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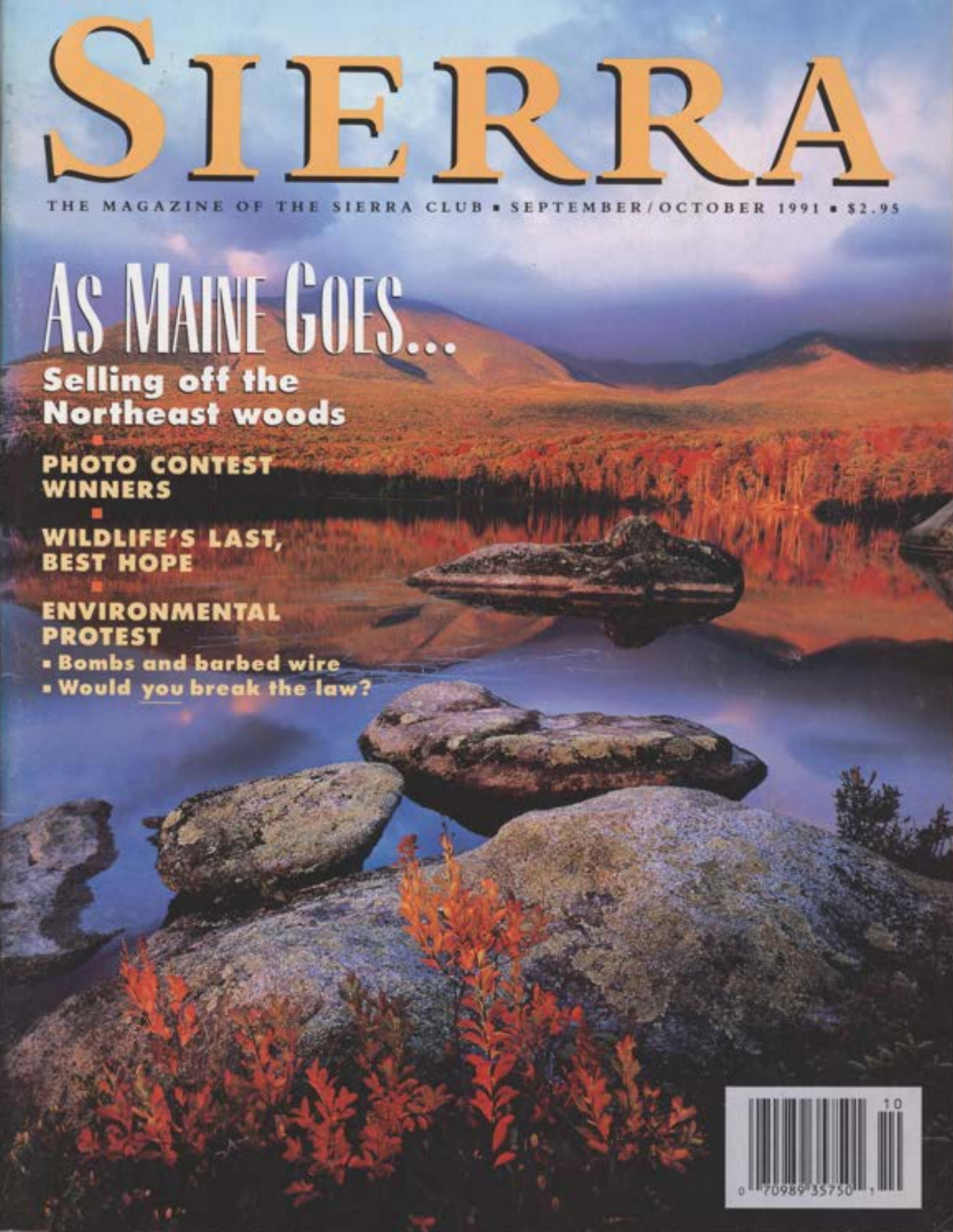

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SIERRA

THE MAGAZINE OF THE SIERRA CLUB

FEATURES

SEPTEMBER/OCTOBER 1991 • VOLUME 76/NO. 5

DAVID MARSH

CONTINUED

SIERRA

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Sierra (USPS 495-920) (ISSN 0161-7362), published bimonthly, is the official magazine of the Sierra Club, 730 Polk St., San Francisco, CA 94109. Annual dues are $35. Members of the Sierra Club subscribe to *Sierra* ($7.50) through their dues. Nonmember subscriptions: one year $15; two years $26; foreign $20; single copy $4.00 (includes postage). Second-class postage paid at San Francisco, CA, and additional mailing offices.

POSTMASTER: Send address changes to Sierra Club Member Services, 730 Polk St., Dept. A, San Francisco, CA 94109. READERS: Send old and new addresses and a *Sierra* address label. Telephone (415) 923-5653 (voice); (415) 398-5384 (TDD).

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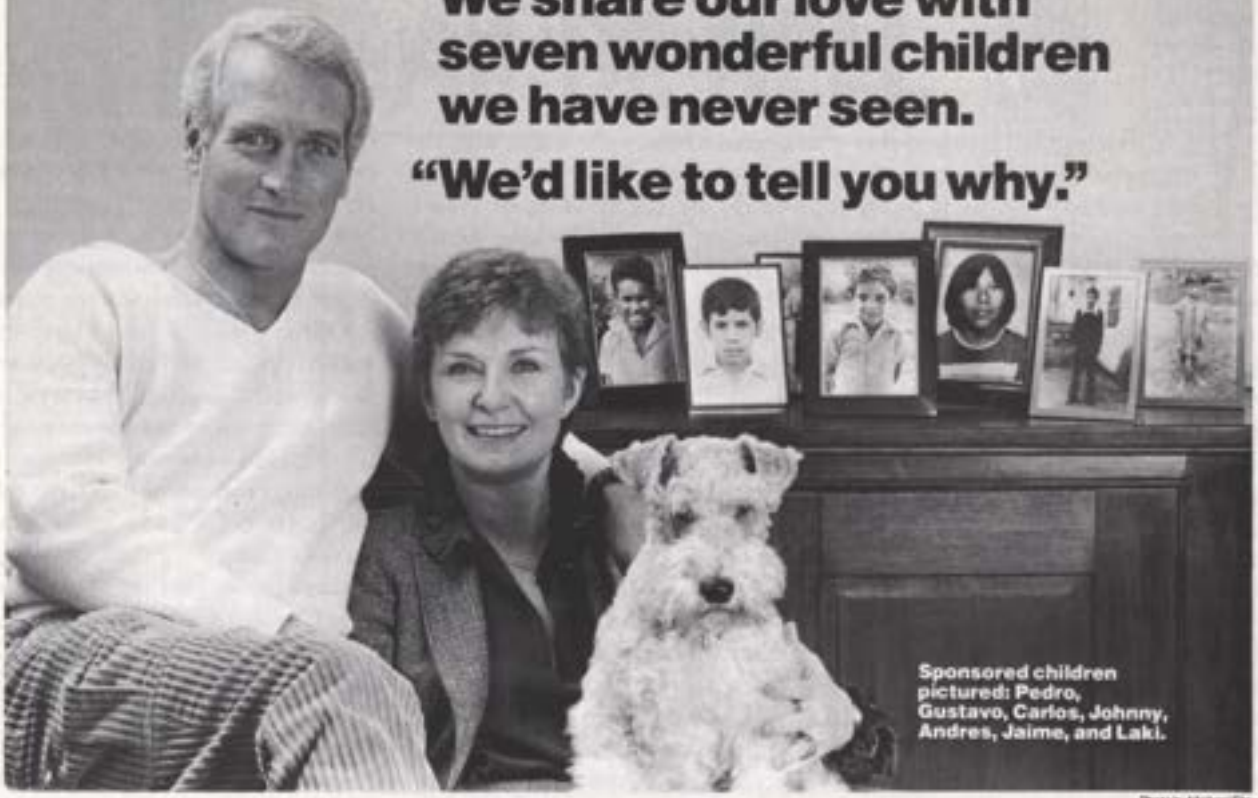

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SCB 9/1

The Issue at Hand

We've thoroughly revamped this magazine—as you may already have noticed—and we're pretty excited about it. We're also a little relieved that the transition period is over for us: the conceptualizing, opining, sketching, note-taking, arguing (in the sense of advocating one vision over another), researching, arguing (in the sense of yelling and screaming) some more, and—finally—agreeing on a schema we like and working to make it concrete.

Not every detail has been changed, we hasten to note. While other sections of the magazine may now give the features a run for their color and verve, the editorial and design philosophies behind those central pages haven't shifted much at all. In this issue we report at length on such compelling topics as antinuclear protest, asbestos exports to the Third World, the developing science of conservation biology, and the decimation of New England's forests. There's also our annual gallery of photo-contest winners, for your spirit's sake.

But for the most part we've developed new ideas and formats, or radically revised older ones:

"Afield" has been given extra pages and a tighter focus. With sections devoted to health issues, ecotourism, environmental policy, and Sierra Club history (among other topics)—plus the best in creative writing on natural themes—"Afield" is the new heart of the front of the book.

Another department, less dramatically altered, has also been held over from our previous format. In "Priorities" we'll continue to dissect the day's environmental issues, albeit in a sharper fashion than previously. Good journalism and unabashed advocacy, we hope to show, need not be strangers. "Priorities" is written for people who need to know the inside story on today's environmental battles, unencumbered by sugarcoating or phony impartiality. If you're looking for the drab indifference and vapid parallelism the PR flacks and mainstream media lovingly call "balance," you won't find it here.

During the months we spent dreaming up the new *Sierra*, "Place Setting" was our favorite concept: a detailed look at the environment of a particular locality (this issue it's New York City). In the future we'll roam the landscape from Moab to Molokai, pointing out the lean spots and the green spots that make each place, for better or worse, someone's habitat.

In "Last Words" we invite you to let us know your thinking on a pressing issue of the day. Questions will address the role of civil disobedience in the environmental movement (the poser this time) as well as such contentious themes as electoral politics, population control, and nuclear weapons.

"Clubways" will explore the variegated culture of the Sierra Club. The Club, now approaching its 100th anniversary, is a complex, sometimes fractious, wholly invigorating organization with a critical mission, and its philosophies, goals, programs, projects, and people are the ore an editor dreams of mining (if you'll forgive the extractive metaphor).

"Resources" provides what-you-can-do references for as many of each issue's articles as possible, so that readers willing to lend a hand as well as an ear to an environmental campaign will have somewhere to turn for more information. Special attention will be drawn to Sierra Club activist contacts.

Our committed (and glassy-eyed) staff has performed the lion's share of work on this redesign, but we're also welcoming some outside contributors to the fold. Hannah Hinchman's sketchings and surmisings have graced our pages before, and we've happily carved out some regular "Afield" space for her in "Hand & Eye." In each issue's "Far Cry" her fellow Wyomingite, the poet and essayist C. L. Rawlins, explores the bounds of American culture and wilderness. Michael Castleman, founding editor of *Medical Self-Care* magazine, considers environmental-health issues in "Body Politics," a new element within "Afield"; there he'll rub columnar shoulders with Tom Turner (former editor of *Not Man Apart*), whose charge it is to highlight aspects of Sierra Club history in "As It Happened" as we usher in the Club's centennial celebration. Our book reviews will be provided on an alternate-issue basis by Kathleen Courrier, publications director for the World Resources Institute, and Thomas J. Lyon, editor of *Western American Literature*, the quarterly journal of the Western Literature Association. Finally, the Club's own political polymath, Carl Pope, holds forth on matters of environmental policy each issue in an "Afield" column titled "Ways & Means."

There's no room left to do more than express our greatest hope: that we've succeeded in producing a more attractive, readable, and useful magazine that will help us—and you—address the Sierra Club's broad universe of interests and concerns. Let us know what you think.—***the editors***

■

Some is the same,
but much has changed:
a reader's guide to
the new Sierra.

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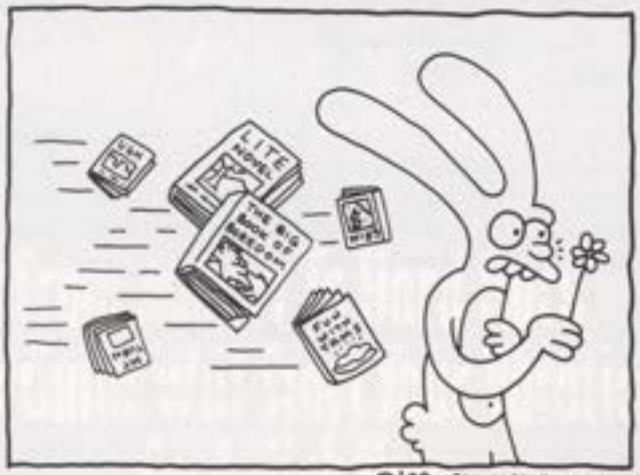

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LETTERS

OIL ABOVE ALL

In "War on Earth" (May/June), Carl Pope, the Sierra Club's Associate Executive Director for Conservation and Communications, comments that "the underlying cause of the [U.S.-Iraq] war was American hunger for a single resource—oil." He goes on: ". . . rather than change a way and scale of life we cannot support at home, we use our economic and military power to take the oil we believe we need . . . indeed, that we believe we are entitled to. Our policies in the Persian Gulf are driven by the desire to make the world safe for the civilization of the internal-combustion engine." He finally asserts that oil "greased the wheels of war" throughout the crisis, and that under these circumstances the U.S. found it "intolerable" that Saddam Hussein should remain in power in Kuwait.

Pope's analysis leaves unanswered some important questions:

- Why would the United States find Saddam Hussein's control of Kuwaiti oil "intolerable" when, after the invasion of Kuwait and before the American initiation of the air or ground war, this country enjoyed all the oil imports it wanted, courtesy of the Saudis? Given those circumstances, does Pope really believe that a domestic need for oil, or a perception of such a need, drove the U.S. military response to Iraq's unprovoked invasion of Kuwait?
- Why would the U.S. find Iraqi control of Kuwaiti oil supplies intolerable when it is certain that Saddam Hussein would have put that oil on the international market in any event? He would have sold it just as Kuwait would have. Saddam, moreover, could not have raised the international price of oil so as to choke this nation economically (a fact that Pope all but admits).
- Why did we not go to war in the 1970s, when oil embargoes and massive price increases *really* threatened our economic well-being?

It is clear to me that U.S. foreign policy in the Mideast involves far more than oil. The Sierra Club should confine its operations to matters about which it has expertise; it should refrain from extending itself into other arenas where it lacks credibility.

Eric Pearson
Omaha, Nebraska

Carl Pope seems determined to construct a moral equivalency between the U.S. and Iraq. His diligent search for villains other than Iraq, his many explanations and apparent excuses for Iraq's murderous behavior, and his criticism of the American and allied response speak of a striking unwillingness to acknowledge very unpleasant realities. This is a peculiar and dangerous sort of moral blindness, one that equates the criminal with his victims.

Ian Berke
San Francisco, California

In arguing that sanctions should have been given more time to work, Pope suggests that patience should have been the operative principle. How much time would he have given to the sanctions option? Six months? A year? Five years? Does Pope consider the military option tenable at all, or is he an isolationist (or worse, a pacifist), unwilling to state as much?

If Pope's article is representative of the sentiments of Sierra Club leadership, I believe that there is some deep soul-searching to be done as to why oil slicks and blazing oil wells seem to resonate more readily than evil tyrants who murder and torture inhabitants of a neighboring sovereign state.

Bruce A. Fisher
Long Beach, California

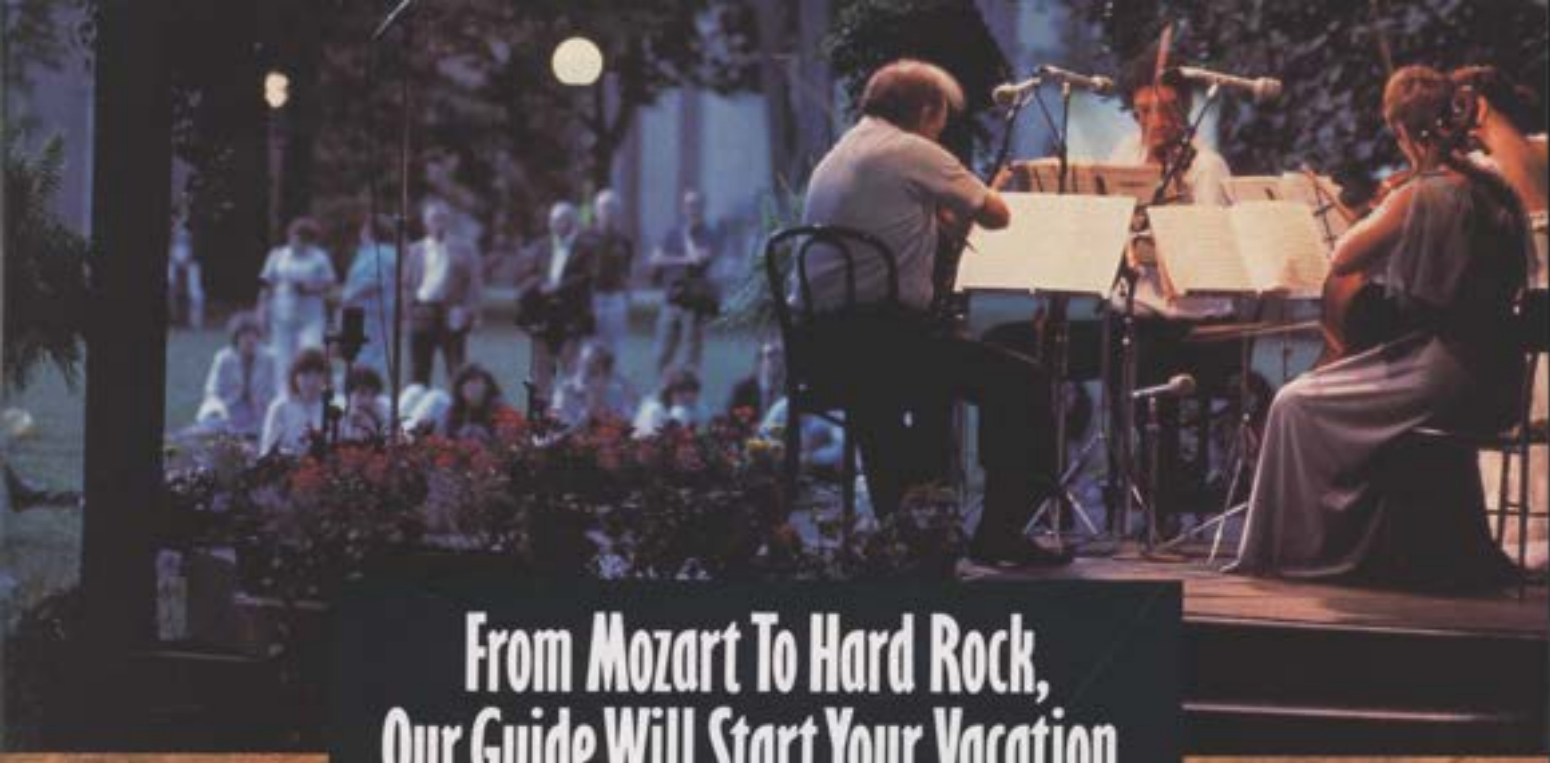
It is not good enough to oppose war on environmental grounds in a generic way but then turn mute when faced with a specific and even popular war. The Sierra Club, along with all other environmental organizations, must be prepared to oppose all war and to support nonviolent and ecologically sound alternatives, popular or otherwise, if we are to remain true to our ecological commitments.

Bob Brister
St. Petersburg, Florida

Carl Pope replies: *Saddam Hussein's evil is not in doubt. I find no "moral equivalency" between his role and that of the United States, and make no excuses for Iraq's behavior. But what was the result of our military response to Saddam's aggression? In addition to environmental catastrophe, and after hundreds of thousands of deaths, it is now Iraqi Kurds, Shiites, and democrats who are the victims of Saddam's brutality and secret police. Innocent women and children are faced with death from typhus, dysentery, and other diseases stemming from our destruction of water pipelines and treatment plants.*

It is fair to argue that some of these evils are the result of halting the war before Saddam could be overthrown. Most, however, are unavoidable consequences of the mismatch between the goal (containing an abominable government) and the means (modern military technology). I am not the only person who believed last winter that sanctions should have been given time to work. General Colin Powell, and many former members of the Joint Chiefs of Staff —hardly pacifists—shared that view.

American policy in the Middle East is certainly about more than oil, but it is oil above all that causes us to intervene so strongly in the region at such enormous cost. Our unwillingness to overthrow Hussein militarily because of our interest in regional "stability" is a sharp reaffirmation of the role oil played in our choice of warfare over sanctions. For those readers who doubt that our dependence on oil drove that choice, I pose a question: Imagine that as a result of ongoing ethnic strife within both nations, Rwanda were to invade Burundi, or vice versa. If the international community responded with sanctions, how likely is it that after five months the 86th Airborne would be dispatched to Kampala, Uganda, to roll back the aggression?



