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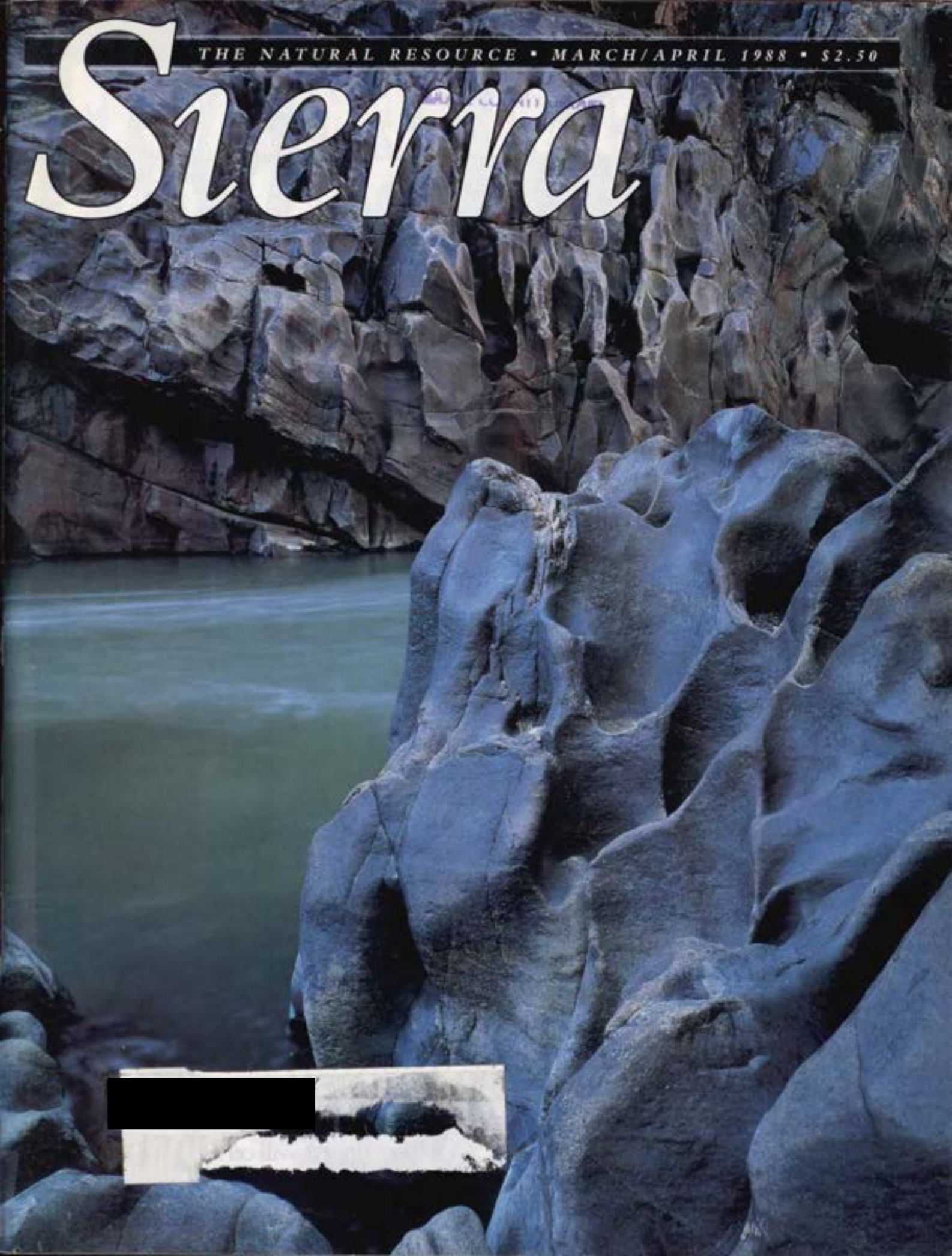
Sierra



YEARS FROM NOW REPLACE

Shoe loaned by Mr. V. Cremer, purchased July, 1981.

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YOU MAY HAVE TO THE LACES.

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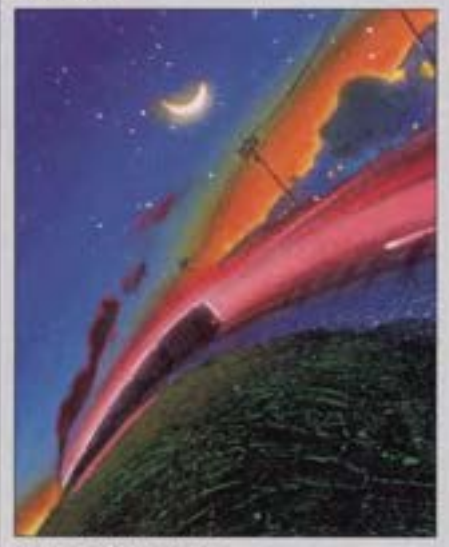
VOL. 73/No. 2 MARCH/APRIL 1988

Sierra

COVER: Utah isn't all slickrock and slot canyons; there are varied landscapes in the Beehive State—and conservationists are trying to save as many of them as possible. See page 38.
Photo by Tom Till.



Sierra (USPS 495-920) (ISSN 0161-7362), published bimonthly, is the official magazine of the Sierra Club, 730 Polk St., San Francisco, CA 94109. Annual dues are $33. Members of the Sierra Club subscribe to *Sierra* through their dues. Nonmember subscriptions: one year $12; two years $20; foreign $16; single copy $2.50. Second-class postage paid at San Francisco, CA, and additional mailing offices. Reprints of selected articles are available from Sierra Club Information Services.

POSTMASTER: Send address changes to Sierra Club Member Services, 730 Polk St., San Francisco, CA 94109. Along with your old and new addresses, please include a *Sierra* address label. Telephone (415) 776-2211 (voice); (415) 398-5384 (TDD).

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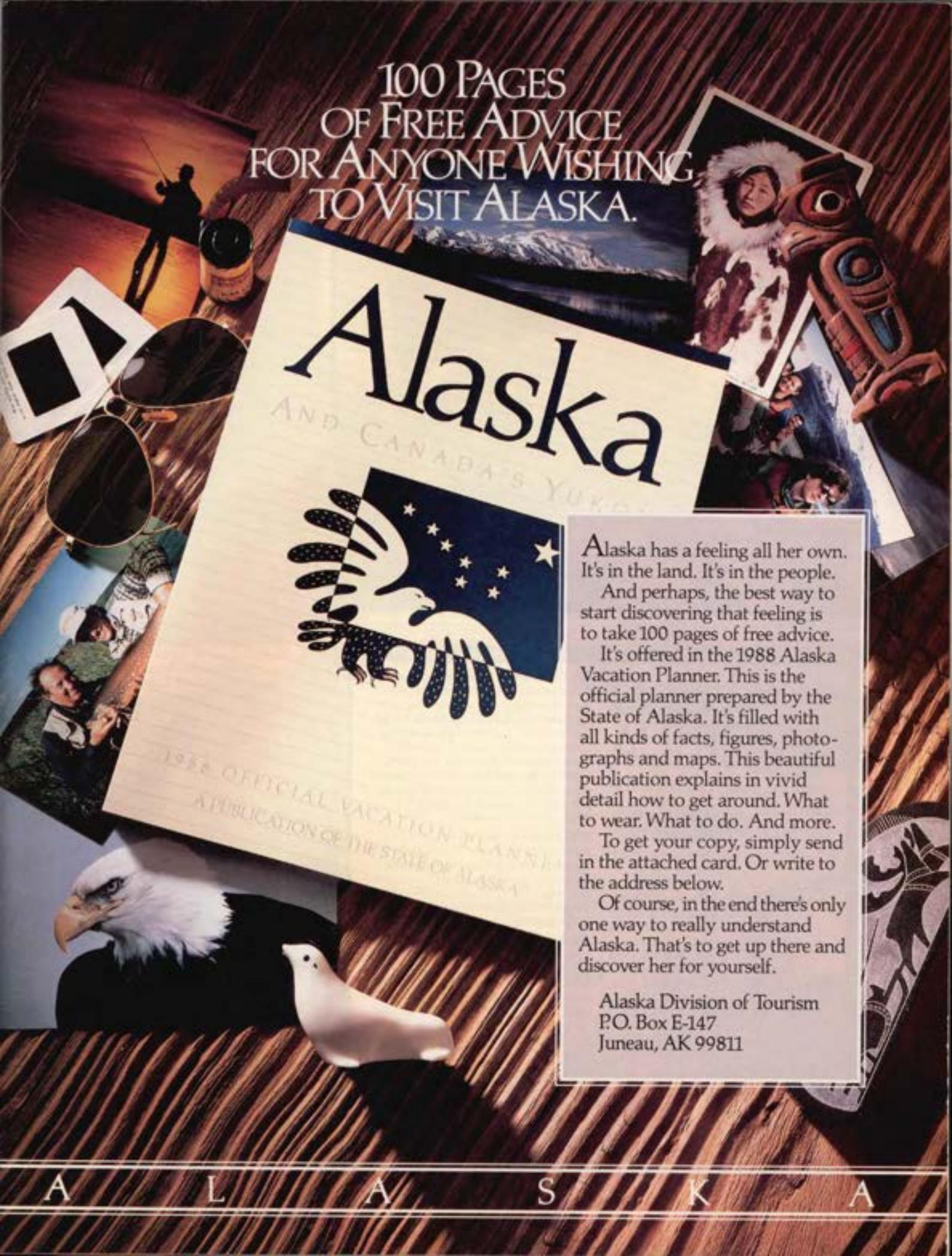

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Of course, in the end there's only one way to really understand Alaska. That's to get up there and discover her for yourself.

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P.O. Box E-147
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THE 1 TO SEA (PART TWO)

CANADA TO MEXICO ON THE PACIFIC COAST HIGHWAYS.

Route 1, US 101, El Camino Real–the Royal Road. From Canada to Mexico, the Pacific Coast Highways lead to the unexpected. Look where they led us–a magazine series about a compact van. So you get a travelogue of places worth seeing. Because we drove the West the way you do–a family loaded with gear–we know Chevy Astro can sell itself. All you've got to do is drive it.

1 US 101

BIG SUR

Suddenly the sun disappeared into the majestic fury of a Pacific storm. On the roller-coaster road to Big Sur, turning, stopping, holding-the-road, Astro's sure responses tamed wind and water. The smooth Vortec V-6 had power to spare even pulling our camper-trailer. (It's the most powerful compact van engine now available.)

SANTA BARBARA (Sunday in the Sun)

A picnic brunch at the polo match. Then quick action on a freeway lined with flowers and confusion. With Astro's impressive view, you can see both right-and left-hand exits. Finally, the art fair by the ocean and a huge 'Mission Santa Barbara' to commemorate our road. After all, El Camino Real was built in 1790 to link California's 21 original missions. With all our gear and souvenirs from the Canadian border south, Astro still had room inside for a 'mission.'

MARINA DEL REY (Largest man-made small-craft harbor in the world)

Some say its the toughest place to park in L.A. So when the captain of a medium-sized yacht bet I couldn't park, I took the bet. Of course, we didn't mention Astro's tight 39.5 foot turning circle, available power steering and compact 'garageable' size. We winners just enjoyed touring the Marina by boat.

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LETTERS

WHAT TO DO FOR IDAHO

It was wonderful to see portions of the Idaho wildlands for which conservationists seek wilderness designation featured in *Sierra* (January/February 1988).

Since your article was published, Idaho Sen. James McClure (R) and Gov. Cecil Andrus (D) have presented their wilderness proposal for the state's remaining 9.3 million acres of roadless forestland. The McClure/Andrus proposal would protect between 1.3 and 1.4 million acres as wilderness. While this bipartisan package is a good first step, it has major shortcomings that make it ultimately unacceptable.

In reaching this compromise, McClure and Andrus excluded a number of areas, and even many of those included have inadequate boundaries—for example, the Payette Completion, with its priceless salmon and steelhead spawning areas, one of the most valuable (and most threatened) fishery resources in the nation. The Mallard-Larkins area was similarly treated, with poor boundaries that could impact the valuable wildlife resources of this stunning north Idaho area. And in central Idaho, the Boulder/White Clouds area, the largest potential national forest addition to the wilderness system in the Lower 48, was reduced to a mere one quarter of what conservationists proposed, a reduction that would allow extensive off-road-vehicle use at the expense of wilderness. The conservationists' 3.9-million-acre proposal for Idaho is a much more appropriate compromise.

The McClure/Andrus proposal also includes language not normally used in wilderness bills. These provisions would formulate new site-specific federal law to micromanage various portions of Idaho's national forests. Such provisions are unnecessary encumbrances to a wilderness bill.

Write to Rep. Bruce Vento, chair of the House Subcommittee on Public Lands and National Parks, and Sen. Dale Bumpers of the Senate Energy and Natural Resources Committee. Urge strong support of the Idaho Wildlands Defense Coalition wilderness proposal, and object to the management language in the McClure/Andrus package.

Edwina Allen
Boise, Idaho

OUT OF SIGHT, OUT OF MIND?

Regarding "Bagging the Cornstarch Molecule," your report on the potential of so-called biodegradable plastic bags ("Afield," January/February 1988), I'd like to point out some of the potential problems these products may incur.

First, a distinction must be made between products that are completely biodegradable (such as paper) and those that are merely biodisintegratable. The plastics described in your article are in the latter category. They consist of typical polymers (such as polyethylene or polystyrene) blended within a matrix of starch. Only the starch portion of the plastic is actually biodegradable; the polymeric portions maintain the physical and chemical properties that make them difficult to dispose of.

The threat posed by these products comes from the very disintegratability that supposedly makes them so advantageous. When the starch matrix degrades, the polymer chemicals trapped within will be released into the environment, where presumably they will act like their analogues of similar molecular weight. The point is that it is much easier to control the safe disposal of a pound of petrochemical when it is in the form of an inert solid (like a plastic bag) than when it has been broken up into billions of pieces and distributed over a wide area. What has previously been a problem of trash disposal may now become a problem of toxic waste disposal. We are not talking about the potential release of a few hundred pounds of hazardous material here: The weight of plastic bags, food containers, etc. used each year runs into the millions of pounds.

Although biodisintegratable plastics have been heralded as an environmental and agricultural breakthrough (the powerful agriculture lobby has helped promote these products in Illinois), a number of questions regarding their en-

vironmental impact should be answered before they go into production.
John G. Van Alsten, Ph.D.
Materials Research Laboratory
University of Illinois
Urbana, Illinois

THAT'S THEIR OPINION

Opinion surveys are interesting, but not necessarily rational. For example, your November/December 1987 issue cited a Sierra Club membership poll on conservation priorities wherein "nuclear power and waste" ranked 9th, while "arms control" ranked 13th. Since an atomic war would do infinitely more damage than Three Mile Island did, or millions of times as much damage as Chernobyl, these priorities are puzzling, to say the least.

Equally puzzling are the top-four rankings of "forest conservation," "air pollution control," "water pollution control," and "toxic waste control," all of which are helped by nuclear power (in place of coal burners) through the elimination of acid rain, carbon dioxide, fly ash, and highly toxic emissions such as lead, arsenic, and radon. In spite of poor management of nuclear power by a few utilities, it is still the cleanest way to generate electricity.
Karl J. Notz
Oak Ridge, Tennessee

You reported that population issues came in a dismal 11th in the priority survey. I would invite all Sierra Club members to consider what is likely to happen to their forests, air, and water if human population continues to grow unchecked. If you don't like what 5 billion people are doing to your planet, consider the prospect of 10 billion—which is where we'll be 60 years hence.
Brooke Jennings
Salt Lake City, Utah

GETTING THE LEAD OUT

I suspect that "Heavy Metal on Tap" (November/December 1987) will frighten the lay public into demanding new standards for lead in potable water, even though they don't know why or how much it will cost.

Obviously, in home plumbing systems the highest lead content will appear each morning in water that has stood idle in contact with metal piping. Just as obviously, the way to reduce lead content and intake is to flush the water lines in the morning before imbibing. This may even be done with a timer if the homeowner is the forgetful type.

We too often lose sight of the fact that per capita consumption of water in the United States is more than a hundred gallons daily, of which a person drinks perhaps a liter, or 0.25 percent. Isn't it unreasonable to demand a standard of less than 0.05 mg/liter lead for the hundred gallons if a simple flushing procedure solves the problem?

It's about time that those who claim to be environmental experts get the word that there is no such thing as zero contamination before they influence the EPA to spend us all into oblivion trying to reach an impossible goal.
Frank N. Kemmer, P.E.
Clarendon Hills, Illinois

THE HITCH IN HETCH HETCHY

Along with most individuals alive to consider Interior Secretary Donald Hodel's restoration idea ("In Depth," November/December 1987), I have never seen the Hetch Hetchy Valley. I'm sure its beauty was considerable. Whether it still would be is a matter for speculation and, perhaps, study. I am concerned about how expensive this study might be, as well as whether unfavorable changes to the *current* ecosystems in the area will be considered.

More disturbing than these questions, though, is that environmentalists may be wooed into putting the restoration above more immediate concerns. The situation at Hetch Hetchy is stable; the same cannot be said of places where loss of open space and wildlife habitat go on day by day. I hope that the Sierra Club and other groups will not be buffaloed by this offer. The first priority should be to end situations that are health- and life-threatening: toxic waste disposal and loss of air and water quality, to name a few. And we should continue to preserve what we still have: our forests, seashores (*without* offshore drilling!), deserts, and free mountain streams—along with the creatures inhabiting them.
Joyce Thompson
Tustin, California

DAVID GAMBALE

THIS TRAIN AIN'T BOUND FOR GLORY

One possibility was to roll it back and forth along a 20-mile-long subterranean concrete trench. Others were to slide it along the bottoms of canals, ponds, and lakes; or pull it over the roadless countryside; or shuttle it among 4,600 shelters in the deserts of Utah and Nevada.

But all the proposals had serious flaws.

Recognizing the difficulty of hiding something that's 71 feet long, 7 feet 6 inches in diameter, and 190,000 pounds, Congress told the U.S. Air Force in June 1985 to continue the search for a "survivable" mobile basing system for its MX missiles. Meanwhile, the Air Force could deploy no more than 50 MXs, the most powerful weapon in the U.S. nuclear arsenal, in existing missile silos in Wyoming.

Last April the Air Force came back to Congress with its latest plan. Under what it calls the "rail-garrison basing mode," the Air Force proposes to deploy 50 MX missiles on 25 six-car trains to be parked in garrisons at military installations across the country. Upon receiving a warning of possible attack, or in times of international tension, a 25- to 30-person crew would disperse the trains along existing railroad lines. There the missiles would roam indefinitely, mingling with civilian freight and passenger traffic until the Air Force deemed it safe to return them to their garrisons. The missiles could be launched from the garrisons if necessary.

"It's hard to believe, but the proposal is real," says Mike Mawby, Common Cause's associate director for legislation. "Although this basing mode is no more 'survivable' than any of its predecessors, its popularity in Congress is growing."

In September the Air Force awarded a five-year, $235-million contract to Boeing Aerospace Company to design and develop the rail-garrison basing mode. In December, Congress appropriated $350 million for work on the system in fiscal year 1988. Larger budget requests are expected this year.

Mawby, who has worked against MX deployment off and on for a decade, refers to the missile as an "albatross." Indeed, the Air Force has considered at least 35 basing schemes and presented eight of them to Congress—proving that its tenacity, if not its missile, is "survivable."

—Annie Stine

SCORECARD

- Congress has directed the Department of Energy to begin exploratory drilling at Yucca Mountain, Nevada, for a permanent ***high-level nuclear waste repository.***
- Waste Management Inc., the only U.S. company with incinerator ships, has abandoned its plan to ***burn toxic wastes at sea.***
- The House of Representatives passed legislation in December renewing the ***Endangered Species Act.*** The bill faces stiff opposition in the Senate.

A MATTER OF TIME

Entrained missiles notwithstanding, the editors of the *Bulletin of the Atomic Scientists* have moved their clock, which symbolizes our distance from nuclear war, back to six minutes before midnight. (The clock had stood at three minutes to midnight since 1984.) The decison was prompted by the U.S.-Soviet treaty to eliminate intermediate-range nuclear weapons, by improved superpower relations, and by increased international and nongovernmental efforts to reverse the arms race.

THE BLAZE OF '87: CALIFORNIA'S SCARS

More than 12,000 lightning strikes in less than a month last summer ignited forest fires that ravaged California for 50 days. By the time the haze settled, 775,000 acres of the state had burned. The U.S. Forest Service, which manages approximately 90 percent of the affected land, issued a report on the extent of the damage late last year. Some details follow:

■ *Fish and Wildlife*
Riparian land bordering 155 miles of streams and rivers was burned, destroying critical salmon and trout habitat. In heavily damaged watersheds, workers began emergency burn rehabilitation immediately to help stabilize soil and control sediment and debris movement. Fast-growing grasses were planted on approximately 80,000 acres of steep and/or erodible soil.

The fires moved through 74 spotted-owl habitat areas and incinerated an important winter range for deer in the Plumas National Forest.

■ *Timber*
Fires damaged an estimated 1.9 billion board feet of marketable timber, but the Forest Service estimates that more than 84 percent of that is salvageable. Agency officials say salvage sales will not take place in roadless areas without full environmental review, but forest activists are concerned by the acceleration of the process and the apparent targeting of roadless lands in the Klamath and Shasta-Trinity national forests.

■ *Recreation*
The Forest Service will rebuild or relocate six campgrounds and 274 trail miles that were destroyed. Some 100,000 acres of designated wilderness burned; most of that land will be left to recover "unassisted," but a few acres will require erosion-control work.

■ *Reforestation*
During the next five years the agency intends to plant 100 million seedlings on the most seriously burned land.

The Forest Service is looking for volunteers to plant trees, repair trails, and restore streams. For information contact the National Forest Recovery Fund, Office of Information, USDA Forest Service, 630 Sansome St., San Francisco, CA 94111; (415) 556-0122. —*A.S.*

LARRY E. KAISER/IMAGE WEST

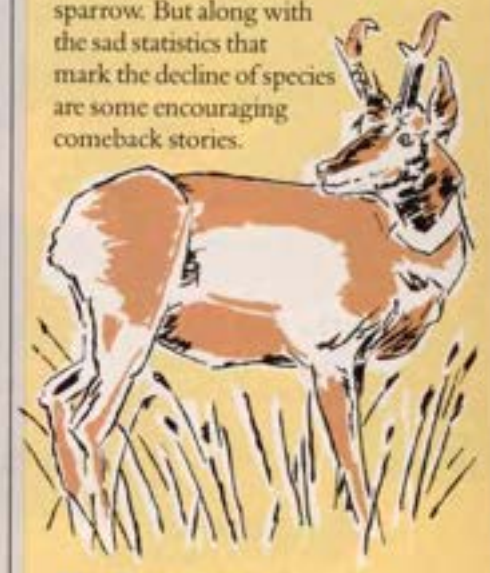
IN THE REALM OF THE MOST FAMILIAR

Landscape photography is frequently considered a conservative, uncontroversial artistic medium. But in *Terra Cognita*, an exhibit of some 50 works by seven contemporary women photographers, curator Rebecca Solnit presented a dramatic break with that tradition. The grand and pristine vistas of classical landscape photography gave way to images of an inhabited, intimate

SUSAN FISCHMAN

THE RETURN OF THE NATIVES

It's easy to dwell on bad news: the caging of the last wild condor, the death of the last dusky seaside sparrow. But along with the sad statistics that mark the decline of species are some encouraging comeback stories.



The Pronghorn Antelope

Some 40 million antelope once made their home on the range. But by 1920 the word on the pronghorn antelope, North America's swiftest mammal, was clearly discouraging: Overhunted and fenced out from prime grazing lands and migration routes, the population had dwindled to no more than 25,000.

When Great Plains farmers abandoned their land during the Dust Bowl years, the antelope began to revive. With help from the 1937 Federal Aid in Wildlife Restoration Act, which funds wildlife programs with revenue from an excise tax on sporting arms and ammunition, several western states began an extensive big-game trap-and-transplant campaign. Today nearly a million antelope roam the range in 15 western states.

ANIMAL ILLUSTRATIONS BY WARD SCHUMAKER

The Sea Otter

Ninety years ago, a sea otter skin could fetch as much as $1,100. Between 1740 and 1911, thousands of the svelte sea mammals were slaughtered for their pricey pelts; only 13 populations remained by the time an international treaty banned otter hunting in 1911.

Sea otter transplants began in the 1950s, but because little was known about otter biology, these early efforts usually failed. Kept in dry cages, the animals soiled their fur, destroying its insulating properties. This resulted in fatal chilling when the otters re-entered the water.

The first successful sea otter transplant took place in 1965. By 1972 the Alaska Department of Fish and Game had released animals at eight sites from Oregon to Alaska; only one of those releases failed.

Now Alaska's waters harbor some 150,000 sea otters. Meanwhile, California's sea otter population, considered a subspecies by some biologists, has prospered under stringent protection, increasing from 50 animals in 1911 to about 1,500 today.

Earth where nature coexists with culture.

"Most 20th-century American landscape photography seems rooted in the concept of landscape as unfamiliar other," says Solnit. "This photography concentrated on a very different world, or rather the same world from a radically different point of view: *terra cognita*, the known Earth—landscapes as close as our own skin, as long-inhabited as history recalls, as personal as a dream, as essential as a home."

The exhibit appeared at the San Jose (California) Institute of Contemporary Art in January.

MIKKEL RUBINSTEIN

FLASHBACK

At Silver Spray Falls in Tehipite Valley, 1898. John Muir loved this "spacious and enchantingly beautiful" Sierra canyon, which only narrowly avoided damming before its addition to Kings Canyon National Park in 1965.

JOSEPH N. LECONTE / COURTESY WILLIAM E. COLBY MEMORIAL LIBRARY COLLECTION

PEDAL POWER IN MOZAMBIQUE

The road to development is strewn with obstacles, but some of them can be avoided—on bicycles, according to the Washington, D.C.–based Institute for Transportation and Development Policy.

Since late 1984 Bikes Not Bombs, a project of the nonprofit institute, has sent 1,200 all-terrain bicycles to Nicaragua, where they've been such a success that the government has announced its intention to bring 50,000 more bikes into the country during the next five years.

Now Bikes Not Bombs is pedaling in Mozambique. According to Ken Hughes, director of the institute, Mozambique was chosen as the next bicycle beneficiary because of a direct request from its government officials and because of the many crises that face the

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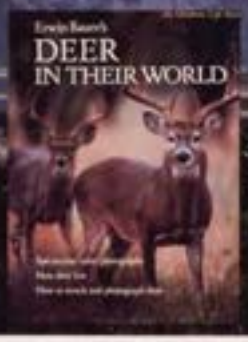

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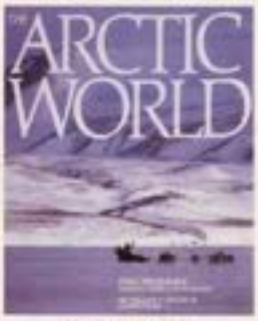

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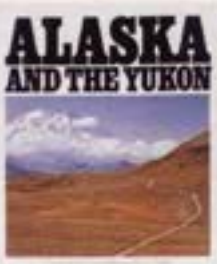

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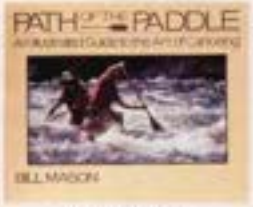

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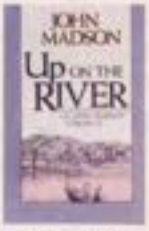

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The Wild Turkey

As American as Thanksgiving and "Turkey in the Straw," this large game bird was Benjamin Franklin's creature of choice for our national symbol. Today the turkey is also a classic American success story: From a low of fewer than 30,000 birds in 1940, wild turkey numbers have soared to more than 2 million in the 1980s.

The first colonists found an abundance of turkeys, but hunting and habitat destruction wiped out the species in New England and most midwestern states by the end of the 19th century.

After World War II, tougher game laws and habitat restoration in the East began to turn the tide for the turkey. In the 1950s the U.S. Fish and Wildlife Service and state agencies began to capture and relocate wild birds, a program so successful that today wild turkeys thrive in 48 states.

country. Since winning independence from Portugal 13 years ago, the people of Mozambique have suffered from continuous war with neighboring South Africa, a deteriorating economy, high birth and infant-mortality rates, famine, and drought. "Beyond immediate relief, Mozambique needs tools for sustainable development," says Hughes. "For transportation, the cheap and reliable bicycle tops the list."

A representative of Bikes Not Bombs will distribute the new and reconditioned bicycles to employees of Mozambique's ministries of health and agriculture. In Mozambique, where the rough terrain prohibits most means of mechanized transport, a bicycle could quadruple a worker's productivity, Hughes says.

For information contact Bikes Not Bombs/Africa, P.O. Box 56538, Washington, DC 20011; phone (301) 589-1810. —*A.S.*

WILLIAM HEISEL PHOTOS

AN ITCH FOR ALL SEASONS

"Leaves of three, let it be." How often have you remembered this adage while standing knee-deep in poison oak? Because this trailside menace grows in many disguises, it can surprise even the most experienced hiker.

In winter poison oak's naked gray-brown limbs blend in with other shrubbery, and by spring they fill out with small green leaves and blossoms. During the

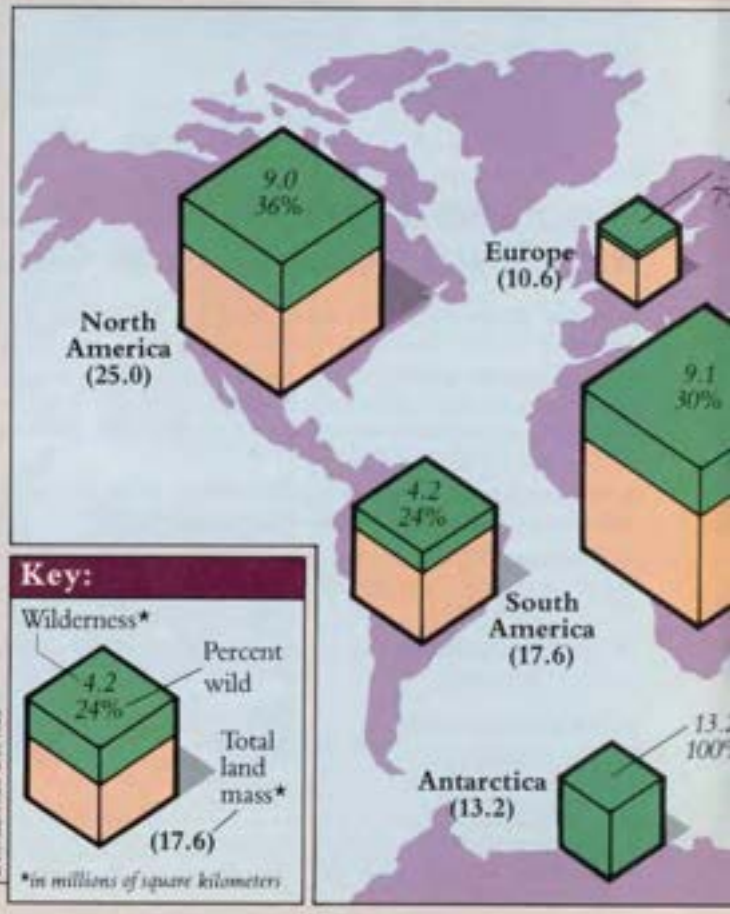
BOTH: GAMMA LIAISON

WHERE IS THE WILD IN THE WORLD?

