropped out and used dogs instead, joining the ranchers in the north who have recognized that sometimes the old ways are best.

More than a century ago, trader Josiah Gregg noted the presence of dogs guarding the Spanish flocks along the Santa Fe trail and marveled at the "watchful and sagacious dogs." It may be too late to restore the healthy sheep industry or the abundant wildlife (grizzlies, gray wolves, "panthers") that Gregg also observed, but the big dogs will help protect what we still have.

Carol M. Cochran has served as wildlife chair for the Club's Rio Grande Chapter and for the Southwest Regional Conservation Committee, of which she is also a vice-president. She lives in Albuquerque, N.M.

Action Report
"THE WORLD AFTER NUCLEAR WAR"

ANNA NORD

THE GREATEST ENVIRONMENTAL threat facing the world today is nuclear war. Despite its gravity, relatively little is known about the possible consequences of nuclear war. And compared to the enormous sums spent on nuclear weapons, very little money has been devoted to scientific studies of their environmental and biological effects. (For some informed speculation on the subject, see

"Darkness At Noon: The Environmental Consequences of Nuclear War," May/June, 1983.)

The Sierra Club is one of more than 20 groups taking steps to remedy this lack of knowledge. These groups are cosponsoring a conference that will address the question of what could happen to the earth's life-support systems in the weeks, months, and years following a major nuclear war. The conference, "The World After Nuclear War," to be held in Washington, D.C., on October 31 and November 1, 1983, will be attended by government officials, scientists, leaders of citizens' organizations, and concerned individuals. (To register, contact: Conference on The World After Nuclear War, 1735 New York Ave., N.W., Suite 400, Washington, DC 20006.) Sponsors include the Smithsonian Institution, Common Cause, the International Union for the Conservation of Nature, the National Science Teachers Association, and the Federation of American Scientists.

A preliminary process involving some 100 scientists has begun in preparation for the conference. The goal is to arrive at findings on the worldwide biological consequences of nuclear war. The studies presented at the conference are expected to show that conditions following even a "limited" nuclear war would include effects of unforeseen nature and magnitude. The result would clearly be extremely severe disruption of the ecosphere. Factors to be examined will include major changes in climate resulting from fire, dust, and soot, and the impact of radioactive fallout even far from target areas.

The conference chair is Professor George Woodwell of the Marine Biological Laboratory at Woods Hole, Mass. Top spokesmen include such noted author/scientists as astronomer Carl Sagan (*Cosmos*) and biologist Paul Ehrlich (*Extinction: The Causes and Consequences of the Disappearance of Species*).

COMPLEMENTARY STUDIES

Two other recent studies have contributed greatly to our general knowledge of some of the probable effects of nuclear war. A World Health Organization (WHO) report entitled *Effects of Nuclear War on Health and Health Services* examines three nuclear-war scenarios:

- Detonation of a single 1-megaton bomb over London, resulting in the deaths of more than 1.5 million people, with an equal number of serious injuries.
- A "limited" exchange of nuclear weapons totaling 20 megatons aimed at military targets. This exchange would result in about 9 million dead and/or seriously injured.
- An all-out nuclear war involving 10,000 megatons—an amount equivalent to half

the current nuclear arsenal. Such a war would cause 1 billion deaths and another billion serious injuries. The combined population of Europe, North America, the Soviet Union, and Japan is slightly greater than 1 billion people.

The consequences of any of the three scenarios would be severe. The blast, heat, and radiation from even a single 1-megaton bomb could overwhelm a nation's medical services. The consequences of the second and third scenarios would be so great that "whatever remained of medical services in the world could not alleviate the disaster in any significant way," according to the WHO study.

The Aftermath—Human and Ecological Consequences of Nuclear War (Pantheon Press) was published on Hiroshima Day (August 6), 1983. Its contents originally appeared as a special issue of *Ambio*, the international environmental journal of the Royal Swedish Academy of Sciences. This study postulates a nuclear war in which about 5,750 megatons are exploded. The targets are predominantly in the Northern Hemisphere and include population centers of 100,000 or more, military installations, and industrial/economic centers. The war would cause about 750,000 early deaths and 340,000 serious injuries in the targeted population centers alone.

The most drastic environmental effect described in *The Aftermath* would be a pervasive darkness in the Northern Hemisphere. Vast fires would sweep through forests and fields; oil and gas fields would be set ablaze, as would cities and industrial areas. Huge clouds of smoke, ash, and soot would blanket the earth for weeks, perhaps months, cutting off sunlight and drastically reducing the amount of sunlight reaching the earth's surface. Agricultural production would probably be totally eliminated for some time in the Northern Hemisphere. Significant reductions in the ozone layer and the persistence of thick photochemical smog would further reduce the chances of human survival.

Those escaping immediate death would face contaminated supplies of water and food. Radioactive fallout would be an ever-present danger. Small-bodied pests, which are relatively resistant to radiation, would multiply in the war's aftermath. The advisory group connected with this study concludes that the industrialized societies of the North would be completely destroyed; Third World nations would be completely cut off from international sources of food, fertilizers, technology, and funds. The outlook: "Societies as we know them now will most certainly cease to exist." □

Anna Nord is a New York City-based writer with a longstanding interest in international environmental issues.

"And were you aware that 72% of the earth is covered by water?"

THE CLEAN WATER ACT

New Threats From Toxic Wastes Demand a Stronger Law

PAMELA BRODIE

In the 1950s and 1960s the Cuyahoga River ran a muddy brown through Akron and Cleveland, Ohio. Steel and chemical factories along its lower course discharged some 155 tons a day of wastes associated with the production of chemicals, oil, and iron. Raw or inadequately treated municipal sewage added to the problem; some days the bacterial count in the river was as high as in a sewer. Miasmic gas from decaying organic matter bubbled to the surface. In 1959, the Cuyahoga River caught fire and burned for eight days. A decade later, it burst into flames once more.

In 1972, public outcry against water pollution forced Congress to take action. It amended the

A mosaic of bottom rocks attests to the clarity of Lake McDonald in Glacier National Park. But what's clear may not be clean: pollutants can be toxic in minute quantities.

Jeff Gnass

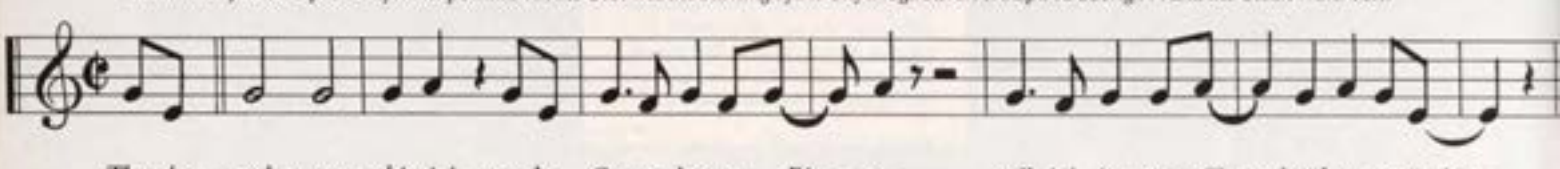
Federal Water Pollution Control Act of 1956, and for the first time the federal government assumed the lead in regulating water pollution. Starting in 1972, uniform nationwide controls were established for each category of major polluting industry.

In 1977 the law was reauthorized and its name changed to the Clean Water Act. The objective of the act was "to restore and maintain the chemical, physical, and biological integrity of the nation's waters." At the same time, the federal government agreed to pay the lion's share of the cost of new sewage-treatment plants. Now the law is again up for reauthorization, and decisions made in Congress in the coming months will determine whether America's rivers and lakes will become cleaner or more polluted.

Many rivers, streams, and lakes that were practically dead a decade ago are now thriving. The Hudson River supports striped bass

United Press International

The most infamous episode of water pollution in the U.S. was the burning of the Cuyahoga River. It inspired a song . . . and the Clean Water Act.



again, and the Potomac River is no longer choked with algae. The Cuyahoga is now the center of a popular national recreation area. However, some areas, such as Chesapeake Bay, have gotten worse. According to the 1982 report of the President's Council on Environmental Quality, "National water-quality data . . . continue to show little change over the last few years [1974-1981]." Certainly, merely holding the line—maintaining the status quo in the face of increases in population, manufacturing output, and agricultural production—is itself a victory. Without the Clean Water Act, pollution would be much worse. But, as Sen. John Chafee (R-R.I.), chair of the Senate Environmental Pollution subcommittee, has said, "The job is not done. . . . Certainly we are entitled to celebrate our successes, but we must not lose sight of our goals."

The Reagan administration has launched a three-pronged attack on the Clean Water Act:

- *Budget cuts.* The administration reduced by 40 percent the 1982 and 1983 funding for the Environmental Protection Agency, which enforces the Clean Water Act.
- *Regulations.* The EPA under the Reagan administration has proposed changes in regulations that would allow states to more easily weaken water-quality standards that require the eventual attainment of "fishable-swimmable" waters.
- *Legislation.* Administration-backed proposals would delay or weaken controls on toxic discharges by industry for several years beyond the time companies actually need to install necessary equipment.

Conventional Pollutants and Toxic Substances

One of the initial focuses of the Clean Water Act was "conventional" pollution—human and animal wastes, eroded soils, and organic debris. Most sewage-treatment plants were built and testing methods devised only for these pollutants. Since 1972 the federal government has spent more than $37 billion on sewage-treatment plants. Some 4,500 new plants have been completed, and 8,200 more are under construction. As they are completed, conventional water pollution should decrease.

Nevertheless, many communities still will not have adequate sewage-treatment facilities. In 1980 the EPA estimated that more than 60 percent of the nation's municipal treatment plants did not meet the minimum goals that were to have been met by 1977. Furthermore, many of the nation's older treatment systems are in need of replacement; this is part of the "infrastructure" crisis that threatens America's sewage systems along with its highways, bridges, and transportation systems.

Industries have spent more than $30 billion to comply with the Clean Water Act and have achieved impressive results cleaning up conventional pollutants, such as wastes from

Strengthening Wetlands Protection

JIM ELDER

Section 404 of the 1972 Clean Water Act is one of the act's most environmentally critical elements. Its purpose is to halt unwise development of wetlands—a crucial provision, because more than half the nation's original 127 million acres of wetlands in the lower 48 states have been drastically altered. Even with Section 404, more than 450,000 acres of wetlands are destroyed every year, mostly through dredging-and-filling activities necessitated by the construction of causeways, artificial islands, dams and dikes, breakwaters, levees, and (especially) housing developments.

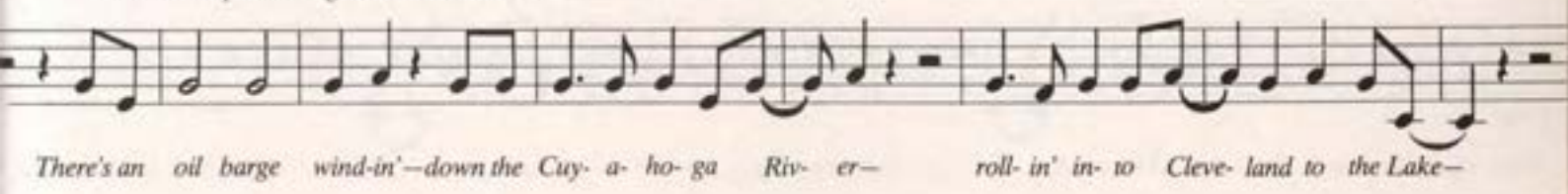
Wetlands are associated with many different ecosystems—hardwood forests swamps and bogs, salt- and freshwater marshes. Wet meadows, arctic tundra, and bogs within evergreen forests also constitute important wetlands. Such areas are essential to the survival of many species of wildlife, from tiny creatures far down the food chain to animals as big as moose and bear. They serve as breeding, feeding, nesting, molting, and wintering grounds for many birds, and as spawning grounds for species of fish and shellfish. Wetlands are also among the most efficient of nature's water-purification and flood- and erosion-control systems.

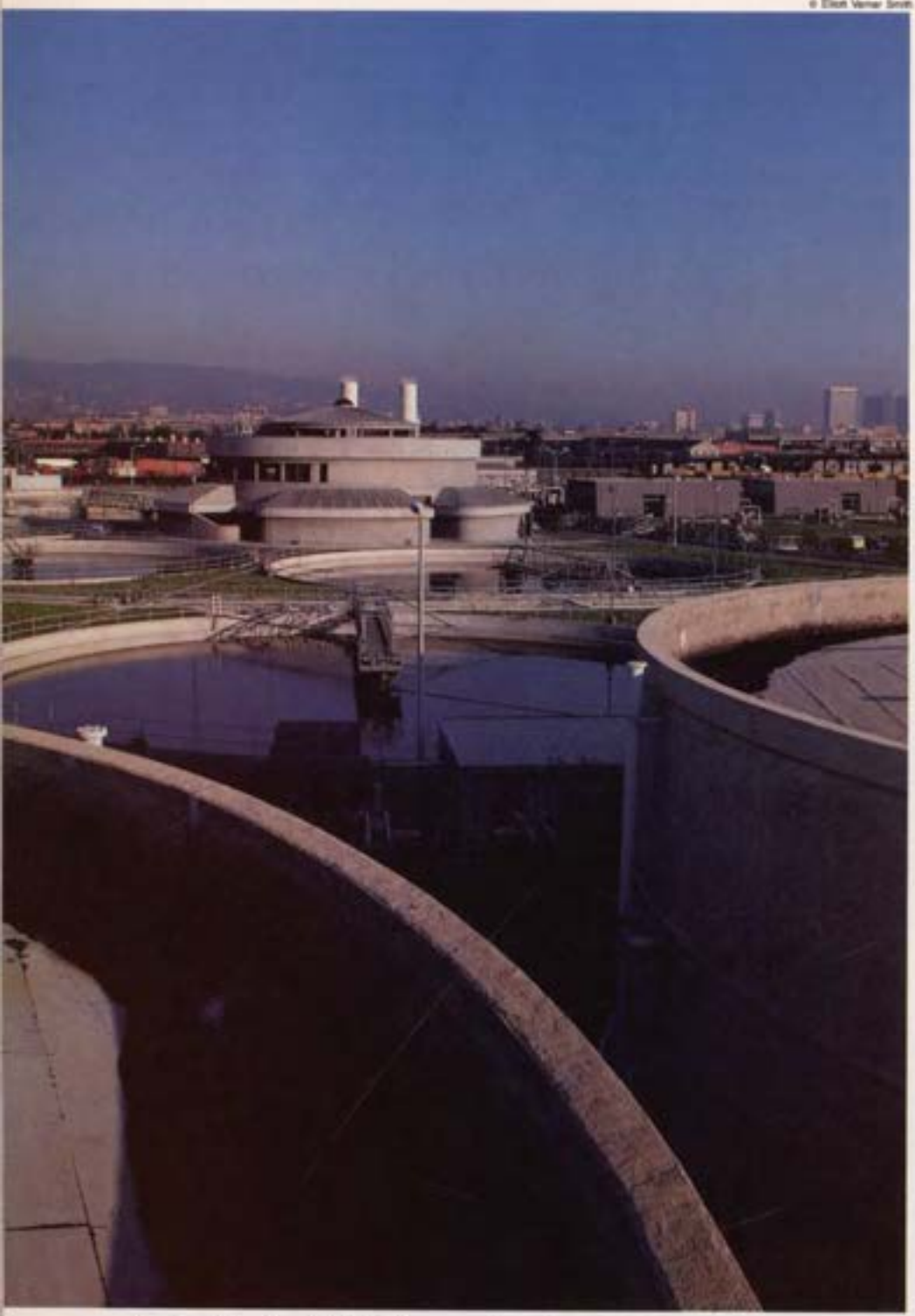
The 404 program requires the U.S. Army Corps of Engineers and the Environmental Protection Agency to analyze development plans for wetlands and to issue permits only if development in important wetland-resource areas—estuaries, swamps and bogs, lagoons, coastal and freshwater marshes, potholes, bottom lands, flood plains, and the like—will not do irreparable damage to the overall aquatic environment.

The Reagan administration (through proposed regulations changes) and certain elected officials (through measures introduced in Congress) have tried to weaken the law by substantially altering the definition of protected wetlands. (For example, an amendment to the Clean Water Act may be introduced that would remove millions of acres of Alaskan tundra from Section 404 protection.) These proposals could conceivably reduce the acreage remaining under federal jurisdiction by as much as 80 percent. Moreover, the Reagan administration's preference for turning enforcement over to the states could result in 50 different approaches to compliance with the law. Without a federally mandated "floor" provided by Section 404 regulations, industry and development interests seeking to exploit wetlands resources would have only to shop around for the state enforcing the lowest level of protective standards.

The reauthorization of the Clean Water Act now has the firm support of the chair of the Senate Subcommittee on Environmental Pollution and the chair of the House Public Works and Transportation Committee. Section 404 has already been substantially weakened by a series of regulatory decisions. The Sierra Club holds that it should be restored to its original strength when the full act comes up for reauthorization.

Jim Elder is a representative in the Sierra Club's Washington, D.C., office.





© Elliott Varner Smith

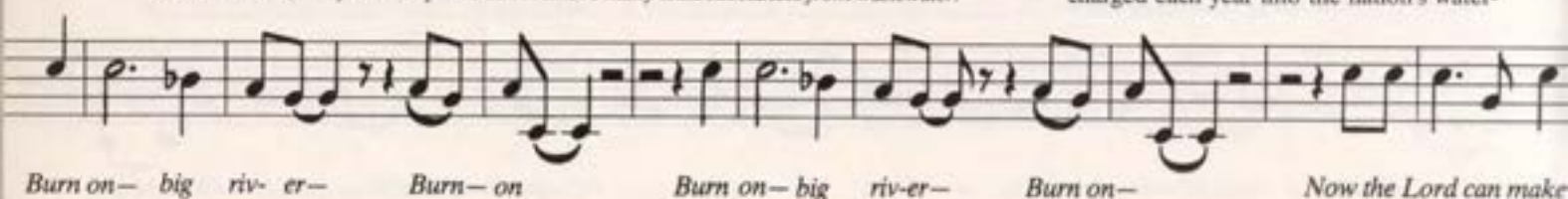
The Clean Water Act helped fund the construction of thousands of water-treatment plants, like this one in Oakland, Calif. But the plants can't remove many toxic substances from wastewater.

pulp and paper mills and from food-processing plants. Another threat to rivers and lakes has only recently been widely recognized: toxic wastes.

According to Sen. Robert Stafford (R-Vt.), chair of the Senate Committee on Environment and Public Works, "persistent toxics constitute the key problem in our current efforts to protect the quality of our nation's waters." These new types of pollutants, dangerous in relatively small quantities, come in a bewilderingly large (and growing) variety of forms that are sometimes hard to detect. Many toxic substances do not readily decompose. Some such substances, including DDT, mercury, lead, and polychlorinated biphenyls (PCBs), concentrate as they move up the food chain; concentrations of dangerous chemicals in fish are thus thousands of times greater than those in surrounding waters. Concentrations increase even further in humans who eat the fish, so that commercial and recreational fishing is restricted in many areas. For instance, Michigan's state fishing licenses contain this warning: "Certain Great Lakes fish should not be eaten—by children, women who are pregnant, nursing, or expect to bear children. Limit consumption by all others to no more than one meal per week."

Even with strict enforcement of the Clean Water Act's toxic controls, some problems will remain. The answer does not lie solely in more legislation or even in stricter enforcement. The technology needed to prevent industrial pollution or to clean it up is very expensive. In addition, pesticide and herbicide runoff from farms and forests into water supplies is not now regulated by the Clean Water Act. Significant pollution has already reached river-bottom sediments and groundwater—where it will remain, immune to future regulation and extremely costly to clean up. Sen. Gary Hart (D-Colo.) has called the danger of toxic wastes "the most important environmental issue of the 1980s."

Much of the controversy over the reauthorization of the Clean Water Act surrounds attempts to weaken the act's controls over toxic substances. The act aims to eliminate toxic discharges by encouraging industries to reclaim and reuse chemicals rather than discharge them. More than 320 million pounds of toxic organic chemicals are discharged each year into the nation's water-



ways and sewers; 80 percent of them come from the organic-chemicals industry.

Several provisions for control of toxic substances that have been part of the Clean Water Act for years are only now about to be implemented, because the EPA has been slow to issue regulations. Some industry lobbyists are pressuring Congress to weaken or abolish these provisions even before they have had a chance to work. Ray Durazo, of the industry-backed National Environmental Development Association, announced that "In our view, the environmental community is attempting to make a sacred cow out of the Clean Water Act."

Current Congressional Action

Many of the leaders of Senate and House committees considering the reauthorization of the Clean Water Act want to keep the law strong and will resist attempts to weaken it. Sen. Chafee has said that "a midcourse correction in the act has been made [in 1977]. There is no need to make another." The fundamental question is whether Congress will also attack pollution problems not currently addressed by the act.

The legislation involves a number of important issues. One of the most controversial questions concerns methods of controlling toxic discharges. Currently, industries that discharge pollutants directly into streams must employ two levels of control. The minimum level is called "best practical control technology" (BPT), which 90 percent of the nation's industries have attained. BPT is designed to remove only conventional wastes, though it does incidentally remove between 50 and 70 percent of the toxics.

The next step is "best available" technology economically achievable" (BAT), which would remove most of the remaining toxics. The EPA is establishing BPT and BAT guidelines for 25 categories of major polluting industries, including electroplating, organic chemicals, steel, and pulp and paper manufacturers. The stringency of the BAT guidelines is a matter of intense concern. In some cases the Reagan EPA has issued BAT guidelines that are no stricter than those for BPT. However, the organic-chemical industry and others must meet BAT guidelines that are much stricter than BPT, since these industries are the major sources of toxic pollution.

The Clean Water Act now requires industries to comply with BAT guidelines by July 1984. Since the EPA has not yet released all the BAT guidelines, it is impossible for most companies to comply with the rules in time. The EPA and some industry representatives have testified that two or three years is enough time to comply with regulations. Nevertheless, some industry lobbyists are working for longer delays or waivers of the requirements. Conservationists have been urging that compliance be delayed no longer than three years from the time a regulation is issued.

A second area of concern in the debate over reauthorization of the Clean Water Act is water-quality standards. The 1972 act required states to classify rivers and streams for various uses. One of the common standards of water quality—a goal to be achieved—is "fishable-swimmable," which means that the water should be clean enough for fishing or swimming.

In October 1982 the Reagan EPA proposed changes in regulations that would allow individual states to loosen water-quality standards more easily, retreating from the "fishable-swimmable" standard. This policy ostensibly returns the duty of regulation to state authorities, but it also opens the door to a sort of economic blackmail. States could be tempted to trade pollution control for economic development, health for jobs. The proposed regulations would also eliminate the national policy of protecting pristine waters in parks, wilderness areas, and wildlife refuges.