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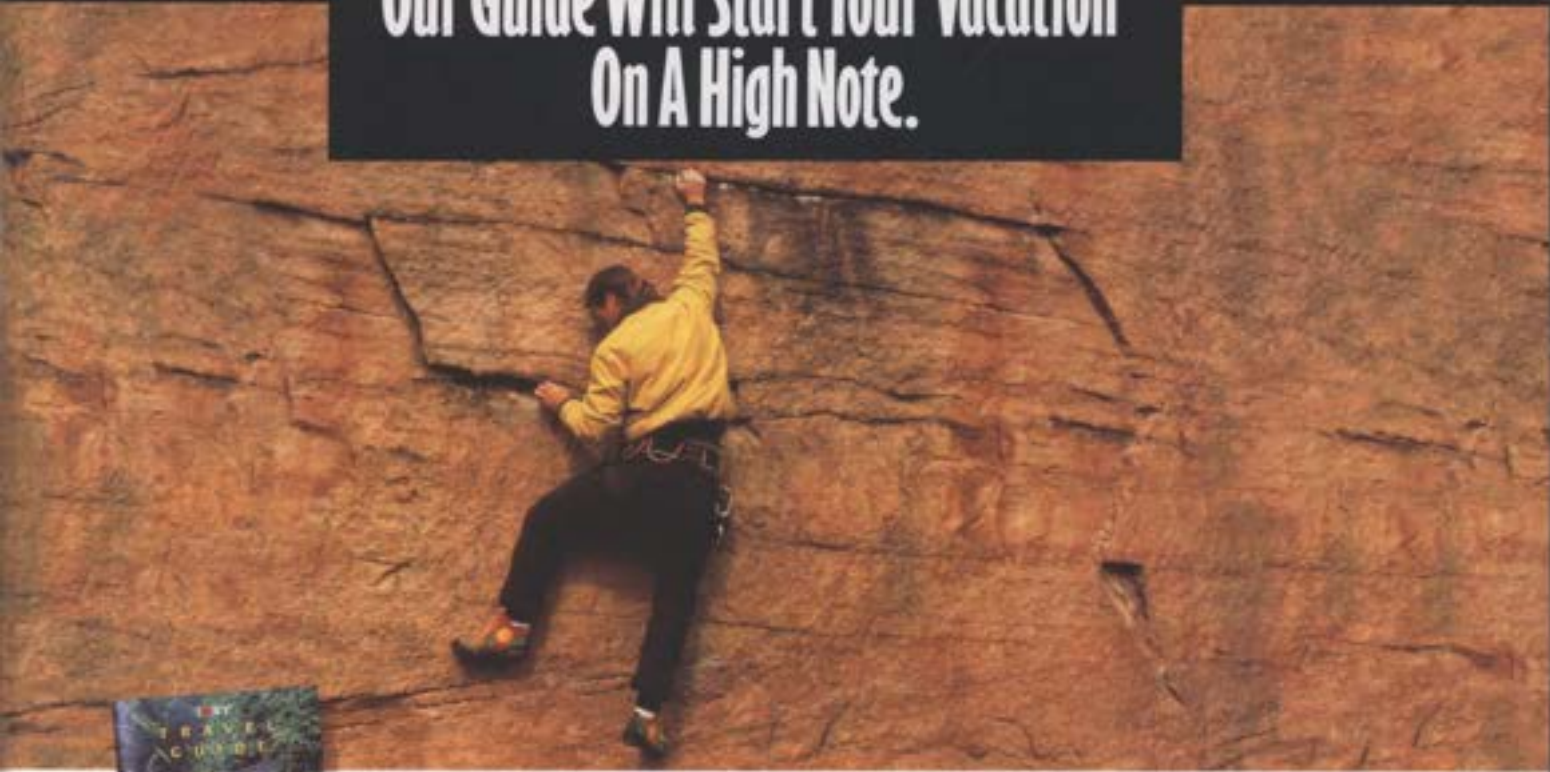

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BRAZIL OF THE NORTH

Joel Connelly's article about British Columbia's forest practices ("The Big Cut," May/June) was most timely. Like Brazil (to which the province is often compared) we have no power in the courts (due to a lack of forest-protection legislation) and no legislated public-involvement process. Politicians in our parliamentary system do not have a free vote on issues that come before them. We have no Freedom of Information Act or Endangered Species Act. There is no competition for timber rights on public lands, and no respect for the indigenous forest people and their land claims.

As one of the wealthiest and most highly educated societies in the world, we should know better than to escalate the clearcutting of our ancient forests with a frontiersman's abandon. Tree plantations will never duplicate an ancient forest; to quote Cicero, we must "deliberate long that which can only be decided once."

Sharon F. Chow
Conservation Coordinator
Sierra Club of Western Canada
Vancouver, British Columbia

The B.C. government will not acknowledge that better logging practices exist, or that it is important to save these lovely old-growth forests. However, there are indications that politicians at both the federal and provincial levels will listen to international pressure as they have done in the past.

British Columbia needs help. It is too fine and valuable for politicians and forest companies to devastate.

Murrough O'Brien
Victoria, British Columbia

As a structural engineer I have often wondered what the most environmentally benign building material might be. In general, we have three choices: wood, steel, and reinforced concrete. After 25 years of reflection, I am as mired in indecision as ever. But a decade ago I concluded that the mining of western wood by the wood-products industry is rampant environmental desecration. While the logging of southern woods (pine and, to a lesser extent, cedar) leaves a lot to be desired, it is, by any reasonable standard, less devastating that what is happening in the forests of western North America.

Except for plywood, I specify only southern yellow- and white-pine sawn lumber in all my structural designs. When at times a contractor has suggested to a client of mine that fir, western cedar, redwood, western pine, or hemlock be substituted for cost reasons, I have stated my case. More often than not, my environmental rationale has prevailed. Also, while they may grumble at times about how difficult it is to drive a nail in southern yellow pine, our local framing contractors are slowly coming to recognize the validity of my arguments, and are preferentially purchasing nonwestern wood lumber. I urge consumers, design professionals, and contractors to exert their own preferences in this matter.

Robert R. Bullard
Ponce Inlet, Florida

Even in Vancouver, more books are available on the relatively puny North Cascades National Park (in the U.S.) than about this world-class and rapidly vanishing wilderness. There's still time to save some of the wild places, but not without information about how to get to B.C. and what areas to visit.

Don Setzer
Seattle, Washington

The Sierra Club of Western Canada's guide to The West Coast Trail and Nitinat Lakes *(Douglas & McIntyre) covers a rugged, forested portion of Vancouver Island coastline; other areas in the province are detailed in* 103 Hikes in Southwestern British Columbia *(The Mountaineers). Sierra Club Books'* Adventuring in British Columbia *will be published early next year.*

WISE USE

After reading "Wise Guise" (May/June) I'm beginning to think that the people from the Center for the Defense of Free Enterprise are the environmental equivalent of the Ku Klux Klan. The partial list of their Top 25 goals

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was absolutely sickening, to say nothing of their methods.
Michael Leonard
West Haven, Connecticut

If Ron Arnold from the Center for the Defense of Foul Excrement has vowed to destroy the environmental movement, let him begin with me. I would derive great pleasure in causing his Maalox budget to skyrocket. He can get hold of me at Box 422, Golden, CO 80402.
Martin Sorensen, Chair
Sierra Club Wilderness Management Subcommittee
Golden, Colorado

I don't see the problem; it looks to me as though there are an infinite number of resources available for "wise use." After all, more than 90 percent of the lands once reserved solely for the use of ancient forests are presently open to other uses.
Ned Ford
Cincinnati, Ohio

WHO FOOTS THE BILLS?

In May/June's "Losing the Initiative," Paul Rauber cites "a distressing lack of support among minorities and inland suburbanites" for California's failed environmental ballot initiatives. "Nowhere," Rauber observes, "were voters crankier than in California."

Conservationists deny that the movement is elitist and that they care more for birds and trees than for human beings. And yet, virtually every major conservationist program is paid for by some form of regressive tax. Sales taxes, gasoline taxes, bridge tolls, and the increased cost of housing, food, and other products obviously hit the less-well-off much harder than they do the predominantly upper-middle-class people who are the primary advocates of the conservation programs these levies fund. It is unrealistic and mean to refer to minorities and working-class people as "cranky" when they refuse to foot the bills for their "betters."

Conservationism will always be a fair-weather movement, supported only when times are good, until it can balance its ecological goals with a program of social justice whereby those who benefit the most *pay* the most. Our reliance on regressive taxation is elitist and smacks of "eco-fascism."
Richard A. Comfort
San Rafael, California

IN MEMORIAM

At presstime we learned that an auto accident near Reno, Nevada, had claimed the life of Fredric P. Sutherland, president of the Sierra Club Legal Defense Fund. Ric's contributions to the field of environmental law were seminal and widely recognized; his passing leaves a void that those who knew and worked with him see no way to fill.

The sympathies of everyone in the Sierra Club family go out to Ric's wife, Liz, his children, Kerry and Greg, and all of his colleagues around the nation.

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BODY POLITICS

A Jog in the Smog?

MICHAEL CASTLEMAN

Wheeze not, exercisers; there's a time and a place to pump up your heart

Everything has its downside. Aerobic exercise, for example, is widely endorsed because it conditions the heart, elevates mood, and helps control weight. But medical researchers have questioned the advisability of strenuous exercise in polluted air, arguing that it contributes to lung disease.

You can, however, benefit from exercise without developing pulmonary pathologies. "You just need to understand air quality," explains William C. Adams, a professor of physical education at the University of California at Davis. "Then use that understanding to exercise wisely."

Air quality is measured by the Pollutant Standards Index (PSI). Scientists test a region's air for the major pollutants—ozone, carbon monoxide, particulates, and sulfur and nitrogen dioxide—and assign each a number representing the percentage of the federal safety standard for that pollutant. Levels above 100 exceed the official limit; PSIs below 50 are considered good. The PSI level for your area is often given in the local weather report, and you can also get readings from air-quality agencies. But you don't need a weatherman to know how foul the wind blows: You can diagnose pollution levels to a certain extent based on the hour, the season, where you exercise, and (in some areas) the weather.

Morning is the best time to quicken your heartbeat. Air pollutants—especially auto-related ones—build up during the day and peak in the late afternoon. Ozone, a key component of smog, is worst in the warm months, although in the South smog can be a problem all year. In the West, carbon monoxide levels tend to be highest in winter. Acid-rain-beleaguered Northeasterners should limit outdoor exercise when the fog rolls in: It contains acidic pollutants.

So you're out at dawn on a fresh spring day—where should you go? Get as far as possible from traffic and industry. Runners who work out for 30 minutes near major highways in typical urban areas inhale as much carbon monoxide as they would from smoking a pack of cigarettes. Select back streets, and stay away from stop signs and traffic lights; the air around intersections can become surprisingly polluted—and you'll take many breaths waiting for the light to change.

These general guidelines should minimize risk, but don't ignore those built-in pollution detectors, your lungs. When air quality deteriorates, lungs react. Ozone generally causes the most noticeable symptoms: first a tickling in your throat, then raspiness, coughing, shortness of breath, tightness in the chest, and possibly headache and nausea. If you develop any of these signs, stop exercising until air quality improves.

Some of these respiratory problems—particularly post-aerobics wheezing, coughing, chest tightness, and shortness of breath—might not be caused by air pollution (or by the fact that you haven't exercised for months). If you develop these symptoms after a workout in clean air, consult a physician. They might be the result of exercise-induced asthma, a condition that sounds scarier than it usually is. When managed properly, exercise-induced asthma does not threaten general well-being or athletic performance.

But if your symptoms develop only on smoggy, gridlocked days, follow the suggestions above. And when you're back from your workout, sit down and give your elected officials a lungful about the high cost of air pollution. ■

With Fish and Friends

BRENDA PETERSON

In early September, when the northwestern light was late and lulling, I went salmon fishing for the first time. My friend Flor Fernandez offered to share with me the subtle fisher's art—part pole, part tackle, part meditation—that her father had taught her in the dazzling azure waters off her native Cuba. Using fishbait of humble herring, sardines, and squid, they coaxed from blood-warm Caribbean waters red snapper, yellowtail, and barracuda.

Fishing here on Puget Sound, surrounded by Pacific ring-of-fire volcanic mountains, was a far seagull's cry from Cuba. But as Flor calmly remarked, "Fishing is flexibility. You flow, you drift, you troll, you go in circles, you rock, you yield to the currents. Fishing is a feeling, no matter what country you're in. In fact," she added, "fishers are people without a country. They belong to whatever body of water supports them."

After ten years of living on the shores of Puget Sound I understand that I belong to this body of water. In the spring I set my ears to hear the bark of sea lions as an alarm clock; in the winter I watch for signs of a stray gray whale in mid-migration. In the summer I take to the sound in a borrowed, battered wooden rowboat. But it had never occurred to me to fish there until that early autumn day when Flor arrived with her heavy-duty pole and a pound of frozen herring.

A net as big as another body lay between us in the boat. While Flor cut bait for a pole twice her height, I lay back with a smaller one, oars lazily dipping in the water. Around us other fishing skiffs broke out bag suppers, while the motorboats—one bedecked with a barbecue—cruised by with beer-can salutes. We floated in companionable reverie.

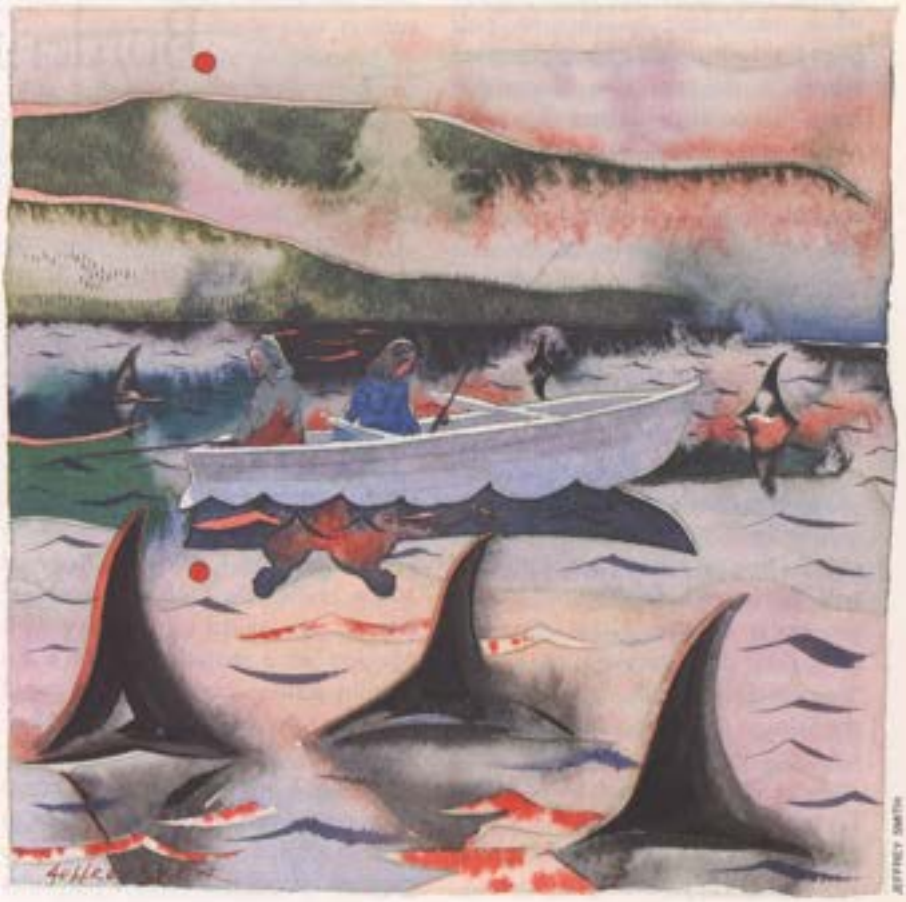
Suddenly, a pull from below. The pole was half out of my hands before I could begin to reel in the line. For several exhausting minutes I believed I'd snagged a sea monster; my arms were pliable as seaweed. Flor was no help. She had a big bite too, and was wedging her feet against the boat to keep from being towed overboard. Then both lines went slack. We stared at each other, too breathless to speak.

"That," I finally got out, "was King Salmon."

Native Americans, I told Flor, say the first salmon is a visiting chief, and we must return him to the sea to make sure the Salmon People will keep coming back.

"But who can catch them?" Flor asked, stretching her sore muscles. "I'd

You yield to the currents, you go in circles, no matter what country you're in



JEFFREY SMITH

starve to death if salmon were the only fish in these waters."

We did hook a rock cod and a sun perch. Though we got other mighty bites, it was obvious we weren't fishing for the wily salmon, we were feeding them. The sun tilted over the Olympics and I rowed us home.

As I leaned wearily into the oars my ears pricked to underwater sounds, high-pitched squeals and clicks I half recognized before the water erupted into bubbles around our boat and we began to spin in a slow whirlpool.

"Orcas!" I shouted. "Everywhere!" I leaned over, plunging my hands into the roiling bubbles.

"We'll capsize!" Flor yelled.

I assured her that orcas don't attack humans, but Flor looked doubtful as our boat was sucked into the closing bubble net that herding orcas breathe to round up fish. Any minute a killer whale might have breached to feed, great toothed mouth gaping. I started singing at the top of my lungs (I'd heard that orcas, who have their own complicated songs, respond to our music). As we swirled around in this eerie, churning eye, I heard a yelp. Flor had something on her line.

She effortlessly pulled in a shining coho salmon. At that moment the orcas kindly set us free. Black-and-white bodies slipped below, then surfaced far off with a *whoooosh*, in search of other fishing grounds.

"It's the first salmon," Flor said. "The orcas caught it for us."

In the pale twilight she held up the elegant fish, its silvery scales glinting with their own light. Without a word she gently unhooked the salmon; it arched and dove back into the sound. We rowed toward shore, assured that the Salmon People would return. ■

BRENDA PETERSON's *most recent book is* Living by Water *(Alaska Northwest). Her third novel,* Duck and Cover, *will be published by HarperCollins in October.*

ZSOLT KOLTAI

Borderline Issues

CARL POPE

As it crosses into California from Mexico, the New River carries such a heavy load of toxic chemicals and sewage that it has earned the title of North America's most polluted waterway. Its poisons, which come primarily from U.S. industries that have set up shop across the border to avoid tough domestic pollution-control standards, come to rest in Southern California's Imperial Valley. Should the United States enter into the misguided trade policy with Mexico being proposed by the Bush administration, the continent could well see the birth of many New Rivers.

In May, Congress granted the president special authority to negotiate an agreement that would add Mexico to the trading zone that currently includes the United States and Canada. Within this area goods could be manufactured and sold freely, as they are among states —without tariffs, quotas, or restrictions of any kind. Free-trade advocates contend that such agreements are needed to accelerate advanced technologies, eliminate obstacles to economic growth, and increase geographic and financial opportunities for businesses.

But rapid economic expansion can also speed up environmental destruction. We must ask not only how fast a given trade policy will move us, but where it will take us. Poorly designed, a free-trade agreement could grant polluters license to run roughshod over the continent; properly thought out, such a policy could drive not only economic growth, but environmental protection. Unfortunately, the Bush

administration has embraced only a fraction of the vision required for an environmentally sound free-trade zone in North America.

To ensure a healthy planet as well as a thriving economy, international trade agreements must first preserve the right of all governments—national, state, and local—to set health and environmental standards for products sold to their people. Harmonization—the idea that governments must set uniform (i.e., permissive) international standards to facilitate the flow of goods—reduces environmental protection to the lowest common denominator. Harmonization rules in the European Economic Community, for example, have been used to block proposed auto-emission standards in the Netherlands that were to have been more stringent than those in the rest of Europe.

President Bush has made some heartening if nonspecific statements that the North American trade-zone agreement he intends to negotiate will not include harmonization provisions

A trade agreement that protects everyone is the neighborly thing to negotiate

■

that might weaken environmental standards. However, the administration has not abandoned the harmonization concept when it comes to global trade policy. Bush's assurances, then, will need to be remembered when the fine print of the North American agreement is written.

Second, government efforts to protect the environment need to be exempt from challenges under trade rules. Programs designed to protect biological diversity, the ecological commons, and important natural areas have been attacked as "nontariff barriers" to free trade. Mexico has challenged U.S. standards that protect dolphins from being slaughtered by tuna fishing, for example, and the United States has successfully undercut Canadian programs to reduce smelter emissions.

Third, corporations based in this country should not be allowed to violate domestic environmental standards if they choose to operate in Canada or Mexico. Under international law, a nation may prohibit its own citizens and corporations from unethical behavior in other countries. American firms, for example, may not engage in practices overseas that would constitute bribery in the United States, and violators can be tried by U.S. courts. The Sierra Club has proposed that Congress adopt legislation that would require U.S. companies building new facilities in Canada or Mexico to meet applicable U.S. pollution and worker-safety standards. In addition, environmentalists urge that these regulations be enforced in U.S. courts, whether or not the facility in question is located in the United States, Canada, or Mexico. If these policies were in place, companies would have no incentive to site a plant in any particular country because of weaker environmental standards or less-stringent enforcement. Conversely, without these policies, manufacturers would be encouraged to shift polluting industries to Mexico instead of cleaning them up at home.

While the Mexican government has responded favorably to these proposals, hard-line forces in the Bush administration have rejected them, insisting that they would put U.S. firms operating in Mexico at a disadvantage compared to Mexican or Japanese companies. These same officials argue that Mexico's pollution standards and enforcement would, in fact, be as tough as ours. If the administration really believes this, it should have no problem requiring U.S. industries to comply with standards they would have to meet in any event.

Conflict between trade policy and the environment is not inevitable. Solar energy, low-input agriculture, mass transit, energy efficiency, and pollution prevention are all elements of the international economy that well-considered trade agreements could encourage. Into a debate polarized by "free trade" and "fair trade" factions, we need to inject a new element: eco-trade.

Unfortunately, Congress refused to insist that the administration commit itself to eco-trade before giving Bush his expedited negotiating authority. Congress, however, must still approve the final agreement. House Majority Leader Richard Gephardt has warned that Bush is unlikely to win approval for a trade treaty that might undermine the environment. The key question is whether Bush will heed this warning, or whether he will become embroiled in an unnecessary conflict with the environmental communities of three nations—a conflict that could kill his cherished goal of a broad North American market. ■

HAND & EYE

To Enter a Little Wilderness

HANNAH HINCHMAN

There goes Thoreau in March, hungry for color, spying a "delicate rose or carmine" on the breast of a redpoll, refreshing himself with the sight of the "yellow osiers of the golden willow, and the red of the cornel." He wants to know about the "dark pickle-green alga" in the bottom of the ditch.

Hungry for color and also hungry for form: Thoreau saw a particular architecture in the loosening catkins, and used words to draw them. Words were his tools; he handled them like a flexible brush.

Which tool he reached for is less interesting than the impulse that made him, and makes us, want to reach. It may be a yearning for color, or a vague attraction to a set of forms. Walking along the Snake River, I scan a gravel bar in the wide, active riverbed, run over and over its tapering wing shape, note the assortment of stones. Slowly, without really thinking about it, I get a feel for the way the river constructs these gravel bars, why the bigger cobbles come to rest where they do. The larger pattern becomes apparent.

What did I see before I recognized the pattern? Worse than chaos. A glaze of indifference covers our eyes, left over from infancy, when the world was divided into situations that might yield gratification or danger; those that were neutral were dismissed instantly. We still walk around in that fog. But when we finally see the gravel bar, the indifference dissolves and chaos becomes order. To see this order is to enter a little wilderness.

Thoreau knew about the little wilderness we find when we bend down to look at the basal rosette of the mullein. It's a private retreat; empty, untracked terrain. But it's not uninhabited. Sometimes a dialogue occurs there, if we bring enough of ourselves to the meeting.