In an effort to find out how much of Earth remains untouched, Michael McCloskey, Chairman of the Sierra Club, and Heather Spalding, a research assistant in the Club's Washington, D.C., office, spent a few months with some maps. Their answer: one third.

Using navigational charts prepared by the U.S. Defense Mapping Agency, McCloskey and Spalding looked for what they call "empty quarters"—those areas with no roads, settlements, power lines, or other signs of modern civilization. The map at right indicates their findings.

"We have begun to track the wilderness that remains," says McCloskey. "Now we must decide how much more we can afford to lose." —*A.S.*



EARTHSURFACE GRAPHICS

summer white berries dot the plant, and in autumn the leaves are brilliant red. Poison oak can grow as a vine up trees, as a six- to ten-foot-tall shrub, or as low-lying ground cover. It grows best where winters are mild, avoiding deserts and high mountains.

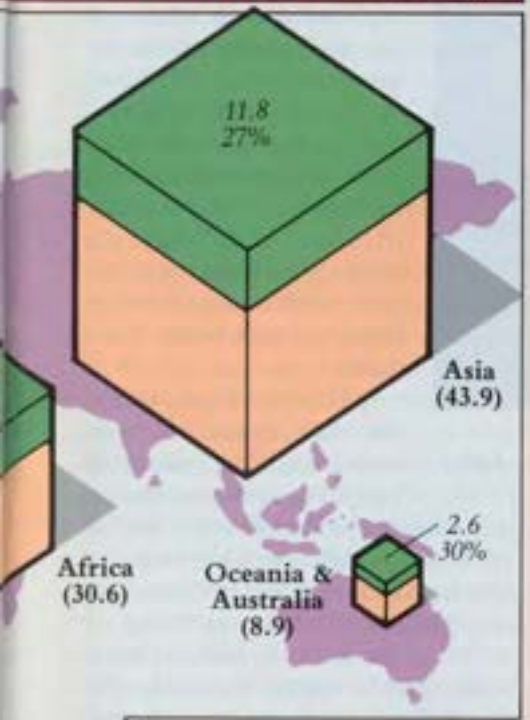
The noxious element in "poison" oak is not a poison but an allergen. The sap of the plant contains an oil called urushiol; to cause a reaction, urushiol must touch the skin. It can stick to clothes, tools, animal fur, shoes, or anything else that happens to brush against it, and it can remain potent for years. (Poison oak's botanic relatives, poison ivy and poison sumac, also contain urushiol.)

A person may become more or less sensitive to urushiol over time, or may not react at all. "People are avoiding activities like hiking, fishing, and rafting because they had a bad experience with poison oak ten years ago," says William Epstein, a dermatologist at the University of California Medical Center in San Francisco. "I encourage people to be tested to find out if they are allergic to it, for sensitivity can change over time."

Epstein and his colleague, immunologist Vera Byers, hope to develop a vaccine to prevent the sometimes debilitating rash that can occur. "We would be able to give someone a shot that would make him or her less sensitive to urushiol," Byers says. "The effects would last for about a year."

Until such a vaccine is available, hikers need to fend for themselves. The best protection is to know what poison oak looks like in every season. If you do find yourself among the leaves of three, head for the nearest creek and start rinsing—the oil can begin soaking into your skin in a matter of minutes. *—Donna Meyers*

World Wilderness Inventory



World Total:

34 percent, or 50,887,400 square kilometers, of the world's land mass remains wild.

FIELD NOTES

"Tell me what you will of the benefactions of city civilization, of the sweet security of streets—all as part of the natural upgrowth of man towards the high destiny we hear so much of. I know that our bodies were made to thrive only in pure air, and the scenes in which pure air is found. If the death exhalations that brood in the broad towns in which we so fondly compact ourselves were made visible, we should flee as from a plague. All are more or less sick; there is not a perfectly sane man in San Francisco." *—John Muir*

An entry from his journal, September 1874. The original Muir journals are stored at the Holt-Atherton Pacific Center for Western Studies at the University of the Pacific, Stockton, California. *For more from Muir, see page 54.*

The Beaver

Trapped ruthlessly, the beaver was at one time confined to the more remote corners of the continent. An estimated precolonial population of 60 million had dropped to fewer than 100,000 by 1890.

Today the beaver is back, with roughly 15 million inhabiting North America. Edward Hill, a beaver biologist with the Fish and Wildlife Service, credits restocking programs and a diminished demand for the rodent's fur.

In the 1930s state agencies and the then-fledgling FWS began a nationwide campaign to trap live beavers and transport them by truck or packhorse to various points across the country. Biologists even bombed wilderness areas with beavers, parachuting them in boxes that popped open on impact.

"Beavers are relatively easy to trap and transplant, and are extremely adaptable," explains Hill. "Releases are almost always successful."

—Michael Kantor

NUCLEAR WASTE

Scarcely Watched Trains

The eyes of the world were once on Three Mile Island. Now, with little fanfare, the accident's debris is moving west.

JAMES STAGG

Annie Stine

EVERY FEW SUNDAYS a train pulls out of Middletown, Pennsylvania, bound for Idaho. It rolls through Pittsburgh, Canton, and Indianapolis. Early Tuesday morning it changes track in East St. Louis and heads out across Nebraska and Wyoming. By Thursday it has traveled 2,383 miles and come within half a mile of a million people. Then, in the desert north of Idaho Falls, workers unload the delicate cargo: the radioactive remains of America's most calamitous nuclear accident.

The first shipment took place in July 1986; by the end of 1987 the journey had been completed 13 times. At least 15 more trips will be necessary to meet the Department of Energy's goal of transporting all of the contaminated core and fuel from Unit 2 at Three Mile Island to Idaho. The DOE assures the public that the shipments are "safe, secure, and well-monitored," but its confidence has failed to quiet the concerns that hover about the shipments.

For critics of the undertaking, the paramount question remains unanswered: Why are 150 tons of highly radioactive debris being moved by rail more than 2,000 miles across the country for temporary storage?

Official pronouncements about where the wastes should go have been inconsistent. A 1981 memorandum of understanding between the DOE and the Nuclear Regulatory Commission (NRC) stated that the bulk of the fuel would be kept in Unit 2's storage pool. But nine months later the agencies announced that all of the radioactive debris would be taken to a federal facility until a permanent repository was available. Subsequently the DOE explained that the island was not geologically suitable for long-term storage. The agency also saw significant research potential in the accident; because nothing like it had ever happened before, the DOE concluded that the scientific community and the nuclear industry could benefit from thorough study of the debris.

In 1982 the DOE decided to ship the core and fuel to its Idaho National Engineering Laboratory (INEL), where it has conducted nuclear research for more than 30 years. With all 150 tons at the laboratory, the DOE reasoned, researchers would have quick access to any samples they might need.

"The DOE facility in Idaho is much better suited for storage than an island in the middle of the Susquehanna River," says William Travers, the NRC official who oversees cleanup at Unit 2. "The materials we're moving are much different from ordinary reactor fuel. This fuel is unique."

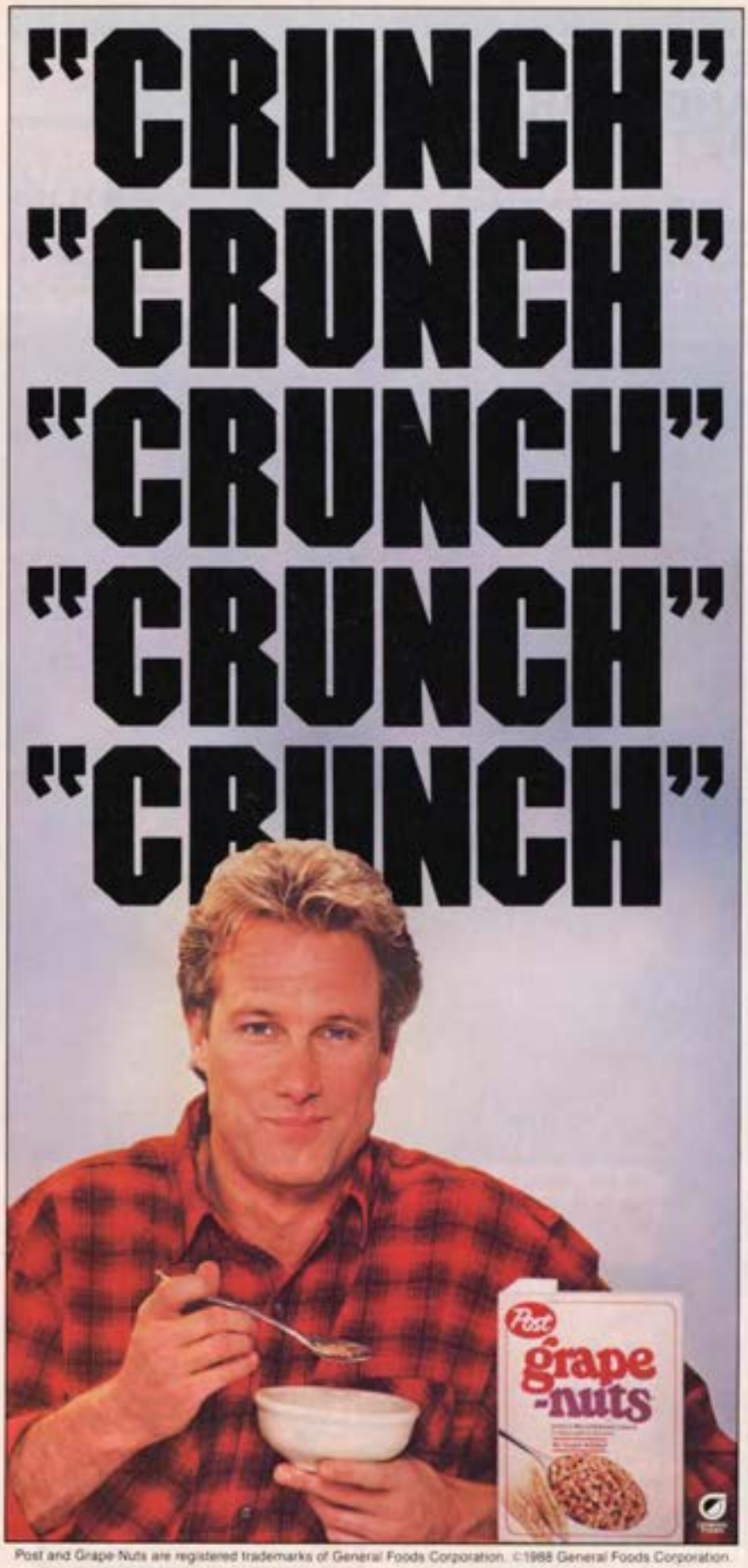
No one argues with that adjective. Under the cloudy, tepid water that partially fills the reactor lies assorted radioactive rubble, including loose fuel pellets, broken fuel rods, and boulder-size chunks of the resolidified molten core. Cleanup has been painstaking: Using tools affixed to the ends of 40-foot poles, workers clad in protective clothing fish the garbage from the contaminated water and place it into canisters, which are then packed in specially designed shipping casks and loaded on the train.

The cleanup process has proven costly as well as onerous. A few months after the 1979 accident, officials for GPU Nuclear, the utility that operates the two reactors at Three Mile Island, projected that the job would take two or three years and cost $140 million. The current estimate is for completion by 1989 at a cost of $965 million.

That price tag, and the unexpected complexity of the accident's ruins, lead some observers to claim that one of the real reasons for the government's cross-country evacuation of Unit 2 is GPU Nuclear's inability to finance the cleanup and storage on its own. "Moving and storing the fuel under the auspices of research is a bailout for the utility," says Fred Millar, director of the Environmental Policy Institute's Toxic Chemical Safety and Health Project. "The DOE and the NRC stepped in for political reasons, to make it look like everything was under control."

Marvin Resnikoff, a physicist with the Radioactive Waste Campaign, a nonprofit research organization, agrees: "If they were moving the fuel for experimental purposes, one shipment would have been enough. The utility put a lot of pressure on the government to help it out of an untenable situation."

Only a tiny fraction of the waste that arrives in Idaho is in fact studied. Most of it waits in a storage pool for another voyage to an as-yet-undesignated permanent repository. Even so, GPU Nuclear denies the bailout theory. "The funding arrangement is a realistic approach to a difficult financial problem," says GPU spokesman Gordon Tomb. "Approximately two thirds of the money for the cleanup is from our insurance, our ratepayers, and the nuclear indus-



try." In return for government help, GPU is "making available the technical lessons of the accident," Tomb says.

In addition, GPU Nuclear will reportedly pay the DOE some $11 million for transportation and storage. The engineering firm in charge of the operation estimates that it will cost the DOE $660,000 per year to keep the wastes at INEL. If preparing a permanent repository takes 30 years, as experts have estimated, the storage bill alone could grow to almost $20 million.

Whatever the total cost of the Idaho maneuver, Resnikoff and Millar believe that the money is being wasted. They say the materials could be more safely stored at Three Mile Island, an option they think the DOE did not adequately explore. Indeed, neither the NRC nor the DOE ever went public with alternative plans, critics point out. "This fuel is moving through the backyards of a million people, many of whom are not even aware of it," says Kay Drey of Citizens Against Radioactive Transport, a group of about 200 people in the St. Louis area. "The DOE should be required to conduct an environmental impact statement that addresses the project, the technology, and the route."

The call for such a statement is going unheeded, with the Department of Energy and the Nuclear Regulatory Commission saying they have carried out adequate studies. The NRC's Travers notes that the shipping casks, which his agency certified, were specifically designed to carry the Three Mile Island waste and have been tested to survive various types of accidents. One mishap the agency has not considered, however, is a high-intensity, long-duration fire, which Resnikoff considers a dangerous possibility. Travers dismisses that issue, saying, "I only wish that all nuclear materials were shipped as carefully."

Another issue critics would like addressed in an EIS is the transportation route. The DOE considered five itineraries and based its choice on the quality of track, reasoning that because the casks were designed to prevent the release of radioactivity, travel through some highly populated areas would be safe.

"They keep saying what great tracks these are, but there have been several

accidents on this very route," says Diane Sheehan of Citizens Against Radioactive Transport. Last April a collision near Pittsburgh caused a train carrying toxic substances to derail—necessitating the evacuation of 16,000 people. "What would it cost to upgrade the tracks in less populated areas?" asks Sheehan. "That's just one of the questions that could be answered in an EIS."

The Environmental Policy Institute's Millar believes the DOE has a vested interest in sending the dregs of Unit 2 along its chosen route. "The agency wants to maintain its position that this stuff can be shipped safely anywhere," he says. "For the DOE to admit that it ought to avoid populated areas would mean that it would be restricted in its choice of transport routes in the future."

Indeed, the debate over the shipment of radioactive waste will continue long after Unit 2 is empty, dry, and abandoned. When and if a permanent high-level waste repository is ready for customers, roads and rails will be crowded with radioactive cargo. Resnikoff estimates 3,000 shipments annually for the 30 years that it will take to store the wastes of currently operating reactors. One of the most fundamental lessons of Three Mile Island is being learned far from the laboratories of Idaho: The power plant may not be in our own backyards, but, on the way to the final waste dump, it's bound to pass through.

ANNIE STINE *is* Sierra*'s senior editor.*

RECYCLING

And Many Happy Returns

Bottle bills across the nation, intended to discourage littering and waste, are also providing modest incomes for the poor.

Gary Langer

LARRY GUYTON lays it out straight: He's a transient, he'll tell you, with no home and no money. "I mean, I am really starting at the bottom," he says, shaking his head ruefully in the bright, cold Manhattan morning. "Collecting cans."

Dire as his circumstances are, Guyton is far from alone. Like scores of thousands of poor and homeless across the United States, he is cut off from the mainstream of the nation's economy. And like an increasing number of others, he has found a meager way back in.

The route is returnables. In ten states with redeemable-container laws, people are cashing in discarded bottles and cans for dimes, nickels, or pennies. "I don't know of any city in a state that has a bottle bill where scavenging isn't commonplace," says Robert Hayes, counsel for the Coalition for the Homeless, an advocacy group in New York. "People do anything to survive."

This aspect of deposit legislation is troubling in some respects, beneficial in others. The laws boost the recycling of cans and both plastic and glass bottles. They promote cleaner streets and parks and ease the burden on overflowing landfills. They create jobs for union workers in the supermarket industry. And, while bottle bills were never intended as income assistance programs for the poor, they provide money for homeless people who desperately need it.

Some people view this evolution of the bills as a sad commentary on society's willingness to properly care for its downtrodden. "I'm appalled that we have people forced to scavenge for survival," says Dan Steffy, liaison to the homeless for the mayor of Portland, Oregon, where returned bottles earn five cents each. "The bottle bill was a great vehicle to stop littering. But it was not designed as a vehicle to support a segment of our population. What you are seeing is a manifestation of all the failures of society."

Others view the effect of the laws more optimistically. "It's a wonderful by-product," says Captain Dennis O'Reilly, a Brooklyn-based conservation officer for the state of New York. "You sit on a park bench, put down a soda can, and wham!—it's gone. They are really picking up." When the law was under debate, he says, "Nobody ever

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dreamed this would happen. But I think it's a great thing."

A common scene is being repeated across the nation: A poor person, toting a bulging plastic bag, pokes through trash in search of redeemable containers. "You've regularly got poor folks coming by and picking up the bottles that young professionals leave behind at the Boston Common," says Sue Marsh, deputy director of the Massachusetts Coalition for the Homeless. During summer concerts the approach is even more direct: "People go through the audience asking the crowd if they're done with their drinks."

While social activists agree that welfare is best handled by other means, they concede that bottle bills do mean money in the pockets of the poor. Some activists stress this positive aspect in support of enacting such legislation, as when the U.S. Public Interest Research Group (USPIRG) lobbied unsuccessfully for a District of Columbia bottle bill in 1987. "We pushed that as one of our standard lines," says its director, Gene Karpinsky. "It provides income for homeless people and kids."

The intertwining of environmental and social policies is knottiest in New York City, the nation's capital for homeless people and, with its legendary street trash, probably for unredeemed cans and bottles as well. In the four years since the state passed its bottle law, the ranks of scavengers have grown to an army, its unkempt soldiers extracting their five-cent booty from trash bins, curbsides, and parks across the city.

To kids, cash for bottles may mean packs of chewing gum—but to unemployed adults it can mean much more. "We survive on this," says George Frado, 40, an impoverished New Yorker who spends up to 18 hours a day collecting cans and bottles with his brother, Michael. "That's how we eat. If we don't pick up cans, we don't eat." Sometimes the Frados eat well: They say they can make up to $100 on exceptional days, and at least enough to support themselves and their mother in a small downtown apartment.

At a nickel apiece it takes 2,000 bottles and cans to raise that kind of money. The law says proprietors of New York's cramped markets must accept as many


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GEOFFREY HILLER

As in other U.S. cities and towns, the homeless in San Francisco resort to foraging for survival. California's bottle bill provides a penny for each returnable bottle or can redeemed.

as 240 containers per person per day for redemption. But many store owners have rebelled, harassing, ignoring, or even flatly refusing service to the people who line up to cash in their bottle and can collections.

"It's a business with these homeless," says Vinnie Cook, president of Sloan's Supermarkets, Inc., a 39-store Manhattan chain. "These people are not bathed. They come in with their bags, the cans are filthy dirty, and the regular customers complain. It's a hassle. I don't know anybody who's happy about it except the bag people." While his outlets obey the law, Cook says, "The small stores give them a hard time. They tell them to get the hell out."

Now, in New York, the homeless have somewhere else to go: We Can, a nonprofit redemption center specifically for the poor. We Can was founded by Guy Polhemus, a Manhattan advertising writer who learned about the new role of redeemables while working Sundays as a volunteer at a soup kitchen. In its first ten weeks of operation, We Can redeemed more than 150,000 containers at its trailer in a lot in Hell's Kitchen, a neighborhood on New York's West Side, and returned to the poor more than $7,500 in cash—"with dignity," Polhemus says.

"These people are working hard. There's a pride they have in making their own way and not accepting a handout. I know it's not the answer for all homelessness. But I do know it could be the bridge back to real jobs."

When Larry Guyton stopped by We Can with his bag of returnables one recent day, he was on his way to apply for admission to a computer-training program. Guyton, who is 40, wore a fresh suit of clothes borrowed from the city shelter where he lives.

"I'm not one to sit around and beg,"

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he says. "I don't worry about what people think or say about me going through the garbage. I got that pride issue taken care of a long time ago." The bottle bill, Guyton says, "is good. I'm benefiting from it, but I'm also putting in the labor. It keeps me honest."

And it cleans the city. "The homeless situation in this country has to be dealt with in other ways, not by passing more bottle bills," says USPIRG's Karpinsky. "But if the bottle bill helps give them a little money to get by, that certainly seems like a plus for them—as well as a plus for the environment."

GARY LANGER *is a freelance writer living in New York City.*

CLEAN AIR

Front Rangers Breathe Easier

As drivers in the Denver area switch to cleaner-burning "oxy" fuels, their unsavory winter air is slowly growing safer.

Tom Graf

ALTHOUGH DENVER has been featured in many national publications during the past year, the stories have not played up the city's casual style, low crime rate, or proximity to world-class ski resorts. Instead they have focused on the Mile High City's air, which ranks among the worst in the country.

In winter the city's carbon monoxide (CO) concentration is more than twice the level deemed safe by the EPA. A gas emitted by internal-combustion engines, CO is deadly in a closed space, as most people know. But studies show that this odorless, colorless gas can also shorten the lifetime of a Denver resident by a few months or years. Carbon monoxide is especially dangerous to the very old, the very young, the infirm, and those with respiratory problems.

It's also bad for the bottom line. "In our discussions with prospective businesses and corporations around the country, we've found that the number-one detriment to doing business in Colorado is our air-quality problem," says Ben Bryan, manager of transportation and environmental issues for the Greater Denver Chamber of Commerce.

The impact of air pollution on business, more than any other factor, gave the Colorado Air Quality Control Commission the political support it needed to implement a two-year pilot program requiring vehicles to use cleaner-burning fuels during the winter, the Denver area's high-pollution season. Vehicles were targeted because they produce 75 percent of the area's carbon monoxide (most of the rest comes from wood-burning stoves). The mandatory controls were in force from January 1 through February 28 this year in a 125-mile-long corridor stretching from Colorado Springs to Fort Collins. Part of what locals call the Front Range, the corridor contains about 2 million motor vehicles.

To comply with the new rules, sta-

tions served up gasoline containing one of two additives: ethanol, made from corn; or the slightly less effective MTBE, a petroleum product. These products are cleaner than standard fuel because they have more oxygen atoms in their molecular structure. Oxygenated ("oxy") fuels burn more completely, reducing the amount of CO in the automobile's exhaust. During the two-month period that controls were in effect, the Colorado Department of Health performed random checks at gas stations to ensure compliance.

The mandatory controls were the first of their kind in the nation, and officials in Phoenix, Salt Lake City, Albuquerque, and other metropolitan areas with serious CO problems will be studying the program's results. The Denver area effort was expected to reduce daily carbon monoxide levels by 8 to 10 percent this year and by another 2 to 4 percent next year, when the oxygen content of the gasoline will increase from 1.5 to 2 percent and the program will run for five months instead of two.

Results of this year's program were not in at press time, but in late January officials said it was running smoothly. The deluge of complaints and concerns that some expected when the program was announced—including the fouled engines that the oil industry had predicted—failed to materialize.

Last November and December the Colorado Department of Health conducted a two-month test of ethanol and MTBE. The test showed that high-oxygen fuels work just as well as standard gas and do not damage engines or increase the need for vehicle maintenance. Before the January program began, automobile manufacturers had assured Denver drivers that using oxygenated fuels would not affect warranty coverage on new cars.

Steve Howards, executive director of the Metropolitan Air Quality Council (MAQC), says new blending techniques have solved the problems drivers experienced with gasohol during the 1970s, including vapor lock (which occurs when fuel vaporizes at too low a temperature, preventing ignition) and clogged fuel filters. "The oil industry was trying to protect profits, not cars, when it warned of these problems," Howards says. "The more gasoline mixed with ethanol that's sold, the less money the oil companies make."

In addition to excessive levels of carbon monoxide, Denver is plagued by an infamous "brown cloud," an inversion-trapped layer of carbon compounds, sulfates, and nitrates that come from vehicles, woodstoves, refineries, foundries, and coal-burning utilities. In addition to advocating the oxy-fuels rule, MAQC has also called for a ban on wood-burning on high-pollution days, voluntary no-drive days, improvements in diesel fuel, and restrictions on coal-burning power plants. All of these measures are currently in some phase of implementation.

Officials will evaluate the program's success after next winter, but most government leaders believe that oxy fuels have come to stay in the Denver area. As MAQC and Sierra Club member Tim Atkeson puts it, "Oxygenated fuels aren't going to solve Denver's air pollution problems—but they're a start." ■

TOM GRAF *is a staff writer who covers local affairs for the* Denver Post.

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CLEAN AIR

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A Tale of Sites Unseen

Louis Borie

STANDING ON THE windswept summit ridge of Mt. Mansfield, Vermont's highest peak, a hiker sees the gently folded hills of the Green Mountains stretching far into the distance. To the east the four prominent peaks of the Presidential Range in New Hampshire's White Mountains crease the skyline more than 70 miles away. Beyond Lake Champlain to the west, the High Peaks of New York's Adirondacks rise in a jagged massif.

These views, once taken for granted by the 50,000 people who visit Mt. Mansfield each year, are becoming increasingly rare in Vermont, a state whose pastoral landscape belies its location at the end of an air-pollution pipeline originating in industrial areas hundreds of miles distant.

Prevailing weather patterns bring Vermont air masses tainted with pollution from power plants, factories, and automobiles in the Ohio River Valley and the upper Midwest. The result is that Vermont's scenic vistas, like those in many states in the region, are disappearing behind a veil of chemical haze that frequently reduces visibility to a few miles during the summer. As Vermont air-quality planner Richard Poirot puts it, "That's as bad as Pittsburgh when Pittsburgh is having a bad day."

Since 1948, when the National Weather Service began keeping track, median summertime visibility over most of the eastern United States has decreased more than 50 percent, to less than 15 miles. In the once-pristine Great Smoky Mountains, median summer visibility has decreased to less than six miles. Conditions in the West are considerably better than in the East, but they too are deteriorating. On some days at the Grand Canyon visitors can barely see the opposite rim less than 25 miles away. In California's Sequoia and Kings Canyon national parks, hikers who expect to enjoy the breathtaking views extending from the crest of the Sierra Nevada to the Great Central Valley often find instead a view of conifers engulfed in smog.

Attempts to improve visibility have been shrouded in a cloud of inaction by the Reagan administration. Two years ago Secretary of the Interior Donald Hodel killed a proposed federal program to protect key national park vistas, and states have been slow to take up the slack. In Utah, for example, the state Air Conservation Committee has ignored recommendations calling for strict visibility regulations. Instead the state proposed in November 1987 that the Western Governors Association create a regional task force to study the problem.

Clean-air legislation now pending in Congress focuses on acid rain, airborne toxins, garbage incineration, and public health, but not visibility. With all of these other pressing issues, visibility has taken a backseat. "No leader has emerged in Congress to really insist that visibility be addressed," says Sierra Club lobbyist Blake Early. "So it is very hard to get Congress to do anything about it. We're working just to keep the visibility issue visible."

Perhaps because it is such an insidious problem—gradual reductions in visibility often go unnoticed by the casual observer—visibility impairment has not caught the public eye the way acid rain has. New scientific evidence combined

with challenges in the courts, however, may lead to significant progress in the effort to curb air pollution in parks, wilderness areas, and other "clean-air regions" of the country.

Visibility legislation has been on the books for more than ten years. Section 169A of the 1977 amendments to the Clean Air Act sets as a national goal "the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I federal areas," which include national parks larger than 6,000 acres and national wilderness areas of 5,000 acres or more. The law's principal mechanism for controlling such pollutants is the requirement that states that produce or are affected by haze prepare action plans. These state "implementation" plans are to include "emission limits, schedules of compliance, and other measures as may be necessary to make reasonable progress toward meeting the national goal."

The Clean Air Act amendments came, in part, as a result of mounting concern that scenic views in national parks from Acadia to Zion were deteriorating. It was evident that existing Clean Air Act provisions—the National Ambient Air Quality Standards (NAAQS) and the criteria governing prevention of significant deterioration (PSD)—weren't protecting visual air quality in parks and rural areas. The NAAQS for the most part protect public health and welfare and only incidentally affect visibility. Though PSD standards are designed specifically to address air quality in clean-air regions, they regulate primarily major new pollution sources. Thousands of existing sources, large and small, however, contribute significantly to visibility impairment.

The visibility section added in 1977 distinguishes between two types of impairment: "plume blight" and other types of impairment traceable to distinct sources, such as smokestacks; and "regional haze," which results when plumes from many sources mix as they travel long distances in the atmosphere. Regional haze is the biggest problem in

Class I areas, which are typically removed from industrial centers and other "point sources" of pollution.

In a November 1985 letter to the EPA, acting Assistant Secretary of the Interior Susan Recce stated, "It is the position of the National Park Service that all NPS Class I and Class II areas in the lower 48 states are being affected by this visibility-degrading uniform haze." (The Clean Air Act designates as Class II all clean-air regions not designated as Class I.) By contrast, the NPS has identified only about a dozen national parks that suffer from plume blight, including Isle Royale, Bryce Canyon, and Mesa Verde.

