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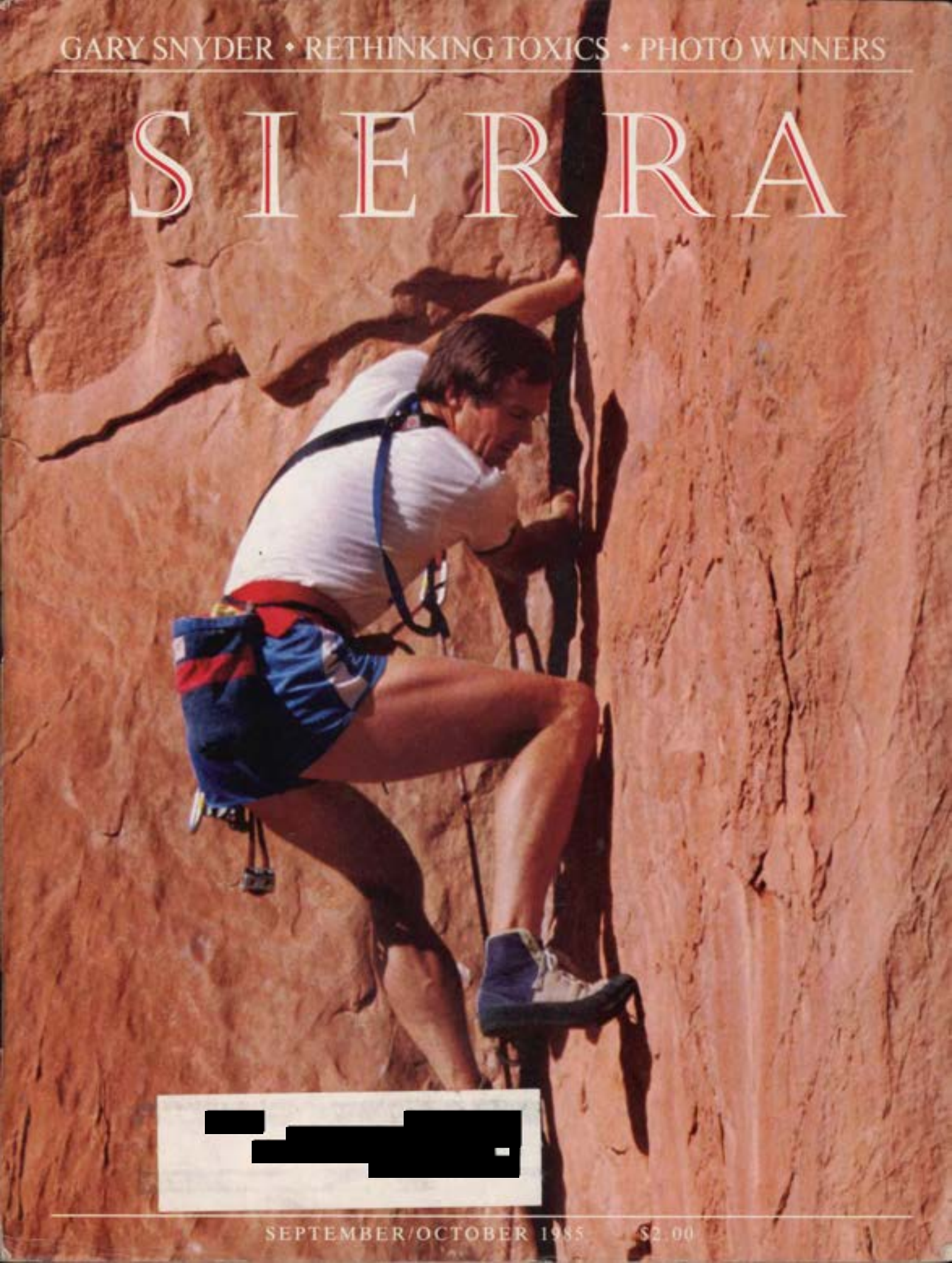

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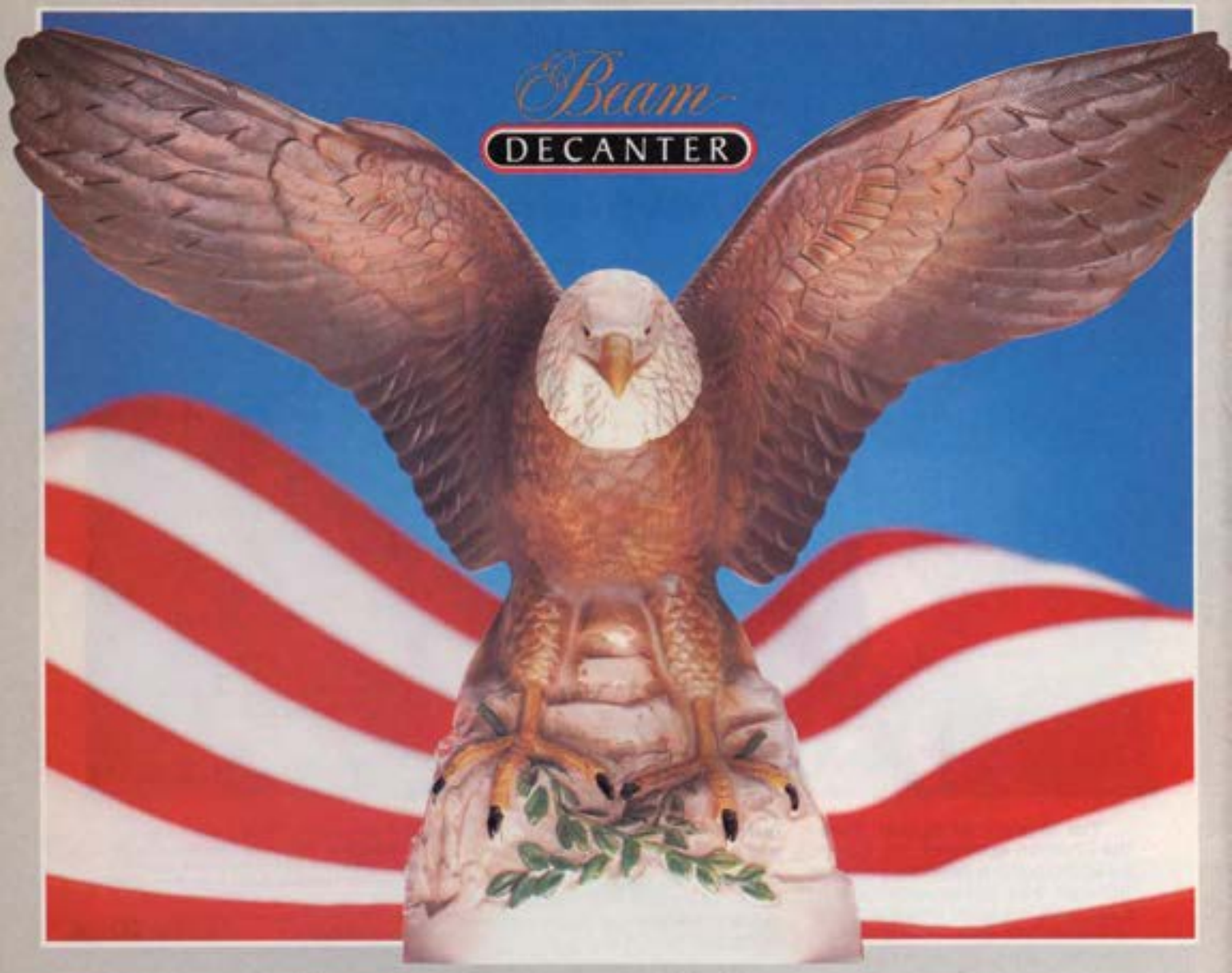

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THE SIERRA CLUB BULLETIN SEPTEMBER/OCTOBER 1985 VOLUME 70/NUMBER 5

FEATURES

POLITICS

DEPARTMENTS

COVER: Scaling "Snuggles," a moderate crack climb in Colorado's Garden of the Gods. For more on the growth of modern climbing, see page 63. Photo by Stewart M. Green.

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Controlling Toxics, page 42.

Photo Contest Winners, page 55.

Gary Snyder, page 68.

Halley's Comet, page 88.

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Wild, Scenic, and Polluted

"America's Wild and Scenic Rivers" (March/April 1985) omitted discussion of threats to rivers already classified under the Wild and Scenic Rivers Act.

In northwest Montana, for example, the Middle Fork of the Flathead River (which is in the system) will soon receive storm-sewage pollutants, including 9,000 pounds of highway de-icing salts annually. The river's otherwise unpolluted waters originate in the Great Bear Wilderness and form the southern boundary of Glacier National Park. State and federal agencies looked the other way while the public spent five long years in a futile attempt to gain consideration of available alternatives to discharge.

Even at this late date, alternatives remain. Respond to the reality of Wild and Scenic river mismanagement, a crucial topic untouched by *Sierra*'s article, by writing to Gov. Ted Schwinden, Capitol Station, Helena, MT 59620.

Sharlon L. Willows
Coalition for Canyon Preservation
Hungry Horse, Mont.

End of the Line

Peter Wild's review of *Trains of Discovery: Western Railroads and the National Parks* ("Making Tracks," May/June 1985) concludes with the optimistic suggestion that in a few years we may once again be able to journey to the parks by train. He calls this "the ultimate and happy irony to the story of discovering our parks."

Unfortunately, the ultimate and *unhappy* irony is that within this year—perhaps as soon as September 30—we may be unable to journey anywhere by train, because the Reagan administration proposes to eliminate all funding for Amtrak.

J. Howard Harding
Akron, Ohio

Public transit in this country is seriously threatened by proposals to eliminate federal operating assistance and to reduce most capital funding. If these proposals are enacted, transit service will cease in many communities with populations under 200,000, and there will be significant service cuts and fare increases in virtually every other city. This will drive many people away from mass transit, exacerbating traffic congestion and limiting the mobility of those without cars. The resulting downward trend in ridership will start a vicious cycle of further reductions in service and ever-escalating fares. Public transit is the forgotten environmental issue of the year.

Ron Kilcoyne
San Francisco, Calif.

Deep Ecology

As a veteran of the 1960s' counterculture and of the early women's and environmental movements, I appreciated Harold Gilliam's comments on the spiritual message that's planted in deep ecology ("Useful Subversion," July/August 1985).

In the early 1970s many radical feminists and environmentalists looked to Native American cultures and other pagan societies for sources of inspiration. The mass media chuckled over the behavior of the "tree-worshipping Druids" and "Neo-Pagan witches." As environmentalism and feminism became more established, however, major organizations such as the Sierra Club and NOW pulled away from challenges to traditional Judeo-Christian ways of thinking. In the halls of Congress it seemed tactless to speak of Henry Thoreau and Ann Hutchinson.

Somehow, I've missed Thoreau and Hutchinson and talk of Iroquois matriarchies during the past decade. The spirit that inspired much of the mass activity of the Earth Day era seems to have been dampened. Perhaps we need to reconsider concepts such as deep ecology in order to rediscover the energy that once propelled citizens into the environmental movement.

Nancy Bowers
Wickford, R.I.

I would carry "deep ecology" one step further in my philosophy. This step could be

called "critical ecology." Critical in the sense that it is indispensable to natural selection and therefore evolution to leave many things as they are in nature. Successful preservation of pristine wilderness is the only means to guarantee that slow but safe evolution continues for the benefit of all of Earth's creatures, including mankind. If deep ecology can be interpreted as subversive socially, as Gilliam calls it, then critical ecology would have to come under the heading of "revolutionary."

Van Shipp
Versailles, Ky.

Wake-Up Call

Gary Ferguson's fine article "A Last Fierce Paradise" (July/August 1985) updates readers on the large, open-pit coal mining complex a Canadian company wants to build about ten miles from the Waterton/Glacier International Peace Park.

Unfortunately, as the International Joint Commission's study of the environmental effects of such a mine begins, most people outside of Montana have had little recent information about Cabin Creek or the protest against it.

The environmental organizations of the 1960s knew how to make a lot of positive noise. Where are these groups now? I wonder if a time machine might help us find them. Or possibly an alarm clock.

Malcolm R. Campbell
Norcross, Ga.

Map Inflation

The press release you cited from the U.S. Geological Survey ("Sierra Notes," May/June 1985) is deceptive. Actually, the total price increase for USGS topographical maps is an even 100 percent over a two-year period during which President Reagan claims inflation was brought under control. Before January 1, 1984, the standard-scale maps were $1.25; the 1/250,000 maps were $2. Now they are $2.50 and $4, respectively.

Jack Major
Davis, Calif.

Miss Muffet Beware!

I did a double take when I hit page 86 of the May/June issue ("Along Came a Spider"). By far the most dangerous spider in our part of the United States isn't even listed in your article.

The brown recluse, though shy by nature, will bite when pushed around. Its venom is much more toxic than a black widow's, ounce for ounce. Deaths have been reported in addition to high morbidity from slow-healing local ulcerations and systemic illness when the bite occurs.

Sarah Clark may advise you to sit down beside the next spider you see and shoot the breeze with it; it seems to me she had better advise her readers to sit down and have a beer with the Ayatollah—the former's bite is worse than the latter's.

John G. Clothier
Lincoln, Neb.

Bikes on a Budget

In "Bike Touring" (July/August 1985), Dennis Coello writes, "For a tiny investment . . . a few dollars," those of us with ten-speed bicycles can become bike tourers. Then follow three pages of pictures of specialized gear that costs several hundred dollars at least. Not to mention the lists of clothing and camping equipment.

Why do we outdoor writers (I confess I'm one) feel compelled to assure our readers that the chosen sport is easy, cheap, safe, and available to everyone?

How I long for a piece that begins: "Underwater scuba backpacking isn't for everyone. It's difficult, it's dangerous, and the cost of the equipment alone would bankrupt several of the Fortune 500. Which is why, unless you read this, you'll never have a clue how great it feels . . . ."

David Weintraub
Portland, Ore.

Dennis Coello's "Bike Touring" offered an entertaining, thorough overview of cycle touring that should prove invaluable for anyone contemplating an extended tour.

His advice to carry 60 to 70 percent of the load in the rear panniers deserves qualification, however. With this much weight over the rear wheel, the bicycle's handling becomes erratic. The front wheel doesn't have sufficient weight on it for firm steering control, and the mass over the rear wheel tends to act like "the tail wagging the dog," especially when cornering.

Use of the popular low-mount front racks and panniers makes it preferable to place at least half the total load up front. This divides the load equally between the front and rear wheels, so neither is overstressed. The low center of gravity up front also helps stabilize the bike so that steering is barely affected by the load. In fact, for loads of up to about 30 pounds, use of front low-mount panniers alone with no rear rack provides the best handling.

John Kukoda
Road Test Editor
Bicycling
Emmaus, Penn.

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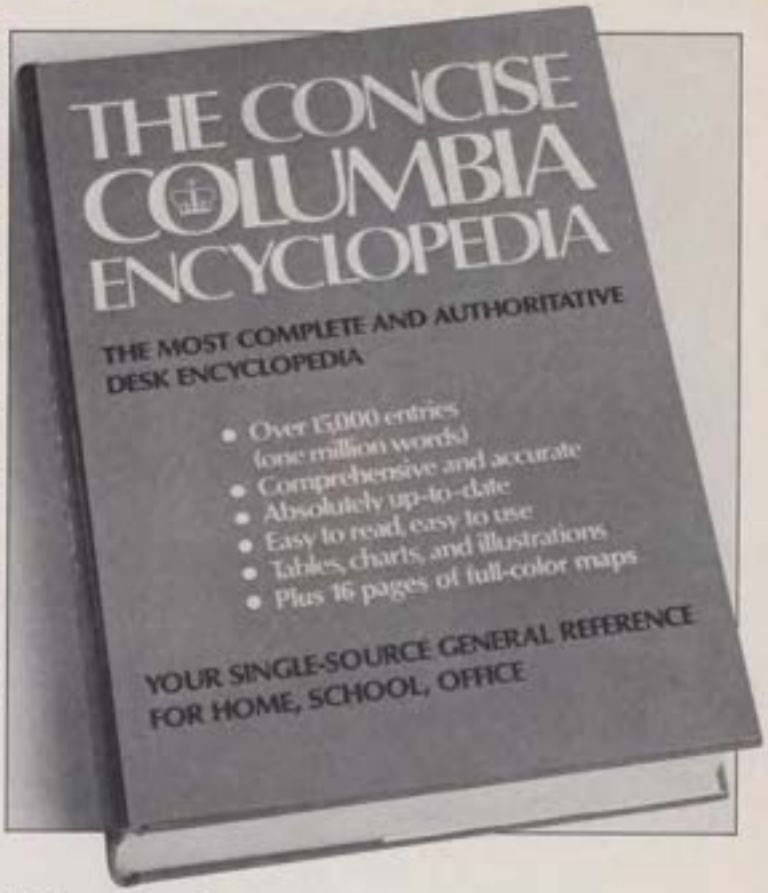

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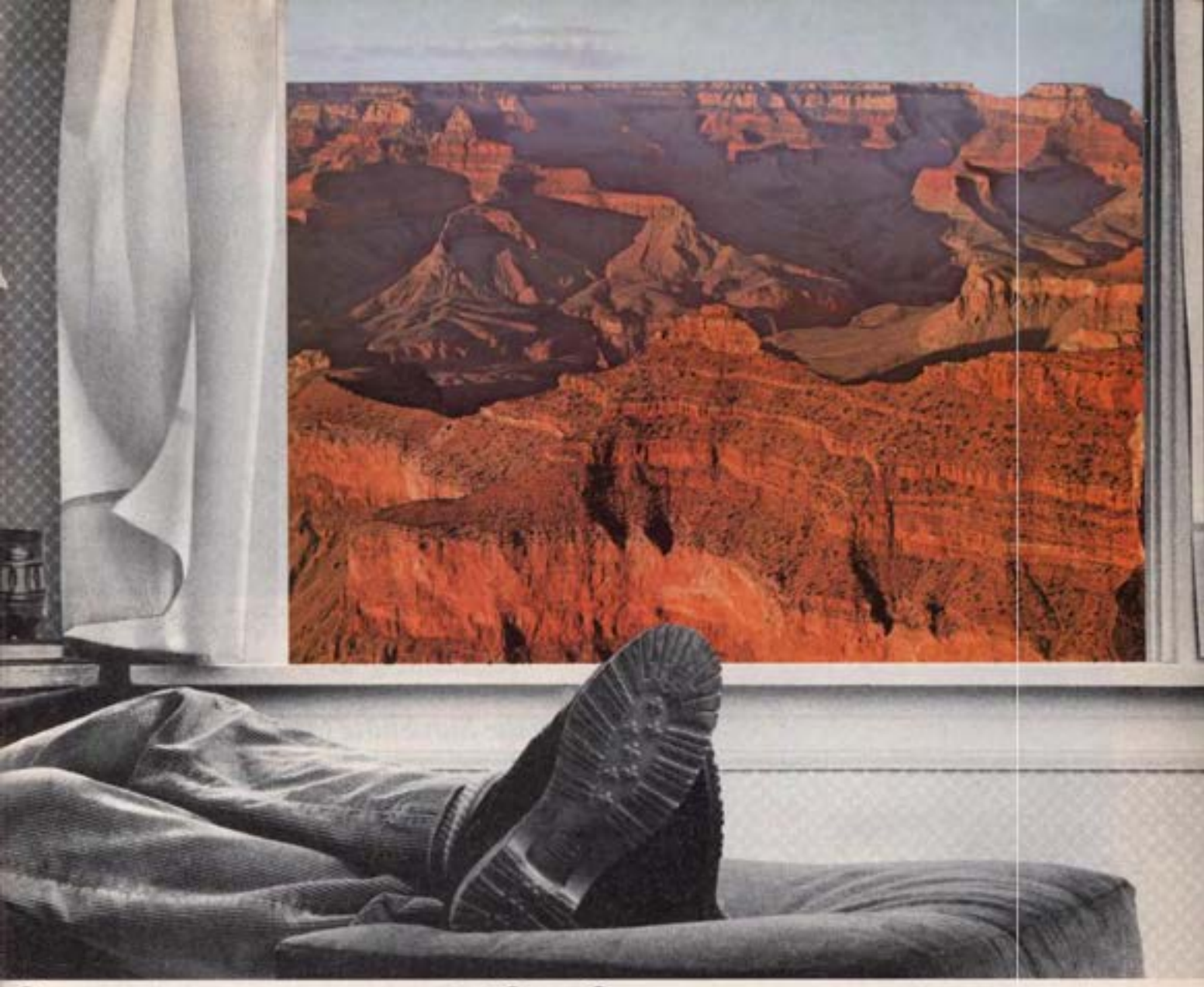

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Fewer jobs, it was predicted sadly. More cockroaches, it was hissed desperately. Higher prices, it was warned knowingly. Undaunted, the people of New York went ahead and approved a bottle bill. A little more than a year later, the soothsayers of doom have been proven wrong on all counts.

According to a state-commissioned study of the beverage container deposit law, New Yorkers love their new bottle bill by a 3-to-1 ratio, primarily for its effect on litter. Not only did the law reduce beverage container trash by 70 percent, it also increased the number of containers being recycled. During the law's first year, the recycling rates for beverage containers translated into 3 to 5 percent of the state's total monthly solid-waste tonnage, and a savings of 5 to 8 percent in landfill space.

Employment? After a lengthy investigation of the recycling job market, the study shows a net increase of more than 3,900 jobs. Beverage prices? Although there were some wild fluctuations at first, all evidence suggests that prices either stayed stable or declined one year after the law took effect.

"We hope that positive reports such as this one will help refute some of the obviously misleading arguments against our own proposal," says Bill Shireman, executive director of Californians Against Waste, the group spearheading the drive for a California bottle bill. Activists in Florida are also hoping that this year their state will join the nine others that have beverage container laws.

On Your Feet, America!

Once taken for granted, walking is now stepping out. Advocates say it's healthier than running and more adventurous than napping. And now walkers can enjoy membership in an organization created just for them: The Walkways Center.

Established last spring, the Washington-based group already boasts more than 4,000 members. Its purpose is to bring walkers together, share discoveries, and speak out on walking issues. The center publishes a newsletter eight times a year and will provide an annual Walker's Almanac.

For more information contact The Walkways Center, 733 15th St. N.W., Suite 427, Washington, DC 20005.

Let the Sun Shine On

Cloudy skies are forecast for December 31, when tax credits for alternative energy and conservation are due to expire. In an attempt to change the outlook, Sen. Mark Hatfield (R-Ore.) has introduced legislation to extend the credits, reducing them from present levels and phasing them out over the next five years. Rep. Cec Heftel (D-Hawaii) has introduced a similar bill in the House.

Hatfield says the case for S.1220 and H.R. 2001 is compelling because most federal energy tax subsidies currently support such conventional energy sources as electric utilities, oil and gas, coal, and nuclear power. "We must see to it that the coming deliberations on the tax code do not maintain or, even worse, add to its current inequity in the energy field. The tax simplification decisions Congress makes this year will have a major impact on energy production in this country."

Spurred by tax credits, renewable energy sources currently provide 9.6 percent of the energy used in the United States. But as Sen. Hatfield notes, because these industries include technologies still being prepared for commercialization, a sudden change in their financial environment could be devastating. The renewable energy tax credits are the only sizable federal tax or budget incentives geared to alternative energy sources.

Tongass Troubles

The largest of the nation's 155 national forests is disappearing.

Conservationists have been worried about timber-cutting excesses here before, but the scheduled rate of devastation in Alaska's Tongass National Forest is now twice that of the past 30 years, and three times that of the beleaguered rainforests of the tropics.

The Tongass is a rare type of rainforest, with 800-year-old Sitka spruce and ancient hemlock that can soar up to 200 feet. Like its tropical cousins, the temperate rainforest is a haven for life, supplying hun-

Joel Bennett/AlaskaPhoto

dreds of species with vital shelter from southeast Alaska's heavy snowfall. During the winter it is the only place that the Sitka black-tailed deer can find food. Many other animals, such as bald eagles, marten, mountain goats, brown bear, and Canada geese, also depend on these forests.

Most of the Tongass produces too little timber to attract industry. Only 635,000 of its 16,900,000 acres are considered high-volume timber sites. Nestled in protected bays and river valleys along the coast, the ancient rainforests are the exception. But wildlife can't wait the 200 to 300 years it would take for the trees to grow back.

In 1980 the timber industry scored a major victory in the Tongass when the Alaska National Interest Lands Conservation Act guaranteed the Forest Service at least $40 million a year to help private companies haul out 4.5 billion board-feet of timber every ten years. While the law set aside a large portion of the Tongass as wilderness, it left 90 percent of the prime old-growth forests outside wilderness boundaries.

"The harvest is based not on timber growth, but on a mandate from Washington, D.C.," says Gerry Merrigan, a Forest Service silviculturalist. "Biologically it's not right."

What's more, taxpayers are footing most of the bill. Between 1970 and 1984 the Tongass timber program cost the Forest Service $375 million, but brought in only $62.6 million in revenue. The agency is selling ancient trees for just a few dollars each.

The Forest Service is now preparing a status report on the Tongass to submit to Congress in December. The Southeast Alaska Conservation Council (Box 162, Juneau, AK 99802), the Sierra Club, and other groups are trying to convince Congress and the Forest Service to protect the old-growth rainforest.

"The United States has taken the lead in assisting countries around the world in putting particularly fast-disappearing tropical rainforest off limits to loggers," says Thomas J. Barlow of the Natural Resources Defense Council. "But for our own greatest rainforest, the mandate has been quite the opposite. By act of Congress the Tongass rainforest has been condemned to obliteration."

Dennis Boxmeyer

Sky Wars in the Canyon

These days, about the only thing you can do in a national park or wilderness area without a permit is fly an airplane. This regulatory oversight is coming back to haunt the Grand Canyon, once known for its profound and timeless silence.

In the last ten years commercial air tours of the Grand Canyon have increased 800 percent; a park visitor can expect to see—or hear—more than one plane a minute. According to the National Park Service, which considers aircraft its number-one resource issue in the Grand Canyon, noise from low-flying planes and helicopters can be heard up to 95 percent of the time in backcountry areas.

The Park Service is now conducting an informal survey and will attempt to formulate a policy that will appease all the interest groups involved. The Sierra Club's Grand Canyon Chapter is proposing that no flights be allowed below the rim, that flights above the rim be strictly regulated, and that certain areas be kept totally flight free.

If you've been buzzed in the Canyon lately, let the Park Service know of your concern by writing to the Park Superintendent, P.O. Box 129, Grand Canyon, AZ 86023.

Sweet Summer Harvest

In mid-July both the Senate and House agriculture committees approved versions of the 1985 Farm Bill that would protect erodible land and fragile wetlands from agricultural production. Readers can ask their representatives to support these conservation provisions when the bill comes to the floor of each house in September. □

The Tortoise & the Herd

It's no contest–livestock win the race for scarce edibles before the desert tortoise emerges from its winter hibernation. Is the Southwest too overgrazed to sustain this ancient reptile?

STEVE JOHNSON

IT'S DIFFICULT TO IMAGINE an animal that demands less of life than a desert tortoise. For six to nine months of the year, it stays in its burrow to escape either heat or cold. Completely herbivorous, a large tortoise consumes only about 23 pounds of plants a year, and rarely if ever needs to drink water. It is a master at desert survival, with a lineage that extends back to the early Pleistocene.

Unfortunately, nothing in the desert tortoise's long past equipped it to survive modern civilization. Nowhere in its four-state range of California, Nevada, Utah, and Arizona is the tortoise doing well. In fact, it may disappear from most of its remaining range within 15 to 20 years, according to a report by the privately funded Desert Tortoise Council.

The desert tortoise lives in valleys and on gentle mountain slopes in the Sonoran and Mojave deserts of the Southwest, areas it must now share with ranchers, urban developers, road builders, miners, and recreationists. People in these areas sometimes shoot tortoises or collect them for pets. But as with many other wildlife species, habitat destruction is by far the most serious threat to the desert tortoise.

Off-road vehicles already have destroyed

© Larry Minden

A desert tortoise yawns in a field of composites. Biologists, bureaucrats, ranchers, and conservationists are debating its future on public lands.

hundreds of square miles of tortoise habitat, especially in California. ORVs crush tortoises and collapse their burrows, damage and destroy food and shade plants, and cause soil compaction and erosion. The level of vandalism, including many tortoise shootings, also has grown with the number of off-road vehicles in tortoise country.

But the most subtle threat to the desert tortoise is also the most widespread: livestock grazing. For more than a century, 90 percent of tortoise habitat in the American Southwest has been grazed for at least part of each year. Rainfall patterns limit livestock grazing to winter and spring, which means that the cows or sheep are already there when the tortoise emerges from its hibernation.

During an unusually dry year, livestock competition can lead to mass starvation of desert tortoises. In 1981 in southern Nevada's Piute Valley, about a third of the local population of tortoises died in an area administered by the Bureau of Land Management (BLM). The area is currently leased by a rancher who pays about seven cents an acre per year for each of the 600 cows he grazes. The Las Vegas district office of the BLM has not restricted livestock in the area despite the Nevada Department of Wildlife's 1984 request that the agency close the area to grazing for 15 years, and despite numerous requests from groups and individuals for grazing restrictions.

The only population of desert tortoises now protected under the Endangered Species Act is in southwestern Utah, just across the Arizona line. Research begun in the 1940s indicates that competition from grazing cattle is the chief cause of the Utah population's decline. In Utah as in Arizona the desert tortoise is now dependent on ephemeral spring vegetation. More than a century of livestock grazing has all but destroyed the area's perennial grasses, leaving only the short-lived annuals that brighten the desert in a wet spring.

State and federal grazing regulations allow this brief abundance to be "utilized" just when the desert tortoise is emerging from hibernation. Even a lush, wet spring does not justify a grazing free-for-all. Tortoises, like other desert creatures, are built to take advantage of the desert's boom-and-bust ecosystem: Use forage when it's there and hang on when it's not. In the deserts of the American Southwest, it is truly said that there are no droughts, only occasional mitigations of dryness.

The desert tortoise, which often does not reproduce in dry years, relies heavily on fat for survival. The wet years are therefore critical to reproduction and to rebuilding fat reserves. If the tortoise is forced to compete with the cow, an animal that consumes more in two days than the tortoise needs in an entire year, the tortoise is sure to lose. When ground vegetation is gone, the cow can switch to eating shrubs and tree twigs. The tortoise is left with barren ground and a bleak future.

Although Arizona contains the most desert tortoise habitat, it is the only one of the four states that still refuses to ban tortoise collecting. Arizona allows each resident to catch and keep one tortoise, even though the state has no evidence that the wild populations can withstand such collecting. Arizona's tortoises are now fragmented into many small, isolated groups that are extremely vulnerable because they lack genetic diversity. It's no coincidence that these island populations, usually occupying less than a square mile of land, exist only in the absence of nearby livestock water developments.

The few tortoise studies done in Arizona have discovered low reproductive levels and groups composed mostly of adults. Studies also indicate that some populations have fewer adult females than males, suggesting that the females, who need more energy for egg development, are more vulnerable to starvation.

Ever since 1978, when the Desert Tortoise Council first asked the Fish and Wildlife Service to protect Utah's tortoises under the Endangered Species Act, this docile herbivore has been a source of controversy. A Utah state senator erroneously claimed that federal protection would put an end to all livestock grazing in tortoise habitat, and that a "range war" would result. Ranchers in Utah threatened to solve the tortoise problem "one at a time."

In a 1983 letter to former Interior Secretary James Watt, Rep. James Hansen (R-Utah) said that relying on the Desert Tortoise Council—a group composed of scientists, resource managers, and tortoise buffs—to shape tortoise policy was akin to "the Soviets writing defense policy for the United States." Hansen also asked for a list of all U.S. government employees who were members of the council, but his request was refused. Since nearly all tortoise researchers are members of the council, discrediting them would have blocked the listing process. Despite the controversy, Utah's tortoises were added to the nation's list of threatened species in 1980.

In September 1984, the Defenders of Wildlife, the Natural Resources Defense Council, and the Environmental Defense Fund formally petitioned for protection of the desert tortoise in Arizona, Nevada, and California. The Fish and Wildlife Service responded by agreeing to a one-year status review to determine whether the species deserved to be on the nation's list of en-

dangered species. A decision is expected this fall.

But official listing, if it happens, is only the beginning. Most tortoise habitat is administered by the BLM. While the Endangered Species Act requires that federal agencies protect the species listed, both local citizens and local BLM offices tend to resist restrictions on traditional land uses. In Utah the desert tortoise recovery plan is only now being released in draft form, nearly five years after the official listing. In the meantime, almost nothing has been done to protect the tortoise in Utah.

Despite claims to the contrary, federal listing will not put an end to all livestock grazing in tortoise habitat. Listing merely requires the BLM to establish grazing levels that leave enough vegetation to satisfy the needs of the tortoise. Since one cow and calf eat enough vegetation in one year to support about 435 tortoises, total cattle or sheep numbers probably need to decline very little to accommodate the tortoise.

In fact, desert lands that have suffered severe overgrazing for more than a century are incapable of supporting even today's low levels of grazing. In Arizona, for example, all BLM lands combined have an average stocking rate of less than three cows per square mile. Despite such low stocking rates, most BLM land shows either static or deteriorating range conditions. Blaming the desert tortoise for grazing reductions on these lands misses the point entirely: The tortoise's demise merely highlights range problems that have been caused by livestock operators.

Until a few years ago, grazing abuse largely escaped the attention of most environmental activists. Partly due to the attractive image of ranchers and cowboys, livestock grazing still enjoys a high level of acceptance with the general public. Cattle in particular are seen as a benevolent and valuable part of the pastoral scene, sharing the land with local wildlife. When this public perception is coupled with the traditionally strong political influence of western ranchers, the result is political leverage out of all proportion to either ranchers' numbers or their economic contribution.