In some areas with high volumes of industrial wastewater, waters will not be clean enough to meet "fishable-swimmable" standards even after BAT controls are in place. Conservationists want the Clean Water Act amended so that the EPA would be required to identify such "toxic hotspots" and to develop and implement additional controls over toxic discharges in order to clean these areas up.

While BAT regulations apply only to companies that discharge wastes into streams and other open waterways, more than half the nation's industrial polluters (about 60,000 facilities) discharge their wastes into municipal sewage systems. Under current federal law, which has not yet gone into effect, these companies are required to pretreat their wastes to remove toxic substances before they can reach the sewers.

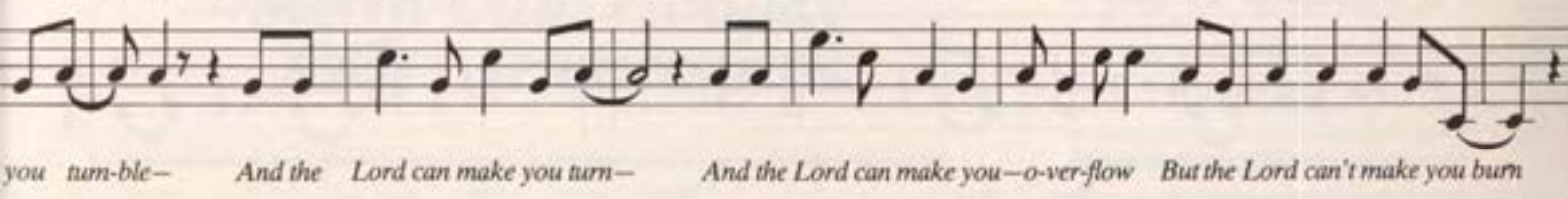
Keeping toxic discharges out of sewers is essential for a number of reasons. Sewage plants are designed mainly to process domestic sewage. The main byproduct of such plants is sludge. Uncontaminated sludge—sludge without toxic wastes—can be recycled as fertilizer. Sewage sludge contaminated by toxic substances must be disposed

Leaks in the Clean Water Act

Pollution problems are complex, and so are the laws intended to solve them. The patchwork of laws that deals with water pollution overlaps in places and has gaping holes in others. The Clean Water Act is not designed to ensure the safety of drinking water, nor does it contain provisions for groundwater protection, even though groundwater supplies about 50 percent of America's drinking water.

Both these areas are the province of the Safe Drinking Water Act, also up for reauthorization this year. In its present form it is appallingly inadequate. According to Ed Hopkins of the Clean Water Action Project, "Some polluters dispose of their toxic wastes by injecting them into deep wells that go directly into drinking water aquifers [underground reservoirs], and this is not even illegal." Contaminated groundwater is practically impossible to clean up *in situ* (though it can be filtered as it is pumped).

The treatment of drinking water is designed primarily to kill germs, not to remove toxic substances. In most cases drinking water is not even monitored for toxic substances. Rep. Dennis Eckart (D-Ohio) has introduced H.R. 3200 to remedy this and other defects in the Safe Drinking Water Act.



"The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters."

—The Clean Water Act

of as a hazardous waste—buried in landfills, incinerated, or dumped in the oceans, all practices potentially harmful to the environment. Such large quantities of diluted toxic wastes are much more expensive to dispose of than are the small residues that are removed at the source by pretreatment.

Moreover, toxic substances can in fact directly interfere with the workings of a sewage-treatment plant. The toxic substances can kill off the bacteria that are used to digest the conventional wastes, rendering its treatment processes useless. Finally, toxics can pass through the plant untreated and be discharged into receiving waters.

When toxic wastes are discharged into sewers, the consequences can be dramatic. In 1981, for example, sewers in Louisville, Ky., exploded when Ralston-Purina discharged too much hexane into them. In Newark, N.J., that same year, one sewer worker died and another suffered severe health problems after they entered a manhole where a combination of industrial wastes had formed dangerous gases. In Bloomington, Ind., an abandoned sewage-treatment plant will be difficult and dangerous to decommission because it is contaminated by PCBs. The PCBs in Bloomington had another effect: They contaminated the sewage sludge, which in turn contaminated a landfill. Since water often leaches toxic wastes out of landfills and into streams and groundwater, the PCBs in the landfill pose yet another water-pollution problem.

The only way to prevent damage to sewage plants from toxic substances is to keep the two separate, a goal that requires pretreatment of toxic wastes. However, the federal government's program of pretreatment is under attack. Some industries and municipalities are urging that individual communities be allowed to "opt out" of the federal program by providing their own pretreatment programs. In other words, some industries argue that individual communities should be permitted to set their own standards.

Conservationists oppose this proposal because it would allow greater discharges of toxic substances into the environment. Though many communities already have sewage-treatment plants that can remove toxic substances, such facilities are often far from adequate. At present, according to Daniel Weiss of the Izaak Walton League of America, sewage-treatment plants with pretreatment programs are "designed to do the minimum—like protect the plants from exploding—but not really to ensure that toxics aren't passing through the plant and into the receiving waters."

One of the most controversial questions in the reauthorization of the Clean Water Act involves pollution that does not come from fixed, single, and identifiable sources. Half the conventional water pollution in America is "nonpoint source" pollution, including runoff from farms and ranches, city streets, construction and mining sites, and waste dumps. The pollution itself includes eroded soils, animal wastes, toxic pesticides and herbicides, heavy metals, and acids. These pollutants flow into streams and lakes and seep into underground water. The existing Clean Water Act requires little control of nonpoint source pollution. Conservationists are urging that the law include provisions that require states to encourage contour plowing, regular street cleaning, and other methods of reducing nonpoint source pollution where there is a problem. The Club advocates a uniform national standard for nonpoint source pollution as part of the reauthorized Clean Water Act.

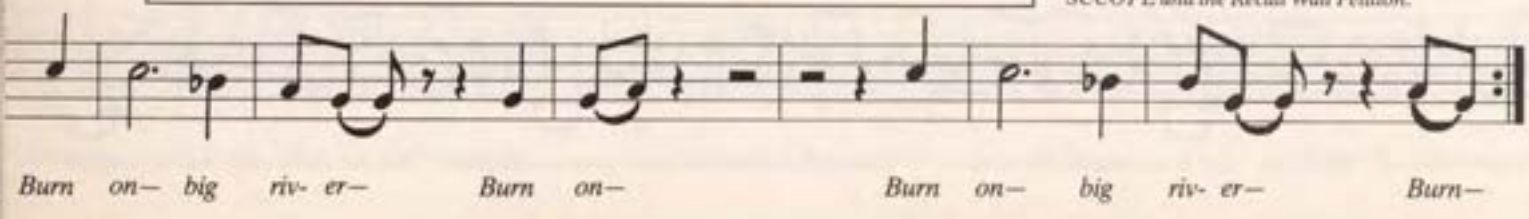
A river bursting into flames or hundreds of thousands of poisoned fish turning belly-up are dramatic events that arouse public outcry. Such events led Congress to strengthen the Clean Water Act in 1972. These incidents are rarer now, but quieter problems can be just as insidious. The smell of rotting fish on a beach commands attention, but fewer people notice when a stream dies slowly, when fewer and fewer fish hatch and grow to maturity because of gradually increasing levels of toxic substances. Eroding soils from a farm that has not used contour plowing can cover a streambed, destroying plants, fish eggs, and bottom-dwelling creatures—an easily avoidable environmental loss that might be accepted by a public that has forgotten what the stream used to be. Only public pressure can convince Congress and the President to move ahead to restore America's waters. □

Pamela Brodie works in the Club's Washington, D.C., office as a lobbyist for the Clean Water Act. Her other Club involvements have included SCCOPE and the Recall Watt Petition.

The Congressional Leaders

In the Senate the Clean Water Act is in the hands of the Committee on Environment and Public Works, chaired by Sen. Robert Stafford (R-Vt.), with Sen. Jennings Randolph (D-W.Va.) as ranking minority member and Sen. John Chafee (R-R.I.) as chair of the Subcommittee on Environmental Pollution. Together with majority leader Howard Baker (R-Tenn.) and former Sen. Edmund Muskie (D-Maine), Stafford and Randolph saw the Clean Water Act through the 1972 and 1977 debates. Sen. Chafee's bill, S. 431, is the vehicle for the reauthorization.

In the House of Representatives, the Committee on Public Works and Transportation is in charge of the reauthorization measure, with Rep. James Howard (D-N.J.) as chair, Rep. Gene Snyder (R-Ky.) as ranking minority member, and Rep. Robert A. Roe (D-N.J.) as chair of the Water Resources subcommittee. Rep. Howard's bill, H.R. 3282, is the vehicle for reauthorizing and strengthening the act.



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The strength of the Sierra Club lies in its grassroots membership—over 350,000 members organized through a network of chapters in every state, and Canada, with groups in most of our major cities.

We employ dedicated, professional lobbyists in Washington, D.C., and in many of our state capitals. Since 1892, no organization has been more effective in the protection of the earth's wild places.

Won't you join us in our continuing quest for a cleaner, more healthy world? If you are already a member, it's the perfect time to consider Sierra Club Holiday Gift memberships. For your convenience, a membership enrollment form is on the reverse side.

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MEMBERSHIP CATEGORIES

	Individual	Joint
Regular	☐ $ 29	☐ $ 33
Supporting	☐ $ 50	☐ $ 54
Contributing	☐ $100	☐ $104
Life	☐ $750	*per person*

SPECIAL CATEGORIES

	Individual	Joint
Senior	☐ $15	☐ $19
Student	☐ $15	☐ $19
Spouse of Life Member (Annual Dues)	☐ $15	
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The Ghost Of Wilderness Past...

December 24th found our resident Scrooge, Ebeneezer, perusing a copy of SIERRA with great interest. He couldn't wait to see what the Sierra Club thought about coal leasing in wilderness areas. Ebeneezer himself was delighted. Imagine, all those wild lands, open at last to exploitation. His smile widened . . . and those vast resources that belonged to all Americans, now in the hands of the mining companies. He had never been happier.

"What's this," he gasped, as he paged through the magazine, "people are still spending good money to join this organization. How many environmentalists are there out there?"

A troubled but tired Scrooge fell deeply asleep and dreamt of the piles of money to be reaped through those lucrative coal leases.

Hours later, roused from his sleep by the ghostly sound of wind blowing fiercely through the forest, Scrooge sat bolt upright with alarm. He ran to his window for fear the trees would fall and crush his cottage . . . but, alas, there were no trees to be seen.

"Who goes there?" demanded Scrooge.

"The Ghost of Wilderness Past!" boomed a voice.

"But where are all the trees of the forest?" cried a confused Scrooge.

"Gone," the voice bellowed, "because of short-sighted people like you."

"B-B-But it wasn't just me," sputtered Ebeneezer, "and b-b-besides things are improving. I-I-I just read about it tonight."

"That's only because the Sierra Club has been so successful in preventing drilling and mining in wilderness and other wild places," the voice cried out.

Editors Note: We know how Scrooge stories end, but it would strain credibility to try and make you believe that this 'cut, mine and drill Ebeneezer Scrooge' would change his ways. So we interrupt this parable to ask you to consider giving Sierra Club Holiday Gift Memberships. Give the special satisfaction that comes with knowing you are helping to protect the wild places we love, and are frustrating this particular Scrooge for another year.

And that, friends, brings us to the point of this small tale . . . give Holiday Gift Memberships in the Sierra Club.

Help assure Wilderness Future.

The End.

Sierra Club Holiday Gift Memberships

Photographs by Doug Lee

Sen. Alan Cranston focused on the arms race and on unemployment; he called for a resources trust fund, an American Conservation Corps, and a moratorium on offshore oil-and-gas leasing in sensitive areas.

John Denver sang—and he also spoke about an end to confrontation: "It's not you or me, anymore," he said. "It's you and me."

Staff, volunteers, and guests chat on the sunny mall at Snowmass. From left: Brant Calkin, Steve Stevick, Cynthia Wayburn, Alan Weeden, and Carol Guyer.

Cecil Andrus represented Walter Mondale. He cited the Carter record and assured the Club of Mondale's environmentalism.

The plenary sessions of the International Assembly took place in the Pavilion, a large, green-striped tent. It wasn't all politics though. There was a barbecue, a square dance, a sing-along, a family picnic, and a concert or two as well.

Reuben Askew, former governor of Florida, sees himself as a voice for "balance," for wise use of natural resources, and for a new land ethic.

"Sierra sessions" like this one covered a vast array of topics—including nuclear war, pesticides, economics, the media, wilderness, mining, wetlands, and Club organization, to name a few.

Sen. Gary Hart is ambitious about his environmentalism; he "intends to do more to protect the environment than any previous president."

Carroll Tichenor, the Assembly Committee's chair, presented a surprise birthday present to Katherine Krebs, the Assembly manager, during a plenary session at the Pavilion.

HIGHLIGHTS OF THE INTERNATIONAL ASSEMBLY

DAVID GANCHER

Robert Wyle

A rare and historic occasion: Seven Sierra Club presidents gathered together at Snowmass. Phil Berry (1969-1971); Denny Shaffer (1982-); Joe Fontaine (1980-1982); Lewis Clark (1949-1951); Brant Calkin (1976-1977); Edgar Wayburn (1961-1964, 1967-1969); Kent Gill (1974-1976).

THE SIERRA CLUB's first International Assembly was an exciting success, an intense and rich experience for the nearly 1,000 members and friends who met at Snowmass, Colo. The days were full, the participants eager and cheerful as they met, joked, hiked, square danced, sang, and (mostly) talked and talked.

The Assembly's four days (June 30 to July 3) were filled with 99 scheduled events that ranged from a sing-along with John Denver to a technical workshop on innovative strategies for dealing with hazardous wastes. Some workshops involved only a handful of activists, while the plenary sessions attracted overflow crowds of Assemblygoers and visitors from nearby Aspen.

The plenary sessions covered a wide variety of topics. Labor/environmental coalitions were the subject of the first session. A group of labor leaders was strongly optimistic about labor/environmental coalitions in 1984. Robert Goss, president of the Oil, Chemical, and Atomic Workers International Union, pointed out the commonality of our interests: clean water, clean air, occupational health and safety—and something else: "We have common enemies," said Goss. "The same folks who cuss at you are cussing at us."

The theme of the event was "The Politics of Conservation," and political concerns dominated the assembly; the 1984 presidential election was an almost palpable presence. Club President Denny Shaffer summed up the mood: "It's time," he said, "for the politics of conservation to move forward. And we're the right people with the right resources at the right time."

The Assembly was well attended by political luminaries, including a relaxed and voluble Rep. Morris Udall (D-Ariz.). Sen. Robert Stafford (R-Vt.) received the Club's prestigious Edgar Wayburn Award as "the legislator who . . . has made the greatest contribution in the advancement of conservation and environmental protection during the past year."

The guests who caused the most commotion were the Democratic presidential candidates who came to court Sierra Club support. (President Reagan was also invited but did not respond to the invitation.) The candidates all attacked the Reagan administration's record and went on to suggest—with varying degrees of specificity—how their administrations would approach the current environmental challenges.

On the facing page are highlights of the International Assembly, including brief summaries of the candidates' presentations. Sen. John Glenn (D-Ohio) did not attend the Assembly, and Sen. Ernest Hollings (D-S.C.) was forced to cancel at the last minute because of other commitments. □

People, Land, and Community

Land, work, people, and community are all comprehended in the idea of culture. These connections cannot be understood or described by information. We can understand them only after we acknowledge that they should be harmonious.

Wendell Berry

I WOULD LIKE TO SPEAK more precisely than I have before of the connections that join people, land, and community—to describe, for example, the best human use of a problematical hillside farm. In a healthy culture, these connections are complex. The industrial economy breaks them down by oversimplifying them and in the process raises obstacles that make it hard for us to see what the connections are or ought to be. These are mental obstacles, of course, and there appear to be two major ones: the assumption that knowledge (information) can be "sufficient," and the assumption that time and work are short.

These assumptions will be found implicit in a whole set of contemporary beliefs: that the future can be studied and planned for; that limited supplies can be wasted without harm; that good intentions can safeguard the use of nuclear power. A recent newspaper article says, for example, "A congressionally mandated study of the Ogallala Aquifer is finding no great cause for alarm from [sic] its rapidly dropping levels. The director of the . . . study . . . says that even at current rates of pumping, the aquifer can supply the Plains with water for another 40 to 50 years. . . . All six states participating in the study . . . are forecasting increased farm yields based on improved technology." Another article speaks of a different technology with the same optimism: "The nation has invested hundreds of billions of dollars in atomic weapons and at the same time has developed the most sophisticated strategies to fine-tune their use to avoid a holocaust. Yet the system that is meant to activate them is the weakest link in the chain. . . . Thus, some have suggested that what may be needed are warning systems for the warning systems."

Always the assumption is that we can first set demons at large, and then, somehow, become smart enough to control them. This is not childishness. It is not even "human weakness." It is a kind of idiocy, but perhaps we will not cope with it and save ourselves until we regain the sense to call it evil.

The trouble, as in our conscious moments we all know, is that we are terrifyingly ignorant. The most learned of us are ignorant. The acquisition of knowledge always involves the revelation of ignorance—almost *is* the revelation of ignorance. Our knowledge of the world instructs us first of all that the world is greater than our knowledge of it. To those who rejoice in the abundance and intricacy of Creation, this is a source of joy, as it is to those who rejoice in freedom. ("The future comes only by surprise," we say, "—thank God!") To those would-be solvers of "the human problem," who hope for knowledge equal to (capable of controlling) the world, it is a source of unremitting defeat and bewilderment. The evidence is overwhelming that knowledge does not solve "the human problem." Indeed, the evidence overwhelmingly suggests—with Genesis—that knowledge *is* the problem. Or perhaps we should say instead that all our problems tend to gather under two questions about knowledge: Having the ability and desire to know, how and what should we learn? And, having learned, how and for what should we use what we know?

One thing we do know, that we dare not forget, is that better solutions than ours have at times been made by people with much less information than we have. We know too, from the study of agriculture, that the same information, tools, and techniques that in one farmer's hands will ruin land, in another's will save and improve it.

This is not a recommendation of ignorance. To know nothing, after all, is no more possible than to know enough. I am only proposing that knowledge, like everything else, has its place, and that we need urgently now to *put* it in its place. If we want to know and cannot help knowing, then let us learn as fully and accurately as we decently can. But let us at the same time abandon our superstitious beliefs about knowledge: that it is ever sufficient; that it can of itself solve problems; that it is intrinsically good; that it can be used objectively or disinterestedly. Let us acknowledge that the objective or disinterested researcher is always on the side that pays best. And let us give up our forlorn pursuit of the "informed decision."

The "informed decision," I suggest, is as fantastical a creature as the "disinterested third party" and the "objective observer." Or it is if by "informed" we mean "supported by sufficient information." A great deal of our public life, and certainly the most expensive part of it, rests on the assumed possibility of decisions so informed. Examination of private life, however, affords no comfort whatsoever to that assumption. It is simply true that we do not and cannot *know* enough to make any important decision.

Of this dilemma we can take marriage as an instance, for as a condition marriage reveals the insufficiency of knowledge, and as an institution it suggests the possibility that decisions can be informed in another way that *is* sufficient, or approximately so.

I take it as an axiom that one cannot know enough to get married, any more than one can predict a surprise. The only people who possess information sufficient to their vows are widows and widowers—who do not know enough to *re*marry.

What is not so well understood now as perhaps it used to be is that marriage is made in an inescapable condition of loneliness and ignorance, to which it, or something like it, is the only possible answer. Perhaps this is so hard to understand now because now the most noted solutions are mechanical solutions, which are often exactly suited to mechanical problems. But we are humans—which means that we not only *have* problems but *are* problems. Marriage is not as nicely trimmed to its purpose as a bottle-stopper; it is a not entirely possible solution to a not entirely soluble problem. And this is true of the other human connections. We can commit ourselves fully to anything—a place, a discipline, a life's work, a child, a family, a community, a faith, a friend—only in the same poverty of knowledge, the same ignorance of result, the same self-subordination, the same final forsaking of other possibilities. If we must make these so final commitments without sufficient information, then what *can* inform our decisions?

Marriage is not as nicely trimmed to its purpose as a bottle stopper; it is a not entirely possible solution to a not entirely soluble problem.

In spite of the obvious dangers of the word, we must say first that love can inform them. This, of course, though probably necessary, is not safe. What parent, faced with a child who is in love and going to get married, has not been filled with mistrust and fear—and justly so. We who were lovers before we were parents know what a fraudulent justifier love can be. We know that people stay married for different reasons than those for which they get married and that the later reasons will have to be discovered. Which, of course, is not to say that the later reasons may not confirm the earlier ones; it is to say only that the earlier ones must wait for confirmation.

But our decisions can also be informed—our loves both limited and strengthened—by those patterns of value and restraint, principle and expectation, memory, familiarity, and understanding that, inwardly, add up to *character* and, outwardly, to *culture*. Because of these patterns, and only because of them, we are not alone in the bewilderments of the human condition and human love, but have the company and the comfort of the best of our kind, living and dead. These patterns constitute a knowledge far different from the kind I have been talking about. It is a kind of knowledge that includes information, but is never the same as information. Indeed, if we study the paramount documents of our culture, we will see that this second kind of knowledge invariably implies, and often explicitly imposes, limits upon the first kind: some possibilities must not be explored; some things must not be learned. If we want to get safely home, there are certain seductive songs we must not turn aside for, some sacred things we must not meddle with:

Great captain,
a fair wind and the honey lights of home
are all you seek. But anguish lies ahead;
the god who thunders on the land prepares it . . .

. . . . . .

One narrow strait may take you through his blows:
denial of yourself, restraint of shipmates.

This theme, of course, is dominant in Biblical tradition, but the theme itself and its modern inversion can be handily understood by a comparison of this speech of Tirêsias to Odysseus in Robert Fitzgerald's translation of Homer with Tennyson's romantic Ulysses who proposes, like a genetic engineer or an atomic scientist,

To follow knowledge like a sinking star,
Beyond the utmost bound of human thought.

Obviously unlike Homer's Odysseus, Tennyson's Ulysses is said to come from Dante, and he does resemble Dante's Ulysses pretty exactly—the critical difference being that Dante thought this Ulysses a madman and a fool, and brings down upon his Tennysonian speech to his sailors one of the swiftest anticlimaxes in literature. The real—the human—knowledge is understood as implying and imposing limits, much as marriage does, and these limits are understood to belong necessarily to the definition of a human being.