The EPA, charged with carrying out clean-air laws, addressed plume blight first, issuing regulations in 1980 in response to lawsuits by Friends of the Earth and the Environmental Defense Fund. The agency said it would take on the regional-haze issue later. "Future phases [of regulation] will extend the visibility program by addressing more complex problems such as regional haze," the EPA explained at the time.

Eight years later the agency still hasn't issued regional-haze regulations, which is why seven northeastern states and five environmental groups decided to file suit last July. "All we're doing is following up on congressional intent," says Vermont Assistant Attorney General Wallace Malley, whose state has several federally designated wilderness areas. "Ten years have gone by since 169A, and still there are no comprehensive visibility regulations out."

The EPA acknowledges that it has taken a long time to address regional haze but says the problem is still not well-enough understood for the agency to move ahead with regulations. "It's a very complex issue," says Mark Pitchford, an EPA meteorologist. "We're talking about complicated atmospheric processes and transport over distances of hundreds of miles."

The lawsuit was filed in federal district court in Maine by the states of Maine, Vermont, New York, Connecticut, Rhode Island, New Jersey, and

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Massachusetts, in addition to a coalition of environmental groups that includes the Sierra Club. It seeks a court order to force the EPA to issue regulations within two years aimed at abating regional haze in 158 Class I areas throughout the country. Though the law deals only with these areas, the benefits of reducing regional haze will extend well beyond the parks. Eliminating or reducing regional haze will require every contributing source to cut fossil-fuel emissions. This will improve air quality in all regions downwind from those sources—not just in parks and wilderness areas.

A principal component of regional haze is sulfate, an aerosol formed when gaseous sulfur dioxide from coal-fired power plants, copper smelters, and other combustion is chemically transformed in the atmosphere. Fine sulfate particles floating in the air cause light to diffuse, diminishing visibility.

According to the Park Service, sulfates are the single most important contributor to visibility impairment in NPS units—everywhere but the Northwest, where fine carbon from agricultural and forestry burning plays a more prominent role. In eastern parks sulfates are typically responsible for 40 to 60 percent of visibility problems; the figure reaches almost 70 percent in Virginia's Shenandoah National Park. In the West sulfates generally contribute 30 to 40 percent of visibility degradation, or even more in parks such as Grand Canyon and Bryce Canyon.

Because sulfates are also a major component of acid rain, reducing regional haze will reduce acid rain. "The fact is you can't improve eastern visibility without reducing the sulfur content of eastern air," says Harold Garabedian, acting director of the Vermont Division of Air Pollution Control.

A lack of data and accurate instruments stalled efforts to address visibility problems until the late 1970s, when the EPA developed better testing equipment and the National Park Service began a monitoring program at 14 parks. Over the last ten years the NPS has added visibility monitoring equipment to 34

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additional Park Service units, so the agency is now collecting data in almost all NPS Class I areas.

In the past few years the Park Service has also developed statistical methods to zero in on the most likely geographic pollution sources. A recent report by Park Service research physicist William Malm states that the heavily industrialized Ohio River area is the most likely source of sulfate problems afflicting Shenandoah National Park in Virginia, 150 miles away. Malm also found that one third of the sulfates in Grand Canyon National Park originate in urban Southern California. The other major contributors are copper smelters in Arizona, New Mexico, and northern Mexico and coal-fired power plants in Arizona, New Mexico, and Nevada.

Is the science linking visibility impairment to pollution sources solid enough to support stringent controls? Park Service Assistant Air Quality Chief Molly Ross thinks so. "We have good-enough techniques in many cases to begin to develop an effective regulatory program," she says. "There is now general scientific agreement about the link between sulfates and visibility."

Representative Bruce Vento (D-Minn.), who chaired the 1985 hearings, agrees: "The science is there, the technology is there, the know-how is there. What isn't there is the political will to develop a more aggressive posture on visibility."

The EPA's Pitchford concurs that the causes of visibility impairment are well known, but he says that's only half of the equation. Pinpointing guilty parties is the other half. "While we have a pretty good understanding of the physics of visibility impairment," Pitchford says, "we still have a way to go before we understand the sources."

Vermont air-quality planner Poirot has a different point of view. "We feel it isn't necessary to identify individual source contributions in order to begin to address the regional-haze problem under 169A," he says. "The law mandates that any state whose emissions may 'reasonably be anticipated to cause or contribute to any impairment of visibility' is required to adopt a state implementation plan to reduce those emissions."

DRAWN FOR SIERRA BY DAVID WILEY MILLER

In April 1986, Vermont gave the EPA its implementation plan, which calls for a nationwide 50-percent reduction in sulfur emissions. In its response the EPA acknowledged that Vermont's visibility problems were caused by sulfur emissions from out of state, but said that proposed solutions would have to wait "until such time as the EPA decides to promulgate a national regional-haze program."

The litigation initiated last July will not solve the visibility problem, but it may rouse the EPA from its regulatory slumber. Not until the agency issues regulations to curb regional haze will the Green, White, and Blue Ridge mountains begin to exhibit their original brilliance again, or will city dwellers be able to visit parks without breathing the pollution they thought they had left behind. "The good news about poor visibility is that it's completely reversible," says Poirot. "If you reduce sulfur, you improve the air—the result is almost immediate." ■

LOUIS BORIE *is a freelance writer in Richmond, Vermont.*

THE 1988 *SIERRA* PHOTO CONTEST

"PEELING BARK OF EUCALYPTUS TREES," INES E. ROBERTS, FIRST PLACE (COLOR), "ABSTRACTS IN NATURE," 1987

■ Last year thousands of entries (from 1,300 photographers) yielded what we and our judges agreed was the best crop of photos to date. That's why we're adding only one new category for 1988—why tamper with success? The winning photos will be published in the September/October issue of *Sierra*.

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■ Eight first prizes (black-and-white *and* color in each category): a pair of Swift binoculars.
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■ SUBMISSIONS: No more than two color slides (or transparencies) and/or two black-and-white prints may be submitted in any one category.
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Mark each slide, transparency, or print clearly with your name and address, and state the category being entered. *On a separate piece of paper, explain where each photograph was taken, and describe the subject briefly and accurately.*
Careful packaging is important. *Improperly wrapped submissions will be returned unexamined.*
■ Color slides (2 x 2) and color transparencies (4 x 5 or 2¼ x 2¼) should be placed in 8 x 10 plastic sleeves (available at any camera shop).
■ Black-and-white photos should be *unmounted* prints no larger than 11 x 14, packaged between two pieces of stiff cardboard in a simple manila envelope.
Send your submissions to *Sierra* Photo Contest, 730 Polk St., San Francisco, CA 94109. Include a self-addressed, stamped envelope for returning material *and* a check or money order for $2 made out to *Sierra*. (This fee covers all submissions by an individual entrant received in one package.)
■ ELIGIBILITY: This contest is open to all amateur and professional photographers. Sierra Club staff, their immediate families, and suppliers to *Sierra* are not eligible.
Photos must be taken and owned by the entrant. Previously published work, photographs pending publication, or photos that have won other contests are not eligible. Void where prohibited.
■ DEADLINE: All submissions must be postmarked by midnight, June 1, 1988. Please include a stamped, self-addressed postcard if you wish receipt of your photo(s) to be acknowledged. The judges' decisions will be made by July 15, 1988, and photos will be returned within six weeks of that date.
■ PRIZES: In addition to a grand prize, first and second prizes will be awarded in each category. The judges reserve the right not to award a prize in one or more categories.
■ LIABILITY: *Sierra*'s responsibility for loss of or damage to any material shall not exceed the amount payable to the magazine under any insurance carried to cover its liability for such loss or damage. We are not responsible for material lost or damaged in the mail.

THE SLICKROCK CRUSADE

BY JAMES R. UDALL

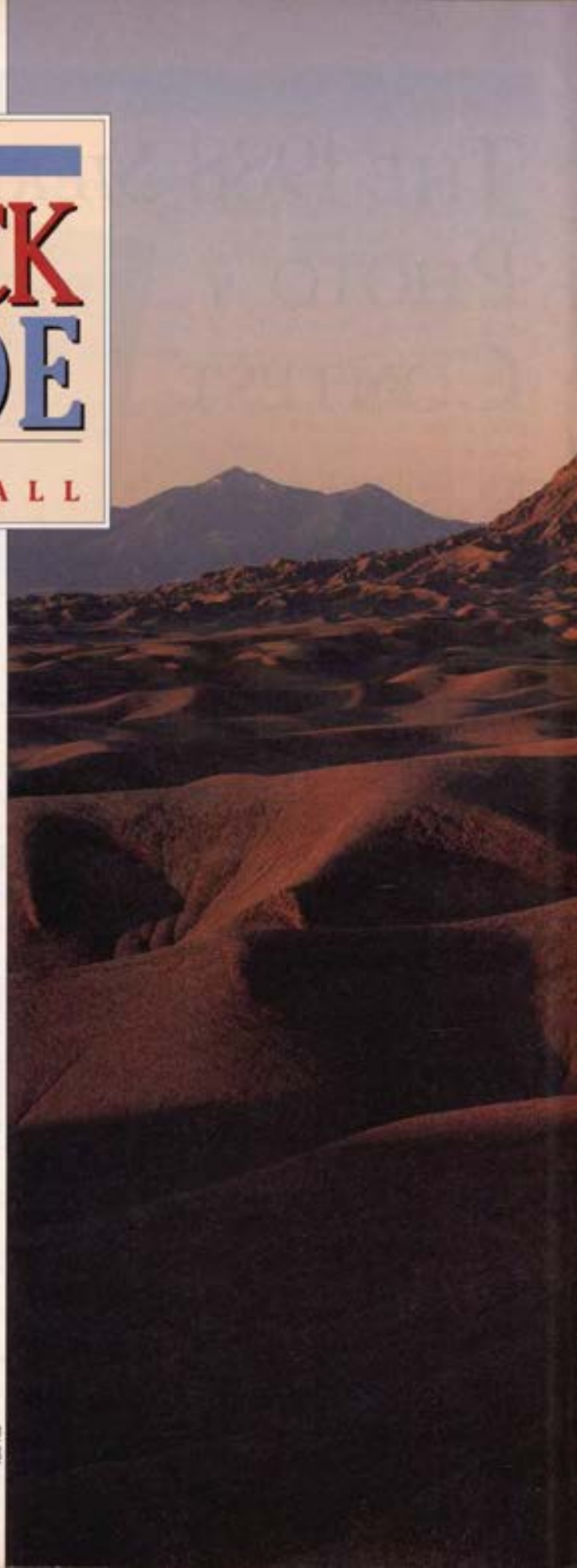
A gust of wind sweeps upriver, bearing a whiff of rain and a pinch of sand. "Storm's coming," says Jimbo. "Let's take a break and go for a hike."

We beach our canoe and begin climbing the slopes of a mesa that looms like a fortress above the Green River in Utah's Labyrinth Canyon. The mesa's flat-topped summit is guarded by a sheer cliff, but from below we have spotted a route that looks as if it might go.

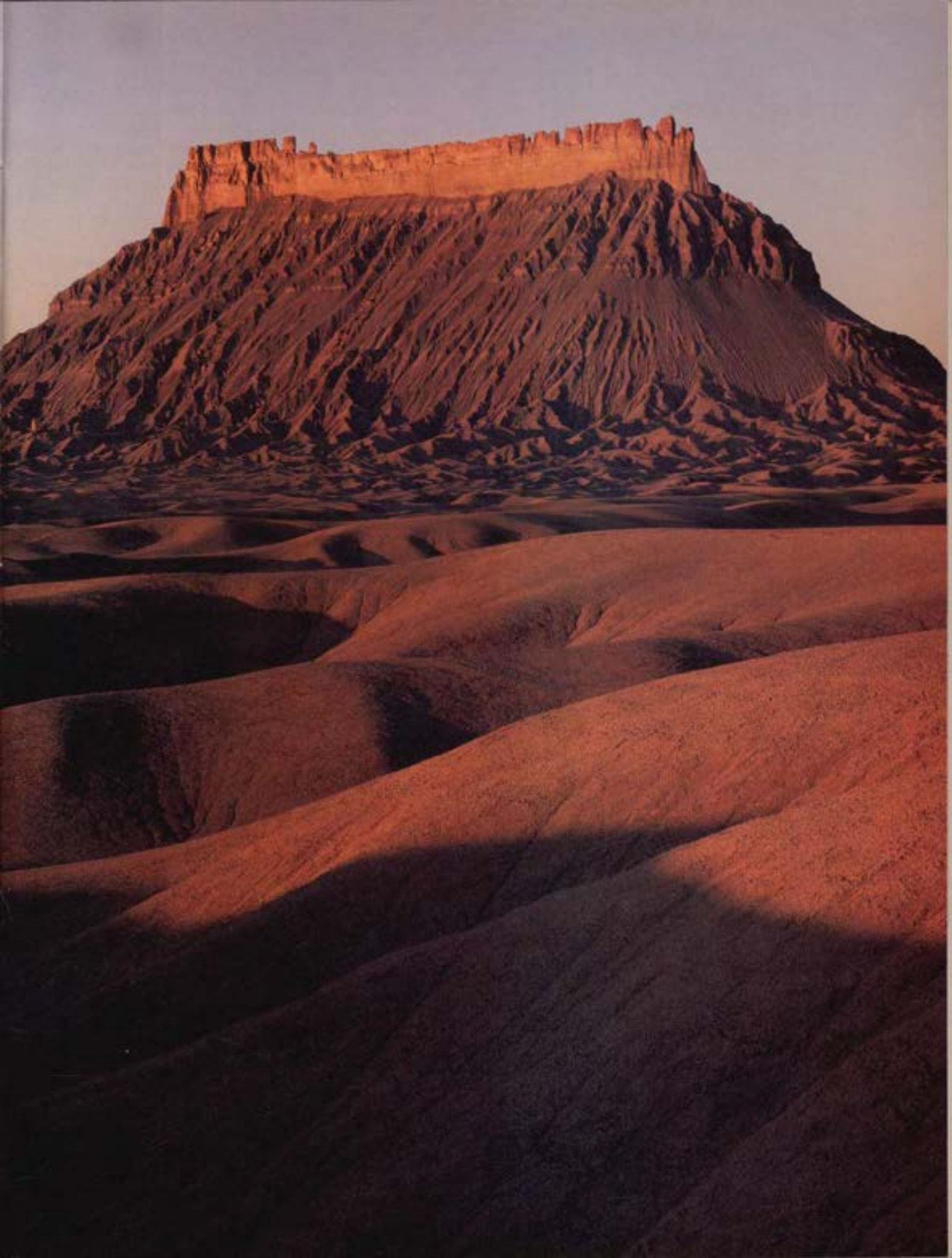
When we reach the crux, we discover a staggered series of steps chopped into the cliff by the prehistoric Anasazi people. Jamming our tennis shoes into the shallow toeholds, we whisper our thanks to those who pioneered this route many centuries ago.

Thirty minutes later, we're on top. Anyone who has been here since the Anasazi has left no sign. Keeping to the slickrock to avoid leaving footprints on the fragile, lichen-carpeted soil, we hike west to an aerie overlooking Bowknot Bend, a well-known meander. Far below us the

For every acre of national parkland, Utah has four equally splendid acres controlled by the Bureau of Land Management. Conservationists are fighting bureaucrats and development boosters to keep these areas forever wild.



Despite its beauty and remoteness, Factory Butte was found unworthy of wilderness study by the Bureau of Land Management.



Green River loops back on itself like a snake swallowing its tail.

The spot has an enchanted, shrine-like feeling—as if it were the center of the universe. This section of southern Utah is America's outback, and in every direction, as far as the eye can see, is wilderness.

To the north are the Book Cliffs, their wrinkled, gray badlands appearing blanketed by elephant skin. To the west, polychromatic spires mark the ragged edge of the immense anticline known as the San Rafael Swell. Jutting up to the southwest are the 11,000-foot-high Henry Mountains, the last-discovered mountain range in the Lower 48. Due south, exquisite, finely branched canyon systems extend 150 miles to the Utah/Arizona border. A hike through that rugged, trackless country might take a month or more and would shrivel your belly and beggar your legs. But your eyes would feast on beauty the whole way.

IN 1936 CONSERVATIONIST BOB MARshall made a survey of roadless areas in the continental United States. For the West, Marshall arbitrarily chose 500,000 acres as a minimum size for inclusion, "under the assumption that a considerably larger area is needed in open country than in forest country to give one the feeling of wilderness." Even 500,000 acres, Marshall noted, is only 28 miles square, "across which even a poor horseman could ride in a day."

Three areas in Utah met Marshall's criteria: the Book Cliffs, the San Rafael Swell, and what was then the nation's largest roadless area, a 9-million-acre parcel in southeastern Utah that included 160 miles of the Colorado River.

Inspired by Marshall's farsighted survey, Interior Secretary Harold Ickes that year proposed a 4.5-million-acre Escalante National Monument to protect an area in southern Utah twice the size of Yellowstone National Park. Ranching, mining, and hydropower interests quickly pricked that trial balloon, however, and 50 years later much of the land remains unprotected.

JAMES R. UDALL

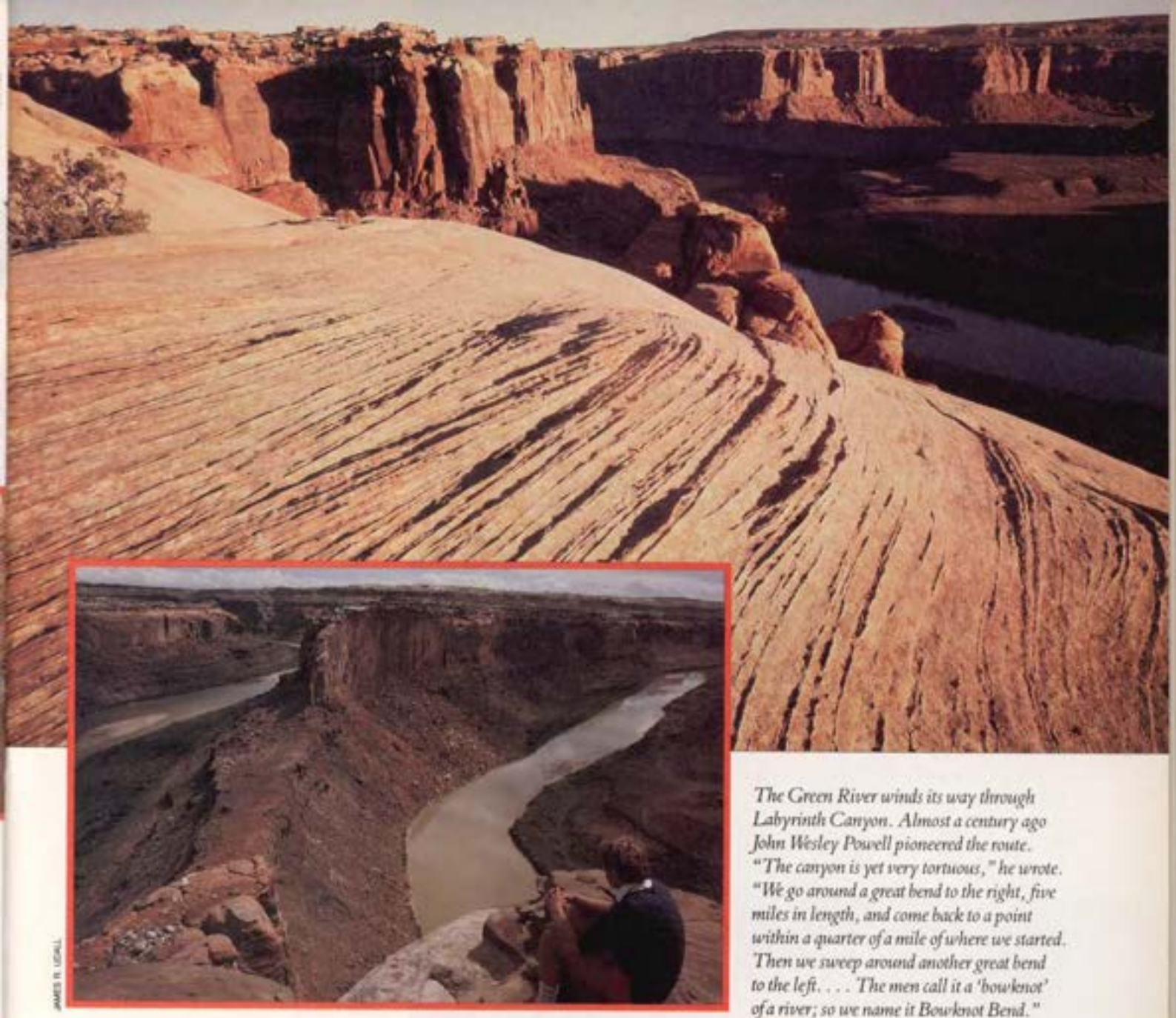
"Southern Utah is still the most remote, most unexplored, and least populated portion of the Lower 48," says Maggie Fox, the Sierra Club's Southwest regional representative. "But the region is very vulnerable to environmental damage—and threatened by industrial development at every turn."

Although oil exploration, uranium mining, and Glen Canyon Dam have taken their toll, the bulk of the roadless areas Marshall surveyed remain pristine. For the most part they are federal lands controlled by the Bureau of Land Management. Once known as "the land nobody wanted," the BLM's Utah acreage is now in high demand. In this state the agency manages not the dregs, but some of Earth's most spectacular wild places.

For the past decade, state BLM officials have been trying to decide how many of the 22 million acres they over-

STILL WILD IN UTAH

Of the Bureau of Land Management's vast domain in Utah, some 5.1 million acres deserve wilderness status, according to the Utah Wilderness Coalition. These BLM lands are equal in quality and often physically linked to the islands of protection managed by the National Park Service and the U.S. Forest Service in Utah.



JAMES R. UDALL

The Green River winds its way through Labyrinth Canyon. Almost a century ago John Wesley Powell pioneered the route. "The canyon is yet very tortuous," he wrote. "We go around a great bend to the right, five miles in length, and come back to a point within a quarter of a mile of where we started. Then we sweep around another great bend to the left. . . . The men call it a 'bowknot' of a river; so we name it Bowknot Bend."

see deserve wilderness protection. Their preliminary conclusion, 1.9 million acres, seems ridiculously small to wilderness advocates. "It's outrageous," says Jim Catlin, conservation chair of the Sierra Club's Utah Chapter. "The BLM is downplaying the value of these areas. They're underselling some of the most magnificent lands in the world."

According to Clive Kincaid, executive director of a conservation group called the Southern Utah Wilderness Alliance, "These redrock canyons are every bit as remarkable as the Amazon rainforest. They are a storehouse of natural beauty, a priceless legacy we must save for our children."

THE B.L.M.'S NATIONWIDE WILDERness review began in 1976 with the passage of the Federal Land Policy and Management Act (FLPMA). The new law mandated a three-stage, fifteen-year process. In the first stage the BLM would inventory its holdings to identify wilderness study areas (WSAs), parcels larger than 5,000 acres that afforded "outstanding opportunities for solitude and primitive or unconfined types of recreation." In the second stage the agency would study the WSAs and then draft environmental impact statements about them. In the third stage the BLM would send wilderness recommendations to Congress by 1991.

Because FLPMA forbade any development that would "impair" roadless areas until the review was complete, conservationists initially hoped it might tie the hands of the historically pro-development BLM. That hope was soon dashed. "In Utah the BLM has always been a pawn of ranching and mining interests," says the Sierra Club's Catlin, "and from the very beginning it did its utmost to subvert the law."

Wilderness Society staffer Terry Sopher was the Carter administration's national director for BLM wilderness programs at that time. "During the BLM's initial inventory," he recalls, "the Utah office ruthlessly eliminated mil-

lions of acres that any reasonable person would have said had wilderness qualities. This also occurred in other Western states, but the most egregious, scandalous examples were in Utah, where the unwritten rule was: 'If in doubt, throw it out.'"

Labyrinth Canyon is one of many areas that got short shrift. "It's crazy," says the Sierra Club's Fox. "Here's a 39-mile-long, 800-foot-deep gorge—a classic weeklong canoe trip—and the BLM said that on one side of the river you have a wilderness and on the other side you don't!"

Why did the BLM, like Solomon, decide to cut the baby in half? During the inventory stage the agency decreed that because the Green River is navigable by motorboat, technically it should be considered a "road."

Having embraced that sophism, the agency traced a roadless-area boundary up the middle of the river. It tapped the area west of the river for wilderness—but threw the area east of the river open to development.

To paddle this serpentine river is to appreciate just how tortured the BLM's logic was. On our trip Jimbo and I spent one night in Tenmile Canyon at perhaps the finest campsite in Labyrinth. Late in the day, as the sun courted the horizon, the canyon walls blushed rouge-red. A canyon wren piped the sun down, and then all was still. We awoke at dawn to the splash of a beaver's tail. Sipping coffee, we watched a dozen deer frolic in a game of tag on a sandbar upstream.

Describing Tenmile Canyon in a 1979 report, a BLM staffer wrote, "Opportunities for solitude and primitive recreation are probably present; however, [because] the topography is typical, opportunities . . . are seen as average and not outstanding."

Such circumlocutions infuriate Catlin, who says, "If you asked the BLM to describe Monet's 'Water Lilies,' they'd probably say, 'This is a canvas of moderate size containing one pound of red paint, two of blue, and three of green, with an image similar to others previously painted.'"

Unfortunately, the BLM's evisceration of Labyrinth Canyon was not an isolated incident; many other roadless areas met a similar fate, including the Blue Hills, Mt. Ellen, Dirty Devil, Harts Point, Muddy Creek, Dark Canyon, and Fiddler Butte WSAs.

Bureau of Land Management Deputy Director Roland Robison, who headed the agency's Utah office during the study process, says judgments as to whether a given area merits wilderness designation will always be subjective: "It's kind of like judging a beauty contest—there's rarely any consensus."

Yes, beauty *is* in the eye of the beholder—but a closer examination of the BLM's Utah decisions reveals a disturbing pattern: Many appear to be patently illegal.

"The Federal Land Policy and Management Act specifically mandated that, during the inventory phase, roadless areas were not to be eliminated because they conflicted with energy development," says Kincaid, who worked as a wilderness coordinator for the BLM before he took the reins at the Southern Utah Wilderness Alliance. "Yet in nearly every case where worthy Utah areas were dropped, it was because the BLM foresaw a possible energy conflict."

In 1981 the Sierra Club hired Kincaid to spend a few weeks investigating alleged inventory abuses. By the time he finished he had spent a year and $5,000 of his own money on the hunt. In the process he uncovered dozens of FLPMA violations affecting nearly a million acres of public land.

"In Labyrinth, for example," Kincaid recalls, "the bureau wanted to leave the door open for oil exploration, potash and uranium mining, and off-road-vehicle use."

Agency officials acknowledge that there may have been some irregularities during the initial inventory. But Greg Thayn, coordinator of the BLM's statewide environmental impact statement on wilderness, says, "That's water under the bridge. The inventory phase is over. We can't keep going back and revisiting these issues."

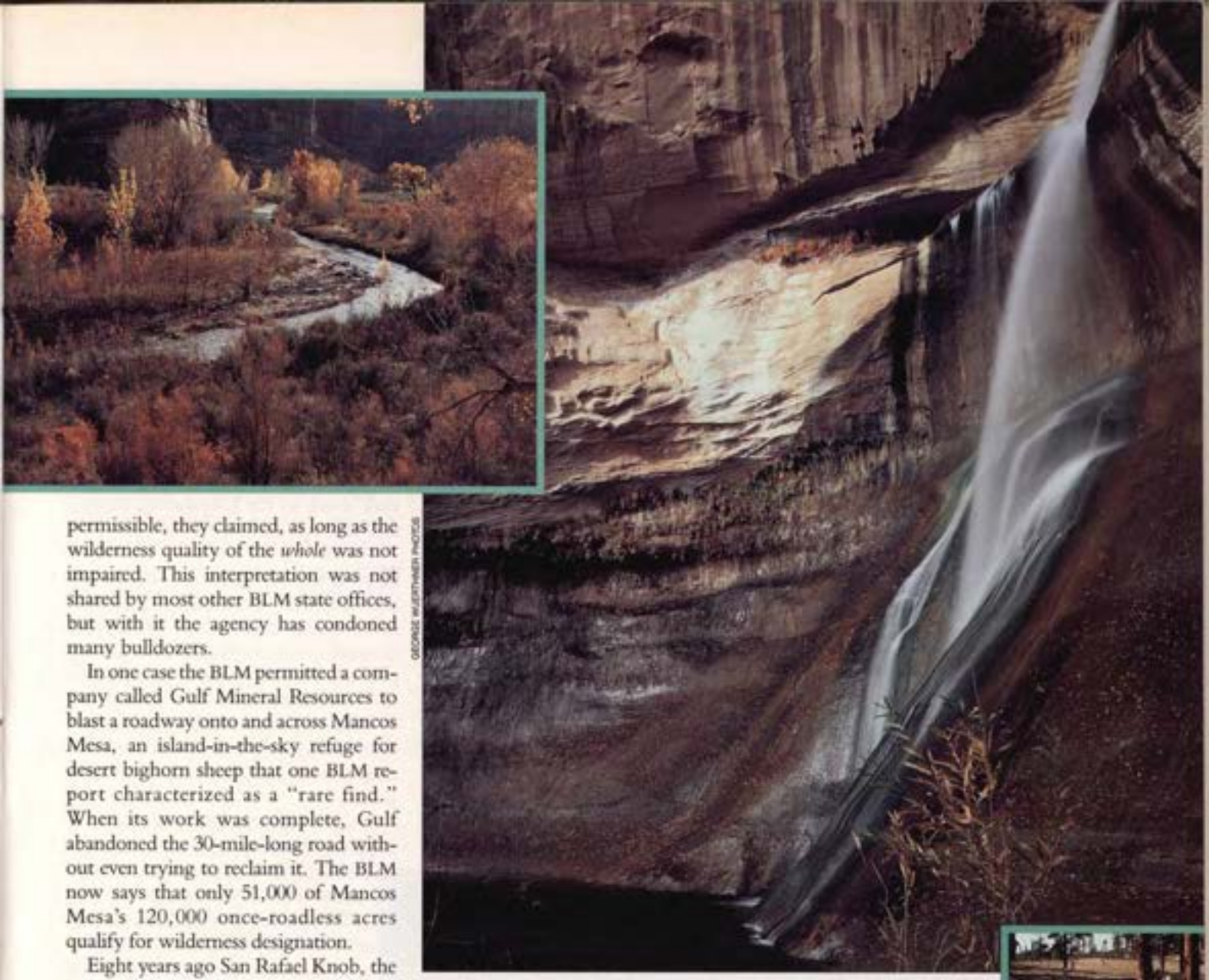
GORDON ANDERSON

The Cockscomb Ridge, within a wilderness study area southeast of Bryce Canyon.