Given the complexities inherent in the demise of the desert tortoise, it is possible to engage in endless debate while the decline itself continues. The desert tortoise is no delicate newcomer dependent on a tiny, specialized habitat. It is a survivor, a master of life in slow motion. If this animal is headed for extinction on our huge expanses of desert lands, what does this tell us about the land's ability to support other forms of life?

STEVE JOHNSON *is the southwest representative of Defenders of Wildlife.*

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Restoration of a River

The Corps of Engineers replaced the Kissimmee River with a ditch some 20 years ago. Now Florida is determined to bring the river back.

RISING SLOWLY from lakes in the center of Florida, the Kissimmee River wandered south, pushing sluggishly against sand hills until it flowed gently into Lake Okeechobee. Along the way, the water created thousands of acres of swampland, and in flood it made thousands of acres more.

The river snaked for nearly a hundred looping, lazy miles through a wet wild-grass prairie. Where the ground rose above the water in the mile-wide basin, tall cabbage palms and rotund oaks with great sweeping branches formed shady, cool hammocks—the only relief from the summer sun. The river doubled upon itself so tightly in places that old-timers recall standing in their boats looking out over the grass and seeing boats going in the opposite direction on another bend of the river.

The Kissimmee Valley was once a vast cradle of nature where bald eagles, deer, fish, alligators—even humans—thrived. Downstream, below Lake Okeechobee, the wetlands of the Everglades depended on the flow of sweet water that began in the Kissimmee.

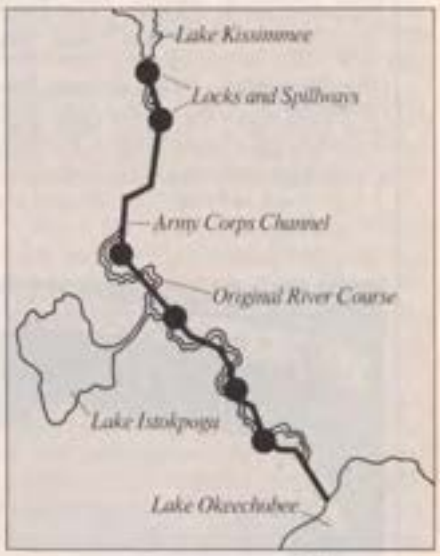
Today it's different. Most of the wildlife is gone. Cattle pastures have replaced the marshes. Much of the original Everglades, which extended far beyond the boundaries of today's national park, are dry. And the once-magnificent Kissimmee River is now called simply "the Ditch."

At the urging of the state of Florida, the U.S. Army Corps of Engineers destroyed the Kissimmee River in the 1960s as part of a flood-control plan. The project created severe problems for the fast-growing state. As a result, state officials are now attempting something that has never been done before in this country: the rebuilding of a significant river system.

The renewal of the Kissimmee River is a key element in the state's "Save Our Everglades" plan. "Our wetlands purify and store our groundwater, protect our shorelines and river banks from erosion, and provide countless opportunities for recreation," says Florida Governor Bob Graham (D). "We must protect this vital resource for our own good."

By the year 2000 Graham hopes to have the complex wetland system that extends south from the headwaters of the Kissimmee to Lake Okeechobee and the Everglades looking and functioning much as it did a hundred years ago. The success or failure of this ambitious project will no doubt set a precedent for future wetland and stream rehabilitation projects around the country.

The Kissimmee River is part of a 9,000-square-mile natural watershed system that extends over 200 miles, from Orlando to the tip of the Florida peninsula. Clouds over the Everglades in southern Florida are pushed north by prevailing winds to shed rain on the upper and lower Kissimmee



The channelization of the Kissimmee River disturbed a watershed system that stretches from central Florida to the Everglades.

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River basins. This water flows south until it reaches Lake Okeechobee, where it contributes 45 percent of the water entering the lake. Before local water districts changed the lake, its water spilled into the Everglades, moving through sawgrass in a river 40 miles wide and 100 miles long to the mangrove estuaries on the southwest Gulf Coast and to Florida Bay at the tip of the peninsula. The river basins, the lake, and the Everglades thus formed a continuous water cycle, with each element complementing the others.

Agricultural development around Lake Okeechobee started around the turn of the century. By 1920 about 34,000 acres of the rich soil in the upper Everglades was growing sugar cane and vegetables. To get rid of excess water, canals were dug to the Atlantic Ocean and the Gulf of Mexico. Lake Okeechobee was lowered and impounded, making it a holding basin for water from the northern river and wetlands and for water pumped in from the south.

Through all this the Kissimmee River remained essentially unchanged. But an extremely wet season and hurricanes in 1947 caused extensive flooding in the upper Kissimmee basin and throughout southern Florida. Responding to public outcry, the state asked the Army Corps of Engineers to devise a flood-control plan. Congress ap-

South Florida Water Management District

Dredges straightened the circuitous path of the Kissimmee River. When the job was done, the state of Florida had learned a dramatic lesson about the value of marshes, meanders, and even mud.

proved the Corps' plan in 1954, and work began ten years later. The plan called for moving excess water out of the river basin much faster than it normally flowed, dumping it into Lake Okeechobee and then sending it to the sea.

The Corps' first move was to lower water levels by enlarging and digging a few new canals between the lakes in the upper Kissimmee basin. Gates were installed to control water levels in the larger lakes. The Corps then turned to the lower basin below Lake Kissimmee. Plans called for changing the river here into a 48-mile-long, 200-foot-wide, 30-foot-deep canal. Starting at the head of Lake Okeechobee, the Corps' dredges chewed straight north through the river floodplain, sucking up the marl and spewing it along the river bank in a heap 15 feet high and 100 feet wide. In many places workers dumped the diggings directly over the old river channel. Behind the dredges came the contractors with concrete and steel to build dams and navigation locks that would divide the canal into five long holding pools.

By 1970 the Corps was finished with the Kissimmee. It didn't take long for the consequences of channelization to become apparent. One of the first signs was dying vegetation and fish in Lake Okeechobee. Hydrologists from the South Florida Water Management District and state biologists began reporting a serious loss of oxygen in the lake within two years after the canal was finished. Equally apparent were many other problems caused by manipulation of the Kissimmee-Okeechobee-Everglades ecological system, problems that are well documented today.

For one thing, the basin has lost 75 percent of the original 40,000 acres of marshland along the Kissimmee River, and the remaining 11,000 acres of marsh are degenerating. This loss of marshland has brought with it a 90 percent reduction in the basin's waterfowl population, according to the Florida Game and Fresh Water Fish Commission. At one time the Kissimmee Valley was a major southeastern breeding and resting ground for many species of water birds.

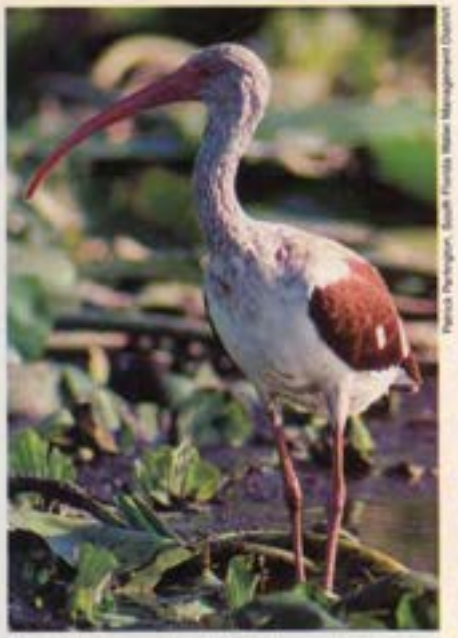
Loss of marshland has also affected water quality in the area. The wetlands once cleansed the water that reached Lake Okeechobee by acting as a filter. The agricultural development that replaced the swamps brought in its wake cows, fertilizer, and erosion, adding to water-quality problems.

Sportfishing has also deteriorated in the basin. Before channelization, the Kissimmee was renowned for its largemouth bass fishing. Studies by the Florida Game and Fresh Water Fish Commission show that today it can't begin to live up to its former reputation.

Below Lake Okeechobee, lowered water tables have caused the muck soil so prized by farmers to subside at a rate that could jeopardize local agriculture. Disruption of water flow has also hurt Everglades National Park. Although federal law requires that a specific quantity of water be sent to the park on an annual basis, the altered water flow has caused serious losses of wildlife, the intrusion of saltwater, and an invasion of exotic plants.

In 1971 the Governor's Conference on Water Management in South Florida issued a report that called for reflooding the river's marshes. This formal recognition of the problems caused by the Kissimmee channelization came less than two years after the Corps poured the last bucket of concrete. Numerous studies over the next few years all reached the same conclusion: Ditching the Kissimmee had been a serious mistake.

In 1976 the Florida legislature created an agency to study the Kissimmee's problems and recommend action. Over the next seven years the Coordinating Council on Restoration of the Kissimmee River Valley held public hearings and sought ways to restore the river basin. In the same year conservation groups (including the Sierra



Patricia Partington, South Florida Water Management District

Water birds, such as the ibis shown above, were devastated by the channelization project: Their numbers declined by 90 percent.

Club's Florida Chapter) began working to develop public and legislative interest in the issue.

At the request of the state, the Corps in 1978 began its own study to re-evaluate the flood-control project and prepare recommendations for restoring the river to its natural state. Not surprisingly, the agency was less than eager to admit that the project had been a failure. Even in the face of its own study showing that the channelization of the Kissimmee would not prevent serious flooding in the upper or lower basins, the Corps continued to stress the project's flood-control benefits.

Meanwhile, the promised re-evaluation never surfaced. Unwilling to wait any longer, Gov. Graham and the Kissimmee Coordinating Council took steps in 1983 to begin restoring the river and marshlands. In September the state's South Florida Water Management District sought Corps approval to fill in portions of one of the five Kissimmee pools, divert water into the old channel, and flood some of the former marshlands. The Corps balked, claiming that congressional approval was needed to put dirt back in the canal, but said it would permit installation of steel dams to aid in reflooding the marshlands.

What evolved was a compromise between the state and the Corps called the Kissimmee River Demonstration Project—Phase I. Last year the water district began installing dams to divert water into bends in the old river channel. Water levels will be as much as possible like the old river's. The project should restore marsh flora and

fauna to the pool and eventually to 12 miles of the river and adjacent wetlands.

Because nothing similar has ever been attempted, the outcome of the project is still unpredictable. "The primary focus of the demonstration project is to test different engineering capabilities," says Larry Perrin, a biologist with the Game and Fresh Water Fish Department. Perrin doesn't expect substantial environmental gains from the demonstration, but hopes to provide a sample of what could be accomplished by large-scale renovation.

Phase II of the state demonstration project calls for filling in part of the ditch. The Corps has still not agreed to this, saying it would thwart the agency's responsibility to provide flood protection to south Florida. Conservationists and state authorities are working together to resolve the issue at the federal level.

Meanwhile, the governor has appointed the Kissimmee River Basin Study Committee. This group, composed of environmentalists, ranchers, and local and state officials, is developing an overall land and water management plan to protect and enhance the river's resources. Part of the state's plan involves buying acreage that will be flooded by the demonstration project. In response to this state initiative, three U.S. representatives whose districts are affected by the restoration have said they will promote the project in Congress.

Admittedly, the engineers, conservationists, politicians, and bureaucrats advocating rebuilding the Kissimmee are vulnerable to criticism if the demonstration project doesn't work. Waiting to feast on their failure are developers, sugar cane farmers, dairy operators, ranchers, and others who would boost the state's economy on the back of its natural resources.

But even if the demonstration does work, river advocates will need the support of the public, federal agencies, and Congress to carry out the rest of the state's plan. They will also need money. Although the Corps spent $30 million destroying the Kissimmee, it claims federal funds cannot be used to restore the river to its natural condition.

Less than a hundred years ago, a complex natural water system governed all life in southern Florida. Over the years, exploitation of the water and the land has led to a situation where this life is threatened. Now most observers realize that manipulation of nature here was a mistake. Whether they can turn that knowledge into action will determine the future of south Florida—and perhaps of mistreated rivers elsewhere in the nation.

DUKE CULLIMORE *is an editor, writer, and photographer living in central Florida.*

The Vote of the Year

The upcoming Superfund vote will be the most important pollution decision this Congress makes. Will the law serve polluters better than the public?

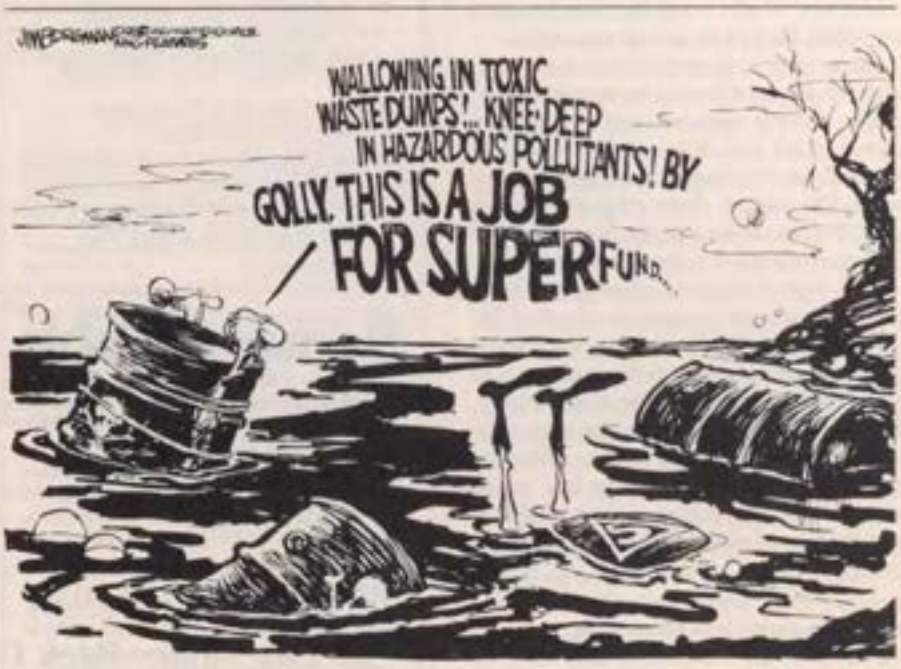
The American people are deeply troubled by the dangers of toxic wastes. According to a recent poll, 93 percent of the population is seriously concerned. The highly hazardous effluvia of our nation's industries, dumped indiscriminately across landscapes urban, suburban, and rural, pose a deadly threat to individuals, and they know it.

But in the crowded chamber of the House Energy and Commerce Committee on June 20, there was no evidence of the widespread public demand to clean up toxic dumps. Instead it was business as all-too-usual, as the Subcommittee on Commerce, Transportation and Tourism voted on legislation to extend the five-year-old federal Superfund program. Encouraged by chemical and oil industry lobbyists, the subcommittee struck down a strong Superfund bill by a vote of 13 to 5. After repudiating its own chair's draft bill, the subcommittee substituted a diluted measure crafted by Reps. John Dingell (D-Mich.) and James Broyhill (R-N.C.), respectively the chair and ranking Republican on the Energy and Commerce Committee.

Environmentalists were appalled. The Dingell-Broyhill bill, said subcommittee chair James Florio (D-N.J.), would perpetuate the agonizingly slow pace of clean-up the nation has endured for the last five years. "Power politics, pure and simple," was Sierra Club lobbyist Blake Early's assessment. "Polluters couldn't have written a better bill for themselves."

In fact, the vote marked a stunning reversal. Just ten months earlier, in August of a presidential election year, the full House of Representatives had adopted a much stronger Superfund bill by a lopsided 323-to-33 margin. Now the subcommittee had rejected a bill modeled on that earlier version and substituted a much weaker bill in its place.

Members of the subcommittee who voted for the Dingell-Broyhill bill had various explanations and excuses for adopting a bill so compatible with the desires of the chemical industry. Several suggested they had voted for it because nothing stronger could possibly pass this timorous subcommittee—a prediction made certain by their defections. Several talked hopefully about strengthening the bill later, when the full committee took up the issue, a prospect



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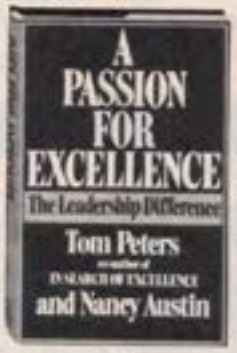

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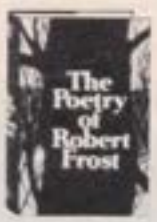

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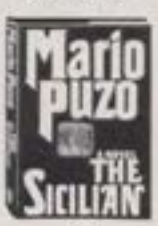

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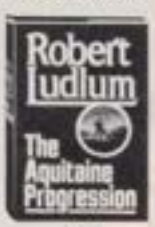

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Rep. Gerry Sikorski (D-Minn.) likened to "putting wings on a sow."

Through July the full Energy and Commerce Committee labored over the Dingell-Broyhill bill, but the results were consistently the same. Amendments to strengthen the bill were defeated day after day. Ultimately the committee approved the bill in about the same form they had received it—all sow and no wings. As a result, the entire House will be faced in September with the most important pollution and public health vote of the year: It will either ratify or reject the Dingell-Broyhill Superfund.

The nation's toxic waste cleanup program was in trouble even before this legislative setback. Created five years ago to finance emergency cleanup of abandoned hazardous waste dumps, the program has only begun to tackle the effort. Hundreds of sites identified by the Environmental Protection Agency have yet to be studied, let alone cleaned up. Hundreds more are being added to the backlog each year. There are now more sites classified as extremely dangerous than when the law was first enacted in September 1980.

Cleaning up toxic waste dumps is extremely difficult. Many of the sites contain dozens of chemically diverse, highly toxic substances in a morass of abandoned mine shafts, underground springs, or swamps. Cleanup is also expensive. But the EPA needs motivation and support as much as it needs money and know-how. The agency's current administrator, Lee Thomas, lacks the political base to serve as advocate for an effective program.

Congress has the opportunity to rectify these problems. It can mandate that the EPA proceed on an aggressive schedule to study the most dangerous sites and get them cleaned up promptly, and ensure enough funding to do so. It can empower citizens whose health is threatened by abandoned dumps to sue those responsible. It can put the EPA on an enforceable schedule to move the cleanup along, and it can ensure that the agency gives preference to permanent, complete cleanup plans that involve a maximum use of waste destruction and treatment technologies such as incineration.

In each of these key respects, the Dingell-Broyhill bill sides with the polluters instead of the public. The Energy and Commerce Committee's decision to approve a bill significantly weaker than the one passed a year ago is not mysterious. It reflects two facts: First, the membership of the committee does not accurately reflect the environmental concerns of the House as a whole. (This is the same committee that has blocked congressional action on clean air and

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acid rain for more than four years.) Second, 1984 was an election year; 1985 is not. When they voted in August 1984, members of the House knew their votes would be fresh in the minds of constituents as they went to the polls in November. The 1985 votes on the Superfund will occur more than a year before the next election.

The Dingell-Broyhill bill is deceptive. For page after page it appears to be identical to the stronger bill supported by environmentalists. On the important subject of money, it would authorize $10 billion over five years, about the same level of funding environmentalists seek.

But will this money be spent effectively to get the most dangerous dumps cleaned up? This is where the Dingell-Broyhill bill fails—and why it is supported by the chemical and oil lobbyists. While the bill purports to spend $10 billion over the next five years to clean up toxic dumps, in reality it would allow the EPA to drag the program out. By failing to move quickly to complete the required pre-cleanup studies of each site, the EPA could readily escape the bill's cleanup schedule and move as slowly as it chooses. A Superfund for the public would require the EPA to meet a fixed schedule to initiate full-scale cleanup at a minimum number of dumps each year.

The Dingell-Broyhill bill allows the EPA to continue to do partial, short-term cleanups and then walk away announcing that the cleanup has been completed. Such cosmetic cleanups could even violate other environmental laws. A Superfund for the public would require permanent and complete cleanup of toxic dumps to bring them into compliance with the minimum standards of existing health, water quality, and waste disposal laws.

The Dingell-Broyhill bill would prevent a citizen endangered by an abandoned toxic waste dump from suing its owner to force cleanup. The law that governs operating toxic dumps allows such citizen suits, but Dingell-Broyhill would grant immunity to owners of abandoned or closed dumps. A Superfund for the public would permit citizen suits as the only way to force cleanup of dumps not included on the EPA's limited National Priority List.

Unfortunately, many in Congress and the media have lost sight of these fundamental flaws in the Dingell-Broyhill bill. They have accepted the argument that the EPA should be trusted with flexibility on such issues as schedules, cleanup standards, and citizen suits. They have failed to take into account the continuing and unremitting hostility toward toxic waste cleanup at higher levels of the Reagan administration and in the chemical industry. In calling for EPA flexibility and efficiency, these legisla-

tors and editorial writers are calling for five more years of the same kind of Superfund we have had for the past five years—a law lacking an aggressive schedule, hamstrung by hostility from the federal budget office, and bogged down in negotiations with stonewalling toxic waste dumpers.

These are the crucial issues. They have little to do with funding, but they are the very guts of the Superfund law. They decide whether the law works to protect the public—or the polluters.

What You Can Do

THE FULL RESOURCES of the Sierra Club have been mobilized for a special Superfund campaign. In late July, 20 Sierra Club volunteer activists from key states converged on Capitol Hill to lobby members of the House. Even more grassroots activists will be in Washington during the second week in September to help defeat the Dingell-Broyhill bill. But this lobbying must be backed by strong grassroots opposition to the bill—the tide of opinion that has helped us achieve critical environmental victories in the past.

We must convince the House to overrule the Energy and Commerce Committee. We must remind members of the House that their votes on the Superfund are of such extraordinary importance that they will be in the front of our minds a year from now, during the 1986 election. These will be the most important pollution and public health votes of the 99th Congress.

Votes may occur as early as mid-September. Call the Sierra Club's 24-hour Washington hotline at (202) 547-5550 for an up-to-the-minute status report. Then phone your representative—time may not allow a letter to be received and tallied. You can call his or her Washington office through the Capitol switchboard, (202) 224-3121, or the local office in your vicinity (check your phone book under "U.S. Government" or call your local library for the number). Convey your message to the representative's staff. Then follow up with a letter or mailgram. If you can interest your friends and neighbors, their calls and letters will double your impact.

Only an upwelling of constituent concern will convince each member of the House that we will remember this as one of the key votes of the 99th Congress. Please join the tide by calling and writing your representative to express your opposition to the Dingell-Broyhill bill and your support for strong Superfund provisions.

DOUGLAS P. WHEELER *is Executive Director of the Sierra Club.*

RICK GREEN

Another Kesterson?

High levels of selenium—the substance that killed and maimed thousands of birds at Kesterson National Wildlife Refuge—now threaten San Francisco Bay.

FOR THOUSANDS OF YEARS San Francisco Bay and the smaller bays linked to it have thrived as a vibrant and healthy ecosystem. Long before Spanish explorer Gaspar de Portola accidentally discovered these blue-green waters in 1769, the bay's collection of wetlands were vital for waterfowl flying up and down the western coastline. Despite threats from mining waste, raw sewage, and other sources of pollution during the last century, the bay remains one of the world's most ecologically productive urban estuaries. In the last few decades, however, the area's rapid development has brought with it new questions about the bay's ecological health. Most recently, concern has focused on an obscure but sometimes lethal trace element called selenium.

A study published last spring by the U.S. Fish and Wildlife Service (FWS) revealed alarming levels of selenium—as high as those found in waterfowl at the infamous Kesterson National Wildlife Refuge in the San Joaquin Valley—in two species of ducks in San Francisco Bay. At the same time, local bird counts indicated sharp population declines in these species.

Selenium contamination at Kesterson killed, deformed, and impaired reproduction in thousands of birds. In conjunction with other metals and salts, selenium turned the refuge into a toxic waste dump unfit for wildlife. (See "Crisis at Kesterson," March/April 1984.) The source of the problem is water that drains from irrigated San Joaquin Valley farmlands into the San Luis Drain, a concrete canal that ends at Kesterson's collection of marshes and ponds.

"We've got to get the experts moving on a solution before the bay becomes another Kesterson," California Lieutenant Governor Leo McCarthy said at a bayside press conference last spring. McCarthy called for "a full study to tell us how bad the selenium contamination is and what should be done to halt the poisoning of the bay and clean it up."

What McCarthy and others fear is that

The Golden Gate Bridge and a gleaming urban landscape present a stunning picture. But all is not well in San Francisco Bay, where indications of selenium pollution have recently surfaced.

Surf scoter numbers are low, but the amount of selenium in the birds' bodies is high. Such facts from studies in the Bay Area have caused worried speculation about "another Kesterson."

selenium-rich agricultural drainage like that at Kesterson is entering San Francisco Bay in harmful amounts, adding to the significant quantities of selenium discharged from municipal and industrial sources. The drainage in question is a mixture of pesticides, fertilizer, salts, and toxic elements from the soil, such as selenium, that originate in the San Joaquin Valley. This toxic soup flows via small streams, sloughs, and possibly underground aquifers into the San Joaquin River, which enters the north end of San Francisco Bay after meeting the Sacramento River.

According to Paul Kelly, a biologist at the California Department of Fish and Game who co-authored the duck study, "The findings are alarming. The obvious implication is that if the Kesterson waterfowl are unable to reproduce, then bay waterfowl may be suffering similar problems."

Although selenium is a necessary nutrient for humans and wildlife in small amounts, it becomes highly toxic in larger quantities. Selenium is found naturally throughout the world on land and in water. Its ability to move rapidly up the food chain, becoming more concentrated as it moves from the tissue of one organism to the next, makes its presence especially dangerous in aquatic ecosystems. Continuous recycling within the aquatic environment increases the danger to wildlife, according to toxicologist and Sierra Club statewide water-resources coordinator Alvin Greenberg. Some shellfish and other invertebrates contain selenium at up to 4,000 times the concentration found in the water around them. A little bit of this trace element goes a very long way.

Ironically, recent research indicates that small amounts of selenium may protect humans from certain types of cancer and heart disease. But there is a thin line between the amount of selenium that is necessary and the amount that is toxic. Greenberg be-

lieves that approximately three times the necessary amount of selenium may be toxic. Because there is so little room for error, human activities that change selenium concentrations in food and water "could have a profound impact on public health," he says.

Long before the crisis at Kesterson grabbed headlines, FWS biologists were concerned about the presence of heavy metals and other toxic elements in bay shellfish, which survive by filtering nutrients from the water. Because many toxics sink to the muddy floor of the bay, shellfish are excellent indicators of whether they are entering the food chain in harmful amounts.

Enter the ducks. The two species chosen for the study, greater scaups and surf scoters, plunge to the bottom of the bay to eat clams, mussels, and other shellfish. When government biologists collected 40 of these birds on a spring day in 1982, they suspected some contamination, but not as much as was found. The selenium levels in the livers of the scaups were high, and those in the scoters even higher. In fact, scoters were carrying as much selenium as the waterfowl at Kesterson.

At a time when available wetlands are rapidly shrinking, San Francisco Bay is an increasingly important stopping-off and wintering spot for migrating waterfowl. Counts taken near the FWS study site over the last four years indicate a population drop of 80 to 90 percent for surf scoters and 50 percent for scaups. But biologists stress that no definite connection can be made between selenium and the decline in the duck population.

Roy Lowe, a FWS biologist and co-author of the duck study, says the study results are muddled and difficult to interpret. Selenium may be more toxic and may build up in organisms more easily than is thought. Lowe stresses that a major study to understand the dangers of selenium in marine creatures is the necessary next step.

The ducks' condition has focused attention on selenium in other bay wildlife as well. The decline of San Francisco Bay fisheries over the past two decades has been studied extensively, but the role of selenium in this problem has not. The dramatic decline in the populations of two Bay Area culinary favorites, the dungeness crab and the striped bass, are only now being examined in this light.

According to William T. Davoren, executive director of the Bay Institute (which studies bay conservation issues), adult striped bass are accumulating selenium residues high enough to cause reproductive problems. Greenberg and environmental researcher Diane Kopec have also been looking at the relationship between selenium and the declining bass and crab populations. Their study indicates that selenium discharged by agriculture and industry may have contributed to the species' decline.

Figuring out just where this selenium is coming from has a needle-in-a-haystack quality to it. A certain amount of selenium is natural in water. As for the rest, agriculture may be the most significant source. Some of the soils in the San Joaquin Valley that provide vegetables, fruit, and agribusiness profits are also rich in naturally occurring selenium. Irrigation water leaches selenium from the soil into surface and underground water much faster than precipitation alone. Davoren notes that the three industries that may release selenium —electronics, photocopying, and refining— can all be found in the Bay Area in relatively large numbers. But data on the amount of selenium discharged either from nonpoint sources such as agriculture or from municipal and industrial sources are still limited.

Federal agencies have been unable or unwilling to deal with the bay's selenium problem. The U.S. Geological Survey, which has studied the bay for some 20 years, has never checked for selenium. The Bureau of Reclamation, which manages the federal irrigation projects that serve San

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Joaquin Valley farmers, "historically has denied any obligations to, or responsibilities for, San Francisco Bay," says Davoren. In fact, the bureau has stubbornly hung on to plans for a project that could drastically increase the levels of selenium and other toxics in the bay: a 100-mile extension of the San Luis Drain from its present terminus at Kesterson to the San Francisco Bay. While the farmers using Kesterson have agreed to stop sending their wastewater into the drain, many other farmers are still hoping for an extended drain to dispose of their wastes. If that drain extension were proposed now, says Davoren, the demands of agriculture could win out over the bay's ecological health.

"It's just the law of gravity," he says. "Look where the water runs. If cheaply subsidized agriculture is to continue, they'll come back to the bay every time. I count on it."

"The San Joaquin Valley requires drainage, period," says Jerry King of the Bureau of Reclamation's Sacramento office. Of the 4.5 million acres of irrigated lands in the San Joaquin Valley, some 1 million to 2 million acres will have a drainage problem in the near future. King says of the drain-extension idea, "I don't think it's dead."

But there is strong opposition to any notion of completing the drain. It is "a dagger aimed at the heart of the Bay Area," says Rep. George Miller (D-Calif.), whose district encompasses the proposed terminus. Any plans to dispose of agricultural waste in San Francisco Bay are "totally unacceptable" to Miller, who chairs the House subcommittee that oversees the Bureau of Reclamation.

Nor has the EPA, another federal agency involved in water issues, risen to the selenium challenge. Greenberg says the EPA's standards for protecting freshwater and saltwater species are totally inadequate, and that its discharge requirements are equally lax. The agency has spent $45 million over the last eight years investigating toxic problems in Chesapeake Bay, but has yet to undertake any similar research in San Francisco Bay. It's no coincidence that the Chesapeake, a frequent beneficiary of congressional largesse, virtually laps at the doorstep of Congress.

"We're currently negotiating with headquarters to try to get more money to study San Francisco Bay," reports Jeremy Johnstone of the EPA's regional office in San Francisco. But because the Clean Water Act specifies that agricultural wastewater is nonpoint pollution, the EPA can't do more than study it.

What is needed is a "total ecosystem" approach to selenium, says Greenberg. He recommends monitoring fish, shellfish, waterfowl, plants, bay sediments, and the total amount of selenium being discharged into the system, not just the amount in water samples. With the use of water sampling alone, the fine line between beneficial and dangerous levels of selenium can be crossed undetected as animals accumulate the substance in high concentrations.

Most people agree that the bay is not in immediate danger of a calamity like Kesterson's. Because of its location, the amount of selenium moving from Kesterson into the bay is probably very small. But any threat to the Bay Area's remaining wetlands—the most important in California—cannot be taken lightly. At least 80 percent of the bay's marshes already have been dredged, diked, or filled in the name of development.

Greenberg is seeking "prudent preventative action"—an immediate cutback in selenium discharges. He points out that selenium ruined Kesterson less than two years after the ponds were built, and that selenium from agriculture has been polluting the bay for more than two decades. Others, including some government biologists, feel more study is needed before stricter discharge limits can be set. California state legislators have added $5 million to the 1986 budget for the study of selenium and related problems.

Back at Kesterson, the federal government and local farmers have agreed that all drainage into the refuge must cease by mid-1986. Greenberg says that while the means to this end are still being fiercely debated, the agreement sets an example that could indirectly benefit San Francisco Bay: It shows that farmers can come up with solutions quickly when they are threatened economically. Greenberg hopes this means that agricultural interests polluting the bay more directly via the San Joaquin River can be equally resourceful.

But to date, none of the bay's selenium problems has been addressed. The solution to Kesterson has not been defined, and the problem of toxic drainage from other farmlands with selenium-rich soils is not widely recognized. The EPA shows no signs of getting tough with industrial and municipal selenium polluters. Selenium itself remains a mysterious element affecting bay wildlife in ways that are poorly understood.

More ducks and other wildlife will likely be found with high selenium levels. In fact, if ignorance and inertia keep a lid on the issue, Lt. Gov. McCarthy's stern warnings could prove justified: A gigantic Kesterson-type mess could turn San Francisco Bay into an environmental wasteland.

RICK GREEN *is a former editorial intern for* Sierra.

POLITICS

DAVID FOGARTY

Jewels of the Rust Belt

The 19th-century canal that once linked the Mississippi and the Great Lakes now strings together some of the Chicago area's most precious natural and historic sites.

THE HEART OF the "Rust Belt" southwest of Chicago seems an unlikely place for a hundred-mile-long park. To the casual observer, oil refineries, power plants, and the remains of old smokestack industries seem to be the region's dominant features.