IN ALL THIS TALK about marriage I have not forgot that I am supposed to be talking about agriculture. I am going to talk about agriculture in a minute, but I want to insist that I have been talking about it indirectly all along, for the analogy between marriage making and farm making, marriage keeping and farm keeping, is nearly exact. I have talked about marriage as a way of talking about farming because marriage, as a human artifact, has been more carefully understood than farming. The analogy between them is so close, for one thing, because they join us to time in nearly the same way. In talking about time, I will begin to talk directly about farming, but as I do so, the reader will be aware, I hope, that I am talking indirectly about marriage.

When people speak with confidence of the longevity of diminishing agricultural sources—as when they speak of their good intentions about nuclear power—they are probably not just being gullible or thoughtless; they are likely to be speaking from belief in several tenets of industrial optimism: that life is long, but time and work are short; that every problem will be solved by a "technological breakthrough" before it enlarges to catastrophe; that *any* problem can be solved in a hurry by large applications of urgent emotion, information, and money. It is regrettable that these assumptions should risk correction by disaster when they could be cheaply and safely overturned by the study of any agriculture that has proved durable.

To the farmer, Emerson said, "The landscape is an armory of powers. . . ." As he meant it, the statement may be true, but the metaphor is ill-chosen, for the powers of a landscape are available to human use in nothing like so simple a way as are the powers of an armory. Or let us say, anyhow, that the preparations needed for the taking up of agricultural powers are more extensive and complex than those usually thought necessary for the taking up of arms. And let us add that the motives are, or ought to be, significantly different.

Arms are taken up in fear and hate, but it has not been uncharacteristic for a farmer's connection to a farm to begin in love. This has not always been so ignorant a love as it sometimes is now; but always, no matter what one's agricultural experience may have been, one's connection to a

newly bought farm will begin in love that is more or less ignorant. One loves the place because present appearances recommend it, and because they suggest possibilities irresistibly imaginable. One's head, like a lover's, grows full of visions. One walks over the premises, saying, "If this were mine, I'd make a permanent pasture here; here is where I'd plant an orchard; here is where I'd dig a pond." These visions are the usual stuff of unfulfilled love and induce wakefulness at night.

WHEN ONE BUYS THE FARM and moves there to live, something different begins. Thoughts begin to be translated into acts. Truth begins to intrude with its matter-of-fact. One's work may be defined in part by one's visions, but it is defined in part too by problems, which the work leads to and reveals. And daily life, work, and problems gradually alter the visions. It invariably turns out, I think, that one's first vision of one's place was to some extent an imposition on it. But if one's sight is clear and if one stays on and works well, one's love gradually responds to the place as it really is, and one's visions gradually image possibilities that are really in it. Vision, possibility, work, and life—*all* have changed by mutual correction. Correct discipline, given enough time, gradually removes one's self from one's line of sight. One works to better purpose then and makes fewer mistakes, because at last one sees where one is. Two human possibilities of the highest order thus come within reach: what one wants can become the same as what one has, and one's knowledge can cause respect for what one knows.

> *The evidence is overwhelming that knowledge does not solve 'the human problem.' Indeed, the evidence . . . suggests—with Genesis—that knowledge is the problem.*

"Correct discipline" and "enough time" are inseparable notions. Correct discipline cannot be hurried, for it is both the knowledge of what ought to be done, and the willingness to do it—*all* of it, properly. The good worker will not suppose that good work can be made properly answerable to haste, urgency, or even emergency. But the good worker knows too that after it is done work requires yet more time to prove its worth. One must stay to experience and study and understand the consequences—must understand them by living with them, and then correct them, if necessary, by longer living and more work. It won't do to correct mistakes made in one place by moving to another place, as has been the common fashion in America, or by adding on another place, as is the fashion in any sort of "growth economy." Seen this way, questions about farming become inseparable from questions about propriety of scale. A farm can be too big for a farmer to husband properly or pay proper attention to. Distraction is inimical to correct discipline, and enough time is beyond the reach of anyone who has too much to do. But we must go farther and see that propriety of scale is invariably associated with propriety of another kind: an understanding and acceptance of the human place in the order of Creation—a proper humility. There are some things the arrogant mind does not see; it is blinded by its vision of what it desires. It does not see what is already there; it never sees the forest that precedes the farm or the farm that precedes the shopping center; it will never understand that America was "discovered" by the Indians. It is the properly humbled mind in its proper place that sees truly, because—to give only one reason—it sees details.

And the good farmer understands that further limits are imposed upon haste by nature which, except for an occasional storm or earthquake, is in no hurry either. In the processes of most concern to agriculture—the building and preserving of fertility—nature is never in a hurry. During the last 17 years, for example, I have been working at the restoration of a once exhausted hillside. Its scars are now healed over, though still visible, and this year it has provided abundant pasture, more than in any year since we have owned it. But to make it as good as it is now has taken 17 years. If I had been a millionaire or if my family had been starving, it would still have taken 17 years. It can be better than it now is, but that will take longer. For it to live fully in its own possibility, as it did before bad use ran it down, may take hundreds of years.

But to think of the human use of a piece of land as continuing through hundreds of years, we must greatly complicate our understanding of agriculture. Let us start a job of farming on a given place—say an initially fertile hillside in the Kentucky River Valley—and construe it through time:

1. To begin using this hillside for agricultural production—pasture or crop—is a matter of a year's work. This is work in the present tense, adequately comprehended by conscious intention and by the first sort of knowledge I talked about—information available to the farmer's memory and built into his methods, tools, and crop and livestock species. Understood in its present tense, the work does not reveal its value except insofar as the superficial marks of craftsmanship may be seen and judged. But excellent workmanship, as with a breaking plow, may prove as damaging as bad workmanship. The work has not revealed its connections to the place or to the worker. These connections are revealed in time.

2. To live on the hillside and use it for a lifetime gives the annual job of work a past and a future. To live on the hillside and use it without diminishing its fertility or wasting it by erosion still requires conscious intention and information, but now we must say *good* intention and *good* (that is, correct) information, resulting in *good* work. And to these we must now add *character*: the sort of knowledge that might properly be called familiarity, and the affections, habits, values, and virtues (conscious and unconscious) that would preserve good care and good work through hard times.

3. For human life to continue on the hillside through successive generations requires good use, good work, all along. For in any agricultural place that will waste or erode—and all will—bad work does not permit "muddling through"; sooner or later it ends human life. Human continuity is virtually synonymous with good farming, and good farming obviously must outlast the life of any good farmer. For it to do this, in addition to the preceding requirements, we must have *community*. Without community, the good work of a single farmer or a single family will not mean much or last long. For good farming to last, it must occur in a good farming community—that is, a neighborhood of people who know each other, who understand their mutual dependences, and who place a proper value on good farming. In its cultural aspect, the community is an order of memories preserved consciously in instructions, songs, and stories, and both consciously and unconsciously in *ways*. A healthy culture holds preserving knowledge *in place* for a *long* time. That is, the essential wisdom accumulates in the commu-

nity much as fertility builds in the soil. In both, death becomes potentiality.

People are joined to the land by work. Land, work, people, and community are all comprehended in the idea of culture. These connections cannot be understood or described by information—so many resources to be transformed by so many workers into so many products for so many customers—because they are not quantitative. We can understand them only after we acknowledge that they should be harmonious—that a culture must be either shapely and saving or shapeless and destructive. To presume to describe land, work, people, and community by information, by quantities, seems invariably to throw them into competition with one another. Work is then understood to exploit the land, the people to exploit their work, the community to exploit its people. And then instead of land, work, people, and community, we have the industrial categories of resources, labor, management, consumers, and government. We have exchanged harmony for an interminable fuss, and the work of culture for the timed and harried labor of an industrial economy.

But let me bring these notions to the trial of a more particular example.

Wes Jackson and Marty Bender of the Land Institute have recently worked out a comparison between the energy economy of a farm using draft horses for most of its field work and that of an identical farm using tractors. This is a project a generation overdue, of the greatest interest and importance—in short, necessary. And the results will be shocking to those who assume a direct proportion between fossil fuel combustion and human happiness.

These results, however, have not fully explained one fact that Jackson and Bender had before them at the start of their analysis and that was still running ahead of them at the end: that in the last 25 or 30 years, the Old Order Amish, who use horses for farmwork, doubled their population and stayed in farming, whereas in the same period millions of mechanized farmers were driven out. The reason that this is not adequately explained by analysis of the two energy economies, I believe, is that the problem is by its nature beyond the reach of analysis of any kind. The real or whole reason must be impossibly complicated, having to do with nature, culture, religion, family and community life, as well as with agricultural methodology and economics. What I think we are up against is an unresolvable difference between thought and action, thought and life.

What works *poorly* in agriculture—monoculture, for instance, or annual accounting—can be pretty fully explained, because what works poorly is invariably some oversimplifying *thought* that subjugates nature, people, and culture. What works well ultimately defies explanation because it involves an order which in both magnitude and complexity is ultimately incomprehensible.

Here, then, is a prime example of the futility of a dependence on information. We cannot contain what contains us or comprehend what comprehends us. Yeats said that "Man can embody truth but he cannot know it." The part, that is, cannot comprehend the whole, though it can stand for it (and by it). Synecdoche is possible, and its possibility implies the possibility of harmony between part and whole. If we cannot work on the basis of sufficient information, then we have to work on the basis of an understanding of harmony. That, I take it, is what Sir Albert Howard and Wes Jackson mean when they tell us that we must study and emulate on our farms the natural integrities that precede and support agriculture.

Correct discipline cannot be hurried, for it is both the knowledge of what ought to be done and the willingness to do it— all *of it, properly.*

The study of Amish agriculture, like the study of *any* durable agriculture, suggests that we live in sequences of patterns that are formally analogous. These sequences are probably hierarchical, at least in the sense that some patterns are more comprehensive than others; they tend to arrange themselves like interesting bowls—though any attempt to represent their order visually will oversimplify it.

And so we must suspect that Amish horse-powered farms work well, not because—or not *just* because—horses are energy-efficient, but because they are living creatures, and therefore fit harmoniously into a pattern of relationships that are necessarily biological, and that rhyme analogically from ecosystem to crop, from field to farmer. In other words, ecosystem, farm, field, crop, horse, farmer, family, and community are in certain critical ways *like* each other. They are, for instance, all related to health and fertility or reproductivity in about the same way. The health and fertility of each involves and is involved in the health and fertility of all.

It goes without saying that tools can be introduced into this agricultural and ecological order without jeopardizing it—but only up to a certain kind, scale, and power. To introduce a tractor into it, as the historical record now seems virtually to prove, is to begin its destruction. The tractor has been so destructive, I think, because it is *unlike* anything else in the agricultural order, and so it breaks the essential harmony. And with the tractor comes dependence on an energy supply that lies not only off the farm but outside agriculture and outside biological cycles and integrities. With the tractor, both farm and farmer become "resources" of the industrial economy, which always exploits its resources.

We would be wrong, of course, to say that anyone who farms with a tractor is a bad farmer. That is not true. What we must say, however, is that once a tractor is introduced into the pattern of a farm, certain necessary restraints and practices, once implicit in technology, must now reside in the character and consciousness of the farmer—at the same time that the economic pressure to cast off restraint and good practice has been greatly increased.

In a society addicted to facts and figures, anyone trying to speak for agricultural *harmony* is inviting trouble. The first trouble is in trying to say what harmony is. It cannot be reduced to facts and figures—though the lack of it can. It is not very visibly a function. Perhaps we can only say what it may be like. It may, for instance, be like sympathetic vibration: "The A string of a violin . . . is designed to vibrate most readily at about 440 vibrations per second: the note A. If that same note is played loudly not on the violin but near it, the violin A string may hum in sympathy." This may have a practical exemplification in the craft of the mud daubers which, as they trowel mud into their nest walls, hum to it, or at it, communicating a vibration that makes it easier to work, thus mastering their material by a kind of song. Perhaps the hum of the mud dauber only activates that anciently perceived likeness between all creatures and the earth of which they are made. For as common wisdom holds, like *speaks to* like. And

harmony always involves such specificities of form as in the mud dauber's song and its nest, whereas information accumulates indiscriminately, like noise.

Of course, in the order of creatures, humanity is a special case. Humans, unlike mud daubers, are not naturally involved in harmony. For humans, harmony is always a human product, an artifact, and if they do not know how to make it and choose to make it, then they do not have it. And so I suggest that, for humans, the harmony I am talking about may bear an inescapable likeness to what we know as moral law—or that, for humans, moral law is a significant part of the notation of ecological and agricultural harmony. A great many people seem to have voted for information as a safe substitute for virtue, but this ignores—among much else—the need to prepare humans to live short lives in the face of long work and long time.

Perhaps it is only when we focus our minds on our machines that time seems short. Time is always running out for machines. They shorten our work, in a sense popularly approved, by simplifying it and speeding it up, but our work perishes quickly in them too as they wear out and are discarded. For the living Creation, on the other hand, time is always coming. It is running out for the farm built on the industrial pattern; the industrial farm burns fertility as it burns fuel. For the farm built into the pattern of living things, as an analogue of forest or prairie, time is a bringer of gifts. These gifts may be welcomed and cared for. To some extent they may be expected. Only within strict limits are they the result of human intention and knowledge. They cannot in the usual sense be made. Only in the short term of industrial accounting can they be thought simply earnable. Over the real length of human time, to be earned they must be deserved.

Time is running out for the farm built on the industrial pattern. ...For the farm built into the pattern of living things... time is a bringer of gifts.

FROM THIS RATHER WANDERING excursion I arrive at two conclusions.

The first is that the modern stereotype of an intelligent person is probably wrong. The prototypical modern intelligence seems to be that of the Quiz Kid—a human shape barely discernable in fluff of facts. It is understood that everything must be justified by facts, and facts are offered in justification of *everything*. If it is a fact that soil erosion is now a critical problem in American agriculture, then more facts will indicate that it is not as bad as it *could* be and that Iowa will continue to have topsoil for as long as 70 more years. If facts show that some people are undernourished in America, further facts reveal that we should all be glad we do not live in India. This, of course, is machine thought.

To think better, to think like the best humans, we are probably going to have to learn again to judge a person's intelligence, not by the ability to recite facts, but by the good order or harmoniousness of his or her surroundings. We must suspect that any statistical justification of ugliness and violence is a revelation of stupidity. As an earlier student of agriculture put it: "The intelligent man, however unlearned, may be known by his surroundings, and by the care of his horse, if he is fortunate enough to own one."

My second conclusion is that any public program to preserve land or produce food is hopeless if it does not tend to right the balance between numbers of people and acres of land, and to encourage long-term, stable connections between families and small farms. It could be argued that our nation has never made an effort in this direction that was knowledgeable enough or serious enough. It is certain that no such effort, here, has ever succeeded. The typical American farm is probably sold and remade—often as part of a larger farm—at least every generation. Farms that have been passed to the second generation of the same family are unusual. Farms that have passed to the third generation are rare.

But our crying need is for an agriculture in which the typical farm would be farmed by the third generation of the same family. It would be wrong to try to say exactly what kind of agriculture that would be, but it may be allowable to suggest that certain good possibilities would be enhanced.

The most important of those possibilities would be the lengthening of memory. Previous mistakes, failures, and successes would be remembered. The land would not have to pay the cost of a trial-and-error education for every new owner. A half century or more of the farm's history would be living memory, and its present state of health could be measured against its own past—something exceedingly difficult *outside* of living memory.

A second possibility is that the land would not be overworked to pay for itself at full value with every new owner.

A third possibility would be that, having some confidence in family continuity in place, present owners would have future owners not only in supposition but *in sight* and so would take good care of the land, not for the sake of something so abstract as "the future" or "posterity," but out of particular love for living children and grandchildren.

A fourth possibility is that having the past so immediately in memory, and the future so tangibly in prospect, the human establishment on the land would grow more permanent by the practice of better carpentry and masonry. People who remembered long and well would see the folly of rebuilding their barns every generation or two, and of building new fences every 20 years.

A fifth possibility would be the development of the concept of *enough*. Only long memory can answer, for a given farm or locality, How much land is enough? How much work is enough? How much livestock and crop production is enough? How much power is enough?

A sixth possibility is that of local culture. Who could say what that would be? As members of a society based on the exploitation of its own temporariness, we probably should not venture a guess. But we can perhaps speak with a little competence of how it would begin. It would not be imported from critically approved cultures elsewhere. It would not come from watching certified classics on television. It would begin in work and love. People at work in communities three generations old would know that their bodies renewed, time and again, the movements of other bodies, living and dead, known and loved, remembered and loved, in the same shops, houses, and fields. That, of course, is a description of a kind of community dance. And such a dance is perhaps the best way we have to describe harmony. □

Wendell Berry is the author of The Unsettling of America: Culture and Agriculture *(Sierra Club Books).*

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SEA TURTLES

The tortoise may have enjoyed the last laugh on the hare in the popular children's story, but his real-life cousins are now in grave danger of losing a far more important race—the race against extinction.

NICHOLAS G. PAPPAS

FROM THE GIANT TORTOISES that lumber over the Galapagos Islands in the South Pacific to the 10-pound Plymouth red-bellied turtles of coastal Massachusetts, turtles throughout the world are becoming the players in a tragic, no-win "shell game" that pits them against the fishing industry, real-estate developers, and poachers.

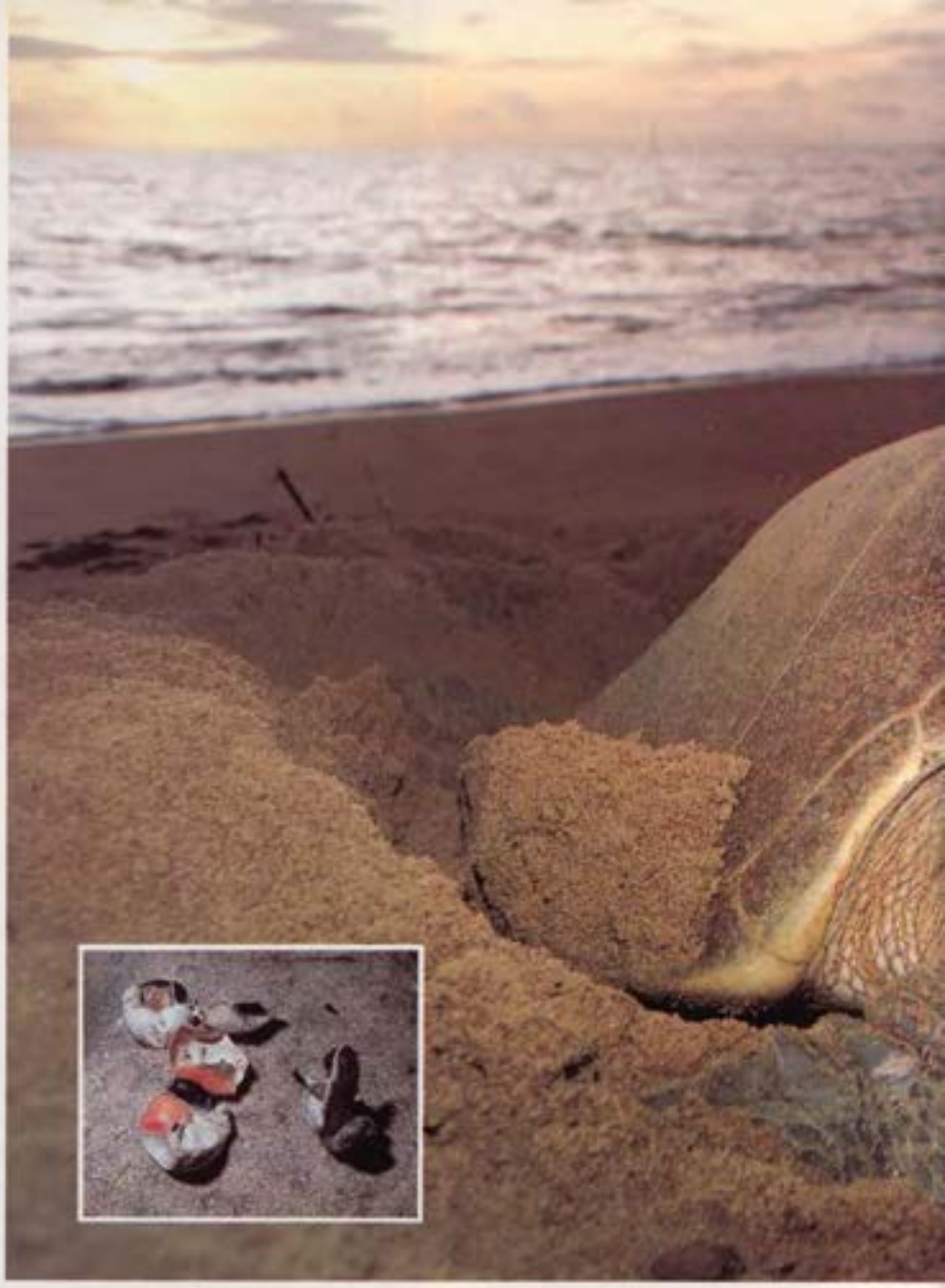
While scientists are quick to point out that the battle to preserve a species is more than a numbers game, the numbers themselves are not encouraging. Today about 25 species of turtles worldwide are listed as either threatened or endangered under the Endangered Species Act of 1973. But that is only part of the problem.

Scientists estimate that 20 percent of all the freshwater turtles in the world, for example, are in danger because of some human-related activity. At least half of the 35 species of tortoise are facing serious obstacles, even though only the desert tortoise in the Beaver Dam Slope area of Utah is actually listed as "threatened." But by far the most critical situation—at least in the eyes of U.S. observers—is the plight of the sea turtle. Of the eight turtles native to the United States on the endangered or threatened list, six are species of sea turtle.

The Kemp's ridley is a good example. In 1947 a Mexican engineer wandering along a beach in Tamaulipas took some photographs of an enormous congregation of nesting sea turtles. When the photographs became public 14 years later, it was determined that the beach had been blanketed with about 40,000 Kemp's ridleys. Yet today it is believed that only 400 to 1,000 breeding females remain. This decimation is primarily attributed to egg hunters. Since the Kemp's ridley doesn't breed anyplace else in the world, it has become a bettor's favorite to be the next turtle to disappear forever.

The outlook for the other sea turtles on

A newborn Kemp's ridley (below), one of a species facing imminent extinction. The green turtle (right), highly prized for its meat and shell, is also endangered.



A female Kemp's ridley (right) deposits its eggs in a sand nest. Should a turtle's eggs not fall prey to human or animal predators, the babies (inset, three greens) will emerge to begin the reproductive cycle anew.

the endangered list—the olive ridley, hawksbill, green, leatherback, and loggerhead—isn't quite so bleak; yet their situations range from serious to critical. Part of the problem is that turtles are among the more exploited animals in the world—from their eggs to the shells on their backs.