The philosopher Martin Buber says that when you meet the mullein rosette with all of yourself, in the present moment, you address it as "thou"—very different from addressing something as "it." Perhaps our effort to save the wilds is partly a hope of preserving the possibility of such a dialogue, the chance to enter a wilderness, even the wilderness of a plant called frog-spittle, which Thoreau brought home in his pocket.

I search out the little wildernesses with a journal and drawing tools as my letters of introduction. It's possible that I'll be met by "a form that desires to be made through me into a work," as Buber says.

With the right words or brush, chaos dissolves and the real conversation begins

HANNAH HINCHMAN

Today I want to paint my neighbor Madelaine's spring pool, the one I get to through a sagging person-gate (rare here in Wyoming). Why this pool? Because of its lovely transparency. Because of the areas of reflection. Because of its smallness. Because of the lives revealed in the clear, shallow water. Because of the idea of water rising from a hidden source.

Behind it all, though, is an element

of wanting to possess, the same ultimately thwarted urge that makes the boy shoot the oriole, or the girl load her suitcase with rocks from the vacation river. Thwarted because what I come away with has lost its iridescence. On the page, Madelaine's spring pool is dim and lifeless compared with the dazzling assemblage of light and water in front of me. But I'm asking the wrong questions, making the wrong comparisons. I should be looking for the dialogue.

At first, of course, the painting tools are stiff. The pencil or brush will only make marks that someone else invented. But soon there comes a moment of complicity: My hand does the thing the willow branch is doing. My eye understands the clustering of the rocks at the bottom of the spring. The language is in the air, and the hand and eye remember some old phrases.

I make one gesture, one swash, that complies with the movement of the barn swallow's wing. Does it show up on the paper? That's an entirely different field of education: learning to see the map of accord, the record of participation. A casual observer almost surely won't find it in my painting until I can let it take over the whole sheet.

When I sit down to draw the emerging beech leaves, is it presumptuous to think I am building a bridge between myself and the world? Constructing a drawing cell by cell is essentially the same as the process that builds the tree cell by cell. The tree has strong fibers where it needs structural support, and so will the drawing. The tree's life functions in a thin layer that encircles the trunk. The pen is like that active layer, moving energy around to the various parts of the drawing to create a mass, an edge, a series of complex folds in a just-fledged leaf.

So many correspondences hint that the gulf is not so vast as we've been taught to think. ■

GREG BREINING

Kenneth Wint, aka Hunter, on the trail leading down from Blue Mountain Peak.

High in Jamaica

■

GREG BREINING

"Yo."

A beam of light hit my face, and I forced my eyelids open. Hunter stood there grinning, flashlight in hand. My watch read 2 a.m.

I lay there a moment, listening to the wind thrashing the eucalyptus outside the cabin, then swung out of my bunk and stumbled into the main room, where Hunter was serving coffee and cereal under the harsh light of kerosene lanterns.

"I thought you were going to wear shorts," someone called out sleepily to Hunter.

"It's chilly," he laughed. His eyes danced in the lantern glow. "Yeah, mon."

As we finished breakfast Hunter loaded the flashlights with fresh batteries. We donned our packs, filed out of the cabin, and began walking down a narrow country road. Soon we turned onto a trail and began climbing up a series of gravelly switchbacks. Finally we rested at a clearing, where the wind tried to tear off our hats and carry them into the darkness. Far below us Kingston shimmered like a galaxy. Welcome to Jamaica.

Like most tourists, I had thought of Jamaica as a land of sun, sand, and resorts. My misperceptions were dispelled by a 40-minute flight from Montego Bay, the epicenter of tourism on the northwest coast, to the capital of Kingston on the other side of the island. For several minutes we followed the country's famous North Coast, where luxury resorts dot white beaches. But as we banked south, the

■

Come to the tropics,

where you'll shiver, pant,

and never see the beach

coastal plain gave way to hills as rough as the warts on a toad's back, where runaway slaves hid before slavery was abolished in 1866. In some places, narrow roads traced zigzags on the steep hillsides; in others, no roads were discernible at all. Bald limestone capped the hills, and mountain streams tumbled white in the deep valleys.

During the next several days, I saw for myself some of the "undiscovered" Jamaica that awaits the visitor willing to kick off the flip-flops and pull on a pair of good walking shoes. Jamaica's backcountry is a mix of laid-back villages and out-of-the-way wildlands where it's possible to run rivers, hike, camp, snorkel, and bike. By the end of my trip, when I checked into a popular beachfront hotel in the tourist town of Negril, I felt as though I had just returned from another planet.

Some of Jamaica's wildest and most spectacular country lies in the John Crow and Blue mountains just north and east of Kingston. The highest point, Blue Mountain Peak, rises 7,402 feet above the sun-baked coast. In the foothills of these rugged peaks I met Peter Bentley, a soft-spoken man who is president of the Jamaican Alternative Tourism Camping and Hiking Association, and owner of Maya Lodge and Hiking Center in the village of Jack's Hill.

Bentley, whose family goes back in Jamaica more than 300 years, started Maya Lodge and a service called Sense Adventures in 1981 to help tourists find their way around the island's interior, which had been ignored by existing tour agencies. Today he arranges hiking, snorkeling, and rafting expeditions, complete with guides. "We haven't gotten into the numbers," he says. "I don't like big groups."

Recently Bentley has been involved in an effort to establish a national park to protect the Blue and John Crow mountains, which are threatened by Kingston's burgeoning population. Current plans for the park include setting aside a preserve in the most unspoiled areas, and establishing a buffer zone to control logging, which is consuming more than 3 percent of the island's forests each year. The buffer zone would also be used for demonstration projects that would show villagers and developers how to cultivate the land sustainably. In addition, the park plan calls for improving existing trails, some of which were carved by the British Army a century ago, and building several simple cabins for hikers. Establishing the park is one of two cooperative projects—the other is at Montego Bay—of the Jamaican government, a nongovernment organization called the Jamaica Conservation and Development Trust, and The Nature Conservancy.

Bentley has set up some preservation projects of his own, replanting overgrazed, eroding hillsides around Maya. "Fortunately," he says, "we have some wilderness still left."

It was Bentley who introduced me to Kenneth Wint, alias Hunter, a native Jamaican who earned his nickname hunting small game and feral pigs in the backcountry. Hunter has worked at Maya for five years and led more than 70 trips up Blue Mountain Peak, our goal this dark morning.

I was grateful for his experience; numerous spurs led off from the main trail, and without a guide I would have doubted every step I took.

After our short rest stop in the clearing we began climbing again, up a leg-killing ridge Hunter called Lazy Man's Peak. At the top of this secondary peak we could appreciate the name: The view was stunning and, Hunter said, many hikers figured they need go no further.

Hunter coaxed us on, and at 5:20 a.m. we reached the summit, a flat-topped hump like an Aztec pyramid. An icy wind struck us full force; we put on every scrap of warm clothing in our packs. My companions took refuge in a shack 30 feet down the slope, but I stayed and watched the lights of Kingston wink off. As sunlight spread across the eastern horizon, I realized that, the proliferation of the island's famous ganja notwithstanding, I was the highest man in Jamaica. ■

PETER ARNOLD

Jamaica's fabled Blue Mountains: lush with less-than-sultry adventures.

GREG BREINING *is a freelance writer in St. Paul, Minnesota.*

►*For more information, see "Resources," p. 124*

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Urban Decay

MARC LECARD

You're a city-dwelling environmentalist and want to recycle everything, but after you separate the bottles, cans, and newspapers from your household trash, there's still a heap of useless mush in the kitchen garbage pail. What to do with it? Composting is the obvious answer—except that you live in an apartment, and your open space consists of a fire escape. But even if you're cooped up in a minimal urban living unit, you don't have to glut the garbage disposal. There are several ways to turn rotting waste into robust gardens in a small space.

Compost-in-a-bucket is the best bet for urbanites short on elbow-room. It's technologically simple: Just chop up your kitchen scraps and toss them in a five-gallon plastic bucket with a snug-fitting lid. Don't add meat, bones, or grease—these decompose slowly and could attract varmints.

Next stir in some dry, carbon-rich organic material, such as peat moss or dead leaves. Sawdust works fine, and should help soak up any initial odors. (Don't use sawdust from plywood or particle board, however.) Throw in a handful of garden soil to introduce hungry microorganisms. The resulting mix should be as damp as a wrung-out sponge; add water as needed.

Store the compost container on the porch or fire escape, or right in the kitchen, where it'll be handy for depositing the latest batch of table scraps. Food waste reduces in bulk as it decomposes, so you don't have to worry about being overrun by ever-increasing numbers of buckets.

Keep an eye on your compost; stir it each time you add scraps, and make sure the mix remains properly balanced between wet and dry. Your nose will tell you when things are out of kilter: compost shouldn't smell rotten. If the mess is unduly odiferous, it may need air (turn it) or be too wet (add more dry materials).

Compost made by this method won't reach the temperatures attained by "hot" compost piles, so it will take a while to produce results. But in two months or so—*voila!* That unsightly, useless mound of coffee grounds and orange peels will have become valuable plant food.

Your nonexistent garden is no excuse: there's goodness in that garbage

BUD PETEN

Another composting system for cramped quarters is the worm box, which is just as lively as it sounds. According to Mary Appelhof, the doyenne of worm composting, a wooden worm box 2 feet by 2 feet and 8 to 12 inches deep can make a living garbage-disposal unit for two people. A small plastic or galvanized metal garbage can will work as well, and might be more stowable in an apartment. Keep the lid on; this will help keep moisture in, flies out, and protect squeamish members of your household from the sight of earthworms in a feeding frenzy.

Like other composting systems, worm boxes need oxygen to get the job done (and to avoid nasty smells): Make a dozen or so holes in the bottom for drainage and in the sides for ventilation. Cover the holes with screening to exclude insects, then set the box or garbage can in a shallow pan

or on a plastic sheet to catch leaks.

Worms need something besides your leftovers to live in, so add some "bedding" to the container: peat moss, shredded newspaper (no comics or color pages—these use toxic inks), or dry leaves. Four pounds of bedding will be enough for most apartment-size systems. Wet down the material, using three parts water to one part bedding (by weight); add a handful of garden soil (to help the worms digest), then the worms themselves. Redworms (*Eisenia foetida*) or manure worms (*Lumbricus rubellus*) are the species of choice. To determine how many you'll need, find out the average weight of the organic garbage your household generates per day; then use a 2:1 worms-to-garbage ratio. Plop your worms into the bin and add your daily food scraps, broken down as for the compost bucket, again leaving out meat, bones, and grease.

Your worms are now hard at work creating *vermicompost*, a mixture of worm castings (excreta), decomposed bedding material, scraps of rotten kitchen waste, and microorganisms. In about four months you'll have a container full of it; push it to one side and fill the empty space with more moistened bedding. Begin adding your garbage to the fresh side. The worms will relocate to the new material, allowing you to remove the finished vermicompost.

What do you do with a bucket of fresh soil amendment? You could give it to a neighbor with a backyard, or use it to help start your own container garden. Talk to the other tenants in your building and drum up interest in a rooftop garden, or seek out a community garden or urban farm in your area. If there are none, use the time you've saved by not going out to the dumpster as often and start laying the groundwork for one yourself. ■

►*For more information, see "Resources," p. 124*

AS IT HAPPENED

A Club Is Born

■

TOM TURNER

The letter arrived at the house on the hill not far from San Francisco Bay in the late spring of 1892. Professor Senger wished to know if Mr. Muir could attend a meeting for the purpose of incorporating an association devoted to the exploration, celebration, and defense of Yosemite Valley and the Sierra Nevada. The cherries were beginning to turn red and the apricots orange as Muir, the prosperous orchardist, explorer, writer, and natural historian, wrote to accept Senger's invitation, ending his note with the hope "that we will be able to do something for wildness and make the mountains glad."

■

A painter, a lawyer,
a rambler, they convened
to make the mountains glad

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John Muir

John Muir, born in Scotland and raised in Wisconsin, had arrived in San Francisco by steamer a quarter of a century earlier. His love affair with the Sierra Nevada had begun the moment he first beheld what he would later call the Range of Light. He spent the next dozen years roaming through and writing about the mountains.

Accounts of the Sierra's magnificence—by Muir and others—spread, and a growing number of people ventured out to see the beauty for themselves. When they were not in the mountains, some of these explorers gathered to share maps and information. One such group met in Berkeley; another, which included Warren Olney, an attorney; William Keith, a celebrated painter; and John Muir, met in San Francisco.

In the spring of 1889, Muir received a letter from Robert Underwood Johnson, an editor of *Century* magazine, which had published several of Muir's articles. Johnson was coming west, he told Muir, partly to persuade him to write again for the magazine. Muir agreed—on the condition that Johnson accompany him to Yosemite Val-

ley and the wild country beyond it.

The two men made the trip that summer. Stunned by the damage that grazing sheep had visited upon the high meadows, they decided to collaborate on an effort to preserve all of the region as a national park. The campaign was a huge success: With an alacrity all but inconceivable today, a bill establishing Yosemite National Park was passed in October 1890.

It was not long, however, before the stockmen and loggers began a countercampaign to shave off large pieces of Yosemite and reopen them to private use. Johnson again wrote to Muir, this time to urge creation of an organization of citizens to defend what Congress had bequeathed the American people. Muir knew just the citizens.

On May 28, 1892, a small group met in Warren Olney's law office in San Francisco. They approved the name "Sierra Club" and set Olney to work drafting articles of incorporation and bylaws. A week later 27 men signed the articles and elected a board of nine directors, including Olney and Muir, the latter their unanimous choice for president. The charter membership of 182 included academics, bankers, lawyers, and the Chief Justice of the California Supreme Court.

As approved on that day, the Sierra Club's purposes were "to explore, enjoy, and render accessible the mountain regions of the Pacific coast; to publish authentic information concerning them; and to enlist support and cooperation of the people and government in preserving the forests and other natural features of the Sierra Nevada Mountains."

Organizations dedicated to exploration had existed for years, as had those that lobbied for preservation. But from the start, the Sierra Club's dual mission was unique: to enjoy the wilds, and to work to keep them that way. ■

►*For more information, see "Resources," p. 124*

DAVID MUENCH

Living on an Island

■

W. S. MERWIN

I have lived now for a quarter of my life in Hawaii, on what has been called for well over a hundred years one of the outer islands. I live in the country, on the windward, rainy side of Maui, at some distance from a dirt road that leads to the edge of a sea cliff. There is no other roof in sight, only a deep valley full of tall trees, and beyond them an open promontory above the Pacific, in which there is no other land between here and Alaska.

The post office six miles away serves the scattered district of Haiku. These days the name is generally written the way I have just written it, and most people pronounce it "highcoo." If they are of a literary turn, they are apt to assume that the name refers to the 17-syllable Japanese verse form.

But the name Haiku is not Japanese at all, and though its origin is unknown there is no doubt that it is really two Hawaiian words: *ha'i* (with a glottal stop between the vowels), which in English means "break," and *ku*, "erect, straight up." Here it may refer to the steep-sided ravines that wind down the skirts of the mountain to the cliffs. They are watercourses that are almost impassable: tumbled, rocky, green, shadowy, ferny, and secret. The enterprising Caucasians of the 19th century christened them gulches and considered them unprofitable nuisances. Developers and roadbuilders regard them as obstacles. They cradle—they are—the least touched, least exploited presences in the region. These ravines are a direct link with the island's past (every watercourse on the coast has not only its Hawaiian name but its own legends), with its botanical and geological

■

Life where there is only so much coast, where concerns are at home in the mind

origins, its native self. What has happened to the name *Ha'i ku* is consistent with the recent history of this *hamakua loa*, this "long corner" of the coast.

The fact that I live in Hawaii at all raises questions, if the information is given to someone who lives somewhere else. Often there is a certain startled incredulity. Do you *really* live there? Do you really *live* there? Then, in one form or another: Why? Most of the questions disclose an underlying conviction that the Hawaiian Islands are in some way unreal.

STEPHEN KRASEMANN

Part of this can be ascribed to the image broadcast with increasing effect in the course of this century by the tourist business: the poster world of beaches, sunsets, brown-skinned beauties wearing non-Hawaiian flowers, and so on. It certainly would be surprising to be told that someone from the real world of air-conditioning, commuting, pollution, and debts had gone to *live* there. But long before that counterfeit image became current, a particularly European and American view of things set civilization, science, industry, cities, virtue, God, cleanliness, and reality on one side, and primitivism, idleness, heathenism, ignorance, sensuality, iniquity, error, and unreality on the other. The belief system that encouraged such a division was a self-serving, deadly credo, and it has not gone away or grown less toxic.

I had run across this credo through years of pulling back and forth between the city and what we still call the country. Much of the world I had grown up to insisted that the country was essentially less real than the city, and when I returned from it, sooner or later someone was sure to welcome me back to the real world.

I had worked that one out for myself, more or less, by the time I came to Hawaii, but it never occurred to me that I would live in the tropics, and even after I was here it seemed unlikely at first that I would stay. Lawrence Durrell begins one of his books about the Mediterranean with a passage about *islomania*, the addiction to islands, and the addict who at last finds his island. Afterwards, everything is bound to follow from that, and the attachment to a place and a set of geographical circumstances is really no more rational or available to analysis than any other attraction or affection or recognition.

A love of the tropics is bound to be physical, influenced by an unfathomable response to the flood of sunlight, the massive rains, the air itself. For me the attraction was part of a continuing gravitation toward the neighborhood of trees and mountains, rainforests, dry forests, mountain ridges, and sea cliffs.

Here I can garden all year round, and grow, among other things, plants native to the place, and there are good reasons, apart from the pleasure of it, for doing so. In gardening, as my wife and I go about it here, what are called concerns—for ecology and the environment, for example—merge inevitably with work done every day, within sight of the house, with our own hands, and the concerns remain intimate and familiar rather than abstract and far away. They do not have to be thought about, they are at home in the mind. I have never lived anywhere where that was more true.

I grew up with the assumption that the center of human venture was the American Northeast and its European motherland. But it is the civilizations circling the Pacific, as well as Latin America, that I turn to increasingly. Living in Hawaii has helped effect that turn of attention. The presence of a Hawaiian tradition, however depleted and damaged, and the discovery of the cultures of the Pacific, are inseparable from my deepening feelings for the islands themselves.

Things here are on a scale that seems human. And living on an island, in the country, in our time, is a constant reminder of the finite condition of the natural world, and of what, from a narrow point of view, are commonly referred to as "resources." There is only so much coast, so much of anything. It is easy to be aware that everyone lives on an island. ■

W. S. MERWIN *received the Pulitzer Prize for poetry in 1971 for* The Carrier of Ladders. *His most recent book is* The Rain in the Trees *(Knopf, 1989).*

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Edited by Reed McManus

Still a Long Way From Home

Just because the gray wolf is an endangered species doesn't mean it's necessarily a welcome one. Eliminated from the northern Rockies by poison and hunting in the 1920s, wolves are now trickling back into this country from British Columbia, repopulating old haunts without regard to Wolf Management Plans or other forms of bureaucratic assistance. As many as 50 wolves are believed to have returned to Montana, and sightings are increasing in Wyoming, Idaho, and Washington. Not content to stick around their "wolf recovery zones," the repatriated wolves go where they please, flaunting their federal protection (killing one could cost you five years and $50,000), and occasionally lurking next to someone's corral, ogling the cattle.

Unfortunately, *Canis lupus* did not abandon its predatory ways during its Canadian exile. Wolves will be wolves: They inevitably jostle you-know-who for top-dog position in the food chain, feasting on deer and elk and maybe a pre-hamburger calf or two, howling at the moon and giving children the heebie-jeebies.

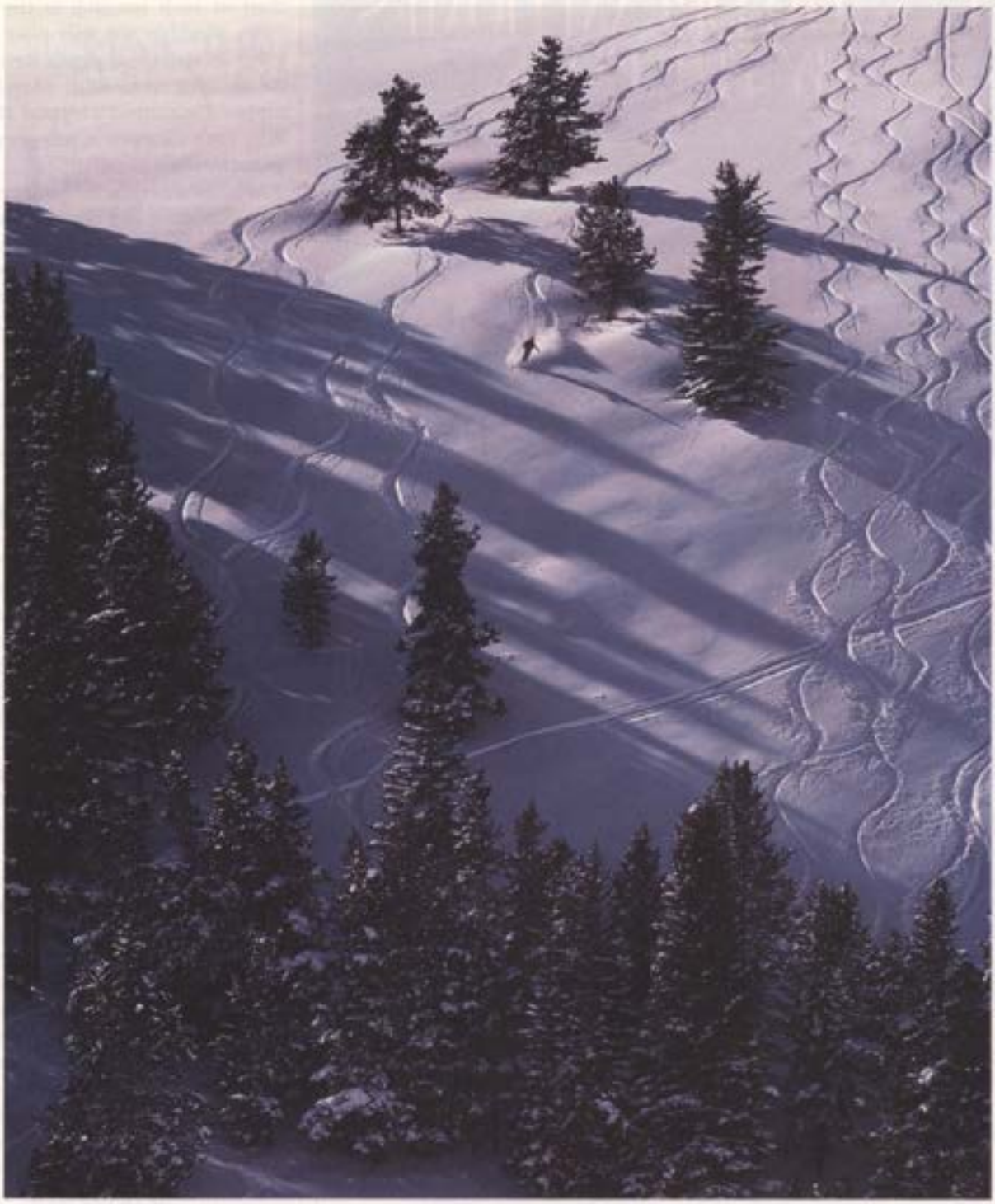
At present, wolves that eat the wrong prey are either relocated by the Fish and Wildlife Service or killed by Animal Damage Control, the Agriculture Department's anti-predator SWAT team. The results of relocation have thus far been fairly dismal. In a particularly pathetic case in 1989, a family of wolves suspected of killing calves on a Montana ranch was trapped and moved to Glacier National Park. All died except for one hardy female, who fled the park, swam the Hungry Horse Reservoir, and headed south toward Missoula. She found another mate and started a new den, but then was shot by an unknown hunter; her mate was run over by a car.