But last year Congress chose this area along an abandoned 19th-century canal for a new kind of park. The "heritage corridor" was created not only to provide for recreation and natural-resource protection, but also to preserve the region's historic riches and stimulate economic development.

Christened the Illinois and Michigan (I&M) Canal National Heritage Corridor, the new park is named after the historic waterway that first connected the Great Lakes to the Mississippi River. The corridor follows the old canal westward from its starting point at Chicago's Navy Pier to its terminus at the towns of LaSalle and Peru on the Illinois River. Along the way it passes through an amazingly diverse landscape. Visitors can walk through historic canal towns, state parks, and other parcels of land that make up what *Chicago Tribune* outdoor writer John Husar has called "a hidden wilderness." In fact, the corridor extends beyond the canal to include 18 Chicago neighborhoods, 43 towns, and broad expanses of the Des Plaines and Illinois river valleys.

According to Jerry Adelmann, executive director of the Upper Illinois Valley Association, "The corridor is an open-air museum celebrating natural beauty, geology, history, and industrial development along

Deborah Bright

Thirty-five miles southwest of Chicago, the I&M Canal passes through the waterway's former headquarters, Lockport, and a pioneer village reconstructed by the county historical society.

one of the most important pioneering routes in American history."

The heritage corridor is one of a variety of experiments across the country aimed at protecting land for the public without incurring major federal expenses or obligations. While it was created by the federal government, the corridor is neither owned nor managed by it. Instead the project is in the hands of public and private landowners, subject to the zoning and permitting powers of local and state governments. The I&M Canal National Heritage Corridor Commission, funded and appointed by the Interior Department, is charged with supporting and coordinating the actions of landowners, but has no power to make land-use decisions. Commission members will include representatives from local governments, forest preserve districts, industry, and conservation and historic-preservation groups.

The federal link to the corridor is tenuous. The idea was initiated locally, then embraced by President Reagan in 1984 as an example of "new federalism" applied to national parks. Five months after the nationally publicized ceremony in which he signed the corridor bill, however, Reagan proposed eliminating funding for the commission in his 1986 budget. (Members of the Illinois congressional delegation are trying to get this funding reinstated.) Meanwhile, the Interior Department has dragged its feet in approving a charter and appointing members to the commission.

Because of the corridor's unusual management setup and mixed land uses, environmentalists were hesitant at first about supporting the idea. But eventually many groups, including the Sierra Club, endorsed the project. "The concept of blending environmental protection and economic development is exciting," says Teresa Cunningham, former conservation co-chair of the Club's Great Lakes Chapter. Sierra Club Midwest Representative Jane Elder adds, "The corridor is an opportunity to preserve many important green spaces in urban areas."

These green spaces include 37 natural areas featuring wetlands, virgin prairies, and upland forests. The 259-acre Lockport Prairie, one of the corridor's most important preserves, illustrates how the new park helps protect these natural areas.

"The Lockport Prairie is a nationally significant nature preserve," says Steve Packard, field representative of The Nature Conservancy's Illinois chapter. A rare type of soil—just a few inches of dirt on top of dolomite limestone—distinguishes the Lockport from typical prairies. "This habitat makes it the kind of place where you'll find rare and endangered plants and ani-

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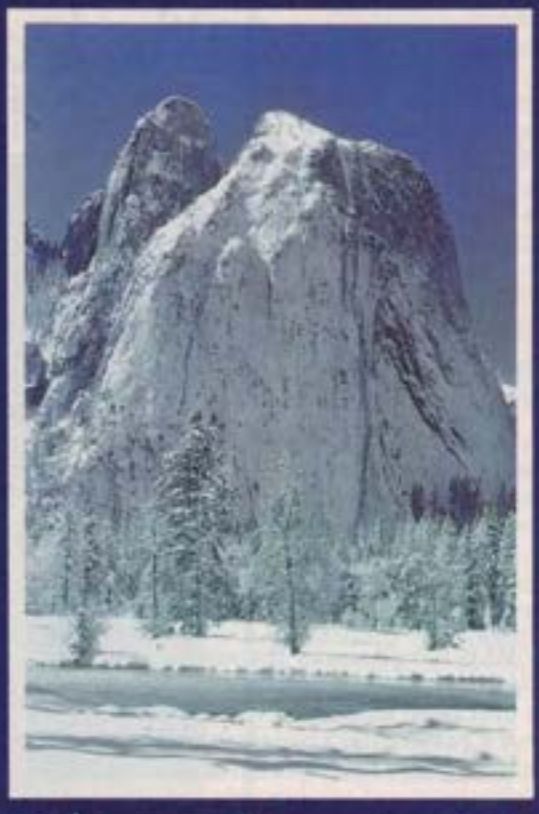

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mals," says Packard. "The largest population of leafy prairie clover [which is on the federal endangered species list] thrives here. You will also find the endangered spotted turtle, which was thought to be extinct in Illinois before it turned up on the Lockport Prairie."

Packard adds that establishment of the corridor played a key role in the Chicago Metropolitan Sanitary District's dedication of the prairie as a nature preserve. "The corridor provides a common vision for the region," he says, "and a planning tool that agencies and private citizens can use." This common vision has encouraged The Nature Conservancy to begin negotiations to acquire a number of other areas in the corridor. One of these is Lake Renwick, an old water-filled gravel pit that is the largest heron rookery in the region.

Outdoor recreation is another important asset of the I&M corridor, particularly for Chicagoans eager to escape the pressures of big-city living. Portions of a 60-mile hiking trail (the old canal towpath) are already open for hikers in search of great blue herons or hidden stands of native prairie. Visitors can also explore old canal locks and other relics from the dawn of the Midwest's industrial revolution. And during cold midwestern winters, stouthearted souls can ski and skate on the frozen canal.

Eventually, land- and water-based trails along the canal will link eight state parks and numerous forest preserves, local parks, and state nature preserves. The true gem among these is Starved Rock State Park, near the western end of the canal. Starved Rock gets its name from a sandstone bluff above the Illinois River, where according to Indian legend a band of Illini Indians died from starvation during a siege by Pottowatomie Indians out to avenge the murder of Chief Pontiac. Later, French explorer Robert LaSalle built Fort St. Louis on the same bluff. Today visitors can hike out to Starved Rock and then venture into the surrounding forests of shagbark hickory and burr oak.

The heritage corridor will also set aside a special place for canoeists. A 25-mile canoe trail is planned on the Des Plaines River between the Chicago Portage and the historic Isle à la Cache, where French trappers camped and cached their furs. "Some sections of this river still look much as they did in the 17th century," says Adelmann.

Historians say the corridor leads visitors from the pioneers' first steps on the plains to the so-called Rust Belt era of today. When completed in 1848, the I&M Canal opened up 3,700 miles of navigable waterway from New Orleans to New York by linking two major water systems. It helped forge economic ties between the American heartland

and the eastern seaboard. At its peak the canal boasted 132 boats hauling more than a million tons of freight a year, and Chicago was transformed in the process from a tiny fur-trading village into a booming international city.

"By preserving and interpreting the historic richness of the corridor, we will be telling not only the I&M Canal story but also the story of the Midwest's industrial revolution," says Adelmann. A few locks and other canal relics have already been restored, and more than 200 historic buildings have been identified. One of these is the Reddick House, an 1856 Italianate mansion in Ottawa, Ill., that overlooks Washington Park, the site of the first Lincoln-Douglas debate in 1858.

Even industry has been getting into the historic restoration act. In March, U.S. Steel announced a partnership with the National Trust for Historic Preservation to study the feasibility of restoring portions of the corporation's Joliet Works. Built in 1869, this is one of the oldest steel and iron mills in the country. The joint study will also suggest recreational uses for the stretch of I&M Canal towpath adjacent to the steel plant. National Trust President J. Jackson Walter calls the idea "a unique national model for older industrial cities to find new uses for historic property in a manner sensitive to the community."

Many cities are counting on the I&M corridor to help them spark an economic turnaround. Lockport Mayor Joe Bolattino says, "The heritage corridor is a selling point that we hope will attract tourists and new businesses." The town has already restored the 1837 Canal Commissioners Headquarters, the turn-of-the-century Central School, and other historic buildings. A three-mile-long historical interpretive trail is under construction.

Clearly, the new park has significant ecologic, historic, recreational, and economic allure. But the jury is still out on the corridor as an experiment in decentralized park funding and management. "It's still in the formative stages, and we're not going to know for a decade whether it will fulfill its promise," says the Sierra Club's Elder. "We certainly hope that it will."

In the meantime a bill has been introduced in Congress to establish a similar park along the Hennepin Canal in northwestern Illinois. If the I&M corridor can satisfy its varied constituency, it could soon serve as a model for other urban parks in the Midwest and around the nation. □

DAVID FOGARTY, *former conservation director of the Sierra Club's Loma Prieta Chapter, is a Chicago-based writer specializing in travel and human-interest stories.*

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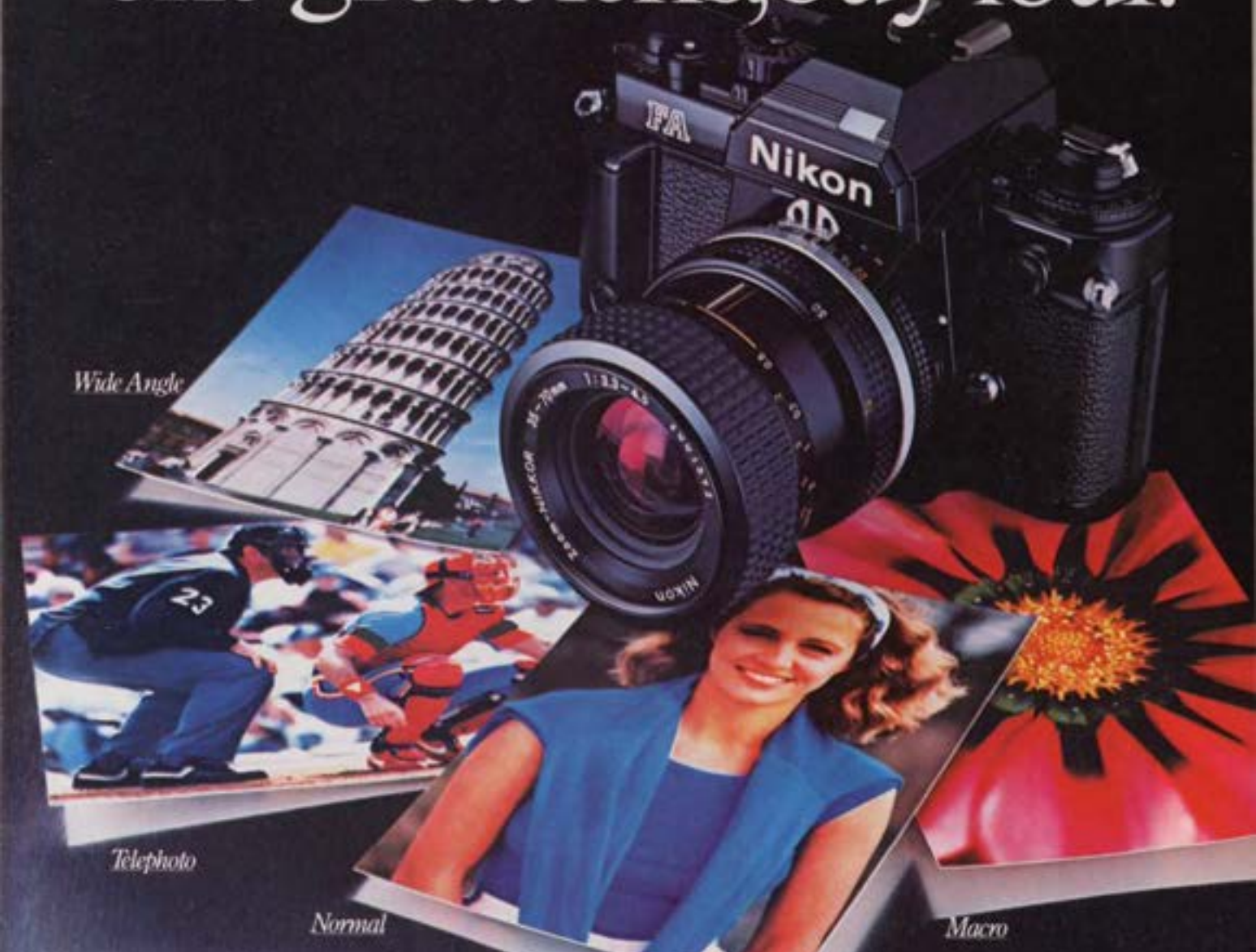

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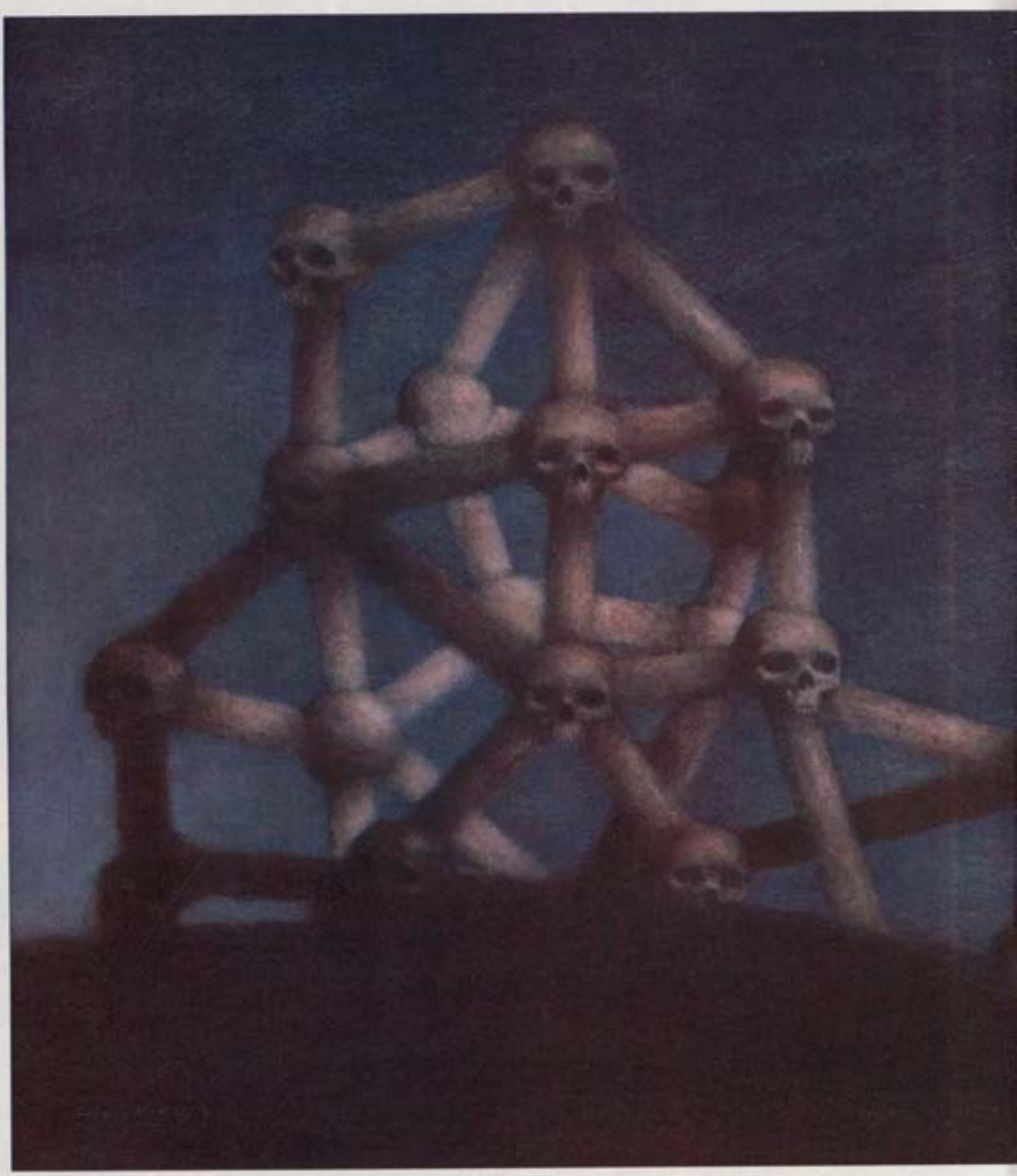

An Immodest Proposal

Even industry agrees safe chemicals make good sense. Unfortunately, they don't always make good business. Economic incentives—not stricter regulation—will put profit and public health on the same bottom line.

CARL POPE

LAST JULY, *The Wall Street Journal* reported that the Environmental Protection Agency, "capping six years of internal deliberation and industry efforts to block strict controls," was banning the use of wood preservatives containing creosote, pentachlorophenol, and inorganic arsenic-based compounds. The EPA made its decision based on the Federal Insecticide, Fungicide and Rodenticide Act, one of nine major statutes designed to protect the public from exposure to toxic chemicals.

At first glance, the wood-preservative decision represented exactly the kind of responsible oversight that the EPA is supposed to provide. The agency carefully reviewed voluminous documents on the risks of wood preservatives, balanced these risks against the benefits, and tailored a set of rules that would best serve the interests of society.

The decision itself was complex. The three compounds listed were not to be

Illustration by Brad Holland

sold to consumers over the counter, but they could still be used by industry to treat wood before it was sold to the public. However, industry would have to observe several restrictions: Workers would have to be trained and wear protective clothing and sometimes respirators; treated wood that was likely to come into contact with humans, such as outdoor furniture and playground equipment, would have to be coated with shellac or varnish; the level of dioxin in pentachlorophenol would have to be reduced immediately; and industry would have to inform consumers of the risks of using their products and how to counter those risks.

The EPA's action affected 97 percent of the wood preservatives and more than a third of all pesticides used in the United States. So while the regulations had been slow in emerging, they dealt moderately but comprehensively with a large part of the total pesticide problem. Critics might feel that the regulations were too weak, but at least the public would, in some measure, be protected.

So goes the theory of toxics regulation. But industry proceeds on its own course.

One month later and 3,000 miles away, some 500 sawmill employees in Korbel, Calif., voted to strike if Simpson Timber Company went ahead with its plan to treat redwood timber with tetrachlorophenol, a

Mission Unaccomplished: The Failure of Toxics Regulation

Purpose	*Legislation*	*Mechanism*	*Weaknesses*
To regulate chemicals in commercial use	Toxics Substances Control Act (commercial chemicals); Federal Insecticide, Fungicide & Rodenticide Act; Food, Drug & Cosmetics Act	Selected chemicals are tested by the manufacturer. Results are submitted to the government, which then makes a case-by-case decision whether to ban, regulate, or leave the product unregulated.	The number of chemicals overwhelms both testing capacity and regulatory process. Two to four years and $40,000 to $1 million are required to test each chemical. Only 18 percent of all food additives, 10 percent of all pesticides, and 1 percent of all commercial chemicals have been carefully tested.
To regulate toxic pollutants inadvertently released into the environment or workplace as the result of industrial processes	Clean Air Act; Clean Water Act; Occupational Safety & Health Act; Safe Drinking Water Act	Regulators evaluate toxic pollutants that may be released into the air, water, or workplace. Based on scientific studies, "safe" levels of exposure are set, and companies are required to meet these standards.	The number of hazardous pollutants emitted is too large for regulators to handle. It is often impossible to measure a "safe" level of exposure. The EPA has set standards for only five of several hundred major toxic air pollutants, only a handful of the more than 700 chemicals found in drinking water, and only 20 of 350 suspected workplace carcinogens. Eighty-two percent of the facilities with toxic permits under the Clean Water Act are in violation, and two out of three rural water systems violate at least one drinking water standard.
To regulate the handling and disposal of chemicals after they are no longer commercially viable	Resources Conservation & Recovery Act (RCRA); Superfund	RCRA establishes a set of standards for disposal facilities and tracks chemicals "from cradle to grave." The Superfund provides money for cleaning up dump sites already in existence that do not meet these standards.	Neither statute provides industry with incentives to move toward handling wastes through safer processes. Seventy-eight percent of disposal sites licensed by RCRA are in violation of the law. The Superfund priority list includes 540 sites; studies indicate an eventual list of 2,000. To date, only six sites have been cleaned up, and more than half the 540 will still not have been worked on by 1990. The estimated cost of cleanup is $40 billion, but the fund has only $1.6 billion.

close relative of pentachlorophenol, but one never studied or regulated by the EPA.

Simpson defended its decision to spray with "tetra," promising to follow the EPA worker-safety standards applied to "penta" even though it was not legally required to do so. Reichold Chemicals, the manufacturer of tetra, argued that these precautions would provide workers with adequate protection. The EPA was less certain. "We don't have the test data to support tetrachlorophenol's use," said the agency's Henry Jacoby. "We don't know what the long-term worker or public health risks really are."

For Simpson Timber there was one enormous advantage to the use of tetra: Even if the company followed the same worker-safety standards, it would not have to label its treated lumber, since the EPA's new regulations applied only to penta.

Most other lumber mills in Northern California use pentachlorophenol; whether other mills will follow Simpson's lead in substituting tetra is not yet clear. But if consumers react to the labels on penta-treated wood by buying untreated products, a massive shift to tetra is likely. And many companies may choose to be less cautious than Simpson in their worker-exposure standards. The EPA has certainly left the door open for them to do so. Playing by the rules of the game, such neat sidestepping of toxics regulations is commonplace.

Few chemical companies will argue in favor of producing illegal goods or flagrantly violating "reasonable" regulations. They generally agree that they should do more testing of new products than they used to, because society's standards have changed. Most will agree that their products should be as pure as possible, and that they should make major efforts to avoid contamination by toxic by-products. But very few if any chemical companies or leaders of the industry would agree that they should withhold commercially viable chemicals from the marketplace simply because testing data is incomplete, or because there is some evidence that the product may be toxic in some circumstances.

The public, however, seeks a higher standard of safety. People want chemical products that will not cause injury when used as directed. They do not want to be told a decade after a product is marketed that it can cause birth defects and that pregnant women should not be exposed to it.

The old ways have failed. We need laws that take advantage of industry's desire to lower costs, increase markets, raise prices, and avoid risks.

People want a margin of safety to ensure that they are being protected. The task of toxics laws and regulations is to provide the public with this "margin of error," a measure of protection against an industry with a very different, very limited concept of responsibility toward public health and the environment.

The chemical industry does not accept the legitimacy of the public's desire for safer chemicals and larger margins of error. It particularly does not accept the right of government regulators to interfere with how the industry makes internal decisions. It resists what it sees as the public's "chemophobia" and the government's bureaucratic red tape. Each new effort by the government to deal with a particular facet of the toxics problem is met with resistance from the industry. Administrative appeals, political pressure, and lawsuits slow down the regulatory process, and the government's energy and resources are exhausted long before the problem can begin to be solved. Across the board, whatever their approach, America's major laws for controlling toxic materials are not working.

IT IS SORROWFULLY EASY to succumb to fatalism—the belief that it is simply impossible to devise an approach to the problem that will actually work. But before giving up, we should note one feature shared by every attempt to control the chemical debacle: If the research, development, and use of chemicals in our society is compared to a waterfall, every federal statute has tried to regulate that waterfall by putting a dam at the bottom—that is, after industry has already made the decision to proceed with and hopefully profit from manufacturing a given chemical.

It is not surprising that efforts to dam the waterfall at the bottom have not worked. We may pile the stones up endlessly, but the water simply flows over, around, or through the barrier. To be effective, the dam must be at the headwaters—within the chemical industry itself. We need to apply controls at the point where individual companies decide to manufacture and market a particular substance for a particular use. If hazardous chemicals are the end result of the industrial process, product development and marketing decisions are the beginning.

These decisions, as industry representatives frequently remind us, are made with an eye to company profits. And company profits are, crudely speaking, a function of low production costs, high prices, or high volume of sales. Based on these three factors, industry makes judgments as to which products to research. Once this basic research is completed, manufacturers examine the same three factors again and decide whether to bring a particular product into further commercial development. Finally, if the product proves feasible, the company decides how to market it. At this point, and generally only at this point, the public interest enters the process in the form of government requirements for testing, licensing, and registration. (This does not mean that a company will have done no testing prior to making final marketing decisions, only that the government has no access to test results before that time.)

Naturally, companies want to research and market products that the government will allow them to sell. They want to avoid cumbersome regulatory restrictions on how they market their product and how widely it can be used. If a chemical is treated by state or federal agencies as highly hazardous, companies will face higher costs. Protecting workers in the plant, avoiding emissions of the chemical into the air and water, and handling waste products from production all become more difficult and more expensive if government agencies choose to regulate the chemical.

But government agencies regulate only a

The key to reducing the market potential of products containing toxic chemicals is consumer information—specifically, labeling.

handful of substances. The odds that any individual chemical will be heavily regulated or even carefully scrutinized are not very great. (Drugs and food additives are probably the most closely regulated commercial chemicals, and fear of regulation is a major force in their research and development. New pesticide formulations are also under relatively intense scrutiny, which gives companies an incentive to ensure that the pesticides they develop are able to withstand careful testing.)

Suppose a company is faced with the choice of using a very toxic chemical or one that is less hazardous. If the more toxic substance is cheaper to develop and produce, or more easily protected by a patent, the company can pursue its development with little fear of regulatory restriction. The present system leaves a company little incentive to proceed with the safer formulation instead.

We need laws on toxic substances that take advantage of the chemical industry's desire to lower costs, increase markets, raise prices, and avoid risks. We need a climate in which the industry will consider the degree of possible toxicity *before* it spends millions of dollars to develop and market a product.

ALTERNATIVES to conventional, American-style regulation are possible and may be more effective. We could do worse in the hazardous waste area than to borrow heavily from what has been done in other countries. (See "Denmark Begins at the Beginning," opposite.) Can we devise approaches to deal with different facets of the toxics problem? Can we create a climate in which industry voluntarily chooses to shift its emphasis from toxic chemicals to safer ones?

We can—if we shed our ideological blinders and act comprehensively. We must design an approach that will affect each of the major factors industry considers in the decision to produce and market a particular chemical: production cost, market price, volume of sales, and overall risk.

There are two key ways that we can make toxic chemicals more costly to produce than safe ones. First, workers have the right to know the hazards of the materials they are exposed to. Providing workers with full information on the chemical composition, testing data, and other health-related findings regarding workplace chemicals would have a major impact on the cost of producing toxic chemicals. When manufacturers are forced scrupulously to inform their work force about dangerous chemicals, the costs of production will rise. In contrast, when these costs are passed on to workers in the form of illness and death, the production costs of toxic chemicals appear artificially low to corporate decisionmakers.

Simpson Lumber Company, for example, paid a high price for using tetrachlorophenol: a disrupted plant. If the Simpson workers had not known they were being exposed to a hazardous chemical, they would not have threatened to strike. Many workers do not have the organizing focus provided by a union, but clear identification of chemicals and their hazards would be a major step forward.

A second mechanism for increasing the cost of producing potentially hazardous chemicals is the imposition of "hazard fees." Clearly, the production and use of unsafe chemicals is going to cost society massive sums for medical care and environmental restoration. Hazardous waste alone may cost from $40 billion to $100 billion to clean up. To the extent that these costs can be recovered by levying fees on unsafe chemicals, the repair process can be turned into a preventative program to encourage the use of less risky substitutes. Although it does not distinguish between hazardous and relatively safe chemical production, the tax levied on chemical-industry feedstocks to finance the Superfund is a crude example of such an approach.

Right-to-know laws are also the key strategy for reducing the market price of hazardous chemicals. In order to decide whether they are willing to run the risks of being exposed to certain chemicals, workers and consumers must know the identity of those chemicals. But industry jealously guards the chemical composition of its products under the legal doctrine of trade secrets.

The industry has good reason to fear that competitors will use information reported to government agencies to their economic advantage. Corporations have been the major users of provisions of the Freedom of Information Act that apply to product data supplied to federal agencies. It is probably safe to assume that these corporations are not seeking environmental enlightenment.

The chemical industry uses this fact as an argument against right-to-know laws. However, if right-to-know requirements are applied more stringently against chemicals that are toxic than against those that are safe, a manufacturer will discover that it can protect its product from competition far more easily if it uses safe chemicals. Properly designed right-to-know requirements will threaten the most toxic chemicals with competition, and consequently demand a lower market price—a powerful incentive to develop safer products.

Above all, chemical companies want to know that their products will find buyers, and they concentrate on products they believe can attract and hold firm markets. The key to reducing the market potential of products containing toxic chemicals is consumer information—specifically, labeling.

Labeling requirements for all products that can expose consumers to toxic chemicals will give manufacturers a strong reason to come up with products that do not contain toxics. The tetrachlorophenol story shows how labeling only a few chemicals may simply cause a shift to equally toxic, unlabeled competitors. But a comprehensive labeling rule would dramatically restructure the marketplace.

For example, some shampoos contain captan, a chemical shown to cause cancer in lab tests. If these shampoos were required to carry a prominent label that read, "This product contains captan, which is suspected of causing cancer and has failed to pass

safety tests," consumers would know what they were buying. More important, right next to these shampoos would be others, also heavily advertised and slickly packaged, without any warnings. It's easy to guess which type of shampoo most consumers would choose.

Thus, comprehensive labeling requirements on toxic ingredients would enlist the chemical industry's potent marketing and sales divisions in the battle to encourage development of safer products.

Risk, or the desire to avoid it, is the final incentive for the chemical industry. Theoretically, if a chemical goes wrong, the manufacturer can be sued for damages. But tort law, which governs such damages, works poorly when it comes to toxics.

If a defectively designed skyscraper collapses, tort law works. It's fairly easy to find out why the building fell, prove that it should not have fallen, and identify the architect, builder, and contractor. It's also easy for those injured to know that the building caused their broken bones.

But health problems caused by chemicals, such as birth defects, learning disorders, pulmonary disease, and cancer, are harder to handle. It's difficult to show that a particular chemical caused a given cancer, and even if the chemical is identified, there may be many manufacturers—whose vinyl chloride was it? Finally, companies may plead that the chemical was not defective by the standards of the day. This "state-of-the-art" defense says, "We did what everyone else did, and the product was safe as far as we knew." Thus the collective historical irresponsibility of the chemical industry becomes a legal defense for the individual irresponsibility of a particular corporation.

However, more and more "toxic torts" are being brought to trial. While some of these lawsuits do provide compensation to victims of the more spectacular chemical incidents—asbestos, Agent Orange, Love Canal—they leave most victims in limbo. Legal changes are needed. None will be perfect, and none will result in exactly the right compensation to each individual, but we can improve a victim's chances of recovering losses. More important, we can make the risks of marketing toxic chemicals a major factor in industry decisions.

First, we should outlaw state-of-the-art as a defense. Chemical manufacturers should be held strictly liable for the damages their products cause. This doctrine already applies to such "dangerous instruments" as dynamite; applying it to

Denmark Begins at the Beginning

In the United States, industries that generate hazardous wastes want to dispose of them as cheaply as legally possible. Disposal companies recycle, treat, or dump hazardous wastes in landfills, competing with each other to offer the lowest prices. Government agencies come in at the end, requiring disposal firms to meet minimum safety standards before they are licensed to operate.

The incentive for those companies generating, handling, and disposing of waste is to save money, not to guarantee safety. Companies that generate waste usually send it to landfills because that is cheaper than recycling or incineration. Disposal firms must cut corners to lower costs and gain business. At the same time, relatively little is done to reduce the volume of waste generated, because disposal costs remain relatively modest.

In Denmark, the government participates in the waste disposal process beginning at the front end. Together with local governments and industry, the national government forms a quasi-public corporation to establish and operate waste disposal facilities. This company, Kommunichem, has a monopoly on waste disposal. Generators of hazardous waste must ship their waste to one of Kommunichem's disposal facilities. There is no price competition, but industry participates in the operation of the company.

Kommunichem's technology is good. Only very small quantities of treated wastes are placed in landfills; everything else is incinerated or detoxified. Since this method costs much more than using landfills, industry has substantially reduced the amount of waste it generates, and companies do everything they can to recycle. Those who work for Kommunichem have safety as their first priority, not profits and low costs—a fact that is reassuring to the public.

The transportation of hazardous chemicals, a major problem in the United States, is well managed in Denmark. Kommunichem hauls waste with its own fleet of specially designed railroad tankers. It can afford to do this because its monopoly guarantees it a high volume of waste and the ability to recover its costs. At the same time, Danish industry knows that it will always have facilities to dispose of wastes that it cannot avoid generating, and is thus relieved of the fear of future lawsuits and bankruptcy that could result from using a reckless private disposal firm.

Nothing like Kommunichem exists or has been seriously considered in the United States. But as we move to phase out landfills for hazardous waste disposal, some method will be needed to site alternative facilities to incinerate or detoxify wastes. Community resistance to housing such facilities will be intense. This major problem could be overcome far more easily if communities had a say in the planning and running of waste disposal sites, and could feel confident that safety—not profits—was the first consideration.

To many American corporations, the Danish approach is too socialistic. But the Danish Chamber of Commerce says "Kommunichem is the best thing ever to happen to Danish industry." In years to come, as more and more hazardous waste landfills shut down and new facilities prove hard to locate, American industry may begin to see the merits of considering the public interest at the front end of the process—even if it requires that government take a hands-on role in waste disposal.—*C. P.*

Many companies will resist change tenaciously and irrationally. But public fervor runs high, and a responsible industry is within reach.

toxic chemicals would give the industry a major incentive to make certain their products are properly tested and used.

Second, once a chemical has been shown to cause a particular health problem, manufacturers should be required to show that they are *not* responsible when an individual using it suffers injury. Shifting the burden of proof to industry would also be a strong argument to a chief executive to move his company away from marketing hazardous products.