Turtle meat, for example, is considered a delicacy by many. So is turtle soup, made from shell cartilage. Turtle shells are also highly valued in many countries as a jewelry item, while turtle skins are often tanned and used in the production of expensive shoes, handbags, and luggage. Hence the demand for turtles—dead turtles—throughout the world.

While killing nesting females and taking their eggs is not considered to be as widespread today as it once was, it is still one of the leading threats to the survival of many turtle species.

"Outside of the United States it's a major problem," says C. Kenneth Dodd, Jr., a staff herpetologist for the U.S. Fish and Wildlife Service's Office of Endangered Species. "In some areas, for instance, such as the beaches in Mexico where you have huge numbers of leatherbacks, essentially every egg is taken. In other countries, eggs are taken in huge amounts. We're talking about a million or so eggs a year from some beaches, perhaps more."

Another major problem is development, residential and otherwise, at nesting beaches. The Florida coast, for example, considered to be the largest nesting area for the loggerhead, is being altered forever by the construction of condominiums and other projects likely to have a detrimental effect on the loggerhead's reproductive cycle.

The problems posed by development are not restricted to the United States. The west coast of Mexico, held by turtle researchers to be one of the best sea-turtle grounds in the world, also appears vulnerable because of its aesthetic beauty.

"There's no earthly way they're going to keep people away from those magnificent cliff shores, which look like Big Sur in California," predicts Dr. Archie Carr, a University of Florida professor regarded by many as the dean of sea-turtle study. "The turtles nest on those beaches in enormous numbers, and any development is going to worsen their already grim situation."

While poaching and beach development remain serious problems, some think the incidental capture of sea turtles by fishing vessels has become the animals' chief problem today. Researchers estimate that thousands of sea turtles drown every year after becoming entangled in large shrimping nets.

Fortunately, something is being done to reduce the number of deaths attributed to such incidental catches. The National Marine Fisheries Service (NMFS) has been working toward a solution for several years and is optimistic that a device it has developed to keep turtles out of fishing nets will be acceptable to the shrimping industry. Known as a TED—for "turtle excluder device"—the contraption resembles an iron trap door and fits onto the back of a shrimping net. Whereas earlier versions of the device had the undesirable side effect of reducing the shrimp catch, the latest model is touted as causing no such problem.

"Our tests with that device show it to be amazingly effective," says Charles Karnella, a specialist in the management of marine resources for the NMFS. "The tests we conducted have not resulted in the taking of a single dead turtle. We estimate that with this device we would reduce the catch of sea turtles somewhere between 95 and 97 percent."

While the outlook for the survival of sea turtles is far from rosy, there are some encouraging signs. Among the most significant is a growing international awareness that the turtle species exploited yesterday are in need of protection today. This awareness has resulted in some cooperative research projects aimed at increasing the population of certain sea-turtle species.

For the last several years, for instance, the United States and Mexico have been working together to save the Kemp's ridley. The goal of the program is to protect the females

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A leatherback (top) lays its eggs in the sands of Surinam. The odds against many of her offspring reaching maturity—like the fully grown loggerhead above—are quite high. Eggs are taken in vast numbers by human gatherers, while hatchlings have a variety of natural enemies to watch out for (below, a ghost crab devours a baby green sea turtle).

C. Allan Morgan/Peter Arnold, Inc.

and their eggs during the nesting season. To this end, this country has contributed technical personnel, money, and supplies, while Mexico has responded by assigning military personnel to patrol the beaches.

As part of a Kemp's ridley headstart program, eggs are being flown from nesting beaches in Mexico to Padre Island in Texas, where they are allowed to hatch in the sand. The hatchlings are then allowed to enter the sea, as instinct directs them to, after which they are recaptured. They are then reared in captivity until they are about the size of a dinner plate, which tends to reduce the number lost to natural predators. Similar programs have been launched for green sea turtles, hawksbills, and loggerheads in California, Florida, Maryland, Texas, and Washington.

Although the Kemp's ridley headstart program began about five years ago, it's still too early to determine if it is achieving its goal. Since turtles may take from 10 to 15 years to mature, there may not be any definitive answers before the turn of the century.

A more firmly established program is based at Tortuguero National Park in Costa Rica, a country that began to take steps to preserve its colony of green sea turtles in the late 1950s. This project, begun with Dr. Carr's help more than 25 years ago, involves tagging the turtles in order to determine their routes and schedules of migration. While the number of nesting females varies from season to season, recent reports indicate that the population of green sea turtles at Tortuguero may be holding its own. If these reports prove accurate, it will be of particular significance, since some turtle experts consider this region to be the green's most important Caribbean nesting ground.

Karnella sees even more reason for optimism. "We're now involved in a symposium," he says, "to which most of the Caribbean countries are contributing money and information. This effort will ultimately lead to a broad assessment of turtle stocks throughout the Caribbean. I think the fact that the governments of those countries are paying that kind of attention to the sea turtle is very encouraging."

One worldwide organization working toward the survival of the sea turtle is the International Union for Conservation of Nature and Natural Resources. The group, which has been in existence for almost 30 years, has brought together turtle experts from around the world to form a Marine Turtle Specialist Group within its Species Survival Commission. With funding as-

sistance from the World Wildlife Fund, the specialists have targeted the identification and protection of nesting beaches as its primary goals.

On the international-trade front, a major breakthrough occurred in 1973 with the signing of the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES). Nearly 70 nations, including the United States, adopted this treaty's restrictions on the trade of items made from endangered species. The treaty calls for each member country to establish an agency to administer the regulations.

Ratification of the treaty may have been a major step forward in protecting turtles and other endangered species, but enforcement of the agreement is another matter.

Baby Kemp's ridleys (above) are released as part of a headstart survival program. The eggs are protected in hatcheries from predators who seek out their sand nests on the open beach, like the one the green sea turtle below is digging.

"In some countries it has been effective, and in some it hasn't," says government herpetologist Dodd. "I think you can understand why when you recognize that some of these countries are extremely poor, and so it's very hard for them to implement some of the provisions. And let's face it: I don't think I'm going to tell anybody anything new by saying that CITES is just ignored in some countries."

While almost all would agree that the intent of the international trade treaty is commendable, the same can't be said about another approach to world trade—turtle farming.

In 1968 the only turtle farm in existence was launched on Grand Cayman Island in the West Indies. The farm, which raised green sea turtles for meat and other products, was taken over by a German-British consortium in 1974. Although the consortium is believed to be the largest exporter of green-turtle meat in the world, the United States has so far rejected its request that the CITES-mandated ban on the importation of turtle products be lifted.

Proponents of turtle farming argue that captive breeding of the animals helps to conserve the green turtle and has no impact on sea turtles in the wild. Opponents contend, however, that turtle farming serves only to stimulate the demand for turtles in the marketplace, thus making illegal trade more prevalent.

Dodd subscribes to the latter theory. "First of all," he reasons, "there is no scientific basis for taking a turtle in and raising it to maturity. In other words, before you begin any aquaculture study, you have to have basic knowledge about the life history of the animal you're dealing with—and that's knowledge we haven't got for turtles. Number two, I believe there is ample evidence to indicate that turtle farming stimulates trade."

When it comes to combatting the illegal trade in turtle items or the development of the sea turtles' all-important breeding grounds, scientists and government officials aren't the only ones who can play significant roles. Public awareness of the problem could go a long way toward its solution, since many times it's the unsuspecting tourist who inadvertently helps fuel the demand for things made from illegally caught turtles.

"Folks think that if turtle products are for sale somewhere, they must be legal," says Meg Durham of the U.S. Fish and Wildlife Service. "Then they get back here and find out that they're not. If people were more aware of the problem, it would at least help diminish the market for the illegal turtle products."

Although much is being done to ensure that the sea turtle and other endangered turtles don't follow the dodo bird down the road to extinction, not everyone is brimming with optimism.

"The data suggest to me that the problems we face now are going to get worse," says Dodd, who concedes he has a reputation for pessimism. "And I don't know what can be done about that—simply because, although the solutions are there, there are a lot of reasons why many of them are not going to be carried out.

"For instance," he explains, "if you want to protect freshwater turtles, you have to stop damming the rivers, you have to stop dumping pesticides and pollutants into rivers, and you have to protect the habitat where the animals are nesting and carrying out their activities."

Archie Carr is one of those experts who hold little hope for the survival of the more imperiled turtle species, such as the Kemp's ridley. He believes it's time to step back and take stock of the situation.

"It isn't because of any religious belief that the fruits of nature shouldn't be harvested," Carr says. "It's just that when you overharvest, you risk eliminating them. We believe that all species of turtles are now at such a risk that we've simply got to stop for a while."

If we don't, the tortoise in the famous children's story may be the only turtle to ever win a race. □

Nicholas G. Pappas is city editor for the Lowell (Mass.) Sun. *He has published nature pieces in* Sea, Country Gentleman, *and* Turkey Call.

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IN 1977 I WAS A MEMBER of a successful American expedition to Nun, a 23,410-foot peak in the Himalaya of northern India. At 16,000 feet I wrote in my diary: "One aspect of our trip is quite disturbing, and that is the exploitative nature of the climb. We, the wealthy, are to a great extent climbing on the shoulders of the poor local people." Our cook staff was Indian, as were our porters, whom we had recruited from the village of Tangul at the foot of the mountain. "They bring us tea in the morning," I noted, "call us 'Sir' and 'Sahib,' feed us, wash the dishes, and carry huge loads held by uncomfortable straps, while dressed in rags, for a pay of about $2 a day." I boldly concluded: "Without question, the way climbing is done in the USA is more honest and courageous."

My perspective on portering and its role in the fabric of local life broadened somewhat when I joined an attempt on Annapurna I in 1979. As we marched up Nepal's Kali Gandaki gorge with 90 porters, I felt like part of a small army. Every day we met hundreds of other porters who had nothing to do with assisting visiting climbers: They carried lumber, rice and other grains, bamboo mats, cloth, and dozens of other items needed in this region of Nepal.

Indeed, anything that had to be transported was carried on someone's back, for there are no roads in this area. The route we were following, leading north through the mountains, had been used by porters for centuries to carry a busy trade of Tibetan salt and Nepali rice. Clearly, I could see, expedition mountaineers could not be given "credit" for the development of the porter system.

A subsequent expedition—again to Nepal—gave me further insights into how porters relate to the Western climbers and trekkers who come to walk their land with them. I made the most of these opportunities to examine our effect on the economy and ecology of Nepal, always with an eye on our porters as subjects for social and cultural observation. In the process—as the following sketches are meant to suggest—I learned lessons from the inhabitants of this ancient land that helped to alter my original point of view.

* * *

Raj Bahadur Gurung, age 25, is part of a small number of full-time professional porters. Ninety-five percent of Nepal's population make their living from agriculture, and most porters are farmers either carrying their own produce or seeking temporary employment between crops. Raj, whom I met while preparing for a 1981 climb of Hiunchuli, one of the lesser summits (21,133 feet) of the Annapurna range, grew up on a farm in hill country east of Annapurna.

For the last five years, Raj has worked as a porter, occasionally doing construction work when portering jobs have not been available. His job with the Hiunchuli expedition paid him $1.67 a day and required him to carry 66 pounds, a weight prescribed under the government's climbing regulations. (Although he weighs only 115 pounds, Raj has carried loads up to 130 pounds on some jobs.) Last year Raj had a better job: An expedition to Dhaulagiri, west of Annapurna, paid him $2 a day. Annually he earns about $375; one recent year he managed to send $17 to his family while putting aside $40 in savings.

To put all this in perspective, Nepal is one of the poorest countries in the world, with a per-capita gross income in 1982 of $140. Like many averages, this figure is misleading, as half the nation's income is distributed among 13 percent of the population. The Gurung people, the Nepali ethnic group to which Raj belongs, are peasant farmers and shepherds who live in the hills of central Nepal, south of Annapurna. The population density per unit of useful land in this region is actually three times that of India, and the average family must subsist on about one acre. To make matters worse, Nepal's population, estimated at 14 million now, is exploding at the rate of 2.6 percent a year. This pressure forces the use of more marginal land and forest land, which has resulted in soil erosion, loss of water supplies, and landslides. Per-acre and per-capita food production have declined steadily during the last two decades. Nutrition is now marginal in a number of areas, and the prospect of famine faces many regions of Nepal.

A heavily laden Nepali porter (left) negotiates the rough terrain below Hiunchuli basecamp, while a Western expedition member (inset), with Machhapuchhare behind him, moves slowly under his own load. Right: Kanchha Lama, the Gurung farmer/porter.

* * *

Kanchha Lama, a Gurung farmer from the village of Gorkha, was most unhappy. He and nine of his friends had carried bottles of soft drinks along the route to the Annapurna Sanctuary, up the tortuous Modi Khola gorge, from Pokhara (2,680 feet) through Chhomrong (6,440 feet) all the way to the gloriously titled Machhupuchhare Base Camp Hotel (11,600 feet). The escalating price of a bottle of Coca-Cola symbolizes the difficulty of the route: 21 cents in Pokhara, twice that in Chhomrong, and 75 cents at Machhupuchhare. And although most of the increased cost went to pay Kanchha Lama, he still was not pleased. He had been told that he would make $2.17 a day for portering in the Modi Khola gorge, and decided to try it in order to earn money for clothes. Now, with his expenses for food and lodging subtracted from his gross earnings, he was angry to find he was making much less than he had expected.

Kanchha Lama and his friends were somewhat mollified when they learned that our Hiunchuli expedition, having successfully climbed the peak, was in need of porters for the return trip to Pokhara. He had to go that way to get home, and could at least make $1.67 a day by carrying a load for us. Nevertheless, he found the work hard and the pay poor, and decided he would not porter for any further expeditions unless they were going to Manaslu or other peaks near his village. There, he felt, food costs were lower, and he would be able to save more of his daily wage. For now he would return to his family in Gorkha and tend his crops of millet and maize.

* * *

The 1981 Hiunchuli expedition followed the usual custom when it came to meal preparation. In Kathmandu we hired a cook and a cook's helper for about $2 a day apiece. On the trek to Hiunchuli they prepared meals in hotel kitchens and over campfires; in both cases they burned wood for fuel. At basecamp (13,300 feet) we were well above timberline, so we hired two porters as woodcutters, and they made repeated trips over difficult terrain down 3,000 feet to Modi Khola gorge to collect wood.

We arrived at basecamp on September 25 and were forced to stay there until the end of the month while monsoon rains soaked our gear and dropped heavy snowfall on our route above. The rains merely annoyed us; elsewhere they killed several climbers in huge avalanches, and hundreds of Nepalis throughout the country died in floods.

All this time our cooks burned wood in a

smoky shelter, serving us rice, potatoes, vegetables, and tea, often in our tents. On the first of the month we moved above basecamp; for the next 10 days we did all our own cooking on kerosene-burning stoves. During this interval our cooks, woodcutters, and *sirdar* (chief porter or foreman) continued to burn wood at basecamp.

When we returned to the Modi Khola valley, the recent destruction of timber near the trail was quite evident. Part of this was the result of woodcutting for one of the local bamboo huts that serves trekkers; some was caused by our expedition. The thick jungle in the area would soon cover the damage, but the forest seemed unlikely to withstand the onslaught of the increasing number of trekkers and climbers who follow this valley to the Annapurna Sanctuary. The forests of the upper Khumba Valley in east Nepal were stripped years ago by the numerous expeditions to Everest; the same fate undoubtedly awaits the Modi Khola.

It would be foolish, however, to ascribe Nepal's loss of forest cover to climbers and trekkers alone. While visitors have caused enormous damage in a few selected areas, aerial surveys show that Nepal has lost roughly 50 percent of its forest cover in the last three decades. Population pressures—for arable land, for animal forage, and for fuel—account for most of the problem. In 1950, firewood was brought into Kathmandu with a half-day walk; now it takes up to three days. And vast areas of the Terai, the flat jungleland along Nepal's border with India, has been cleared for rice growing; here, and in valleys such as the Karnali, giant forests have been clearcut by Indian timber companies. The result, predictably, has been increasingly devastating flooding.

The contribution that climbers and trekkers make to the problem is trivial, but tragic in that it is completely preventable. Westerners could easily afford the price of kerosene for all their cooking. Porters would have to be hired to carry the extra fuel, but the cost in most cases would be less than hiring woodcutters. On the Hiunchuli expedition there would have been virtually no added cost, because an extra stove was left at basecamp and extra fuel was actually discarded at Camp I. (It is worth mentioning that the government already forbids the cutting of live trees, but little in the way of effective enforcement exists, especially in the hills.)

* * *

The Sherpas, an ethnic group of Tibetan origin and Buddhist religion, have lived in the Solu-Khumbu region south of Mt. Everest for 400 years. Many of them are farmers, raising cattle and yaks, but their primary source of income has always been trade. Using their yaks they brought salt, which Nepal lacks, south from Tibet over the Nangpa La Pass. To the north they transported cattle, butter, rice, sugar, kerosene, and even Nepali iron. This profitable trade ended in the 1950s, however, when China took over Tibet.

Just as Nepal lost the trade with Tibet, it opened its borders to mountaineering expeditions, which naturally focused on Mt. Everest. The Sherpas were quick to capitalize on this new enterprise in their region. Many of them had already participated in early British attempts to climb Everest from Tibet in the 1920s, and they now joined the expeditions from the south as porters to basecamp, as load carriers above base, and as fellow climbers.

Lopsang Tsering Sherpa, experienced sirdar.

Lopsang Tsering Sherpa was *sirdar* on our 1979 Annapurna I expedition. He was born in April 1938 in the Solu region, and grew up in a family with four older siblings. His parents grew millet, corn, and potatoes; in addition, they had 10 cows, 25 sheep, and several buffalo, goats, and horses. Despite this wealth of animals they lived as subsistence farmers, only occasionally producing a surplus they could sell. Lopsang's older brother Wongdhi became a *sirdar* and participated in the ill-fated 1959 women's Cho Oyu attempt. Lopsang, then 18, came to basecamp with his brother, and despite the fact that Wongdhi was nearly killed in an avalanche, Lopsang elected to follow a career in climbing. He admits that the fame of his cousin Tenzing Norgay, who accompanied Edmund Hillary on the first ascent of Everest, influenced him in this decision.

For about 10 years Lopsang lived in Darjeeling, India, working in the mountaineering school there and continuing to join expeditions. In 1972 he moved to Kathmandu and, with his wife, ran a small business, the Peace Restaurant. He is now a *sirdar* himself, usually joining two expeditions a year for periods of from one to three months.

We Westerners on the Annapurna expedition, who came from an "advanced" country with a high crime rate, were unnecessarily suspicious that our obviously poverty-stricken porters would abscond with their loads, worth many times what they could make in a year. We assigned a number to each porter, a *different* number to each load, and spent several hours each day checking lists of numbers as loads moved in and out of camp.

Our *sirdar* and 90 porters tolerated this lunacy without comment, but Lopsang looked pained. On the fourth morning of the trek none of us could face this odious task; muttering "Leave it to Lopsang," we simply took to the trail after breakfast. Of course, every last spoon and sock arrived safely at basecamp.

This record of honesty among porters continued on the Hiunchuli expedition—except for one incident. At breakfast one morning we became aware that a fight had broken out among the porters. Amid much shouting, one of the younger porters was quickly subdued, tied up, and thoroughly searched by the others. It turned out that this man had been caught stealing the pay from several of his fellow porters. They punished him—by relieving him of his own wages—and sent him on his way.

Lopsang's climbing career has been good to him. Knowing his abilities, we requested his services for the Hiunchuli expedition and negotiated with him a fee higher than that required by the government rules. He received a retainer of $80 plus a daily wage of $3.75 and a final bonus of $16. All told, he earned $208.50. His restaurant, a small tea shop frequented primarily by Nepalis, does well, and the family's total income is about $1,350 a year; some $100 of this amount is saved.

For us, Lopsang's pay was worth every cent. He got all our gear to and from basecamp, saw to the running of the kitchen, and located and pioneered the difficult route from the trail along the Modi Khola to basecamp. Hiunchuli has not had many expeditions, and the path to basecamp is steep, hard to find, and dangerous. (Three people were killed by an avalanche on this path in 1979.) Lopsang not only found the route, but led the way up steep grass and mud, cutting a narrow trail through thickets of bamboo, giant rhubarb, and thistles with his sharp *khukari*.

* * *

After the Hiunchuli expedition I felt more comfortable with the idea of using porters than I had four years earlier on Nun. These men are engaged in an honest profession, one that is the major method of moving anything in Nepal. All goods have moved on someone's back for centuries there, and this

system will continue for the foreseeable future.

Some porters or other employees, such as a *sirdar* or cook, may contribute so much to an expedition that this contribution should be acknowledged. Fortunately, this is already being done in most published climbing accounts; in part this is because real friendships develop, and climbers wish to thank these new friends publicly.