As both pro- and anti-wolf interests clamored for their own versions of a new wolf policy, Congress punted the issue to the ten-member Wolf Management Committee, made up of six representatives from federal and state agencies, two environmentalists, a rancher, and a hunter. At the top of the committee's agenda was a plan to reintroduce wolves to Yellowstone National Park.

"We lack only one species to have per-

The endangered gray wolf is returning to its native habitat – where a welcoming committee waits with loaded guns.

■ ■ ■



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fect biodiversity," says John Barley, chief of wolf research at the park. "This would be the only place in the lower 48 states that would have all of the flora and fauna it had when Christopher Columbus stepped ashore. Why can't a society as rich as ours set aside one place like that?"

Why, to stay rich, the ranchers, loggers, outfitters, and oilmen would reply. "Our position is, no wolves," says Carolyn Paseneaux of the Wyoming Woolgrowers Association. "Ranching does not have a very big margin, so any amount of depredation is very problematic." Predictable howls of outrage come from those who fear the wolf will become another grizzly or spotted owl, whose protection would restrict drilling, mining, and logging on public lands. Wolf-committee member Pete Petera, who also serves as head of the Wyoming Game and Fish Department, expresses the concern that wolves would prey on herds of moose and bighorn sheep, the sport-hunting of which brings more than $200 million a year into his state. "It seems kind of incongruous," he says, "to ask a hunter to pay for a competitor."

On the evening before its April 30 deadline, the wolf committee was still hopelessly deadlocked. Regional Fish and Wildlife Service Director Galen Buterbaugh put in a call to John Turner, his boss in Washington. Desperate to reach some conclusion, the two hurriedly cobbled together a new proposal. When the committee met again the next morning, Buterbaugh and the two other federal representatives, who had previously supported the two environmentalists, executed a smart *volte-face* and voted with the wolf foes.

This is the so-called "compromise" agreement: While acquiescing to the reintroduction of wolves in Yellowstone, the committee voted 8 to 2 to downgrade the wolf from "endangered species" to the much less protected "experimental population," allowing ranchers to solve their wolf problems with a .30-.30. (Wolf-killers would not even be required to prove "depredation" of their herds; "harassment" alone could earn a wolf a death

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sentence.) Then, starting in 1993, control over all wolves except those in national parks would fall to the individual states—all of which are dead set against the animals. Tom Dougherty, who represented the National Wildlife Federation on the committee, called its final recommendation "the most depressing piece of wildlife-management planning I have ever witnessed."

Luckily for the lobo, this depredation against the Endangered Species Act was summarily rejected by the House. The wolf is now back at the door of the Senate Environment Committee, where Western ranching interests have consistently blocked funding for wolf recovery. —***Paul Rauber***

► *For more information, see "Resources," p. 124*

Saving Energy for Fanfare and Profit

The way to a utility's heart is through its stockholders.

For Californians who've fought utilities in the past, the latest developments are hard to get used to: Their energy-company executives are spouting maxims straight out of *Soft Energy Paths*, sounding more like that book's gentle author, Amory Lovins, than like industrialists. They regularly remind their customers to use as little of their product as possible, boast about not needing to build new power plants, and quibble over whose kilowatt-cutting program is biggest, brightest, and boldest.

One of the leaders of this curious movement is Pacific Gas and Electric, the nation's largest privately owned energy utility. Once vilified for championing the Diablo Canyon nuclear power plant, today the utility is praised by former foes for its commitment to conservation. Although the population in PG&E's northern- and central-California service area is growing rapidly, Senior Vice-President Greg M. Rueger told a Senate committee in February that "we can meet our electric-growth needs through the aggressive pursuit of efficiencies."

The company backs up its talk with a promise to spend $2 billion during the next decade—more than any other U.S. utility—crusading for efficiency. The money will buy rebates for energy-efficient appliances, not only for homeowners and businesses but for contractors, salespeople, and dealers. It will buy $10 million worth of research, seeking energy-efficiency improvements of 75 percent or more in buildings. It will construct the $7.5-million Pacific Energy Center, where conservation techniques will be showcased and demonstrated. And it will finance a multitude of other energy-saving schemes aimed at modernizing homes and businesses.

Why has PG&E embarked on this unlikely crusade? Energy-conservation manager John Fox replies that the utility and its customers share a deep concern for the environment—at least that's the *primary* reason. Southern California Edison and the Los Angeles Department of Water and Power explain similar efficiency blitzes with a variation on that theme: Their programs, they say, are aimed in part at minimizing global warming by reducing emissions of carbon dioxide.

Since the utilities *are* doing a good turn for the environment, they might be allowed to bask in their righteousness. But if the truth were told, the story behind their conversions began two years ago with a group of state, consumer, environmental, and utility interests called the California Collaborative. Set up by the California Public Utilities Commission (PUC) in 1989, the Collaborative tried to figure out a way to inspire greater interest in energy-saving among utilities at a time when most were slashing their conservation budgets.

After six months of haggling, the Collaborative published *An Energy Blueprint for California*. Therein lay the key to all the conservation initiatives that followed: If you want the utilities to be champions of efficiency, the report said, make it worth their financial while. The PUC embraced the idea in

August 1990, approving regulatory changes that made it possible for utilities to earn a handsome profit by saving energy.

Pacific Gas and Electric was the first to take advantage of the new policy. The formula it worked out with the commission allows it to pocket 15 percent of every dollar saved through its efficiency efforts. The savings are figured by subtracting what PG&E spends on a conservation program from what it would have paid to generate the power conserved. The company expects to come out ahead consistently: By spending three or four cents to save a kilowatt-hour, it avoids having to spend more than six cents to generate the same amount.

Though the public pays a bit more to finance the new efficiency programs (PG&E estimates a rate increase of 1 or 2 percent per kilowatt-hour), its energy needs are met more cleanly and cheaply overall.

Some activists think that power companies are growing *too* devoted to the cause. Now that utilities have learned how to profit from conservation, they could begin jousting for monopoly rights. Southern California Edison has given some credence to this fear by trying to quash a state energy-efficiency bill that promotes tighter building standards. Utility executives worry that if the state requires better-insulated buildings, for instance, some of "their" energy-saving opportunities will be lost.

Good state legislation and utility incentives should work in tandem, says Ralph Cavanagh, director of the Natural Resources Defense Council's energy program and a principal architect of the California Collaborative report. He admits that dangling dollars in front of utilities would have raised his hackles a few years ago: "I used to think that since it was in society's interests for utilities to promote efficiency, we should just *make* them do it," he says. Experience has convinced him, though, that in some cases financial incentives can achieve what regulatory bludgeons cannot. —***Joan Hamilton***

► *For more information, see "Resources," p. 124*

Last Gasp Next 185,000 Miles?

Only Congress can keep highway funding from paving over the Clean Air Act.

In 1956, when Dwight Eisenhower authorized construction of the National System of Interstate and Defense Highways, he was combatting a visible enemy (traffic congestion) and an invisible one (Communists poised at our borders). Thirty-five years later, with the 43,000-mile system nearly complete and its funding up for reauthorization, the United States still grapples with stifling traffic, but a very different unseen enemy: air pollution.

Increasing numbers of vehicles driving more miles than ever before are causing at least 150 U.S. cities to exceed health standards set in 1970 for ozone, carbon monoxide, and other pollutants. Annual smog-related health-care costs hover around $40 billion, according to the American Lung Association.

When Congress passed the Clean Air Act of 1990, it took an unprecedented step by requiring state and metropolitan planners to adhere to air-quality goals when formulating transportation projects. In theory, that means officials in and around cities with dirty air will need to provide alternatives to the single-occupant vehicle through some combination of expanded public transit, carpool lanes, ride-share programs, pedestrian avenues, and bicycle lanes.

In practice, transportation projects that don't lay down miles of pavement are often abandoned by the side of the road. The heart of the federal government's Surface Transportation Assistance Act (which supports both highways and transit) is the Highway Trust Fund, financed by federal gasoline taxes. Since the fund's inception, lobbying groups representing motorists, car manufacturers and dealers, truckers, roadbuilders, and service-station operators have vehemently opposed using the money for anything but highway building and maintenance. Funds for transit, they say, must come from the fare box.

In 1973, however, Congress was persuaded to pry open the fund and allow states to earmark some of their federal monies for urban mass-transit projects. With some modifications since then, one and a half cents of the 14-cents-per-gallon tax can be used for transit. (The fund collects about $14 billion annually.)

Officials responsible for meeting Clean Air Act standards say that those few pennies are inadequate. Over the last decade they've watched federal transit funding wither and air-quality goals go unmet.

Fortunately, Congress began debating reauthorization of the transportation act immediately after slogging through last year's clean-air legislation, and the Senate, at least, is loath to give up those gains. In June, Daniel Patrick Moynihan (D-N.Y.) steered a transportation bill through the Senate that for the first time paid heed to environmentalists and urban planners grappling with air-pollution laws. While the bill would provide about $22 billion over the next five years to maintain and build highways and bridges, it also allocates about $37 billion as "flexible" money for states to spend on any transportation project they choose. That provision doesn't guarantee a windfall for trains and trolleys, but it does give muscle to states serious about meeting their Clean Air Act obligations.

The bill could get sideswiped on its way through the House of Representatives and onto the president's desk. Already the Bush administration—along with other habitual highway advocates—has convinced the Senate to agree to a 185,000-mile national highway system it claims will "enhance the economic productivity of America through a lowering of transportation costs." That network would include the existing interstates, primary highways connected to the interstates, and new roads to be determined during the next two years. George Bush wants to

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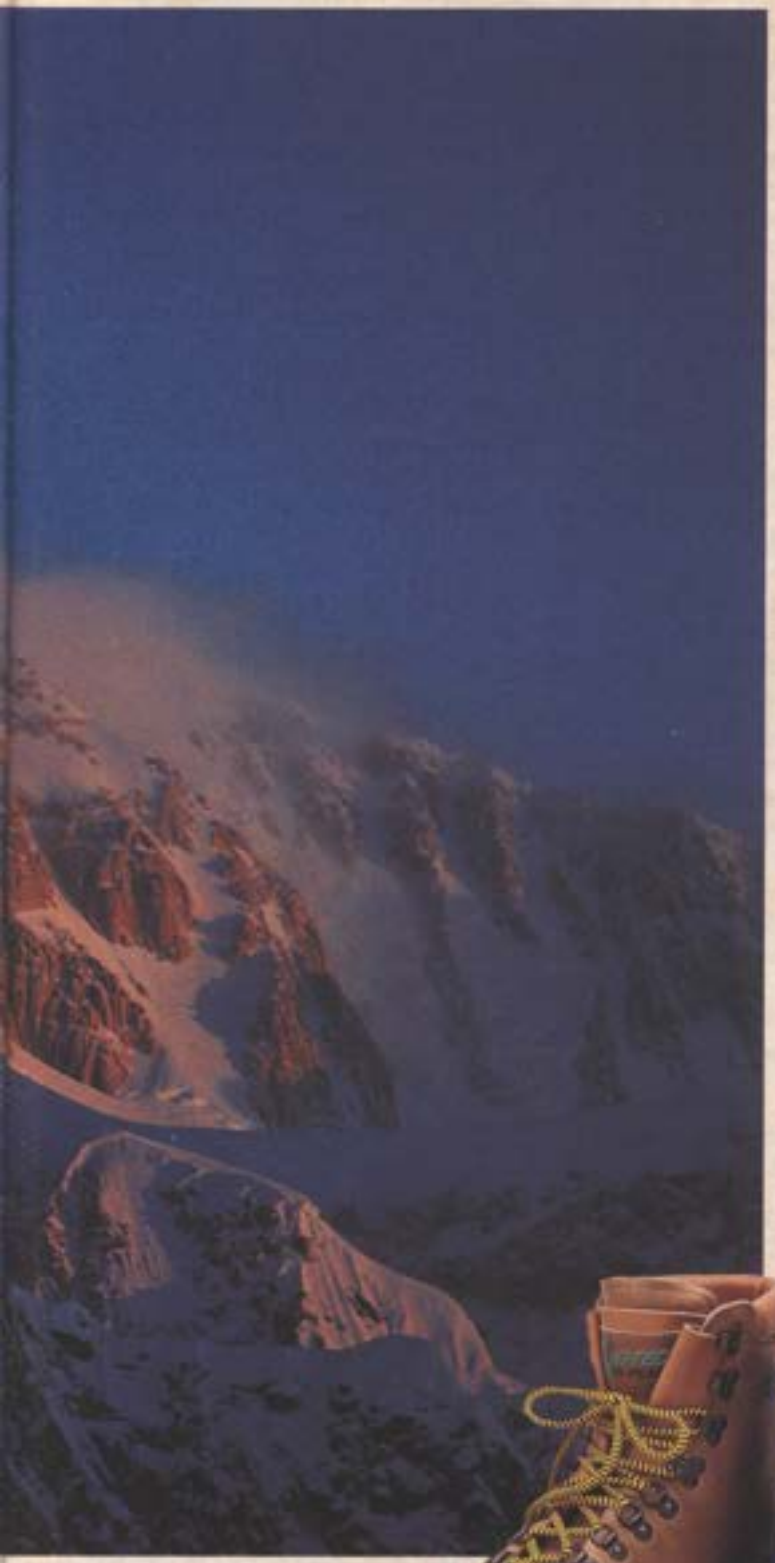

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And Adrian? Despite a blizzard on Mt. McKinley and white-out conditions on Mt. Hood, he conquered all 50 peaks (over 58 miles of vertical climbing) in just 101 days — smashing the existing record by over two and a half years.

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increase current highway spending 40 percent over the next five years while keeping transit spending flat.

"The administration's proposal almost guarantees an increase in traffic gridlock, poor air quality, and continued reliance on foreign oil," says Bruce Fried, executive director of Transit Now, a public-transportation advocacy group. The administration plan would deliver the most money to states that use the most gasoline, an outlay at odds with Clean Air Act goals. The plan would also call on states to pay for 10 percent of major highway projects, but 40 percent of transit projects—a clear inducement to build more highways. Under the Senate bill, a state's share of either transit or existing-highway project costs would be 20 percent, hiked to 25 percent for new road construction.

The road to hell is paved with good intentions—and with tons of sand and gravel as well. The Clean Air Act was intended to help cities confront one of their most pressing problems, air pollution, by allowing them to rein in the most egregious culprit, the automobile. But if Congress pours dollars into highways at the expense of transit, it will just be spinning its wheels.

—Mark Mardon

► *For more information, see "Resources," p. 124*

Industry's Friend in High Places

When a polluter hollers, Dan Quayle calls a meeting. Then they close the door.

Despite having been an irregular heartbeat away from the presidency, Vice-President J. Danforth Quayle is still seen by most Americans as a harmless lightweight more interested in his golf game than in the business of government.

They're wrong about the harmless part. For the past year Quayle has served as the patron saint of American corporations unhappy with the cost and bother of environmental regulation. As chair of the President's Council on Competitiveness, Quayle hands polluters get-out-of-regulation-free cards by changing the rules *after* environmental legislation has been made law. According to Representative Henry Waxman (D-Calif.), chair of the House Subcommittee on Health and the Environment, "While Mr. Bush cultivates the image of the environmental president, his vice-president is part of a shadow government that works behind the scenes to help polluting industries undermine the law."

It's a dirty job, but Republican vice-presidents have had to do it ever since Ronald Reagan signed Executive Order 12291 in 1981, claiming for the White House the power to vet federal regulations for their effect on industrial "competitiveness." Then-veep George Bush chaired the Task Force on Regulatory Relief, which boasted among its achievements slowing the phase-out of lead from gasoline.

The same work is now carried on by the Council on Competitiveness, which counts among its permanent members the secretaries of Treasury and Commerce, the Attorney General, Office of Management and Budget Director Richard Darman, and the bane of environmental regulators everywhere, Chief of Staff John Sununu. The council's closed meetings provide a convivial working atmosphere, free from annoying oversight. While the OMB is prohibited from direct contacts with industry, the Council on Competitiveness suffers no such strictures, making it a pipeline into the federal regulatory apparatus for corporate interests. Here are some of its proudest accomplishments:

■ Last December, the council ordered the EPA to drop its proposed ban on the incineration of lead batteries, the source of 60 percent of the lead in U.S. garbage. With incinerated lead directly contributing to the 400,000 babies born each year with high levels of lead in their blood, the ban might seem a reasonable precaution. Quayle's council, however, found it "did not meet the

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benefit/cost requirements for regulatory policy." (Although the council talks a lot about cost/benefit analyses, it never furnishes the data on which they are based.)

■ The council killed a regulation that would have required cities with garbage incinerators to recycle a quarter of their trash—even though the White House had once touted the rule as the solution to the nation's solid-waste woes. While the EPA had previously declared that the regulation "would pass any imaginable [cost/benefit] test," the incinerator industry found it burdensome, and so did the Council on Competitiveness.

■ At present, if a biotechnology company wants to develop a woodpecker-proof tree or a submarine-size catfish, it has to get USDA approval. But the council thinks that new, genetically engineered life forms should be as unregulated as those derived from conventional breeding. Under its proposed guidelines, only organisms that industry executives themselves admit are risky would be regulated.

■ The council has suggested more than a hundred changes to the Clean Air Act of 1990, none of which would strengthen it. Most damaging, perhaps, is a proposed loophole (couched as a "minor permit amendment") that would allow companies to set their own maximum pollution levels. Should state governments fail to object to a company's dream limits within seven days, the permit would automatically be revised to suit the polluter's fancy.

"Not only is this horrible policy, it is also flagrantly illegal," complains Waxman. Had the president wanted to veto the Clean Air Act, the congressman suggests, he should have done so. "But, once enacted into law, he does not have authority to revise or alter the legislation. Nor, needless to say, does his vice-president."

In its efforts "to eliminate government-imposed burdens on scientific and technological progress" and to "protect private-property rights from unwarranted government interference," the council has made itself a final

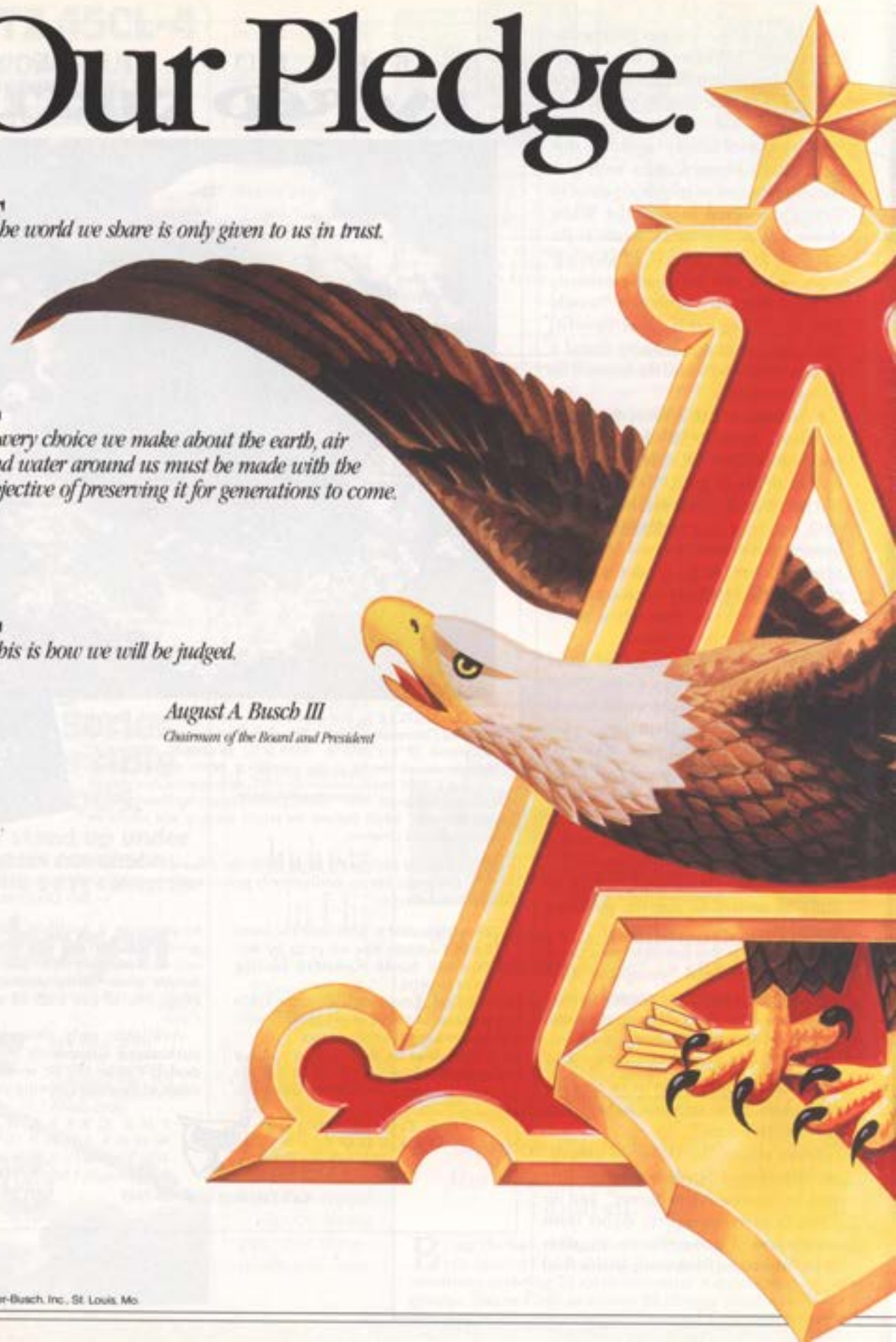
Our Pledge.