Increasing the ability of victims to recover damages for chemical injury will also recruit a powerful new ally to the cause of safer chemicals. Insurance companies are already beginning to refuse the chemical industry "environmental hazard" insurance because of the unpredictable nature of losses. An explicit legal separation between liability for manufacturing safe and unsafe chemicals would put immediate pressure on companies to start producing safe products.

It will not be easy to pass laws to change the incentives that currently encourage the proliferation of teratogens, carcinogens, mutagens, and nerve poisons in the marketplace. Large chemical companies are massive, ponderous bureaucracies. They deny the legitimacy of the public's desire for less risky products. They resent the intrusion of government and outside institutions on their operations. A shift from chlorinated hydrocarbons, heavy metals, and other types of toxic chemicals may well mean greater profits in the long run, but it will introduce a short-term period of massive change. Some companies will prove more nimble—or more lucky—than others. They will gain. Their clumsy, technically less deft, or unlucky competitors may lose. Few industry executives will want to bet their companies on their ability to adapt to the new climate. They will resist such a change fiercely, tenaciously, sometimes irrationally.

Public fervor on this issue is now running high. More than a decade has been wasted trying to regulate toxics with laws that do not go to the source of the problem. But safe chemicals and a responsible chemical industry *are* within our reach—if we give them sufficient priority. □

CARL POPE *is the Sierra Club's Political Director and co-author of* Hazardous Waste in America *(Sierra Club Books, 1982).*

Shifting the Toxic Burden

AN EFFORT TO DEVELOP a comprehensive approach to toxic substances is currently under way in California, where Assemblyman Lloyd Connally (D-Sacramento) has introduced the Pure Drinking Water and Safe Chemical Act of 1985. Assembly Bill 2582 would create a commission charged with establishing the California Toxicology Program, which would be financed by a tax on those who manufacture, process, and market chemical substances or mixtures in California.

The commission would set up a schedule for testing chemicals used in the state, giving priority to pesticides, chemicals found in drinking water, and high-volume, high-exposure chemicals.

The law would require the commission to complete testing of the priority list of chemicals by 1990. If a chemical is found by the commission to increase the risk of cancer, products containing it would have to be labeled in actual size, as shown. Similar labeling with appropriate wording would be required if a chemical were found to cause birth defects, genetic mutations, or neurological disorders. Dangerous chemicals used in the workplace would also be subject to a notice-and-posting requirement.

In addition, chemicals found to cause any of the above disorders would be subject to strict liability in personal-injury lawsuits. The burden of proving the safety of a product in such a lawsuit would be on the manufacturer.

The Connally bill is a major departure from the traditional way of regulating toxics. It is expected to generate intense opposition from the chemical industry, and the effort to enact it will be bitter.

Californians who would like to support the Connally bill can write their representatives at the State Capitol, Sacramento, CA 95814. Or they may write to Connally at the same address, asking him to forward the letter to their representatives.—*C. P.*

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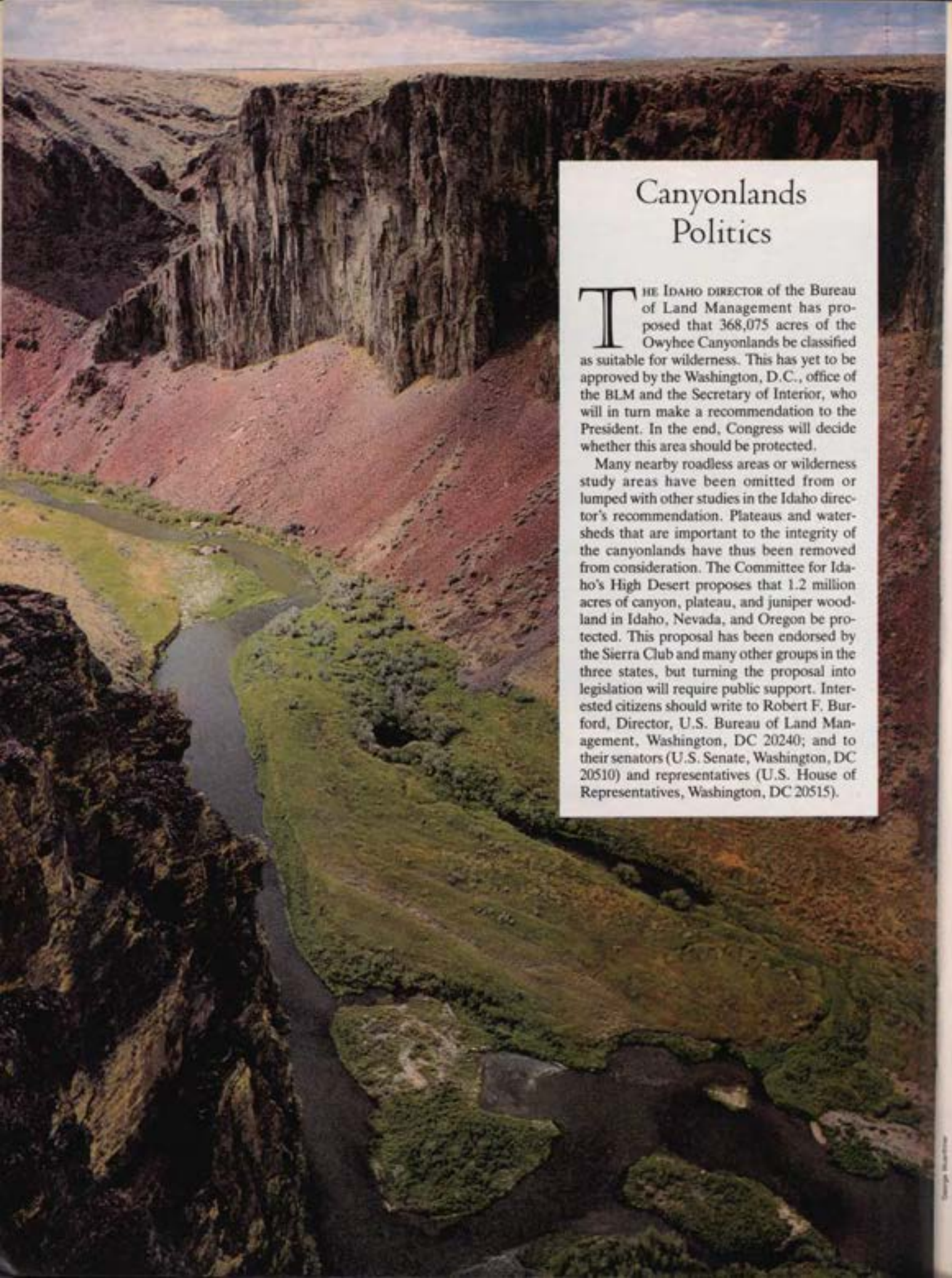
WIDE OPEN WILDERNESS

JACK TRUEBLOOD

Years ago I visited a national forest in Southern California. At one end of the ridge we climbed was a book intended for visitors' signatures, but the pages had been ripped out. Names were scrawled all over the container for the book, and the chain that should have held a pencil dangled empty. On the ground were tracks as dense as a herd of sheep's, but they were people tracks. You could see highways, cities, and other development all around, and the sun set through the smog like a big red ball.

To me the experience was a futuristic vision of wilderness and a reminder of the encircling development that makes wilderness so necessary and so special. Even then, 15 years ago, it seemed clear to me that some areas should be preserved while they are still remote enough and large enough to protect the solitude a visitor finds within. For these reasons it seems important to do something now for the Owyhee Canyonlands.

Spread across lands administered by the U.S. Bu-



Canyonlands Politics

The Idaho director of the Bureau of Land Management has proposed that 368,075 acres of the Owyhee Canyonlands be classified as suitable for wilderness. This has yet to be approved by the Washington, D.C., office of the BLM and the Secretary of Interior, who will in turn make a recommendation to the President. In the end, Congress will decide whether this area should be protected.

Many nearby roadless areas or wilderness study areas have been omitted from or lumped with other studies in the Idaho director's recommendation. Plateaus and watersheds that are important to the integrity of the canyonlands have thus been removed from consideration. The Committee for Idaho's High Desert proposes that 1.2 million acres of canyon, plateau, and juniper woodland in Idaho, Nevada, and Oregon be protected. This proposal has been endorsed by the Sierra Club and many other groups in the three states, but turning the proposal into legislation will require public support. Interested citizens should write to Robert F. Burford, Director, U.S. Bureau of Land Management, Washington, DC 20240; and to their senators (U.S. Senate, Washington, DC 20510) and representatives (U.S. House of Representatives, Washington, DC 20515).

reau of Land Management in southwest Idaho, northern Nevada, and southeast Oregon, the arid Owyhee Canyonlands (pronounced "Oh-WY-hee" to rhyme with Hawaii) form one of the largest tracts of roadless wildlands in the lower 48 states. It was in and around this country that I did much of my growing up, a grubby little kid bringing treasures from the sagebrush and expecting answers to such questions as "Why do floating rocks float?" and "How do lizards make a living?"

Years later, when my own kids were three and five, we spent most of the summer camped in the high desert in and around the canyonlands, and it was my turn to answer the questions. In June we camped near a permanent spring in the Pole Creek area, a large drainage that flows south and west to become part of Deep Creek and eventually the Owyhee River. There I discovered that kids have more questions than adults because they are closer to the ground and see more of what goes on there.

We were about a mile above sea level, spring wildflowers were blooming, and our kids wanted us to identify each one in the bouquets they picked for camp. One of the easiest to name was the wild onion. Showing them how to dig its tiny edible bulb led to an explanation of how Indians had lived in the area, traveling from place to place harvesting different plants as they came in season.

Camas was the staple vegetable food of these Indians. The meadows where it grows are surrounded by signs of Indian culture, including mortars, the rocks that were used to grind the plant's edible roots. The meadow in front of our camp looked like a lake when the camas bloomed, waves of blue speckled by an occasional white blossom of the poisonous death camas.

Jeff Foott

The pronghorn antelope is a symbol of the West's wide open spaces. Its needs are simple: Sagebrush, plentiful in the canyonlands, provides it with both food and shelter.

More evidence of early Indians was nearby—canyon walls covered with petroglyphs I couldn't decipher but that had easily recognizable drawings of animals such as pronghorn antelope and bighorn sheep. The kids most often wanted to visit this canyon to swim in its big pools of water, but we never left without a study of the Indians' rock writings.

Signs of modern civilization can also be found in this part of the high desert. The rock barn at Dickshooter Ranch has been standing since the turn of the century. Dickshooter was something of a landmark, a watering stop for travelers from the west, north, and east. Just a couple of miles across the rolling sagebrush to the east is Squaw Meadows, an important fawning and rearing area for pronghorn. To the south a primitive road trails to the rim of the Owyhee River Canyon.

Below the south end of Dickshooter Ridge are the remains of an old homestead on a little flat beside the river. My son was as curious about this settler's livelihood as I had been about the lizard's. It must have taken an overpowering dream to bring a homesteader to such a remote canyon, but the signs of that dream were now fading back into the landscape. A hand-dug ditch to divert river water for irrigation curved around the point of a hill, and near the end of it a rock-walled cabin had been dug into the earth. Hundreds of feet above, where the sagebrush-covered slope met the foot of the canyon rimrocks, sagging strands of wire spanned gaps in the cliff to mark the outer boundary of the settler's range.

The project was built to irrigate the flat, a few acres shaped like a crescent stretching from the foot of the slope to the river. It had been planted to hay years ago. Our son John found a horse-drawn mowing machine and hay rake, which gave idle testimony to the failure of the dream. Years later I returned to discover that someone had taken them.

With its red and brown cliffs defining the course of the river, the canyon is dramatically different from the open plateaus and

At left, the sheer cliffs of the Owyhee River sharply dissect the high-desert plateau. Below, canyonlands petroglyphs offer clues to the area's prehistoric Indian settlers.

George Wuerthner

grasslands above. Deer winter here, chukar partridge and two species of quail thrive in the draws, and raptors nest in the cliffs. Most outstanding among the canyon critters is the bighorn sheep, a species that was brought to the area in 1963 by the Idaho Fish and Game Department.

Native bighorns were once abundant around the tributary canyons of the Owyhee River, according to early newspaper accounts. Livestock, which competed for forage and brought infestations of scabies, killed entire herds of bighorns. But it was probably the meat hunters working for mine owners in the gold and silver boomtowns of the Owyhee Mountains who took the greatest toll.

California bighorns, the subspecies transplanted to the area, can be found only in Idaho, Northern California, Nevada, southern Oregon, eastern Washington, and British Columbia. Beginning with 19 animals let loose just a few miles up the river from the homestead, the Owyhee bighorn herd has grown to about 600 animals, or 15 percent of the world population. The Idaho Fish and Game Department plans to more than double this number before the end of the century. The Owyhee herd is the healthiest, most prolific herd of bighorns in the state.

The Owyhee River and some of its tributaries are home to the rare red-banded trout and the river otter, and are a favorite haunt of whitewater enthusiasts during the high-water period, from February to June. The main stem flows 192 miles from Duck Valley Indian Reservation in Idaho to Owyhee Reservoir in Oregon. The South Fork, which starts in Nevada, offers 50 miles of water for boaters, from the highest access point to the confluence with the Owyhee. At least 12 landings make trips of various lengths possible.

Plateaus along the canyons, like the country between Pole Creek and Dickshooter, are open and dry. The dominant wildlife species are pronghorn antelope and sage grouse. It isn't unusual to see a herd of up to a hundred pronghorn in the distance or a flock of 10 to 50 sage grouse flushing around you—a real shakeup. Sage grouse, or sage hens, have been the impetus for many hunting trips to the plateaus. They are the largest American grouse, often reaching more than five pounds in size.

For several seasons my family camped in a small meadow between Dickshooter and Owyhee River Canyon, a place made attractive by a tiny spring. The water was only deep enough to dip a coffee pot in and not fit for drinking, but adequate for dishwashing and other camp chores. There was no shelter from wind or weather except what we brought along, but neither was there anyone peering at us from neighboring campsites. In fact, during the late 1960s, when we camped there for a week or two at a time, the only visitors were an occasional rancher or game warden. The reason was simple: We camped near the end of a terrible road, and the country all around was roadless. A person had to be either a desert rat or crazy to spend much time there. I think I may have fit both categories.

A distinctive type of vegetation is found at elevations above 6,000 feet: the juniper woodland. Although these trees will grow at lower elevations, here they become a forest, interspersed with mountain mahogany and bitterbrush. Terrain is steeper here, with eroded hillsides and red or brown rock formations rising above the junipers. This is the summer and fall range for the Owyhee deer herd, which accounts for the popularity of the area among southern Idaho sportsmen.

A male sage grouse goes a-wooing—a sure sign of spring on the Canyonlands' plateau.

I've hunted deer in this juniper country since the mid-1960s, before intense competition with livestock caused a decline in their numbers. Water is more plentiful here than on the plateaus, and finding a campsite less trouble. Year after year we camped on Slack Mountain in the northern part of the Upper Deep Creek roadless area. I used to come here because game was plentiful, but now I come back because I like the place, and not because of any ambition to hunt.

The headwaters of three or four small creeks on Slack Mountain eventually drain into Deep Creek. Each of them has meadows with aspen groves somewhere along its course. A hunting camp here has always provided the golden flutter of aspen leaves in a fall breeze and the aromatic scent of a juniper campfire. Rains bring fungi like the bird's nest, a cup about a quarter-inch in diameter with tiny spore sacs nestled inside like eggs; or the geaster (also called the earthstar), which when damp resembles a puffball in the center of a star. The points close around the puffball when dry.

I brought my father and son to this place in 1979. None of us knew it at the time, but my father's health would dictate that this be his last deer hunt and his last trip to the high desert. For a week we camped in one of the aspen groves on the boundary of the roadless area, enjoying each other's company and watching the seasons change when a storm blew leaves from the trees and covered the ground with snow. It was a relaxed time of snooping around the ridges and draws with no pressure to do anything we weren't inclined to do. One afternoon I watched a buck come to water at a spring and let him walk away. It didn't take any of the success away from our trip, because we already had what we had come for. The camaraderie of camping together, the crisp desert air and rugged scenery, the numerous little treasures that we looked for as kids and still enjoy—these were our reasons for coming to the canyonlands. They still are, I think, among the best of reasons.

At some point Americans must realize that the opportunity for quality experience in the high deserts of the West is nearly gone, and that it is important to preserve large areas of outstanding natural, cultural, and historical value. These are federal public lands, and each of us who cares about them must begin now to make inquiries and get involved if we want to save them. The bighorn has become a symbol of the rugged desert canyons, the far-ranging pronghorn a symbol of the open spaces of the sagebrush plateau; so too have the Owyhee Canyonlands and other Bureau of Land Management roadless areas become a symbol of the vanishing heritage of the American West. It would be a shame to let them pass into extinction. □

JACK TRUEBLOOD, *a former contributing editor of* Field and Stream, *is an outdoor and conservation writer from Nampa, Idaho.*

1985 GUIDE TO TRAVEL

Riches OF THE Natural World

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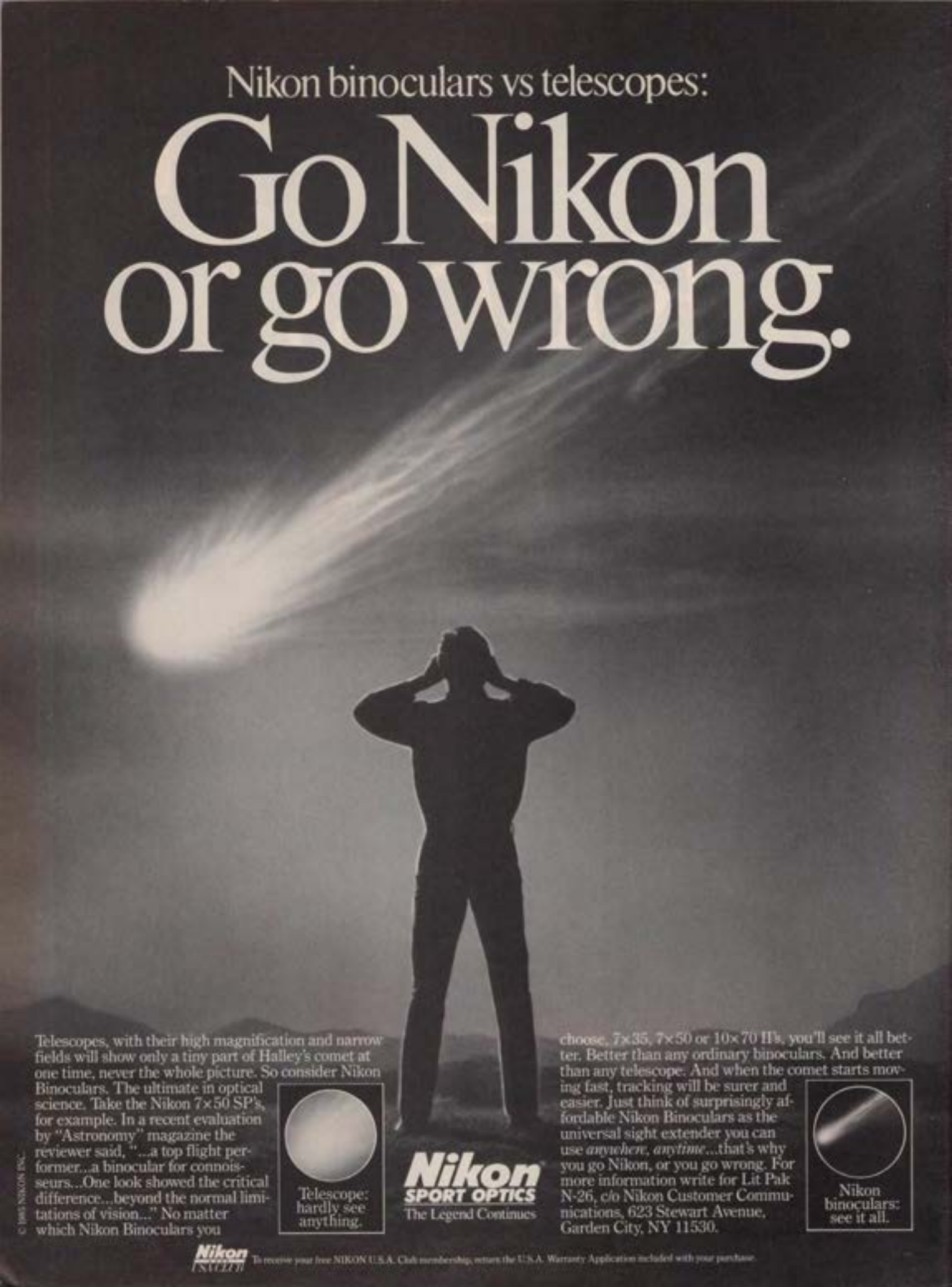

Telescopes, with their high magnification and narrow fields will show only a tiny part of Halley's comet at one time, never the whole picture. So consider Nikon Binoculars. The ultimate in optical science. Take the Nikon 7×50 SP's, for example. In a recent evaluation by "Astronomy" magazine the reviewer said, "...a top flight performer...a binocular for connoisseurs...One look showed the critical difference...beyond the normal limitations of vision..." No matter which Nikon Binoculars you choose, 7×35, 7×50 or 10×70 II's, you'll see it all better. Better than any ordinary binoculars. And better than any telescope. And when the comet starts moving fast, tracking will be surer and easier. Just think of surprisingly affordable Nikon Binoculars as the universal sight extender you can use *anywhere, anytime*...that's why you go Nikon, or you go wrong. For more information write for Lit Pak N-26, c/o Nikon Customer Communications, 623 Stewart Avenue, Garden City, NY 11530.

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Riches of the Natural World

A three-day, 48-orbit space shuttle tour has been announced for the 1990s. The ticket will cost $1 million. If you dream of looking at Earth from space, it's obviously time to start saving your pennies. But don't hoard them all. The Earth-bound 1980s offer unlimited opportunities for travel now, not later. The only problem rests in deciding how best to sample the planet's oceans, mountains, plains, and forests. You might begin by going down to the sea.

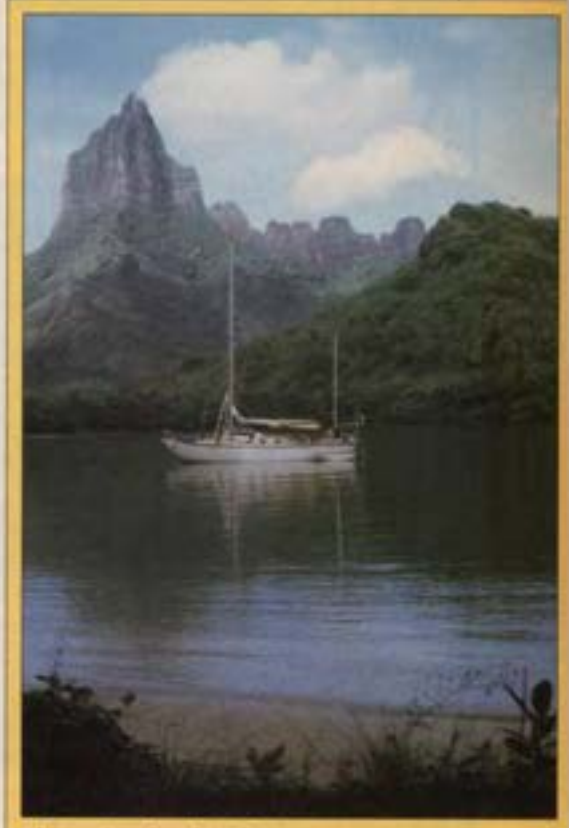
OCEANS

In the early days after jets arrived, ocean travel was pronounced dead, the luxury liner extinct. Both have been resurrected in the 1980s. New liners are launched each year, old ones have million-dollar facelifts, and there's more choice in ships and voyages than ever before in travel history. Just consider the array of winter and summer cruises available from our Pacific Coast ports.

Mexican Riviera cruising. Winter cruising focuses on the "Mexican Riviera," a string of sunny resort towns built on the long beaches of Mexico's Pacific Coast. Beginning in October, liners head south, following in the wake of migrating gray whales from Los Angeles or San Francisco to the warm waters off Cabo San Lucas, Mazatlán, Puerto Vallarta, Acapulco, and sometimes Zihuatanejo and Manzanillo. Cruises are conveniently packaged for a one- or two-week escape from winter. If you want to see more of Mexico than is possible on shore excursions, you can buy a travel package for a one-way cruise and resort stay in Acapulco or other ports before or after going to sea.

Seafarers who've done the Mexican Riviera can expand winter horizons by booking passage on ships linking the Caribbean and Pacific by way of the Panama Canal. Choices range from the 1,200-passenger *Royal Princess* sailing between San Juan, Puerto Rico, and Acapulco (or Los Angeles) to the 158-passenger *North Star*, which cruises from San Diego to all the standard Mexican Riviera ports and stops at San Blas and Puerto Escondido, at ports in Costa Rica and Panama City, and then slips through the Panama Canal to the San Blas Islands, home to the Cuna Indians.

Companies serving the Mexican Riviera have a plethora of packages, some with free or reduced round-trip airfare between the ship and your home base—even if you live in the East, early booking discounts, and various family travel promotions. Many ships also



The rustic calm of Cooks Bay in Mooréa is an invitation to relax in French Polynesia. Photo by Shirley Fockler.

Riches of the Natural World; September/October 1985; published by Sierra, *530 Bush Street, San Francisco, CA 94108, (415) 981-8634; written by Shirley Fockler for* Sierra. *Cover photo © Galen Rowell. Since much of our information must be gathered in advance, we suggest you consult your travel agent for details on tour packages, itineraries, schedules, and accommodations.*

A Hawaii cruise is just one way to enjoy the pleasures of Honolulu, Molokai, Kauai, and Maui. The waters off the Kona Coast and Maui's Kaanapali also offer superb diving. Photo courtesy American Hawaii Cruises.

have recreational rooms and supervised activities for children and teenagers.

Inside Passage cruises. When spring moves toward the endless days of Alaskan summer, many ships in Mexican Riviera service turn north to the Inside Passage. In this cool summer world, rain, mists, snow, and glaciers accent the landscape. Liners share the narrow channels with ferries, fishing boats, log rafts, seals, and humpback whales. Bears and black-tailed deer are occasionally spotted along driftwood-littered shores, and in some places bald eagles are nearly as common as ravens. Liners usually stop first at Ketchikan, a little town with docks for both seaplanes and boats, streets built on pilings over the sea, a dockside gauge advertising the town's annual 162-inch rainfall, and a totem pole outside the library. Dolphin-size king salmon leap the falls in a stream that cuts through town center.

Along with Ketchikan the common stops are Juneau, the state's landlocked capital; little Skagway, a relic of Klondike gold rush days; and Glacier Bay National Monument. Some ships call at Victoria or Prince Rupert, B.C., or pause at Wrangell, another town that began with a gold rush; at Petersburg, settled by Norwegian pioneers; and at Sitka, where transfer of Alaska from Russia to the U.S. took place in 1867. Other ships turn off main channels into such places as Misty Fjords National Monument, and a few leave the sheltered Inside Passage to steam on toward Anchorage.

Nearly 20 cruise ships ply the Inside Passage from May through September. The newest are the *Royal Princess*, *Fairsky*, and Holland America Lines' *Nieuw Amsterdam* and *Noordam*, all launched since 1983 and all big, carrying 1,200 passengers each. Older and elegant are the *Royal Viking Star*, the *Sagafjord*, and *Rotterdam*. The *Stardancer* carries cars for passengers who want to disembark in Haines or Skagway and return home by road.

If you prefer intimacy to stylish liners, you can book on an Exploration Cruise Lines vessel. Three carry less than a hundred passengers, one takes 158, and all can slip into anchorages denied larger ships. The liners sail from San Francisco, Seattle, or Vancouver, and cruises range from 7 to 14 days. Smaller vessels are used on cruise tours sold by adventure tour companies.

Despite the abundance of ships, winter is none too soon to think about

booking an Alaskan cruise. The Inside Passage is one of the world's most popular journeys. A few North Country fans take one every year.

The Hawaii cruise. There's no off-season for Hawaiian cruising. American Hawaii Cruises' *Constitution* and *Independence* sail on Saturdays year round from Honolulu past Molokai to Kauai, Maui, and Hawaii. During the cruise you see Mauna Loa and Mauna Kea, their summits perhaps dusted with snow as you approach Hawaii's ports of Hilo or little Kailua-Kona. If you book on the *Constitution* you'll have two days at Kauai and time to see Waimea Canyon and the Na Pali coast and snorkel at Hanalei Bay. The *Independence* stops two days at Maui, allowing ample time for a sunrise journey to the summit of Haleakala and a picnic trip to the Seven Pools on the Hana Maui coast.

Hawaii is a superb place for family travel, and American Hawaii Cruises offers free airfare for children under 18 when sharing a stateroom with their parents.

A cruise in French Polynesia. Opportunities to cruise beyond familiar Pacific Coast and Hawaiian waters are limited only by time and pocketbook. Starting December 21, you can follow in the wake of Captain Cook when American Hawaii Cruises inaugurates French Polynesia service aboard the 715-passenger *Liberté*. The ship will sail weekly, exchanging the metropolitan bustle of Papeete, which now has rush-hour traffic and parking meters, for the rustic calm of Huahine, Raiatea, Bora Bora, and Mooréa. The ship will also thread its way into the giant lagoon of Rangiroa atoll, where the one constant sound is the ocean pounding the fragile ribbon of land. Landfalls will be at dawn, and touring on these islands where cars are numbered by the dozens will be aboard "le truck," the bouncy local bus.

Expedition ships. Smaller vessels, often called expedition ships, make the most extraordinary of voyages. Such ships as Society Expeditions' *World Discoverer* and *Society Explorer* and Lindblad Travel's *Yao Hua* are even certified for polar operations. Consequently, when summer arrives in the

Southern Hemisphere, they head toward the Antarctic Peninsula and flanking islands. Passengers go ashore clad in parkas and mukluks to see the ruins of old whaling stations, enjoy the company of king, Adélie, chinstrap, gentoo, macaroni, and jackass penguins, and visit research stations.

A diet of intellectual fare as well as gourmet cuisine is a hallmark of expedition ships, and lecturers on local cultures, flora and fauna, or geology are invited on their voyages. When Society Expeditions' ships leave Antarctica in

Penguins provide company for passengers on expedition ships that call at Antarctica. Photo © Art Wolfe/Society Expeditions.

March and April for the South Pacific, be sure to take along binoculars for their special Halley's Comet voyages. Away from city lights the ships will be in excellent positions to view a natural phenomenon that appears only once every 76 years. Astronomers will be aboard as interpreters.

The newest expedition ship, the 36-passenger *Island Explorer* of Salen-Lindblad, is scheduled for cruises from Bali into the island maze of the Indone-

sian archipelago and along the outside of Australia's Great Barrier Reef.

Greek island cruises. Not all liners and expedition ships sail Pacific or polar waters. Sampling the summer cruise opportunities of Europe and the Mediterranean could occupy a lifetime of vacations. A veritable traffic jam of cruise ships occurs in the eastern Mediterranean, where constellations of islands sprinkle the sea between the Greek mainland and Turkey. These ships ply seas where the waters boast a palette of blues, and pass shores garbed in olive trees, pines, juniper, oleander, and sweet-scented herbs. They call at ports adjacent to Crusaders' forts and the ruins of ancient Greek and Roman cities. Complementing the antiquities are whitewashed villages edged by sunny quays devoted to boats and alfresco tavernas.

The rich heritage of the eastern Mediterranean prompts some ship owners to invite historians and archaelogists aboard their cruises. The *Orpheus* of Swan Hellenic Cruises has as many as five lecturers from Cambridge, Oxford, and other English universities on each voyage.

Worlds under the sea. If the world under the sea is of more interest to you than cruising, consider a diving vacation focused on the waters off the lava-fringed Kona Coast on Hawaii, or go to Maui and enjoy superb diving at nearby Molokini. You can base yourself in a condo or hotel at Kailua-Kona or Maui's Kaanapali and travel out each day to enjoy some of Hawaii's best diving.

Mexico's diving possibilities embrace both its coasts. You can explore the Sea of Cortez or focus on the gin-clear waters of Cozumel near Cancun, one of Mexico's new planned resort towns. Cancun provides access to Mayan relics of the Yucatán peninsula when you want a change from diving.

Farther afield, you can dive the Coral Sea off northeast Australia, living on specially equipped dive boats, or explore the reef around the resort on Heron Island, a coral cay on the Great Barrier Reef. Beginning next spring you can use the Coral Cat, the first floating hotel anchored at the Outer Barrier, as your diving base.

Dive tours are available to every body of clear, coral-rich water on the globe from such dive specialists as See & Sea Travel.

MOUNTAINS

Consider choosing a ski vacation or a trek across some of the world's most beautiful scenery.

Yosemite's quiet season. If your thoughts about mountains inevitably lead to skiing, plan on starting the season in Yosemite. The Badger Pass ski area there is something of a western tradition, celebrating its 50th anniversary this year as the oldest established ski area in California. You can enjoy

Wintertime at Mammoth Hot Springs in Yellowstone is a quiet retreat. Photo courtesy Wyoming Travel Commission.

downhill or Nordic skiing over 90 miles of trails, including one to snowbound Glacier Point overlooking the valley 3,000 feet below.

Skiing is but one of the pleasures of Yosemite's quiet season. Consider ice-skating in the valley, or putting on snowshoes and sharing the solitude of sequoia groves with foraging birds and squirrels. Or sample the old-fashioned luxury of the Ahwahnee Hotel, a Yosemite favorite for nearly 60 years.