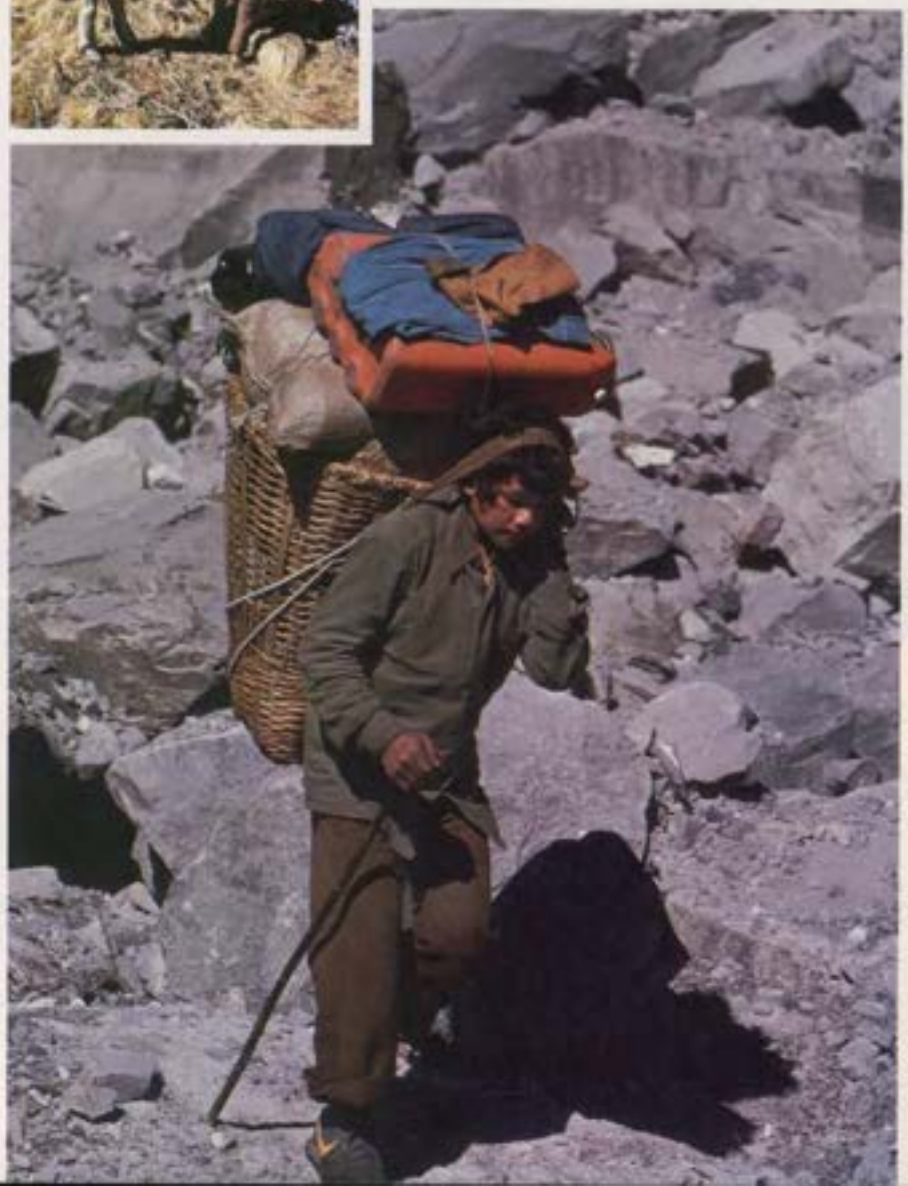
The economic impact of our expeditions was locally beneficial, but from a practical point of view climbing and trekking will have little effect on Nepal's chronic poverty and food shortages. Perhaps our greatest impact, therefore, is on the culture of Nepal. Many climbers who are used to the Sierra Nevada or the Alaska Range are disappointed that Nepal does not provide a wilderness experience. Except for the time spent above snowline, they are hiking through one of the most densely populated countries in the world. Because of this, climbers cannot help but interact a great deal with the local population. As a result, it is common to see Gurung merchants who have given up their native dress for sneakers, blue jeans, and a Dallas Cowboys T-shirt.

It would be wrong, I think, to wish that Nepal would close its borders again—even if some of us might question the value of having Coca-Cola for sale in the Annapurna Sanctuary. If asked, the Nepalis certainly would not want to return to their former isolation.

For our part, we visitors from the West should try to be as understanding and open-minded as we can. We may have something to learn from a hospitable land where theft is rare and personal violence almost unknown. □

Photojournalist Peter Cummings is also a physician specializing in expedition and mountaineering medicine. He is a previous contributor to Sierra.

Above left: Hiunchuli basecamp, with Machhapuchhare, the "Fishtail Peak," in the background. Above: Raj Bahadur Gurung, a professional porter from the country around Annapurna, finds the going relatively easy on a flat stretch of trail as he follows behind an expedition member. Left: The wood-fired kitchen at Hiunchuli basecamp. Wood-gathering by trekkers and mountaineers is a minor contribution to Nepal's ongoing deforestation. Below: The rugged path near basecamp.



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THE SATIRICAL EYE

Environmental Cartoons 1798-1916

IVA M. FUTRELL

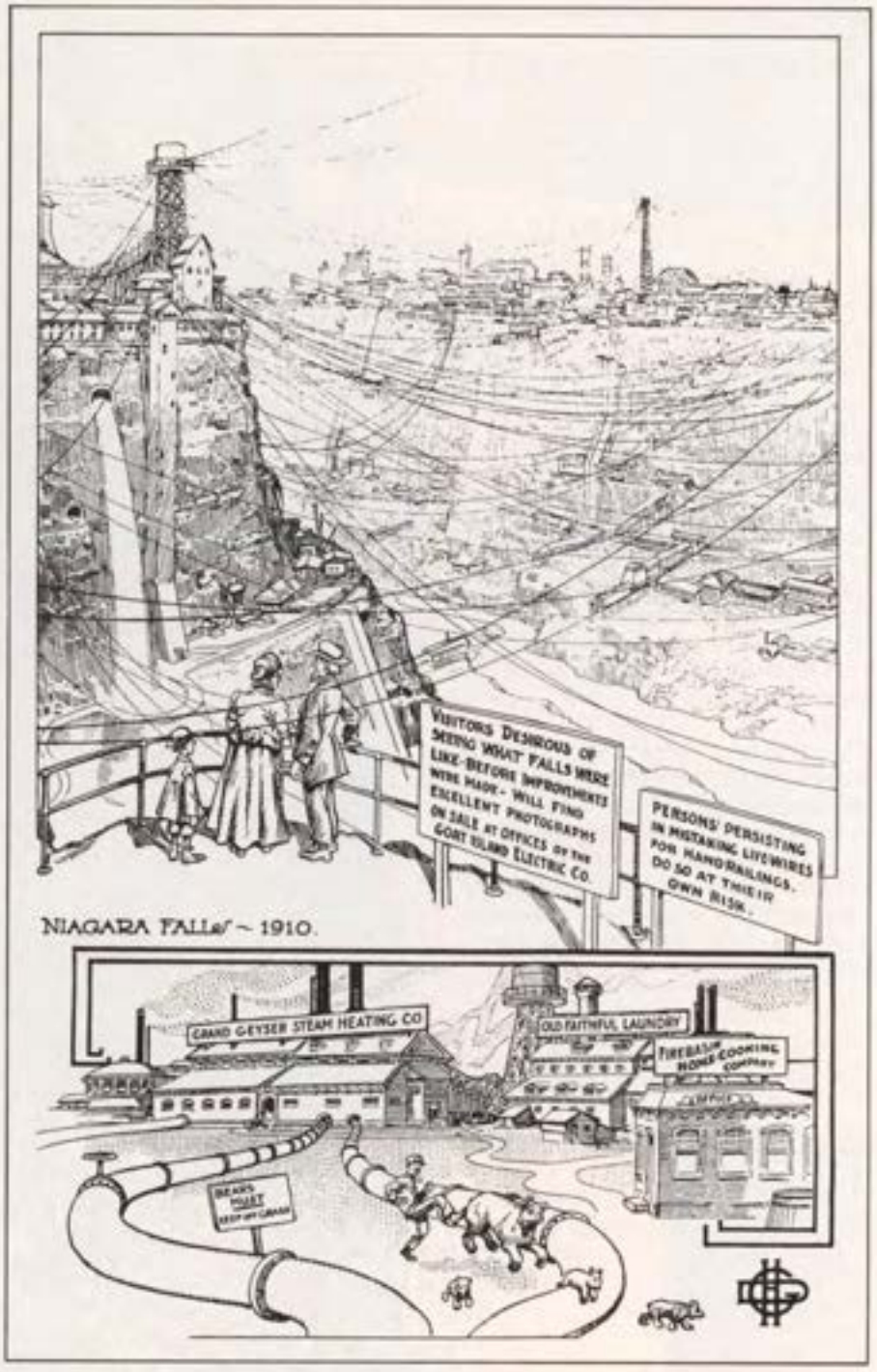
Editorial and political cartoons tell us something about the times they portray—surely not the whole story, but an interesting perspective on it.

In the environmental and natural-resources fields, as in other fields, early political cartoonists reflected an impression of the concerns of their day. The following cartoons—a small sampling from a much larger collection—reflect cartoonists' views of pressing environmental and natural-resource issues of their time, from 1798 up through the early 1900s.

Thomas Robert Malthus published his First Essay on Population *in 1798. He warned of problems of overpopulation and said that as a consequence of good land and low taxes in the U.S., population increases there would be great. Cartoonist George Cruikshank in this etching, "Over Population," comments on the crowded conditions in London in the early 19th century.*

OVER POPULATION

Theodore Roosevelt used the White House as a "bully pulpit" to preach his values and further his policies, foremost of which was conservation. He proposed a wide range of reforms in forestry, wildlife, and water-resources development. The popular image of T. R. is caught in Clifford V. Berryman's November 16, 1902, cartoon in The Washington Star, *"Drawing the Line in Mississippi." Roosevelt's refusal to shoot a cub on a bear hunt inspired the Berryman cartoon and the "Teddy Bear" nickname.*



Conservationist concern over commercialization of national parks is nothing new. Electricity from Niagara Falls began to serve Buffalo in 1896, and development around the Falls spread rapidly. This April 20, 1905, Life *cartoon wondered where it would end. A treaty signed by Canada and the U.S. in 1909 fixed the flow of water.*

Dedicated to Gifford Pinchot.

The Fly.—Hustle, boys! Here comes another flood due to deforestation!

Gifford Pinchot was the best known of Theodore Roosevelt's progressive administrators. The first American professional forester, he led in the establishment of what is now the U.S. Forest Service and of professional forestry associations. Believing in the importance of forest cover in upland areas to preserve water quality and prevent flooding, Pinchot, a one-time governor of Pennsylvania, led the campaign for purchase of private lands in the East to create national forests. This August 31, 1910, cartoon from Puck *(left) lobbies for the Weeks Act (passed in 1911), which achieved this aim.*

IS HE A VICIOUS ANIMAL?
Just You Try To Take His Bone Away

Teddy Roosevelt and the progressive-era leaders of the conservation movement were Republicans. Although tension existed between development and conservation impulses, the debate seldom turned on Marxist themes. Art Young drew political cartoons for socialist publications and was coeditor of The Masses *during World War I. The cartoon above suggests that the conservation issue presents an inherent conflict between the public interest and business leaders.*

Cartoonist Jay N. "Ding" Darling left his job at the Des Moines Register *in 1934 to serve as chief of the U.S. Biological Survey. He favored establishment of more refuges and lower bag limits to check the decline in waterfowl population. In 1934 he initiated the Duck Stamp program, which financed wildlife-habitat restoration. He received the Theodore Roosevelt Gold Medal Award for conservation, and was founder and first president of the National Wildlife Federation. The cartoon at left appeared in the* Des Moines Register *on his 40th birthday, October 21, 1916, and it led to syndication of his work by the* New York Herald Tribune.

Iva M. Futrell is librarian for the Environmental Law Institute in Washington, D.C. She is also an attorney.

1984 Foreign Trips

TRIP NUMBER		DATE	TRIP FEE (Including Deposit)	DEPOSIT	LEADER
†735	Annapurna Sanctuary, Nepal	Oct. 15-Nov. 5, 1983	$870	$100	Mike Brandt
740	Zambezi River Run	Dec. 19-29, 1983	1,855	100	Blaine LeCheminant
†*745	Lamjung Christmas Trek, Nepal	Dec. 17, 1983-Jan. 2, 1984	645	100	Peter Owens
760	Sierra Nevada del Cocuy, Colombia	Jan. 2-15	835	100	Frances and Patrick Colgan
765	Mountains to the Sea, Kenya	Feb. 5-24	2,085	100	Emily Benner
767	Barranca and Jungle: Mexican Birds	Feb. 25-Mar. 9	985	100	Richard Taylor
768	Ski Touring in Norway	Mar. 11-24	1,095	100	Madeleine and Jim W. Watters
*770	Tramping and Camping, New Zealand	Mar. 12-Apr. 2	1,630	100	Vicky Hoover
780	Mountains and Islands, Northern Japan	Apr. 22-May 12	1,950	100	Mildred and Tony Look
	Kyoto Extension	May 12-18	TBA		Mildred and Tony Look
*785	Sherpa Country Trek, Nepal	Apr. 30-May 26	1,285	100	Patrick Colgan
790	England's West Country/South Wales	June 1-13	TBA	100	Terry Seligman and Lori Loosley
795	Peru and Boliva	June/July	TBA	100	Charles Schultz
800	Annapurna Circle Trek, Nepal	June 11-July 7	930	100	Peter Owens
805	West Wales/Southern Ireland	June 15-27	TBA	100	Lori and Chris Loosley
810	The French Alpine Spine	July 1-15	TBA	100	Lynne Simpson
815	Kenya— By Horseback, On Foot, By Landrover	July 9-31	2,250	100	Ross Miles
820	Basque-land Trek, Spain/France	July 10-23	TBA	100	John Doering
825	Hiking in the Pyrenees	July 29-Aug. 11	TBA	100	Rosemary Stevens
830	Sunnyside of the Alps, Switzerland	Aug. 5-18	TBA	100	John Doering
835	Kenya— By River, On Foot, By Landrover	Aug. 9-31	2,335	100	Ross Miles
*840	Mountain Hiking in Norway	Aug. 12-25	1,330	100	Bob Paul
845	Lake Constance to the Rhine	Aug. 20-26	TBA	100	Lynne McClellan-Loots
847	Lake Constance to the Rhine	Aug. 28-Sept. 3	TBA	100	Lynne McClellan-Loots
*850	Zanskar, India	Aug. 25-Sept. 25	1,405	100	Phil Gowing
855	Glories of Ancient Greece	Aug. 30-Sept. 16	TBA	100	Kern Hildebrand
860	Bike Southern France	Sept. 10-30	1,400	100	Bob Stout
900	Mediterranean Sailing	Sept. 20-Oct. 2	TBA	100	Kern Hildebrand
*905	Jugal Himal Trek, Nepal	Oct. 8-Nov. 1	930	100	Serge Puchert
*907	Kangchenjunga Trek, Nepal	Nov. 9-Dec. 8	1,400	100	Peter Overmire
*910	Sherpa Christmas Trek, Nepal	Dec. 22, 1984-Jan. 12, 1985	780	100	Peter Owens

**Leader Approval Required* *†If there is enough interest, second sections will be added.*

Sierra Club Member ☐ Yes ☐ No

Send supplements: #____ #____ #____ #____ #____
(by trip number)

NAME_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

Enclosed is $_____ for each supplement requested over 5 at 50 cents each. Please allow 2-4 weeks for delivery.

IMPORTANT NOTICE!

Reservations for Sierra Club outings are subject to the reservation/cancellation policy and other conditions printed in the January/ February 1983 issue of *Sierra*. Please see that issue for this information and trip applications. The deposit for all foreign trips is $100 per person. Please include the deposit(s) with your application(s). Trip prices (where listed) are approximate and do not include air fare. Further price information will be listed in the 1984 Outing issue. The November/December issue of *Sierra* will include a preview of Winter and Spring trips. For supplemental information on outings, clip this coupon and mail to:

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

SUSAN A. SUCHMAN

BEYOND CITY LIMITS

AN OUTINGS PROGRAM FOR URBAN KIDS

FOR MANY YOUNG PEOPLE growing up in an urban environment, trees and forests, mountains and rivers, tents and sleeping bags are secondary associations—places and things they see only in movies or on television. But how can you see the smell of a pine forest? How can you hear the cold of a mountain stream?

The Sierra Club is working to increase awareness of environmental issues among those who have not yet met the wilderness as well as among those who are already eager participants in its exploration. The Inner City Outings Program (ICO), founded in 1970 and formally established as a national Sierra Club program in 1976, helps make it possible for groups from urban centers across the United States to get outdoors. Besides providing trip leaders, equipment, and planning resources, ICO attempts to give these newcomers to the wilderness a sense of conservation issues, the value of resource planning, and the need for a continuing effort to preserve undeveloped land.

Currently there are 15 ICO chapters, and the number is constantly growing. Chapters range in size from the San Francisco Bay Area group, which had 741 participants in 1982, to the Norman, Okla., group, which had 55 participants that year. ICO chapters may be as old as the Potomac Chapter, started in 1970, or as new as the New York Chapter, now in its second season. Trip plans vary according to the skills and interests of the leaders and the number of leader-volunteers in the chapter. In 1982, Bay Area Chapter ICO leaders led 90 trips for a total of 2,994 participant days in the wilderness. In El Paso, Texas, ICO leaders conducted six trips for a total of 94 participant days.

But statistics tell only part of the story. Because ICO is an all-volunteer program, each new leader contributes new ideas, and ICO has been structured to respond accordingly. National guidelines govern the fiscal structure of the chapters and set standards for trip leaders, insurance coverage, and so forth, but the rest is up to the individual chapters and volunteers. An ICO participant may be young or old, a member of an adult-rehabilitation group or a disabled person. ICO participants can be found hiking in the mountains, canoeing on a lake, enjoying whitewater rafting, or undertaking a clean-up program. The objective of the program is not to decide *who* wants to learn about the outdoors, but to give everybody and anybody who is willing to learn a chance to do so.

The Inner City Outings program was organized in 1969-1970 as a part of the People For a Golden Gate National Recreation Area (PFGGNRA) effort. While working to develop support for this project, Amy

Kids from the South Bronx and Staten Island join leaders from the New York City Inner City Outings Chapter for a spirited group portrait. The chapter is two years old and thriving.

Greta and Melissa Neugent and Sean Adolph, Philadelphia ICO participants, in Pennsylvania's Delaware State Forest.

Meyer and Marlene Sarnat attended a meeting of community leaders in the Chinatown district of San Francisco. At that meeting the comment was made that while it is a great idea to plan parks for the future, this would not do much to help young people already locked into a "cement environment."

The truth of this comment sent Marlene back to PFGGNRA with a new idea. Together with some other Sierra Club members and the Chinatown group, she organized the first (unofficial) Inner City Outings. These trips were used to demonstrate the importance of the proposed GGNRA by showing how the parks included in the plan could serve the needs of city youth.

Once the idea had been formulated, it began to expand. The Potomac Chapter, in Washington, D.C., soon joined the Bay Area Chapter, and the program started to grow. From its beginnings as a casual effort to get groups of kids to local recreational areas, it was developing into a national program with a strong set of objectives. First and foremost, ICO focus was on giving participants a knowledge of outdoor-recreational opportunities. However, ICO leaders quickly discovered that camping and hiking could also provide them with a tool to teach basic skills for everyday living. Planning trips, learning to buy and prepare food, reading maps, figuring out transportation to and from trip sites, and living in a group soon became part of the ICO experience.

"ICO can teach you about your day-to-day life," explained Mia Monroe, ICO national chair. And she should know. Mia began at the age of 15 as a helper to Amy Meyer in the early days of ICO and the

A Different Beat for City Cops

GALEN ROWELL

The Sierra Club's Inner City Outings is one of a number of programs around the country designed to introduce city-bound youngsters to the wilderness. A program run by the San Francisco Police Department serves a dual purpose: It introduces kids to the world beyond their own mean streets, but it also helps improve relations between young people possibly headed for trouble and the police officers with whom they might come into conflict.

THE SAN FRANCISCO Police Department's Wilderness Adventure Youth Program is unique in America. No other city has arranged to bring police officers and inner-city kids together in a wilderness setting. The cops are not even the trip leaders. They and their young companions are guided by instructors from the Yosemite Institute, an independent, nonpartisan educational organization that, since its founding in 1971, has put more than 40,000 youngsters in touch with the wilderness.

The Institute became involved in the cops-and-kids program by way of a chance connection, one that merged the destinies of two organizations seeking similar goals in different ways. In 1981 San Francisco police chief Cornelius Murphy asked his department to develop a program to alleviate tension between officers and inner-city kids. He had no firm idea of what form such a program might take, but he detailed two officers from his Community Relations department, Tim Foley and Walt Scott, to figure something out. With Jim Brenner of the San Francisco/San Mateo County 4-H Club, they began a camping program at the Point Reyes National Seashore. Foley, Scott, and Brenner knew there was something even better out there, but what that might be didn't become clear until they got together with the Yosemite Institute.

The Yosemite Institute was founded with the intention of introducing young people from a variety of economic and social backgrounds to the outdoor environment by means of three- to six-day "School Weeks" programs. Although the response to bird-and-bunny classes entailing expensive travel has come mainly from higher-income areas, limited scholarship funding is available for some lower-income students.

The board of directors of the Yosemite Institute is a most unusual body. The idea of bringing youngsters into national parks for instruction and appreciation brought together a cross section of extremely successful men and women who saw environmental awareness as an important factor in their own lives. Among the members of the board who come to California twice a year to guide the future of the Institute are Defense secretary Caspar Weinberger, Bill Anders (an Apollo astronaut who is now a vice-president of General Electric), George Hartzog (former director of the National Park Service), and Arnold Weber (president of the University of Colorado). Several members live in the San Francisco area, including board chair Virginia Duncan (a Bechtel Corp. executive), Archibald Calhoun (a former U.S. ambassador), and Bill Evers (chair of On-Line Business Systems).

In mid-1981—just when Foley and Scott were trying to conceive of the ideal situation for their youth program—the Yosemite Institute was undergoing substantial reorganization. To be more than a school it needed management beyond its executive director. Pat O'Donnell, experienced in resort management and wilderness travel around the world, was hired as the Institute's first president.

When O'Donnell attended his first board meeting in October 1981, he listened for a dominant theme. The message was anything but subtle. Late in the meeting Bill Evers pounded his fist so hard that the windows rattled and the dignified board broke into laughter. Evers's words became O'Donnell's mandate: "We've got to find a way to get to more inner-city kids!"

O'Donnell's staff searched for organizations involved with inner-city youth. Things began to click when he met with Foley and Scott. Plans were made for 300 youths and 48 officers to participate in week-long Yosemite backpack trips during the summer of 1982. The San Francisco Police Officers' Association and Chevron USA each donated $15,000 to begin funding the program, and in a short time a further $53,000 was raised from such other sources as the San Francisco *Examiner*, The North Face, and the Hearst, James

A tired but happy group of inner-city kids enjoys a campfire with San Francisco police officer Gwen Bridges at the close of a day full of new experiences.

Irvine, Bob Lurie, and Morse Stulsaft foundations.

The first season of operation wound up an overwhelming success. A post-trip questionnaire tells the story best. More than 70 percent of the participants later volunteered to contribute their time to service in their communities, such as working with the Red Cross and senior citizens. Nearly 100 percent volunteered to clean up Ocean Beach in San Francisco as part of a Police Youth Service Day. Ninety-five percent feel better about police officers, although 35 percent admitted previous adverse relations with them. Seventy-five percent found the program relevant to their lives in the city, while 80 percent feel tremendously better about themselves. As one youth summed it up, "Now I'll say 'I can' rather than 'I can't.'"

No single selection process is used for either kids or cops. Ideally, cops off the beat are matched with street kids from the same districts. Youngsters who might benefit from the program are targeted by community leaders, school counselors, or recreation supervisors. Many volunteer after hearing of the program by word of mouth. Less than half the participants have police records, which makes for a more positively oriented peer group than would be found in a reformatory or training school.

To see just how well the program functions in the field, I joined one of the groups in the Crane Flat area of Yosemite National Park. As packs and sleeping bags were distributed, both cops and kids displayed the subtle uncertainties that precede venturing into an unfamiliar environment. By campfire time the first evening, the aura of authority that normally surrounds police was gone. A teenage girl rested her head on Officer Gwen Bridges's shoulder. A second officer, Bill Johnston, chatted with two black brothers. If there was an authority figure, it was Pete Speer, a young instructor in his fourth year with the Institute. Pete adroitly brought out each child's individuality and goals in just the right proportion to preserve the group experience.