BY 1980 THE UTAH WILDERNESS REview was a shambles. Things turned from bad to worse with the appointment of James Watt as Secretary of the Interior.

"Watt rode into office on a wave of Sagebrush Rebellion rhetoric, and one of his first goals was to trash the wilderness review, to make sure it died a quick death," says Terry Sopher, who soon resigned his job as the BLM's national wilderness director in protest.

In Utah, BLM officials quietly began opening roadless areas for oil and uranium exploration, even though the lands were still under wilderness consideration. Developing *parts* of an area was



GEORGE WUERTHNER PHOTOS

SCOTT T. SMITH

Phipps–Death Hollow Wilderness Study Area (above, at Calf Creek Falls) lies in the heart of Utah's canyonlands along the Escalante River (upper left). A few miles from the area's border, exploration for carbon dioxide has begun on Antone Bench (inset at right). The gas is used for oil extraction and coal slurry. Conservationists are trying to stop further development of the area.

permissible, they claimed, as long as the wilderness quality of the *whole* was not impaired. This interpretation was not shared by most other BLM state offices, but with it the agency has condoned many bulldozers.

In one case the BLM permitted a company called Gulf Mineral Resources to blast a roadway onto and across Mancos Mesa, an island-in-the-sky refuge for desert bighorn sheep that one BLM report characterized as a "rare find." When its work was complete, Gulf abandoned the 30-mile-long road without even trying to reclaim it. The BLM now says that only 51,000 of Mancos Mesa's 120,000 once-roadless acres qualify for wilderness designation.

Eight years ago San Rafael Knob, the highest point in the San Rafael Swell, was being considered for WSA designation. Then the BLM allowed a prospector to crisscross the Knob with a web of roads. Shortly thereafter the agency dropped the area from wilderness consideration. "From the air, it looks like an ax-murder victim," says Ray Wheeler, a conservationist who is working on a book about the wilderness review.

Trying to stop the BLM from carving up wilderness areas it was legally bound to protect, conservationists throughout the late 1970s had filed a series of unsuccessful administrative appeals. Finally, in 1981, they went to the Interior Department's highest tribunal, the Interior Board of Land Appeals, with a package of complaints about the inventory process. Two years later they achieved a major victory when that panel ruled that the BLM had to re-inventory almost a million acres it had illegally dropped from wilderness study. Eventually, about two thirds of that land made it out of purgatory into a WSA.

In 1984, after doing everything it could to fragment, splinter, and gerrymander Utah's wildlands out of existence, the BLM begrudgingly identified 82 WSAs in the state. They averaged 39,000 acres in size, or about eight miles square, across which even a poor horseman could ride—two or three times—in a day. Clearly, the agency did not share Bob Marshall's dream.

GALVANIZED BY THE B.L.M.'S DECIMATION of roadless areas, Utah conservationists banded together in late 1984 to write an alternative wilderness proposal. Nine public meetings were held around the state to discuss the matter.

"Ranchers, doctors, disc jockeys, professors, housewives, whitewater boatmen, former BLM employees—anybody who wanted to come was welcome," recalls Catlin. "We'd unroll a huge map and everyone would offer suggestions about where the boundaries should be. If we didn't collectively know enough about an area, somebody

would volunteer to spend a few days, or a week if need be, checking it out."

Finding themselves in need of an aerial perspective, the slickrock crusaders borrowed an airplane, soon dubbed Sierra Club Air Force One. Lacking the fancy tools used by the BLM to estimate the size of irregularly shaped parcels, they were forced to improvise. "We traced map boundaries onto tissue paper overlays, then cut them out and weighed them on a calibrated chemistry scale," recalls Catlin.

All of this yeomanly work came to fruition in July 1985, when 16 conservation organizations, allied as the Utah Wilderness Coalition, released a comprehensive proposal for 5.1 million acres of BLM wilderness—nearly 2 million more than the agency had even studied.

The coalition's proposal for 141 roadless areas throughout the state would protect landforms, critical wildlife habitat, and river systems. It would also give the redrock wildlands Marshall identified in southeastern Utah a measure of the protection that conservationists feel they've long deserved. By preserving lands adjacent to Arches, Zion, Bryce, Capitol Reef, and Canyonlands, it would buffer these national parks from the visual, acoustic, and air pollution that now threaten them.

The proposal encompasses an astounding variety of ecosystems, among them the 12,000-foot-high Deep Creek Range in western Utah. "The Deep Creeks are a biological ark stranded in a sea of desert," says Dave Livermore, field representative for The Nature Conservancy. "Here you'll find dozens of plants and one species of trout—the Bonneville cutthroat—that are found nowhere else. There are also isolated stands of bristlecone pine, Earth's oldest living tree."

In the state's extreme southwestern corner lies Beaver Dam Wash. Beneath the bizarre, many-armed Joshua trees that dot this area, some 300 desert tortoises lumber toward extinction. By protecting their habitat, the Utah Wilderness Coalition hopes to stave off destruction of these reptiles.

Two hundred miles to the northeast, the Green River winds through magnificent Desolation Canyon, a thousand feet deeper than the Grand Canyon and one of the West's classic whitewater routes. The Utah Wilderness Coalition hopes to safeguard Desolation as well as the adjoining Book Cliffs, a huge tract of wild country that is home to elk, deer, bear, and cougar.

The canyon country that lies at the wild core of southeastern Utah is one of the few places on Earth where the resident human population is smaller today than it was a thousand years ago. In one county alone there are an estimated 17,000 Anasazi ruins—kivas, guard towers, cliff dwellings, and granaries. Unfortunately, most have been vandalized by pot-hunters. By keeping vehicles out of some of the remaining areas, the Utah Wilderness Coalition proposal would help protect what's left.

Finally, the proposal would set aside the heart of the Escalante country that so impressed Marshall and Ickes. The Escalante is a vital link in what conservationists hope will one day be a combined BLM/Park Service wilderness of more than a million acres, stretching a hundred miles from Capitol Reef National Park south to the Kaiparowits Plateau near the Arizona border.

GARY LADD

The Henry Mountains near Hanksville, a reminder that all that's wild in Utah is not desert.

IN FEBRUARY 1986 THE B.L.M. released its draft environmental impact statement on Utah wilderness. Dozens of employees had toiled for two years to produce a seven-volume, 2,700-page, 18-pound lead balloon.

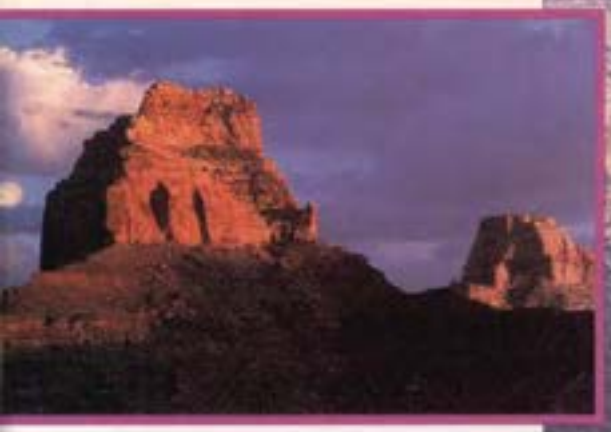
"Shortsighted and a small idea," scoffed Catlin. "The BLM's proposal does not even begin to do these lands justice."

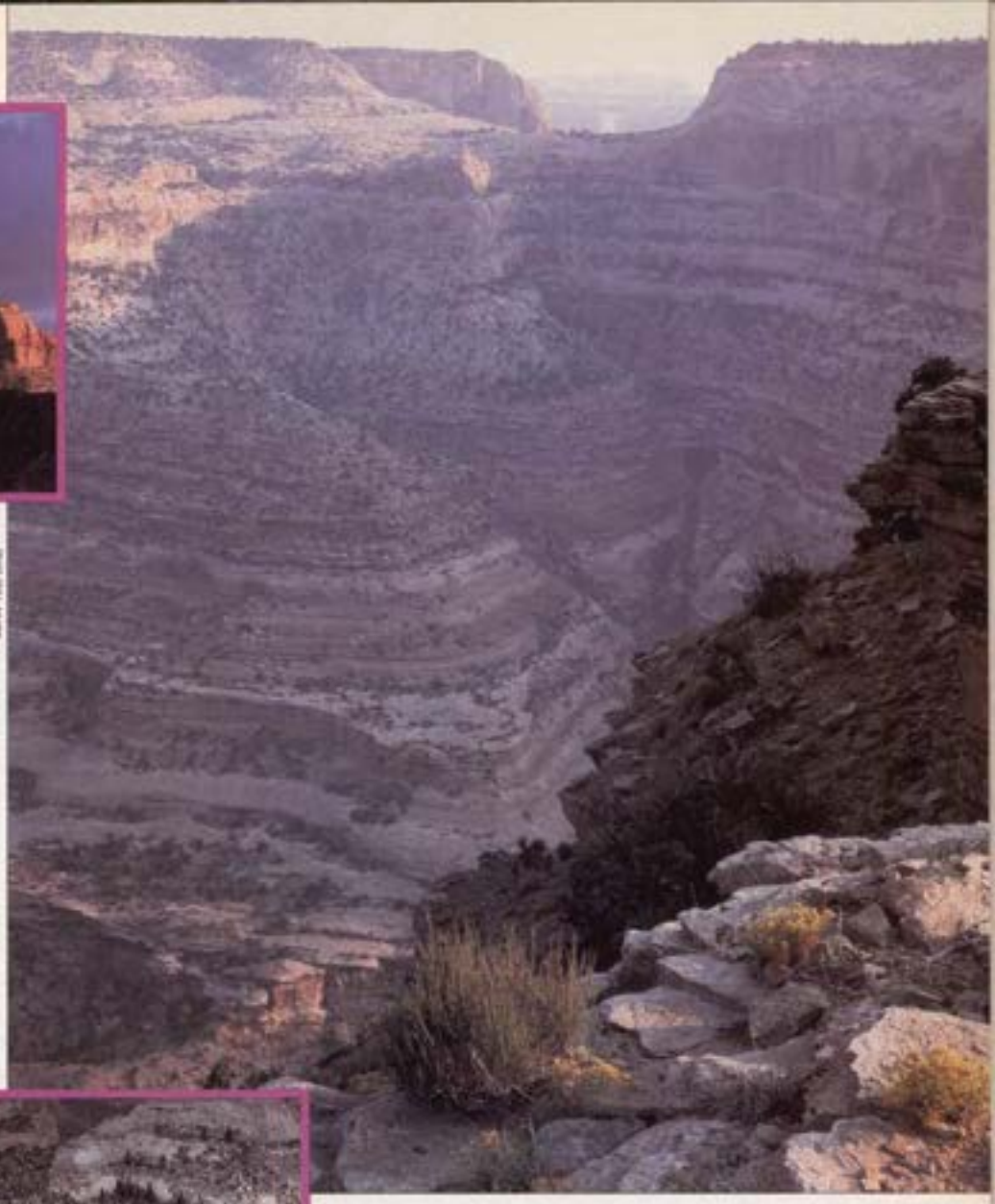
Prodevelopment advocates were, if anything, even less enchanted. The 1.9 million acres of wilderness proposed by the BLM "is probably about 1.9 million more than we need," said Calvin Black, chair of the San Juan County Commission. In short order the state legislature passed a near-unanimous resolution opposing *any* BLM wilderness.

The lawmakers' action came as no surprise in conservative Utah, where environmentalists sometimes jest, "Some people won't be happy until the entire state is paved and the automobile can finally roam free." What *was* surprising—and a sign of changing times—was the backlash the action triggered.

"The legislature's decision was abrupt and irresponsible," declared an editorial writer in the Logan *Herald-Journal*. "Most Utahans would agree that a 'zero wilderness' option is . . . irrational." The *Salt Lake Tribune* agreed: "1.9 million acres of wilderness . . . mark a good beginning. . . . All this acreage should be automatically designated wilderness."

During the next six months the BLM received more than 4,000 letters singing





San Rafael Swell: The San Rafael River cuts through the Swell's core (above); Windowblind Peak in the Mexican Mountain Wilderness Study Area (above left); roads left on San Rafael Knob by uranium prospectors. The area used to be a prime wilderness candidate (inset at left).

JOHN TELFORD

RAY WHELER

the praises of canyons and deserts—the largest response in the ten-year history of nationwide BLM wilderness reviews. "These weren't form letters," says Jim Baker, a Sierra Club activist who examined copies of the BLM's Utah wilderness correspondence. "They were letters from the heart."

THE UNWORLDLY BEAUTY OF THE slickrock wilderness taps something powerful in many people. How can this rugged landscape, which at first looks so alien, quickly come to feel so much like home?

"You touch the rock, you hike up a canyon. You can feel it on your feet. It engulfs you. Although it's bigger than you are, you can feel it completely," says Ken Sleight, a river runner and guide. "These canyons are a religion to me."

Like Sleight, many people experience a spiritual affinity with the arches, hoodoos, and badlands—an affinity that draws them back again and again. In the spring, cabin-feverish refugees from across the West flock to southern Utah to prowl the slickrock, drift down rivers, rock climb, and soak up the returning sun.

To grow intimate with the myriad charms of this corrugated world where more is hidden than revealed is to begin to speak a strange language peppered with geologic terms—*Wingate, Kayenta, Navaho, Entrada*—and descriptive nouns—*pictograph, slot canyon, desert varnish, plunge pools.*

Eventually, refreshed and rejuvenated, the visitors start homeward. Inevitably some red dust goes with them. It clings like an essence, and try as they might they can never shake it all out—of their sleeping bags, their tennis shoes, their hearts.

ALTHOUGH THE B.L.M. HAS DONE ITS best to stack the deck, the fate of Utah's wildlands ultimately rests in the hands of Congress, which can decide to protect more or less acreage than the agency recommends.

"I'm hopeful about getting a wilderness bill passed," says Rep. Wayne Owens (D-Utah), "but it's going to be a long struggle."

"Success may be years away," agrees Debbie Sease, a Sierra Club lobbyist in Washington, D.C. "Owens is the only prowilderness member of Utah's delegation. But I'm also guardedly optimistic that nationwide pressure will eventually convince Congress to protect these lands."

Gearing up for the coming struggle, the Sierra Club, The Wilderness Society, the Southern Utah Wilderness Alliance, and The Nature Conservancy have all opened offices in Salt Lake City within the last year. "We intend to wage a classic grassroots education campaign," says Lawson LeGate, the Sierra Club's asso-

ciate Southwest regional representative, "and we're hopeful that when people realize what's at stake, we'll see an outpouring of sentiment and an avalanche of support."

The battle will pit the slickrock crusaders against equally dedicated development forces. One friend of industry, Utah Rep. James V. Hansen (R), recently invited Department of Energy officials to put a nuclear waste dump within a proposed wilderness area at the gateway to Canyonlands National Park. "If other states won't take it, we should," Hansen said. "Sure, there would be some buildings and a chain-link fence, but you can't eliminate the growth of the West to placate a few tourists."

Another development advocate is Ray Tibbetts, the former Grand County commissioner who once bulldozed a road into the Mill Creek WSA (a miniature Eden near Moab, with spring-fed pools and hanging gardens) in an attempt to void its wilderness status. Tibbetts says, "I'm proindustry, I'm propower plant, I'm pro-anything you need to make a living around here."

Tibbetts and Hansen believe wilderness harms Utah's economy. Environmentalists disagree. "Tourism is Utah's second-largest industry, bringing $220 million annually into the state," says Utah conservationist Del Smith. "Furthermore, unlike feast-or-famine, boom-or-bust mineral development, a tourist industry is reliable."

Clive Kincaid echoes these sentiments. "Utah has a tradition of careful husbandry and reverence for the land that dates back to Brigham Young," he says. "By building on that tradition, we can have a prosperous economy that will support the small population of southern Utah without sacrificing the region's natural wonders."

ON MY WAY HOME FROM LABYRINTH, I stop at the canyon just downstream from Natural Bridges National Monu-

DESERT RATS, ARISE!

The Bureau of Land Management (BLM) is expected to publish a final environmental impact statement on desert wilderness in Utah this year. After receiving the report, the President will make recommendations to Congress, which will begin to shape legislation—probably no earlier than 1989.

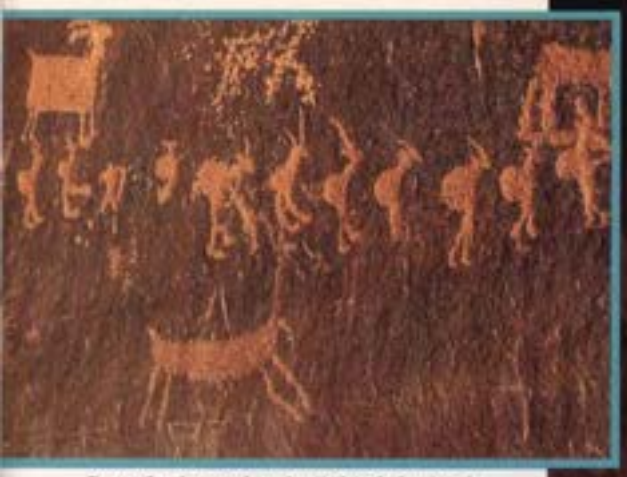
Passing a good bill will be hard; with the notable exception of Rep. Wayne Owens (D), members of Utah's congressional delegation have made no secret of their hostility to wilderness. Here are some actions readers can take today to ensure that the best possible legislation is introduced and passed:

- Write your representative and senators. Ask them to support the designation of wilderness areas throughout the nation, but say that you want them to pay special attention to the protection of Utah's wildlands. This early action will pay off when the Utah desert wilderness bill is finally introduced. It will also help in the interim, as conservationists seek congressional solutions to threats from such proposed developments as paving the Burr Trail, mining coal near Bryce Canyon National Park, clearing pinyon and juniper forests in the Henry Mountains, and drilling for carbon dioxide near Box-Death Hollow Wilderness.
- Add your name to the growing list of BLM wilderness activists. Letters and phone calls to public officials are often needed to fight proposals to develop this beautiful landscape. Send your name, address, and membership number (or an address label from *Sierra*) to Lawson LeGate, Sierra Club, 177 E. 9th S., Suite 102, Salt Lake City, UT 84111; phone (801) 355-0509. Once your name is on the list, you will receive periodic updates regarding wilderness in Utah.
- If you live in Utah, adopt a candidate wilderness area. The Kaiparowits Plateau, the Escalante River Canyons, the Henry Mountains, and many other areas need help from watchful conservationists. A wilderness adopter becomes personally familiar with a given candidate wilderness, keeps an eye out for threats, alerts others to those threats, and tracks official plans for the area. Among other things, an adopter looks for mining and off-road-vehicle impacts, monitors grazing projects, and develops a photographic file of the proposed wilderness area. The Sierra Club's Utah field office is coordinating this effort at the address shown in the paragraph above.
- Become a Utah desert rat. Spend your next vacation in Utah getting to know the spectacular wildlands beyond the national parks. Visit some of the wilderness study areas designated by the BLM, or explore any of nearly 2 million acres of fragile and endangered lands that the BLM has ignored in its wilderness studies. For a guided trip, try one of the Sierra Club's national or chapter outings. For a good armchair visit, read *Utah Wildlands* by Stewart Aitchison (Utah Geographic Series, P.O. Box 8325, Salt Lake City, UT 84108).

A coal-loading area near the Book Cliffs. The Utah BLM excludes most areas with coal deposits from wilderness consideration.

KENT & DONNA DANNEN

Once you have savored this incomparable land, your determination to help protect it will be as solid as Utah's slickrock. —***Lawson LeGate***



Petroglyph panel in the Behind-the-Rocks Wilderness Study Area near Moab, Utah.

ment. I could spend weeks unraveling White Canyon and its hundreds of miles of tributaries, but I have only a day.

I spend it in a side canyon, a 200-foot-deep cleft sculpted by infrequent flash floods at the center of a proposed wilderness area. Walking up the floor of this canyon is like unwrapping an endless series of paintings: Each bend presents a fresh canvas of stone, exquisitely patterned and streaked with desert varnish. The streambed is punctuated with numerous dry waterfalls, around which I'm forced to scramble.

In late afternoon I come to one I am unable to bypass. In the moist sand at its base are the tracks of a desert bighorn sheep, a better climber than I am. Ordinarily, this would be a moment worth celebrating, but I find it more poignant than sublime.

Curbing my joy is the knowledge that the BLM has not recommended a single acre of White Canyon for wilderness. The agency has other plans—plans I find difficult to swallow. In the past five years, the BLM has authorized both oil and uranium exploration in and around this WSA.

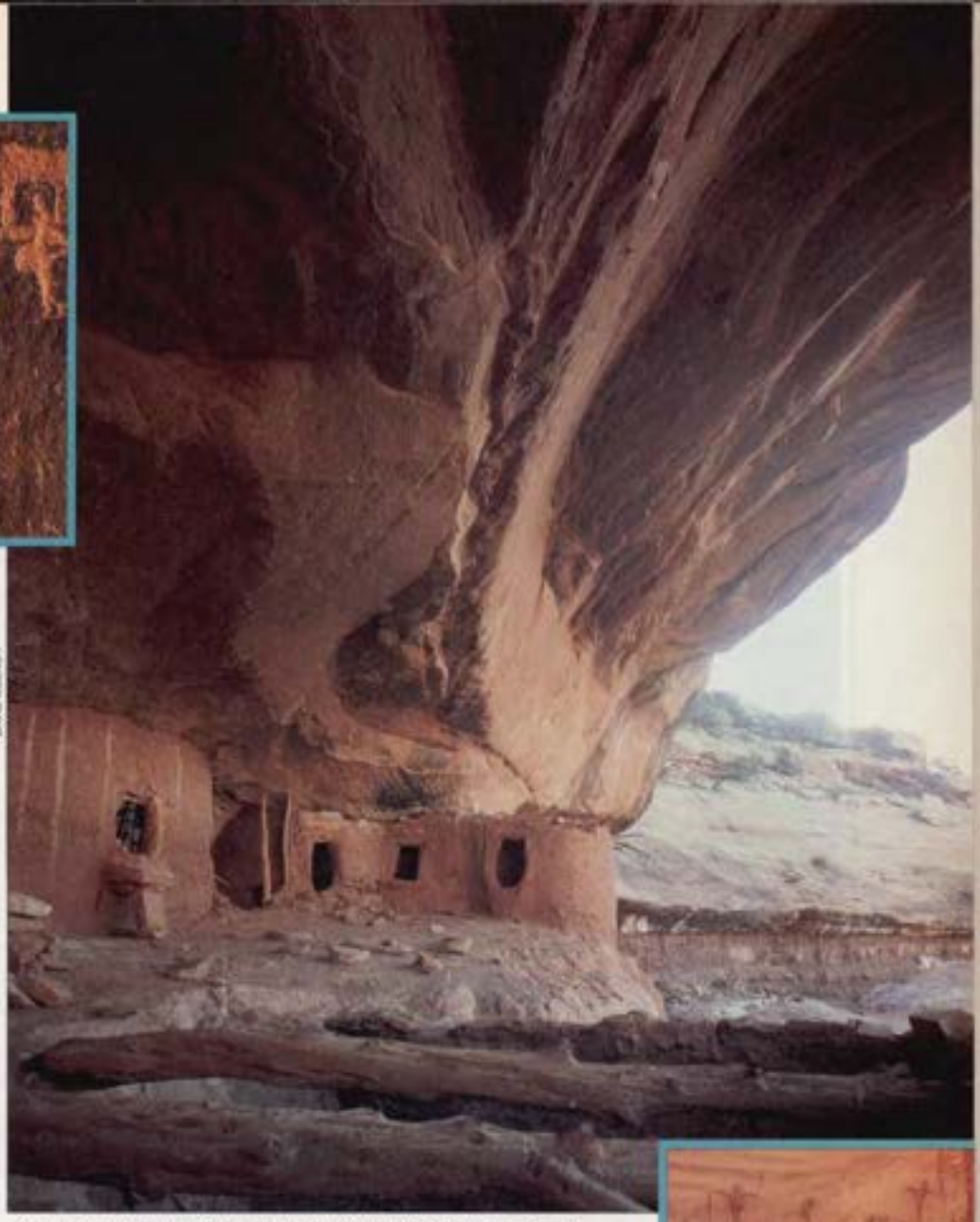
Retracing my steps, I weigh various adjectives for describing the agency's behavior in Utah over the past 12 years. Has it been *tawdry*? *sordid*? *illegal*? All of the above?

What's going on here? This land doesn't belong to Exxon, ARCO, AMAX, Shell, Energy Fuels, or Tenneco—it belongs to *us*.

As my anger builds, I am reminded of something Brigham Young wrote 140 years ago: "Are you not dissatisfied, and is there not bitterness in your feelings, the moment you find a canyon put in the possession of an individual, and power given unto him to control the timber, wood, rock, grass? . . . Does there not something start up in your breast, that causes you to feel very uncomfortable?"

More than uncomfortable: The story of the BLM wilderness review is a saga of bureaucratic duplicity that has led to the tragic destruction of some of the nation's finest wildlands. Had it not been for the dedication of a small band of conservationists, the damage would have been much worse—but that is little consolation to those who know what's been lost.

Now a larger group is assembling to right the agency's wrongs. Its members are determined to show the public what Utah has to offer. When enough people understand, conservationists will ask Congress to do the rest: to end an era of confusion and destruction in Utah's splendid slickrock wilderness. ■

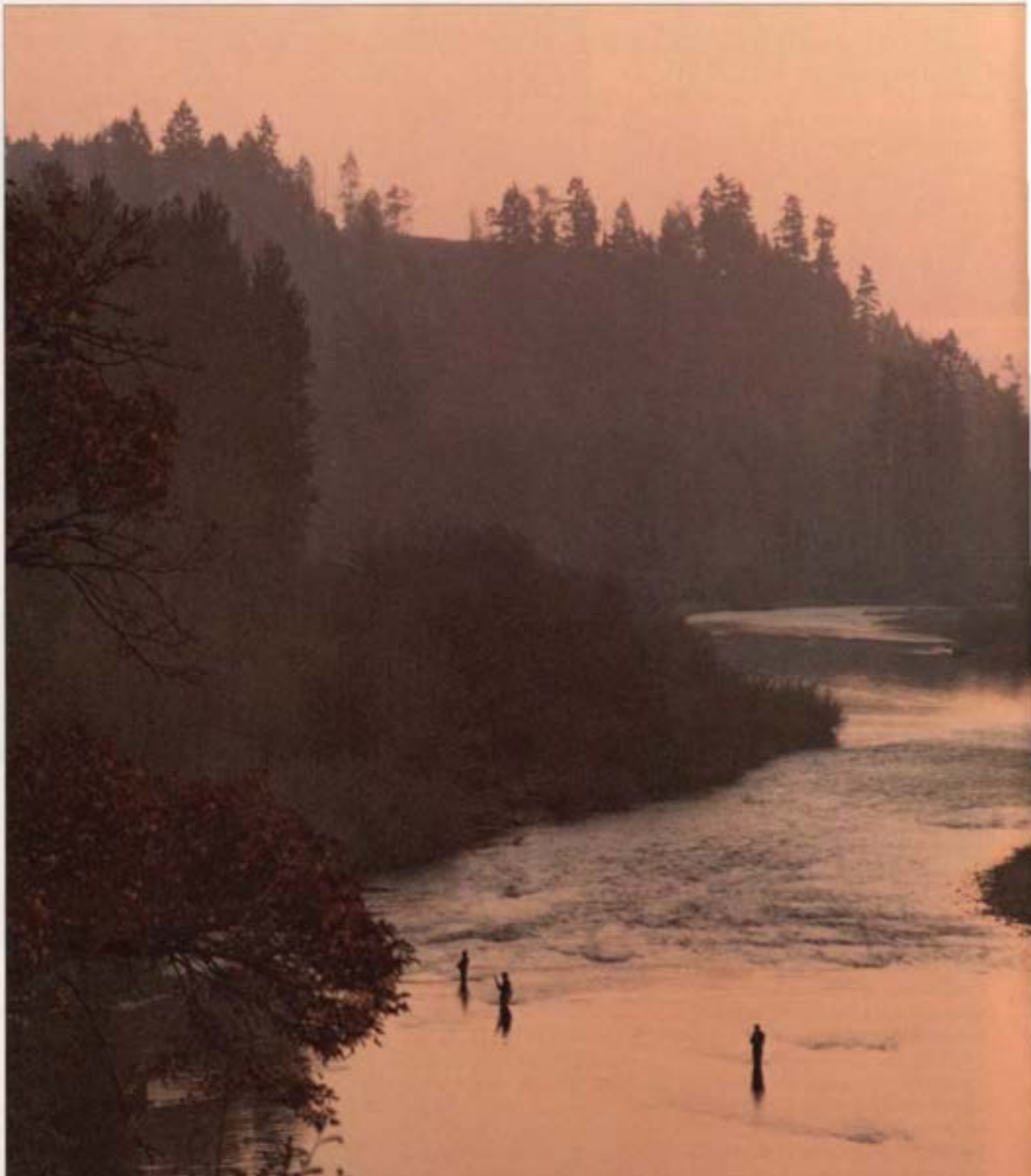


DAVID MUENCH

SCOTT T. SMITH

An ancient Indian cliff dwelling near Natural Bridges National Monument that is watched over by the Bureau of Land Management (above); rock art damaged by vandals (inset at right). Conservationists argue that wilderness designation helps protect archaeological treasures, because it keeps vandals' vehicles away from remote sites.

JAMES R. UDALL *is a Colorado-based writer and outdoorsman. This article was made possible by a gift from Mark Ristow.*



STEVE MARTS/APERTURE PHOTOBANK

By Christopher Camuto

CONSCIOUSNESS of STREAMS

The woods are still brown and the air still cold with early spring when the trout begin to stir in Virginia's Blue Ridge Mountains. The signs of the new season are subtle, but if you fly-fish, you can see them coming.