The world we share is only given to us in trust.

Every choice we make about the earth, air and water around us must be made with the objective of preserving it for generations to come.

This is how we will be judged.

August A. Busch III
Chairman of the Board and President



Our Promise.

Our pledge is very important to us — words to live by. And we believe actions speak louder than words. Here are just a few of the ways we're keeping our promise.

Wildlife Preservation

The Anheuser-Busch family has long been a friend to animals. We've supported the Rocky Mountain Elk Foundation, the National Wildlife Federation's Ferry Bluff Eagle Sanctuary, the Wildlife Habitat Enhancement Council and other centers for the preservation of birds. Our own Busch Gardens cares for a variety of rare and endangered species and promotes their survival through successful breeding and public education. And Sea World, another Anheuser-Busch Company, has rescued hundreds of marine animals and is a leader in marine preservation, education and research.

Resource Conservation

In addition to our concern for this nation's wildlife, we also care about the conservation of our natural resources. We've taken many steps to conserve the water used in our brewing process. Over the past ten years, we've reduced water used per barrel of beer brewed by 18 percent. Some of our wastewater is sprayed on farms to grow hay and turf grasses, returning valuable nutrients and water to the soil. We use grains left over from the brewing process to feed cattle — enough each year to meet the nutritional needs of 3 percent of the U.S. milk-cow population.

Community Service

Anheuser-Busch was a driving force behind the establishment of Operation Brightside, an organization dedicated to involving young citizens in cleaning up cities across America. We've also been a major supporter of this country's "Pitch In!," "Keep America Beautiful," "Don't Mess With Texas" and "Save the Chesapeake Bay" programs.

Recycling

We at Anheuser-Busch recognize our responsibility to the environment and, particularly, the solid waste disposal challenge which faces our nation. That's why, in 1978, we established Container Recovery Corporation — the world's largest recycler of aluminum cans. Since then we've recycled over 55 billion cans. Currently, we recycle over 90% of the aluminum cans we use. And that helps to save precious resources and energy. Very soon we'll reach our goal — to only use as much aluminum as we recycle.

A Pledge and a Promise. Anheuser-Busch Companies.

court of appeal for polluters. Yet perhaps because of Quayle's reputation for inconsequentiality, its actions have gone largely unnoticed. (When they are noted, it is generally as evidence that at least Quayle is doing *something*.) After an industry's arguments have been rejected by Congress, the president, and the EPA, they can still find a sympathetic hearing in what Sierra Club Washington lobbyist Dan Weiss calls "the death chamber for tough environmental regulations." While he may never get to be chief executive, at least Dan Quayle can serve as chief executioner.—*P.R.*

"Half of What's in You Is Also in Me"

The Peoples of the Forest come not to beg, but to spread the good spirit.

Quick: What do you serve to Indians from the Brazilian rainforest who are coming to lunch? A hasty search uncovered a recipe (from 1948's *Tropical Cookery*) for roast tapir: First rub the meat with lime, then stud with garlic and bay leaves. Older tapirs (which can weigh up to 600 pounds) may, however, require extended marination.

The local supermarket, unfortunately, was fresh out of South American ungulates, so my visitors have to settle for barbecued chicken. "Is this a turkey?" Cipasse Xavante wants to know, prodding the bird on the grill. "We have never seen a chicken so large."

Cipasse (who doesn't really have a last name—Xavante is the name of his tribe) is a big, handsome man with jet-black hair cut straight across his forehead and small bones stuck through his earlobes. With him are his effusive, beaming wife, Severja (a Karaja from the Mato Grosso region), and Siã, a Kaxinawa from the western Amazon. It is the first time people from their tribes have visited this country.

"We came because we have a lot of things to say to the world," says Cipasse through a translator from the Rainforest Action Network. "Sometimes when people hear about the rainforest, they think about birds and animals, but not the people who live there and need to survive. Then when people do talk about us, they listen to the 'experts' and not to the ones who live in the forest. We want to share our experience with the American people."

The chatter in the backyard subsides as Cipasse starts to talk about the threats to his people's "indigenous reserve": gold-crazed miners bringing disease and poisoning the rivers with mercury, clearcutting by Georgia-Pacific and South Carolina Lumber. The Xavante are a hunting people, he says, stalking birds, anteaters, and, yes, tapirs. (Maybe they're glad for a change of pace, I think. The chicken, at any rate, is a big hit.) Increasingly, Xavante hunting parties encounter invading bands of landless peasants poaching the wild animals that have now disappeared outside the half-million-acre Xavante reserve.

North America, of course, has no lack of people who know only too well what can happen to "indigenous reserves" when valuable natural resources are found on them, and the Brazilians are eager to meet their "relatives" here. They have just come from a meeting with Native Americans in Santa Cruz, California, and a young Lummi woman from Washington state is showing them around the Bay Area. In the Amazon, Siã Kaxinawa explains, the native peoples' precarious position is due not only to a failure of political will in Brasília, but also to the absence of agreed-upon territorial boundaries. The Kaxinawa had hoped that Siã would become a topographer in order to help demarcate their land. He turned to filmmaking instead, "to show the struggle of my people."

He is now lying on a chaise longue, looking a bit like a Hollywood director in his sunglasses, but bundled up against the unaccustomed Northern California chill. "We're not begging for

anything," he insists. "We have products we can exchange: rubber, Brazil nuts, medicinal plants." Together with their former enemies the rubber tappers, the Kaxinawa and other indigenous groups have formed the Alliance of the Peoples of the Forest. They are now seeking financial support for sustainable development projects in "extractive reserves," enclaves protected from the ravages of large-scale logging and mining.

One such project is ecotourism. Recognizing the current wave of interest in their region (Brazilian TV is even planning to feature a new soap opera called *Amazonia*), the Xavante have constructed an entirely new village to house visiting travelers. Not just anyone will be welcome, they warn—more important than a wallet stuffed with credit cards is "a good spirit" and a sincere willingness to learn about the rainforest.

My backyard would not be filled with Brazilians were it not for superstar musician Milton Nascimento. A strong supporter of indigenous rights, Nascimento spent three weeks with Siã in Kaxinawa territory last year. The trip inspired his album *Txai* (pronounced "chi"), the Kaxinawa word for "companion." (Siã translates it as "half of what's in you is also in me, and half of what's in me is also in you.") The Peoples of the Forest coordinated their visit with Nascimento's concert tour; the result is that the word *txai* is now far better known in the world than the Kaxinawa ever were. "I don't know if Milton has time to do records of all our nations," jokes Siã, "because there are 180 more, and there's a lot of value in all their cultures."

While the visitors came north to tell us about their homelands, they also had the opportunity to experience something of ours. Severja was particularly distressed by New York City: "Tall buildings press your mind, so you don't have the capacity to think," she says. "Your mind becomes like a box. I prefer my village, my mountains. When the world is large and you can see the sky and sun and birds, then you live."—*P.R.*

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C. L. Rawlins

Deep in Truth's Country

In April, Linda and I walked in the water's tracks down a dry canyon cut in deep meanders through Navajo sandstone. There was only one flower: locoweed, tiny staircases of gray-green leaves climbing to the folded pea blooms, white and light violet. It had snowed the week before, but the moisture had disappeared fast. New water lay pooled in a few spots where the slope of the creekbed had reached an impermeable layer of rock, and older water rested in the scooped bowls under the pour-offs from side canyons, murky and rich as good jade.

ELISABET SYLON

What is it that draws us through the towns, along rutted roads, onto unmarked earth?

♦ ♦ ♦

The law of water says go downstream. Floods had cut deeply, tumbling lava and limestone down from the mountains at the head of the drainage. The side canyons were left hanging as the main stream, with its wilder flows and sharper rocks, carved more quickly. Water and gravity had slowly opened the earth with unequivocal beauty.

We followed each descending arc, turning east to south to west until the sun seemed to circle like a hawk above our heads. The walls were steep and definite as the channel veered in slow obedience to gravity. Downstream. Deeper into the rock. In the narrowest parts the only other direction—since we couldn't fly—was upstream.

What drives a person out here? What is there in the air of small towns that entices some to leave the city—a waft of clover? the repose of cottonwoods and weathered fences? And what still greater promise draws one through the small towns, along gravel roads, then rutted dirt tracks, then trails, then onto the unmarked earth itself? Wilderness has become a word to conjure with, like love. It means as many things to as many people.

Some people out here hate the word, spitting it through mouthfuls of beer and snuff—"*will*-der-nuss"—like a Baptist grandma saying "fornication." Wilderness for them is not simply the mountains, the familiar high profile, the source of wood and water. Wilderness is a word for Keep Out. Wilderness is rich kids running around naked and having fun instead of working. Wilderness is the late June flood that blows the headgate and swamps a mile of road, the hairy thing that kills five ewes in one night, the howl of wind around the haystack in February.

Yet at the same time, in the same nation, in after-dinner speeches, one can

hear the word "wilderness" intoned with the same pitch and reverence as the name of God. It has been chanted to the point where it fails to mean anything specific in place or time, but instead has more to do with desire: Pure. Pristine. Perfect.

Outside the wilderness much of what we see is calculated to engage attention, to be bright and colorful, to flicker with brief emotion and throb with music. What we see distracts and persuades, dazzles and urges. Our senses absorb so much contrivance that anything not instantly gratifying seems perverse.

As we lose touch with our world, we become ever more demanding and impatient, of wilderness and of each other. Though buffeted with stimuli, we suffer from deprivation of simple, natural truth.

That no one tells the whole truth is a postmodern axiom. We are so conscious of language as a tool that we judge it by its effect: Does it increase sales? Does it draw votes? Does it bring us what we crave? A few generations of this lying-for-effect, and we have grown conscious of our loss. We need a benchmark for *what is*.

In the evenings, camped in the dust of an undercut rock wall, I read. In my pack is a book of poems, a small, cheap student edition that sold for thirty-five cents in the 1960s. Emily Dickinson. Born, reared, and died in Amherst, Massachusetts.

Why do I choose her? Why not Thoreau? Why not Muir, Stegner, Krutch, or Leopold? Or Ann Zwinger, Bruce Chatwin, or Patricia Limerick? Why not Ed Abbey, the newly risen saint of the good, red country? Emily Dickinson was the bane of my high-school English class.

But not every book about wilderness reads well in the wild. Too many seem like footnotes, set against what meets the eye. Not Emily:

Had I not seen the Sun
I could have borne the shade
But Light a newer Wilderness
My Wilderness has made—

When I read this I get a chill, as I do coming around a bend of this canyon, seeing what I've never seen before. There's something about following the water down, something about going into the depths of a canyon, accepting enclosure, working out the intimate details of the interior. Suddenly everything corresponds, the arc of the canyon and the braid of a soul: a perfect fit. What's strange and fine is that these elements are so diverse—careless, water-cut stone and the careful poems of a white recluse, one hundred and five years dead.

I spend my working life in a wilderness in the central Rockies. It used to be summer work, but has become year-round. I follow the same trails in every month of the year, from sandals to boots, to skis and back again.

The place itself has slowly come to mean more than grand abstractions like *pure, pristine,* or *perfect*. In fact, it has come to mean an escape from abstractions, freedom from them. There is no persuasion in a granite boulder, no parable in a lone paintbrush among the columbines.

This canyon is like my home range, mysterious with real things. Everything I see or touch rings with itself: sandstone, locoweed, scrub oak, chert. Watching and naming is my life's work, keeping the edges sharp like the black boundary of shade from an overhang. An odd, smooth stone catches my eye, dove-gray among the reds and golds. Like an egg, it rests heavy and cool in the palm, pocked at the end where somebody, sometime, used it as a hammer. It's good to sit without saying anything and hold it in my hand: a rock, then a tool, then a rock again. There is sanctuary in the specific, in the heft and presence of the world.

Wilderness has also become a legal tag, which generally means that one is not to use motors at ground level. In a legal wilderness, we are not allowed to whack down trees or subdivide or bulldoze parking lots or produce explosions, broadcast music, install security lights, speed, flash credit cards, or engage in most of the other activities that distinguish modern American life. Wilderness—like church—is where we are supposed to be what we manifestly are not: quiet, calm, aware, peaceful, reverent, and contemplative.

One of the reasons that the notion of wilderness gives us such trouble is that we confuse our notions with real things, that we live in our thoughts more than in the world that surrounds us. We are so soaked in our messages that we have trouble distinguishing a word from the thing itself. Our perspective is skewed, so that we see the natural world as a mere element in our mental worlds, wilderness as our peace of mind.

Yet I love this canyon because it is not a library or a zoo. Because it isn't a book or a movie. Because everything here proceeds from incorruptible sources. Because it tells me to do nothing that I don't need to do. Find water. Eat. Sleep. Because I have the freedom to act foolishly and because there are always consequences. I love this canyon because it doesn't need me to exist.

A Color stands abroad
On Solitary Fields
That Science cannot overtake
But Human Nature feels.

"My country is Truth," says Emily. Truth is something like gravity: It always pulls toward a common center. Language is a wooly wilderness inside us, blooming and howling. We strive to make it do as we wish, yet something in it resists. Language, like the earth, has a center of gravity. Words draw power from what they represent. The farther a word is placed from that center, the thinner and lighter it becomes. The tortured language of politics and press releases, for instance, cracks at a touch. It encloses truth's country like brittle parentheses. "Collateral damage" does not mean the same as human deaths: The phrase tries to contain them.

Or think of language as heritage. Linguists draw the same kind of charts as geneticists, and speak of stocks and hybrids. Geneticists talk of DNA as a

code. Language adapts, crossbreeds, and mutates. Like genes, it can also be damaged, words deformed or sterilized. Not all can be remade: The backbrain and the backcountry are rootstocks. The wild syllables nudge at the cage of lips and we slip out of the numb cadences of usefulness. I used to be afraid of the wilderness, scared to fall asleep, camped alone in the dark. Now it's my refuge, the cupped rock that holds my dream like water.

At the mouth of a side canyon that plunges between two gold monoliths, the slickrock has a necklace of pools. We sit by the deepest one to eat. Overhead, a hawk slips into air and gyres, with a strange, ascending cry, unlike the familiar redtail *skreeeeee*. Peregrine, Linda says. Nothing to do but watch and listen.

Later I look for a place to camp. Linda is tired, so she leans against a boulder in the center of the streambed, a rock that moves once every century, when the flood of floods roars down and sweeps the canyon clean, rolling the boulder another hundred steps, carving another measure of sand from its tawny flank.

I scout the rimrock benches and dip into a side canyon, looking for an undercut that opens south for shelter, east for morning light. I know I will not be the first to find such a place here. Even though we think of wilderness as untouched, the good camps have all been used before, like words in the language. The sandy shadow will have been lit by fires and the silence will have echoed to "Come, Come Ye Saints" in nineteenth-century English, to coyote stories in Paiute, and to forgotten songs in even older languages. We'll rest tonight among the echoes under a late-rising moon, three nights past full.

Having a debt to the place, owing for beauty and shelter and sleep, I'll discharge a part, what I can't keep, with this telling. The place, like truth, will remain nameless. I am not an explorer, nor a guide.

As Emily Dickinson said, "My business is to sing." ■

TOP TEN REASONS to start outdoor cross-training.

10. You suddenly remember the last stream you saw was on a bottle of **BEER.**

9. Big fat guy at gym started wearing **ZEBRA SKIN TIGHTS.**

8. No **HOT DOG** vendors on trail.

7. Less likely to run into people you owe **MONEY** to.

6. Few **FOREST CREATURES** have cellular phones.

5. Thumper's zany sense of **HUMOR.**

4. No **BAUHAUS** architecture in nature.

3. Deer Doo is smaller than **DOG DOO.**

2. Realized after one hour on **STAIRCLIMBER** you're still on the top floor.

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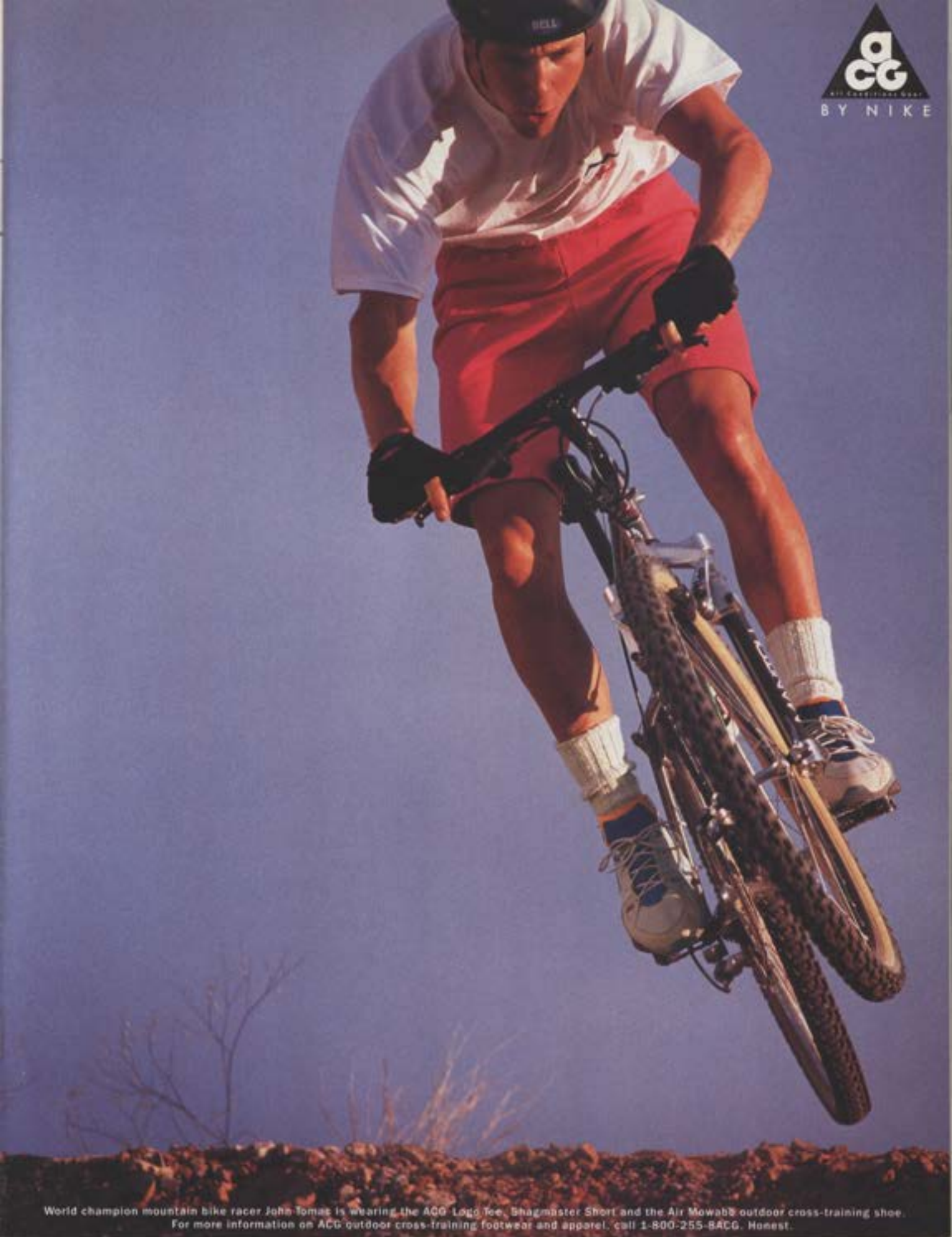

World champion mountain bike racer John Tomac is wearing the ACG Logo Tee, Shagmaster Short and the Air Mowabb outdoor cross-training shoe.
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LET IT BE

HOW THE TIMBER GIANTS FELL, THE LOTS WERE SOLD, AND TRANQUILITY REIGNED NO MORE IN THE FORESTS OF THE NORTHEAST. A LANDOWNER TELLS HIS STORY.