Skiing Oregon's volcanoes. If you fancy downhill skiing with sunny skies and views stretching to infinity, think of Mt. Bachelor, the 9,000-foot volcanic cone at Bend, on the edge of Oregon's high desert country. Locals boast of 250 sunny days annually, so conditions are often just right for sighting Mt. Shasta to the south and the Cascades to the north from the Bachelor summit chairlift.

The northern vista includes Mt. Hood, Bachelor's volcanic companion in skiing fame. The pleasures of Hood's slopes are enhanced by booking into massive old Timberline Lodge, the landmark 1930s WPA chalet.

Winter in Yellowstone. In the Rockies you'll discover what was until recently one of the best-kept secrets of travel: the delights of wintertime at Yellowstone. Skiing here is Nordic only, and it sometimes takes second place to enjoyment of the beauty of the geyser basins under snow. Fringing snow enhances the reds and yellows of bubbling mud pots, and steam hitting nearby trees clings, condenses, and freezes, creating groves of ice trees. Foraging buffalo congregate in the geyser basins, and if you venture out early on your skinny skis at Old Faithful, you'll pass sleeping buffalo on the steam-heated ground around the largest geysers.

You sight elk at the hot spots, too, and the occasional fluffy-tailed coyote. Those distant lumps of ice sighted on the Firehole River usually turn out to be trumpeter swans.

Best of all, snowbound Yellowstone is the next best thing to your own private park, since only 100,000 of its 2.5 million annual visitors come in the cold months.

The winter hotels, Snowlodge at Old Faithful and Mammoth Hot Springs Hotel at Mammoth, are simple and snug; their chefs are excellent and the cellars are stocked with vintages from California's best wineries. Children under ten can share rooms with parents free of charge.

Wintertime visitors to Yellowstone often enter by the South Gate, accessible from Jackson Hole. Another remarkable winter resort, Jackson Hole is noted for the beauty of the snowcapped Grand Tetons, wintering elk, uncrowded downhill skiing at Teton Village and Americana Snow King resort, and for Nordic skiing at Teton Village

and several ski ranches catering exclusively to cross-country buffs.

Skiing Canada's first park. Farther north in the Rockies, consider winter exploration of Banff, the first national park in Canada, established in 1885 to protect newly discovered hot springs. The park has downhill skiing at two mountains near Banff township and at Lake Louise, where the high slopes command stunning views of the lake and the glacier-filled Valley of the Ten Peaks. Après-ski life is somewhat baronial when you book into Chateau Lake Louise or Banff Springs Hotel, turn-of-the-century "castles" built for Canadian Pacific Railway passengers making the Rocky Mountain Grand Tour. At Banff township you can swim in a pool fed by the hot springs that inspired a nation's parks.

A summer vacation to Japan could include a trip to Mt. Fuji or a trek through the Japanese Alps. Photo by Shirley Fockler.

Winter travel packages, with airfare, hotels, and sometimes lift ticket included, are available to the best mountains in the western United States and Canada. One of the largest array of ski packages is offered by Western Airlines. Western provides access to Alta, Park City, Snowbird, and Deer Valley outside Salt Lake City, as well as 129 ski resorts elsewhere.

Skiing, trekking in Japan. For a cross-cultural ski or mountain experience, try Japan and the snow at Mt. Zao in Zao Quasi-National Park. It's in the Tohoku District, roughly six hours north of Tokyo by train. Zao is noted for its silver thaw and good facilities, including two dozen lifts. You stay in inns and soak in hot springs baths after skiing. Still farther north is Hokkaido and the Olympic slopes outside Sapporo. You reach these by taxis equipped with ski racks and hired at your hotel in downtown Sapporo. The lifts are modern, but the landscape of bare black trees on white is right out of a woodblock print.

Japan's summer mountains are equally picturesque, and possibly the most picturesque scene of all is found at Mt. Fuji when summer climbers make the ascent to enjoy sunrise at the summit. If you want to join them, no great advance training or planning is required. For less crowded trails, consider a Japan Alps trek with Wilderness Travel. Tour operators package them and usually include stops in Tokyo and Kyoto in addition to high-country travel.

Ski trails Down Under. When the snow vanishes from mountains in the Northern Hemisphere, follow winter to Australia or New Zealand. The Snowy Mountains ski fields of Mt. Kosciusko National Park are 300 miles from Sydney. Thredbo, center for lodges and lifts, can be reached by air and car.

In New Zealand, skiing starts on North Island's Mt. Ruapehu in Tongariro National Park. Like Oregon's Bachelor and Hood, Ruapehu is volcanic, and topped by a hot springs lake. On South Island the best ski resort is Coronet Peak near Queenstown. The longest run, however, is on the Tasman Glacier (reached by ski plane or helicopter) in Mt. Cook National Park. Combine your 15-mile run down Tasman with a stay at The Hermitage, and request a room with a view of Mt. Cook and its neighboring peaks, which served as training ground for Sir Edmund Hillary.

Hawaii's volcano land. Hawaii offers the ultimate in unusual skiing on the

intermittent snowfields atop 13,796-foot Mauna Kea. However, Mauna Loa, Mauna Kea's 13,680-foot sister, and Kilauea, on Mauna Loa's southeastern flank, are of greater travel interest because they are active volcanoes and growing mountains. There's no finer way to sample their moods than to book into historic Volcano House Hotel on the edge of Kilauea caldera in Hawaii Volcanoes National Park.

From there you can follow the crater rim trail or hike into the caldera at Halemaumau firepit, home of Madame Pele, Hawaii's fire goddess. You can explore the lunar desolation of Devastation Trail, laid across cinder fields through the ghost forest left by a 1959 eruption. For contrast visit the nearby Fern Jungle.

At night, after the day tourists are gone, the mountain air turns cold, and guests in quiet Volcano House gather round the lounge fireplace to swap stories about Madame Pele. If they're in luck she will throw a sudden tantrum, providing a ringside view of lava fountains in the caldera.

Great Himalayan circuit. If the Himalayas are at the top of your mountain travel list, you'll find that travel opportunities in the Himalayas are expanding, both for trekkers and people content to look. The recent opening of the border between Tibet and Nepal for overland travel makes it possible to book short tours or treks starting from Kathmandu Valley to settlements just across the border. Kathmandu-Lhasa overland tours starting or ending at either point are now also available.

The opening of the border has helped create a new grand circuit of the Himalayas. Consider this: a tour that begins in Beijing and moves on to Lhasa by air. From Lhasa you travel overland by bus across the roof of Tibet, where the sky is a pristine blue and the air so dry it crackles.

You pass the north side of Mt. Everest, cross the Nepalese border, and descend to Kathmandu Valley. You pause there to see the stupas (temples) of Swayambhunath and Bodhinath and the five-tiered Nyatapola pagoda of Bhaktapur, then follow the twisting highway down to Nepal's lowlands and Tiger Tops resort (season permitting) for an outing by elephant in search of rhino.

After Tiger Tops you climb into the foothills of the Himalayas to the old trading town of Kalimpong in India, then to Gangtok in Sikkim. Darjeeling in India follows, where you shiver on Tiger Hill awaiting the sunrise on Kanchenjunga or photograph the peak framed by roses from the Mountaineering Institute. Last stop on the circuit is Bhutan, possibly the most exclusive destination of the Himalayas because of price and tight controls on entry.

Travcoa offers such a circuit, which takes a month. Variations on the tour theme are available from other tour packagers.

India's Little Tibet. Another view of Tibet and of prayer flags, *mani* stones, and monasteries is found in Ladakh, India's "Little Tibet." The overland route to Leh commences in the soft, sensuous Vale of Kashmir, follows an ancient trade route to the precipitous switchback road over the Zoji-La Pass, climbs the pass, then drops into the high desert beyond. Options for Ladakh include trekking or travel by bus. Hotels are generally rustic, but a sojourn at Leh, the capital of Ladakh, can be enhanced by staying in a yurt camp.

The proper postscript to any Ladakh excursion is a totally slothful stay in a houseboat on Dal Lake in the Vale of Kashmir.

Most travelers see Ladakh between late spring and autumn, when the

Safaris in East Africa crisscross such reserves as the Ngorongoro Crater in Tanzania, home for rhino, elephant, wildebeest, and zebra.

passes are open, but you can experience the land and mountains in winter on outings to the winter festivals of the monasteries around Leh. Mountain Travel has such a program.

DESERTS & PLAINS

If a safari across desert or veldt-like country is on your travel wish list, consider the new meaning of the term "safari." Once exclusive to Africa, the safari is the vogue in such faraway places as Australia and India.

Australia. Safari outfitters roam the Red Centre along tracks that follow the route of explorers, prospectors, and cattle drovers. They take you to hidden gorges, unexpected oases, the world's oldest watercourse, ancient aborigine campgrounds, and across lands first explored just a few decades ago. The land they cross is called desert, and it's true that it has red sand dunes and rocky wastes. But it also has places rich in shaggy desert oaks, countless varieties of gum, palomino-colored tussock grasses, and carpets of dainty blue flowers and showy scarlet creepers. Your companions in the desert are kangaroos and wallabies, dingoes, wild camels, donkeys, and brumbies (wild horses), and birds—emus, wedge-tailed eagles, cockatoos and parrots of rainbow hues, and finches.

The Australian safari of two to four weeks is most often by Land Rover or similar vehicle, but you can also travel on the proper desert conveyance—a camel.

The so-called Australian desert can also be sampled in the comfort of such places as the new sand-colored Yulara resort village built outside Uluru National Park to replace a clutter of motels and campsites at the base of Ayers Rock. The sunrise and sunset views of the monolith from Yulara are superb, and if you want to get closer to the rock, you can hike around its base or climb to the summit.

The Indian safari. In India, safari means camel travel across the deserts of Rajasthan in western India. Such journeys follow old caravan routes between princely cities, and sometimes start in the shadow of the fortress walls enclosing 12th-century Jaisalmer, a city built of golden sandstone. The golden city is in country so dry that children sometimes reach five before they see rain.

If camels have no appeal, consider a train "safari." Special Expeditions' tour through Rajasthan will take you to Jaisalmer aboard private railway cars once owned by maharajas. And if you need further proof that deserts can spawn riches, stop in Jodhpur and visit the last, most opulent palace built in India. It's now the Umaid Bhawan Palace Hotel.

Safari in East Africa. The East Africa safari, made famous by such personalities as Osa and Martin Johnson and Ernest Hemingway, is tinged with an aura of glamor and history. When you take a safari across the plains of Kenya and Tanzania, you'll find yourself booked into such lodgings as the Norfolk Hotel (both Hemingway and Teddy Roosevelt slept there), Mt. Kenya Safari Club (of William Holden fame), and Treetops (where Princess Elizabeth

Many safaris combine travel by Land Rover with trekking or travel by camel. Photo © Allen Bechky.

learned that she was Queen). Beyond the lodges, the fittings and services of luxury tented camps recall a bygone era when dukes and duchesses "dressed" for dinner after each day's shoot.

The only "shoot" of the day now, of course, is with a 35mm camera as you

The Rainbow Valley in Australia's Northern Territory features typically red desert rock formations. Photo by Shirley Fockler.

crisscross such reserves and parks as Tsavo West, Amboseli, Aberdare, Samburu and Masai Mara in Kenya, and the Serengeti and Ngorongoro Crater in Tanzania. Tsavo is Kenya's largest reserve, noted for elephants, antelope, zebra, and giraffe, as well as hippo and crocodile. At Amboseli the bulk of 19,342-foot Mt. Kilimanjaro provides the background for your big-game photography, while Aberdare is the site of the Ark and Treetops, lodges built overlooking water holes lit for nocturnal viewing. Masai Mara, regarded as Kenya's finest reserve, is noted for the Big Five—elephant, buffalo, rhino, lion, and leopard. Elsewhere in Kenya, reserves around lakes Baringo, Bogoria, Nakuru, and Naivasha are home for

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In Tanzania the 102-square-mile Ngorongoro Crater provides refuge for elephant, black rhino, wildebeest, zebra, eland, gazelle, waterbuck, and hartebeest, as well as prides of lions. Overseas Adventure Travel can take you to giant Serengeti National Park, which adjoins Masai Mara and is famed for seasonal migrations, when up to 2 million wildebeest and other grazing animals are on the move.

You can go on safari in Kenya with an operator such as KLR International or Abercrombie & Kent for a fast-paced 11 days or a more leisurely 16. Kenya and Tanzania combined need longer trips, say 18 or 20 days. These programs include lodge and tented camp accommodations and travel by Land Rover or similar vehicles.

If you want challenge and exertion on an East African safari, you can book one that combines Land Rover travel and trekking, concentrates solely on trekking, or features camel riding. Nature Expeditions International has created a safari that leaves the plains and herds behind for a walk to the top of Kilimanjaro, while Mountain Travel offers combinations highlighted by trekking and wildlife viewing on Mt. Kenya or camel travel through game areas.

FORESTS

Although sampling the planet's oceans, mountains, deserts, and plains may crowd your travel shopping list, leave room for forests, particularly those unique places called rainforests.

California's redwood forests. Consider beginnning forest exploration with California's own redwood forests. A journey to the state's redwood parks and Redwood National Park of Northern California takes just a day by car from San Francisco. If it's not the season for camping in the parks, you can make your base in such 1850s settlements as the town of Eureka, staying in motels, Victorian houses restored as bed and breakfast inns, or the landmark Eureka Inn.

Cabins in Alaska's rainforest. The rainforest in Alaska's Panhandle as seen from passing ships can be experienced in dry comfort and as much solitude as desired by renting a U.S. Forest Service cabin in Tongass National Forest. The cabins are on remote lakes and seashores in the shadow of giant hemlocks and Sitka spruce. You may share the neighborhood with a black bear or two, or even a grizzly, and if your cabin is on a lake you'll probably be serenaded by loons. At a river-mouth cabin you'll see seals arriving and leaving with the tide, sight bald eagles, and make the acquaintance of a mixed bag of water and shore birds. You must make your own cabin booking through the Forest Service, but a travel agent can take care of other travel arrangements, including the charter for a floatplane to and from your cabin.

New Zealand's Fiordland forest. Soggy Tongass National Forest seems quite dry when compared with the wild, glacier-cut, forest-cloaked realm called Fiordland National Park in New Zealand. Some 300 inches of rain annually nourish hundreds of species of lichen and moss, and growing atop the moss, dense stands of tree ferns, black beech, and other native trees. The lush cover rests on sheets of tilted granite, and when a great hunk of forest tears away

from the granite, locals deem it a tree slide rather than a landslide.

New Zealanders call a 33-mile trail leading through Fiordland forests to Milford Sound "the finest walk in the world." Walkers cross passes, tramp between the vertical walls of Clinton Valley, pass 1,902-foot Sutherland Falls, and meet such Fiordland residents as the kea, the only parrot known to live above snowline. Huts along the way provide beds, meals, and drying rooms for clothing and boots. When trekkers arrive at Milford Sound, they celebrate the walk in the luxury of the Milford Sound Hotel, one of the country's best. Reservations made months ahead of time are necessary if you wish to take this fine walk between November and March.

Costa Rica's tropical forests. Costa Rica offers superb introduction to the tropical forest. You can explore Costa Rican forests on tours offered by such companies as International Expeditions and Questers Tours and Travel. These tours encompass the exquisite beauty of Corcovado National Park, called "the most complete ecosystem in the world in a virgin state." Its inhabitants run the gamut from monkeys and sloths to hawks and parrots, vine snakes, toads and iguanas, and numerous rare species of butterflies. In contrast to lowland Corcovado, tours also visit Monteverde Cloud Forest Preserve, refuge for rare mosses, ferns, orchids, and bromeliads, as well as quetzals, bellbirds, and black-necked umbrella birds.

PLANNING YOUR TRIP NOW

For specific information and schedules, you might begin by consulting your travel agent or checking the listings of Sierra Club Outings. Even if you do spend your savings on Earthbound exploration, don't worry about missing the first space shuttle tour. Society Expeditions, inventor of the space shuttle tour concept, says fares will drop from $1 million to $50,000 within a decade after the first tour blasts off.

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SIERRA'S SIXTH ANNUAL PHOTO CONTEST WINNERS

THE WET ENVIRONMENT - BLACK & WHITE

First Prize
"The Boatman"
Pampanga River,
Philippines
Jay Aldrich
Genoa, Nevada

SIERRA's annual photo contest takes on added significance with each passing year. It's not simply a question of numbers, although those increase with every contest. Nor is it just the spectacular quality of the images. Instead, it is the powerful testimony this year's winners (and those of previous years) make about the beauty and mystery of the world around us. They are a tonic for the housebound spirit, a reminder of what we are fighting for. Congratulations to the winners, and our thanks to each entrant.

The grand-prize winner will receive a Nikon FG 35mm SLR camera with a 50mm f/1.8 Nikon lens. First-prize winners receive a pair of 9×25CF Nikon binoculars; second prize is a Peak 1 Convertible Travel Pack. *Sierra* thanks Nikon and Coleman for sponsoring the contest. (Not all prizes were awarded in each category.)

THE WET ENVIRONMENT - BLACK & WHITE

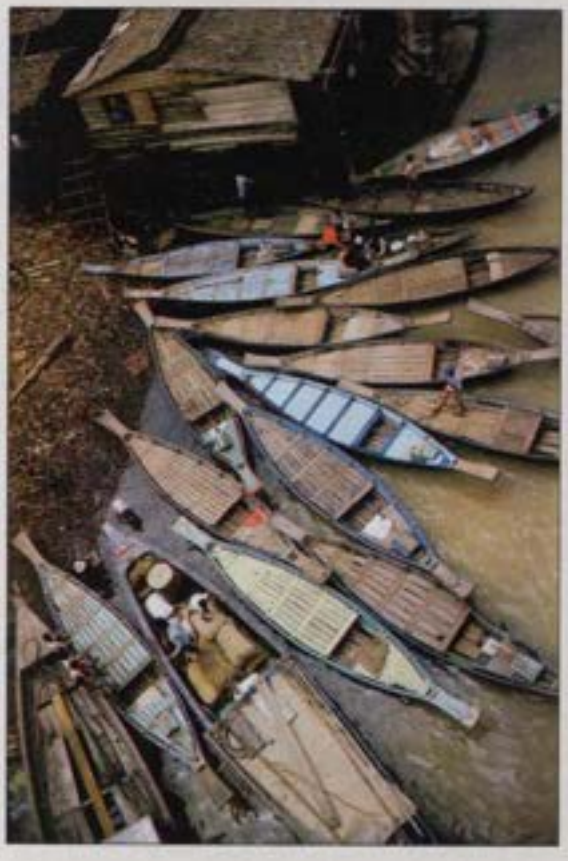
Second Prize
"Pond Life #4"
Red Rock Lake
Boulder County, Colorado
Robert Howard
Nederland, Colorado

U.S. PARKLANDS - BLACK & WHITE

First Prize
"Crossed Trees"
Between C&O Canal and
Potomac River
Dede Faller
Alexandria, Virginia

INTERNATIONAL - COLOR

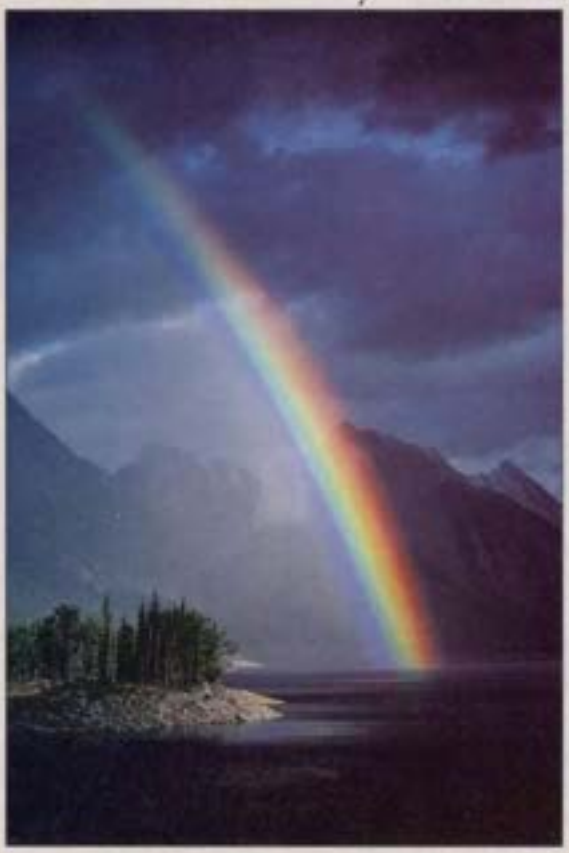
First Prize
Cleaning the white roofs of Bermuda
Michael Ventura
Bethesda, Maryland



Second Prize
Water taxis
Palenbang, Sumatra
Howard Robson
Bixby, Oklahoma

First Prize
Juvenile grunts
Klein, Bonaire
Robert S. Young, Jr.
Jupiter, Florida

Second Prize
Rainbow at Medicine Lake
Jasper National Park, Alberta, Canada
Rick McEwan, Grass Valley, California



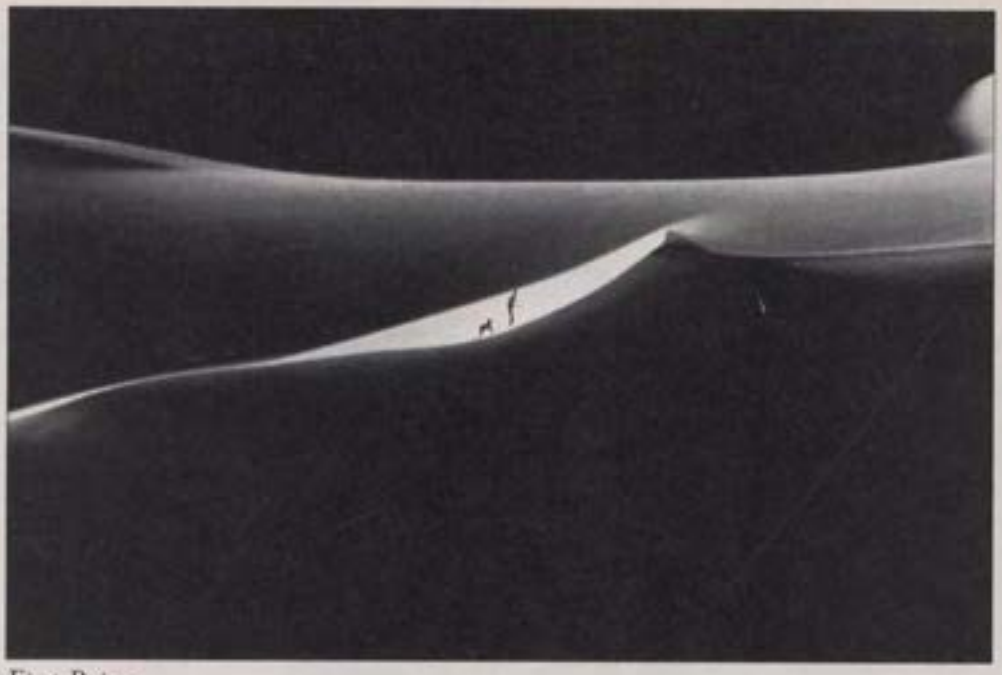
American Pub, Kilronan
Aran Islands
County Galway, Ireland
Gary L. Pearson
Memphis, Tennessee

First Prize
Petroglyphs and desert varnish
near Moab, Utah
William Godschalx, Murray, Utah

Second Prize
Broken Bow Arch by moonlight
Willow Gulch, Escalante Primitive Area
John P. George, Magna, Utah

First Prize
Havasu Falls
Grand Canyon National Park
Robert Silberblatt
Scottsdale, Arizona

Second Prize
Yosemite Valley from Dewey Point
Donald R. Owen, Albuquerque, New Mexico



First Prize
Dune climbers
Great Sand Dunes National Monument, Colorado
Walter H. Pinkus
Ann Arbor, Michigan

Second Prize
Rock formations in Joshua Tree National Monument, California
Jerry Dell
Green Bay, Wisconsin

INTERNATIONAL - BLACK & WHITE

First Prize
Boats at the Summer Palace
Beijing, China
John A. Herring
Dallas, Texas

Second Prize
Monk, Buddhist temple
Taipei, Taiwan
Jay Aldrich
Genoa, Nevada

Actual card size shown above.

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3026 Never a Christmas...but someone thinks of...old times, old friends. Merry Christmas and a Happy New Year—*artist C. Nicks*

3050 "The Star That Stayed 'Til Morning" (7 line inspirational poem ins.) May the Peace and Joy of Christmas be with you...—*artist G. Barks*

3207 "The wonder of Christmas fills the world" Wishing you a Blessed Christmas and Happiness throughout the New Year-*artist Hayden Lambson*

1142 Never too cold for kindness, never too deep the snow, to wish you the Merriest Christmas our good Lord can bestow!—*artist Bernard Thomas*

1822 Christmas Greetings Wishing you a Merry Christmas and a Happy New Year—*artist Charles M. Russell*

3309 "They walk with God upon the hills..." Wishing you a Blessed Christmas and Happiness throughout the New Year—*artist Dorrine Robertson*

3342 There is a quiet in the winter wood... May you have the Spirit of Christmas which is Peace...the Heart... which is Love—*artist H. Lambson*

3234 To those we love and see each day and other loved ones far away... Merry Christmas and Happy New Year —*artist Richard Amundsen*

2064 It's Christmas again! May yours be a joyful one and your New Year happy!—*artist Richard Barth*

3346 To those we love and see each day and other loved ones far away... Merry Christmas and Happy New Year! —*artist Peggy Bennett*

3336 GOLDEN EAGLE May you and yours this Christmas Day and every day...be blessed with health and happiness—*artist Ted Blaylock*

3312 Season's Greetings from Our Outfit to Yours with Best Wishes for a Prosperous New Year —*artist Hayden Lambson*

3315 "Take Time To See" (nature poem inside) To those we love and see each day... Merry Christmas and Happy New Year!—*artist Ted Blaylock*

3245 This time of year when the air's full of cheer...the hills are covered with snow...Merry Christmas to all whom we know!—*artist R. Amundsen*

3329 May the Peace and Happiness of the Christmas Season abide with you through all the coming Year —*artist Hayden Lambson*

3348 Ho, ho, ho...It's Christmas again! May yours be a joyful one and your New Year happy! —*artist Lucille Martin*

2276 May Christmas bring Friends to your Fireside, and Peace... Merry Christmas and a Happy New Year—*artist Chris Cummings*

3341 "I come to my solitary woodland walk..." (quotation from Thoreau inside) Merry Christmas and a Happy New Year—*artist Julie Boren*

1657 CHRISTMAS EVE IN A MANGER May the blessings of Christmas be with you today and always—*artist Mildred Goodwine*

LEANIN' TREE

Wildlife Christmas Cards from Leanin' Tree

3216 May Christmas bring to you the music of laughter...the warmth of friendship and the spirit of love —*artist Mimi Grant*

3339 There is a quiet in the winter wood... May you have the Spirit of Christmas which is Peace...the Heart of Christmas which is Love—*T. Blaylock*

3332 It wouldn't seem like Christmas if we couldn't get in touch and wish... Happiness to those we like so much Merry Christmas—*artist Keith Fay*

3217 "Joy is the spirit of Christmas-Peace is the hope of the world" May you have a happy Christmas —*artist Gary Davis*

3324 May there come to you at this holiday time an abundance of the precious things of life: Health, Happiness, and...Friendships—*artist H. Lyon*

3319 Whatever else changes...the glory of Christmas remains... Merry Christmas and Happy New Year! —*artist Gene Dieckbrader*

3340 ...Winter's here — it's Christmas time — Let all the earth rejoice! Merry Christmas and a Happy New Year—*artist Ted Blaylock*

3321 "Take Time To See" (24 line nature poem inside) May the Peace and Happiness of the Christmas Season abide with you...—*artist D. Robertson*

3320 Through fields of splendor the wild deer graze...aware of God's good earth and open air... Merry Christmas and Happy New Year—*artist J. Boren*

3325 WINTER ROYALTY
Merry Christmas and a Happy New Year —*artist Elmer Sprunger*

3025 SLEIGHBELLS IN THE SKY
Merry Christmas and Happy New Year —*artist Bernard P. Thomas*

3208 "To have joy one must share it, happiness was born a twin." Wishing you a Christmas Season...with Love and Happiness—*artist M. Grant*

3139 ...The splendor of Christ's humble birth, the love of friend for friend. Merry Christmas and a Happy New Year—*artist Josephine Crumrine*

3327 THE LOOKOUT
It's Christmas again! May yours be a joyful one and your New Year happy!—*artist Ted Blaylock*

2285 Merry Christmas and a Happy New Year—*artist Hildred Goodwine*

3252 Never a Christmas...but someone thinks of...old times, old friends. Merry Christmas and Best Wishes for a Happy New Year—*artist George Wise*

4192 "Glory to God in the highest..." (Luke 2:14 ins.) May the Peace and Joy of Christmas be with you through all the Year—*photo by Manley*

3343 To those we love and see each day and other loved ones far away... Merry Christmas and Happy New Year! —*artist Mimi Grant*

3330 In the heart of the wilderness Christmas has come...Glory to God in the highest... Merry Christmas and a Happy New Year—*artist Ted Blaylock*

3335 It's Christmas again! May yours be a joyful one and your New Year happy!—*artist Josephine Crumrine*

LEANIN' TREE

3334 In every home, in every heart the lights of friendship glow... Merry Christmas and a Happy New Year —*artist Hulan Fleming*

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3337 Times change...but not... friendship. Let us keep Christmas close to our hearts...the warmth and joy of remembering friends.—*artist P. Krupf*

1602 CHRISTMAS WISHES COME TRUE Merry Christmas and best wishes for a Happy New Year —*artist Hildred Goodwine*

3253 "Take Time To See" (24 line nature poem inside) Merry Christmas and a Happy New Year —*artist Ted Blaylock*

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1462 "Peace on Earth" May Peace be your Gift at Christmas and your Treasure through all the Year —*artist Brummett Echohawk*

3347 ...The splendor of Christ's humble birth, the love of friend for friend. Merry Christmas and a Happy New Year—*artist Jodie Boren*

3211 In the heart of the wilderness Christmas has come...May Peace be your Gift at Christmas and your Treasure...all the Year–*artist Parkinson*

3318 "The fruit of the Spirit is love, joy, peace." (Galatians 5:22) May Christ's gifts of love, joy and peace be with you...—*artist Clark Bronson*

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Chocks or chalk? Fancy boots or funky tennies? Climbing equipment and techniques have changed radically over the years, but in many ways the sport has come full cycle—from John Muir's early climbs to today's free-solo heroics.

ERIC PERLMAN

A QUESTION OF STYLE

The stage is vertical, with sky underfoot and stone overhead. Fingers grip the minuscule holds, rubber toes smear the slippery wall. Strength, measured in seconds, ticks relentlessly toward zero. Strobe-flash decisions explode into actions. Adrenaline burns in the blood. Move! Reach! Weight shift! Go! The rock climber moves like wind and fire, a four-limbed force of nature fighting skyward.

The uninitiated have no idea how hard top-level rock climbing has become. Fingernails catch on dime-thin flakes; sticky shoes squeak on glass-white slabs; one heel hooks the lip of a ceiling while a fingertip jammed in a gritty slot holds full body weight. Climbing has become more art than sport.

Today's best rock climbers are world-class athletes, specialists in finger strength, balance, and mental control. But for all the time and dedication it takes, climbing is no more productive or lucrative than it was in John Muir's day. Its only purpose is challenge—to call out all the strength and heart and mind that one may have.

Perhaps that's purpose enough.

In 1931, American mountaineering (and the history of the Sierra Club) were transformed with a single backpack full of hardware. Robert L. M. Underhill, a Harvard philosophy professor and ardent climber, learned about ropes and pitons in Europe in the late 1920s and brought the new technology home. He first tried the gadgets on the North Ridge of the Grand Teton, making not only the first ascent of the ridge but the first known attempt on it. Then he rounded up a handful of dedicated Sierra Club climbers and headed for the fearsome East Face of Mt. Whitney—with stops en route to complete several first ascents of central Sierra peaks.

Underhill's team included Jules Eichorn, Glen Dawson, and doughty Norman Clyde, famous for his five-camera, four-pot, two-gun, two-fishing-pole, 100-pound pack loads. Included in Underhill's gear were a pair of woven hemp ropes and a set of soft-iron pitons.

Pitons have since given way to chrome-molybdenum nuts and spring-loaded camming devices in modern free climbing, and today's ropes can stop a falling rhino, but Underhill's belaying system was essentially the same as the one used today. As Underhill climbed, Clyde paid out enough rope to allow him unrestricted upward progress. If the leader had fallen, Clyde would have grabbed the rope and stopped him short.

Fortunately, Underhill didn't fall. (Hemp rope was never very trustworthy.) When he found a likely ledge he stopped, pounded in a piton, and called for his partner to follow. As Clyde climbed, Underhill took in rope so that Clyde never faced a fall at all.

The most remarkable aspect of that first ascent of Whitney's East Face may be that the four men made it in less than three and a half hours. (Modern parties sometimes take two days.) Despite their sloppy boots and primitive equipment, these pioneer climbers were superior athletes with natural talent. Who knows how they would have stacked up against today's rock jocks if they'd had high-friction climbing shoes, ultrasafe hardware, and gymnastic chalk available to them—not to mention 50 years of evolving climbing technique?

America had long been considered an alpine backwater, its climbers given no chance to match the Europeans' supremacy. But once Sierra Club climbers mastered the new mountain hardware, sparks began to fly. Three years after Underhill's missionary visit to California, three Sierra Club daredevils—Richard Leonard, Jules Eichorn, and Bestor Robinson—used ropes and pitons to make the first ascent of Yosemite's Higher Cathedral Spire, one of the toughest technical rock climbs ever attempted. The *Sierra Club Bulletin*, always full of accounts of climbing expeditions and mountain exploration, now began brimming over with detailed route descriptions, announcements of first ascents, even technical discussions (of, say, the shear strength of expansion bolts used to drill into solid granite). American rock climbing had arrived, with the Sierra Club leading the charge.