While using ropes to cross a river the next morning, each person worked for the group's best interest. All across the incomplete bridge of rocks and logs, kids were giving cops a hand and cops were giving kids a hand. What to others might appear to be just another obstacle on the trail was for this special group an exercise in cooperation, communication, and problem solving.

I talked to kids who had been on previous SFPD outings, kids who planned to come back, and one black teenager who said he planned to come back only when he could "work at taking money in the food store in Yosemite." When I asked him to explain, he said he loved the mountains, but not the lightweight camp and health foods, which he had never eaten before. If he could work as a cashier, he would be able to buy hot dogs and soft drinks and have the best of both worlds!

The cops also returned with better feelings and relationships. Weeks later, I rode with a uniformed Gwen Bridges into Sunnydale Project, a publicly funded San Francisco community for low-income families that can only be called a ghetto. Almost every teenager gestured or stared at us with hostility—until we met Victor and David McPeters, boys who had been on the program. They talked and joked with Gwen as if she were their sister, absolutely unconcerned about the reaction of their neighborhood friends. Here was the real measure of the program's success.

A friend joins David and Victor McPeters for a friendly chat with Officer Bridges after their Yosemite experience.

In Yosemite, Officer Bridges extends a helping hand to a youngster bracing herself for a crossing of tumultuous Illilouette Creek. This is one way cops and kids learn to rely on each other.

Galen Rowell has written several Sierra Club Books, including Alaska: Images of the Country *(1981).*

Vicki Peterson

Inner-city girls from the San Francisco Bay Area take their turn on the grub detail.

GGNRA. Today she works as a park ranger in Muir Woods, Calif. "Being around a group of strong adults like that really had an influence on me," Mia observed. "The program does not begin or end with one trip. Many participants go on to work in conservation, and some even stay with ICO. Juan Byron and Agelio Batle, who teach a ropes course for ICO, began as participants in the San Francisco program. Agelio also works as our artist, and Rich Finkes, another Bay Area participant, is in charge of ICO river equipment."

This kind of growth is typical of the ICO program in general. People or groups of people become involved in an informal way, and gradually the relationship becomes both deeper and firmer.

The problem of funding ICO illustrates this pattern. Initially the relationship of ICO to groups in the community depended completely on financial support from the community. The program as a whole was a grassroots effort with little or no connection to official Sierra Club guidelines or funding. Then, as Club members became more involved in the program and more enthusiastic about the results of the outings, they began to investigate ways of funding the program through the Club and of bringing it to community agencies as a joint venture. Patrick Colgan, Duff LaBoyteaux, and Marlene Sarnat—along with many others—began to recruit equipment from outdoor outfitters and funds from foundation and corporate grants. Sandy Knapp, then a leader of the knapsack section, began to drum up interest within the Club. Soon the program had leader-volunteers, equipment, and funds.

In 1976, ICO was formally recognized as a Sierra Club program. Guidelines were instituted, insurance provisions were formalized, and leadership standards were set on the national level. Nonetheless, the program remains an all-volunteer effort, one heavily dependent on the enthusiasm of the agencies that participate, the willingness and generosity of the leaders, and the eagerness of the kids themselves. The 1982 National ICO budget was $35,684; $4,000 of this came from individual donations and grassroots fund raising. This ratio is even closer on the local level. In the New York City Chapter, for example, $1,000 of a $6,000 budget in 1982–83 was made up of individual donations.

The heart of ICO, of course, is not dollars but people. The contrast between the Bay Area Chapter—the largest and, along with the Potomac Chapter, the oldest ICO program—and the New York City Chapter, one of the newest (formed in 1981), is a contrast in numbers, not in spirit. Madelyn Pyeatt and Jorge Paz, two veteran ICO leaders, and Dixie Peaslee, the founder of the New York City ICO, illustrate this point.

I met Madelyn and Jorge on a leadership-training weekend at Point Reyes National Seashore. Jorge, a Cuban immigrant, joined ICO as a weekend leader in conjunction with an effort to introduce a wilderness-outreach program in the Oakland, Calif., city schools 13 years ago. Madelyn, a Cherokee Indian, came to ICO 12 years ago when the Boy Scouts of America told her she could not be a leader of her son's scouting troop because, as a woman, she would not be able to lead a 12-mile hike! Madelyn has now not only been a key organizer of leadership-training programs, but has extended the work of ICO to groups of deaf and retarded adults. Jorge has extended his program to anyone who will come along.

"He just comes up to you in the hall," one young ICO junior leader-in-training told me. "I was standing by my locker and he says, 'You ever been camping?' I said no, and so he said, 'Come with me this weekend! You come with me to the mountains and you'll love it!' I went, and that was five years ago. I go whenever I have the chance now."

Another woman in her 40s told me, "I had never been out before, and Jorge tells me I should come with him to climb Mt. Whitney. My kids thought I was crazy, but I went—and I made it."

Individuals make ICO happen. Dixie

Vicki Peterson

A rafiful of participants and leaders from the San Francisco Bay Area ICO Chapter get a soaking while running Maytag Rapid on the North Yuba River in California.

Peaslee, a painter who had never organized anything before in her life, called up the New York Sierra Club office to volunteer as an ICO leader. "We don't have an ICO chapter here," they told her, "but there is an ICO leadership conference in Chicago in two weeks. Why don't you go? If you're interested, you could start an ICO for us."

"I'm a painter, and I've always worked alone," Dixie told me, laughing as she looked past a pile of backpacks from the past weekend's outings. "It was a mindboggling idea. But I love hiking and I love kids, so I decided to go to the conference. I met such enthusiastic people, I decided I'd try to develop an ICO chapter."

Two years later the New York ICO Chap-

ter within the Club's Atlantic Chapter is small but growing. Soon after an initial outreach effort—in which organizations were solicited if Dixie thought they might be interested—response was so overwhelming that there were neither the leaders nor the funds to service all of the agencies wanting to participate. REI donated the daypacks that allowed the program to get started with day hiking. This year Kreeger & Son has offered to contribute sleeping bags and to provide other camping equipment at cost. This will make a big difference because at present there is still only enough gear to send out one trip at a time.

"The equipment is an ongoing thing," Dixie explained. "With this many trips, the life of a backpack may be only four years; so we're always looking for new sources of funds and other support."

Innovation has been a key element of the East Coast program. Mountain wilderness is not as easy to reach there as it is in California, and recreation areas are more crowded, but opportunities exist if you hunt them down. I went along with several New York ICO groups who spent the day at Project Use, a wilderness program based in New Jersey, for a day of trust exercises, plus instruction in ropes and rapelling. One comment by a 16-year-old boy from a group home associated with the Foundling Hospital in Staten Island summed up the day. "Any other time we'd be bored," he explained when asked how he felt about the experience. "We'd be pushin' each other aroun', and by now there would've been one fight, maybe two. I haven't been bored all day!"

"What do you see?" asked John, the Project Use leader, of another streetwise young man who was now suspended on two ropes and looking down at the eight-foot circle of a parachute stretched between his buddies. "Give me two words for what you see or feel."

"Death!" the youth answered, his rough voice breaking a bit as he looked down at the center of the parachute.

"And what else?" John prompted. "Give me one more word."

"Beautiful . . . and death! Okay? Those are my two words, and now I'm gonna get this over with and jump!"

The group pulled the parachute tight, and down he came.

There has been some controversy on a theoretical level over the objectives of the program. Initially some Sierra Club members felt the program would be too limited in focus and thought it did not relate directly to Club priorities. However, once the program was under way, things turned out quite differently.

"We began as an outreach program for kids," Madelyn told me, "but now we reach all sorts of people. Next weekend I'm teaching a ropes course for the deaf."

"Many of these kids go on to conservation or wilderness careers," Jorge noted. "I've got several kids going to North Carolina with me for training at the Outward Bound school there. And more and more kids are becoming leaders after they've been in the program for a while. ICO really is bringing all these new groups of people to the Sierra Club and showing them what we do, why we do it, and how they can help."

"I get all Ds and Fs in school," one junior-leadership trainee told me as he showed the group how to finish up the knots on an emergency rescue shelter, "but somehow out here I remember this stuff."

Preservation of the environment begins with self-respect. If people do not hold up high standards in their lives, they will not hold high standards for the world in which they live. ICO meets environmental problems directly, by teaching newcomers how to take care of the wilderness, as well as indirectly, by teaching people whose community environment reflects degradation and disrespect to see themselves and the places around them in a new way.

Susan A. Suchman

An ICO participant—about to try his first rappel—takes a word of encouragement.

This point is illustrated by a letter written to Dixie Peaslee by a member of a South Bronx junior-high-school English class that participated in ICO last year:

Dear Dixie,

I am writing this letter to thank you for taking us on the hike. I really appreciate your taking your spare time and wasting it on us. I really liked the hike, and I really loved it out there. I can't wait till we go again. Thank you for lending us bags to put our stuff in. Thank you for the hot cocoa. Thank you for everything.

Sandra Astez

P.S. I really meant every word I wrote on this paper.

"This letter taught me something about their attitudes toward themselves," Dixie explained. "They don't think that it would

A blindfold walk through the woods teaches a valuable lesson about trust.

Susan A. Suchman

be worth someone's time and effort to do these things with them. Not only are we showing them things about the woods, giving them a recreational alternative and introducing new groups of people to the Sierra Club and its values; we're also giving them a chance to strengthen their self-respect."

The lessons of the outdoors come in all shapes and forms. Jorge Paz laughs when he remembers a group of Mexican-American kids he took on a weekend trip.

"Those girls brought all this makeup," he told me, "and in the morning they would get up early and be in the tent putting it on. But it was not all that way. At night the boys thought the girls were going to cook for them, but the girls said, 'Oh, no! Not out here, we don't cook for you.' The boys thought I would back them up, but I didn't, so they had nothing to eat. About nine o'clock they finally came to me and they said, 'Okay, you teach us to cook.' The trip went real well after that!"

The desire for ICO among inner-city youths, the interest expressed by groups who have contacted local ICO chapters, and the need for ICO in areas without such a program are all growing rapidly. Leaders and funds are needed, as are donations of time, money, and equipment. The efforts of the Reagan administration to limit wilderness activities can be used to advantage. Now that conservation is an issue receiving public attention, the potential base for Sierra Club activities can be expanded. ICO is a relevant program, both as a way to expand the Club and as a rewarding activity for present Club members who are looking for a way to participate. It provides individual Sierra Club members with a way to promote environmental knowledge and experience in their communities.

"Many groups are now trying to organize outdoor programs," Marlene Sarnat points out. "It is to everyone's advantage to help participants learn to share the values that we feel are appropriate: respect for and preservation of the wilderness."

ICO is a Sierra Club members' program. It is an all-volunteer program funded by contributions. Any Sierra Club member interested in joining an active chapter, in starting a new one or in supporting the program with a donation should contact Steve Griffiths, ICO National Coordinator, at headquarters (530 Bush Street, San Francisco, CA 94108; 415/981-8634). Contributions should be made payable to the Sierra Club Foundation in order to qualify as tax-deductible. Donations of used or new equipment are also welcome. □

Susan A. Suchman is a New York City-based writer with interests in theater, dance, and computer systems analysis.

Wheeling and Dealing in Nuclear Power

ELLEN WINCHESTER

The Next Nuclear Gamble: Transportation and Storage of Nuclear Waste, by Marvin Resnikoff. The Council on Economic Priorities, New York, 1983. $17.95, paper.
The Nuclear Fix: A Guide to Nuclear Activities in the Third World, by Thijs De La Court, Deborah Pick, and Daniel Nordquist. World Information Service on Energy (25 Powers Park, Barrett, MN 53611), 1982. $9.95, paper.

Reading these two books in sequence enlarges the individual significance of each. *The Next Nuclear Gamble* documents the dangers risked, the absurdities proclaimed, and the carelessness exhibited by the most advanced industrial country in the world as it polices and regulates the transport of irradiated nuclear fuels. *The Nuclear Fix* describes the progress of nuclear power in some 60 developing countries, none of which has the resources to produce the volume of studies, laws, regulations, and documents that inform *The Next Nuclear Gamble*.

Obviously, if *we* can't learn how to handle nuclear materials safely, countries with lesser resources are unlikely to do better. Of course, the fact is that developing countries depend on us to develop safety measures for the nuclear technologies we export to them. And *The Next Nuclear Gamble* makes it clear that we not only have a long way to go in the area of nuclear-waste transport alone, but that protecting populations from nuclear accidents is expensive. It seems questionable whether our legislative bodies, to say nothing of the governments in developing countries, will ever feel we can afford it.

The particular crisis addressed in *The Next Nuclear Gamble* is that within the next few years the transport of highly radioactive spent fuel on the nation's interstate highways will increase manyfold, with as many as 120 such shipments in motion on any day by the year 2000. If the nuclear industry succeeds in its current $40-million campaign to resell the American public on the safety and desirability of nuclear power, the number of waste shipments could be much greater.

Right now not much is moving, because the nation's 73 operating reactors still have enough room in their storage pools to accommodate their spent fuel. By next year, despite heroic compacting strategies, several pools will be full. From then on, movement between reactors with full pools and reactors with pool space, and between reactors and the Federal Away From Reactor storage facility (authorized by the Nuclear Waste Policy Act), will become brisk. And down the road—in 1998, if the schedule established by the NWPA is maintained and if no changes are made in methods of transport—much of the commercial spent fuel produced in this country will be trucked over the nation's highways to a national depository, interspersed as chance will have it between trucks carrying flammable hazardous wastes or fuels, careless or drunken drivers, and the likes of you and me, worriedly tooling along in the family car. Most of what isn't trucked will be on railway cars afflicted with problems made familiar by the derailment of hazardous-waste cargoes—only *these* cargoes will be radioactive. A fraction may travel by barge, endangering the marine food chain.

Marvin Resnikoff and his colleagues at the Council on Economic Priorities (CEP) charge the Department of Transportation (DOT) and the Nuclear Regulatory Commission (NRC) with providing inadequate protection for the communities through which these vehicles will pass. They predict five nuclear-waste-transport accidents by 1990, rising to 27 by 2000 if the Away From Reactor storage facility is in the Southeast, and to 59 if it is in the Northwest.

Because the NRC considers the indestructibility of shipping casks to be the principal guarantor of public safety, Resnikoff has exhaustively studied the reliability of this premise. As with so many aspects of health and safety related to nuclear commerce, the government agencies authorized to deal with them seem more interested in favorable images than in realities. For example, crash tests of shipping casks conducted by Sandia National Laboratories used obsolete casks no longer in use. Not pressurized to realistic levels during the tests, the casks could not be tested for valve leakage after impact. A widely distributed film showing the "indestructibility" of the casks does not reveal that in two of the four tests shown the casks leaked, nor that in the fire test some cask welds failed.

Much more serious is the fact that NRC cask-performance tests were conceived more than 20 years ago and do not meet today's highway- and rail-accident conditions. The CEP study finds that with respect to impact, puncture, and fire all of the government's design standards are too low. Casks are built to withstand a 30-mile-per-hour crash into an immovable barrier. Yet highway accidents often take place at more than 60 miles per hour. Another CEP observation: "Casks are only required to withstand a fire of 1,475° [F.]. Many commonly transported chemicals burn at temperatures greater than 3,000°."

To a nontechnical reviewer it seems almost unbelievable, like a detail in satirical fiction, that no casks currently in use in the United States have been physically tested. Cask testing has been done by computer simulations or hand calculations. Nuclear bombs and the ability of oil rigs to withstand arctic ice are also tested by computer simulation. It is the age we live in.

However, that excuse cannot be made for the fact that both the NRC and the DOT have usually monitored paperwork rather than inspect actual manufacturing conditions to make sure casks are constructed according to design specifications. From documents obtained through the Freedom of Information Act, CEP learned that "DOT has never inspected an irradiated-fuel shipment or a cask manufacturer. DOT always defers to the NRC in these areas. The NRC has never inspected a shipment on the highway, and has performed only limited inspections of manufacturers." Similar Alphonse-and-Gaston performances by the two agencies have hampered other aspects of nuclear-transport safety.

Since casks are not indestructible, other aspects of transport safety become very

important. DOT has poorly carried out its clear, regulatory responsibility for a host of them, such as vehicle-safety standards, tie-downs, driver training, routing, and training of local emergency personnel. Cask tie-down requirements are weak and poorly enforced. DOT has left the development of driver-training tests up to shippers. NRC requires thorough safeguards training to ward off saboteurs, but does not require instruction in the protection of public health and safety in the event of an accident.

The story with regard to community preparedness for an accident is dismal. "Thirty-one states with nuclear installations have emergency plans for accidents at fixed units but lack a plan for transportation accidents," according to one CEP report. "The remaining 19 states are even less prepared." Lack of information about the wastes involved, lack of equipment to measure radiation, lack of trained personnel to handle decontamination procedures, and conflict of authority between state and federal agencies and local response teams would combine to hamper emergency action.

In view of the hazards of nuclear-waste transport described in *The Next Nuclear Gamble*, a reader would not be surprised if the author called both for closing down power reactors with full storage pools and for stopping the production of irradiated fuel at least until new storage pools are built. But this approach is mentioned only in passing. The author's alternative of choice is for utilities to plan to store their spent fuel in dry-storage casks at the reactor site. These casks are as yet unlicensed but are under development in the United States and Germany. Resnikoff maintains that the casks are preferable to storage pools because their cooling system is passive. Storage pools require the reliable operation of electric motors and pumps. When the federal depository is in operation, the dry-storage casks themselves could be transported by barge or rail. They could even be emplaced in the depository itself, if the medium were not salt. (See "Canyonlands or No-Man's-Land?" July/August, 1983.) If the opening of the depository is delayed, spent fuel could remain safely stored in the casks.

But how long could it be safely stored? Resnikoff mentions 50 years but admits this figure is conjectural, since long-term testing has not been carried out. In discussing another alternative, dry-well storage, he warns that citizens "might have a realistic concern about dry-well storage at reactor sites becoming de facto long-term waste depositories." A reader may question whether the use of dry-storage casks could not give rise to the same anxiety, especially if depository construction is long delayed. Their licensing could also encourage expansion of an industry that has always been less concerned about ultimate disposal than about its immediate need to relieve overburdened storage pools. The result could be the production, not only in the United States but worldwide, of far more spent fuel than worries us now, sitting about in storage casks with dwindling containment capacity, vulnerable to exploitation by terrorists or governments interested in reprocessing their contents to yield plutonium for use in weapons production.

Ironically—in view of author Resnikoff's earlier involvement in studies of inadequate waste storage at the West Valley, N.Y., reprocessing plant—readers of this book *could* jump to the conclusion that the whole problem of nuclear-waste transport could be solved by reprocessing. This was the method of waste management anticipated by utilities when most of the existing reactors—with their small storage pools—were designed. Probably because commercial reprocessing is not now performed in the United States, transport of its resulting high-level wastes is not discussed here. Yet readers should be advised that reprocessing relieves waste-storage problems only at the reactor site. Resulting high-level wastes are fully as difficult to store or dispose of permanently as is unreprocessed irradiated fuel. The much-publicized Swedish KBS plan to dispose of wastes in granite is concerned with vitrified wastes that will be shipped back to Sweden from the Cogema reprocessing plant in France.

In addition to recommending the use of dry-storage casks, *The Next Nuclear Gamble* concludes with specific recommendations for upgrading cask standards, increasing insurance on nuclear shipments, improving safety measures that fall under DOT's jurisdiction, and recommending that Congress establish a program to train and equip local emergency personnel. According to a statement Resnikoff made in the March 1983 *Progressive*, more than 200 local and state jurisdictions have banned or restricted nuclear transport. The data in his book should help many more states and communities pass protective laws and ordinances. Such efforts will have to contend, however, with the Supreme Court's recent refusal to hear appeals of lower-court rulings that overturned bans on the shipment of nuclear waste into Washington and Illinois.

While *The Next Nuclear Gamble* is a solidly researched exposé of a dangerous situation, it is not a polemic attacking the continued operation of the nuclear industry. In contrast, the overriding concern of the writers of *The Nuclear Fix* is with the threat of nuclear proliferation implicit in the spread of that industry. While the book focuses on the

Third World, the text and forewords plainly support halting nuclear development worldwide before the proliferation problem balloons beyond any possibility of human control. Yet it is mainly a reference volume filled with otherwise hard-to-find information about the history and prospects of nuclear development in countries where, for the most part, concern about public safety has a considerably lower priority than it has in the United States.

The book also contains fascinating stories concerning the multinational wheeling and dealing that has spread weapons capability and terroristic opportunities across the Third World. Essays concerning the potential for clandestine production and diversion of plutonium, the history of nuclear development, and a description of the nuclear-fuel chain are useful reviews for longtime activists and essential background material for readers new to the subject.

Fifty-seven reactors (46 for research, 11 commercial) are operating in the 60-odd countries examined in the WISE book. Argentina, Brazil, South Africa, Israel, India, Pakistan, South Korea, and Taiwan receive particularly detailed attention. Of these countries only India has demonstrated a capacity to build and detonate a "nuclear device," but the others, along with Libya and Iraq, are presumed to have the capacity to do so. With American and European anxieties about the bomb focused almost exclusively on slowing the arms race between the United States and the Soviet Union, it is time for a reminder that the possibility increases every year that nuclear blackmail will issue from some corner of the globe where nobody is watching. While European vendors are active competitors, the role of U.S. reactor vendors and of the U.S. Export-Import Bank in nurturing nuclear power in developing countries makes their proliferation threat a peculiarly American moral responsibility. According to a foreword by Amory and Hunter Lovins, "The Export-Import Bank has provided more subsidies for nuclear exports than any other institution in the world." At a time when nuclear reactor sales have come to a halt in the United States, sales abroad are helping keep the U.S. nuclear industry alive.

It is not surprising that *The Nuclear Fix* contains little information about safety regulations or nuclear-waste management in Third World countries. *The Next Nuclear Gamble* illustrates how even in an open democracy it is difficult to ensure adequate public protection from the complex operations of the nuclear industry. It is more difficult in Taiwan, to cite only one undemocratic Third World country. Yet that earthquake-prone, typhoon-lashed island boasts five research reactors and four operating commercial reactors, with two more facilities under construction and another 18 planned. It seems safe to say that no indigenous public-interest groups are investigating evacuation plans for the Filipinos who live near the semiactive volcano on the slope of which Westinghouse is building a 620-MW pressurized-water reactor. Nor are such groups monitoring nuclear activities in Pusan, South Korea, near which three more reactors are planned to supplement the Westinghouse 587-MW pressurized-water reactor that has been operating since 1978. How safely are these countries transporting their waste? Where are they transporting it? *The Nuclear Fix* mentions only that South Korea is considering ocean dumping north of Japan and that Taiwan is storing waste in steel drums on an offshore island.