WOODS

Until today it's been raining hard for the better part of two weeks. The road that runs past the Shatney farm—Shat Acres, we call it—is half washed away, and as we bounce around a curve our passage is blocked by a downed spruce whose roots have been unable to hold in the shallow, rocky soil. While I drag the chainsaw out of the truck and go to work on the tree, Lynn shows Allison, our two-year-old daughter, where the beaver have dammed the brook above the bridge and flooded half an acre of pussy willow, sumac, and chokecherry. ♦ The humidity is intense. A tribe of kamikaze deerflies, unhinged by my sweat, swarms around my head in a wretched cloud, and when I finally clear a path through the supine spruce I take time to combat them with retaliatory smacks of my palms. Of all the impoverished pests in a New England forest, I think, the deerfly is the poorest. ♦ We lock the hubs in four-wheel drive and continue slowly, looking for a gap in the dense woods that will indicate the driveway to my father's old farm—my old farm now—a place I have not visited for some years but that I remember to be thick with raspberry bushes. It is my intention to denude these raspberry bushes this very afternoon, and ennoble the dinner hour with the odor of pie. I am fond of pie. I start to salivate when Lynn spots tracks leading through an

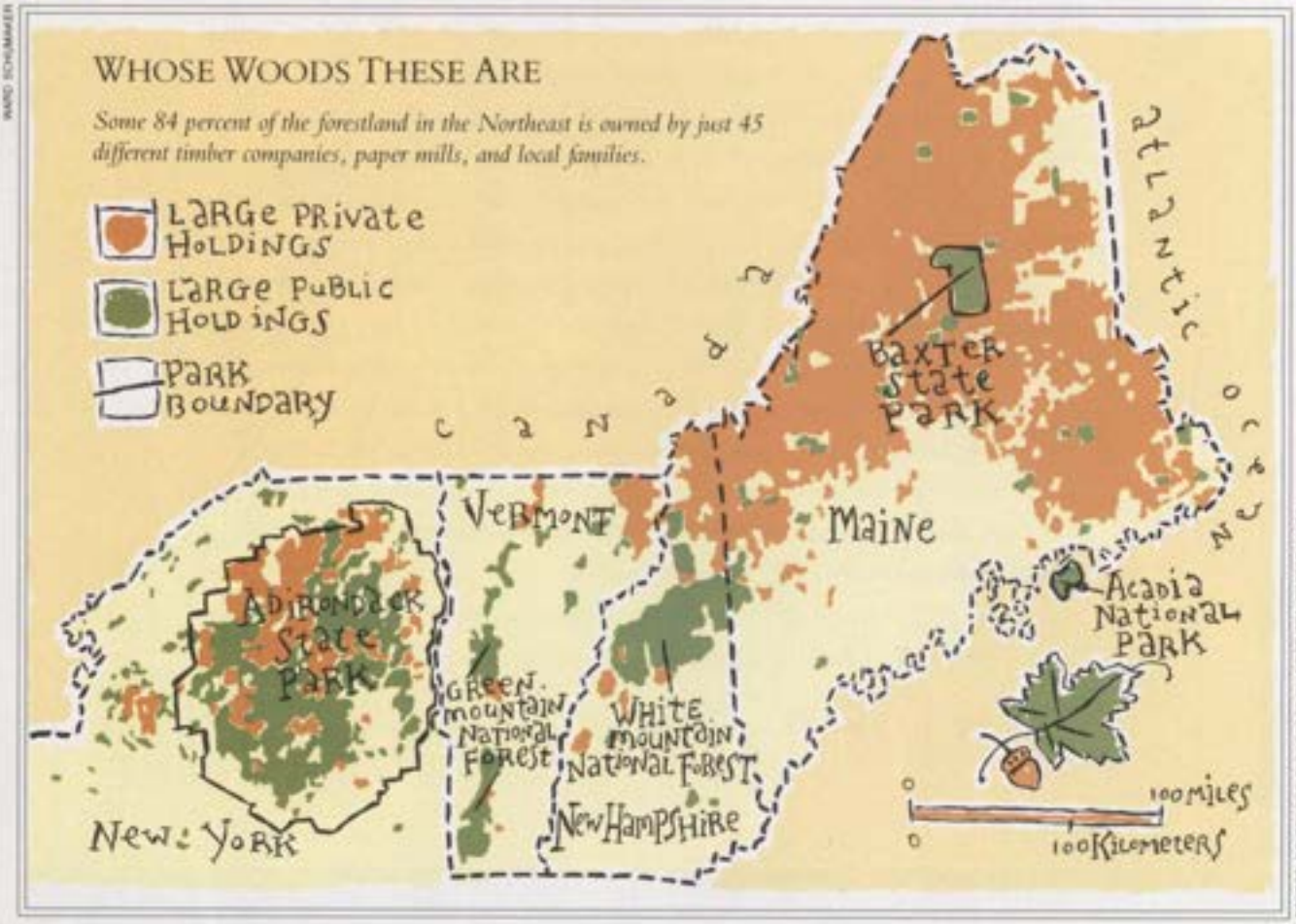
by Page Stegner

opening overgrown by skunk cabbage and we turn off the township road, pioneering our way toward the remnants of a stone wall marking the southern line of the property. I know where I am once the red pines replace the hardwoods.

My parents bought this farm as a summer home nearly half a century ago—100 acres, plus or minus, in the heart of the Northeast Kingdom: Greensboro Township, County of Orleans, State of Vermont. The barn, farmhouse, horse stalls, woodshed, and spring all needed attention, but the place was habitable. Out front and to the west were hayfields and pasturelands, behind the garden the woods sloped up to a ridge we called Sourwood Mountain, and along the northern boundary was a small lake that still appears on local maps as Mud Pond.

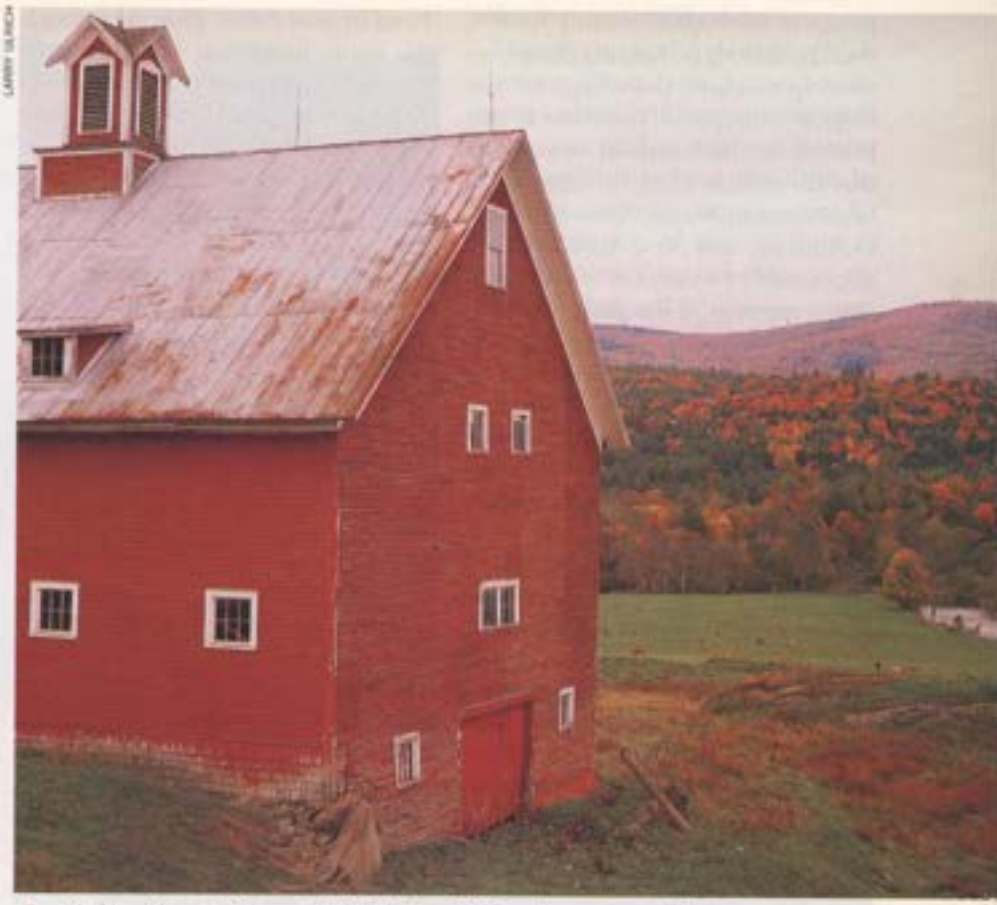
My mother and father planted lilacs and golden glow around the front door and a climbing rose along the stone wall in back; they mowed and raked and painted. They spent the summer before World War II redoing much of the interior of the house. And then a conspiracy of events dominated by gas rationing and a move to California prevented their return to Vermont for more than five years—by which time things had changed dramatically. The barn had blown down in a hurricane, porcupines had chewed the supporting timbers of the house until it was no longer structurally sound, and all manner of critters had lived, bred, and died in the stud walls. Natural reforestation was claiming the hayfields and pastures, which sprouted healthy crops of larch, spruce, and cedar. Mud Pond was beginning to show clear signs of eutrophic demise.

Even without a five-year hiatus, as absentee landowners (a phylum referred to in Vermont as "summer people") there was no way my parents could have kept up what native farmers spent every hour of every working day laboring to maintain. And so the pile of boards that had been the barn remained a pile of boards, finally rotting and sprouting the magnificent patch of raspberry bushes I am about to pillage; maple saplings joined the softwoods in a rush to reclaim the fields; and the porkies continued to feed on the joists and timbers. Eventually we salvaged a few dozen adze-hewn beams from the farmhouse, cremated its remains, and pushed them into the cellar hole. "New England wants to be woods," my father said. "So let it be woods." He planted the remaining open space in Norway pine (a native tree that has nothing to do with Norway), moved his summer quarters to a hill above Caspian Lake in the town of Greensboro itself, and some years later, when I was grown and had a family of my own, transferred the title and tax burden to me.



Thus I, a Northern Californian, became the absentee landowner of a New England wilderness estate.

I review the above history in part because it occurs to me that the story of the Stegner "farm" is a corollary to a syndrome that has been seeping through many parts of rural America during the last decade. The hankering for a retreat in some idyllic outpost has become a middle- and upper-class American passion; but on the crowded east coast of our nation it is a passion that many people believe threatens the environmental and social integrity of the entire northeastern territory. For the 70 million people who live within a day's drive of the region, Eden can be had—and is being had—on a Maine lakeshore or a Vermont hilltop or a New Hampshire wood for a few hundred to a few thousand dollars an acre. In 1989, 110,000 acres were chopped into lots in Maine alone. Unlike the West, with its vast buffers of public lands (more than four-fifths of the Northeast is private), the only thing that has prevented wholesale development of New England's wilderness is the unwillingness of its timber-company owners to sell. And that reluctance, as the recent leveraged buyout of one of the biggest of these timber companies suggests, may be short-lived.



A dairy farm in Vermont's Mad River Valley, where a seemingly imperturbable way of life is challenged by encroaching corporate raiders.

The spectre of the subdivision of northern New England first appeared in 1982 with the hostile takeover of Diamond International, the giant lumber company that brought us, among other things, the safety match. Diamond, which owned about 1.7 million acres of forestland (including 800,000 acres in Maine, 89,000 acres in Vermont and New Hampshire, and 96,000 acres in New York's Adirondack Park), was acquired for $660 million in a corporate raid by British financier Sir James Goldsmith. To pay the debt incurred by his purchase, Goldsmith dismembered the company, selling its divisions, corporate headquarters, and paper mills for nearly 90 percent of their original price, and transferred title to the land itself (which he retained) to a Cayman Islands holding company.

In 1987 a French water utility, General Occidentale, bought the Cayman Islands company and immediately put the Diamond forests up for sale. While the state governments hesitated over the price, a New Hampshire mobile-home-park and condo developer named Claude Rancourt jumped in, buying the land in Vermont and New Hampshire for $19 million. A Georgia-based land-speculation company, Lassiter Properties, bought the Adirondack forestland for $17 million. They proceeded to do what entrepreneurial land speculators do: They set about to subdivide and sell once again.

Naturally, all parties involved in this series of transactions made (or would make) enormous profits along the way—except for the citizens of New Hampshire and New York, whose legislators belatedly woke up to the fact that a huge amount of pristine wilderness, critical watershed, and wildlife habitat was about to disappear. The two states came stumbling in to buy, at considerably inflated prices, 45,000 acres and 15,000 acres respectively from the very speculators who had outmaneuvered them in the first place.

The problem with the Diamond takeover, as a few people were quick to point out, was that it represented the kind of business transaction that, if repeated, could result in a wholesale change of land ownership in northern New England. The region's timberlands are open to the public and serve as de facto parklands; now conservationists warned that the millions of acres New Englanders counted on for their hiking, fishing, and boating pleasures could be put on the block.

It was a warning that, initially, went unheard. Not until Rancourt proposed huge vacation-tract subdivisions in New Hampshire and Vermont did the

prospect of 90,000 second homes, condos, ski lodges, hunting camps, resorts, sports clubs, and what-have-you inspire widespread concern. It was pointed out in dozens of newspapers that 21 million acres of commercial timberland in Maine, Vermont, New Hampshire, and New York are actually owned by a very few wood-products companies. If the giant Diamond International could fall, who might be next?

Well, probably nobody around here in East Jesus, Vermont—or so I assure my good wife. The newspapers are reporting the unfriendly takeover by Georgia-Pacific of Great Northern Nekoosa's 2.1 million acres in Maine (the largest landholdings in the state), but that's just a timber company eating a timber company; just a corporate bud worm feeding on somebody else's spruce. No one is hungry for Mud Pond or Shat Acres. Plowing through the burdock that has overgrown the road, it is a little hard to imagine development of any kind occurring in these dense woods. I park the truck where the old barn used to be and we wade into the raspberry patch, pails in hand, mouths a-pucker . . . only to find that the fruit has been stripped by a black bear whose lumbering path through the canes is as obvious as the undigested berries in the loaf he has left as a memento of his passing. "The glutton didn't leave us enough to flavor our corn flakes," I observe cheerlessly.

"Look, Allison," Lynn says. "Bear poop. Bears like raspberries just like people do."

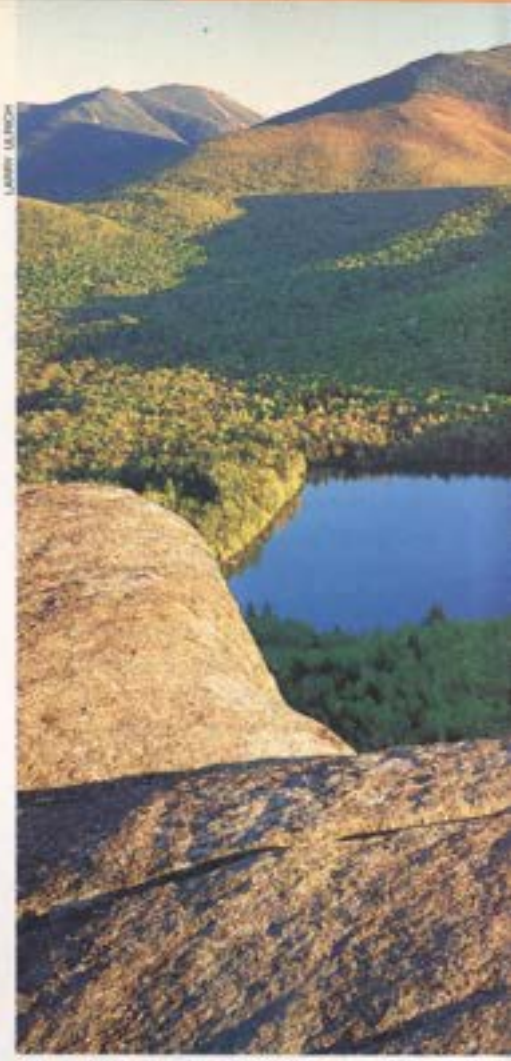
"Poop," Allison intones.

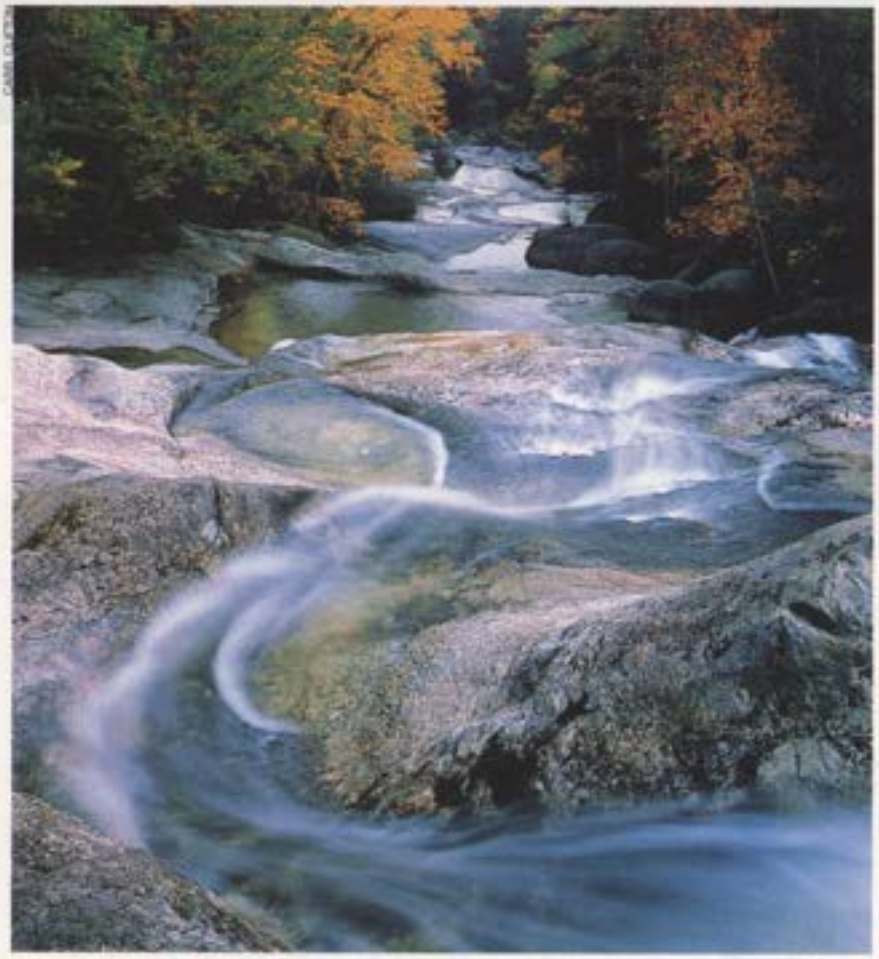
"I never did like raspberry pie."

"Diaper?" Allison suggests.

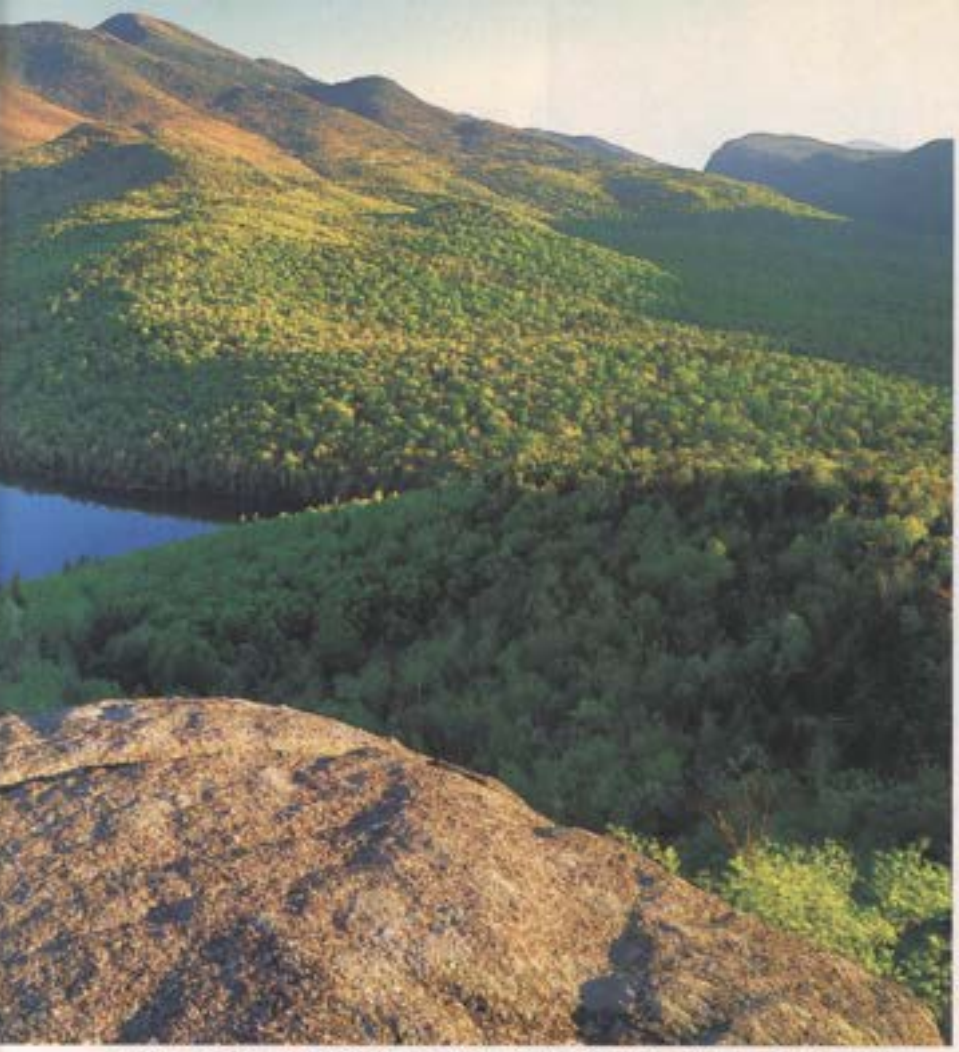
"I dislike seeds."

Grumbling, we give up on berry-picking and walk down through the goldenrod toward the stone wall that divides the property from our neighbor to the south. The land once belonged to U.S. Bobbin, a company that made spools for thread; we have heard that it recently sold to a conservationist from southern Vermont, and are therefore unprepared for the sight that greets us as we claw our way through a thicket of cedar and emerge into the open—the empty, stark, lifeless open. Stumps poke out of the torn earth, slash lies where it has been cut, deep tracks erode into furrows where the skidders have dragged their prey and the topsoil has washed down toward the outlet from Mud Pond. It's a classic clearcut; a nightmare photo-op for *Sierra* or *Wilderness* or *Audubon*. How could this happen in little old north Greensboro? Gaping and shaking my head, as if bemusement might make this go away, I wonder how much profit you can make by turning





Wright Brook flows through Maine's Mahoosuc Range. Currently unprotected, the region is included in the Northern Forest Lands Study.



Heart Lake, Adirondack State Park, New York. More than half of the park's 6.2 million acres are privately owned, primarily by the timber industry, but the state is hard-pressed to find money to buy additional land.

an insignificant 200-acre woodland ecosystem into a weed lot.

"Pretty," Allison says, toddling toward a small patch of surviving milkweed. Not yet knowing how the world is supposed to look, she is undismayed by the way she finds it.

Her parents are more opinionated. Greed comes in all sizes, we observe—Goldsmith size, Rancourt size, local-developer size. We will learn, later, that our southern Vermont "conservationist" is in fact a small hustler who picks up remote, "unimproved" parcels of forestland for a pittance, clear-cuts them, puts whatever he can't market as saw logs into a chipper, and sells the chips to a New Hampshire power plant for fuel. His unreal estate is now available in small lots for anyone looking to build a dream home in the country.

Unfortunately, there are a lot more small hustlers than Goldsmiths in the world—unfortunate because their operations are less dramatic and harder to track, and their rape-and-scrape ventures seldom attract more than local notice. But their collective enterprise (generally dealing in the 1,000- to 20,000-acre range, though often less) threatens to fragment New England's forests just as effectively as huge junk-bond takeovers by Wall Street financiers. To quote one Northeast Kingdom forester we encountered as he looked over the weeds and eroding soil of a recent 300-acre "development" not far from our own dismal discovery, "The local realtors are in a feeding frenzy. I'm not worried about the timber industry mismanaging the forests; I'm worried about the forest being fragmented through development into little spaghetti lots like these."