In the 1930s the Sierra Club established rock-climbing sections within its San Francisco Bay Area and Southern California chapters. Every weekend 10 to 30 beginners, intermediates, and experts would gather at local rocks—such as Indian Rock in Berkeley and Tahquitz in the San Jacinto Mountains of Southern California—for practice and training sessions.

In the following decades the popularity of those sessions waxed and waned, but they've continued to be held right up to the present. Though they no longer lead the world in technique and technology, the Club's rock-climbing sections within the

San Francisco Bay, Angeles, and Loma Prieta chapters still offer practice and training to interested climbers about three out of four weekends each month. "We may not be at the cutting edge," says Dan Zimmerlin of the Bay Area RCS, "but we have fun, learn a lot, and run it like a club—free of charge and open to the public."

Though climbing is not primarily a social activity, there was a time, a few years after the end of World War II, that it seemed to become as much fiesta as sport. Dick Leonard recalls that in 1947 he, Dave Brower, and Raffi Bedayn brought 600 climbers and camp followers to Yosemite for a Memorial Day weekend of mountaineering. "Scared the daylights out of the Park Service," recalls Leonard with a chuckle. "We finally ended the program because we got tired of feeding them all."

In the 1950s hard-core Yosemite climbers pushed the limits of the sport. Every season the new routes became steeper, harder, and longer. In 1963 Yvon Chouinard predicted, "Yosemite Valley will, in the near future, be the training ground for a new generation of super-Alpinists who will venture forth to the high mountains of the world to do the most aesthetic and difficult walls on the face of the earth."

But as rock climbing grew increasingly complex and physically demanding, a growing majority of Sierra Club members found themselves less and less interested. Just as John Muir did in his later years, the Sierra Club devoted its efforts more to protecting mountains than to scaling them. It continued to publish mountaineering books, but leadership in climbing was left to the American Alpine Club, to specialty magazines like *Climbing and Mountain*, and, of course, to the gossip-heavy mass of climbers themselves.

Underhill, Clyde, and Muir would have enjoyed the modern sport of free climbing. At first glance the hardware might strike them as more complex, but it is actually simpler to place and remove, and less damaging to the rock. Most important, the camaraderie is as happy and boistrous as ever, and the joy and freedom of movement are unchanged.

Sierra Club leaders have tutored generations of eager students in rock-climbing skills and techniques.

"Now, we have found that falling, in and of itself, provides certain values that usually are not perceived. One who climbs without having fallen several times never realizes how close, dangerously close, he may frequently have come to falling, without actually doing so. Nor, on the other hand, does he often realize just how much more he could have safely accomplished had he known more exactly the limits of his ability."

RICHARD M. LEONARD,
"Values to be Derived From Local Rock-Climbing"
Sierra Club Bulletin, *Vol. 19, #3 (1934)*

Three quarters of the way up the North Ridge of the Grand Teton—this during their classic first ascent of 1931—Robert Underhill and Fritioff Fryxell ran smack into a hundred-foot-long chimney . . . as tough a climbing challenge as existed anywhere in the world at the time.

Fryxell tried first. But even standing on Underhill's shoulders, he couldn't move up. Then Underhill tried. He hammered in one of his newfangled pitons for safety, and set to work. His tricouni-nailed boots screeched and skittered on the slick rock as he struggled to rise, but he made no progress. Finally Fryxell hissed, "Step on the piton!" Underhill moved up quickly, soon reaching easier ground and the summit. One step on a piton changed the entire spirit of the sport.

Where free climbing uses hardware only for protection and regards the rock as an inviolable chessboard, aid climbing relies on artificial holds. Bolts drilled into shallow stone, raisin-size slivers of copper hammered into shallow seams—in aid climbing, anything goes. Aid climbers bash their way up walls, clipping nylon ladders to the metals they fix to the rock.

There are those who complain that aid climbers carry their courage in their haul sacks and more or less beat their routes into

1935: A mountain climber grips the steep rock with waning strength. His hobnail boots scrape at the granite as he feels himself slipping. Desperately, he reaches for a soft-iron piton, stuffs it into a crack, and pounds it with his alpine hammer. He attaches a quarter-pound iron snap link, called a carabiner, into the eye of the piton, and clips his rope into the carabiner.

Safe at last, he tells himself. Then he slips, dislodges the piton, snaps the rope, and tumbles to the ground a thousand feet below. In 1935, climbing was not a very popular sport.

1985: A mountain climber steps delicately onto a rock edge the thickness of a dime. His high-friction shoes do not slip. He grabs a spring-load camming device, called a Friend, and wedges it with one hand into a two-inch-wide crack, then clips his Perlon rope into it with a one-and-a-half-ounce chrome-molybdenum alloy carabiner.

His finger strength fails, and he falls. No problem. The Friend, carabiner, and rope can each withstand more than 3,500 pounds of impact with gentle, shock-absorbent strength.

Advances in equipment have improved technique and safety so much that, despite nerve-wracking exposure to plummeting rocks and the ever-present danger of falling, climbing has become one of the fastest-growing sports in America. In 1958, for example, 388 climbers reached the summit of Mt. Rainier in Washington. Twenty-five years later almost 4,000 of them made it to the top.

The most radical advance in climbing hardware since the nylon rope is the Friend, developed by Ray Jardine, a master rock climber and former space-flight systems analyst for Martin Marietta in Colorado. Jardine was frustrated by the awkwardness, weight, and marginal safety of conventional climbing hardware, which consisted of nuts (wedge-shaped chunks of metal slotted into cracks) and hammer-driven pitons, the placement of which was often a two-handed operation.

"Finding the right nut to fit a crack can be time consuming," Jardine says, "especially if you're hanging on for dear life. We were looking for a material that produced a lot of friction between metal and rock but was also incompressible." He chose an aluminum alloy that held against rock ten times better than iron or steel.

What Are Friends For? A Look at Climbing Hardware

Ed Caldwell Products courtesy of Pacific Mountain Sports, La Canada, Calif., and Marmot Mountain Works, Berkeley, Calif.

A panoply of paraphernalia for the serious climber (clockwise from top left): a Durace model helmet from Edelrid; a 165-foot length of 11mm Dynaloc climbing rope, also from Edelrid; a pair of sticky-soled Prestige EP climbing boots; a waterproof cordura chalk bag from Fieldware; a Friend (see text for details); Camp's lightweight glacier goggles; and an El Capitan sit harness from Camp 7. In the center, a selection of chocks (from Salewa) and spring-loaded carabiners (from Camp). Not pictured, but essential: steely nerves and a stout heart.

What Jardine came up with is a curve for the comma-shaped cams that allows them to grip and hold with a constant force regardless of their orientation. Each Friend has four cams that are independently suspended so they can flare or compress to adjust to widely different cracks. Unlike nuts, which can only be used in cracks that widen and then narrow, Friends can hold in cracks that open out as much as 30 degrees. And Friends come out of a crack as easily as they go in—a "trigger" on the stem returns them to their narrowest setting, releasing their grip.

The heart of a climber's safety system is the rope. It must be strong enough to hold a 200-pound climber for a fall of more than 50 feet, yet it must stretch and absorb the shock of impact. Thin steel cable is lighter, stronger, and more resistant to cutting than nylon, but it doesn't stretch at all. The poor climber whose fall is stopped by steel cable would probably snap his spine. On the other hand, a rubber rope would be virtually shock-free, but the stretch would be so great that a falling climber would probably slam into a ledge or other rock outcrop even while the rubber rope was saving him from the shock of a fall.

Early climbing ropes were made from hemp, natural silk, and then twisted nylon. Modern ropes are made from Perlon, a synthetic nylon-like material that combines strength with elasticity. The rope is constructed in two parts—an exterior sheath woven to resist cuts and abrasions, and an inner core made of thousands of braided filaments that run the length of the rope.

Edelweiss of Austria, one of the world's leading manufacturers of climbing ropes, weaves its rope cores with 71,000 full-length threads, each 1/100,000 of an inch in diameter. There are more than 2,200 miles of Perlon thread in a standard 165-foot climbing rope, but the overall diameter is a little less than half an inch. This microscopic distribution of impact is the key to the climbing rope's lifesaving strength and resiliency.

Modern rock-climbing shoes look and perform more like ballet slippers than mountain boots. They're tight-fitting for extra leverage and control. The toes of the shoes are narrow and tapered for slotting into inch-wide cracks. The sole is smooth and pliable to resist slipping on climbing surfaces that may consist of nothing more than a few hundredths of an inch of crystalline bumps on a slab of granite.

The composition of the sole is the key to modern rock-climbing technique. While most conventional shoe manufacturers spend money researching ways to harden the rubber and increase sole longevity, climbing-shoe makers have refined the science of softening the rubber. By juggling the recipe for compounding rubber, they've made the shoe soles sticky.

A few European rubber-makers dominate the market and zealously guard their high-friction recipes. The turnover is rapid—sticky-soled climbing shoes wear out after less than two months of daily use—and the profit margin is huge. An average pair retails for between $70 and $90. Not that there's much alternative. To climb the severe routes that were unthinkable 30 years ago, even the best climbers couldn't get off the ground without their high-friction shoes. —*E.P.*

submission. Well, they do. But aid climbing is also an art: a methodical process of fitting minimal hardware at maximum speed—sort of like orthodonture.

Aid climbing sometimes entails multiple hardware placements that can hold no more than body weight. The leader moves ever so delicately upward, placing one piece of shaky protection after another, praying for a crack deep enough to permit a trustworthy piton to be slammed home. If the leader doesn't find that crack, and shifts his or her weight just a little bit wrong—"Spoing! Spoing! Spoing!" The hapless climber zippers down the wall, ripping out piece after insubstantial piece until a decent anchor finally holds. Aid climbing doesn't require the gymnastic grace of free climbing, but it does demand tough nerves.

In the 1950s Yosemite Valley became the aid-climbing capital of the world, and it remains so today. Virtually every new technique and piece of hardware originated there. El Capitan has more than 40 routes snaking up its fractured faces, and even now, somewhere between "Chinese Water Torture" and "Hockey Night in Canada," some nerve-burned team of rock engineers is methodically hammering out yet another new route.

Alone, unroped, and unprotected, John Muir held his life in his hands. Muir was one of the finest climbers of his day, and his solo scrambles throughout the Sierra Nevada were so bold that it's taken the world nearly a hundred years to catch up.

Modern-day "free-soloists" still climb much as Muir did: no rope, no hardware, nothing but their clothes and shoes, and—oh, yes—a small bag of gymnastic chalk to keep hands impeccably dry. Dry hands are crucial when you're hanging by three fingertips crammed into a granite groove 500 feet up a vertical wall.

"Knowing that one wrong move can kill me makes me more aware of what I'm doing," says 28-year-old John Bachar, a full-time resident of Yosemite. Bachar is the world's foremost free-solo rock climber. Since the sport demands the nerves of a diamond-cutter, the concentration of a chess player, and the strength of a gorilla, few take it up—just as in Muir's time.

Some people accuse free-soloists of packing an oversized death wish. Bachar disagrees. "What I have is a life wish—just being the best I can." Though Bachar and a few other experts free-solo routes that 98 percent of the world's climbers can't do with a rope, free-soloists actually stay well within their limits. Most confine their solo efforts to climbs they mastered long before with the safety of ropes and hardware. Once they "wire" the sequence of climbing moves, it's time to try the route unroped and alone.

Blending vertical ballet with gymnastic chess, the free-soloist executes a series of toe placements, finger locks, and delicate reaches. Proper free-soloing is so smooth it looks as if the climber is stationary while the rock flows underfoot. A 500-foot-wall that takes a pair of conventional climbers three hours may take a free-soloist a few minutes.

The rock is steeper and the holds smaller than they were for Muir. But the outcome of a fall is the same—and so is the spirit of freedom and joy. □

ERIC PERLMAN *is a writer, photographer, and climber based in Truckee, Calif.*

"Rock-climbing, as such, should be accepted with the greatest enthusiasm; yet I feel that certain values should be preserved in our contact with the mountains. While it is rarely a case of the complete ascendancy of acrobatics over esthetics, we should bear in mind that the mountains are more to us than a mere proving-ground of strength and alert skill. Rock-climbing should be considered a thrilling means to a more important end."

ANSEL EASTON ADAMS
"Retrospect: 1931"
Sierra Club Bulletin
Vol. XVII, #1 (February 1932)

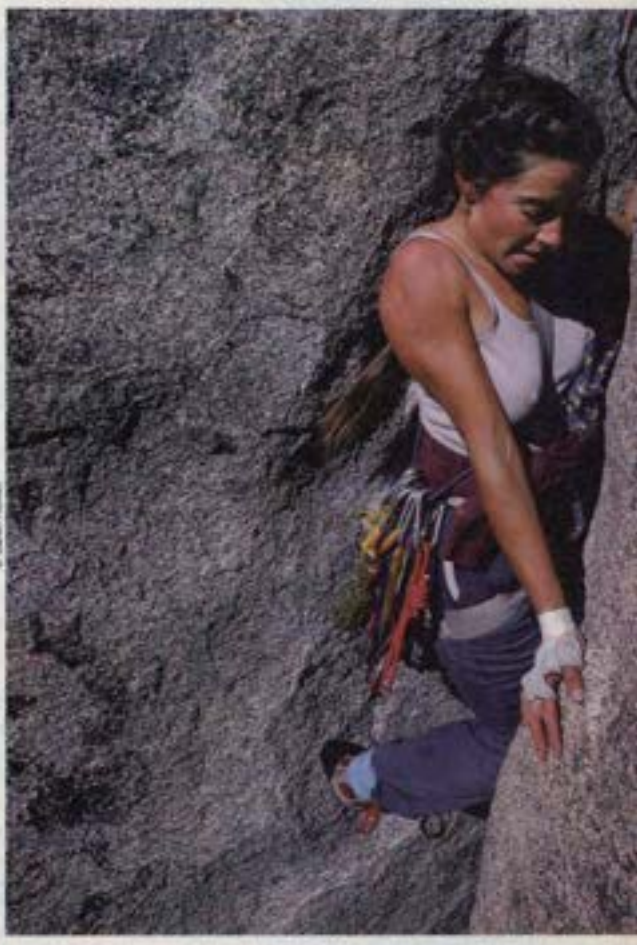
The route up the East Face of Mt. Whitney (left) wasn't negotiated until a Sierra Club team made the climb in 1931.

© Galen Rowell

© Eric Perlman

Yosemite's sheer walls make many climbs a multiday (and night) affair. Tossing and turning should be kept to a minimum.

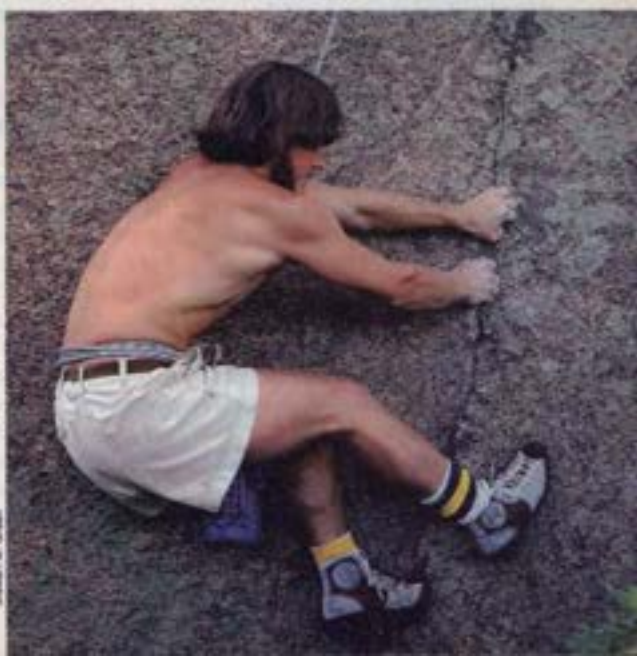
Waverly Wafer is one of Yosemite's tougher climbs—rated 5.10 on the scale of difficulty that currently tops out at 5.13.



© Galen Rowell

Gymnastic chalk is controversial because it leaves a visible trace on the rock. But it sure helps offset the sweaty palms that come with the territory.

Stewart M. Green



Stewart M. Green

This climber uses a layback—and a rope—to move up a thin crack on one of Colorado's Ute Pass Boulders.

An Interview With

GARY SNYDER

"When Life Starts Getting Interesting"

GEETA DARDICK • Backwoods poet, cultural hero, mystic environmentalist, Buddhist spiritual leader, rural family man. Most of us have been touched by at least one of the lifetimes of Gary Snyder.

Born in 1930 in San Francisco, Snyder moved with his parents to a dairy farm in Washington state shortly after his birth. "My mother is a writer who gave me writing genes," he says. "I wasn't sure how I would support myself, but I knew I would be a writer from the time I was in the eighth grade."

Today Snyder often writes about the need to establish place and roots. You might say he found his inner place during his years in a Zen Buddhist monastery in Japan, and his outer place in 1970 on the San Juan Ridge in Northern California. Here in the Sierra Nevada foothills, Snyder, his wife Masa, and their sons Kai and Gen have established a homestead where they raise animals, grow vegetables, and tend to a multitude of daily chores.

Geeta Dardick interviewed Gary Snyder for *Sierra* in April. Dardick is a freelance writer who has lived on the San Juan Ridge for more than a decade.

The following conversation took place at the Snyder home.

DARDICK: *Your interests are so wide, your view of the world so comprehensive—where did you pick up the ideas that took you on your life's work?*

SNYDER: That's such a close question that it's hard to answer—why you turn out the way you do—but in my case it is the intersection of an intense intellectual curiosity and an early radical political commitment that was never separate from a deep sense of membership in the world of nature. I grew up during the Depression: left-wing, working-class '30s, Pacific Northwest. Even as a child I was aware of the destruction of the forest, the heavy-duty logging. In retrospect, it was nothing. They didn't cut down all that much before World War II, but it looked like a lot to me . . . 80 percent of the logging has been since the war.

So you could say I had the combination of a kind of social compassion and sense of nature, plus a lot of curiosity. One can see a similar set of concerns in others who were raised on the West Coast, including Lew Welch, Phil Whalen, and William Everson. I think it's part of the unfolding of West Coast intellectual and aesthetic culture, a growing sense of our place on this continent, our place on a long coast that looks toward the Pacific and Asia. However, it is undecipherable why some people feel themselves to be a part of the larger natural universe, and some don't. That precedes intellectual decisionmaking. I just grew into it, living in the rural countryside of Puget Sound.

DARDICK: *You and I are both involved in an effort called the back-to-the-land movement. How do you define that movement?*

SNYDER: There have been several back-to-the-land waves in the last 60 years. There was the movement away from the farm right after World War I, when the number of family farms declined and the average size of the remaining farms grew enormously. Then during the Depression there was a small back-to-the-land movement, by which I mean a trend for people with some degree of autonomy to seek a place in the rural economy and look on it as a more spiritually and morally appropriate life than that of wage-earning. My parents' move to a cut-over pasture north of Seattle in 1932 was part of that; so were the anarchists who got into the egg business and cooperatives in Petaluma [Calif.] at that time. The '30s was also the era of Aldo Leopold, the Soil Conser-

vation Service, and a U.S. Forest Service that believed in sustained yield.

In the late '60s another move from the cities to the land began. It had to do with the dynamics of late 20th-century life, and some people's wish to have a place, to stop moving, to define themselves as persons *from* somewhere, and raise their children somewhere that's a place. The back-to-the-land movement of the late '60s was not particularly stimulated by a sense that urban life was all that bad. For most white Americans it hasn't been bad. Those for whom it is bad can't get out of the cities. So it's clearly the choice of somewhat more independent, middle-class people to be able to move to the country. Our current back-to-the-land movement had a kind of window that made it possible for many to make this move successfully: There was money around in the late '60s, and land prices were low. That situation has now changed. There's less money, and land prices are much higher.

The phenomenon of people turning their backs on teaching or other careers to move into low-overhead, marginal rural life happened roughly between 1965 and 1975. The rediscovery of nature, a theme that runs through the counterculture, is undoubtedly part of the exchange. The rise of mass environmental consciousness from 1969 on is part of it. There was also a revival of interest in communal living. And woven through so many of the years of which we are speaking was the whole complex of ambitions and hopes that are associated with an alternative lifestyle: an alternative political program that is neither capitalist nor industrial communist, the critique of industrial society, appreciation of the complexity and sophistication of biology, the understanding that growing food to eat is an amazing kind of knowledge and a hard-won skill, and the wish to make communities in which people live face-to-face and raise their children with certain values.

When they actually get back to the land, most people find that it isn't voluntary simplicity, it's involuntary simplicity. It turns out to be a hard life economically and very demanding in terms of skills and equipment. We are all still learning.

DARDICK: *Do you still believe in voluntary simplicity, or did you ever?*

SNYDER: I grew up during the Depression, so involuntary simplicity I understand quite clearly. I also understand the term voluntary simplicity. But I ask you, which is the real simplicity: a person who owns almost nothing but is obsessed with it, or one who owns a great deal but is unattached to it? More deeply, "voluntary simplicity," like Schumacher's "Buddhist economics," is a way of saying, *contra* standard economics, that human beings are not simply a bundle of limitless desires and needs. Moral, spiritual, and aesthetic values come into play; and even more interesting, there can be a culture of "right consumption." The sense of beauty is of great importance.

DARDICK: *I thought it was important for people to practice owning less because that may be what we all have to do, ultimately, if we are going to save the planet.*

SNYDER: I would call "owning less" elegance or style. It also helps prevent wars. There's an old Chinese proverb, "No waste in the imperial court." A political point: Rather than worrying if the modest consumption of ordinary households could "destroy the planet," we should be analyzing the truly vast consumption of resources by the industrial economy and the military. We should be alert to the point that "cheap and dirty" processes are preferred to research into decent alternatives. Look how the current administration has pulled out support for solar-energy research and is pushing the Forest Service for a higher cut. That is not because people's desires are bottomless; it's because our economy needs to keep fostering desires. Rather than breast-beating, study ecology, study economics and history.

DARDICK: *How does this new back-to-the-land movement relate to the environmental movement?*

SNYDER: That's a good question. The environmental movement has to some degree been based in cities and run by well-educated, well-informed, well-directed urban minds concerned about our resources on a national scale. They have done a good job, for the most part, and have had some really notable successes. But when you work on the micro scale, smaller than that of public lands, world wildlife, and national policies, you come up against questions of local habitat, local marshes, local forests, and local land-use planning. If there were no local people concerned about these things, they would fall between the cracks. Local issues are not on a scale that national environmental organizations can or should handle. So the bread and butter, day-to-day environmental work of localities has to be undertaken by people who live there, or it will not be done at all.

The national environmental organizations have a whole agenda of international-scale things that they can't keep up with: acid rain, toxic waste disposal, rainforest destruction—big issues—so as much as they might like to support a local issue, it boils down to this: Either we are here or we aren't. If we are here, we have to do it. This is a real contribution that the back-to-the-land movement, which includes the back-to-the-city people who are working in the same way in urban neighborhoods, is making to the environment.

There are now people all over the country who are taking responsibility for local issues and trying to affect decisionmaking at the local level, as we have done in our own county. It's encouraging. The national environmental movement, I must say, has yet to quite appreciate this fact. It has not recognized that these local issues are equally important, that the area of land involved in such decisionmaking adds up to a large percentage of the nation.

DARDICK: *At the conclusion of your essay "Good, Wild, Sacred" [from* Meeting the Expectations of the Land, *North Point Press, 1984] you say, "my neighbors and I and all of our children have learned so much by taking our place in the Sierra foothills . . . it has showed us a little of its power." Can you explain what your children have learned, and how it differs from what an urban child might learn?*

SNYDER: I shouldn't speak for my boys . . . they would probably laugh. What they've learned are things they themselves are not aware of, obviously.

But I will tell you what they've learned. They've learned to come back two or three miles by trail from a friend's house in the dark without a flashlight, without thinking about it. And saying, "It's easier without a flashlight, because your eyes are better adapted and you can follow the path through the trees by the stars. With a flashlight you just get a little point of light and it kind of throws you off." Or, Kai walked by a group of deer the other day, and he went "pbpbpbpbpbpbp." I said, "Hey, why did you do that?" And Kai said, "That's the sound deer make when they are feeling comfortable. When I do that when I'm near them, they relax and don't run away." I have seen Kai stand at the foot of a pine tree and get into a thing with a squirrel by going "bawbawbawb." He does a beautiful imitation of it, and brings the squirrel three quarters of the way down the tree to argue with him.

These things I never taught them; this is just what they learn by themselves. There are many things they've learned that I've never seen, that they themselves aren't even aware of. And then,

of course, there are all the little things they don't know about either, like not complaining if they have to go to the outhouse in the middle of the night when there's two feet of snow on the ground. They don't even think to say, "This is hard." Or splitting the wood and keeping the woodpile up. I think I see in them a deep regard and love and respect for all the natural systems, but again, this is probably not something they would state as a formal philosophy.

DARDICK: *In your writings you urge your readers to act locally to save the environment. I see our home county becoming more and more developed. What do you plan to do to stop this trend? Will you act locally or keep a low profile?*

SNYDER: I have always tried to work on every level. That is to say, membership and involvement with national and international-scale groups (I'm on the advisory board of Friends of the Earth) and writing and speaking to that scale of issues while also keeping up with Northern California and Nevada County groups. Right now I am in touch with the local Sierra Club chapter forestry committee, which is doing a critique of the Tahoe National Forest management plan. The Environmental Council right here on San Juan Ridge has long been working on herbicide spraying.

Irresponsible development is something that is handled to some degree on the electoral political level by getting the right supervisors in and then getting the right people on the planning commission. As far as development goes, make no doubt about it: There is tremendous pressure for development, and we are going to have to be fighting a holding battle for quite some time. There's no guarantee we can slow it down when there's that much pressure—the pressure of population expansion and an expanding economy.

DARDICK: *Speaking of folks who seem willing to fight local battles, you have turned me on to Earth First! What do you think of this group? Are they having any appreciable impact on the environment? How widespread a movement is it? Do you think it will grow? Should Sierra Club members read their paper?*

SNYDER: Earth First! is a really valuable new group. They have succeeded in bringing attention to issues that were being overlooked; and even more important, they have brought our attention to the urgency of things. They have brought a sense of immediacy to the environmental movement that was beginning to fade away as people kept hacking away at these often tedious projects. Earth First! brings spirit and urgency and humor and direct feeling. Most of all it brings the willingness to take direct action and commit civil disobedience when other avenues have failed. They feel we have given up too much by being good guys, and they stick to their slogan, "No compromise in defense of Mother Earth."

I don't know how big it is; I presume it will grow to some degree; and yes, I think the Sierra Club and all other kinds of environmental groups ought to be acquainted with what Earth First! is doing and ought to subscribe to the paper. Even if you don't agree with the language or some of the tactics, they are out there for real and are taking risks and in the lead. I'm a Sierra Club member, Friends of the Earth member, and Earth First! member, and it doesn't bother me in the least if Earth First! takes some swings at the Sierra Club. That does no harm, and the Sierra Club shouldn't take it personally. We are all having fun in this together, and it's great to have some people who can call themselves "Rednecks for Wilderness."

DARDICK: *What about the Sierra Club? Is it still a relevant environmental organization? In what ways is it useful? In what ways is it outmoded?*

SNYDER: The Club is in no way outmoded; it is possibly the most effective environmental organization in the world. It has fine organization and expertise. It is skillful, timely, and a model for groups forming in Japan, a model for environmental organizers in China. It is known all over the world and either praised or excoriated for the work it has done.

If one were to criticize the Sierra Club, it would only be the kind of criticisms one has to make of large, successful, essentially well-operated organizations: the problems that come with success, size, and comfort; the problems that come with having establishment-class people consistently working within the establishment. Those kinds of problems we all know about. I would only hope that the Sierra Club keeps its sense of humor and a certain looseness about what it's doing, an openness to maverick breakaway groups like Earth First!, and that it lets us all appreciate each other.

DARDICK: *Is it enough for someone to pay their dues to an environmental organization and then let the organization do all the work?*

SNYDER: No, of course mere membership isn't enough. You have to be involved if you want to see something happen. There are many scales of involvement for people, and the fanatic environmentalists I know don't limit themselves to membership in one group; nor are they on only one committee. It becomes a lot of work for those who really have the time for it, and it isn't necessarily the case that you hold yourself to a narrowly defined environmental politics. You get out into other things, like the freeze movement, or concerns for indigenous peoples, or local problems, or, for that matter, the basic issues of poverty, war, and peace in Central America. People who get involved in one of these issues are generally pretty aware of the others, even though they can't do everything. Nobody can do everything. And we need those solitary rock climbers and shy, silent backpackers and birdwatchers, too. True environmental politics refers back to people who know and love nature.

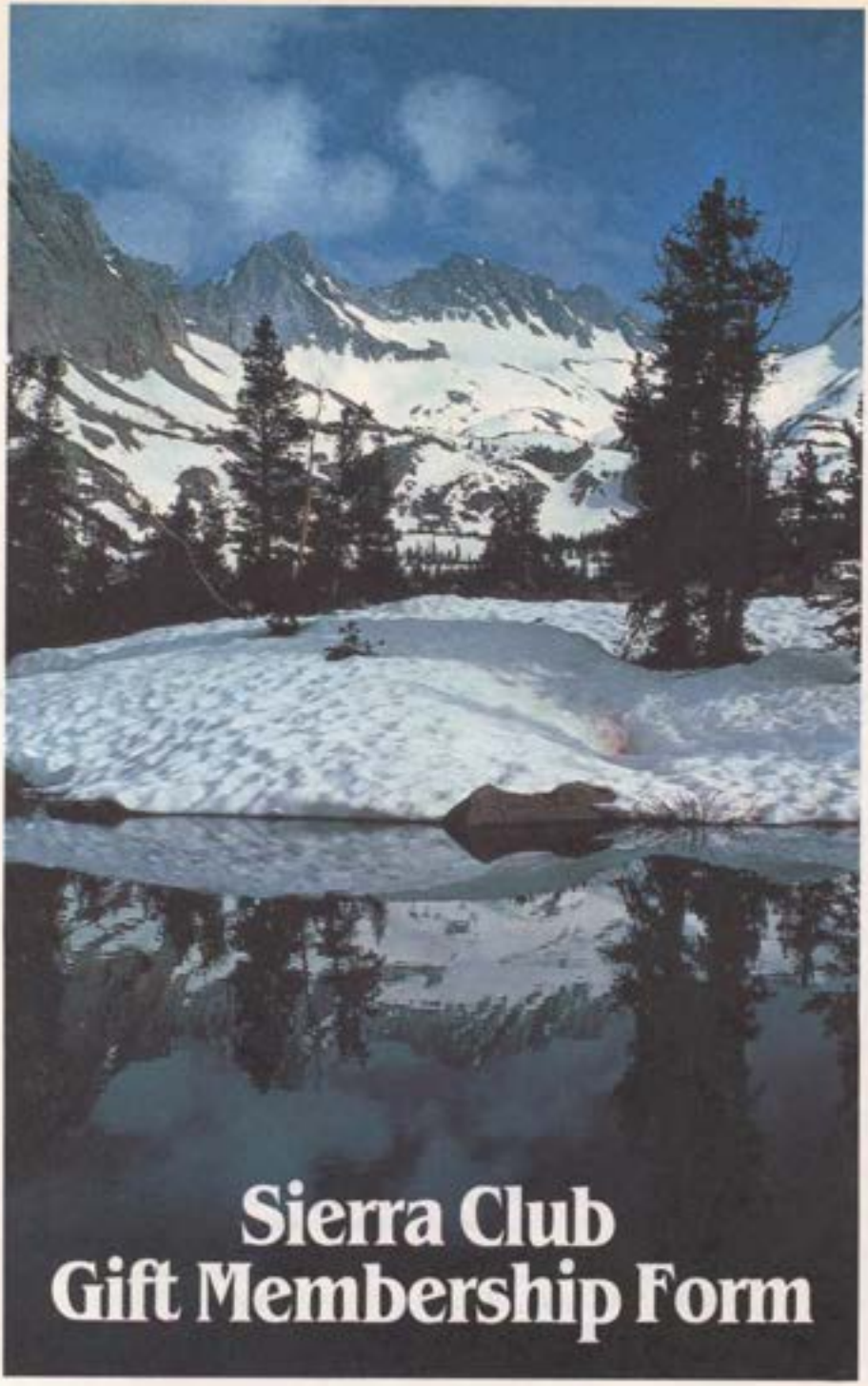
DARDICK: *What do you think are the most pressing national environmental issues facing us now?*

SNYDER: First of all, loss of heart and soul; loss of the sense of the life of the world, loss of the knowledge of the richness of being, of Gaia, the Earth goddess. After that I'd mention acid rain, nuclear waste disposal, toxic waste disposal, management of public land—both grazing land and forestland—water quality, and all that is related to soil erosion and loss of soil fertility. These are big issues. Acid rain is a scary one; it's coming west now.

DARDICK: *It sounds like future generations will be facing many serious environmental issues. If parents want to provide their children with an environmental consciousness, and they don't have deer running through their front yard, what should they do?*

SNYDER: It is a problem. People are raised in a secular myth that says the world is inanimate. It's not very hard to reanimate the world for young people, because they're up for it, but everything works against the animation of the world when they start getting on in school and are being influenced by the media and the consumer world.