Watch a Blue Ridge Mountain stream carefully on a chilly, late-February day when only small clusters of streamside ferns and tentative alder buds color the forest. Wade the cold water upstream and position yourself behind a granite boulder. From here you can observe the slow, blue water at the back of the pool and the dark stones on the streambed. Watch the main current until you begin to see small, dark-gray insects with translucent, sail-like wings struggling to free themselves from the stream's surface film. *Epeorus pleuralis*, the year's first mayfly, is making its move toward light and air.

Continue to watch as some of the "stones" undulate and become shadows, then position themselves alongside the tongue of current that carries the mayflies downstream. Some of the mayflies free themselves from the medium in which they've lived for nearly a year and fly off into the treetops to complete their life cycles with just one day as a winged, airborne insect. Others continue to struggle and drift on the stream surface.

Eventually, a struggling mayfly animates one of the shadows. You see a glint of white as the shadow turns and shows itself to be a brook trout floating downstream beneath the insect. As the fish slowly drifts and rises, the vermiculation on its back and the white-and-black borders of its fins become clear. You see a hint of its brilliant color and the perfection of its form, arctic in origin and 100 million years in the making.

The mayfly, now in its most vulnerable moment, floats high on the water, its body arched, its slender tails outstretched, its tiny legs taking advantage

MARK E. GIBSON/COURTESY STEINHART AQUARIUM

Besides a rod and a reel, successful fly-fishing requires an intimate knowledge of insects, trout, and rivers.

STEVE KRASEMANN/LIFE PHOTOBANK

R. VALENTINE JOHNSON

CHARLES KRIEBS/APERTURE PHOTOBANK

Stomach contents reveal the typical trout diet of nymphal and adult mayflies, caddis flies, and stone flies (background); a dragonfly (left) and damselflies (below left) may also find their way onto a trout's menu; an artificial fly, such as this green drake mayfly (below right), must mimic an insect's size, shape, and color, but it need not duplicate every detail.

of surface tension as it dries its delicate, dark-veined wings and tries to establish a purchase for flight. Before the fly is swept into the quick water at the lip of the pool, the trout rises to its prey.

Fly-fishing seasons, and fly-fishing careers, begin not with the first fish caught, but with the first sight of a wild trout rising to an emerging mayfly. This drama guides everything about a sport that is "an intuitively attractive practice," in the words of author Paul Schullery. Tying a fly, selecting tackle, wading carefully, observing insect life, reading water, timing a cast—all are tutored by the vulnerable emerging aquatic insects and the wary trout that rise to them in cold, moving water. Although you can fly-fish for bass in lakes or for bonefish on saltwater flats, fly-fishing hooks its most ardent followers on rivers and streams.

The character of a particular river and the life it harbors often attract a person to fly-fishing. A tumbling Virginia mountain stream with its small native brook trout draws one person; the glassy surface of a Pennsylvania spring creek where big brown trout brood in the elodea mesmerizes another. Some people prefer to cast sparsely dressed flies on the stately, historic waters of New York's Catskill Mountain region, while others choose to plumb the depths of the big water of Oregon and western Montana.

Fly-fishing requires good taste in rivers because trout have good taste in rivers. Brown, rainbow, cutthroat, and brook trout are coldwater fish, members of the Salmonidae family. As a vestige of their northern origins, trout and char prefer clean, cold, well-oxygenated water. Regarded as "indicator species" in many wildlife-management jurisdictions, naturally reproducing trout are a sign that a river and its watershed are doing well. (The presence of wild trout —naturally occurring rather than stocked—does not guarantee, however, that cumulative environmental problems, such as acidification, are not attacking a river.)

To fly-fish successfully, you must become a creature of the river. You must learn not so much to think like a trout—a far less intelligent creature than you—but to think like a river, an inviting, unforgiving, and sometimes unfathomable medium. Fly-fishing skills —selecting the right fly, reading water, wading, and casting—are all river skills.

The satisfaction of fly-fishing comes in large part from insinuating oneself into the natural interplay of a river, its insects, and its fish. After a few years with fly rod and reel in hand, one day you'll notice that the cork grip of your fly rod has darkened and shaped itself to the muscles in your casting hand. You will become aware of how much a river creature you have become, of how much knowledge you have absorbed through the worn felt soles of your wading shoes, of how the fish have keyed your reflexes, and of how the river has sharpened your senses. Your understanding of the seasons will have a great deal to do with the river life you have come to know, and your sense of place will be an affair of waterways and watersheds. A river may even run through your politics.

Fly-fishing, more than any other style of angling, involves imitating nature and becoming a part of it. The bait-fisher tempts prey with the time-honored worm on a hook, and the spin-caster tries to attract attention using a relatively heavy and noisy metal lure intended primarily to imitate a wounded bait fish. But a fly-fisher must cast a fly that weighs little more than the hook it is tied to—a concoction of fur, feathers, and thread that works successfully, when it works at all, because a trout perceives it to be real.

Successful imitation depends on a thorough understanding of the life of a river. Competent anglers are, in effect, ad hoc entomologists. The variety of flies they carry is dictated by the varied diets of the fish they pursue. Aquatic insects—mayflies, caddis flies, and stone flies—constitute a good deal of the menu. These insects spend their larval, pupal, and nymphal stages in or near stream bottoms. When ready to become a sexually mature adult, the fly makes a dangerous passage to the water's surface or the shore's edge. During this emergence it is most vulnerable to trout —and trout are most vulnerable to anglers who realize what the fish are feed-

ing on, or what they might take as an acceptable substitute.

A complete set of flies includes imitations of subsurface insect forms, nymphs and pupae. If trout are feeding below the surface, that is where the angler fishes. If the trout are rising to winged insects on the surface, the angler chooses a dry fly that floats. It is important not to drag the fly unnaturally across the current, which alerts the fish to the artificiality of the offering. When aquatic insects aren't present, the angler turns to streamers that imitate minnows, or surface flies that imitate terrestrial insects likely to fall or be blown into the stream—ants, beetles, crickets, and grasshoppers.

On each river, aquatic insects emerge in a generally predictable order. Some rivers are famous for "hatches": the simultaneous emergence of hundreds or thousands of insects on a stream, an event that sends trout into a feeding frenzy. Fly-fishers, dreaming about rivers full of rising fish, pore over hatch charts, sacred documents that attempt to predict these mass emergences.

One of the great pleasures of fly-fishing is spending a day in a river. The angler must learn to live with the river's resistance as it glides or rushes by. Leaning psychologically as well as physically into the current's force while searching for trout, the human being is as ungainly as fish are graceful. Trout are sensitive to shadows and vibrations, and fishing opportunities depend on an ability to approach casting positions slowly and carefully without spooking the fish. Slip on an algae-coated boulder and the shadows will scurry upstream, spreading the news of a rubbery-legged predator.

The hazards of wading notwithstanding, casting a fly line is fly-fishing's most difficult physical skill. In all other styles of fishing the weight of the lure or bait pulls the line from a reel. In fly-fishing the weight of the fly line itself must be manipulated in the air by the flexible power of the rod, which allows the angler to place the fly accurately and naturally on the water. (The fly is not attached to the heavy line but to a long, thin monofilament leader and "tippet," which is delicate and barely noticeable to the fish.) While casting is a physical expedient, a means of reaching fish, it is also an artistic skill. Seasoned fly-fishers take pleasure in the fly rod's strange, delayed rhythms and in the graceful loops a fly line draws during a cast.

Perhaps the most esoteric fly-fishing skill is the angler's ability to read a river. A stream's surface, the cut of its banks, the composition of its bed, and its "structure"—its boulders, weed beds, and logs—offer subtle clues to the presence of fish. To make a complicated matter simple, in most cases a trout positions itself where it has access to protection from predators ("cover") and a good view of a "feeding lane" (a section of current likely to carry insects downstream within the fish's reach). The fly-fisher wades the river to look for these lies.

Although casting a dry fly to a rising trout is the ultimate challenge and pleasure of fly-fishing, a day's fishing is often a matter of thinking through the signs on the surface to the life below. If no dimpled surface disturbances signify a rising, surface-feeding trout, the angler carefully works the feeding lanes, betting that unseen fish lurk nearby. He or she casts dry flies to the best feeding stations in pools, works shallow riffles with nymphs, plumbs enticing "pocket water" and deep runs with weighted streamers, and searches the water near banks with terrestrials. Somewhere below the surface the heart of a river and the mind of its fish merge. The fly-fisher hopes to decipher that relationship and to become a part of it for a few moments.

When you are fishing well on a good river, it is hard to stop at the end of the day, hard to turn your back on the trout even after they have ceased to rise, hard to walk away from the darkening water. You cast with the four-count rhythm that has disciplined the fly-fisher's expectations for centuries, first into the failing light to what you think are the sounds of a rise, and finally to the twilight sheen of the river itself.

Fly-fishing is in part a search for connections with something natural and unchanging. Spring warms a river and a mayfly emerges. A trout stirs, watches, and rises. An angler, wading quietly and also watching, reads the river's currents and times a cast to his or her belief in the next rise. ■

CHRISTOPHER CAMUTO *has written for* Fly Fisherman, Trout, *and* FlyFishing. *He lives in Earlysville, Virginia.*

R. VALENTINE ATKINSON

WILLIAM THOMPSON/APERTURE PHOTOBANK

A fly-fisher perfects his cast at the base of a waterfall. The mark of a veteran angler is a worn, fly-decorated hat; a basic selection of flies includes at least a hundred in different patterns and sizes.

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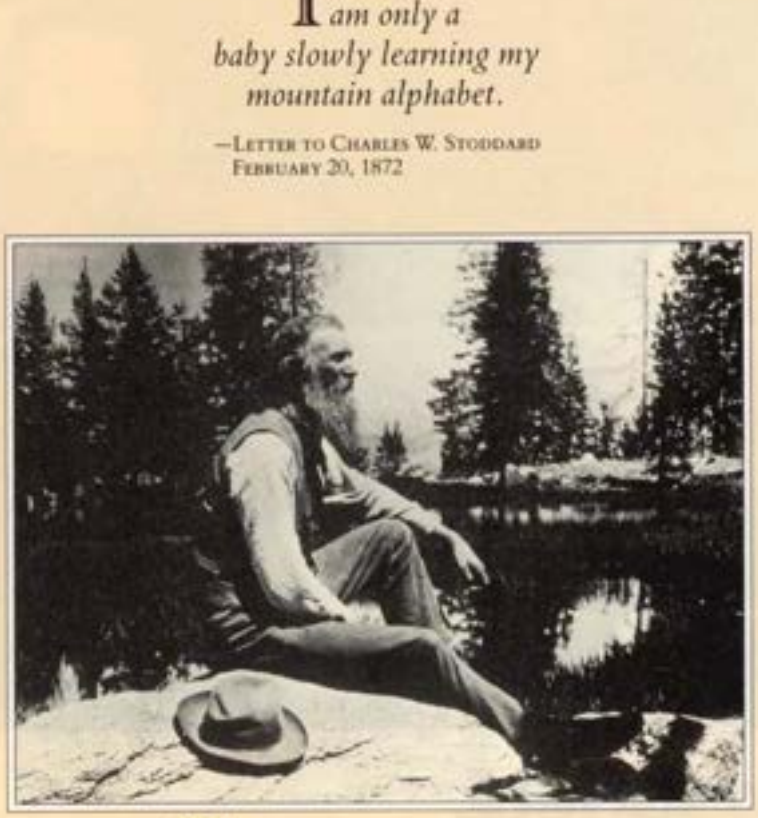
I am only a baby slowly learning my mountain alphabet.

—Letter to Charles W. Stoddard
February 20, 1872



Every day opens and closes like a flower, noiseless, effortless. Divine peace glows on all the majestic landscape like the silent enthusiastic joy that sometimes transfigures a noble human face.

—*My First Summer in the Sierra* (1911)

"HOME INTO THE MOUNTAIN'S HEART"

John Muir, as T. H. Watkins has noted, was not a titanic force in American literature: "[T]here were those before him, with him, and after him who wrote with a clearer eloquence, with greater sureness and sense of craft." Still, as the frontier was closing in the late 19th century, it was Muir who most effectively proclaimed the wonder and spectacle of wild nature to an increasingly settled urban populace. As he strove to communicate to his contemporaries the splendors of a landscape to which language could not, ultimately, do justice, the end he had in mind was not description for its own sake—at least not always. For much of Muir's best, most heartfelt writing was polemical in its way, intended to inspire action as well as insight.

A man in his books may be said to walk the world long after he is in his grave. . . .

—JOURNAL ENTRY, CIRCA 1872

The Sierra Club, an activist group from the start, has long looked on Muir as its patriarch, for reasons historical as well as rhetorical. Alarmed by the prospect of the Sierra Nevada's ruination, Muir in 1892 endorsed the formation of a club to support the exploration and preservation of the range he loved so well. Within a month he was elected president of the infant Sierra Club, a post he held until his death 22 years later. Since then the Club has endeavored to sustain the high values Muir embraced, values beautifully and forcefully expressed in his writings—the correspondence he so vigorously conducted for most of his life as well as his journals and his many books, pamphlets, and magazine articles, both famous and obscure. Much is revealed in these texts, but perhaps of greatest significance to us, his beneficiaries, are the spiritual insights Muir cultivated on his rambles and the preservation ethos he first developed, then preached.

In preparation for the sesquicentennial of John Muir's birth (which took place in Dunbar, Scotland, on April 21, 1838), the editors of *Sierra* set ourselves the pleasant task of combing his works for passages to pair with images from some of today's finest landscape photographers, in hopes that a special sort of synergy would result. Though the quotes we've chosen span six decades, they don't provide even a fragmentary picture of Muir's life and letters, nor are they intended to. Our goal is less rigorous but perhaps equally lofty: to evoke something of nature's majesty on the printed page, as a tribute to the Sierra Club's founder and leading philosophical light on his 150th birthday.

What would the old man himself have thought of this exercise? One scholar recently underscored Muir's disdain for a purely visual aesthetic as the path to an appreciation of nature: "[I]t is not via paint and brushes that one truly captures the landscape," wrote Philip G. Terrie, speaking for Muir in *The Pacific Historian* last year; "it is through the deeper acceptance of nature's processes."

True enough: There's no substitute for direct and immediate immersion of the self in the natural world. But John Muir's words, combined with the work of three remarkably talented visual artists, may still lead us, over the next several pages, into a not entirely one-dimensional facsimile of that world—one that will exalt our readers' spirits until they can next "visit the mountains and get their glad tidings" firsthand.

DAVID MUENCH

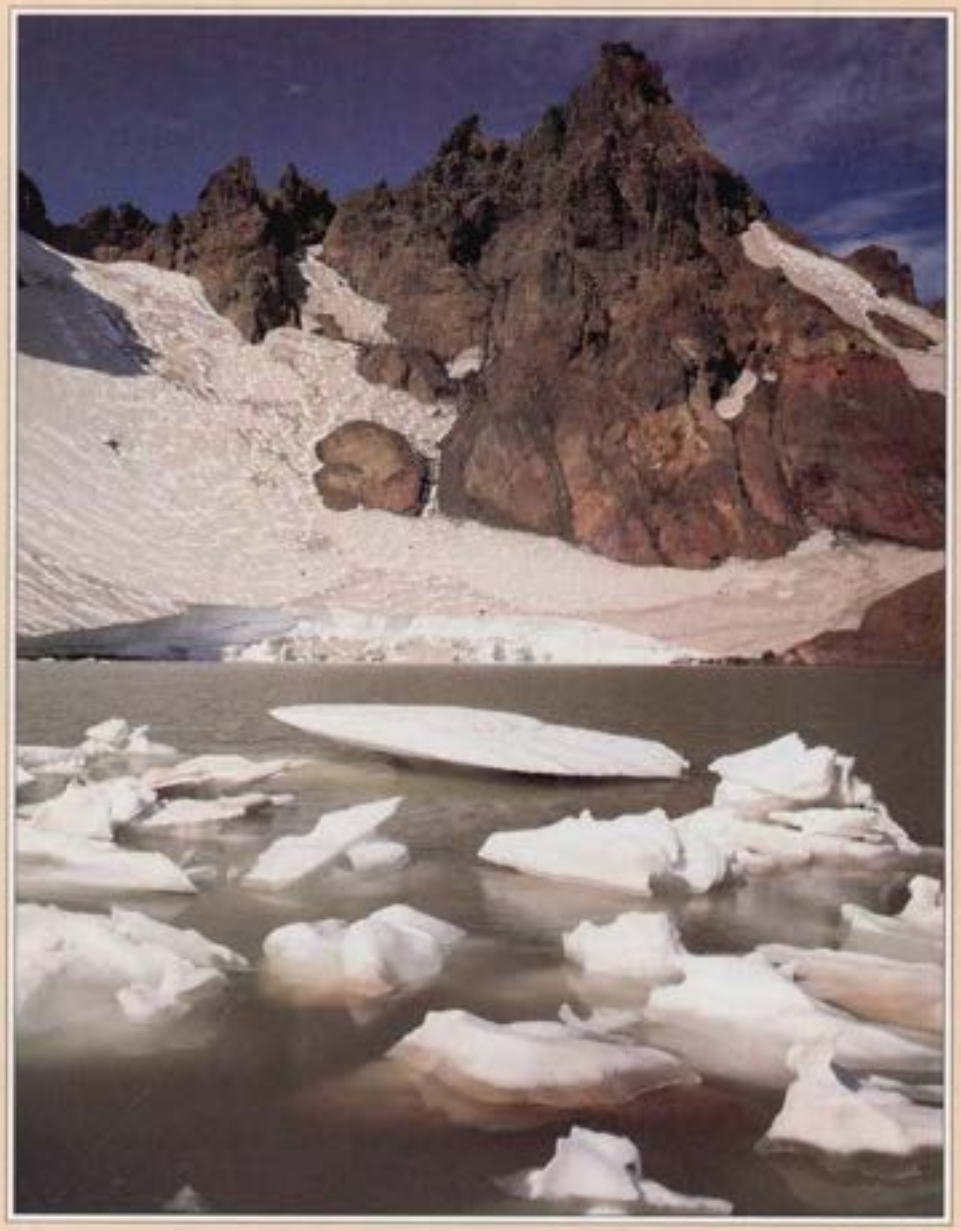
Thousands of tired, nerve shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity; and that mountain parks and reservations are useful not only as fountains of lumber and irrigating rivers, but as fountains of life.

—OUR NATIONAL PARKS (1901)

WILLARD CLAY

Here is a cascade . . .
glancing this way and that, filled with
bounce and dance and joyous hurrah, yet
earnest as a tempest, and singing like
angels loose on a frolic from heaven.

—LETTER TO MRS. EZRA S. CARR, OCTOBER 8, 1872



WILLARD CLAY

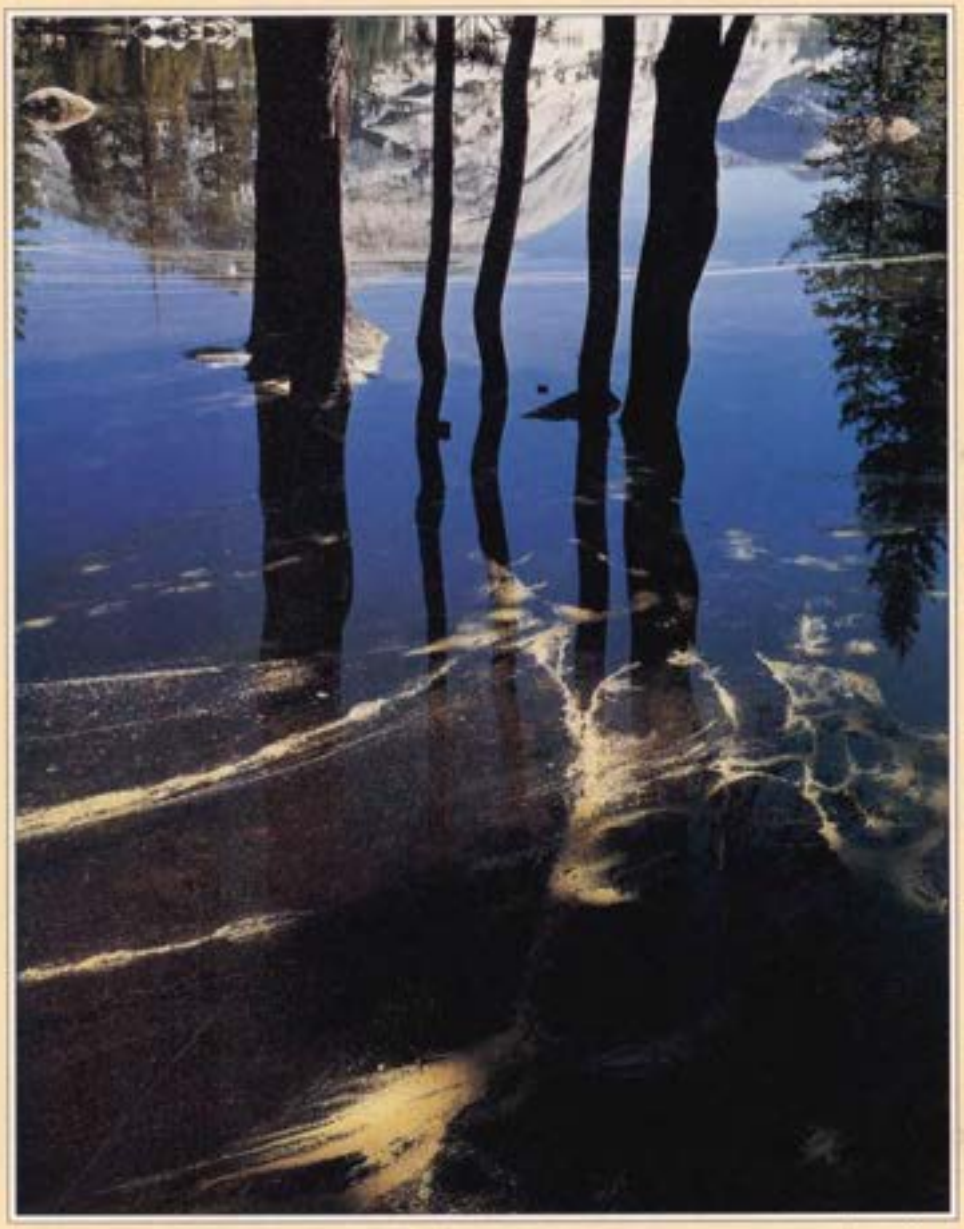
Out of all the cold darkness and glacial crushing and grinding comes this warm, abounding beauty and life to teach us that what we in our faithless ignorance and fear call destruction is creation finer and finer.

—*TRAVELS IN ALASKA* (1915)

WILLARD CLAY

All the wild world is beautiful, and it matters but little where we go. . . . The spot where we chance to be always seems the best.

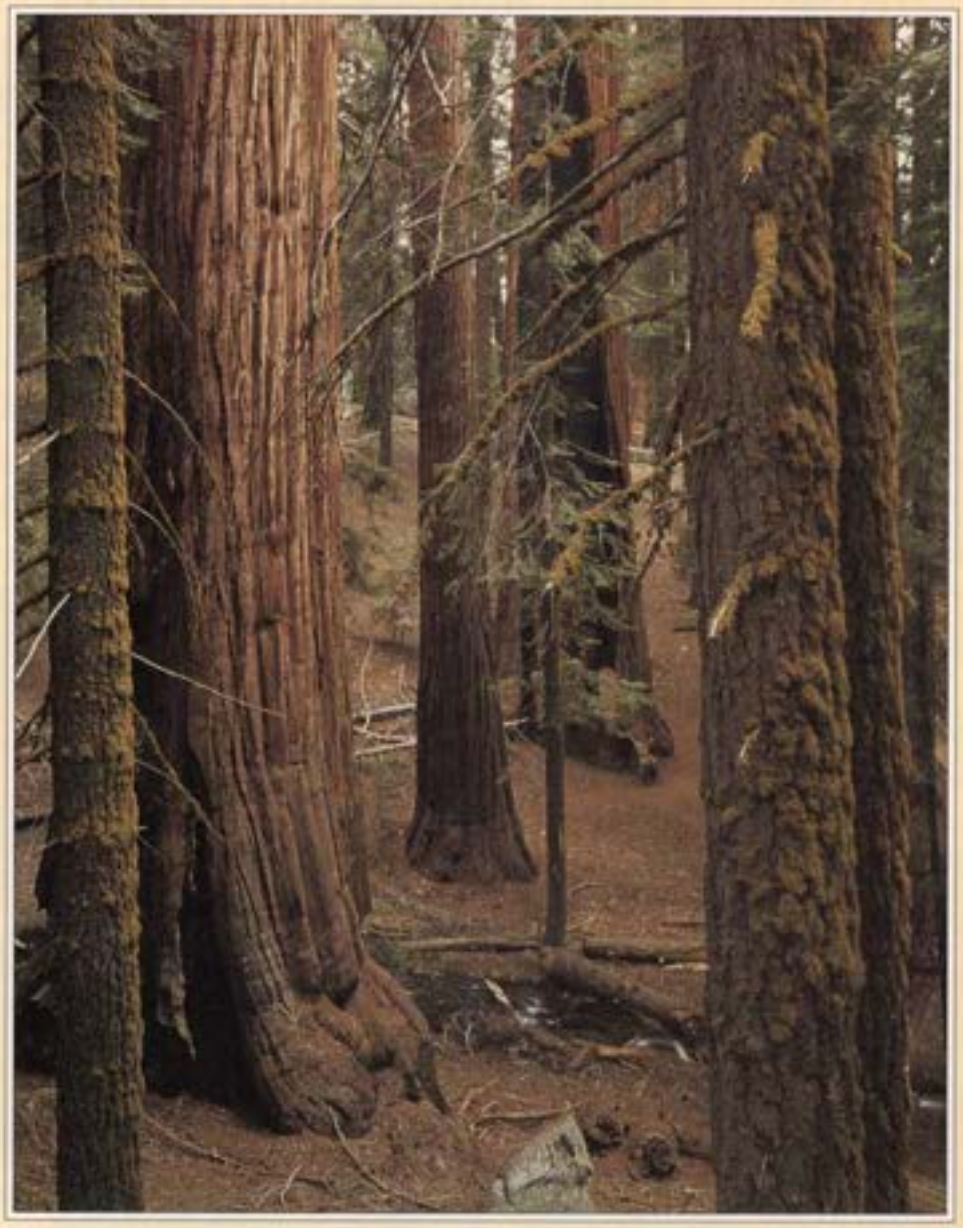
—JOURNAL ENTRY, JUNE 1890



PHILIP HYDE

If the Creator were to bestow a new set of senses upon us, or slightly remodel the present ones, leaving all the rest of nature unchanged, we should never doubt we were in another world, and so in strict reality we should be, just as if all the world besides our senses were changed.

—JOURNAL ENTRY, JANUARY 6, 1869



PHILIP HYDE

If people in general
could be got into the woods, even for once,
to hear the trees speak for themselves,
all difficulties in the way of forest
preservation would vanish.

—"THE NATIONAL PARKS AND FOREST RESERVATIONS,"
SIERRA CLUB BULLETIN, JANUARY 1896

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† Patent pending

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Hazel Wolf: Ninety and Still Fighting

Carolyn Mann

IN AN UNADORNED hearing room in Seattle, a state subcommittee on nuclear affairs is considering a proposal to convert an unfinished reactor in Hanford to a nuclear-weapons-fuel facility. About 60 people have jammed into a room with a stated capacity of 40.

State, utility, and local development agency representatives have already testified about the potential costs and benefits of the project. Now the environmentalists and peace activists are taking their turns at the podium. A trim, white-haired woman dressed in a sensible polyester suit steps briskly and decisively forward.

At 90 years old, Hazel Wolf is well known around Seattle for her environmental activism. Besides heading the Hanford Oversight Committee, a citizen group concerned with safe disposal of nuclear waste, she is secretary of the Seattle Audubon Society, a former president of the Federation of Western Outdoor Clubs, and current editor of *Outdoors West*, the Federation's biannual newsletter. Wolf is also a peace activist, writer, public speaker, and outdoor enthusiast who still enjoys backpacking and kayaking with her grandchildren.

During the morning's testimony Wolf gets right to the heart of the issue, delivering an uncompromising moral like a dose of castor oil. "I must confess," she tells the lawmakers, adjusting her oversized bifocals, "I am not on the same wavelength as many of the speakers.

"One would not think, in listening to the testimony of these various experts, that behind this almost impenetrable facade of rhetoric they are talking about the production of nuclear bombs." Her soft voice grows assertive. "The United States already has enough bombs to practically destroy the world, and those who insist that more are needed are people with a blind obsession. These momentous decisions are too important to be left to the experts."

Feisty, aggressive, and at times controversial, Wolf has frequently found herself at the forefront of progressive change in the United States. Even before she plunged into the environmental movement in the 1960s, she was hard at work for other causes.

She emigrated to the United States from Canada in 1921 at the beginning of the Roaring Twenties, a time of literary experimentation and new ideas. A single mother, Wolf supported her daughter by working as a legal secretary. Later, during the turbulent '30s, she joined the labor movement and the Communist party. Friends who knew her then still call her "Leo," a nickname she adopted to avoid persecution for organizing unions and affiliating with the Communists.

"The first party meeting I went to was held at the house of a family in the process of being evicted," Wolf remembers, chuckling. "The deputies would carry the furniture out the front door, and we'd bring the stuff in again through the back."

In the '50s, Wolf battled the Immigration and Naturalization Service over civil rights: hers. The INS arrested her in 1956 under the McCarran-Walter Immigration and Naturalization Act, passed by Congress in 1952. That legislation permitted deportation from the United States of anyone advocating Communist doctrines—including Wolf, who

"Hazel plans to clean up nuclear waste, solve the problems in Central America, and kill some boondoggle irrigation project—all next week."

GARY BRASCH

had left the party 13 years earlier when she felt it no longer had the power to fight for its causes effectively.

Wolf struggled with the INS for nearly 20 years as her case crept through administrative hearings and federal courts. It even made it to the Supreme Court—twice—before she finally gained U.S. citizenship in 1974.

Today Wolf belongs to a Seattle organization that works for the protection of immigrants, and her hackles still rise when she talks about the INS. "The agency stood at the forefront of the attack on civil liberties during the Cold War hysteria of the McCarthy era," Wolf says, "and it plays the same role now in the Reagan administration's foreign policy. It sends back to face imprisonment, torture, and death those seeking refuge in this country from brutal dictatorships in El Salvador, Guatemala, and Honduras."