Other safety questions occur, perhaps unimportant to the global commons but important to the global conscience. How do Namibia, Niger, and Gabon handle health and safety of uranium miners? Of populations living near tailings exposed to wind? The authors of *The Nuclear Fix* say it is a slim hope that the experience of American Indians at Church Rock, N.M., will not be paralleled for many of the nomads in Niger or the forced laborers of Namibia.

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Book Reviews

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poverished countries to permit their governments to go deeply into debt to finance nuclear power? Obviously, large sums are skimmed off the top of foreign loans into the pockets of the "culturally hybrid ruling classes." The opportunity to profit by escaping high labor costs in the United States must be a motive. National pride is also a factor, as it is in developing national airlines and nuclear weapons.

Nor can we ignore the desperation of governments faced with swelling populations and the high cost of oil. More dismal news continually appears concerning deforestation and erosion caused by the use of wood for fuel. (See "Climbers & Porters in Nepal," page 60.) The tragic irony is that nuclear electricity is not the form of energy needed in those countries where the forests are disappearing. Financing the power grids to reach those vast regions is usually out of the question. Harnessing appropriate, renewable energy sources is the remedy; but as the Lovinses point out in their foreword to *The Nuclear Fix*, if we in the United States, despite our wealth, technical skills, and vast reserves of fossil fuels, "cannot do without nuclear power and fast-breeder reactors, of course others, lacking these advantages, will say they need plutonium even more."

Ellen Winchester, a former Sierra Club director, currently chairs the Club's National Energy Committee.

Laws of the Land

VAWTER PARKER

Land-Use Planning and the Law, by Alexandra D. Dawson. Garland STPM Press, New York and London, 1982. $32.50, cloth.

Possibly no body of law, resource or otherwise, gives rise to more heated controversy more frequently than that concerning public controls over the use of private lands. For many people, certainly most landowners, the freedom to decide how their own lots or acres may be used, or the question of how or whether a local tract is developed, are of much greater financial, emotional, and aesthetic concern than the management of remote national forest and BLM lands. In many parts of the United States almost every issue of the local newspaper contains a story, editorial, or letter to the editor concerning zoning or land-use planning, while the planning commission rivals only the school board in the difficulty

of its task and the scorn and disapproval it is subjected to.

Debates over land use, alas, often produce more heat than light, for the irony is that the body of law governing such disputes is one of the least understood by and least accessible to the public. The statutes relating to the use of private land differ from state to state; ordinances and regulations differ from county to county and city to city, from regional coastal commission to water district to floodplain control district. There are "billboard" acts and "public shade tree" acts, "impact zoning" and "floating zoning," "cluster developments" and "planned-unit developments." As they exist, each set of statutes, regulations, and judicial and administrative interpretations is apt to pertain to a separate locality.

Land-Use Planning and the Law is an attempt to make intelligible and accessible the body of law governing the use of private lands. As the author states in her introduction, the book is "designed for motivated people—ranging from those who have had no contact with law to lawyers with other specialties—who want to improve their understanding of the laws that govern American land use." What she has done is set forth in an organized manner and in readable English the legal framework within which American land-use planning takes place. The author's intent is to describe this framework, outline the general content and consequences of the most frequent arguments and concepts—"due process," "equal protection," "eminent domain," "public trust," on down through "cluster developments" and "planned-unit developments"—and explain the recurring constitutional issues and the powers of various specialized agencies.

This is obviously not a book for general reading. It is a reference book, but an extremely valuable one. Its two major contributions are these: (1) a description of the legal framework and the common concepts of land-use planning, and (2) directions for finding pertinent state regulations and local ordinances and codes. The author's premise is that any motivated person who understands the framework and knows where to go to find the local variant can affect land use in his or her community. The unstated second part of the hypothesis is that that person can do so without hiring a lawyer. The lawyer needs the framework—it is seldom taught in law schools; the layman needs both the framework and the directions for finding specific information.

While *Land-Use Planning and the Law* contains brief descriptions of the federal statutes that control federal lands and affect other land use, its focus is on local law. A summary of federal statutes will be found in *Land Use Controls in the United States*,

prepared by the Natural Resources Defense Council (The Dial Press/James Wade, 1977). Although some portions of this latter book are out of date—Congress amends statutes frequently, and regulations change with national administrations—it still provides a comprehensive and comprehensible description of federal law.

This reviewer's major concern is not with the contents of *Land-Use Planning and the Law*, but with getting the book into the hands of people who need it. It should be in every county library and every city and county office to which troubled citizens are likely to turn. It should be available from the local groups of the League of Women Voters and the Sierra Club. As the author says:

Presumably only a desperate person would take a job as an auto mechanic without some knowledge of automobile systems. However, people are constantly accepting employment or civic responsibilities involving land use without studying the relevant laws. This statement has very broad application: it can apply to a planning or resource graduate taking a job in a governmental agency with land-use duties; an employee in a firm which does environmental consulting or landscape architecture; a committee member in a regional planning agency, a voters' group, a chamber of commerce, or a political agency; a member of a local or state board reviewing projects; a corporate employee writing environmental impact statements; a real estate broker or developer in a town with complex modern zoning; a municipal solicitor selected for skill in labor, not land, law; an irate citizens' group fighting for or against a hometown project; a taxpayer puzzled by massive capital investments in roads or sewers; a city planner; a state wildlife biologist; a sanitary engineer. All of these people are affected by land law even if they try to avoid it. It is, of course, possible to practice law for years without reading any, just as it is

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possible to assemble a machine by empirical guesswork; but for most people, a little textual work in their respective fields pays off.

Dawson has written a very readable and informative book to serve such people's needs. It is to be hoped that book buyers, particularly those who buy books for institutions, will buy this one and make its availability known to their members and employees as well as to the general public.

Vawter Parker is litigation coordinator for the Sierra Club Legal Defense Fund.

The Doubtful Optimist

MARTHA OESCH

Nothing Can Be Done, Everything Is Possible, by Byron Kennard. Brick House, Andover, MA., 1982. $9.95, paper.

"Human beings are contrary and essentially ungovernable," writes long-time community organizer Byron Kennard in his book *Nothing Can Be Done, Everything Is Possible*. But this observation doesn't keep him from proclaiming people the most valuable resource available. Kennard should know: He chaired the National Earth Day 1980 and served as vice-chair of Sun Day 1978.

In a refreshingly straightforward and personal account, Kennard addresses the "whys" rather than the "how-tos" of social change.

Reacting to the present economic system's resistance to citizen action, Kennard pointedly writes, "If citizens band together to build a solar collector for a community center, the factotums of economics sitting in think tanks or government agencies don't hear about it; therefore, they can't count it. If they can't count it, it doesn't exist." He continues, "But we shouldn't worry too much about such faulty measuring systems. What cannot be counted, cannot be controlled. So much the better for freedom."

A critic of the modern preoccupation with bigness, Kennard views decentralization and self-reliance as partial solutions to the polluted environment and moral code. "Given a choice, it is always better to retain power yourself than to hand it over to someone else, even a well-meaning politician," he says.

For those already attempting to remedy social ills, or those contemplating such work, Kennard offers an ethical guide to problems ranging from group dynamics to

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grant-getting. He notes that the motivation of those working within social movements is not always as altruistic as many would like to believe. "The ambitious are extremely competitive with others in the movement doing work *most similar to their own*," notes Kennard. "In sorrow, I confess they would rather do in their perceived competitors than the common enemy."

Many would agree with Kennard that "*nothing can be done* to solve problems by conventional means." However, Kennard turns this negative observation into impetus for positive change. He gauges victories within social movements not by election victories or even necessarily by reform, but instead by the slow, sometimes imperceptible changes in people's attitudes and behavior. For example, Kennard observes, the word "ecology" was virtually unknown 15 years ago, but it has become an integral part of everyday language. Instead of lamenting the decline in the number of registered voters, Kennard says "this means the true action may be elsewhere, in food cooperatives, in neighborhood organizations, or in citizen networks devising regional solutions to regional problems while ignoring artificial political boundaries."

Optimistic at a time when doomsday dread is deemed the correct attitude for committed activists, Kennard draws the reader into his world of endless possibility: "The human race is not about to depart from life's stage without putting up a good fight. . . . A rough justice exists out there somewhere in the universe." □

Martha Oesch is a staff writer for Public Citizen *magazine. This article is reprinted with permission from the Fall 1982 issue of* Public Citizen.

How Birds Get Their Names

Answers from page 84.

1. *Chachalaca*
2. *Pintail duck*
3. *Cardinal*
4. *Sapsucker*
5. *Puffin*
6. *Booby*
7. *Turnstone*
8. *Roadrunner*
9. *Limpkin*

FOR YOUNGER READERS

HOW BIRDS GET THEIR NAMES

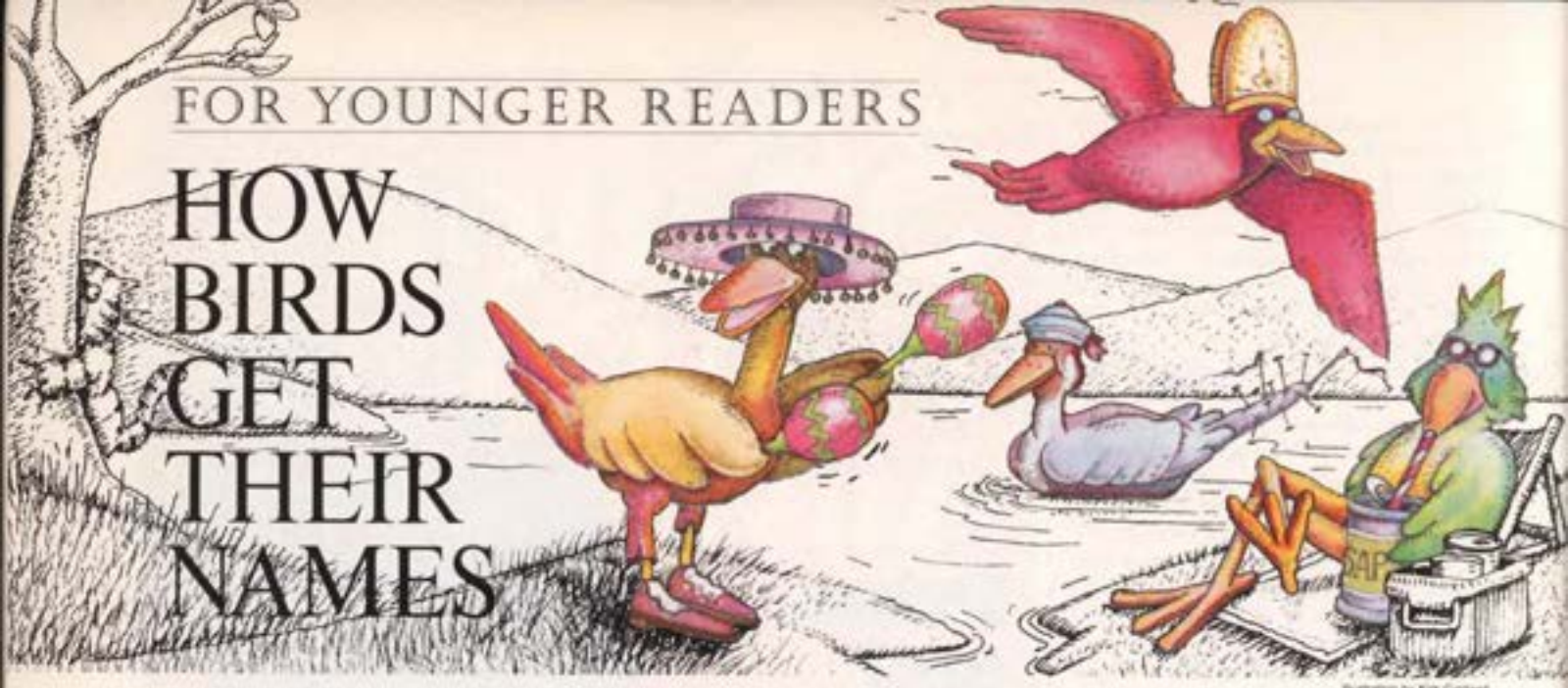

Illustration by Kirk Caldwell

JEAN SNYDER POLLOCK AND ROBERT POLLOCK

EACH OF THESE WORDS is a bird's name: *Chickadee. Limpkin. Sapsucker. Puffin.* Did you ever wonder where some of these strange-sounding names come from? You were probably named after someone in your family, or else your mother and father liked a certain name and thought it should belong especially to you. But birds are named for other reasons, as we shall see.

Wayne Lankinen/DRK Photo

Goldfinch

Probably the most obvious reason to choose a name for a bird is because of the way it looks. *Bluebirds* and *blackbirds* are good examples. The brilliant *red cardinal* is named for high officials in the Catholic Church who wear red robes and hats and are called cardinals. You can easily imagine the appearance of birds with such names as *redhead*, *yellowleg*, and *goldeneye*.

Color is not a bird's only important physical trait. The *pintail* is a beautiful duck with a pointed tail that resembles a pin. A seed-eating bird named for its large, thick bill is the *grosbeak*. (The French word "gros" means thick and ought not be confused with the English word "gross.") And there is a small bird living along the seacoasts that puffs out its feathers, and so is known as the *puffin*, which means "little puff."

The ways birds act give rise to many bird names. Some of these traits have to do with eating. The name *sapsucker* is an example, because this bird sucks sap, a sweet liquid, from the holes it drills in trees. *Turnstones*, shore birds found along the West Coast of the United States, hunt for food by turning over small stones in their search for insects or tiny animals. Birds that eat seeds or nuts may need to crack open the shells. The *nutcracker* is one of these, a grey, black, and white bird with a very large bill it uses to pound open the shells of nuts it finds.

Pintail duck

H. Cruickshank/VIREO

Greater flamingo

H. Cruickshank/VIREO

Horned puffin

All the birds in this illustration are mentioned in the article below. Can you identify them? Answers are on page 83.

Roadrunner

Stephen J. Krasemann/DRK Photo

A *creeper* is a small bird that searches for insects by creeping up tree trunks, while a *dipper* catches the insects it eats by "going for a dip"—it actually walks under water!

Some behavioral names come from movements the birds make. The *limpkin* gets its name from its awkward way of walking, which makes it look as though it is limping. The *roadrunner* of the southwestern United States is named for its habit of running across the desert at speeds up to 15 miles an hour.

Booby is the funny name of a seabird that lives in the tropics. When it was first discovered hundreds of years ago by Spanish and Portuguese sailors, it was not afraid of men. The sailors thought this was foolish, and so they called it by the Spanish word "bobo," which means "blockhead" or "stupid fellow." Over time the English word "booby" came to be used.

The *chickadee* sings its own name: "chick-a-dee-dee-dee." Names that sound like, or echo, a bird's call or song are echoic (eh-cōe-ick) names. These names are fun to say out loud. For instance, the *chachalaca*, a bird found in southern Texas and in Mexico, has a chickenlike cackle that sounds like "cha-cha-laca." Other birds with echoic names are the *caracara*, the *cuckoo*, the *bobwhite*, the *whippoorwill*, and the *curlew*. Have you ever heard any of these birds?

Another example of a bird named for the sound it makes is the *hummingbird*, whose wings make a humming noise when it flies or hovers.

Many birds are named for the place where they live. The name may come from the nature of the bird's habitat. For example, *meadowlarks* live in a meadow or field. You have probably seen them sitting on fenceposts, black Vs on their bright-yellow breasts. The *tropic-bird* lives in the tropical areas of the Atlantic, Pacific, and Indian oceans. A *cliff swallow* makes its nest of mud on a cliff. A bird's name may come from the specific part of the world where it was first seen or a part of the area where it lives. The *Canada jay*, the *Philadelphia vireo*, the *Louisiana heron*, and the *Pacific loon* are examples of this.

Some birds have been named in honor of famous people. Two men you may have studied about in school are Meriwether Lewis and William Clark. In 1803 they led a great expedition to the western United States to find an overland route to the Pacific Ocean. Natural-

Chickadee

Tom A. Schreiber/DRK Photo

Plain chachalaca

H. Cruickshank/VIREO

ists on the trip identified several new birds, and two of them were named for the leaders of the expedition: *Lewis's woodpecker* and *Clark's nutcracker.*

You can see that using two or more words in a bird's name makes it more descriptive. For example, appearance and sound may be combined, as in *long-billed curlew*; appearance and feeding behavior, as in *yellow-bellied sapsucker*; or habitat and sound, as in *mountain chickadee.*

Not all bird names have such obvious or simple explanations. Some come from other languages. The name *flamingo* comes from the Spanish word "flamenco," which originally came from the Latin word "flamma," meaning flame, and refers to the bird's pink color. Even the experts are not sure of the exact meaning of names such as *sparrow* and *starling.*

Of the more than 8,000 kinds of birds found in the world, some have names that are both fascinating and amusing. The *blue-crowned motmot* is found in Central and South America; so is a kind of hummingbird called the *white-tipped sicklebill.* The *hoopoe* lives in parts of Europe and Asia. On the Pacific Coast of the United States you can see a *wandering tattler*, but you will have to go all the way to Australia to see a *kookaburra.*

Books about birds are available at your school or public library, or in the "Nature" section of your local bookstore. Look for birds around your yard and city parks or in the fields and lakes near your home. The names of the birds you see will have more meaning if you know where the names came from. Books will make it easier to identify the birds and to remember their names, and then they will seem like old friends wherever you go. ☐

Jean Snyder Pollock and Robert Pollock live in Allenspark, Colo. Their photos and articles have appeared in Defenders, National Wildlife, Natural History, *and* Popular Photography.

Stuart and Abigail Avery: No Time to Slow Down

BOB IRWIN

In the summer of 1956, Stuart and Abigail Avery of Lincoln Center, Mass., traveled to the North Cascades of Washington for one of their periodic visits to friends living in the tiny, isolated village of Stehekin. Their first trip to the area had been in 1940; neither then nor on any later visit—including one for the entire summer of 1948—had they ever seen any sign of logging activities along the heavily forested slopes of the Stehekin valley. But this year their hosts, Grant and Jane McConnell, took them up the valley to the gorge of Agnes Creek, where majestic stands of fir and cedar had been designated by the Forest Service for future timber sales.

Initially shocked, then outraged, the Averys realized that they had to do something. It would take more than armchair conservationism to save the place they had come to love. From that moment on, although they may not have realized it then, they had become environmental activists.

The Averys had long been concerned for the earth's wild places. In her childhood Abby had been taken camping and climbing by her father in New Hampshire's White Mountains. Among those same peaks, Stuart celebrated his graduation from Cornell University with a climb up Mt. Lafayette. Some 2,000 miles west and a few years later, on Labor Day, 1936, their paths converged atop 14,000-foot Blanca Peak in

Stuart and Abigail Avery make the hands-on acquaintance of a Galapagos tortoise on Mt. Alcedo, Ecuador, in 1976.

Colorado's Sangre de Cristo Mountains. Both were working in Denver: he as a designer of spillways for U.S. Bureau of Reclamation dams, she as a public-health nurse. They were married one year later. (Appropriately, on their honeymoon in Maine they climbed Mt. Katahdin.)

Stuart was called into the Army in the spring of 1941, while he was working on the Grand Coulee Dam. Until his return from the Pacific in 1945, Abby did public-health work, including nurse midwifery, in Boston and New York. She also continued to be active in the Appalachian Mountain Club, which she had joined in 1934. Stuart joined the AMC in 1946, the year he earned his master's degree in soil mechanics from Harvard.

In 1950 the Averys moved into their present home, a rambling 1790s house in Lincoln Center, west of Boston. Their family, which would grow to three boys and two girls, already was four-fifths complete. Appropriately, Abby worked part-time as an obstetrical nurse. Stuart, after teaching awhile at Harvard, pursued two careers: soil-structure consultant on large construction projects, and operations chief for a number of small water companies in New England.

During those years the family took frequent trips to the White Mountains and North Cascades. Before long, they purchased the McConnells' Stehekin cabin for themselves. Through that purchase the Averys became local landowners with a real, tangible stake in the fate of the North Cascades. No longer could they be called "those visitors from Boston."

But back to that summer day in 1956. After the Averys returned from their escorted tour of the Agnes Creek forest, Abby fired off a letter to the late Olaus Murie, then president of the Wilderness Society. She, a longtime member, asked him what could be done. In a three-page letter he replied that because not many people knew about the area, the greatest need was publicity. Even Murie, a westerner who'd lived in Teton country for years, had never been to the Stehekin region, although he said he planned to visit it soon. (The Wilderness Society's national council held its 1958 meeting there.)

Of course, the people of the Northwest were familiar with the area and with the threats to it. The North Cascades Conservation Council (NCCC), a coalition of outdoor groups including the Sierra Club and The Mountaineers, was campaigning vigorously for a North Cascades National Park. The McConnells, active in both the NCCC and the Sierra Club's newly formed (1954) Pacific Northwest Chapter, told the Averys that the Club's executive director, David Brower, had been in the area shooting a film

Stuart Avery

Abigail Avery

for the Club. Its purpose was to build support for the park in all sections of the country. For that job to be done properly, at least 50 copies of the film would have to be made available, entailing a major expense that the Club then saw no way of covering. (At that time it had only 10,000 members and was in the midst of the protracted Dinosaur National Monument controversy.) Perhaps, the Averys ventured, they could be of help.

They could be, and they were. First they swelled the Sierra Club's membership rolls by two. Then they rounded up the necessary funds to see the film project through. *Wilderness Alps of Stehekin* was released in 1958 to critical acclaim. It played an enormous role in winning nationwide popular support for the North Cascades National Park.

The Averys didn't slow down. They became missionaries to the East for the North Cascades cause. Their flood of letters and articles generated wide public support, especially among fellow Appalachian Mountain Club members. In 1966 Abby became the AMC's conservation chair; from that post not only did her educational work on the North Cascades issue become more effective, but also her awareness of New Eng-

A 1921 Sightings

In this photo from the Club's 1921 Yosemite High Trip, longtime member Edna Potwin Thompson Lyser (fourth from left) is seen in the company of Clair Tappaan (second from left) and William Colby (right). The late Mrs. Lyser, who was born into a Gold Rush-era California family, went on her first Club outing in 1905, and participated in them annually between 1914 and 1932. She died in 1981, aged 101, in Walnut Creek, Calif.

land's own environmental problems was sharpened. After the park was finally approved in 1968, the thoroughness of the Averys' work back home became evident. Massachusetts people had sent more pro-park mail to Congress than had the voters of any other state except Washington and California.