For parents to teach their children a sense of nature, they first have to know something about it themselves. If they don't, there's always the Boy Scouts, and sometimes some excellent nature-loving schoolteachers. Many local parks have great summer programs in nature study for kids. There's a park in Contra Costa County [Calif.], I believe, with a summer program where the children live like the old Ohlone Indians did. These programs, or for that matter real chores with plants and animals, are a fine way to raise consciousness with children.



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DARDICK: *You seem to have such a positive philosophical bent. In "Good, Wild, Sacred" you say that an urban area can never be totally ruined or completely unnatural. Looking at some of our slums, this seems highly romantic, but you say, "Great Brown Bear is walking with us, salmon swimming upstream with us, as we stroll a city street." Moreover, you seem to have confidence that we—or at least Mother Earth—will in the long run pull through this current nuclear/environmental crisis. What is the source for this optimism?*

SNYDER: The first teaching of Buddhism is that everything is impermanent, nothing is satisfactory, it's all screwed up, and that's possibly all right. So we acknowledge that things are imperfect and we always live in miscellaneous conditions of confusion, but with the understanding that the greater processes of change sweep around and outlast the smaller changes. So we can be long-run optimists even if we are short-run pessimists. The universe can take care of itself. We can't save the universe, and we can't do it much damage either.

DARDICK: *Nevertheless, in that same essay you characterize Earth as "a little waterhole in the vast space on the verge of being totally trashed." You go on to say that "it's clearly time . . . to turn away from economies that demand constant exploitation of both people and resources, and to put Earth first." Can you expand on this? What sort of nonexploitive economic system is required, and what are the realistic chances of developing such a system in the industrialized West or elsewhere in the world?*

SNYDER: Yes, our little green waterhole of a planet *is* in trouble, and *we* are *it* making its moves to clear the air, stop the biological unraveling. The kind of system required would clearly have to be, at minimum, some kind of relatively steady-state mixed economy, a system that is not tied to perpetual expansion and perpetual growth, and a system that defined economic health in ways other than sheer quantification of GNP. There are thinkers far more qualified than I to enlarge on these ideas. Some of them are familiar to us already: E. F. Schumacher, Hazel Henderson, Ivan Illich, Murray Bookchin, and many others have been exploring our possibilities.

Democratically run Third World agrarian economies hold out some hope. All of this verges on the impossible, given the enormous power, wealth, and inertia of the world system. But in these huge centralized economies there are also many flaws and fragilities, and any economy will be measured by sustainability in the long run. Unfortunately, it seems as though our current industrial economies could go on for quite some time consuming a really high level of resources before feedback becomes so intense as to provoke serious change. So the negative feedback that will alter the direction of world economics, in order to come in time, will have to be feedback from human beings and human societies rather than from distressed natural systems. Thus it is a political question. It is the question of organizing, discovering, articulating a very green economics and politics that is post-industrial, post-capitalist, post-Marxist, and compassionately practical.

In addition to the well-known and smoothly functioning environmental organizations we all know of, there is the nascent bioregional movement, which seeks to study and redefine the very boundaries and nature of nationhood. A coalition of rural and urban ecology activists with anti-war people and labor and social-justice thinkers—as they have in West Germany—might just have a role to play here in America. Deep ecology is clearly an influence on many of these younger people, either along Thoreau-Muir lines or Far Eastern nature ethics or both. A specific instruction for Americans in the way of remaking our

THE CANYON WREN

for James and Carol Katz

I look up at the cliffs
But we're swept on by downriver
the rafts
Wobble and slide over roils of water
boulders shimmer
under the arching stream
Rock walls straight up on both sides.
A hawk cuts across that narrow sky
hit by sun,

We paddle forward, backstroke, turn,
Spinning through eddies and waves
Stairsteps of churning whitewater.
above the roar
hear the song of a Canyon Wren.

A smooth stretch, drifting and resting.
Hear it again, delicate downward song

ti ti ti ti tee tee tee

Descending through ancient beds.
A single female mallard flies upstream—

Shooting the Hundred-Pace Rapids
Su Shih saw, for a moment,
it all stand still
"I stare at the water:
it moves with unspeakable slowness"

Dōgen, writing at midnight,

"mountains flow

"water is the palace of the dragon
"it does not flow away.

We beach up at China Camp
Between piles of stone
Stacked there by black-haired miners,
cook in the dark
sleep all night long by the stream.

These songs that are here and gone,
Here and gone,
To purify our ears.

April, 40081, Stanislaus River, Camp 9 to Parrott's Ferry

"I ask you, which is the real simplicity:
a person who owns almost nothing
but is obsessed with it, or one who owns
a great deal but is unattached to it?"

Hank Mears

society would be, "Quit moving. Stay where you are, regenerate your neighborhood, become a *paysan, paisano*, peon—person of the land, city or country."

You ask what the chances of developing such a system are. The chances are very slight. It might happen more by devolution than evolution, more by deconstructing than "developing."

DARDICK: *In "Good, Wild, Sacred" you link the resource foolishness of the European explorers in North America to their lack of reverence for the land, a lack you attribute to their being cut off from their own cultural traditions. Do you see any reversal of that process in contemporary society? Are young people in particular developing any significant sense of the sacredness of the wilderness?*

SNYDER: It is clear that ecological consciousness in the last 15 years has become a real presence in our cultural and spiritual life, and that there is a constituency for nature and it's not just older urban professionals, it's plenty of young people. And it has, as Stephen Fox says, some of the characteristics of a new religion. The Judeo-Christian tradition did not pave the way for it. It came out of somewhere else.

DARDICK: *Finally, what are you doing now? What's on your future agenda?*

SNYDER: I'm working on several projects. I am trying to do a little book on my recent trip to China, a prose book. If all works well, it will be part of a larger study that I have been doing on Chinese history and environment—but that's a long-range project. Also, I am getting back to my book-length poem called "Mountains and Rivers Without End." So I have three writing projects going, each of which is very challenging and involves a lot of research.

I've been taking trips to Alaska and am hoping to do something with that . . . thoughts on such a huge scale of wilderness, the very real presence of native peoples, human prehistory and the Ice Age. Here on the home front I am enlarging the size of the orchard a little bit at a time, and I have some work I should be doing with the forest, especially a few controlled burns, that I haven't gotten to yet.

So life on the ridge and writing projects keep me busy, and then I've been traveling eight or ten weeks a year doing lectures and readings at universities and community centers around the United States. I'm able to keep a sense of what's going on in the country that way.

DARDICK: *Tell me more about the college students; I feel that's our promise. Who is coming to hear you, and what are you telling them?*

SNYDER: College students and I discuss the same things we've been talking about here, and there's a lot of interest in it.

I try to make them see where they are, and for starters, have a sense of their own place. That's a charming sort of beginning exercise for everybody. Here's how I often start out at the universities: I say, "Ask yourself, how would you tell people where you live so that they could find your house without mentioning a street name, a road name, a town, a county, or a state." When you've figured out how to describe where you live, you've made the first step in bioregional awareness. You see the place you live, city or country, with fresh eyes for a moment—not just a counter on a political map, but a point on an incredibly old, slowly changing land form with the ebb and flow of different plant, animal, and human communities following climate changes. Then you see yourself and society as a tiny part of that, and you might say to yourself, "Ah, this is the story I'm really in, not the one in the newspaper or on the TV." That's when life starts getting interesting. □

Ansel Adams and the Sierra Club

". . . one of the most important activities of my life . . ."

The long-awaited autobiography of Ansel Adams will be published in October by New York Graphic Society Books/Little, Brown. This narrative of Adams' life ranges from his childhood on the dunes of San Francisco to his active ninth decade, when he was interviewed in *Playboy*, grappled with President Reagan on environmental issues, and saw "Ansel Adams Day" proclaimed by the California legislature.

In between, of course, Adams became arguably the foremost American photographer of his age—certainly the foremost photographer of the natural scene. *Ansel Adams: An Autobiography*

Cedric Wright playing violin at Sierra Club outing, Alger Lake, Sierra Nevada, California, 1931.

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is illustrated with 250 of his photos, including many never published before.

Adams is perhaps best known to the general public for his photographs of the Sierra Nevada. He first visited Yosemite in 1916—and, in fact, began his photographic career there with the gift of a Kodak Box Brownie from his parents. Three years later the young Adams joined the Sierra Club, beginning an association that would span half a century. It is indicative of Adams' dedication to "the great earth-gesture of the Sierra" that 37 of the 52 years that he belonged to the Club were spent on the Board of Directors or in another official role.

In the following excerpt from his autobiography, Ansel Adams recalls his introduction to the Sierra Club, his participation in the traditional (though now abandoned) annual High Trips in the early 1930s, and his "photo-lobbying" efforts on behalf of a national park in California's Kings Canyon.

The Sierra built and modulated my environmental concepts. It joined the wondrous visions of astronomical reality with the dynamics of nature all about me. And I did meet with people in the mountains who matched their power and dignity, not because they could conquer the peaks, but because they seemed to understand and become part of the mystery.

For the first three years that I visited Yosemite, the surrounding Sierra seemed inviolate. But in 1919, as I joined the Sierra Club and began work as the custodian of the LeConte Memorial [Lodge], the Sierra took on a new meaning, and I looked more sensitively on the fragile qualities of the land around me.

Founded in 1892, the Sierra Club was actually a club—a group of University of California faculty and students and other San Francisco Bay Area lovers of the outdoors. John Muir, a great American environmentalist long before we had defined the meaning of that term, was the first president. He was the pathfinder as the club led the fight for the protection and preservation of American wilderness.

The purpose of the early Sierra Club was:

> To explore, enjoy and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and cooperation of the people and the government in preserving the forests and other natural features of the Sierra Nevada.

At the time, the members of the club considered themselves a mountaineering elite, for there were few people, other than hunters, prospectors, timber and sheep men, who ventured into the mountain vastness. Under Muir's brilliant leadership the club grew in size and clout until its influence was felt in the highest reaches of government and we all benefited: the establishment of the National Park Service and the creation of new national parks and monuments, including Sequoia, Mount Rainier, and Glacier National Parks. There were also the grave losses, such as Hetch Hetchy: a valley of beauty nearly equal to Yosemite's, drowned to become a vast reservoir.

My involvement with the Sierra Club revolved about my summer job as custodian, until 1927, when Cedric [Wright], Virginia [Adams], and I took part in that year's Sierra Club outing to Sequoia National Park. The outing had been begun by Muir and William Colby in 1901 . . . . On returning to San Francisco in the fall, I began visiting the club's offices and became active in its efforts and objectives. William Colby telephoned me one day in early 1928 and advised me that the next summer's 29th annual outing would be in the Canadian Rockies. He asked me to come this time as their official photographer: all expenses paid but at no fee as the budget was very tight. There was only one possible reply to that invitation!

A friendly and excited group left by special train for Canada. I carried with me both my 6½×8½-inch and 4×5-inch Korona View cameras and lots of film. The Canadian Rockies are another world: spectacular and difficult. The rock is metamorphic, not as firm and bright as the granites of the Sierra. Timberline is lower, and the forests are sparse, though wild and green. It is gorgeous country, with unpredictable weather: A glorious sunset can resolve into a sudden rainstorm, changing into sleet by the early morning hours. The abundant mosquitoes were beautiful, large, and had padded feet: They could alight so gently you could not feel them land, and their excavation of epidermis began without delay! As in the Sierra I would unload exposed film and load fresh film with my film holders in a changing bag at dusk, while a friend kept the mosquitoes at bay.

Daylight lingered long and dawn came in the small hours. On a climbing day our Swiss guides would call us at two-thirty a.m., breakfast at three, and we were on the trail shortly thereafter. I remember on several occasions wading a stream in the gray dawn and finding the same stream waist-high in the late afternoon, flowing

Frozen Lake and Cliffs, The Sierra Nevada, Sequoia National Park, California, 1932.

from the sun-warmed ice fields above and milky with glacier-scoured rock particles . . . .

The most spectacular day of the trip involved the ascent of Mount Resplendent. The guides took several large parties to its summit. The glacier we traversed was shattered with crevices, and the guides were in a frenzy to keep us in safe areas. The main groups were tied together with ropes, but I was on the loose with my camera. I had the tripod set up and ready to make a picture of [Mount] Robson when I noticed some dirt on the lens. I took off the lens board and carefully cleaned the lens surfaces, then held it up to the sun to see if it needed any internal cleaning. To my dismay I noted several pinholes in the lens board. This implied that all the pictures taken with it to date were fogged. As it turned out, most of them showed multiple faint pinhole images and, of course, were ruined. Fortunately I had some opaque black tape with me and all the negatives made after this repair were undamaged.

Seldom did I take specifically assigned pictures while serving as Official Photographer—even then, the greater part of my work was entirely self-motivated. I reveled in the limitless image resources of the world around me. To commemorate the outing, I made a portfolio of photographs that I sold at cost, thirty dollars, to other members of the trip. Its success was such that I also made Sierra Club outing portfolios for the 1929, 1930, and 1932 High Sierra trips. Few of these photographs were of vast landscapes, most were details, minutiae of nature, and the moods of light and weather on a single mountain or valley. The portfolios were not intended to be great creative efforts, but fine mementos.

The Canadian trip established me as a leader of the Sierra Club outings, and in 1930 I assumed the duties of Assistant Manager; I selected the next day's campsite, the route and the possible climbs on the way, arranged for the evening entertainment around the campfire, and cared for the lost and found. Each travel day I would arrive at our destination usually before the first packtrain, designate the men's camp, the women's camp, and the married camp. Location of the commissary and that of the two latrines was fairly obvious and easy. I would then vanish into the wilderness with my camera. Dinner was usually served at the most magical time of day for photography, and I often returned to camp too late for anything but a few desolate snacks and cold tea.

I wrote an enthusiastic description of the 1931 outing in an article for the *Sierra Club Bulletin* of February 1932.

> Mid-afternoon . . . a brisk wind breathed silver on the willows bordering the Tuolumne and hustled some scattered clouds beyond Kuna Crest. It was the first day of the outing—you were a little tired and dusty, but quite excited in spite of yourself. You were already aware that contact with funda-

mental earthy things gave a startling perspective on the high-spun unrealities of modern life. No matter how sophisticated you may be, a large granite mountain cannot be denied—it speaks in silence to the very core of your being. There are some that care not to listen but the disciples are drawn to the high altars with magnetic certainty, knowing that a great Presence hovers over the ranges. You felt all this the very first day, for you were within the portals of the temple. You were conscious of the jubilant lift of the Cathedral range, of the great choral curves of ruddy Dana, of the processional summits of Kuna Crest. You were aware of Sierra sky and stone, and of the emerald splendor of Sierra forests. Yet, at the beginning of your mountain experience, you were not impatient, for the spirit was gently all about you as some rare incense in a Gothic void. Furthermore, you were mindful of the urge of two hundred people toward fulfillment of identical experience—to enter the wilderness and seek, in the primal patterns of nature, a magical union with beauty. The secret of the strength and continuance of the Sierra Club is the unification of intricate personal differences as the foundation of composite intention and desire.

Upon the arrival of the packtrain of 50 or more mules, a quasi-military organization would be set in motion: two men would be directed to cut dead wood for the stoves; the kitchen group of four would set up the equipment and get clean water from a nearby lake or stream. Dan Tachet, the chef, would start the evening meal with the conscription of general help and a flood of French-accented instructions. The food was magnificent and varied; to feed nearly 200 people in the wilds properly for a month was no mean achievement . . . .

While on [the] 1932 outing, we hiked over Kaweah Gap, where I was struck by the still, icy beauty of partially frozen Precipice Lake and its background, the black base of Eagle Scout Peak. I saw several images quite clearly in my mind and made five variations. The best of the resultant photographs, *Frozen Lake and Cliffs*, is still very satisfying to me. It has been termed "abstract," but I do not think any photograph can really be abstract. I prefer the term *extract* for I cannot change the optical realities, but only manage them in relation to themselves and the format.

By the late 1930s, the rigorous ecological requirements dictated that large groups of two- and four-footed creatures were no

longer feasible. Today the Sierra Club schedules trips all over the world as well as in the Sierra, but the groups are small and propane is now packed into the mountains for cooking. There is no longer the bountiful provision of dead wood, and campfires with their cheer and fragrance are taboo.

In 1931, Francis Farquhar, then president of the Sierra Club, suggested that more women should be on its board of directors and promptly nominated Virginia. She was elected and served with distinction, paving the way to a less chauvinistic Sierra Club leadership.

When Michael was born in 1933, Virginia decided to resign from the board, preferring to concentrate on home and family . . . .

[Ansel Adams was elected to the Sierra Club Board of Directors in 1934.] That election was the beginning of my 37-year tenure as a board member and, later, as an officer. It proved to be one of the most important activities of my life . . . .

Soon after my election the Sierra Club began the battle to establish the Kings River area as a national park. The middle and south forks of the Kings River rise in the craggy High Sierra, north of the borders of Sequoia National Park; the combined areas comprise some of the most rugged and beautiful country in America. In 1924 and 1925 I had traveled and photographed throughout the Kings River country with Professor Joseph LeConte II, his son Joe, and daughter Helen. During the 1930s, several of the Sierra Club outings were to the Kern and Kings River areas of the Sierra Nevada. My collection of good negatives from this area had become quite extensive. Francis published many of these pictures in the [*Sierra Club Bulletin*] often as handsome gravure frontispieces, which enabled me to become generally known among the membership.

An important conference was called in 1936 in Washington, D.C., to discuss the future of both our national and state parks. The Sierra Club board of directors asked me to travel to Washington and lobby for the establishment of Kings Canyon National Park. They suggested that my photographs of this region would prove to our legislators the unique beauty of the area. Using photographs as a lobbying tool had proven helpful in the past. Carleton Watkins' photographs of Yosemite had great positive effect on the efforts that made Yosemite Valley a state park in 1864, and William Henry Jackson's photographs of Yellowstone had been a deciding factor in the establishment of our first national park in 1872.

With total naiveté, I ventured into the strange wilderness of our nation's capitol with a portfolio of photographs under my

arm, visiting congressmen and senators in their lairs. I boldly proclaimed the glories of the High Sierra and showed my pictures with the unabashed confidence that they would prove our contention. I was asked to address the conference and thereby became acquainted with Secretary of the Interior Harold Ickes. My unsophisticated presentation of photographs, coupled with appropriately righteous rhetoric, stirred considerable attention in Congress for our cause —although I returned home with no firm commitments on behalf of Kings Canyon National Park . . . .

Victory for Kings [Canyon] National Park, however, had still not been won [by early 1939]. Many of the images in [Adams'] *The Sierra Nevada and the John Muir Trail* had been made in the proposed park area. I sent a copy to Secretary Ickes, who was proving himself a great friend of the environment. I received a warm letter of thanks from him in which he expressed his hope that this book would encourage others to appreciate and interpret the national parks. This pleased me very much as it confirmed my desire that the book stimulate thought and action in others.

Ickes showed the book to President Franklin D. Roosevelt, who promptly commandeered it for the White House. Upon learning this, I arranged for a second copy to be sent to the secretary. President Roosevelt later joined with Ickes and pressured a stagnant Congress to pass the Kings [Canyon] National Park bill in 1940.

Even today Harold Ickes continues to be respected as the most effective Secretary of the Interior in our history. Feisty, outspoken, fearless, a curmudgeon dedicated to high social objectives, he understood the importance of national parks and wilderness to the world and its future. When World War II began there were strong pressures in many circles to close the national parks for the duration, with the thought that no one needs a vacation in wartime. Ickes disagreed with this, stating that in times of national stress and sorrow the people needed precisely what the national parks could offer. . . .

Neighborhood Naturalism

DANNY TANNENBAUM

A Field Guide to Your Own Back Yard, by John Hanson Mitchell. Norton, 1985; $14.95, cloth.
A Field Guide to the Familiar, by Gale Lawrence. Phalarope, 1984; $9.95, paper.

TWO RECENTLY PUBLISHED field guides offer new insight into the habits of familiar neighborhood wildlife. Written in nonscientific terms, both books are simple and user-friendly, with a wealth of information you can share with your children.

To begin, why not invite the kids into the backyard and show them how to make friends with a local chipmunk? These animals "would even take food from the outstretched palms of wild young boys, an act of great faith on their part, in my opinion," writes John Hanson Mitchell, publications editor for the Massachusetts Audubon Society and author of *A Field Guide to Your Own Back Yard*. Look for chipmunks around the fences or stone walls of your garden in the summertime, because they hibernate in winter.

Mitchell recommends that you not trim your grass if you want a good firefly field. Female fireflies signal to males from long grasses; the males respond by secreting an enzyme that combusts with oxygen, resulting in a flashing light. But although you may witness a great light display while sitting out on the patio on a warm summer night, you risk being bitten by mosquitoes, who are also attracted to long grasses.

Once again exhorting you not to mow the lawn, Mitchell says that wildflowers and other wildlife—such as songbirds, quail, frogs, and skunks—will be attracted to the transformed environment conditioned by pioneering weeds. The weeds that invade an unmown lawn are interesting and beautiful, he says, and some of them are even edible. Consider purslane ("cook it as you would spinach"); pokeweed, whose purple berries can be used as warpaint to smear on your little Indians; or mustard, from which you can actually make . . . mustard. The author shares with us his love and appreciation of commonplace natural occurrences as well as a knowledge of the ecological dynamics of the suburban environment. The 60 accompanying pen-and-ink drawings by Laurel Molk are superb.

Gale Lawrence, author of *A Field Guide*

to the Familiar, has chosen to consider individual species as representatives of biological mechanisms. Each species is presented as the topic of a chapter from which we may learn a particular lesson. For instance, in "Viceroy Butterflies: Learning to Observe a Mimic," Lawrence examines the life cycle of the viceroy, paying special attention to its survival technique of looking like a monarch butterfly. Once a predator has vomited from eating a poisonous monarch, it will likely avoid the nonpoisonous viceroy as well.

Like Mitchell's book, Lawrence's guide is organized by seasons, but more emphasis is given here to individual species and the interdependence of all organisms, including the human species, within their own ecosystems. We are invited to discern the individual, and then reintegrate this knowledge with a look at its habitat.

In a chapter devoted to herring gulls, we learn that this bird, intelligent enough to drop a clam on rocks to crack the shell, has been increasing in numbers and extending its range. Because they are scavengers, these gulls help keep the aquatic environment clean. But because they also eat the eggs of other island nesting birds, the gulls' overpopulation has led to a serious depletion in the number of other aquatic birds. The blame for this imbalance can be placed squarely on the shoulders of humanity, Lawrence says, because it is the proliferation of human garbage that continues to inflate the gulls' numbers. Similarly, human intervention is responsible for the introduction of the opportunistic starling to North America, and the bird's subsequent usurpation of the nesting sites of native species.

Like the herring gull, the skunk, also observable in the summer months, has been heavily influenced by new developments in human technology. But the skunk's fate has been quite the reverse of the human/gull equation: Rather than promoting their increase, people are slowly exterminating them. In "Learning to Understand a Skunk," Lawrence explains that the skunk has developed a sense of invulnerability because its noxious scent is so effective in protecting it from predators. Attracted to debris left by the roadside, skunks often get run over simply because they believe that cars will retreat. The author reminds us that a dead skunk in the middle of the road "means more than just an unpleasant smell. It also means one less appetite out there searching for a meal of insects, mice, and other high-population pests. If the car is currently winning, we are currently losing. . . ." Indeed, the skunk is our friend. (Just don't try to shake hands.)

To orient us further to our natural surroundings, Lawrence includes atmospheric and celestial observations to help the reader better appreciate such phenomena as rainbows, constellations, frost, and shooting stars. Her unpretentious, unselfconscious poetic statements evoke images or feelings associated with the natural world. Thus she writes that "beech trees look like elephant legs," and suggests that the call of the mourning dove heralding the torpid, melancholy feeling of late summer seems more atmospheric than personal, reflecting a sense of the heaviness of the season while reaffirming our oneness with nature.

This book may be a minor disappointment to those who do not find their favorite wildlife species mentioned. A New England naturalist, the author has made her selections almost exclusively from the Northeast, but many species common to all parts of the country are discussed. I could happily reread her account of the "satellite" crickets who steal females from the singing, territorial crickets, as well as her tale about a june bug's fatal encounter with a screen door, an example of humanity's more prosaic successes in pest control.

DANNY TANNENBAUM *is a writer and editor living in Oakland, Calif.*

A GADFLY'S GALLIMAUFRY

DON SCHEESE

Slumgullion Stew: An Edward Abbey Reader, by Edward Abbey. E. P. Dutton, Inc., 1984. $18.95, cloth; $8.95, paper.

"THE HUMAN VERSUS human institutions," writes Edward Abbey in the preface to his 17th work, "runs through everything I have written. . . ." Put another way, the recurrent concern of both his fiction and nonfiction has been how human institutions have desecrated nature, and how human individuals can save it. Make no mistake about it: Abbey's writing follows closely the trail blazed by Thoreau and Muir, and more recently resumed by Gary Snyder and Wendell Berry. These artists, in Sherman Paul's words, "combine autobiography and utopia . . . to hearten us by showing us new and true possibilities and how much may be achieved in life and art by conscious endeavor."

It seems safe to say that Abbey is today's most well-known nature writer. Most Sierra Club members are no doubt familiar with at least one of his works, probably *The Monkey Wrench Gang*, *Desert Solitaire*, or

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one of the more recent anthologies. What, then, is the value of an Abbey reader? A fair question. The answer: It provides Abbey cognoscenti with samples from some of his less available books, such as *Appalachian Wilderness* (1970), an account of a tour through the Great Smokies for which Abbey collaborated with photographer Eliot Porter to produce a fine specimen of coffee-table literature. The *Reader* also confirms Abbey's reputation as an environmental gadfly. As he explains on the acknowledgments page, "slumgullion stew," a hobo's potpourri of edible and inedible ingredients, "like human society itself . . . should be stirred frequently, or you'll get a lot of *scum* on top."

Included in the *Reader* are selections from all six of his published novels, a novel in progress, and five essay collections. Abbey concedes in the preface that none of the novel excerpts is fictionally autonomous; and it is difficult for the initiate to grasp the author's commitment to nature through a mere culling from the fiction. Still, these selections provide evidence of his prose power, and will surely titillate readers, leading them to digest earlier novels *in toto*.

Much more illuminating and representative of Abbey's work are the essay excerpts. Many resemble short stories, and they establish the author as a first-class nonfiction writer. Not since Hemingway has such a prominent American author led as interesting and exciting a life in the wild—and Abbey's relationship with nature isn't exploitive, as was Hemingway's. This fact suggests why Abbey's writing is so evocative: It rings true, and causes one to seek out and live new possibilities.

Desert Solitaire (1968), a *Walden*-like account of life in the Utah desert, remains Abbey's finest work (his own denigration of it notwithstanding), and the *Reader* contains five choice chapters. Among them is the quixotic conclusion, in which the narrator, about to end his service as a seasonal park ranger in Arches National Monument, declares his longing for "the wit and wisdom of the subway crowds again, the cabdriver's shrewd aphorisms, the genial chuckle of a Jersey City cop, the happy laughter of Greater New York's one million illegitimate children." That's right—after six months of exploring and protecting his 33,000-acre redrock garden, he discovers that "the one thing better than solitude, the only thing better than solitude, is society." Abbey is nothing if not unpredictable.

He is also a good storyteller, as "The Moon-Eyed Horse" and "Havasu" demonstrate. The first essay details his attempts to befriend a feral horse; the second, a close brush with death in the Grand Canyon. Yet Abbey's stories serve a purpose beyond entertainment. Their realism debunks the myth of the Hollywood West—"a vast, grand but empty stage whereon cavort, from time to time, the caricatures of myth and legend. . . ." At the same time we are warned of the consequences of a society fast disintegrating from the encroachment of a monolithic culture and a land threatened by industrial tourism.

In the nature-writing tradition an author typically develops what Paul Brooks in *Speaking for Nature* calls an "intimate acquaintance with one cherished spot on earth," and then claims it, for literary purposes, as his or her own. Thus William Bartram loved and wrote of the swamps of the Southeast, Thoreau of Walden Pond, Muir of Yosemite Valley, Aldo Leopold of Sand County, John Graves of central Texas, and so on. Abbey's cherished spot is the desert; mainly the deserts of the American Southwest, but also those of Mexico and Australia, as excerpts from *Abbey's Road* (1979) show. His major contribution to nature writing has been to popularize the fragile beauty of the desert environment, partly by way of his sense of humor: He takes his pursuits seriously, but not sol-

emnly. In this regard the *Abbey's Road* selections also document his reputation as a humorist.

Five essays from *Down the River* (1982) illustrate that Abbey is as much a river rat as a desert rat. The irreverent, witty, and entertaining essay "Down the River with Henry Thoreau" combines the account of a ten-day float down the Green River with an exegesis of the work of America's foremost nature writer. "Of Protest" follows in the same vein, reporting the civil disobedience of several individuals at the plutonium trigger plant in Rocky Flats, Colo. This essay reminds us of another of Abbey's contributions: He was among the earliest of contemporary nature writers to introduce the question of morality into the debate over protecting the environment.

By combining the genres of travel and nature writing, Abbey achieves a literary synergism that is his trademark. "Telluride Blues—A Hatchet Job," one of four excerpts from *The Journey Home* (1977), tells of the dilemma facing incipient boom towns: How to capitalize on economic growth without compromising cultural integrity? Also included are two paeans to the desert.

As with all anthologies, there are regrettable omissions. Two essays are especially noteworthy for their absence: "Polemic: Industrial Tourism and the National Parks" from *Desert Solitaire*, and "The Second Rape of the West" from *The Journey Home*. Both are tours de force in what is now frequently referred to as environmental journalism. Each recalls the jeremiads delivered 40 years ago by Bernard DeVoto in *Harper's*—polemical, pessimistic pieces characterized by a tone of barely controlled outrage, aimed at preventing the West from, in DeVoto's well-known phrase, "raping itself." To read such prose is to witness the essay's elevation to an art form, the melding of the aesthetic and the political in order to defend the West from what Abbey has called "alien invaders . . . from another world."

"In the beginning," the philosopher John Locke wrote 300 years ago, "all the world was America." As a galvanizing force in environmental politics and art, Abbey has reminded us that the West is still America—the terra incognita of our hearts and minds—and had damn well better remain that way.

DON SCHEESE *is a Ph.D. candidate in the American Studies Program at the University of Iowa, where he is doing research on nature writing and the American West.*

THE THRILL IS GONE

WARREN LIEBOLD

The Power Makers, by Richard Munson. Rodale Press, 1985. $16.95, cloth.

IT MUST HAVE BEEN A JOY to be the executive of an electric utility 20 years ago. You were involved in the sale of a product universally acknowledged as one of the pillars of industrial civilization. You attended ribbon-cutting ceremonies as new businesses opened in your community. Costs were down; your stock investments and professional position were as secure as could be; and your industry was in the forefront of a new and promising technology that would cure air pollution and provide limitless supplies of electricity at low cost.

The good old days must seem very distant to utility executives today. Instead of ribbon-cutting ceremonies, they attend bankruptcy proceedings. Community respect has turned to derision; construction programs have turned into a game of "You Bet Your Company"; and that once-prom-

ising new technology has been transmuted into a burden. What's worse, today's really promising technologies are being developed by independent entrepreneurs who are trying to take away your business.

Electric utilities have experienced a traumatic decade or two. The changing face of the electric energy business and the directions in which it may be heading are the themes of *The Power Makers*, a well-written new book by Richard Munson, former director of the Solar Lobby. (Munson wrote "Electric Rebels" in the March/April 1985 *Sierra*.)

After an introductory overview of the utilities' current dilemma, Munson provides a detailed history of the development of electricity as an energy source, as well as minibiographies of several of its famous and infamous developers: Thomas Edison, Samuel Insull, Nikola Tesla, George Westinghouse, and others. These sketches, in tandem with the author's historical overview of electricity's importance to an increasingly affluent American society, help the reader understand how the utility monopolies and the regulatory system came into being, and how they have amassed their political strength.

The account continues with the struggle between advocates of public power and the private utilities of the 1920s and '30s, the development of the Tennessee Valley Authority and rural electrification. Munson's treatment of "the golden age" ends with the early development of nuclear power. He then explores the blackouts of the 1960s, the cost overruns and controversies of the 1970s, and competition from small power producers in the 1980s.

The belief that electric utilities comprise a monolithic industry will be challenged by sections about New England Electric, Southern California Edison, and other companies that have taken innovative steps toward shaping a more rational energy future. But although new energy-conserving technologies are appearing monthly and small power production is the fastest-growing sector of the electricity supply business, most utilities and regulatory agencies are still in the dark ages. While Brooklyn Union Gas in one part of New York City is supplying its customers with 100 megawatts of cogenerated power, just across the East River Con Edison is successfully fighting small power producers. While the Northwest Power Planning Council may treat efficiency as a source of energy preferable to new power plants, other utilities and regulators in the West see themselves as die-hard defenders of coal mining and combustion. And legislation to deal with acid rain generated by midwestern producers remains an elusive goal.

If *The Power Makers* has one shortcoming, it is in its treatment of the environmental movement as a force shaping current utility history. The book accurately describes the controversies over acid rain, nuclear power, and wildlands preservation, but ignores the role of the environmental movement in developing alternative energy sources. While it can hardly be said that the movement is unified in its approach to these alternative sources, it might be suggested that environmentalists who intensely oppose most small-hydro and wind-power development do so with little understanding of the qualitative differences between the problems posed by newer and older technologies. They also fail to grasp another, related reality: If the effects of "hard" energy sources are to be minimized or eliminated, "not-in-my-backyardism" may be a luxury that needs to be examined. The recognition that environmentalists could play into the hands of the least innovative members of the electric industry—and a discussion of how this can be avoided—are unfortunately missing from an otherwise thorough book. On the other hand, Munson does note that some small power producers are clearly quick-buck artists.