Wolf became interested in the environmental movement a few years before she retired as a legal secretary in 1965, she says, speaking at her home in Seattle's Capitol Hill neighborhood. Her apartment, which also serves as her office, is filled with books and mementos of the natural world. Almost every flat surface holds a wooden bird or a stone animal, and Indian art and pictures of more birds hang on the walls next to bookshelves that reveal eclectic reading tastes: history, philosophy, civil liberties, linguistics. There is no television in sight; Wolf keeps her set in a closet.

"Most people came into the movement with a holy reason," Wolf says with a laugh, "but not me. A friend of mine kept bugging me to join the Audubon Society. I didn't know one bird from the next and couldn't have cared less, but to get her out of my hair, I gave her a dollar and joined."

If initially hesitant, Wolf was hooked on the organization after her first field trip. "I watched this little brown creeper gathering food," she recalls. "He'd peck his way up the trunk of the tree, from the bottom to the top, then jump down and peck his way back up again. And I thought, that little guy works hard for a living. I got quite fond of the birds that day. I know a lot of birds now."

Soon after joining the Audubon Society, Wolf was asked to help the Seattle chapter redraft and simplify its bylaws. She accepted the job of chapter secretary in 1964 and soon worked nearly full-time as volunteer office manager.

Wolf was the chapter's "chief cook and bottle washer," says friend and National Audubon Society board member Helen Engle. "Hazel has an unerring sense of when a problem is not being solved—and how to deal with it, and who will get the job done."

Wolf continued to work for Audubon on the chapter newsletter and behind the scenes in the office until the late '70s. She organized 17 of Washington's 21 Audubon chapters and played a large role in publishing a series of educational books on the state's wildlife—though Wolf says her only contribution was to badger the Seattle chapter's board of directors into publishing it ("Boards of directors are such timid people!" she says, smiling). Other members say she has wet-nursed the entire project, keeping the chapter's publishing business alive and making sales pitches for the series wherever she goes.

Wolf's environmental career took a turn in 1977 when she became vice-

Q: Why can't this veal calf walk?

A: He has only two feet.

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president of the Federation of Western Outdoor Clubs and resigned as Audubon's office manager. Some sources credit her with saving the Federation, which they say was dying of neglect. "Hazel was a godsend," Sierra Club Chairman Michael McCloskey says. "She brought new energy and leadership to the Federation. You wouldn't think that a woman her age would bring in fresh blood, but she did."

What Wolf didn't know already she was willing to learn. The day she accepted the job, she went home and asked her friend Emily Haig, "What does a vice-president do?" Haig told her she should send out a newsletter and visit members—an ambitious undertaking, as Washington alone had 16 chapters. "I didn't have an expense account, so I decided I'd get the clubs to visit me," Wolf recalls. "I sent out an appeal for all the members to send a delegate to Olympia, and most of them did."

Wolf served as the Federation's president in 1978 and 1979, but her largest role has been as editor of *Outdoors West*. With the help of her daughter, Nydia Levick, and a few other contributors, she publishes the newsletter from a spare apartment bedroom outfitted with a rolltop desk, an old electric typewriter, and a landscape painting signed "Leo."

The publication is a blend of news reports on environmental issues in the eight western states, book reviews, and wide-ranging editorials by Wolf. Her commentary on the United Farm Workers' latest grape boycott was particularly fiery; in it she wrote, "The mindless, greedy lust for profits of agribusiness, regardless of the result to the lives of workers and health of the general public, can only be halted by an attack on their pocketbooks—by the refusal to buy their products." In another recent commentary she spoofed would-be censors of children's books, suggesting that perhaps environmentalists should jump on the bandwagon and demand that certain fairy tales be banned. "Red Riding Hood did kill a wolf, after all."

One task Wolf set for herself as Federation president was to fuse a coalition between local environmentalists and Washington's Native Americans. She knew the two groups shared interests in opposing logging and supporting the preservation of fish habitat and pure water, among other things.

"I'd always thought that the Native American nations had a lot in common with environmentalists," Wolf says. "So I got in my old jalopy, and I paid my expenses, and I visited every single tribe in the state of Washington and some in southern British Columbia."

Bolstered by a $5,000 donation from the American Friends Service Committee, Wolf organized a three-day conference in 1979. Representatives of the Sierra Club, Audubon, Friends of the Earth, Greenpeace, and other organizations gathered on the Olympic Peninsula to discuss common interests with delegates from almost every tribe in Washington. As a result environmentalists and Indians joined in a lawsuit to block the Northern Tier Pipeline, a scheme to pump Alaskan oil from the Olympic Peninsula to the Midwest.

"Everyone got thrown out of court except the Indians," Wolf says. "The pipeline would have cut across a lot of sacred lands, but they're protected by the American Indian Religious Freedom

Act. That was something I had never heard of before, but we've since used it time and time again."

In another effort to organize groups with common concerns, in 1978 Wolf became the first liaison between the Seattle Audubon Society and the Washington Department of Game. Both groups felt that Washington's nongame species, until then unregulated by any agency, would be better protected under the auspices of the Department of Game. Working together, they were able to establish a nongame and marine wildlife program acceptable to both sides.

The following year Wolf persuaded Boise Cascade to donate 3,000 acres of prime timberland to the Wenas Wildlife Sanctuary. Supported by the Audubon Society, which holds annual camp-outs in the area, she convinced forest managers of the need to protect the area from logging. This effort preserved a home for some 200 species of birds.

A wall in Wolf's bedroom exhibits plaques and awards honoring her efforts on behalf of the environment. The Department of Game presented her with a certificate of appreciation in 1978, making her the first award recipient outside the department. She also won the prestigious Sol Feinstone Environmental Award from the State University of New York in 1978, and the Conservationist of the Year Award from the National Audubon Society in 1985.

Wolf received another award in Managua, Nicaragua, in 1986 at the First Central American Conference on Environmental Action, which she attended as a representative of a group called Environmental Protection for Central America. She is on the advisory board of that organization and has spoken out a number of times against U.S. contra aid and economic embargos. Wolf feels these policies hinder the environmentally progressive Sandinistas by diverting the nation's energies and funds to military confrontation.

Each awards ceremony has been memorable to Wolf, but one brings an impish grin to her face when she speaks about it. In 1984 the governor of Washington presented the state's Environmental Excellence Award for lifetime achievement to her in the same conference room that she and her colleagues once occupied during an unemployment protest in the '30s. "I enjoyed that," she says, relishing the irony.

All of Wolf's work has one thing in common, her colleagues say: she always has her eye on the big picture. "Hazel doesn't take on the little stuff," says the Audubon Society's Engle. "She plans to clean up nuclear waste, solve the problems in Central America, and kill some boondoggle irrigation project—all next week."

"I'm just an organizer," Wolf says, shrugging as if everyone should know by now that's what she does best.

Annie Bringloe, a Sierra Club activist in Seattle, agrees. "She's great at organizing, and her arm-twisting ability is legendary. Because she's colorful, she gets a lot of media attention. That keeps the issues out in front of the public and makes people think about them. And that helps all of us." ■

CAROLYN MANN *is a freelance writer in San Francisco. Mira Katz, a former* Sierra *intern, also contributed to this article.*

MARTIN ROLAND

Thick forests line the middle reaches of the Stein River. British Columbia wants to log the valley's old growth; environmentalists and Indians have joined forces to block the plan.

A Fight for the Wild Stein

BRITISH COLUMBIA, CANADA

While U.S. laws now compel the government to listen when resource abuse outrages the public, Canadians have little say about the logging and mining decisions of their provincial bureaucracies. In British Columbia, environmentalists and Indians with no legal recourse are struggling to focus international attention on plans to log the old-growth forest of the Stein River Valley.

The headwaters of the Stein, high in the coastal mountains of British Columbia, are the domain of grizzly bear, mountain goat, and mountain sheep. Cutting a deep valley, the river winds eastward through progressively drier forests before emptying into the Fraser River. These magnificent 250,000 acres are just a day's drive inland from the metropolis of Vancouver.

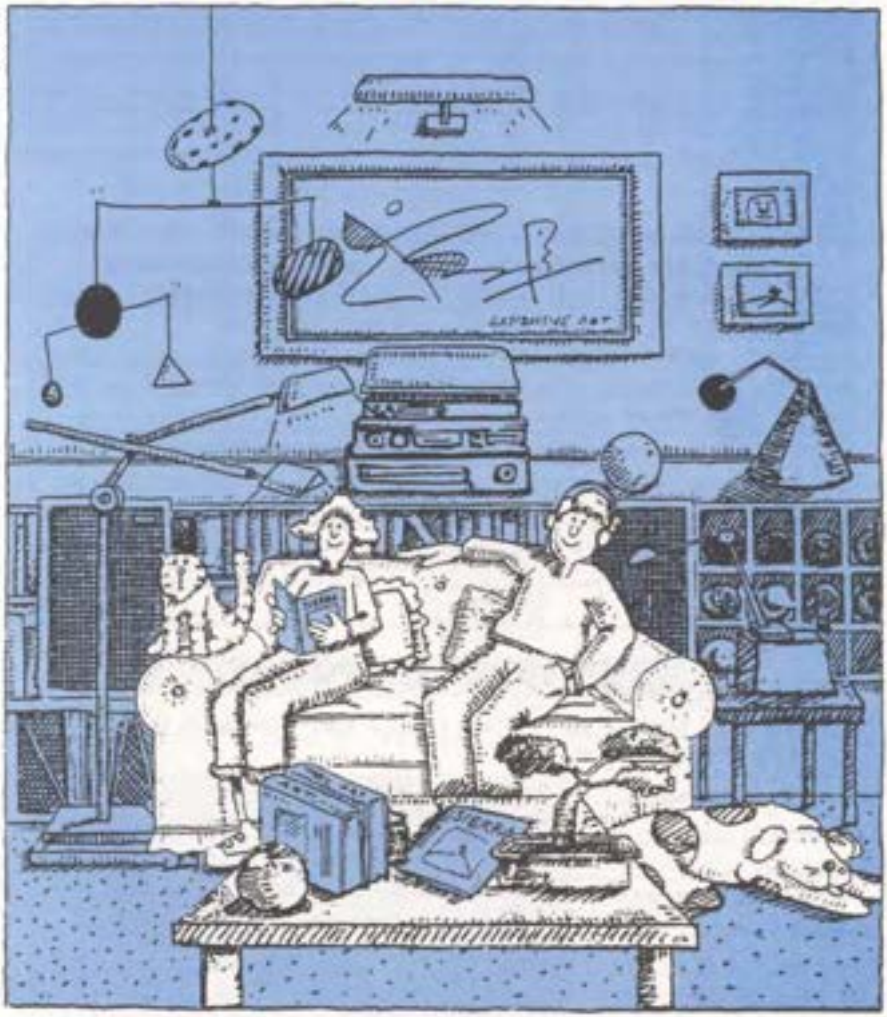
The battle began to escalate last October when British Columbia's government turned its back on the recommendations of its own Wilderness Advisory Committee and announced plans to log the pristine river valley. The first step would be to push a road some 20 miles into these wildlands as early as this spring, piercing the spiritual heartland of the Lytton Indian Band.

The Wilderness Advisory Committee, set up by the government in late 1985 to perform a one-time review of several of British Columbia's environmental hot spots, had advised against building a road into the Stein "without a formal agreement between the Lytton Indian Band and the provincial government." As a backup position, the committee suggested logging only if the timber could be removed without requiring that a road be built.

Scheduled for cutting are forests of Douglas fir, western hemlock, and cottonwood that line the valley bottoms of the mid-Stein and its tributaries. The alpine upper and arid lower Stein, both containing little or no commercial timber, will be declared wilderness areas in which logging is prohibited, according to the government.

Government and industry representatives emphasize the economic importance of Stein timber, saying local sawmills need it to remain open. But

The Great Indoors!



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according to Paul George, director of the Western Canada Wilderness Committee, if the two nearby sawmills depended entirely on the timber from the Stein, they wouldn't last five years. "That wood won't solve the timber industry's problems," he says.

The only way to change the government's position, says Peter McAllister of the Sierra Club of Western Canada, "is to scream, plead, and cry for a show of outrage from Canadians and the international community, and thereby embarrass the provincial government."

The Lytton Indian Band and the Western Canada Wilderness Committee have developed a traveling educational program that features speeches, a slide show, and traditional dances.

"We must continue to protect these lands," Lytton Indian leader Ruby Dunstan said recently. "Our position, which will never waver, is to maintain the forests of the Stein Valley in their natural state. We will share our valley with other life forms equally, and with those people who can bring to the Stein a respect for the natural life there similar to that taught us by our ancestors."

—Cameron Young

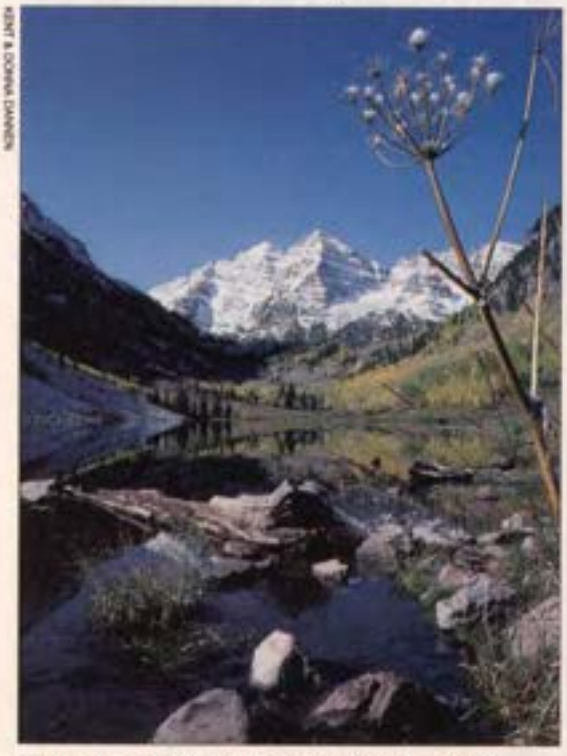
A Conundrum Over Black Marble

MAROON BELLS WILDERNESS

It came as something of a surprise in the spring of 1986 when two Aspen, Colorado, miners asked the Forest Service for permission to improve an old road up the Conundrum Valley to the site of an overgrown black-marble quarry.

The valley, named for its puzzling mix of minerals, is inside the Maroon Bells–Snowmass Wilderness. Some of the most spectacular country in the nation lies within the wilderness, including the Maroon Bells themselves, two 14,000-foot purple sandstone peaks. Also in the wilderness, a mile and a half inside the boundary, is Stefan Albuoy's 472-acre mining claim.

Conservationists had considered the Conundrum Valley preserved in 1985 when the Trust for Public Land acquired surface rights to the inholding and sold them to the U.S. Forest Service. The Trust knew that the Wilderness Act allowed mining of existing claims, but the organization did not acquire mineral rights because it was unaware of any deposits worth mining.



ROBERT & DONNA DANEN

The snow-clad Maroon Bells stand within a well-known wilderness where marble may soon be quarried.

As soon as the miners' plan became known, environmentalists, led by the Aspen Wilderness Workshop, The Wilderness Society, and the Sierra Club, began pressuring the Forest Service to either acquire the mineral rights or conduct a full environmental impact statement, including a determination of whether or not the project made sense economically.

Diana DeGette, a lawyer representing the Sierra Club's Rocky Mountain Chapter, asks, "Why let the wilderness be wrecked if the marble isn't worth getting?"

Environmentalists made it

clear that they were prepared to sue the Forest Service to ensure consideration of their concerns. Last summer DeGette and Tony Ruckel of the Sierra Club Legal Defense Fund persuaded Regional Forester Gary Cargill to require what Ruckel characterizes as "the most onerous conditions ever applied to a mineral-access permit." To wit, the miners could take only 30 tons of previously quarried marble, could make no more than ten trips to the site in motorized vehicles, and were obliged to work in daylight in the presence of a ranger. They were also required to post a $1,000 bond toward reclamation of the mining road.

Before work could begin, however, Pitkin County, which encompasses the claims site, brought suit in state court to stop the miners until they were issued a county permit. The trial is scheduled for this spring.

Meanwhile, local conservationists are working to secure permanent protection for the valley. Although Albuoy insists the claims are not for sale, the attorney for an estate that owns a half interest in the claim is negotiating with the Trust for Public Land. And with environmentalist help, Colorado Sen. Tim Wirth (D) is examining ways in which Congress might help the Forest Service determine the marble's worth and acquire the claims.

—Tom Turner
Sierra Club Legal Defense Fund

All Roads Lead to Bullfrog

LAKE POWELL, UTAH

Glen Canyon, regarded by the few who visited it as the most beautiful and enchanted sandstone canyon of the Colorado River Plateau, was filled with water in 1964 to form Lake Powell. Now the tragedy may be compounded, because the reservoir's marinas in south-central Utah are attracting a host of commercial developments that could further scar the scenic lands in and around the Glen Canyon National Recreation Area (NRA).

Development activity currently centers on Bullfrog Marina, a rapidly growing resort community within the recreation area on Lake Powell's north shore. Located in the middle of an 8-million-acre Eden of national parks, Bullfrog began as a "mom-and-pop" concession —a boat ramp and a marina—after a paved highway was punched across the desert to Lake Powell two decades ago.

But in the 1980s Bullfrog's developer, Del Webb Recreational Properties, has added motels, restaurants, gas stations, and a flotilla of rental houseboats to its concession.

Visitation at Bullfrog, now Lake Powell's second-busiest marina, jumped from 70,000 in 1973 to 246,000 in 1987. The resort's popularity has encouraged related projects that have made environmentalists hopping mad.

Wanting to cash in on tourist traffic, Del Webb and the Garfield County Commission have aggressively promoted a plan to pave the Burr Trail, a scenic dirt road that winds 66 spectacular miles across the county to Bull-

frog. Providing the closest thing to a wilderness experience that is possible from behind a steering wheel, the Burr Trail traverses Capitol Reef National Park and more than a million acres of proposed wilderness lands in the upper Escalante River Canyons.

Last year the county obtained $2 million in community assistance funds from the state of Utah to "improve" the Burr Trail. Four conservation groups, including the Utah Chapter of the Sierra Club, sued in federal court and lost. Within 72 hours the county dispatched bulldozers, but conservationists were able to convince a higher court to stop the work.

"Like it or not, we can't outlaw the resort," says Ruth Frear, a longtime Utah activist and a national Sierra Club director. "So we intend to fight every destructive development proposal in any way we can—through federal agencies, in the courts, and in Congress."

Another controversy involves Halls Crossing, a resort on the opposite shore, just a ferry ride away from Bullfrog. Local officials want to build an airport at Halls that would bring in resort guests on 18-seat jet metroliners. Public pressure generated by conservationists has forced the Federal Aviation Administration to prepare an environmental impact statement on the project.

Because all the land surrounding Bullfrog is federally owned, further development potential is limited. The state has been proposing land swaps, with an eye toward selling the land it gets to private interests. Last October Utah Gov. Norm Bangerter (R) asked the federal government to exchange some 60,000 acres at five marinas inside the Glen Canyon NRA, including Bullfrog and Halls Crossing, for widely scattered state-owned sections. The National Park Service reacted coldly, conservationists hostilely. Nevertheless, Bangerter has continued to push the idea.

Twenty-five years ago, in *Desert Solitaire*, a book about southern Utah, Edward Abbey coined the term "industrial tourism." Now, at resorts like Bullfrog, industrial tourism could blight the quiet landscape of Glen Canyon NRA as inevitably as the rising reservoir drowned the canyon itself. ***—James Baker, Rodney Greeno, and Fred Swanson***

SIERRA NOTES

The Sierra Club Annual Dinner will be Saturday, May 7, at the California Academy of Sciences in San Francisco's Golden Gate Park. The reception will begin at 5:30 p.m. in the Reptiles and Amphibians area, followed by dinner and an honors and awards program at 6:30 p.m. in the African Safari room. For more information contact the Sierra Club's executive office at (415) 776-2211.

The latest Sierra Club public-lands booklet focuses on the National Wildlife Refuge System: federal land encompassing nearly 90 million acres of seashores, deserts, mountains, forests, and lakes—all prime wildlife habitat. The booklet provides charts and maps detailing location, acreage, wildlife, and public uses of each refuge.

Copies of the 12-page booklet, *The National Wildlife Refuge System*, are $1.50 each for Sierra Club members or $2 for nonmembers, available from Sierra Club Public Affairs, 730 Polk St., San Francisco, CA 94109. Three other titles in the public-lands series—*The National Park System*, *The National Wilderness Preservation System*, and *The National Wild & Scenic River System*—may each be ordered at the same price. Add 25 cents per order for handling.

Sierra Club Books explores coral reefs, lagoons, waterfalls, and beaches in its April publication *Adventuring in the Pacific: The Sierra Club Travel Guide to the Islands of Polynesia, Melanesia, and Micronesia*, by Susanna Margolis ($12.95, paper). The region offers snorkeling, windsurfing, mountain climbing, and beachcombing. Those who prefer more northerly climes may want to read *The Complete Guide to Bicycling in Canada*, by Elliott Katz ($10.95, paper). Each chapter covers one Canadian province in detail and includes maps.

One of the most popular nature writers of our time presents selections of his writings in *The Best of Edward Abbey* ($10.95, paper). The volume includes 31 of Abbey's favorite fiction and nonfiction pieces.

John Muir made three trips to Alaska in the late 1800s, recounting his explorations in *Travels in Alaska* ($9.95, paper), a classic to be released in April as part of Sierra Club Books' new John Muir Library series. Alaskan poet and essayist John Haines provides the foreword. Also in the series is *The Yosemite* ($9.95, paper), with a foreword by David Brower.

Downriver: A Yellowstone Journey, by Dean Krakel II, is now available in paperback ($8.95). *Downriver* tells the author's story of ten years of rafting and exploring the last major free-flowing river in America. Also new in paperback is *Soil and Survival: Land Stewardship and the Future of American Agriculture*, by Joe Paddock, Nancy Paddock, and Carol Bly ($8.95).

These books may be ordered by mail from the Sierra Club Store, Dept. T-150, 730 Polk St., San Francisco, CA 94109. Include $3 per order for shipping and handling. California and Arizona residents should enclose applicable sales taxes. Members may subtract a discount of 10 percent from prices listed. Allow four weeks for delivery.

"National Parks in the '90s," a Sierra Club conference, will be held May 21 and 22 in Salt Lake City, Utah. Participants will examine legislation and park management issues, and a panel will consider the Club's role in reshaping national park policy. Activists will also be encouraged to speak about the issues in which they are involved. The registration fee is expected to be no more than $40 for both days. A tour of existing and proposed national parks in Utah will precede the conference. For further information contact Bob Hartman, Sierra Club National Parks Subcommittee, 1988 Noble St., Lemon Grove, CA 92045; phone (619) 462-3162.

Environmental Ethics, after a decade of publication, has established itself as a thought leader in its burgeoning field. Topics covered in the journal range from the general (spirituality, "deep anthropology") to the particular (species preservation, hunting, nuclear power,

air pollution). The editors offer Sierra Club members a 33-percent discount on a year's subscription. Send a check or money order for $12 (for four issues) to *Environmental Ethics*, Department of Philosophy, University of Georgia, Athens, GA 30602.

Some of North America's best nature photographers will be in Crested Butte, Colorado, July 7–13, to conduct two workshops exploring the techniques of their profession. The first, "New Domains in Color," will include slide shows, critiquing sessions, and individualized instruction. The second, "Images of the Wilderness," will involve packing with llamas into scenic areas. Several of *Sierra*'s regular contributors are among the photographers conducting the workshops, including Carr Clifton, Jeff Gnass, Larry Ulrich, Art Wolfe, Willard Clay, Steve Terrill, and Tom Till. For more information contact Crested Butte Nature Workshops, P.O. Box 1261, Englewood, CO 80150; phone (303) 935-0900.

The Returnable Times, a quarterly newsletter published by the Environmental Action Foundation, provides comprehensive coverage of recycling issues at state and national levels, including bottle-bill debates, plastic-container controversies, and waste-reduction strategies. For a complimentary copy, write to the Environmental Action Foundation, 1525 New Hampshire Ave., N.W., Washington, DC 20036.

The Eleventh Annual International Wildlife Film Festival will be held in Missoula, Montana, April 4–10. Filmmakers from around the world will attend. For information contact the IWFF, University of Montana, Missoula, MT 59812; phone (406) 243-4493.

The National Impact Network, a religious coalition, is seeking activists for its new program, the Environmental Stewardship Network. The program is designed to lobby Congress for passage of legislation consistent with a healthy environment. For information contact the National Impact Network, 100 Maryland Ave., N.E., Washington, DC 20002; phone (202) 544-8638. ■

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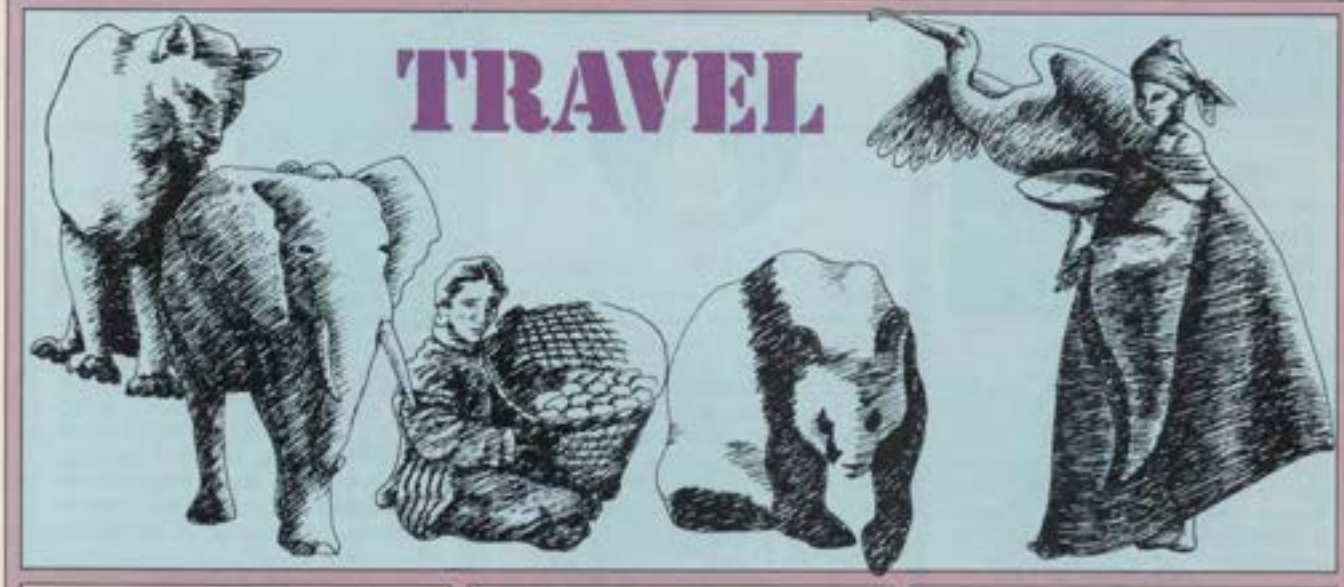

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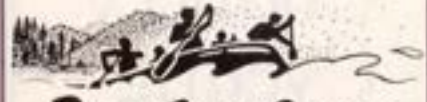

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SIERRA CLUB FINANCIAL REPORT

Fiscal Year 1987

Pursuant to the provisions of sections 6321 and 6322 of the California Corporations Code, the following information is furnished as an annual report:

The Club's complete financial statements for the fiscal years ended September 30, 1987 and September 30, 1986, together with the report of Peat Marwick Main & Co., independent accountants, are available on request from Sierra Club headquarters at 730 Polk Street, San Francisco, California 94109;

The membership list of the Sierra Club is on file at the Club's headquarters at 730 Polk Street, San Francisco, California 94109;

There are no transactions to disclose that constitute a conflict of interest involving directors or officers; no member has voting power of 10% or more;

The books of account and minutes of meetings of the Board of Directors are available for inspection by members on written request at the Club's headquarters at 730 Polk Street, San Francisco, California 94109.

Board of Directors
Sierra Club
San Francisco, California

We have examined the consolidated balance sheet of the Sierra Club and subsidiary as of September 30, 1987 and the related consolidated statements of revenue, expenses and changes in fund balances, and changes in financial position for the year ended September 30, 1987. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the aforementioned financial statements present fairly the financial position of the Sierra Club and subsidiary as of September 30, 1987 and the results of their operations and changes in their fund balances, and changes in their financial position for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Peat Marwick Main & Co.

Certified Public Accountants
December 18, 1987

To the Members of the Sierra Club:

Fiscal Year 1987 was an excellent year for the Sierra Club. Conservation activity expense was at a record high, as was the money returned to Chapters as their portion of member dues, yet fund balances (net worth) increased $965,000 to $6,232,400, up 18.3% from last year's historic high. The operating surplus was $71,300, compared to $226,600 in fiscal 1986.

Revenue rose $2,887,500 to $28,170,400. Member dues, up $1,034,500 was the largest increase, but contributions and grants were also up $895,600, outings and lodge fees up $58,900, book and catalog sales up $344,800, royalties up $316,000, and advertising, investment and other income up $237,700.

Expenses increased $3,042,800 to $28,099,100 for fiscal 1987. Studying and influencing public policy expense rose $155,900 to $6,180,400, and information and education was up $1,315,600 to $9,028,100. Chapter dues allocations were $1,847,100, an increase of $191,700. Expenses for support services of $9,058,600 were up $1,290,600 over fiscal 1986.