Happily, more and more people are worrying about both the timber industry and the developers—even some of those we elect to worry. A number of proposals have been put forth by various conservation organizations for the preservation of large sections of northern New England. One of the most detailed and ambitious comes from The Wilderness Society, which recommends establishing a 2.7-million-acre Maine Woods Reserve surrounding Baxter State Park (at 200,000 acres, the only public park of any size in the Maine woods). The National Parks and Conservation Association has offered half a dozen suggestions for park creation (or expansion of federally protected lands) in both Maine and northern Vermont. Earth First! modestly argues for a 10-million-acre biological preserve that would include northern and western Maine, New Hampshire north of Route 110, the Northeast Kingdom of Vermont, unspecified areas of southern and central New Hampshire and Vermont, an expanded Adirondack Park, and the restoration of the Allagash, St. John, Penobscot, Androscoggin, and Connecticut River watersheds. In short, everything. Well, why not: If you know you're going to get a lot less than you want, might as well ask for the whole taco.

In 1988, concerned by all the aforementioned threats to the northeastern wilderness, Congress appropriated $250,000 for an assessment of timber resources in New York, Vermont, New Hampshire, and Maine—a review to be supervised by the U.S. Forest Service in coordination with a 12-person Governors' Task Force from each of the affected states (three members from each state appointed by their respective governors). The Northern Forest Lands Study (NFLS) group, as it was called, was charged with identifying historical ownership patterns, with projecting the impact of change in those patterns, and with devising strategies to "consider a sustained flow of renewable resources in a combination which will meet the present and future

GEORGE WUERTHNER

CAMPAIGNING FOR THE FORESTS

Sierra Club members throughout the Northeast are working to include their unprotected wild woods in the next generation of national forests. Two years ago activists from New England and New York established the Club's Northern Forest Campaign. Guided by a steering committee representing each of the four states, volunteers from Maine, Vermont, New Hampshire, and New York wrote comprehensive comments on the draft Northern Forest Lands Study; produced a slideshow, a video, and an extensive set of fact sheets on the wonders of and threats to the woods; and launched a quarterly newsletter, *Northern Forest News*.

For information on how to get involved in the Club's effort, contact the Northern Forest Campaign, Sierra Club, 85 Washington St., Saratoga Springs, NY 12866.

needs of society, permanent public access for recreation, protection of fish and wildlife, preservation of biological diversity and critical natural areas, and new state or federal designations." The task force was expected to survey *all* forest resources—fish, wildlife, recreation—not just timber, and was given a year to come up with a draft report.

Which, in October 1989, it did. The reviews were predictably mixed: The timber industry applauded and the environmental community booed. The big problem, complained critics like Chris Ballantyne, Northeast regional director of the Sierra Club, was that the report was silent on issues of forest health and biodiversity. Moreover, its strategies for protection were largely recommendations for tax incentives to the timber companies and gave short shrift to other options, particularly that of public acquisition.

The task force, assuming that federally owned land was anathema to New Englanders, decided that the political climate precluded increased federal, state, or regional authority in the North Woods and/or the establishment of any new or expanded national forests and parks—i.e., public lands.

As they heard during 24 public hearings held for 90 days after the release of the report, they were wrong. A great many of the study-area residents, complaining that the document was a sop to the timber industry and that the only thing its recommendations sought to preserve was the status quo, argued for stricter regulation of forest practices and for increased state and federal acquisitions. Nor was public concern strictly regional; the NFLS task force received more letters from Californians than it did from Vermonters.

Hoisting Allison on Lynn's shoulders, I lead the way down a skidder road to the brook that flows out of Mud Pond, where we wallow through a quagmire of erosion and silt banks until we reach the sanctuary of our own woods. "The task force may get yet another letter from a Californian on the subject of forest management," I mutter to Lynn, taking one last look at our neighbor's clearcut.

We pick up an animal path that leads directly to a lagoon along the south shore of Mud Pond, ringed by dead trees and choked with pickerel weed. From this point, we know from the topo map, we will be able to follow the inlet brook to an old logging road that bisects the property and thus circle back to the plundered raspberry patch where our lunch basket and a $1.99 bottle of Romania's finest cabernet await us. Lynn points at moose tracks in the soft ground in front of us. Shortly thereafter she points to something else associated with moose, and I am about to repeat a dumb pie joke when she points to the moose itself, standing there up to his knees in the shallow water with a tatter of pickerel weed poking out of his mouth. Good thing I'm now bringing up the rear. Best to shift discreetly into reverse and fade toward that old spruce. The girl and the woman will divert attention until I'm safely aloft. But the moose stops munching only long enough to observe them with benign indifference, and after a few moments rips up another hank of weed, sloshes his way slowly around a point of land, and disappears. Allison waves her hands, pointing with glee. "Cow," she says.

"Where's your father?" Lynn asks. I resent the caustic tone.

To its credit, the study team did incorporate a substantial number of suggestions made by individuals and environmental groups in its final report to Congress in May 1990. More attention was paid to questions of forest health,

and to the identification of forest resources and their use. The most significant changes, however, were in the range of strategies suggested for forestland protection—everything from outright acquisition to the transfer of development rights—and the purchase of conservation easements and rights of first refusal. The report recommends implementation of existing-use zoning laws where such would be appropriate, capital-gains exemptions for sales to conservation agencies, and a host of tax incentives to encourage private landowners to keep their land undeveloped. Most important, it argues for the establishment of greenline areas protected by any or all of the above tactics through a partnership of local, state, and federal government agencies. Situational methodologies, in short, with an emphasis on cooperation and, to some degree, compromise.

The final report acknowledged that its drafters had been in error in their initial assumption that public-land acquisition is politically and economically infeasible. "A recent telephone survey of residents in several study-area counties found strong support for public purchase of land," it admitted. Eighty-five percent of those polled favored public purchase for wilderness protection; 80 percent for recreation opportunities; 81 percent for wildlife habitat.

The study team should have known this from the outset. Even in some of the most notorious enclaves of stubborn isolationism (like right here in the Northeast Kingdom) attitudes have long been changing. A 1988 poll conducted by a Sterling College student, James Cole, in the towns of Island Pond, Norton, Canaan, Bloomfield, Guildhall, Lunenburg, and Victory showed that 72 percent of the respondents believed there was a need for improved land management, and 67 percent were in favor of a Northeast Kingdom National Park. It is generally conceded that the era of de facto public recreation areas under the accommodating private stewardship of huge timber companies is coming to an end. If the region is going to retain anything of its special character, other institutions are going to have to take over.

MARC MUENCH

A New Hampshire autumn brings glory to the White Mountain National Forest.

"The next step in protecting the northern forests," says Michael Kellett of The Wilderness Society, "is advocacy." The recommendations of the task force are now before Congress, but they are only recommendations, and it will certainly take prolonged, concentrated public pressure to turn suggestion into legislative action.

Some good deeds are in the works. Congress passed a Maine Wilderness Bill in September 1990 establishing the first federally designated wilderness area in the state (12,000 acres of the White Mountain National Forest, including the Caribou and Speckled mountains). It appropriated, as well, more than $1 million to establish a Northern Forest Lands Council to conduct research, inventory resources, and map the region.

On the other hand, Governor Mario Cuomo of New York declined to impose controls on 654,850 privately owned acres in and around Adirondack Park—controls he had verbally supported until pro-development interests began to howl. And bond issues that included money to purchase land went down in the November 1990 elections in New York and Maine—which means that none of the four northern states has any funding for that purpose at all. The clear message is that if New Englanders are going to preserve the environmental integrity of their region, they need federal support.

Indeed, preserving that environmental integrity is going to be a hard row to hoe, regardless of strategy, if the problem continues to be perceived by the resident populations (and even some of their advocates) as strictly regional business. The fate of one wilderness is (potentially) the fate of all wilderness and is an issue that has little to do with regionalism—though I freely acknowledge that the opinion of an outsider, flatlander, summer person, absentee landlord, Californian like me is not exactly the first order of concern to local communities in northern New England. I defend my position on the grounds that our Constitution and laws, the fact that we are the "united" states of America (to say nothing of our fanatic belief in the right of mobility, the right to go wherever we want, whenever we want, however we want), give a Californian license to argue and agitate for the preservation of the northeastern woods, just as it gives a New Englander license to argue and agitate for the old-growth forests in the Pacific Northwest.

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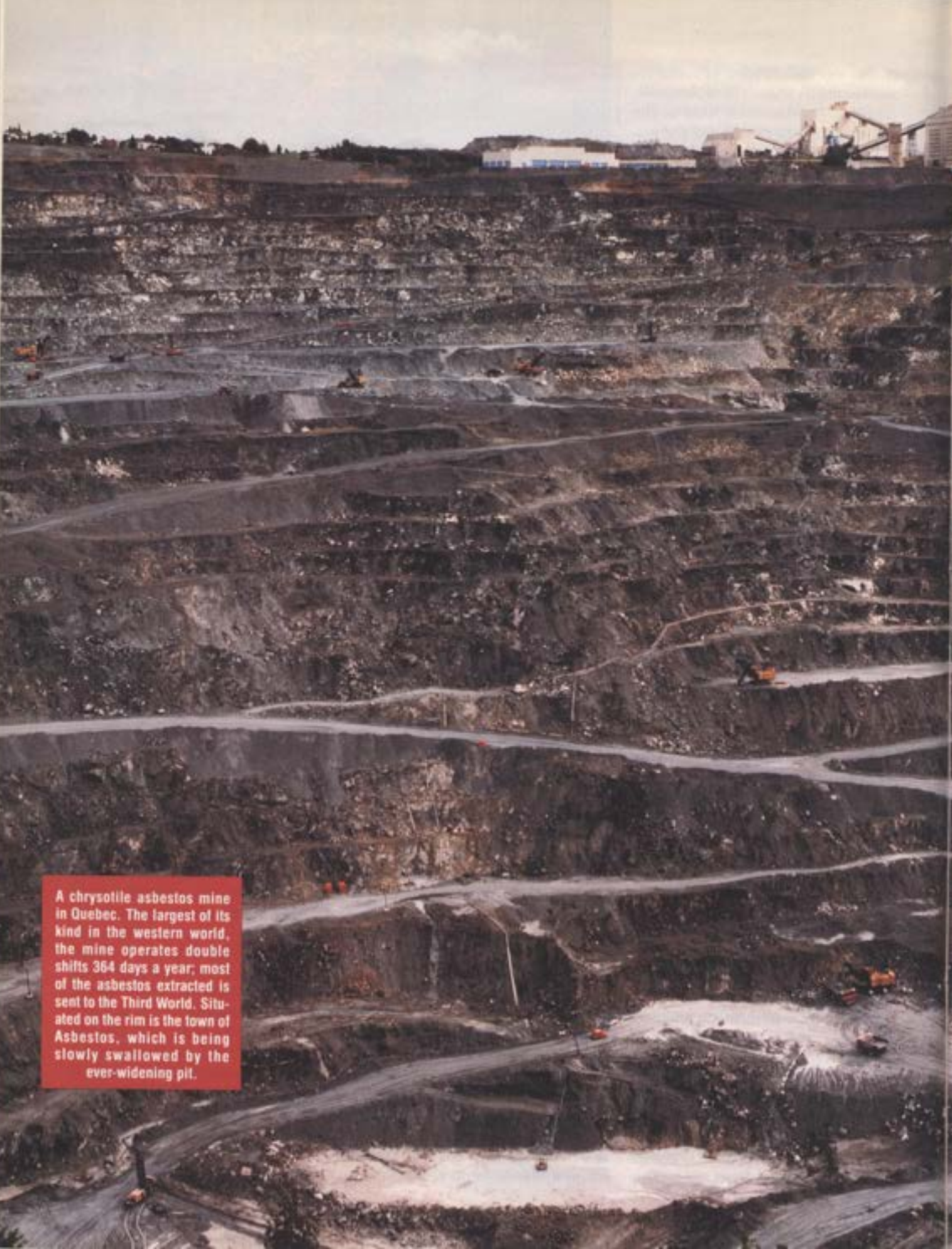


A chrysotile asbestos mine in Quebec. The largest of its kind in the western world, the mine operates double shifts 364 days a year; most of the asbestos extracted is sent to the Third World. Situated on the rim is the town of Asbestos, which is being slowly swallowed by the ever-widening pit.

PHOTO BY BILL PARKER

New Life for WHITE DEATH

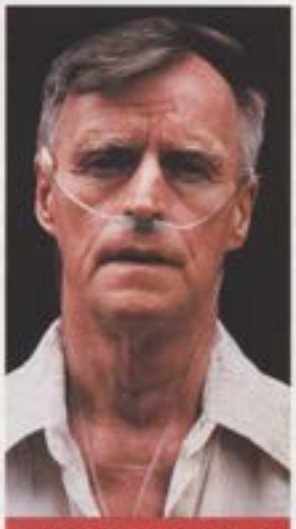
BY PAUL RAUBER

WITH A BAN ON ASBESTOS IMMINENT IN THE UNITED STATES, THE MARKETERS OF CANADA'S DEADLY FIBER LOOK FARTHER AFIELD.

"In the developing world asbestos is life, and we should not be shy about saying so."
—*Michel Gratton, president of the Asbestos Institute of Canada*

Canada is hooked on white powder. Not cocaine or heroin, but asbestos—that undeniably useful fibrous mineral that insulates houses and ships, strengthens cement and textiles, and kills those who breathe its chalky dust.

As the world's largest exporter of asbestos, Canada depends on willing foreign markets. For years its most eager customer was the United States—at least until dying U.S. workers started suing asbestos manufacturers by the thousands. In 1986 the Environmental Protection Agency announced a total ban on asbestos, to take effect by 1996, further weakening the already deteriorating Canadian industry. "Given the rate at which asbestos use in the United States has been declining," says environmental consultant Barry Castleman, "the EPA 'ban' may come to little more than closing the coffin after the industry has died from other causes."



Joe Darabant: slow death after 30 years on the job.

Canadian asbestos production, however, has demonstrated a vampiric resiliency. Even as exports to the United States and Europe diminished, Canada found a new market in the developing world—and the coffin lid creaked open again.

Asbestos is often put to use in the Third World in ways not envisioned in the glossy brochures put out by the Asbestos Insti-

tute, the largely government-funded marketing and promotional arm of the Canadian asbestos industry. In Ipoh, Malaysia, for instance, thousands of people have settled next to the dump used by the United Asbestos Cement factory, where they scavenge material to build their homes: broken asbestos-cement pipe for drains, asbestos sheeting for walls and roofs, and asbestos felt for carpets. United Asbestos officials told the local newspaper, the *Utusan Konsumer*, that there was no problem because they use only "the safest type of asbestos"—white, chrysotile fiber imported from Canada. "Malaysia is one of the countries targeted by the Canadian asbestos industry as a huge potential market," the paper notes.

> Theoretically, the length of time between cause and effect is immaterial; murder knows no statute of limitations.

The Asbest End factory in Kartal, Turkey, makes automobile brake pads. "Everyone gets a smock, rubber gloves, and paper surgical masks, which they are told to reuse for a few days," relates *Middle East Report* magazine. "None of [these] are sufficient to protect against the asbestos dust swirling in the air as men manually shovel it from bin to bin, take it out of bags and break it down to dust, and shave the brake pads into proper size." Because of the oppressive heat, most of the workers don't even bother to wear the masks. "The people in this country are uneducated and they deliver themselves to God," says the plant's owner. "What am I supposed to do? I am not their parents."

If conditions in Turkey are somewhat crude, Thailand is considered by the Asbestos Institute to be a model for the safe and modern "controlled use" of asbestos. "They can certainly enforce regulations," boasted institute president Claude Forget in 1988. "Some of their industry operates according to the best world standards."

One such facility, presumably, is the Olympic Asbestos factory, Thailand's second largest. But when the Canadian *fifth estate* investigative television team visited Olympic in 1988, they found that the plant had no ventilation system, and indeed, according to the show's transcript, "nothing to prevent the invisible fibers and the asbestos dust from covering the workers, collecting on the floor, and forming a crust on the nearby control panels." Outside the plant, *fifth estate* filmed "another situation you wouldn't find in North America: the children of workers roaming the company compound among the discarded equipment, the empty bags, and the mounds of waste asbestos."

The dangers of asbestos, the documentary team concluded, are virtually unknown in Thailand. For example, while smoking is widely understood to result in a 55-fold increase in the chance of contracting asbestos-related cancer, it is still common among Thai asbestos workers. This ignorance is not wholly the fault of the Thai authorities; when they sought to mandate a skull-and-crossbones label on sacks of the mineral, the Asbestos Institute persuaded them to leave it off.

Asbestos is, after cigarettes, one of the leading causes of cancer among industrial workers. In the United States alone, 8,000 to 12,000 people die of asbestos-related diseases each year. Since many other asbestos-using countries do not officially recognize diseases caused by asbestos (and are not equipped to diagnose them if they did), the worldwide death count is unknown.

Throughout its history, the asbestos industry has consistently denied or downplayed the dangers of its product. When the Asbestos Institute needed public-relations help in Washington, it engaged the services of Hill and Knowlton, the same firm to which the tobacco industry turned in the early 1970s to argue the safety of cigarettes. In the 1930s and '40s, officials of the Johns-Manville Corporation deliberately withheld information about the dangers of asbestos from their workers. ("Do you mean to tell me you would let them work until they dropped dead?" an asbestos-insulation manufacturer asked Johns-Manville executive Vandiver Brown in 1942, after discovering that his employees were developing asbestosis. "Yes," replied Brown. "We save a lot of money that way.") Up until 1975, company doctors at the Thetford Mine in Quebec regularly told workers suffering from asbestosis that they were in good health, even when they were about to die. In 1978 the Asbestos International Association advised its member countries to adopt the bland "take care with asbestos" notice used in Great Britain, if use of a label was unavoidable. "Rediscussing the wording," the industry group warned, "could bring along the risk of having to include the word 'cancer.'"

That asbestos was not banned years ago is likely due to the fact that its diseases take so very long to develop. Asbestosis, a lung ailment in which scars caused by inhaled fibers slowly choke off breath, can take 10 or 12 years to appear, and many more to kill, even under the dustiest conditions.

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Which Bullet to Choose?

January 19, 1990, was a happy day for the Canadian asbestos industry: It was the day *Science* published an article by University of Vermont pathologist Brooke Mossman and others arguing that Canadian asbestos is relatively harmless, and ridiculing public concern over asbestos in schools, homes, and other buildings. The "Mossman paper," as it came to be known, was eagerly embraced not only by the beleaguered asbestos industry, but by insurance and real-estate companies faced with enormous asbestos-removal bills. It spawned a spate of imitators in the popular press, and served as an excuse for school boards and building managers across the country to stop worrying and be happy.

Mossman *et al.* begin by differentiating between good serpentine asbestos, with its fuzzy, curly fibers, and nasty amphibole asbestos, whose fibers are spiky and rod-like. Canadian chrysotile or "white" asbestos falls into the serpentine class; the amphibole fibers, crocidolite and amosite ("blue" and "brown" asbestos, respectively), are mined primarily in Africa, and make up only 10 percent of the world asbestos market.

Mossman and her colleagues exonerate Canadian asbestos by claiming that the pointy amphibole fibers more readily penetrate the lung cavity, and are thus "the major cause of mesotheliomas in asbestos workers." The fact that Canadian chrysotile workers also suffer from mesotheliomas is attributed to the small traces of an amphibole fiber called tremolite, which often contaminates chrysotile. (This is convenient for Mossman's theory, but offers cold comfort to dying chrysotile workers.) Since most of the asbestos found in schools and buildings is of the chrysotile variety, the authors find that the "risk from asbestos in buildings is minuscule . . . magnitudes lower than commonplace risks in modern-day society" like accidental drowning or aircraft accidents.

The results of mesothelioma. Is chrysotile responsible?

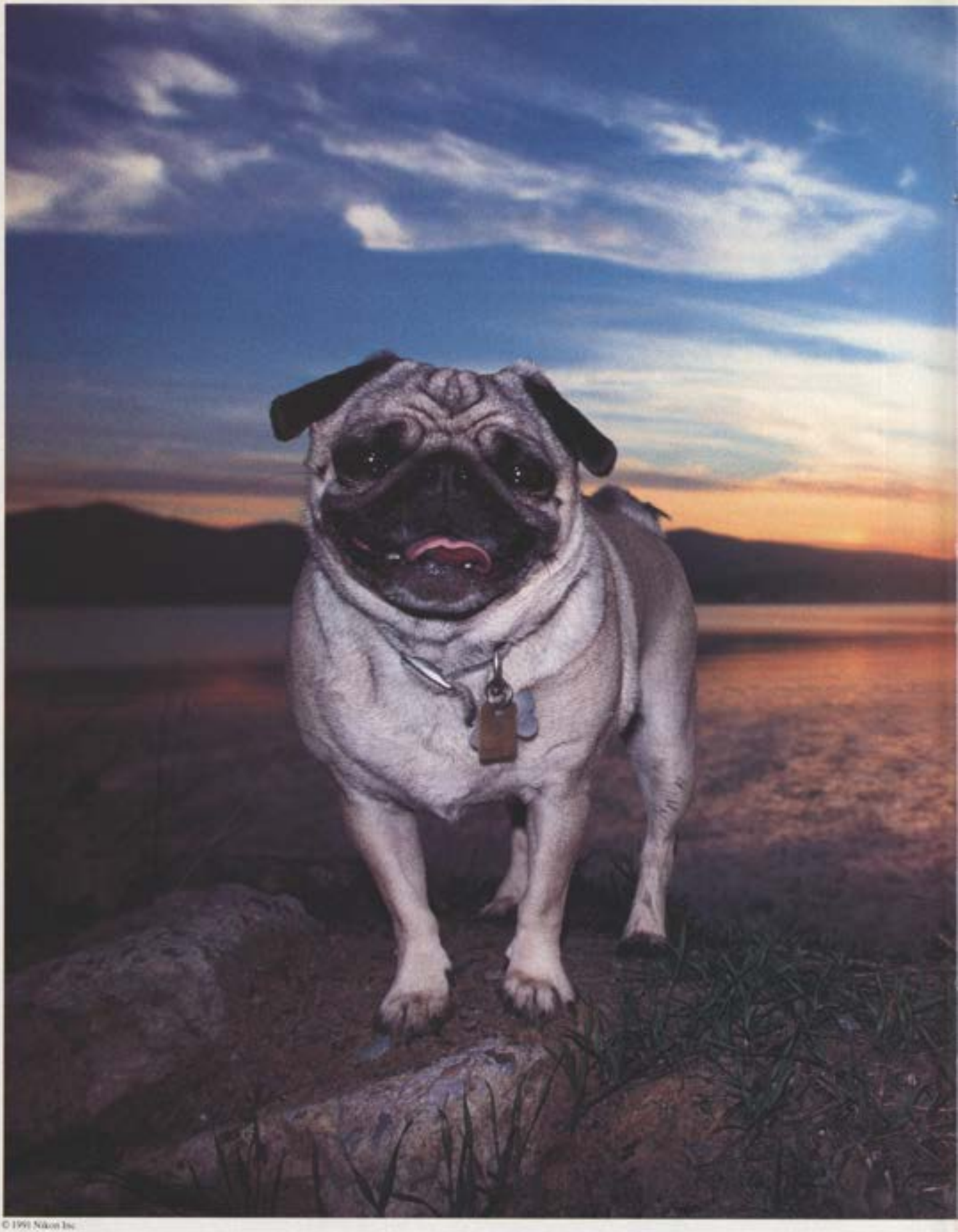
The Mossman paper prompted a furious response, particularly from scientists associated with the Mt. Sinai Medical Center and Irving Selikoff, who has written extensively on asbestos-related diseases since 1964. Once the asbestos is inhaled, maintains Selikoff, "very careful studies have been unable to find any real, important difference among the various fiber types." Even if such a difference could be shown, he says, it would be practically meaningless, given that "most people who've been exposed have been exposed to more than one type of asbestos. It comes down to this: Would you rather be killed by a silver bullet or a copper bullet?" Sheldon Samuels, director of health and safety for the AFL-CIO's Industrial Union Department, wrote to *Science* to point out "the long-term asbestos industry associations of at least four of the five authors." (Morton Corn, for example, one of Mossman's co-authors, testifies regularly on behalf of asbestos companies. In a recent deposition he revealed that, following publication of the *Science* article, he destroyed all his notes lest they fall into the hands of plaintiffs' attorneys and be used against the asbestos industry.)