But perhaps differentiating between opposition to a technology and to a particular application of that technology needs to be attempted in another book. In *The Power Makers*, Munson does a fine job of detailing the conflict between the embattled electric utilities and the modern-day Edisons who are challenging their monopoly.

WARREN LIEBOLD *serves on the Sierra Club's National Energy Committee.*

BRIEF REVIEWS

The Vanishing Land, by Robert West Howard. Villard, 1985. $15.95, cloth.

HOW MANY BOOKS on farm policy manage to encompass the invention of the shopping cart, the manufacture of the cotton gin, and the revitalizing effect of pizza on America's flagging mushroom crop?

Although much of *The Vanishing Land* is given over to a wide-ranging discussion of agricultural history, the author moves beyond a chronological account of the development of U.S. agricultural policy to call for a grassroots "green revolution." Such a revolution would include among its goals the limitation of huge conglomerate farms, the re-establishment of self-sufficient farming communities, and the reorganization of the U.S. Department of Agriculture into

a series of regional land centers—a reorganization that would entail a revamped subsidy program and plans for an international food bank that can sell U.S. crops to hungry nations. Howard also says that we who wish to protect our farmland must become activists, and that writing letters isn't enough; we need to vacation on farms, patronize farmers' markets, teach gardening to our children, and raise fruits and vegetables (even if that means merely a pot of chives on a city windowsill).—*Susan Mernit*

California Currents, by Marie De Santis. Presidio Press (31 Pamaron Way, Novato, CA 94947), 1985. $15.95, cloth.

THE AUTHOR, at once a scientist and captain of her own commercial fishing vessel, here blends a look at the ocean's natural wonders with questions pertaining to ecological and resource management policies. Hatchery management and its relationship to species survival, the difficulties involved in accurately estimating fish populations, and the unique environments that comprise the California coastline are among the topics she discusses. These differing emphases offer something for everyone: Casual readers will find accounts of ocean mysteries fascinating reading, while fishermen will enjoy bits of industry lore that seldom appear in print.—*Diane C. Donovan*

River Rescue, by Les Bechdel and Slim Ray. AMC Books (5 Joy St., Boston, MA 02108), 1985. $9.95, paper.

STRAINERS, BROACHES, keepers, low-level dams, hydraulics, undercuts, potholes . . . the common hazards of whitewater paddling sound a familiar litany of warning. The authors of *River Rescue*, experienced whitewater leaders and instructors associated with the Nantahala Outdoor Center, have written one of the most comprehensive summaries of river rescue techniques available.

While technical questions—rolls and ropework, evacuation and medical care—are covered in detail (with helpful photos by co-author and frequent *Sierra* contributor Slim Ray), much of the text stresses the importance of certain intangibles, notably mental and physical preparedness and good judgment. And although novices obviously can and do run into trouble on the river, overconfidence on the part of more experienced paddlers, at best a sin, is at worst an equal invitation to disaster. ("Many experts make lousy victims," as one writer put it.) Properly trained companions can do much to save your life, it's true—but even in a large group the individual has primary responsibility for his or her own safety. Kudos to the authors for spelling this out. —*Jonathan F. King* □

NAOMI SHORT

◀*Genghis Khan thought Halley's Comet was his own special star. When it appeared in 1222, he pushed his armies through southeast Europe, killing millions of people.*

▲ *This section of the Bayeux tapestry in Normandy, France, shows the role Halley's Comet played in the Battle of Hastings. In that famous year, 1066, the Saxons saw the comet as a sign of defeat, while William the Conqueror saw it as "a wonderful sign from Heaven." The tapestry reads, "They are in awe of the star." (Musée de l'Evêché, Bayeux)*

Edmond Halley (1656–1742), ▶ *the son of a soapmaker, was the first to predict the return of the comet that bears his name.*

◀*This painting of the Nativity scene by the Italian painter Giotto shows the Star of Bethlehem as a comet. (Adorazione dei Magi, Scrovegni Chapel, Padua)*

When Halley's Comet last passed by Earth 75 years ago, some people plugged their windows and doors out of fear. A newspaper story started a rumor that poison gas would kill everything on Earth when our planet passed through the comet's tail. No matter how often scientists said the story wasn't true, people were convinced the end was near.

The comet didn't destroy life on Earth, of course. But it's not surprising that people reacted the way they did. Halley's Comet has been scaring people for thousands of years. The famous comet will pass by again soon on its 76-year trip around the sun, and all the old excitement is starting up again.

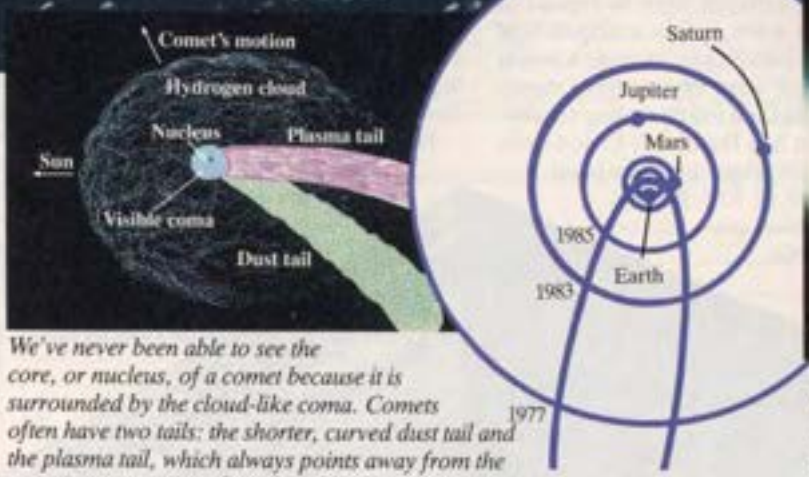
Halley's isn't the only comet that can be seen from Earth. It's not even the biggest or the brightest. But Halley's is the most well-known comet because it was the first to be understood.

For centuries people had seen and written about comets, but no one knew what they were or where they came from. Imagine what it must have been like to look up one night and see a dazzling ball of fire with a tail stretching across the sky. Many people were scared silly. They thought comets might crash into Earth and destroy it. Others saw them as messages from God—usually not very good messages. Some astronomers believed comets were pieces of stars or planets that broke off and wandered around in space until they happened to fall into the sun. No one imagined that the same comet might pass by more than once.

All this changed with an astronomer named Edmond Halley (pronounced like "alley"). By studying comets, Halley came to believe they traveled in orbits, just like planets. To prove his point, he studied the movements of a comet he saw in 1682, then claimed that the very same comet would pass by again in 76 years. Halley died before finding out if he was right, but 76 years later, comet-lovers eagerly watched the skies for the return of his comet. Sure enough, on

A COMET'S TALE

Halley's Comet has often been used in art and by business for advertising. The "Halley's Comet Rag" was written by Harry J. Lincoln for the comet's 1910 visit. A French cartoon drawn in 1857 pokes fun at the idea that comets bring disaster.



We've never been able to see the core, or nucleus, of a comet because it is surrounded by the cloud-like coma. Comets often have two tails: the shorter, curved dust tail and the plasma tail, which always points away from the sun. As you can see, the orbit of Halley's Comet is not round but oval. The comet reached its farthest point from the sun in 1948. Since then it has been traveling back toward the sun, and will pass closest to Earth in April, when it will be "just" 39 million miles away.

▲ *The Giotto spacecraft will be meeting Halley's Comet next March.*

Christmas night, 1758, the comet appeared in the sky.

By proving that comets move in orbits, Edmond Halley helped change the way people looked at the universe. Instead of a sudden warning of disaster, Halley's Comet was a harmless iceball that had been spinning along the same track for centuries, passing Earth every 76 years.

Today we know that comets are lumpy balls of ice, dust, and gas that circle the sun. As a comet gets closer to the sun, it starts to melt, shedding gas and dust that sparkles in the light. From Earth these specks look like a glowing veil surrounding the ball and trailing behind it for millions of miles.

Although we aren't afraid of comets anymore, we still don't know very much about these "dirty snowballs." Some scientists believe comets that crashed into Earth might have helped cause certain animals, such as the dinosaurs, to disappear. Some believe comets might be left over from when the solar system was created. When Halley's Comet passes by next year, we have a chance to learn more about all comets. For one thing, we have better instruments for looking into space than ever before.

You can see Halley's Comet, too, even without fancy instruments. The best time will be one or two hours after sunset early next January, when it will be clearest from the Northern Hemisphere. All you need is a good pair of binoculars, a dark place to watch the sky (away from the city), and patience. No one is quite sure how the comet will look on this trip, because it looks different every time. There are also many more city lights now than there used to be, making the night sky harder to see. Some nights will be better than others, so keep trying. No matter what happens, Halley's next visit will give everyone what is probably a once-in-a-lifetime chance to feel a little closer to the universe. □

NAOMI SHORT *is a freelance writer living in San Francisco, Calif.*

The OBSERVER

A Home of Our Own

Sierra Club Leases New San Francisco Headquarters

FACED WITH THE NEED to expand its office space, and in anticipation of a 100 percent rent increase when its current lease expires this December, the Sierra Club will be renting an older building near San Francisco's Civic Center for use as its headquarters. The building, located at 730 Polk Street, has been purchased by National Headquarters Associates, a partnership of Sierra Club supporters, and is being leased to the Club at a rental fixed for ten years. Occupancy is scheduled for November 14.

The Club has rented office space within a several-block radius of its original home at Bush and Sansome streets in downtown San Francisco almost continuously since 1892. (A brief move across the bay to Berkeley was required in the aftermath of the 1906 earthquake and fire.) Since 1975 the staff has occupied space in a building that functioned in 1916 as a substation of the Great Western Power Company. The building, which was purchased by Storek & Storek architects for use as an Environmental Center, now houses tenants ranging from the Goethe Institute and the French consulate to the Small Business Administration. The amount of space available to the Club has remained constant even as its membership has grown dramatically (from 153,000 in 1975 to more than 350,000 today); that growth has led to a proportional increase in headquarters staff (from 85 to more than 150 employees). The need for increased work space has been obvious to em-

Philip Adam

California Historical Society

California Academy of Sciences

Complete renovation will turn an old warehouse into the Sierra Club's new headquarters. The California Academy of Sciences (right) served as the Club's first home. At left, the Mills Building (another Club office) after the 1906 earthquake and fire.

ployees and visiting Club volunteers for quite some time.

Commercial rents in San Francisco have inflated dramatically over the past several years, and it long ago became clear that rent would at least double if the Club were to remain at 530 Bush Street beyond the expiration of its current lease. The area around 530 Bush, which was somewhat rundown in 1975, has blossomed over the past ten years, so that while it is now a more pleasant neighborhood in which to work, it is also getting prohibitively costly. The Club's Board of Directors authorized the formation of a committee (which, under the direction of Treasurer Phil Hocker, soon became known as the Space Patrol) to investigate possible locations for a new building and the means of financing it.

Some consideration was given to transferring the Club to Washington, D.C., where much of the organization's political work is done. But the Club's leadership—including most of the Board of Directors and the Sierra Club Council—expressed a strong desire to stay in San Francisco. "It's generally agreed that the Club's identification with San Francisco provides a distinct element of our image," says Sierra Club Chairman Mike McCloskey. "It shows that we're not just another Washington-based lobbying outfit."

The outright purchase of a new building was deemed impossible early in the search process. "The Sierra Club is not a rich organization," says Hocker. "Money taken in has always been directed to fighting conservation battles, not earmarked for long-term investments, so we didn't have a big endowment on hand to dedicate to purchasing a building."

Direct purchase having been dispensed with as an option, the decision to rent space in a building owned by a limited partnership of Club supporters took shape quickly. "We all shared a strong desire to control our own destiny as the Club moves toward its second century," says McCloskey, observing that the Sierra Club has "always been at the mercy of landlords, to whom we've gone every ten years with hat in hand."

"The history of office rents in San Francisco has been one of steady escalation over a very long time," Hocker notes. "When we started this search process, rental space was very tight in San Francisco, and rents were rising rapidly. No matter what we did, we were going to be facing an increase in office-space costs in fiscal year 1986 and thereafter—as long as we intended to have our office indoors. If we chose to stay at 530 Bush Street, our rent would probably more than double the minute our old lease expired. If we rented in another location, we'd face an increase sooner or later—especially since we were looking for

more space than we've occupied before now."

The land on which the Club's new headquarters stands is owned by the Sierra Club Foundation, thanks to a very generous donation—the largest in Club history—by Tom and Helene Stapleton, former owners of the building. The building itself is owned by a limited partnership of Club supporters put together (under Hocker's aegis) by Audrey Berkovitz and Carleton Whitehead of the Club's Office of Development, in association with development consultant John Hooper. "The goodwill and trust displayed by the limited partners regarding the Club's ability to manage a project on this scale made it possible for us to go ahead without having to use the Club's funds," says Hocker. "It's especially gratifying in view of the fact that some financial institutions questioned whether the Sierra Club could be businesslike enough to take on such a huge organizational task." As the Bank of America is providing mortgage financing at a competitive rate, it appears that any questions of organizational capability have long since been answered in the affirmative.

Of the early efforts of the Space Patrol, Hocker recalls, "One of the things we wanted to do was make sure we had a building with space available for future expansion of the Club's headquarters operation. At the same time we didn't want to end up with a building so large that we'd have a big management burden to worry about in the future. What we were looking for was a building that would allow us a 33 percent expansion beyond our current needs." The total leaseable area of the 730 Polk Street building is 65,000 square feet, of which the Club will occupy 48,000 square feet (including public spaces and storage)—half the second floor, all of the third and fourth floors, and space on the ground floor for the bookstore and reception area. The remaining 17,000 square feet will be subleased, ideally to one or more compatible clients (such as an outdoor equipment retailer or physical fitness center). The Club will be able to reclaim square footage as needed when subleases on the retail space expire; in the interim, Club finances will benefit from anticipated upward adjustments in rental income.

Such adjustments are expected to occur over the next few years as the neighborhood around Civic Center joins the parade toward gentrification that is sweeping through one section of San Francisco after another. The four-story masonry building at 730 Polk Street was constructed in 1926, when it served as the main office for an auto-parts wholesaler servicing the grand salons on San Francisco's Auto Row, a block away on Van Ness Avenue. Today

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Van Ness is the focus of a planned redevelopment strategy that aims to retain the corridor's distinct architectural character while permitting increased commercial and residential construction. Polk Street and its unglamorous cross streets between City Hall and Sutter Street—Ellis, Turk, Golden Gate, McAllister, and others—will doubtless experience spillover effects from a revitalized Van Ness.

"The neighborhood is changing dramatically," says McCloskey, "and we're at the forefront." The blocks immediately surrounding the Club's new address have in recent years become home to a great many immigrants from Southeast Asia, mostly ethnic Chinese from Vietnam and Cambodia. A feeling of neighborhood identity is now developing in an area that for many years was devoted to light industry, X-rated bookstores, and (often substandard) lodging for transients and the elderly. As evidence of further change in store for this part of town, Hocker points to the opening next year of a $40 million mixed-use development, the Bakewell-Brown project, that will provide space for residential as well as office and other commercial activities. This project is a block north of the Club's new headquarters. Just a block south is California Hall, which is being rehabilitated to serve as headquarters for the California Culinary Academy.

High on anybody's list of other neighborhood amenities would have to be the facilities of San Francisco's Civic Center, just a few blocks down Polk in the direction of Market Street. In addition to the Federal Office Building (which houses legislative offices as well as the regional offices of the Interior Department), Club staffers will be within easy reach of San Francisco's main public library. Cultural opportunities—including the city's world-renowned opera house, symphony hall, art museum, and ballet—are also nearby. The location is reasonably close to BART (the Bay Area's regional subway service), and is on or close to a number of bus and light-rail lines.

The Sierra Club's new headquarters is being entirely refurbished, inside and out, under the supervision of Bay Chapter Chair John Holtzclaw. A color scheme was devised by a consultant working with a committee of staff members. Inside, cinammon-brown carpets and muted-peach walls will stand out against white ceilings, while on the exterior walls burnt-orange window frames and cream-color medallions, molding, and cornices with gold lions' heads will contrast with the mottled tan and yellow bricks. "Something exciting is emerging from a dowdy old warehouse," says Mike McCloskey.

Indeed, as the contractors move toward completion, it's clear even to the casual visitor that the new headquarters will mark a signal improvement over the spaces the Club has rented in years past. Floor plans have been thought out carefully to ensure that the interior space is better organized than it has been at 530 Bush Street—a long, narrow building that is not functionally efficient despite some interesting architectural features. Numerous high windows in the new building will provide ample natural light for more staffers, while nearly every department will find itself with more space in which to work. (The total area allotted to the Club represents an increase of nearly 50 percent over present space.) Volunteers accustomed to doing Club business within the cramped confines of 530 Bush Street will appreciate the space set aside for private meeting and conference rooms. There will also be some storage space for out-of-towners' luggage, as well as a kitchen for use in organizing parties and receptions. The crown jewel will be a rooftop deck built by staff and volunteers.

"The new space will be nice, but it won't be plush," Hocker says. "We've tried to strike a balance that makes sure our folks have a good place to work, yet keeps the cost impact on the Club's budget as low as possible. Don't come looking for a marble monument; this is a place where the work of conservation will get done."

Footnotes on Muir

VICTORIA WAKE

More than two hundred admirers of John Muir gathered in April at Stockton, Calif., for two days of appreciation, examination, and speculation—all focused on the esteemed father of the environmental movement. The occasion was the 38th California History Institute, sponsored by the University of the Pacific's Holt Atherton Center for Western History. "John Muir: Life and Legacy" featured 16 scholars from around the country, each of whom made an offering to the collective understanding of the famed naturalist, examining him from angles literary, scientific, political, and spiritual.

A number of speakers explored the lands, people, and ideas that shaped Muir's life and thinking. Two slide presentations on the Scottish and Wisconsin landscapes of Muir's youth demonstrated how these regions stand alongside Alaska and the Sierra

Nevada as prime influences on his naturalist philosophy.

Two papers traced a fascinating lineage of intellectual and personal influences on Muir back to a series of New England writers, professors, scientists, and close friends. One speaker gave this Yankee group credit for the liberation of Muir's genius. Henry David Thoreau was of special significance. Although Muir never met Thoreau (despite one speaker's fanciful calculation that placed the young Muir on a hillside behind the University of Madison looking down on a passing train and just possibly meeting the eyes of the ailing Thoreau as he headed to New England), Muir's choice of themes and imagery give strong evidence that Thoreau served as his spiritual and literary mentor.

More than one scholar sought a reconciliation between Muir's wilderness faith and his Calvinist upbringing. One dubbed him "geologian" for his blending of preacher, poet, and experiential naturalist. Another pointed to his passionate celebration of a "glacial gospel," the good news that glaciers revealed magnificent truths, divine connections, and made apparent the harmony of nature. In fact, Muir maintained that "Christianity and mountainity are streams from the same fountain." His father, however, was never convinced. He warned his son, "You cannot warm the heart of the sainted God with your cold icy-topped mountains."

Scholars traced Muir's explorations in the Alaska wilds as well as his less well-known travels to the South Seas. The latter were prompted by reports "bragging gigantic vegetation" rivaling that of California's redwoods. Following months of botanical sleuthing, Muir happily reported that, although he had made the acquaintance of many "new tree faces," neither the deodar of India nor the eucalyptus of Australia could match the majestic height of *sequoia sempervirens*.

In Alaska Muir reveled in the mammoth living glaciers, the likes of which he could only imagine when he was developing his glacial theories in Yosemite years earlier. Letters sent to newspapers back in the states told of his many encounters with native Alaskans, who for their part were accustomed to prospectors looking for gold, but had never heard of anyone looking for ice. Muir's literary landscapes of mountains, trees, and water began to include people as well, people with a direct and harmonious relationship to nature.

Other papers at the conference discussed the famous controversy between Muir and geologist Josiah Whitney over the origins of Yosemite Valley, Muir's attitude toward animals in light of the animal-rights activism of the day (see Lisa Mighetto's "Muir Among

the Animals," March/April 1985), the amazing quotability of Muir, his unlikely liaison with railroad magnate Edward H. Harriman, and his ideas as practiced through the years by the Sierra Club.

At times the presentations were somewhat marred by overinterpretation, which seemed to give vent more to the speaker's personal views than to John Muir's. It was best when the naturalist was allowed to speak for himself: The audience often responded more readily to a quotation than to the explanation of it. Throughout the conference the audience was alternately moved, enchanted, and befriended by what one speaker termed Muir's "invitational mode of expression." His vision has touched us through the years with a wonderful freshness.

That vision would have died with Muir had he not cultivated the gift of communicating it. The immortality of his writings is all the more remarkable given that he hated to write. He dreaded dealing with "dead bone heaps of words," and did so seriously only later in life, when he was forcibly secluded and coached by friends. No doubt writing was painful to him in part because he was an unceasing revisionist. As his friend John Swett observed, "John polishes articles until an ordinary man slips on them."

The two days of research, reverie, and reportage came to an end with a paper suggesting that our understanding of Muir is by no means complete. Subjects awaiting further study include his scientific achievements and how they measure up to the technology of the times and of today, Muir the businessman and husband, as well as the influence on him of 19th-century San Francisco, the country's newest major city, where he lamented the absence of "a single, perfectly sane person."

This future study should be enormously facilitated by the completion of a comprehensive microform compilation of John Muir's unpublished papers by the Holt Atherton Center. With more than 10,000 entries gathered from 40 depositories throughout the country, "The John Muir Papers, 1856–1942" includes virtually all his correspondence, journals, notebooks, manuscripts, drawings, and photographs, much of it previously unavailable for research. The Holt Atherton Center also houses the Muir family collection, which contains (in addition to the bulk of materials listed above) Muir's heavily annotated personal library, business records, and newspaper clippings.

The center plans to publish many of the papers presented at the conference in an upcoming issue of its quarterly journal, *The Pacific Historian*. For information about

the journal, the microform project, or the Holt Atherton Center's John Muir collection, write the Holt Atherton Center for Western History, University of the Pacific, Stockton, CA 95211.

Victoria Wake is manager of the Sierra Club's Department of Information Services.

Sierra Club Plans Second International Assembly

Remember Snowmass? The Sierra Club's first International Assembly brought members from all over the world to Colorado for four days of fun and education in the summer of 1983. Workshops, political speeches, outings, parties, films, square dancing, sing-alongs—all added up to a "Rocky Mountain high" that none will soon forget.

That first get-together was so successful, in fact, that the Club will be doing it again. The date will be Fourth of July weekend, 1987; the site, Vail, Colo.; and the theme, "Shaping the Environmental Future."

Your help is needed to put together a program that will make this assembly a must for a wide variety of members. What kind of workshops would you like to attend? Should presidential hopefuls again be invited as speakers? How about entertainment? Outings? Free time? Other speakers? The planning committee wants your suggestions now so they can put together a program that will give everyone plenty of time to plan their 1987 vacations around the Club's second International Assembly.

Please send your ideas for workshop topics and leaders, keynote speakers and celebrations to Jerry Lieberman, 7111 Carosan Lane, Charlotte, NC 28211.

SIERRA NOTES

• The U.S. Geological Survey has published what it claims is the definitive geologic rendering of Yosemite Valley. Created by geologist Frank C. Calkins, the historic map is published with a brief text on the area's geology. USGS Map I-1639 costs $3.10 per copy. It can be purchased at USGS

Public Inquiries Offices in San Francisco, Los Angeles, and Menlo Park, Calif., and at the Visitor Center in Yosemite Valley. To obtain a copy by mail, write the Western Distribution Branch, USGS, Box 25286, Federal Center, Denver, CO 80225.

• Concern, Inc., a nonprofit environmental education organization, has published a 22-page handbook on pesticide use. "Pesticides: A Community Action Guide" is available for $3 from Concern, Inc., 1794 Columbia Rd. N.W., Washington, DC 20009. For information on bulk orders, call (202) 328-8160.

• The American Wilderness Foundation, a Colorado-based environmental organization funded by Westcliffe Publishers, has donated close to $2,500 to the Sierra Club's BLM wilderness campaign. Club Vice-President Robert Howard received the gift at the National Wilderness Research Conference in July.

The American Wilderness Foundation was created by Westcliffe Publishers to contribute to the preservation of America's wild and scenic lands. A percentage of the sales from Westcliffe's *Colorado: Magnificent Wilderness* was set aside to be given to wilderness organizations.

• The Northern Rockies Action Group has recently completed a guide to direct mail as part of their series of NRAG Papers. Designed especially for small and medium-size groups with limited budgets, *Direct Mail on a Shoestring* explores the potential of direct mail and gives tips on everything from developing mailing lists and designing a newsletter to creating a direct-mail program.

Copies of the guide are available for $7.50 each from NRAG, 9 Placer St., Helena, MT 59601. Discounts are available for orders of ten copies or more; call (406) 442-6615 for more information.

• Ann Williams, whose "Midgebuzzings" column appears monthly in the Kern-Kaweah Chapter's "Roadrunner," has recently published an anthology. (Williams was featured in the May/June 1984 *Sierra*.) Accompanied by photographs, this 132-page soft-cover edition is available for $8.27 postpaid from "Midgebuzzings," P.O. Box 3357, Bakersfield, CA 93385.

• Several environmental organizations in Pennsylvania and West Virginia have published a summary of 15 years' experience creating and selling trail guides to raise money for their organizations. The 32-page manual explains how a two- to three-member publications committee can generate income of $3,000–$10,000 per year while

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4. **Central Oregon Recreation Association**
   Send for information on vacations in spectacular Central Oregon.
5. **Clair Tappaan Lodge**
   Send for more information about the Sierra Club's own mountain lodge, including an activities schedule.
6. **Colorado Outward Bound**
   Explore the mountains, canyons, and rivers of Colorado and Utah. Send for free catalogue.
7. **Columbia Pacific University**
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    Small-group treks focusing on cultures of Nepal, China/Tibet, Kashmir/Ladakh, Pakistan, Bhutan, Japan, and more.
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21. **Nature Expeditions International**
    Wildlife and cultural expeditions worldwide. Small groups, expert leaders. Free color brochure.
22. **New Balance Athletic Shoe**
    Catalogue sheet on the H810 available from New Balance.
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    Rent a sugar-maple tree. Great gift! We do harvesting and send lease, progress reports, plus delicious syrup. Guaranteed.
24. **Pacific Mountain Sports**
    Catalogues available for Pacific Mountain Sports mountaineering gear, Camp 7 sleeping bags, and Tua mountaineering skis.
25. **Planned Giving Program**
    Life-income trusts and bequests provide tax and income benefits and support Sierra Club conservation programs. Usually applicable to members over 55.
26. **Prescott College**
    Available information includes '85–'86 general catalogue, brochure, financial aid, course descriptions, program letters, and poster.
27. **R.E.I.**
    Free catalogue! REI offers one of the largest selections of outdoor equipment and clothing.
28. **Runique**
    No blisters ever. We guarantee it. These are the most comfortable socks you have ever worn.
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promoting membership. To get a copy of the manual, send $2 to Allegheny Group, Sierra Club, 210 College Park Drive, Monroeville, PA 15146.

• The Sierra Club Conservation Department has published five new brochures. "The Sierra Club Guide to Radio News Feeding" ($1.50), "Superfund or Superstall? The EPA and Toxic Waste Cleanup" ($2.50), "National Forest Trails: Neglected and Disappearing" ($1.50), "Our National Forests: Lands in Peril" ($1.50), and "The Sierra Club's National Objectives for 1985" (50¢) are all available from Sierra Club Information Services, 530 Bush St., San Francisco, CA 94108. Please add 25¢ per order to cover postage. Information Services will enclose its list of more than 150 pamphlets and articles on conservation issues. To obtain the list only, send a self-addressed, stamped envelope to Sierra Club Information Services at the above address.

• An exhibition chronicling a century and a half of growth in the American West will open at the American Museum of Natural History in New York City on November 29. "Masterpieces of the American West" features some 100 paintings by 90 artists, including Georgia O'Keeffe, Jackson Pollock, Frederic Remington, George Catlin, and Charles Russell. The exhibition closes February 16, 1986.

• The nonprofit Astronomical Society of the Pacific has produced a 36-page booklet to help people find, understand, and appreciate the return of Halley's Comet. The booklet gives the history of the comet, information on how to locate it, an introduction to comet science and comet lore, a reading list, and an introduction to astronomy as a hobby.

To get a copy of "The Return of Halley's Comet," send $4 to the Astronomical Society of the Pacific, Comet Packet Dept., 1290 24th Ave., San Francisco, CA 94122. For more information about the society, contact Andrew Fraknoi at (415) 661-8660.

• The Sierra Club of Canada is sponsoring a conference to evaluate Canada's traditional forestry practices. "Woodshock: The Forestry Conference" will bring together specialists from many fields (including Sierra Club Chairman Mike McCloskey) to discuss how to ensure the survival of Canada's forests and increase public awareness of the importance of forest resources.

"Woodshock" will take place in Toronto, Ontario, October 17–19, and is open to all. Registration fee is $125 before August 15 and $165 thereafter. For more information contact the Sierra Club of Canada.

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QUESTIONS ? ANSWERS

Q: Where is our old nemesis James Watt these days; and what has he been doing? (Joseph Hurst, Dallas, Texas)

A: The turbulent, controversial term of Ronald Reagan's first Secretary of the Interior ended in October 1983, when he resigned after public outcry over his notorious slur against women, minorities, and the disabled. Since that time Watt has managed to tone down the chronic foot-in-the-mouth affliction that plagued his years in Washington. A good portion of his time is now spent as a spokesman and lecturer for the Moral Majority.

Most recently he surfaced on the Wind River Indian Reservation in Wyoming, where as a representative for a consortium of oil companies he was seeking permission to begin oil and gas exploration. Watt apparently hasn't lost his touch: Tribal leaders were quoted as saying they found the former Interior Secretary "pushy and arrogant."

Plus ça change . . .

Bill Peschke

Q: Doesn't the PCP used to tranquilize bears make them more aggressive? I know it can have this effect on humans. (Pete Tovar, Upper Marlboro, Md.)

A: PCP (phencyclidine), sometimes called angel dust, has been known to incite violent rampages in humans. It was banned by the Drug Enforcement Administration in 1978, but is still used (under its trade name, Sernalyn) by the National Park Service for tranquilizing bears. Following last summer's rash of attacks by rogue bears, serious discussions have arisen over the long-term effects of PCP on grizzlies.

Although several studies have examined the effects of PCP on humans, not one has investigated its residual effects on larger animals. It is known that when PCP is administered in large doses, it surpasses the liver's ability to metabolize it, and is stored in the fatty tissues. It is reactivated with weight loss—which bears experience during the winter.

Charles Jonkel, a wildlife biologist at the University of Montana, observed post-anesthetic violence in polar bears during studies conducted in the early 1970s. He says the university has stopped using Sernalyn "because we were experiencing erratic results."

It appears likely that these problems will lead to studies of the effects of PCP on bears in the near future.

Q: Are backpacking and camping increasing in popularity as recreational activities in the United States? (C. S. Turner, Spokane, Wash.)

A: The most recent survey on nationwide recreation was conducted by the U.S. Bureau of the Census and the National Park Service in 1982 and 1983. The latest in a series dating back to 1960, the survey sampled 5,757 citizens representing a broad cross section of the population. It found that the percentage of Americans who camp increased from 8 percent in 1960 to 19 percent in 1982. Most of this increase was in the "inactive" category—those using developed campgrounds and resorts. Only 5 percent of the population participated regularly in "active" camping—i.e., backpacking.

A detailed report can be obtained by writing to Recreation Resources Assistance Division, National Park Service, U.S. Department of the Interior, Washington, DC 20240.

Another interesting bit of information comes from the National Sporting Goods Association, which reported the following sales figures: Member stores sold 1.7 million backpacks and 6.4 million sleeping bags in 1976; in 1983 they sold more backpacks (2.4 million) but fewer sleeping bags (5.5 million). Explanations welcomed.

Q: Where are most of the toxic trouble spots on the EPA's National Priorities List? How can I get a copy of the list? (Tom Moss, Riverside, Calif.)

A: Published in October 1984 and revised in December, the EPA's National Priorities List targets the most hazardous toxic waste sites for long-term action under the Superfund. The law set up a trust fund to help pay for cleanup at sites that threaten public health and the environment. To date the EPA has put more than 19,000 uncontrolled hazardous waste sites on its inventory; of these, 540 have met the criteria for inclusion on the list and are thus eligible for long-term remedial action. An additional 272 sites have been proposed for inclusion.

New Jersey has the most listings, with 85 current sites and 12 proposed, followed by California (19 current and 41 proposed), Michigan (47 and 14), New York (29 and 29), and Pennsylvania (39 and 10).

To obtain a copy of the list, contact your regional EPA Superfund office, listed under "Government Agencies" at the front of your telephone directory.

Q: I sent an address correction to Sierra *when I moved, but the magazine is still going to my old address. Why? (Steven Holcombe, Los Angeles, Calif.)*

A: The Sierra Club updates membership and subscription records on a computer system, but problems can occur. Most arise because people have written their names or addresses differently at different times. For example, if your membership is listed under "Robert A. Smith" and you send in an address change for "Bob Smith," the Club's computer will not recognize the two names as one and the same. Problems also occur when the old address given is not the address listed in the computer.

When you write the Club about membership or subscriptions, you can avoid confusion by enclosing your *Sierra* mailing label with the eight-digit resource number. This will greatly reduce any chance of error, and your request will be handled more quickly. Send address changes six weeks in advance to Sierra Club, 530 Bush St., San Francisco, CA 94108.

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