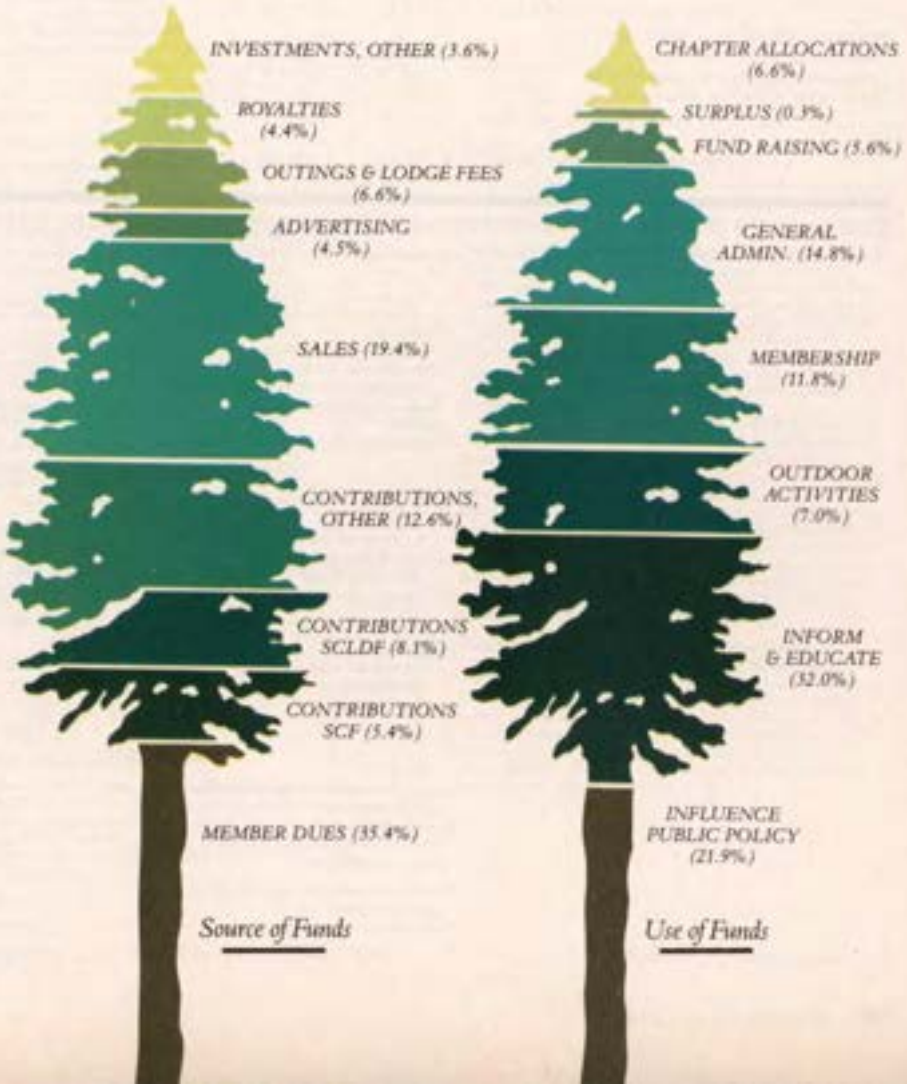
The Sierra Club again ended the fiscal year with no bank debt.

Sierra Club membership continues its extremely healthy growth—up 8% to 425,926 members at year end.

Of great significance, the endowment fund, primarily revenue from life memberships and bequests, is up $893,700 to $3,594,800, an increase of 33.1% this year.

Denny Shaffer
Treasurer

Sierra Club Fiscal Year 1987



SIERRA CLUB & SUBSIDIARY CONSOLIDATED BALANCE SHEET

September 30, 1987 (With Comparative Totals for September 30, 1986)

ASSETS	September 30 1987	1986
CURRENT ASSETS:		
Cash (primarily interest-bearing accounts)	$ 947,000	$ 196,400
Trade accounts receivable, less allowances for returns of $85,000 and $80,000	1,176,200	1,087,200
Other receivables, less allowances for doubtful accounts of $49,000 and $44,000	711,600	696,700
Grants receivable	333,900	308,700
Inventories	1,475,400	1,319,200
Advances, less allowances of $60,000 and $40,000	460,800	456,300
Prepaid expenses	798,900	1,327,200
TOTAL CURRENT ASSETS	5,903,800	5,391,700
INVESTMENTS–ENDOWMENT FUND (NOTES 3 AND 7)	3,626,300	2,729,100
PROPERTY AND EQUIPMENT (NOTE 4)	839,800	985,500
PAINTINGS, PHOTOGRAPHS AND BOOKS (NOTE 11)	—0—	—0—
TOTAL ASSETS	**$ 10,369,900**	**$9,106,300**

LIABILITIES AND FUND BALANCES	September 30 1987	1986
CURRENT LIABILITIES:		
Current portion of capital lease obligations	$ 136,800	$ 127,100
Accounts payable	2,614,000	2,271,100
Accrued expenses	940,500	704,600
Deferred revenue	222,500	354,400
Deferred revenue–restricted	51,700	70,000
TOTAL CURRENT LIABILITIES	3,965,500	3,527,200
CAPITAL LEASE OBLIGATIONS (NOTE 6)	172,000	311,700
FUND BALANCES (NOTE 7)		
Endowment	3,626,300	2,732,600
Unrestricted	2,606,100	2,534,800
	6,232,400	5,267,400
COMMITMENTS AND CONTINGENCIES (NOTES 5, 6, 7, 9 AND 10)	—0—	—0—
TOTAL LIABILITIES AND FUND BALANCES	**$ 10,369,900**	**$9,106,300**

See accompanying notes to financial statements.

SIERRA CLUB & SUBSIDIARY CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION

Year Ended September 30, 1987 (With Comparative Totals for September 30, 1986)

	Year Ended September 30 1987	1986
FINANCIAL RESOURCES WERE PROVIDED BY:		
Excess of revenues over expenses before capital additions	$ 71,300	$ 226,600
Add (deduct) items not requiring working capital:		
Depreciation and amortization	379,800	331,900
Amortization of discount on investments	(135,700)	(112,100)
Loss on disposal of property and equipment	—0—	21,500
TOTAL RESOURCES PROVIDED FROM OPERATIONS	315,400	467,900
Proceeds from sale of investments	370,200	494,000
Increase in capital lease obligations	—0—	328,400
New life membership endowments	564,800	362,100
Other endowments	328,900	10,000
TOTAL RESOURCES PROVIDED	1,579,300	1,662,400
FINANCIAL RESOURCES WERE USED FOR:		
Purchase of noncurrent investments	1,131,700	759,300
Acquisition of property and equipment, net	234,100	460,600
Reduction of capital lease obligations	139,700	165,600
TOTAL RESOURCES USED	1,505,500	1,385,500
INCREASE IN WORKING CAPITAL	$ 73,800	$ 276,900

CHANGES IN COMPONENTS OF WORKING CAPITAL	Year Ended September 30 1987	1986
Increase (decrease) in current assets:		
Cash	$ 750,600	$ (673,800)
Trade accounts receivable, net	89,000	173,800
Other receivables, net	14,900	200,400
Grants receivable	25,200	(25,000)
Inventories	156,200	34,300
Advances, net	4,500	(156,800)
Prepaid expenses	(528,300)	330,400
	512,100	(116,700)
Decrease (increase) in current liabilities:		
Current portion of capital lease obligations	(9,700)	(43,300)
Accounts payable	(342,900)	511,800
Accrued expenses	(235,900)	(148,300)
Deferred revenue	131,900	82,300
Deferred revenue–restricted	18,300	(8,900)
	(438,300)	393,600
INCREASE IN WORKING CAPITAL	$ 73,800	$ 276,900

See accompanying notes to financial statements.

SIERRA CLUB & SUBSIDIARY CONSOLIDATED STATEMENT OF REVENUE, EXPENSES & CHANGES IN FUND BALANCES

Year Ended September 30, 1987 (With Comparative Combined Totals for September 30, 1986)

	1987				1986
	Unrestricted	Endowment	Restricted	Total	Total
REVENUE:					
Member dues	$ 9,972,500	$ —0—	$ —0—	$ 9,972,500	$ 8,938,000
Contributions and grants	5,571,700	—0—	1,769,000	7,340,700	6,445,100
Outings and lodge reservations and fees	1,862,100	—0—	—0—	1,862,100	1,803,200
Book and catalog sales	5,460,800	—0—	—0—	5,460,800	5,116,000
Royalties	1,234,500	—0—	—0—	1,234,500	918,500
Advertising, investment and other income	2,296,700	—0—	3,100	2,299,800	2,062,100
TOTAL REVENUE	26,398,300	—0—	1,772,100	28,170,400	25,282,900
EXPENSES:					
Program services:					
Studying and influencing public policy	4,878,000	—0—	1,302,400	6,180,400	6,024,500
Information and education	8,644,000	—0—	384,100	9,028,100	7,712,500
Outdoor activities	1,899,300	—0—	85,600	1,984,900	1,895,900
Chapter allocations	1,847,100	—0—	—0—	1,847,100	1,655,400
	17,268,400	—0—	1,772,100	19,040,500	17,288,300
Support services:					
General and administrative	4,158,700	—0—	—0—	4,158,700	3,463,800
Membership	3,323,200	—0—	—0—	3,323,200	3,114,400
Fund raising	1,576,700	—0—	—0—	1,576,700	1,189,800
	9,058,600	—0—	—0—	9,058,600	7,768,000
TOTAL EXPENSES	26,327,000	—0—	1,772,100	28,099,100	25,056,300
Excess of revenue over expenses before capital additions	71,300	—0—	—0—	71,300	226,600
Capital additions:					
New life membership endowments	—0—	564,800	—0—	564,800	362,100
Other endowments	—0—	328,900	—0—	328,900	10,000
Excess of revenues over expenses after capital additions	71,300	893,700	—0—	965,000	598,700
Fund balances at beginning of year	2,534,800	2,732,600	—0—	5,267,400	4,668,700
FUND BALANCES AT END OF YEAR	$ 2,606,100	$ 3,626,300	$ —0—	$ 6,232,400	$ 5,267,400

See accompanying notes to financial statements.

NOTE 1—*Summary of Significant Accounting Policies*

Basis of Presentation

The financial statements include the accounts of the Sierra Club (the Club) and its wholly owned subsidiary, Sierra Club Property Management, Inc. All material intercompany transactions have been eliminated. The financial statements do not include the financial activities of the Club's various self-directed chapter and group organizations.

To ensure observance of limitations and restrictions placed on the use of resources available to the Club, the accounts are classified for accounting and reporting purposes into funds established according to their nature and purposes. Accordingly, all financial transactions have been reported in two fund groups as follows:

Endowment funds represent funds that are subject to restrictions of gift instruments or board designation requiring that the principal be invested and the income only be used.

Unrestricted funds represent the portion of expendable funds that is available for support of the Club's operations.

Donated Services

Some members of the Club have donated significant amounts of time to both the Club and its chapters, groups and committees in furthering the Club's programs and objectives. No amounts have been included in the financial statements for donated member or volunteer services since no objective basis is available to measure the value of such services.

Trade Accounts Receivable

Allowances for publication and catalog returns are determined using historical return rates.

Inventories

Inventories consist of publications and catalog merchandise and are stated at the lower of cost or market. Unit costs for new books are based on paper, printing and binding charges only. Plant costs are amortized over unit sales for the first printing, but for no longer than the first twelve months of sales.

Advances

An allowance is provided against advances to authors for estimated losses resulting from unearned royalties.

Investments

Investments are presented in the financial statements at the lower of amortized cost or fair market value.

Property and Equipment

Property and equipment are stated at cost at the date of acquisition or fair value at the date of gift or bequest. Donated paintings, photographs and books are not reflected in the accompanying financial statements (Note 11). Depreciation expense is provided on a straight-line basis over the estimated useful lives (2 to 30 years) of the related assets. When assets are retired or otherwise disposed of, the cost and related accumulated depreciation are removed from the accounts, and any resulting gain or loss is recognized in income for the period. The cost of maintenance and repairs is charged to expense as incurred; significant renewals and betterments are capitalized.

Deferred Revenue

The Club defers revenue from outings and grants until the period the trip is completed or the grant requirement is met.

Member Dues

Membership dues are recognized as revenue when received.

Contributions

All contributions are considered available for unrestricted use unless specifically restricted by the donor. Restricted contributions are recognized as revenue as the restrictions are met.

Legal services performed on behalf of the Club by the Sierra Club Legal Defense Fund are recorded as contributions with equivalent amounts charged to expense (Note 10).

NOTE 2—*Organization*

The Sierra Club is a nonprofit volunteer membership organization established to explore, enjoy and protect the wild places of the earth. The Club operates many public interest programs covering a broad range of environmental issues. The studying and influencing public policy program consists of staff and volunteers engaged in legislative and nonlegislative activities, including lobbying, research, legal and policy development. Information and education includes the literary programs of Sierra Club Books, catalog operations, and *Sierra*, the Club's magazine. Outdoor activities include national and international outing programs, consisting of approximately 250 trips annually. The membership program serves approximately 426,000 members and includes support and funding of 57 volunteer chapters and over 300 groups, and the development of a broad-based volunteer membership.

NOTE 3—*Investments–Endowment Fund*

Investments of the Endowment Fund are stated at amortized cost. It is the Club's intention to hold investments to maturity. No allowance for the decline in market value below cost is established unless there is a permanent impairment of value.

Cost and market values at September 30, 1987 and 1986 were:

	1987	
	Amortized Cost	Market Value
U.S. government and Federal agency bonds	$3,502,500	$3,383,000
Money market funds and savings account	123,800	123,800
	$3,626,300	$3,506,800

	1986	
	Amortized Cost	Market Value
U.S. government and Federal agency bonds	$2,598,100	$2,881,200
Money market funds and savings account	131,000	131,000
	$2,729,100	$3,012,200

Investment income amounted to $282,800 in 1987 and $246,900 in 1986. The rate of return on endowment investments was 9% in 1987 and 9% in 1986.

NOTE 4—*Property and Equipment*

	September 30	
	1987	1986
Land	$ 3,300	$ 3,300
Buildings and leasehold improvements	332,100	274,500
Furniture and equipment	1,475,000	1,271,600
Leased equipment (Note 6)	559,000	585,900
	2,369,400	2,135,300
Less accumulated depreciation and amortization	(1,529,600)	(1,149,800)
	$ 839,800	$ 985,500

Depreciation and amortization expense was $379,800 and $331,900 for the years ended September 30, 1987 and 1986, respectively. Accumulated depreciation for leased equipment was $308,700 in 1987 and $167,400 in 1986.

NOTE 5—*Line of Credit*

The Club has available to April 30, 1988 a revolving line of bank credit which permits borrowings of up to $2,500,000 at the bank's prime interest rate. The line is secured by the Club's endowment investments. No amounts were outstanding at September 30, 1987 and 1986.

NOTE 6—*Leases*

Leases are for office facilities (Note 10), computer equipment, system software and other equipment. Certain leases provide for extensions and additional rental payments based on expenses. Future minimum payments under all noncancelable leases with terms greater than one year at September 30, 1987 are as follows:

Year Ended September 30	Capital Leases	Operating Leases
1988	$161,100	$1,285,900
1989	83,400	1,264,600
1990	83,400	1,247,900
1991	26,500	1,229,300
1992	—0—	1,218,600
Later years	—0—	2,524,500
Total lease payments	354,400	$8,770,800
Less amount representing interest	(45,600)	
Present value of lease payments	308,800	
Less current portion of capital lease obligations	(136,800)	
Long-term capital lease obligations	$172,000	

Minimum future rentals receivable under noncancelable operating subleases at September 30, 1987 are as follows:

Year Ended September 30	Operating Leases
1988	$113,860
1989	117,600
1990	117,600
1991	100,100
1992	82,700
Later years	185,800
Total rentals receivable	$717,660

Rent expense for operating leases was $1,301,600 in 1987 and $945,300 in 1986. Leased equipment is pledged as security under the related capital leases. Rental income on subleases was $85,000 in 1987 and $39,900 in 1986.

Interest expense was $49,500 and $49,300 in 1987 and 1986, respectively.

NOTE 7—*Fund Balances*

The following is a summary of fund balances:

	September 30	
	1987	1986
Endowment Funds:		
Life memberships	$2,776,300	$2,231,700
Designated by Board for permanent investment	818,300	489,400
Endowment–income restricted	21,500	21,500
Term endowment	10,000	10,000
	$3,626,300	$2,752,600
Unrestricted Funds:		
Invested in property and equipment	$ 531,000	$ 546,700
Other unrestricted funds	2,075,100	1,988,100
	$2,606,100	$2,534,800

The Club's bylaws provide that all life memberships and such other funds as designated by the Board for permanent investment shall be held as endowment funds. The income from these endowments is unrestricted. In addition, the Club has received certain funds for which the donors have specified that the principal be maintained in perpetuity, with the income to be used for certain specified activities (primarily related to outings). During the year ended September 30, 1986 the Club received a term endowment in which the donor specified that the income be unrestricted but the principal be held for a term of 20 years, after which time it can also be used for unrestricted purposes.

NOTE 8—*Income Tax Status*

The Club's principal activities are exempt from Federal and California income taxes. However, certain of the Club's revenues are subject to the unrelated business income tax. Provision for the unrelated business income tax was $261,000 and $75,000 in 1987 and 1986 respectively.

Contributions to the Club are not deductible as a charitable contribution for tax purposes by the donor.

NOTE 9—*Pension Plan*

The Club has a defined-benefit pension plan, covering substantially all full-time employees who meet minimum age and service criteria. Voluntary employee contributions to the plan are permitted. Pension expense, which is funded currently, was $163,404 in 1987 and $199,600 in 1986.

A comparison of accumulated plan benefits and plan net assets as of the most recent valuation dates is presented below:

	September 30	
	1986	1985
Actuarial present value of accumulated plan benefits:		
Vested	$ 689,600	$572,000
Nonvested	2,000	15,000
	$ 691,600	$587,000
Net assets available for benefits	$1,486,000	$1,165,000

The weighted average assumed rate of return used in determining the actuarial present value of accumulated plan benefits was 7.5% for both years.

NOTE 10—*Transactions with Affiliates*

The Sierra Club receives contributions from the Sierra Club Foundation and the Sierra Club Legal Defense Fund. Contributions from the Sierra Club Foundation represent direct grants to the Club in support of various programs and totaled $1,532,500 in 1987 and $1,394,400 in 1986. Of the preceding amounts, $333,900 and $308,700 were receivable at September 30, 1987 and 1986, respectively. Contributions from the Sierra Club Legal Defense Fund for legal services performed on behalf of the Club totaled $2,271,900 in 1987 and $1,853,900 in 1986.

The Club's wholly owned subsidiary, Sierra Club Property Management, Inc. is the general partner of National Headquarters Associates (a limited partnership). The limited partnership was formed to raise capital for purposes of acquiring and rehabilitating an office building for lease by the Club. The building was completed and occupied by the Sierra Club in November 1985. This operating lease has a ten-year term and requires monthly payments of $99,000, subject to adjustment in certain circumstances for changes in the limited partnership's debt service requirements. In addition, the Club is responsible for taxes on the property, repair and maintenance, and shares insurance, utility and security costs with the limited partnership.

NOTE 11—*Paintings, Photographs and Books*

Since its inception, the Sierra Club has been the recipient of various donated paintings, photographs and rare books. During 1987, the Club had the paintings and photographs appraised for insurance purposes. The appraised market value of the paintings and photographs totaled $850,000 at that time. The books have not been appraised for several years. The last appraisal indicated a market value of $50,000. There is no value assigned to these items in the accompanying financial statements.

Life Between Extremes

IMAGINE YOURSELF HIKING across a dry plain toward a distant mountain range. There are no trails, so you must work your way around and occasionally through prickly clumps of scrub. Nothing here grows more than a few feet tall, so you never lose sight of the peaks on the horizon.

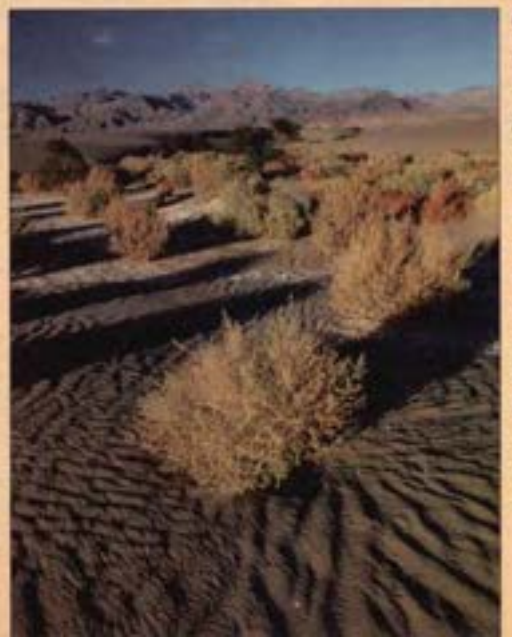
As you reach the foothills, sagebrush still scrapes your legs, but you also begin to see small junipers. Higher up, larger and more numerous junipers mix with pinyon pines to form an open woodland of small trees mixed with shrubs and grasses. This area is still very dry, with no running water in sight, but green trees and cool shade are welcome after the hot, open expanse below.

Higher up the woodland becomes denser, and scattered Jeffrey pines appear. Considerably larger than the pinyons and junipers, these giants tower more than a hundred feet above the foothill trees, and before long they are the most common trees around. Still higher up these pines give way to red-fir and lodgepole-pine forests, and beyond that you encounter isolated stands of foxtail pine that still harbor patches of late spring snow. This is the uppermost reach of the mountain forest.

Abruptly, the trees become stunted and widely scattered, usually confined to small patches in grassy meadows. Above the timberline lie lush alpine meadows. Although the sun shines brightly, a biting wind sends you scurrying for a heavy sweater and wool hat. As you approach the summit, the soft, flowered meadows become more sparse; plant life here consists simply of a few herbs and lichens nestled among angular rocks.

These general patterns of "plant geography" are familiar to anyone who hikes mountain trails; they exist most everywhere in the world. Although particular types of trees and shrubs vary, the familiar, orderly progression of distinct plant zones from desert floor to mountain summit occurs in such diverse areas as Asia's Tien Shan Mountains,

1 *At 282 feet below sea level, Death Valley's barren salt pan is the lowest point in the Western Hemisphere and one of the hottest places on Earth. Left behind when an ancient lakebed evaporated into the thirsty desert air, the virtually flat, 200-square-mile basin in southeastern California is a vast "chemical desert": Although water is available in underground streams and occasional surface pools, the soil is too salty to support plants. The few survivors here include tiny spiders spinning webs between sharp salt pinnacles.*



4 *From a nearby highway, Mesquite Flat Sand Dunes appear to be a sandy wasteland devoid of life. But shifting sands reveal a surprising variety of plants, including creosote bush, inkweed, mesquite, and saltbush. Below the dunes an ancient salt-and-clay lakebed caps an underground reservoir that provides moisture and nutrients.*

Text and Photographs by Stephen Kasper

2 *Just a few yards from the salt pan, wildflowers such as desert rock nettle (top) and phacelia (bottom) begin blooming in April and May. Growing near an underground spring at the base of the Black Mountains, these plants escape the salty groundwater that precludes life on the valley floor.*

3 *Within any climatic zone, soil conditions greatly influence the distribution of plants. Here, on a wide gravel fan that pours out of one of Death Valley's deep side canyons, the water table is too deep to be reached by even the longest plant roots. The only plants able to survive here, a hundred feet below sea level, are xerophytes, capable of withstanding prolonged dry periods between infrequent rains. Desert holly (above) is the hardiest xerophyte; it can grow on the hottest, driest, and saltiest parts of the gravel fans.*

5 *The buildup of minerals on dry lakebeds inhibits all plant growth. The only signs of "life" on Racetrack Playa at 3,800 feet are the mysterious tracks left by the valley's "moving rocks." After heavy rains create a slick surface, strong winds push the rocks along the lakebed.*

6 *As you hike from Death Valley's lowest point to its highest, you traverse three major plant zones, each determined by elevation and climate. The number of plants and plant species increases as you climb; twice as many plants live at 1,000 feet as at sea level. The first 4,000 feet are treeless except at the few sources of water. At about 7,000 feet up, a pinyon pine snag (right) keeps watch over open woodlands of pinyon and juniper.*

South America's Andes, and California's Sierra Nevada.

A hike from Death Valley across California's Panamint Range and Inyo Mountains into the eastern Sierra Nevada leads you through one of the world's most compact exhibits of plant geography. Here the lowest point in the continental United States (Death Valley, at 282 feet below sea level) is only 90 air miles from the highest point (Mt. Whitney, at 14,495 feet). Between these two extremes, rows of deep desert valleys and high, snow-covered mountains present a fascinating series of landscapes, climates, and life zones. Ecologically, the hike from Death Valley's arid depths to Mt. Whitney's frozen summit is similar to a journey from southern Mexico to the Arctic Circle.

Air temperature is one of the primary factors causing plants to grow in communities. As you move away from the equator, air temperature drops about one degree Fahrenheit for every 70 miles you travel. (This helps explain why the timberline occurs at about 10,500 feet in Yosemite National Park, at about 6,500 feet in Washington's Cascades, and at sea level at Alaska's Prudhoe Bay.) The effect of altitude on air temperature is even more pronounced. As you climb a mountain, the temperature drops about 3.5 degrees for each 1,000 feet you gain. The temperature drop and accompanying vegetation change as you ascend a mountain are natural variations compressed into a very small area. The steeper the slope, the more abrupt the change.

Along with altitude and latitude, rainfall and soil type affect vegetation significantly. Because plants require water, soil conditions that determine the amount of water present in an area also control the presence of plants. In some locations the distribution of plant species is tied so directly to the area's geology that a map of one very nearly resembles a map of the other. ■

STEPHEN KASPER *is a photographer and writer in the San Francisco Bay Area.*

Background: The eastern Sierra's densest forests are found where breaks in the crest allow moisture from Pacific storms to reach the eastern slope.

7 *The subalpine zone marks the highest plant community in Death Valley. Here on Telescope Peak (11,049 feet) in the Panamint Range, some bristlecone pines have survived for more than 4,600 years. Only creosote bushes, which grow from roots that may be 12,000 years old, have outlived them. On the valley floor, precipitation averages 1.5 inches per year. On Telescope Peak it's closer to 15 inches.*

10 *Dwarfing the Inyo Range just across the Owens Valley, the Sierra's eastern escarpment (a steep slope formed by the uplifting of land over millions of years) rises more than 10,000 feet in less than 13 miles. Within this short distance, five distinct plant communities thrive. In the lowest, the pinyon/sagebrush zone, water is critical in governing plant distribution. Here, at 5,000 feet, aspen and cottonwood trees follow the course of Lone Pine Creek out into the dry, sagebrush-covered lower slopes.*

8 *Descending the western side of the Panamints to lower elevations, we see that there are always exceptions to any rule. In otherwise desolate Saline Valley, at 1,800 feet above sea level, water has transformed a dry gravel wash into Upper Warm Spring, a blue-and-green oasis that is part of the proposed Death Valley National Park. The plants and trees here are phreatophytes, or "drought-escapers," which require a permanent water source to survive. Here arrowweed (once used by some Indians to make arrow shafts) borders the clear spring waters. Less than a hundred feet away lies the vast desert.*

9 *In the Inyo Range west of Saline Valley, widely spaced Joshua trees (above) and claret-cup cactus (left) grow on high, dry slopes at about 7,000 feet. At the same elevation 20 miles away in the Sierra Nevada, coniferous forests thrive. But the Inyos, which lie in the Sierra's rain shadow, receive little moisture. Warm, wet Pacific Ocean air masses cool as they are forced up and over the Sierra, where they form clouds that drop most of their moisture as rain and snow. By the time the clouds reach the Inyos, they are virtually dry. Bone-dry Death Valley lies beyond another range to the east.*

11 *Open groves and scattered trees mark the upper Sierran forest. Although high winds mean that mostly ground-hugging shrubs survive at the upper edge of this zone, the tenacious foxtail pine remains tall. The winds here at 11,000 feet have nearly stripped this tree of its bark and needles on the windward side. On the leeward side, a thin strip of living wood reaches down to the rocky soil and keeps clumps of foliage alive.*

12 *The open, rocky slopes of the Sierra's alpine region (11,000 to 14,495 feet) are cold deserts with dry winds, little soil moisture, and intense sunlight. The growing season is only six to eight weeks long, due primarily to persistent snowfields. Frosts may occur any day of the year. As elevation increases, these conditions grow more extreme, and fewer plants survive. The result is a stark landscape almost as barren as Death Valley.*

On the Prowl for Optics

How to keep your needs in focus when shopping for binoculars.

David Weintraub

If humans could see as well as hawks, we wouldn't need binoculars. Fortunately, we don't need keen vision to hunt for food in the supermarket, and technological crutches make up for our ocular inadequacies when we want to watch nature closely. Good binoculars enable us to observe animal behavior without intruding and to study the smallest details of elusive or dangerous animals from a safe distance.

Of course, people who might not give a hoot for an owl also use binoculars. Mountaineers, stargazers, or yacht captains, for example, would be at a loss without good optics. The same holds true for people who sit high above the 50-yard-line or the stage at the opera.

All these people, however, become easy prey when they shop among the dizzying array of instruments in an optics department. Many simply buy the most powerful equipment they can afford, mistakenly assuming that bigger is better. Fortunately, understanding a few terms will make your hunt for optics easier.

Most binoculars display three numbers on their housings: for example, 7x35 7.5°. The first number, 7, refers to the binoculars' *magnifying power*. In this case, what you see through the eyepiece appears seven times closer than it does to the naked eye. The second number, 35, denotes the size in millimeters of the objective lens (the lens that receives light). The size of this lens determines the binoculars' *resolving power* (how well the lens picks out small details of an object). The higher the number, the greater the detail. As magnifying power increases, the binoculars' resolving power must also go up to produce a bright, clear image.

The last number, 7.5, is a measurement of the binoculars' *field of view*, expressed in degrees. This tells how broad an area the binoculars take in. The figure is sometimes given as *field of view at 1,000 yards*, expressed in feet. For 7-power binoculars, a field of 7 to 7.5 degrees (about 350 to 400 feet) is common; more than 7.7 degrees (or about 400 feet) is considered wide-angle. Generally, field of view narrows as magnifying power increases. Wide-angle binoculars and expensive roof-prism binoculars are exceptions to this rule.

Along with resolving power, *exit pupil aperture*, the ratio between the binoculars' magnifying power and the objective lens' diameter, affects the brightness of images seen through the binoculars. Because our sample 7-power binoculars have a 35-millimeter objective lens, their exit pupil aperture is 5 millimeters.

Our pupils vary in size from 2 to 7 millimeters depending on incoming brightness; to work efficiently, the exit pupil aperture must be at least as large as the pupil. For most uses 5 millimeters is sufficient. For dim light—at dawn and dusk, for example—you want an aperture of about 7; in bright sun, 2 or 3 is adequate.

Armed with an understanding of binocular specifications, you can match a model to your intended uses. Are you a weekend hiker who simply wants compact, lightweight binoculars? A dedicated birdwatcher? Will the binoculars be exposed to constant jarring or water spray? How

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important to you are the finest detail and the most accurate color?