Abby had initially become active in the AMC because there was no Sierra Club presence in the Boston area before the New England Group of the Atlantic Chapter was formed in the early 1960s. Although Stuart became that group's treasurer and served on its executive committee, Abby felt she could be more effective locally if she remained with the AMC—at the time the area's better-known and larger organization. In the meantime both she and Stuart were marshaling local support for some of the other Sierra Club campaigns of the period—among them the Wilderness Act, Redwood Park, Grand Canyon, and Point Reyes National Seashore.

Soon after the New England Chapter was established in 1970, Stuart was elected to its executive committee and took on the duties of chapter treasurer. Later he became the chapter's delegate to the Northeast Regional Conservation Committee. Before long, in 1974, Abby decided to put all her conservation and environmental eggs in the Sierra Club basket—where, she felt, there were better opportunities for volunteer activity. Furthermore, as she had been attending more and more Club meetings and functions with Stuart, she thought it high time for the two of them to get their act together. She thereupon relinquished her AMC post and promptly was elected to the New England Chapter's executive committee, which appointed her its secretary. The following year she headed her chapter's fund drive and became organizer of a yearly Environmental Leadership Seminar.

While serving as chapter vice-chair in 1976, Abby was nominated to run for a Club directorship. She lost. But unlike many another rejected board candidate, she kept right on going strong—both in her chapter and in the national Club. In rapid succession she took on a series of chapter posts: chair (two years), alternate representative on the Sierra Club Council and delegate to the Northeast RCC, and now Conservation Committee cochair.

Both she and Stuart are frequent contributors to the chapter's newsletter, she on a wide range of environmental topics and he mostly on wildlife. Stuart's strong interest in that field stems both from his love for Alaska and from a trip to East Africa about 20 years ago. His special concerns are preserving wildlife habitat and protecting whales and other endangered species. He has served for

several years on the Wildlife Committee, which he has chaired since 1978. More recently he has been active on the Club's Alaska Task Force. Abby's newsletter experience with both the AMC and the New England Chapter led to her 1975 appointment to the Club's Bulletin Advisory (now Public Affairs) Committee, which she chaired from 1978 to 1983. She also was elected to the Sierra Club Foundation's Board of Trustees in 1977, serving for five years. She is now a member of the Foundation's National Advisory Council. In recognition of her long, untiring service to chapter and Club, Abby was honored in 1980 with the Club's William E. Colby Award.

The Averys, now entering their seventies, still refuse to slow down. On a chill, blustery day late last autumn, Abby could be found at a factory gate in Fall River, Mass., urging workers to vote for Rep. Barney Frank. (He won, as did all of the other six candidates endorsed by the New England Chapter.) In early May of this year, Stuart and Abby flew to San Francisco for the Club's annual meeting, then traveled on to Fairbanks for a meeting of the Alaska Conservation Foundation's board. Later that month, a miserable, rainy afternoon found Abby back in the chapter office in Boston helping Executive Director Priscilla Chapman get an urgent press release into the mail by 5 p.m.

Happily, once in a while the Averys find time to relax. June saw them sailing once again up Lake Chelan for a week's stay in their cabin along the Stehekin, in the beautiful wooded country they had loved well enough to fight for more than a quarter-century ago.

SIGHTINGS

Sierra Club Executive Director Mike McCloskey (right) and actor Lorne Greene at a dinner honoring the 1983 winners of the Tyler Prize, a prestigious award for environmental achievements that have led to important policy initiatives. Master of ceremonies Greene is also the host of New Wilderness, *an innovative television series on the environment.*

AN ENDOWMENT FUND FOR UTAH CHAPTER

A fund-raising first has been scored by the Utah Chapter. Under the guidance of the Sierra Club Foundation, it has established the Utah Chapter Endowment Fund, income from which "will be used only for public education on behalf of conservation and wise management of Utah's natural environment."

The chapter's initial goal is to raise $20,000 through tax-deductible contributions. Besides seeking direct gifts, the chapter is offering other ways of contributing—through bequests, life-income trusts, and other innovative approaches to mutually beneficial giving. The fund is being managed by the Foundation, and its income will be distributed under direction of the chapter's executive committee. The chapter thus hopes to enjoy a dependable and growing source of income.

For information on how you and your chapter might benefit from such an endowment fund, write or call Stephen M. Stevick, Managing Director, Sierra Club Foundation, 530 Bush Street, San Francisco, CA 94108; telephone (415) 981-8634.

WATT, NUTS TOP GREAT GREEN AUCTION

"Do I hear $190? Do I hear $190?" Auctioneer Tony Pagan paused in his patter. Then: "Going at $185 . . . going twice at $185 . . . sold!" Lone Star Chapter Chair Jerry Akers had bought an original James Watt cartoon by Pulitzer Prize-winner Ben Sergeant, donated by fellow chapter member and council delegate Monica Walden. Akers' bid was the highest of any made on the 60 items sold at the Sierra Club Council's first Great Green Auction, held at the Club's annual meeting in May.

More than $3,000 was raised to fund a new council newsletter for volunteer leaders and

staff people. The publication covers the administration and internal workings of the Sierra Club at all levels—national, regional, and local. Volume 1, Number 1 of *Grassroots* came out in May in an eight-page tabloid format.

Runner-up in some spirited bidding was the donation of Club President Denny Shaffer. His dozen jars of North Carolina peanuts—none better, his blurb said—fetched $15 each, for a total of $180. Mike McCloskey's tour of San Francisco Bay Area ice-cream shops was scooped up at $55. Newly elected director Larry Downing's Minnesota "delicacy," five pounds of genuine lutefisk, brought in $2.50 more than Mike's tour. A backrub, a fish-whacker, one quart of North Carolina "mountain-grown" sorghum molasses, and a bushel of Nebraska popping corn ($85!) were some of the other tantalizing offerings on the auction table. Well, the backrub wasn't literally *on* the table; its donor, director Phil Hocker, couldn't quite arrange that.

Loma Prieta's Golden Anniversary

GALE WARNER

In 1933, Sierra Club members on the Peninsula south of San Francisco decided it was high time they organized their own chapter. To muster the 50 members needed to qualify, they joined forces with the young San Jose State College Hiking Club and assembled one Sunday afternoon in June in a wooded glen at Hidden Villa Ranch, owned by community leaders Frank and Josephine Duveneck.

Why Hidden Villa? "It was such a beautiful spot, and so many of our hikes started there," remembered Dorothy Kinkade, one of the founders. "Also, Frank and Josephine were always so generous and open to us. For years we had our Christmas and spring Sierra Club parties in their house, with guitars and music and folk dancing."

Eventually the chapter outgrew the Duvenecks' living room. "After 150 people came one year, we decided we couldn't handle it that way anymore," admitted Frank. Loma Prieta is now the third-largest chapter in the country, with nearly 18,000 members, flourishing conservation and activities sections, and one perennial question: Who or what is a Loma Prieta?

Don Woods, another founder, said there

Harry Mayer

Author Wallace Stegner (left) reads the inscriptions on the Founders' Awards presented to longtime Loma Prietans Don Woods, Dorothy Kinkade, and Frank Duveneck.

was some amiable disagreement among chapter organizers as to whether the new group should be named for one of the local counties of Santa Clara and Santa Cruz: "Finally someone suggested naming it after the highest peak in the area, the Loma Prieta —'dark hill' in Spanish—and oh! that was a happy thought."

Another happy thought was giving founders Dorothy Kinkade, 70, Don Woods, 80, and Frank Duveneck, 96, the kudos they deserve by holding the chapter's 50th-birthday celebration at its birthplace, Hidden Villa Ranch in Los Altos Hills.

Despite some last-minute consternation created by the realization that 18,000 people had been invited, a pleasant crowd of 300 gathered for the bash under arched bay trees at Hidden Villa's picnic area on June 12, 1983. And despite some speculation that the occasional planes passing overhead might be conducting reconnaissance flights for James Watt, who might have considered launching a preemptive strike against such a large concentration of environmental extremists, the party went off without a hitch.

Members came to climb 2,787-foot Black Mountain, admire birds and wildflowers on shorter walks, sing along with a guitar-playing troubadour, read pamphlets, sign petitions, trade environmental updates, volunteer for task forces: in short, to do what Sierra Clubbers do best. Food, drink, and general merriment were abundant. Except for the "Wanted: James Watt" poster on the barbecue stand and the well-marked box for recycling aluminum cans, even Ronald Reagan would have been hard-pressed to find fault with the picnic's old-fashioned, All-American flavor.

Sierra Club cups hung proudly from more than one old-timer's belt, and reminiscences

Loma Prietans attend to the business of celebration at Hidden Valley Ranch.

Liz Dana

Liz Dana

Loma Prieta Chapter Chair Al Henning (left) and members Marlene Mandt and Jeff Norment raise their voices in satirical song.

flew over the scrapbooks many had brought along. On the other end of the generation scale, youngsters gawked at the pigs, cows, and lambs of Hidden Villa's educational farm and marveled at the softness of a baby rabbit's fur.

One of the high points of the afternoon was the unabashed performance of a musical satire written by Bob Reid that cleverly filched tunes from *My Fair Lady*. Jeff Norment, Marlene Mandt, and Chapter Chair Al Henning crooned such titles as "I Could've Logged All Night," "I'm So Bewildered by the Parks," and "Get Me to the Bank on Time." Henning's mellifluous rendition of the following ditty (to the tune of "On the Street Where You Live") was especially memorable:

I have felt so much like a helpless chump
Since I learned my house was
built upon a toxic dump.
I have lost my yens
For carcinogens,
'Cause they're there in the house
where I live.

Are there PCBs in my underwear?
Is asbestos in my salad
or my TV chair?
Where I go to sleep
Do dioxins seep
Through the floor of the house
where I live?

Famed historian, author, and wilderness advocate Wallace Stegner, who is also a longtime friend and neighbor of the Duvenecks, was on hand to add some thoughtfulness to the shindig. "Our mission now is to love and husband the earth," he said. "That's a more complicated task than the outdoorsmen and nature lovers who gathered here 50 years ago had yet thought of . . . but they would have understood it, and they would have been on our side."

Stegner presented Kinkade, Woods, and Duveneck with engraved, gold-plated Sierra Club cups and with certificates recogniz-

Liz Dana

Wallace Stegner addresses the celebrants of Loma Prieta's 50th anniversary.

ing their roles as charter members. Elise Yulich, daughter of another chapter founder and a member since 1930, also received an award, and other old-timers present—Jerry and Ruthie Parrish, Alice and Herman Horn, Katy Reed Madsen, Bob Cassel, Stacy and Margaret French, Arnold Robinson, and Harvey Dowling—were saluted with a "50th birthday" cake.

"I got into the Sierra Club by mistake because I owned a lot of property around here," joked Frank Duveneck. In fact, Frank and his family have been not only preaching but practicing conservation and land stewardship for almost 60 years.

Frank and his wife, Josephine, both of prominent Boston families, came to California during World War I and bought Hidden Villa's original 1,000 acres in 1923 for $25 an acre. Eventually they added enough land to control the Adobe Creek watershed and protect it from the urban sprawl that even then threatened their neighborhood.

The Duvenecks' hospitality effectively turned their private land into a public park. Open to all for hiking, riding, and picnicking, the 1,800-acre ranch serves as a vitally necessary wildlife sanctuary and rural oasis in the urbanized so-called Silicon Valley. "My wife and I felt that the land really belonged to the deer, the bobcat, and the other wild things that live here," said Frank. "We simply held it and took care of it."

Wallace Stegner once termed Hidden Villa "a remarkable monument to one couple's imagination, energy, humanity, and goodwill." The ranch sheltered European refu-

Edna Potwin must have been quite a lady. Most of us in the Sierra Club today didn't have an opportunity to know her, but when she died at the age of 101, she remembered us.

From 1914 until 1932, she never missed the annual High Trip of the Club. Her hiking companions included Clair Tappaan and William Colby, two of the famous leaders of the early days. Part of Edna's legacy resides now in the Club's Colby Library—three albums full of marvelous photographs of those adventures. She also provided a significant bequest to the Club in her will, in memory of Colby.

Edna's mother taught her to love the mountains. Her thoughtfulness and generosity will help make it possible for our children to know the wilderness.

The Sierra Club "family" of organizations relies on the support of people like you and Edna, who share the desire "to explore, enjoy, and protect the wild places of the earth."

The Planned Giving Program assists Sierra Club members and friends in creating charitable bequests and life income trusts. These gift techniques offer special income and tax advantages to donors and their beneficiaries, while helping ensure the future strength of the Sierra Club "family" of organizations. For more information, please contact

Sarah Beebe Stafford
Director of Planned Giving
530 Bush Street, San Francisco, CA 94108
(415/981-8634 ext. 452).

PLANNED GIVING PROGRAM

Sierra Club Legal Defense Fund, Inc.
The Sierra Club Foundation

gees from World War II and Japanese-Americans returning from domestic internment camps. Indians, Chicanos, blacks, farmworkers (Cesar Chavez began organizing his agricultural-workers' union here), and civil-rights activists—not to mention environmentalists—have all used Hidden Villa as a friendly meeting ground. The Duvenecks initiated many programs on their property, including the Pacific Coast's first youth hostel, a pioneering multiracial summer camp for children (*that* raised many eyebrows in 1945), and backpacking trips to the Coast Range and the Sierra for teenagers.

But the ranch is probably most famous for its Hidden Villa Environmental Project, one of the most innovative and successful environmental-educational programs in the country. In 1970 HVEP staff members, with the help of trained volunteer guides, began giving children from local elementary schools an all-day, small-group experience—meeting the farm animals, hiking the wilderness trails, and learning ecological concepts of cycles, energy, interdependence, land use, and human responsibility. Younger children also travel to the farm in larger groups to view the living origins of their meat, milk, and eggs. Some 7,000 children now visit Hidden Villa every year.

Appropriately, HVEP staff naturalist Mary Hallesy, known to thousands of Peninsula children as "the lady in the red hat with all the buttons," received her National Service Award at the June 12 ceremony for her long list of contributions to the Sierra Club, including revival of the LeConte Lodge program in Yosemite National Park. Ollie Mayer, another National Service Award winner for her work on a score of open-space and conservation issues, was also cheered. As Chair Henning remarked, it is a tribute to chapter's energy and leadership that two of three recipients of the Sierra Club's National Service Award this year were Loma Prietans.

But if the enthusiasm displayed by all ages of Sierra Club members that day is any indication, it won't be the last time the chapter is singled out. Frank Duveneck believes the Sierra Club should concentrate on protecting forest lands and preventing exploitation by commercial interests, but he also supports more recent additions to the Club's list of concerns, such as nuclear weapons. "I'm very much along with the rest of the Sierra Club. I think we can put in quite a bit of punch," he declared. "I don't think the battle is won yet, but I think we're on the way." □

Gale Warner is a freelance writer from Asheville, Ohio, whose work has appeared in New Age, *the Boston* Globe, *the* Christian Science Monitor, *and* Sanctuary.

SIERRA NOTES

• Nicholas A. Robinson, Sierra Club international vice-president and a member of the Board of Directors, has been appointed deputy commissioner and general counsel of the New York State Department of Environmental Conservation. To avoid any conflict of interest in his new post, he will resign the abovementioned Club positions at the September board meeting. Robinson will retain his membership on the International Committee.

• An important contribution to the ongoing Sierra Club Oral History Project was the focus of an August 5 reception at the Colby Library at Club headquarters. The recently completed oral-history interview with Mike McCloskey (*Sierra Club Executive Director: The Evolving Club and the Environmental Movement, 1961-1981*) was presented by the History Committee. Also celebrated at the reception was the publication of a new book by McCloskey's interviewer, Susan R. Schrepfer. The Rutgers University history professor has written *The Fight to Save the Redwoods: A History of Environmental Reform, 1917-1978* (University of Wisconsin Press).

• The premiere screenings of an outstanding new motion picture will benefit Sierra Club chapters in several cities. *Never Cry Wolf* is the film—an intense wilderness epic directed by Carroll Ballard, who made *The Black Stallion*. The film is based on the classic Farley Mowat account of a young scientist's encounters with wolves in the arctic wild, and of his growing understanding of wilderness—and of himself.

The dates and locations of the benefit/premieres are still being worked out by the various chapters and groups involved. The events will be coordinated jointly by Walt Disney Productions (the film's producers) and the Sierra Club. The proceeds from the benefit showings will go to the local Club chapters.

The early reviews of *Never Cry Wolf* are excellent: " . . . something new in nature films," wrote one critic. "It's about the inner experience of wilderness, about the meaning of wildlife in our lives as well as about an adventure." For more information, contact the Public Affairs Department at Club headquarters.

• Bill Fontana, the creator of the "Soundscapes" program featured on National Public Radio, has produced the first-ever Sierra Club record album, a collection of recordings made in natural environments. *Field Recordings of Natural Sounds* are continuous segments (recorded in "real time"—that is, unedited) that allow a variety of natural sound textures to unfold over a period of several minutes. Waves breaking against an Australian shoreline (9:00) and birds singing by an Adirondack lake (6:00) are typical subjects for Fontana's microphones.

The album is available only through the club's mail-order catalogue. The item number is 2323, and the cost is $9.95 for members and $11.95 for nonmembers. If your new catalogue has not yet arrived, you may order the album by sending your remittance (plus $2.40 for shipping) to Sierra Club, 205 S. McKemy, Chandler, AZ 85224.

• The Club's Information Services and Conservation departments have produced a set of eight fact sheets focusing on the priority conservation issues selected for special attention by the Board of Directors at its January 1983 meeting. Each fact sheet provides background information on a particular issue, outlines the Club's goals and campaign strategy with respect to that issue, suggests what members can do to help, and offers suggestions for further reading. The set of eight fact sheets is available for $1.05 from Sierra Club Information Services (530 Bush St., San Francisco CA 94108).

Other items available from Information Services include: *The Need for Zero Population Growth*, a new pamphlet on the Club's policies and goals in the area of population control (25¢); a *Clean Air Act Briefing Book* prepared for members of Congress by the National Clean Air Coalition ($3); and fact sheets on "Caribbean Coastal Conservation" (15¢) and "Pesticides and the Third World" (25¢) prepared by the Sierra Club International Earthcare Center. Please add 25¢ per order to cover postage.

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QUESTIONS ? ANSWERS

Sierra encourages its readers to take this opportunity to learn more about the Sierra Club and its activities. If you have a question you'd like answered, send it along with your chapter affiliation and address to *Sierra Q & A*, 530 Bush St., San Francisco, CA 94108. We will respond to as many questions as space allows.

Illustration by Ron Chan

Q *Recently I showed the Sierra Club film* The Grand Canyon *in my earth-sciences class. In the film, the narrator spoke of proposed Grand Canyon dams at Marble Canyon and Bridge Canyon. Are these dams still proposed, or has sanity prevailed and the idea been totally scrapped? (Albert E. Parker, John F. Kennedy High School, Willingboro, N.J.)*

A While no massive hydroelectric projects are actively being planned at this time, controversy still surrounds the Bridge Canyon site, some 35 miles upstream from Lake Mead. The Bureau of Reclamation is seeking to justify its continued "withdrawal" (retention) of several hundred square miles along the lower Colorado River on the grounds that Congress may someday wish to build a dam there.

National Park Service staff at Grand Canyon oppose the continued withdrawal. In their response to the Bureau of Land Management (which oversees allocations of public lands) it was suggested that a Bridge Canyon dam would not only be unnecessary from an energy-production standpoint but would likely cause water to back far enough up the canyon to destroy Lava Falls, the largest of the Grand Canyon rapids. Park Service Director Russ Lee Dickenson downplays any immediate threat of development, but has said he would also be opposed to a Bridge Canyon dam. The BLM will issue its decision for or against Reclamation's continued withdrawal of the land in fiscal year 1985 or 1986.

Rep. Bob Stump (D-Ariz.), a strong proponent of hydropower, has introduced legislation for a Hualapai (Bridge Canyon) dam in three successive Congresses. Environmentalists troubled by this (and by Interior secretary Watt's inclination to pursue energy development on public lands) are further concerned that the recent flooding along the Colorado might be used to help justify construction of a Bridge Canyon dam for flood-control purposes, even though the flooding this year was caused at least in part by poorly timed water releases by the Bureau of Reclamation.

Q: What types of gifts by will or bequests by other means does the Club accept? What is the procedure for naming the Club as a beneficiary? (Ray Domino, College Station, Texas)

A: Gifts by will (bequests) play a vital role in ensuring the continued strength and effectiveness of the Sierra Club "family" of organizations. All bequests, both large and small, are appreciated.

You may elect to make a *specific* bequest of cash or real property; a *proportionate* bequest (a percentage of your gross or net estate); a *contingent* bequest (if your primary beneficiaries fail to survive you); or a *residual* bequest (the balance of your estate after specific bequests have been distributed).

While bequests and other direct gifts to the Club are not deductible for income- or estate-tax purposes, these are the *only* contributions that can be used to fund legislative action. If your estate is not large enough to be taxable, or if you are willing to permit estate taxation in order to support lobbying, a bequest to the Club will be most helpful.

A bequest to the Sierra Club Foundation (in support of the Club's nonlegislative programs for public education and research) or to the Sierra Club Legal Defense Fund (for litigation on behalf of the Club) will create a charitable deduction for your estate. Estate-tax liabilities can be decreased through a tax-deductible gift by will, as these taxes are assessed only on the balance of the estate after the gift has been removed.

For detailed information about making a bequest or about life-income trusts that provide income and tax advantages, contact Sarah Beebe Stafford, Director, Planned Giving Program (530 Bush Street, San Francisco, CA 94108; 415-981-8634, ext. 452).

Q: After reading David M. Knotts's "Purifying Water in the Wild" (July/August, 1983), I got to wondering if standard chemical-lab filter paper is fine enough to strain out harmful giardia *cysts. A package of filter papers and a flexible funnel are sure lightweight, and a darn sight cheaper than the commercial filters that were mentioned in that article. (Chauncey L. Greene, Minneapolis, Minn.)*

A: Author Knotts says he would discourage reliance on such a homemade contraption in the backcountry. An impromptu system might be better than nothing for use in an emergency situation when filtration of gross impurities would obviously be called for (in the wake of a flood or earthquake, for example), but it ought not to be relied upon as equivalent in efficiency to one of the commercial units he cited.

The disadvantages of such a "system" could include possible seepage around the filter paper at those points where it might not completely bind to the funnel surface, as well as rapid clogging of the paper in the absence of a vacuum device to draw water through the funnel. If the pore size of the paper filter were small enough, you might effectively strain out *giardia* cysts, according to one technician with the California State Department of Public Health; but if there were any possibility that your water sample had been affected by human waste, you would still need to use chlorine or some other appropriate disinfectant to kill viral particles smaller than *giardia*.

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