Binoculars should be easy to hold and focus. If you fumble to align them to your eyes in the store, they won't be much good in the field. Most binoculars use a center-focusing mechanism that adjusts both eyepieces simultaneously. Many models also allow you to compensate for differences between your left and right eyes. If you wear glasses, make sure that the rubber eyecups around the viewing lenses fold back so you can bring the binoculars close to your eyes.

As with any delicate instrument, price increases with quality. *Roof-prism* binoculars, with in-line prisms that allow a slim binocular body, are the optical elite. They offer rugged construction and superb lens quality for between $400 and $800. However, these models tend to lack close-focusing ability and depth of field (the area that can be seen clearly around the object observed without refocusing).

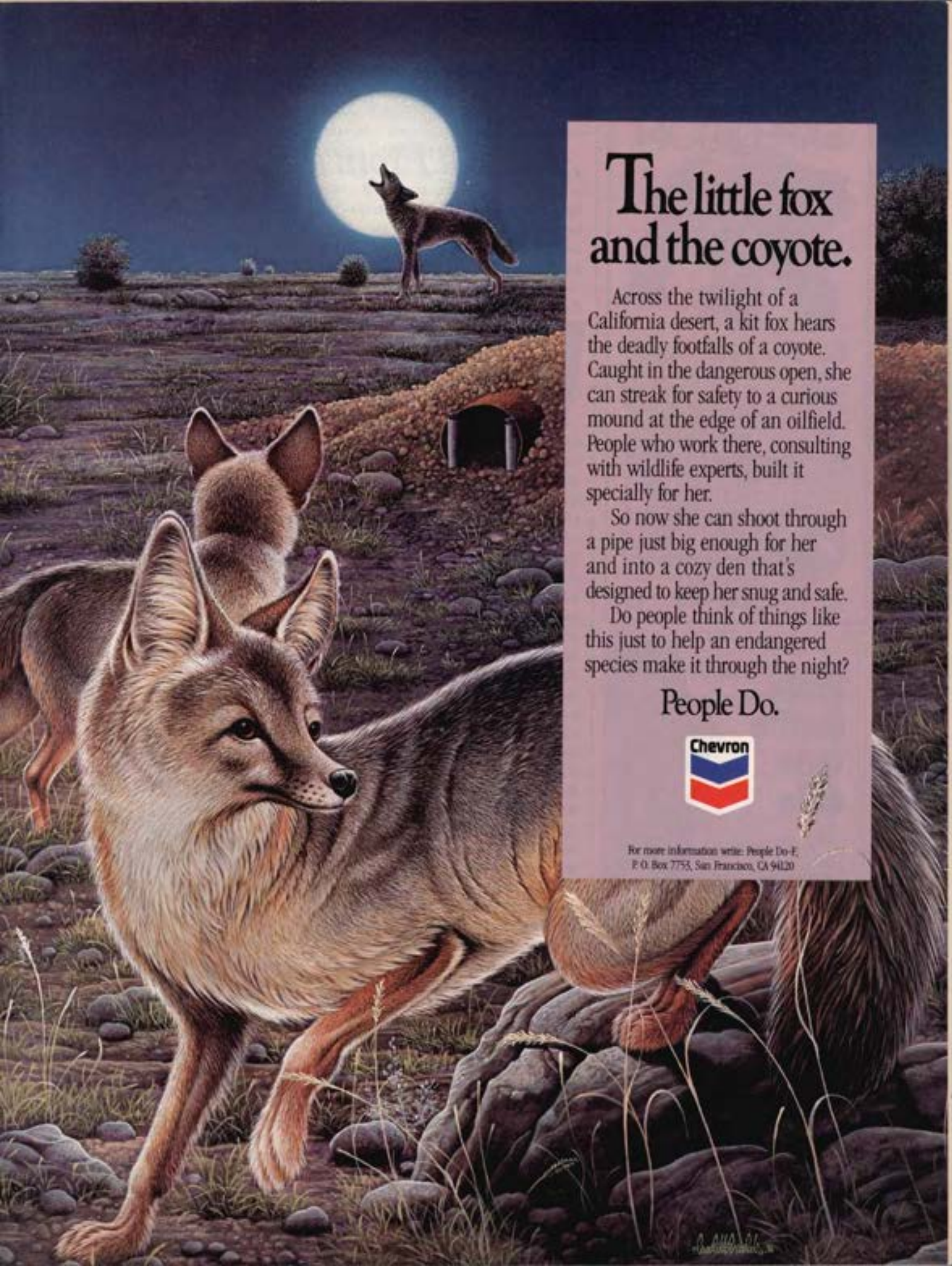
More common *porro-prism* binoculars are heavier and bulkier because their lenses are offset. But they can focus on nearby objects and offer good depth of field. They are also relatively low-priced, at $75 to $200.

Silva Raker, an optics specialist for The Nature Company in Berkeley, California, suggests that first-time buyers choose 7-power, porro-prism binoculars. "They have a wide field of view and can be used for a variety of applications," she says.

Most people assume high magnification is best. "Don't be fooled by inexpensive, high-power binoculars," Raker warns. High-power binoculars bring an object closer, but unless the size of the objective lens is increased, you'll be plagued by low resolving power and poor low-light performance. You'll also have to hold high-power binoculars very steady, because hand movement affects them more significantly than it does low-power models.

Binoculars make great field companions—but be sure to take them with you when you walk, ski, or climb. Even the best models don't work well when they sit on a shelf gathering dust. ■

DAVID WEINTRAUB *is a writer and photographer in San Francisco.*



The little fox and the coyote.

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A View From the Farm

Home Economics: Fourteen Essays
by Wendell Berry
North Point Press, 1987
$20, cloth; $9.95, paper

Carol Polsgrove

WHEN READING Wendell Berry's work, I always feel guilty for loving cities and choosing to live in one. In both his nonfiction and his fiction, from *The Unsettling of America* to his recent short-story collection, *The Wild Birds*, Berry is such an eloquent spokesman for country life that urban life seems almost immoral—a betrayal of the human connection to nature. Worse, cities prey on the country: They are the headquarters of bankers, marketers, buyers, and agricultural researchers who have impoverished farmers and driven so many of them off the land. But Berry's newest collection of essays makes clear that he does not mean anything quite so simple as this.

In fact he sees the real villain not as the city per se, but as the national economy that has replaced the local economies that once sustained America. Like E.F. Schumacher, Berry believes that true, trustworthy prosperity rests on a specific relationship between particular people and particular places. Only such a relationship, in Berry's mind, can produce a "loving economy," one that is properly materialistic because it places "a proper value on all the materials of the world, in all their metamorphoses from soil and water, air and light to the finished goods of our towns and households. . . ."

Instead, he says, what we have now is an abstract economy in which value has been separated from its material base. Farmers have been the most visible victims of the abstract economy. They have been sacrificed on the altar of national efficiency at a breathtaking rate since World War II—about one million a year leaving the farm in the first 25 years after the war, and close to three quarters of a million a year doing so now. Almost overnight we have remade an agricultural democracy into an industrial state.

And so we must not read the news of farm foreclosures as sad stories of one sector of the economy suffering hard times. In Berry's view the failure of farms betokens the failure of an entire society.

"The family farm is failing because it belongs to an order of values and a kind of life that are failing. We can only find it wonderful, when we put our minds to it, that many people now seem willing to mount an emergency effort to 'save the family farm' who have not yet thought to save the family or the community, the neighborhood schools or the small local businesses, the domestic arts of household and homestead, or cultural and moral tradition—all of which are also failing, and on all of which the survival of the family farm depends."

Berry could just as easily turn his statement around and say that the survival of a larger order of values depends on the survival of the family farm. The near-demise of farming as a way of life in America has altered the way Americans look at things. As the industrial economy has driven people off the land, Americans have become separated from the natural world on which they depend. Most people now have nothing at all to do with the most basic human work: the growing (or gathering) of food. And so they, many of them, have fallen into the error of viewing nature as an abstraction: not particular soil on a particular hillside, but a *resource*—and a resource not to be nurtured but to be used up. From there it is only one step to seeing nature as enemy, its interests opposed to our interests, a wild thing to be tamed.

Just because Berry himself does not see nature as enemy does not mean he falls into the camp of the other extreme: those who believe that human interests

are somehow identical to the interests of the rest of the natural world. In a key essay, "Preserving Wildness," he examines the awkward fact that human beings must alter the world to live in it. At least at this point in history, we must plant farms and cut trees. "We are not safe in assuming that we can preserve wildness by making wilderness preserves," Berry writes. "Those of us who see that wildness and wilderness need to be preserved are going to have to understand the dependence of these things upon our domestic economy and our domestic behavior."

But we need not cut trees and break ground with abandon. Our burden as human beings is to be conscious of what we are doing—to be deliberate, thoughtful. The survival of nature depends on the care that we take. Nature "has become, in a sense, our artifact because it can only survive by a human understanding and forbearance that we now must make. The only thing we have to preserve nature with is culture; the only thing we have to preserve wildness with is domesticity. . . . If we do not have an economy capable of valuing in particular terms the durable good of localities and communities, then we are not going to be able to preserve anything. We are going to have to see that, if we want our forests to last, then we must make wood products that last."

Thus he makes his case for "home economics"—an economy designed not to produce paper profits but to sustain homes: human households and the larger human home, Earth.

How, we ask, do we begin? Where do we start to remake our society? Berry answers that question chiefly for farmers and farm communities, and his answer to them is stubbornly simple: They need to rely on themselves and their neighbors and have the least possible to do with the industrial economy.

And what of the rest of us, living in urban areas, a growing number of us without even a house to call our home? Berry has little practical advice to offer us and would, rightly perhaps, say, Why should I have any? He does not live in Oakland, California, as I do; he lives on a farm on the Kentucky River. His answers, his thoughts, must be particular to his place, his circumstances. I have no

quarrel with that defense; Berry has, at the very least, set the rest of us thinking.

CAROL POLSGROVE, *a Kentucky native, has written for* Sierra, The Nation, The Progressive, *and other magazines.*

Placelessness and Arrogance

The American West as Living Space
by Wallace Stegner
University of Michigan Press, 1987
$18, cloth; $10, paper

Thomas J. Lyon

AS REVIEWERS ARE PERHAPS supposed to do, I began reading Wallace Stegner's new book of essays with pen in hand, ready to underline the salient points. Within half an hour I realized I was marking nearly everything; the recognition grew, and remains now, that this book is *all* salient. In breadth of vision in its interpretation of the history of the American West it will stand, I think, with Walter Prescott Webb's *The Great Frontier* and Henry Nash Smith's *Virgin Land*—and Stegner's book generates more heat than both of them together.

The clarity and pointedness of *The American West as Living Space* come from Stegner's steady focus on his theme: We western immigrants have not, in the main, made an authentic attempt to adapt ourselves and our institutions to the land. We have not, most certainly, listened to such voices as Mary Austin's; her "quiet but profound truth, that the manner of the country makes the usage of life there, and that the land will not be lived in except in its own fashion" has been all but lost in the noise of moving and shaking. We have not listened to John Wesley Powell, either, who quite early warned that the water in the West would not—could not—support all the dreams of all the development boosters. We have seemed not to notice such obvious signals as the salinization of heavily irrigated fields or the slumping of land over drawn-down aquifers. Nor have we paid much attention to the notably undemocratic politics that may be

inherent in hydraulic societies. Instead, we have maintained a kingly, technocratic confidence. We have, apparently, thought we were something special, free of limits, able to make over the givens of place to suit ourselves. Let the future take care of itself.

The parochialism, unreality, and hubris of this mentality might be funny if they were not genuinely tragic. Stegner points out that we worry about deserts on the march in Africa, but desertification in the American West is occurring at a faster rate. With all the rivers it has plugged and the freshets of public dollars it has expended, the Bureau of Reclamation has succeeded in "reclaiming" an area only about the size of Ohio —and that tract, by inexorable leaching and salinization, is likely to shrink.

The essential and inescapable reality of the interior West, Stegner notes, is that it gets little rain. This imposes rather strict ecological limits, but against these we have gamely thrown ourselves and our long-inherited concept of the human mission. Stegner's quotation from John Widtsoe's *Success on Irrigation Projects* (1928) is telling: "The destiny of man is to possess the whole earth; the destiny of the earth is to be subject to man. There can be no full conquest of the earth, and no real satisfaction to humanity, if large portions of the earth remain beyond his highest control." This is an extreme statement, to be sure, and some profound thinkers have said quite the contrary, Stegner among them; but the historical summaries in *The American West as Living Space* show that far too much of our actual practice has been founded in the anthropocentric shibboleth.

To recognize limits and to adapt to the land's reality will require that we stop fantasizing. Stegner describes an interesting paradox of western place, however, that may make the course to sanity more difficult: The dryness that sets the limits also creates the wide-open spaces that help keep alive dreams of larger-than-life individualism and freedom. In reality the cowboy, the popular hero of the West's collective fantasy of free action, is "an overworked, underpaid hireling, almost as homeless and dispossessed as a modern crop worker, and his fabled independence was and is

chiefly the privilege of quitting his job in order to go looking for another just as bad." Obviously Stegner thinks the cowboy myth needs a bit of deflation.

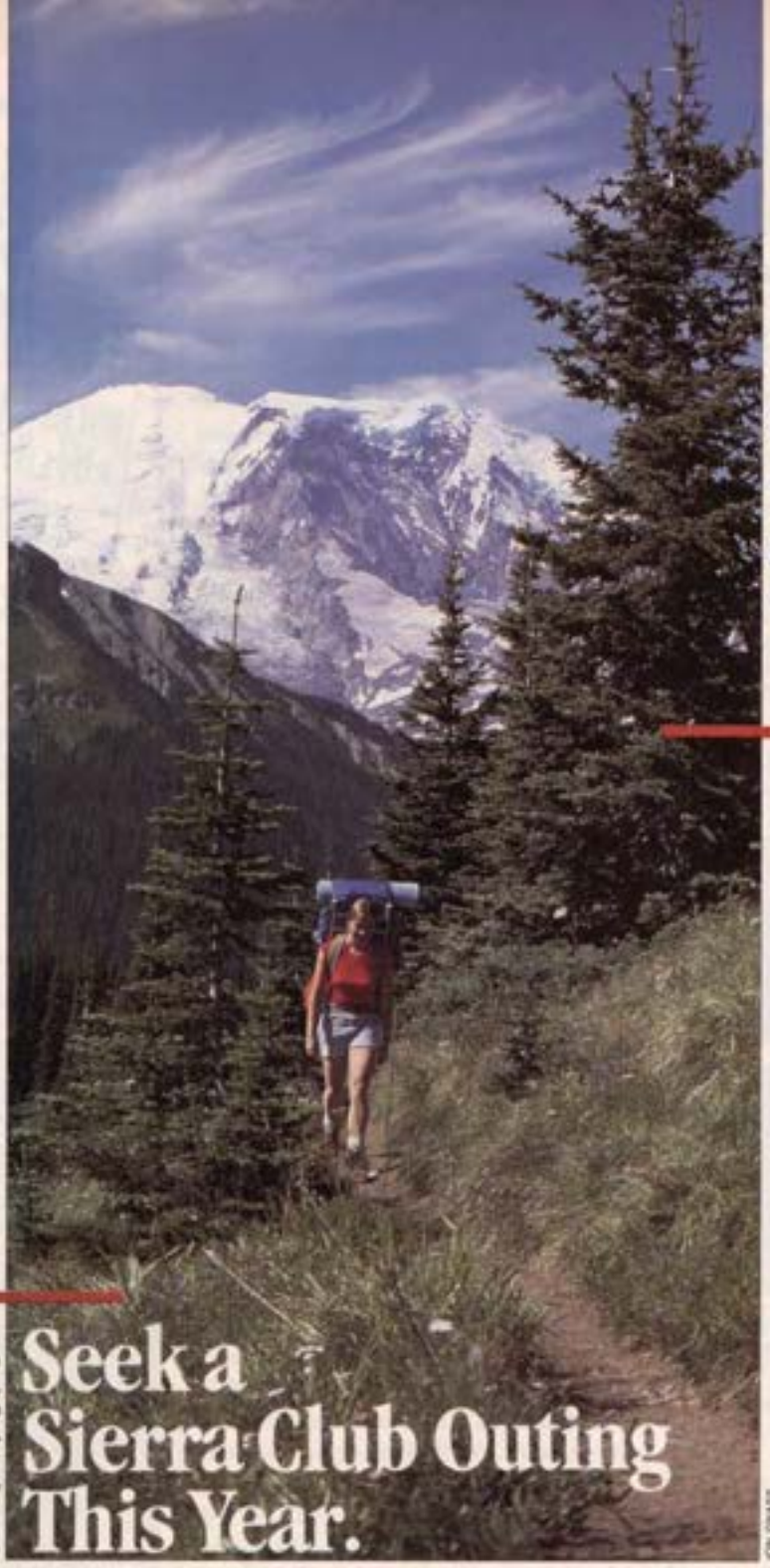
This short, pithy book cuts through the fabulists' promotions and the relentless stereotypes of heroic action that have dogged the West. It reveals the fundamental placelessness and arrogance of the frontier mind, considers some of the real effects of this collective psyche, and asks if we can afford to keep dreaming. Stegner demonstrates a novelist's insight into character and then works to prove the insight with an historian's grasp of fact and trend. The view is comprehensive. It is also passionate, for the writer has put himself forth here. The "I" is not shirked; Stegner is willing, Thoreau-like, to stand up and be counted. What drives him is a plain, native love of the land, as readers of *Wolf Willow*, *The Sound of Mountain Water*, *American Places*, and indeed most of Stegner's works well know. On allegiance like that might be built something more fitting and enduring than dams.

THOMAS J. LYON, *senior editor of* A Literary History of the American West *(Texas Christian University Press, 1987), teaches western American literature at Utah State University.*

BRIEFLY NOTED

Early in this century British explorer J. Smeaton Chase wrote ***Yosemite Trails***, ***California Desert Trails***, and ***California Coast Trails*** to describe the wild beauty he saw as he wandered around California, primarily on horseback. Each of the volumes, long out of print, has been reissued by Tioga Publishing Co. (c/o W. Kaufmann Fulfillment Center, Box 50490, Palo Alto, CA 94303-9953; $9.95, paper; add $1.50 handling for first book, 50 cents for each additional book). . . . From hog peanut to prostrate pigweed, Kelly Kindscher's ***Edible Wild Plants of the Prairie: An Ethnobotanical Guide*** (University Press of Kansas; $25, cloth; $9.95, paper) is a fascinating, if esoteric, exploration of natural culinary delights. . . . Ethnobiologist Gary Nabhan has written an intimate account of people living in harmony with their environment in ***The Desert Smells Like Rain: A Naturalist***

in Papago Indian Country (North Point Press; $8.95, paper). Nabhan works with Native American farmers throughout the Southwest to conserve traditional food plants. . . . For hikers and kayakers seeking challenges in the Alaskan wilderness, The Mountaineers has produced ***Glacier Bay National Park: A Backcountry Guide to the Glaciers and Beyond*** ($8.95, paper) by Jim DuFresne. Also from The Mountaineers is Vladimir Shatayev's ***Degrees of Difficulty*** ($10.95, paper), the first Soviet book on mountain climbing to be translated into English and published in the United States. . . . In his tenth book, renowned British climber Chris Bonington chronicles his four expeditions to the world's highest peak in ***The Everest Years: A Climber's Life*** (Viking; $24.95). This work covers 15 years of Bonington's life, including his conquest of Everest at age 50. . . . David Rains Wallace's ***Life in the Balance*** (Harcourt Brace; $29.95) is a comprehensive exploration of Earth's ecosystems, produced as a companion volume to a recent Audubon television series on conservation. . . . British TV producer Jo Stewart-Smith's ***In the Shadow of Fujisan*** (Viking; $29.95) analyzes the symbiotic relationship between culture and natural history in Japan. It is a sensitive look at the forces leading Japanese citizens to both revere and imperil their country's wildlife. . . . The natural sounds of four Hawaiian environments are captured on compact disc in Rykodisc's "A Week in Hawaii" series, part of its Atmosphere Collection. ***Tropical Surf***, ***Island Jungle***, ***Waterfall***, and ***Midnight Rainshower***, all digitally recorded on location, sound as clear and inviting as the real thing. Royalties from each disc sold are earmarked for The Nature Conservancy's Hawaii chapter. For information about price and availability, contact Rykodisc, Pickering Wharf, Bldg. C-3G, Salem, MA 01970; phone (617) 744-7678. . . . The Colorado-based newspaper ***High Country News*** earned the 1986 George Polk Award for Environmental Reporting for its western water series, which has now been republished as ***Western Water Made Simple*** (Island Press; $15.95). The book focuses on the West's three major river systems. ■



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Foreign Trips

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[89807] Sea of Cortez Kayaking, Baja California, Mexico—October 24–30, 1988. *Leader, Tony Strano, Berth D-3, Waldo Point Harbor, Sausalito, CA 94966. Price: $895, Dep: $100.*

[89812] Sea of Cortez Kayaking, Baja California, Mexico—November 19–25, 1988. *Leader, Bob Hansen, 30 Chester Ave., Fairfax, CA 94930. Price: $895, Dep: $100.*

[89835] Sea of Cortez Kayaking, Baja California, Mexico—December 26, 1988–January 1, 1989. *Leader, Sallee Menning, 997 Lakeshire Ct., San Jose, CA 95126. Price: $895, Dep: $100.*

[89870] Sea of Cortez Kayaking, Baja California, Mexico—April 8–14, 1989. *Leader, Bill Bricca, Box 159, Ross, CA 94957. Price: $895, Dep: $100.* Espíritu Santo and Partida islands lie in the Gulf of California north of La Paz. Explore sandy coves and inlets where you will find excellent fishing and snorkeling, hidden canyons, fascinating geology, and spectacular desert vegetation. Spend a day snorkeling at Los Islotes, a sea lion rookery. These trips are designed for inexperienced to expert paddlers and will include instruction and a support boat to carry duffel, food, and fresh water. Airline schedules require coming to La Paz a day ahead of the trip and leaving a day after.

[89840] A West African Adventure, Togo, Benin, and Ghana—January 18–February 2, 1989. *Leader, Ruth Dyche, 2747 Kring Dr., San Jose, CA 95125. Price: $3,200, Dep: $100.* Join us for the Sierra Club's first trip to West Africa. We will visit the countries of Togo, Benin, and Ghana, each of which has a long and colorful history. As early as the 13th century powerful kingdoms in the region vied for control of trade caravans from Timbuktu and beyond. We will visit cities as well as villages where tribal peoples reside in great patriarchal houses. Rich experiences await us in this land of symbols and religious rituals, music and dance, and distinct cultures and environments. We will ride in a pirogue on the River Volta, attend a voodoo dance, visit marketplaces and mosques, meet a king, and visit a part of Africa where life has seen little change in centuries. We will also visit Keran National Park for an introduction to the wildlife of the region. Accommodations will be in hotels and tented camps and travel will be by Land Rover and minibus.

[89845] Cross-Country Skiing in the Austrian Alps, Salzburg, and the Austrian Tyrol—January 29–February 12, 1989. *Leader, Lynne McClellan Loots, 147 Spring Cove Dr., Cary, NC 27511. Price: TBA, Dep: $100.* Cross-country skiing is the best way to see Austria in winter. Our tour of the countryside will include daily trips from a chalet and ski lessons for beginners and intermediates the first week, and ski adventures from town to town the second week. Comfortable, first-class hotels complement the daily skiing.

[89850] Magdalena Bay Sea Kayaking, Baja California, Mexico—February 20–26, 1989. *Leader, Karen Short, 826 14th St., San Francisco, CA 94114. Price: $895, Dep: $100.*

[89860] Magdalena Bay Sea Kayaking, Baja California, Mexico—February 27–March 5, 1989. *Leader, J. Victor Monke, 9033 Wilshire Blvd., Suite 403, Beverly Hills, CA 90211. Price: $895, Dep: $100.* Few methods of travel allow a more intimate bond with nature than kayaking. Journey with us on the narrow waterways of tranquil Magdalena Bay, winter home of hundreds of California gray whales that come to these protected waters each year to mate or bear young. We'll also see a wide variety of migrating shore and sea birds as we paddle through miles of mangrove-lined channels. On the barrier island, huge rolling barchan dunes await exploration, while miles of uninhabited shoreline are a paradise for beachcombers. These trips are designed for inexperienced to expert paddlers. Instruction will be given, and a support boat will carry duffel, food, and fresh water. Airline schedules require coming to La Paz a day ahead of the trip and leaving a day after.

[89855] Annapurna-Chitwan Trek, Nepal—February 20–March 11, 1989. *Leader, Peter Owens, c/o Cheryl Parkins, 4285 Gilbert St., Oakland, CA 94611. Price: $1,195, Dep: $100.* Spring comes early to Nepal, whose national flower, the rhododendron, will be in full bloom during our moderate trek along the southern slopes of the most beautiful mountains in the world. After the trek we will visit Royal Chitwan National Park for three days of elephant safaris and jungle walks.

[89865] Backpack New Zealand—March 5–26, 1989. *Leader, Jim W. Watters, 50 El Gavilan, Orinda, CA 94563. Price: $2,440, Dep: $100.* For such a small country, New Zealand is bulging with contrasts. We might hike in rainforests among tree ferns and waterfalls and then visit a glacier the same day—and we'll see forests of huge, ancient Kaori trees, hot springs, unique native birds, sheep, more sheep, and friendly people. Beginning and ending in Auckland, we'll backpack and car-camp on both North and South islands and travel on the famous Milford Track in Fiordland.

SPECIAL NOTE

[88660] Journey Through Time: Early Man and Wildlife Safari, Kenya and Tanzania—July 20–August 10, 1988. *Leader, Ruth Dyche, 2747 Kring Dr., San Jose, CA 95125. Price: $3,730, Dep: $100. Please note that the price for this trip is lower than previously published in the 1988 Outing Catalog.*

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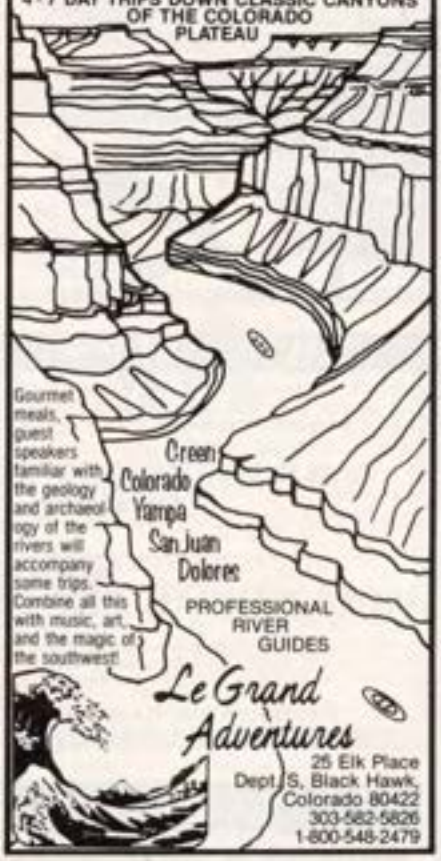

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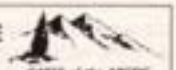

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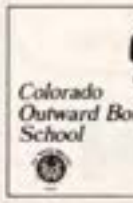

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How are the down and feathers used in clothing and sleeping bags collected? Are they plucked from living animals, and do the animals suffer? (Earl Fong, San Francisco, California)

For the love of a delectable dish, an entire industry was born; indeed, if it weren't for Peking duck, many of us might be out shivering in the cold. Because the people of China consume a significant amount of duck meat, that country is the world's leading exporter of duck feathers and down, followed by France and Germany.

According to Howard Winslow, executive director of the American Down Association, almost a hundred percent of the world's down and feathers come from animals killed for eating. You can assume, therefore, that a plucked duck is already a dead duck.

The same goes for goose down, which comes primarily from Europe and some provinces of mainland China. Although goose down traditionally has been considered superior to duck down, Winslow says this is a myth. Nonetheless, goose down commands a higher price.

Most down in consumer products is a blend. The manufacturer who claims that only geese contributed to your comforter is not legally obliged to give credit to the ducks that may have provided up to 10 percent of the down or feathers.

What does biodegradable mean? How long may a product take to break down and still be considered biodegradable? (Miranda Barbour, Middlebury, Vermont)

Biodegradable materials are those that disintegrate through the action of fungi and enzyme-secreting bacteria. But even when substances are biodegradable, the speed of the process can vary. For example, if you put a ton of onions in a one-acre area and covered them with dirt, soil organisms would wear them down in about three weeks. On the other hand, the process would take much longer if you dumped the same amount of onions into a ten-square-foot area. Generally, "biodegradable" substances should decompose within three months.

While biodegradable substances undergo chemical decomposition, "photodegradable" materials physically break down in the presence of sunlight. One of the more successful photodegradable products is the six-pack beverage ring, now required by law in 11 states.

Some materials (including glass, metal, concrete, and most plastics) are virtually immune to the natural processes of decay. One of the more curious things we do, notes one solid-waste expert, is put biodegradable leaves in plastic bags.

There is a lot of controversy about kangaroo hunting in Australia. Are some species close to extinction? (Jacob Graff, Toledo, Ohio)

When the Australian government removed dingos from sheep grazing lands, they removed the kangaroo's only natural predator. To control the burgeoning kangaroo population, the government legalized a commercial hunt, with quotas set annually.

The sheer number of kangaroos killed in Australia is greater than in any other wildlife cull in the world. Last year, about 2.5 million kangaroos were killed legally; the International Fund for Animal Welfare maintains that the annual illegal kill is as high as 3 million. Some conservationists believe that present high quotas, along with poaching, will make red and gray kangaroos extinct within 20 years, a concern the Australian government considers groundless.

The controversy has as much to do with how the kangaroos are killed as with how many are killed. Most professional hunters, working at night with powerful lights and accurate weapons, kill kangaroos as quickly and humanely as possible. But other hunters have aroused international outrage because of their vicious hunting methods, which include poisoning, beating, and running over the animals.

The U.S. Fish and Wildlife Service prohibited kangaroo imports in 1974, but lifted the ban in 1981 when the Australian government asserted that threatened species were adequately protected. Legislation introduced in the House of Representatives by Robert Mrazek (D-N.Y.) calls for a ban on importation of kangaroo products, which include some athletic shoes, mounted heads, and food for human consumption. The bill is awaiting consideration by the House Subcommittee on Fisheries and Wildlife Conservation and the Environment. ■

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