In presenting her risk-assessment claims, Mossman attacked the straw-man contention that asbestos-related diseases are "hazards to the general population exposed to airborne levels of asbestos in schools and other buildings." Federal regulations requiring schools to ascertain the scope of their asbestos problems, her article said, were creating a "panic," often leading to far more serious problems caused by hasty and shoddy removal.

No reputable authority, however, advocates removing asbestos from buildings where it has not been damaged or disturbed. To the extent that an asbestos panic existed in the late 1980s, it was fueled by unscrupulous removal companies and ignorant media hype. Environmental Protection Agency chief William Reilly himself wrote to *Science* to point out that his agency required asbestos to be removed only "when building demolition or renovation threaten to release significant amounts of asbestos fibers into the air . . . [I]f asbestos-containing material is in good condition and is unlikely to be disturbed, it is generally preferable to contain that material rather than remove it."

Both Mossman's report and subsequent articles decrying "asbestos panic" miss the fundamental point that asbestos-in-place poses the greatest danger not to casual users of a building, but to the janitors and maintenance personnel who must dust it, patch it, saw through it, and sweep it off the floor. A Mt. Sinai study of 660 school custodians in New York found that 28 percent of them showed signs of asbestosis; of those with 35 or more years on the job, 39 percent actually had the disease.

"How can we be comfortable about the safety of asbestos when we know that those who use it and those who've applied it have had the extraordinary cancer experience that we've seen?" asks Selikoff. "How we limit it is up to the administrators, the industrial hygienists. But the key is to avoid human exposure."—*P.R.*



Fergie, normal dog. Ann Crump, regular person. They took a walk with the N6006 and some beef chewies.

Art happened.

The Nikon N6006 is a serious SLR that almost anyone, anywhere can pick up anytime and have fun with.

Case in point, one Ann Crump. She lives in Belvedere, California, across the bay from San Francisco, and usually makes art with watercolors and oils.

She's not a professional photographer.

Yet, as you can see to the left, she used the N6006 to create nothing short of a masterpiece.

Or at least one killer dog picture.

The model is Ann's three-year-old pug, Fergie, photographed in all her glory on a sunset walk using the N6006 and a 28mm Autofocus Nikkor lens.

To put it in technical terms, Ann used Auto Balanced Fill-Flash, autofocusing, and Matrix Metering.

In normal talk, she picked up the camera and did what anybody would do.

She said cheese. Then shot.

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Or, when you want to think about the picture instead of the exposure.

Or, in the case of *Fergie on a Rock*, when your subject needs a little glow shed upon it. Pop up the flash, and the N6006 will light the foreground subject while letting the sun shine through in the background.

Fergie on a rock

by

Ann Crump, painter

Maybe you never tried a picture like that because you thought it was too difficult.

Well, Ann Crump did it with one hand, while holding a dog biscuit overhead.

Quite a picture in itself.

Almost all the functions on the N6006 are controlled by a convenient dial next to your thumb, and a simple multi-button keypad.

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Using a feature called Focus Tracking, the N6006 can even keep moving subjects, such as cars or bikes, in focus.

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VIEWPOINTS

THE WINNERS OF SIERRA'S 1991 PHOTO CONTEST

One of the pleasures *Sierra* editors prize is spending time in the visual realm, the world of the photographer. Whether we're basking in the classic images of a venerable master like Eliot Porter or marveling at the innovative works of our nearer contemporaries, the hours we hover around the light table are among our more satisfying. ♦ Once a year that table overflows with the several thousand entries in our photo contest, and the varied perspectives they provide never fail to intrigue and delight us. This year, as always, we congratulate not only the winners, but all those who took the time to enter their work. ♦ Many thanks to our judges: Carolyn Robertson of Yolla Bolly Press and photographers Stephen Kasper and Ron Sanford; and to our sponsors: Buck Knives, Giant Bicycle, Nike, and Nikon.

FIRST PLACE
Landscapes
[Color]
LARRY OLSON
Lake Oswego, Oregon

♦

Oregon White Oak
Ashland, Oregon

FIRST PLACE

The Meeting of Land and Water

[Color]

LONDIE G. PADELSKY

Mammoth Lakes, California

◆

Alkali Pond and Sierra Peaks

Eastern Sierra, California

GRAND PRIZE

DAVID PAYNTER

Palm Desert, California

◆

Suricate Sentinels

Kalahari Gemsbok Park,

Republic of South Africa

SECOND PLACE
Abstracts
[Black & White]
BILL SHARPSTEEN
North Hollywood, California

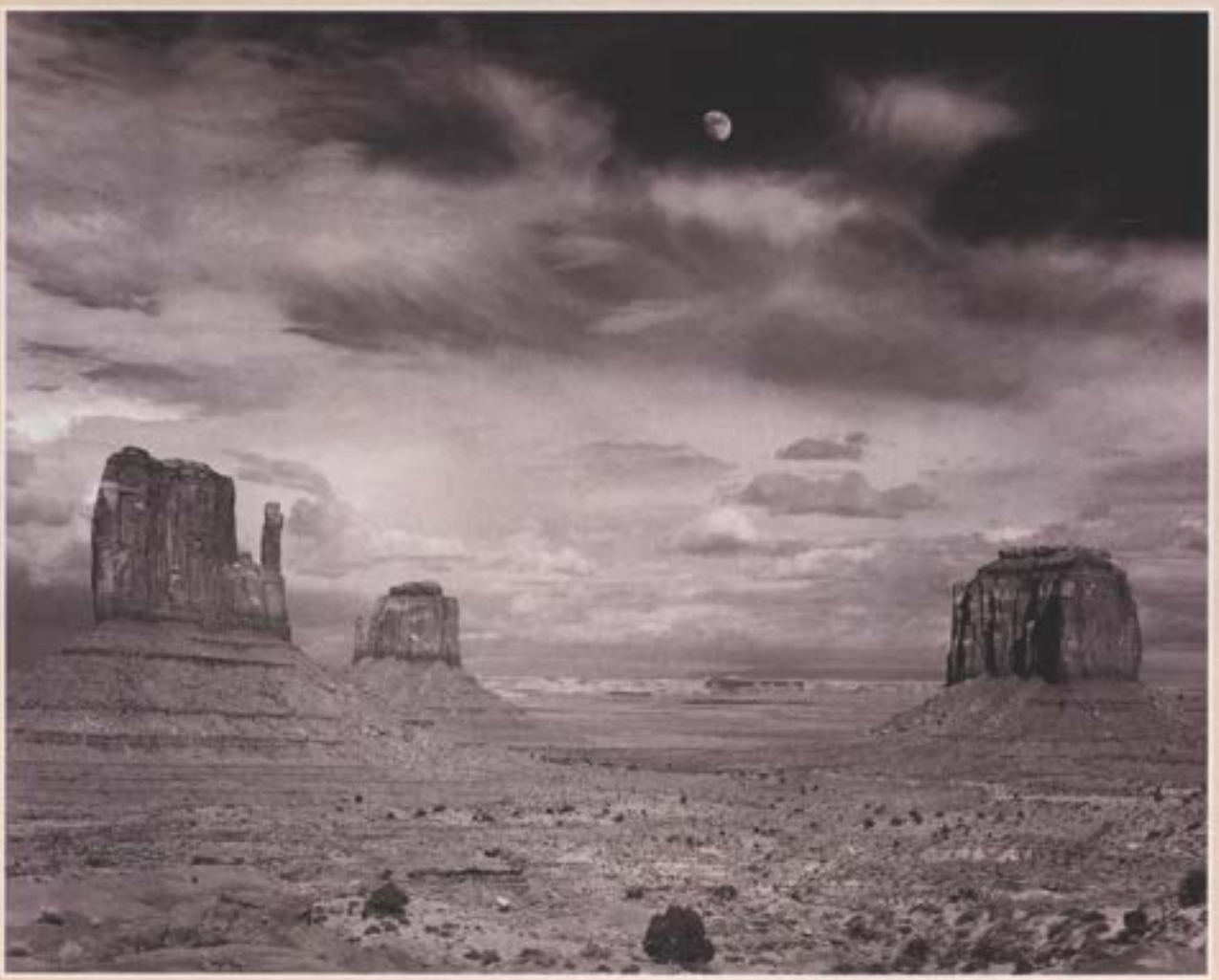
◆

Untitled
Joshua Tree National Monument
(LEFT)

FIRST PLACE
Landscapes
[Black & White]
ROBERT HOWARD
Nederland, Colorado

◆

Navajoland
Monument Valley, Arizona
(BELOW)



FIRST PLACE
The Meeting of Land and Water
(Black & White)
DAVID DICKIE
Maple Ridge, British Columbia

◆

Distant Storm
Nevada desert
(ABOVE)

SECOND PLACE
The Meeting of Land and Water
(Black & White)
GARY WHELPLEY
Victor, New York

◆

Aloma Bay, Lake Superior
(RIGHT)

FIRST PLACE
Wildlife
[Color]
BOB HASENICK
Santa Rosa, California

◆

Sea Lions on Beach
Rabida Island, Galápagos
(ABOVE)

FIRST PLACE
Abstracts
[Color]
STEVEN R. FISHER
Bremerton, Washington

◆

Cribrinopsis ferraldi
Stubbs Island, British Columbia
(TOP, RIGHT)

SECOND PLACE
Wildlife
[Color]
TOM GRABER
Golden, Colorado

◆

Red Fox Nursing Young
near Golden, Colorado
(BOTTOM, RIGHT)

SECOND PLACE
Wildlife
(Black & White)
KEN DEITCHER
Albany, New York

African Big-eyed Tree Frog
Senegal

SECOND PLACE
Landscapes
(Black & White)
MICHAEL P. TURCO
Palm Beach, Florida

Jonathan Dickinson
State Park, Florida
(ABOVE, RIGHT)

FIRST PLACE
Abstracts
(Black & White)
DANNY L. WRIGHT
Collinsville, Illinois

Rock Tree
Shawnee National Forest,
Wyoming
(LEFT)

FIRST PLACE
Wildlife
(Black & White)
DAVID R. ARMER
San Francisco, California

◆

Fawn
Glacier National Park,
Montana

SECOND PLACE
The Meeting of Land and Water
[Color]
ROY LUCKOW
Sardis, British Columbia

◆

Yellowstone National Park,
Wyoming

SECOND PLACE
Landscapes
[Color]
FELIX RIGAU
San Francisco, California

◆

Trees and Fog
Golden Gate National
Recreation Area,
San Francisco
(RIGHT)

SECOND PLACE
Abstracts
[Color]
HARTMUT SCHAEFER
Fuldatal, Germany

◆

Ice Sculpture
Tierra del Fuego
(BELOW)

LAUNCHING THE NATURAL ARK

Under the rubric of conservation biology—an academic discipline that didn't exist two decades ago—activists are working to avoid the storm of extinctions predicted for the 21st century.

"FREE THE LOBO!"

A petition bearing this slogan recently circulated through the biology department at the University of New Mexico, gathering signatures with ease. Supported by the Mexican Wolf Coalition and the Wolf Action Group, its aim was to introduce Mexican gray wolves bred in captivity to parts of their historic range in New Mexico and Arizona.

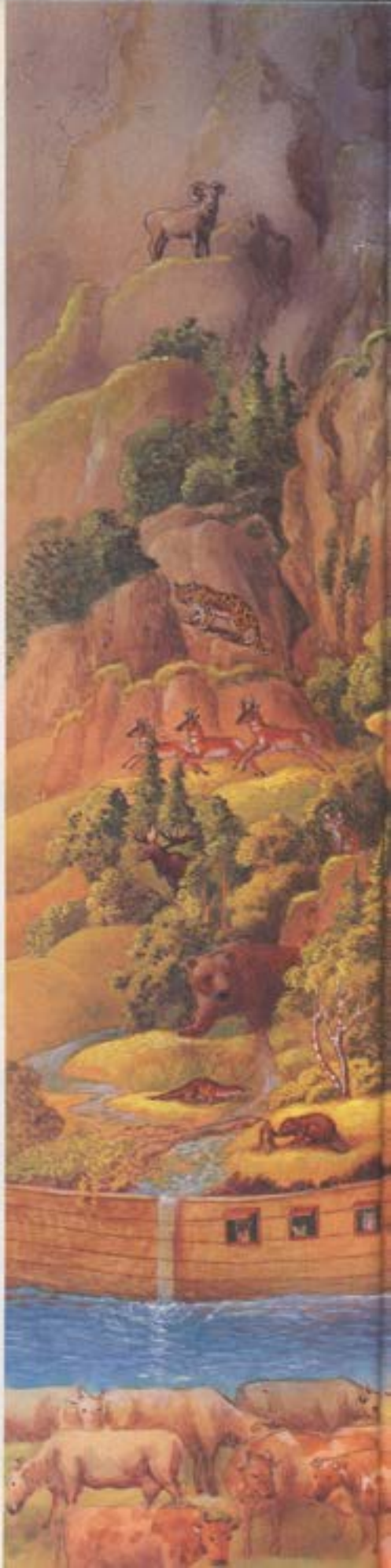
After some reflection, James Brown, a biologist best known for his landmark study of mammal extinctions in the Great Basin, decided not to sign. "I'm all for the lobo," Brown explains. "But there are only 39 adults left. Their former habitat is so fragmented that reestablishing a viable population may not be possible. I'm just not sure there's a place for the wolf in the Southwest anymore."

This statement—which, in essence, consigns one of North America's rarest subspecies to imprisonment in zoos—is considered heresy by many local conservationists, who argue that parts of the Southwest are still big and wild enough to support wolves. But many of those who disagree with Brown about the lobo share his larger concerns about the progressive degradation of wildlife habitat in this country. In symposia and scientific journals, in Sierra Club and gun-club meetings, the traditional approach to wildlife conservation is being reevaluated—and found wanting.

BY JAMES R. UDALL

ILLUSTRATION BY KINUKO Y. CRAFT

"Our emphasis on saving critically endangered species," says conservation biologist Blair Csuti, "has too frequently resulted in crisis management for individual plants and animals."



Although Csuti doesn't advocate making an omelet out of the next clutch of California condor eggs, he is one of many scientists who believe that the U.S. Endangered Species Act, which focuses on life forms on the brink of extinction, must be broadened to include endangered habitats and ecosystems. The logic is simple and pragmatic: Last-ditch efforts to resuscitate a vanishing plant or animal are heroic but expensive; conservation is easiest when a species is still common, before most of its habitat has been destroyed.

Conservationists are quick to defend the Endangered Species Act; in the nearly 20 years since its passage it has been one of their most powerful tools. The act has been instrumental in protecting the northern spotted owl and portions of the Northwest's ancient forests, for example, and has restored to healthy numbers once-faltering species such as the bald eagle, peregrine falcon, and American alligator. Despite these successes, however, the loss of wildlife habitat continues.

"We've been winning a few battles, but losing the war," admits biologist and Sierra Club staffer Gene Coan. "It's time to broaden the focus."

For biologists and conservationists, "broadening the focus" is a recurring theme. There is, they say, an urgent need to change the mindset underlying our current approach to wildlife conservation. We need to shift the emphasis from next year to next century, continuing to build lifeboats for critically endangered species, but also beginning the larger task of relaunching the natural ark.

"Over the past century, we've managed to preserve many parks and wilderness areas, but they were selected largely on the basis of their scenic and recreational importance," says John Hopkins, chair of the Sierra Club's Public Lands Committee. "Now activists must turn to the enormous challenge of preserving lands of biological significance."

The push to revise current conservation strategies stems in part from the forecast for the next century: The world's population will continue to mount by 250,000 each day. Our forests will be cut down, and then global warming will kick in. Rainfall patterns will shift. Crops will fail. Governments will dither as billions starve, dragging millions of species down with them. Today the Sahel; tomorrow Brazil, Mexico, Kenya.

The scenario is too grim to sugarcoat. The Era of Life's Impoverishment, ecologist Norman Myers calls it. Michael Soulé of the University of California at Santa Cruz dedicated his 1986 book, *Conservation Biology*, "to the students who will come after, who will witness the worst, and accomplish the most."

If current trends continue, according to a recent report to the National Science Foundation, "the rate of extinction over the next few decades is likely to rise to at least 1,000 times the normal background rate . . . and will ultimately result in the loss of a quarter or more of the species on earth."

Although the loss of biological diversity will be greatest in the tropics, where most of the planet's animal and plant species reside, our continent will not be spared. Indeed, ongoing habitat destruction makes the loss of thousands of North American species a certainty—unless we fundamentally change the way we use the land.

Biodiversity is a thorny term, most commonly associated with rainforest preservation. Asked to define it, an ecologist will usually say, "It's more than species" before diving into a thicket of complexities. To explore the different layers and levels of biodiversity, I did a little bushwhacking with conservation biologist Larry Harris, author of *The Fragmented Forest* (University of Chicago, 1984), a blueprint for preserving biodiversity in the heavily logged forests of Oregon.

There are three levels, he explained. The first, "genetic diversity," refers to genes within species. A century ago, biologist C. Hart Merriam identified dozens of populations of grizzly bears: the well-known Plains grizzly for one, but also distinct grizzly populations in California, Arizona, Texas, Oregon, and elsewhere. Today all these animals are gone. "Some people will tell you that we really didn't lose anything, because we still have grizzlies in Yellowstone," said Harris, now at the University of Florida. "Nonsense. We lost a lot."

What we lost was genetic information, the DNA coding that enables organisms to cope with change. The bears that vanished were all the same species, but because they had adapted to different environments they weren't all the *same*. Genetic diversity can also be lost through habitat fragmentation and subsequent inbreeding among a stranded population. This is why the long-term survival of Yellowstone's grizzlies is problematic, and why even captive breeding may be too little, too late to save the Florida panther.

"Species diversity" refers to the variety of species within a habitat or broader area. One place rich in this respect is the 502-square-mile Gray Ranch in southwestern New Mexico. Recently purchased by The Nature Conservancy, the site contains more

LINDA ROBERTSON

The tiger salamander, a species in trouble. Dwindling numbers of amphibians may portend a decline in Earth's habitability.

DAVID MUENCH

Thomas Kitchin/Tom Stack & Associates

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HAROLD E. MACE

On the 502-square-mile Gray Ranch, wildlife can roam among rugged mountains, cottonwood-studded wetlands, and desert grasslands—unimpeded by the usual plethora of roads, and urban development. It's no coincidence that the ranch has a wealth of species unmatched by any U.S. national park.

GEORGE WUERTHNER

mammal species than any national park or wildlife refuge in the Lower 48.

The Gray Ranch also has an abundance of the third type of diversity biologists look for: "ecosystem diversity." This term refers to the variety of habitats within a region. "One reason the Gray Ranch is so rich in species is that it has so many different kinds of habitats," says Harris.

Maintaining a healthy ecosystem requires protecting all three levels—genetic, species, and ecosystem diversity. Otherwise, significant losses at one level are liable to produce cascading losses at others. For example, some scientists attribute Yellowstone's small beaver population to the fact that the park's willows—an important food source for beavers—have been overbrowsed by elk. The elk in turn have proliferated because their chief predator, the gray wolf, has been exterminated. (Large predators often function as "keystone" species whose impacts profoundly affect entire plant and animal communities—one argument for reintroducing them, wherever possible, to habitats from which they've been removed.)

To preserve biodiversity over long periods of time, natural processes must also be protected, including the nutrient, hydrologic, and fire cycles that shape ecosystems. "The Everglades are in trouble because of human-caused changes in the water cycle," says Harris. "Within a few decades, all of the romantic elements we associate with that national park—wading birds, red wolves, roseate spoonbills, Florida panthers—may be gone." The park will still exist, of course, but, in the words of conservation biologist Reed Noss, "Scenery is a hollow virtue when ecological integrity has been lost."

What is happening in the Everglades is not unusual; with some exceptions, this continent's ecosystems have been losing natural diversity since the first hunters crossed the Bering Strait. Although many of our landscapes are still scenic, and some are still reasonably healthy, on the whole they have been hollowed out like so many ripe pumpkins by trapping, plowing, logging, mining, damming, poisoning, and

other forms of human intrusion.

What if, by some quirk of history, the first European settlers had wanted to conserve North America's natural wealth rather than plunder it? If they had known what conservation biologists know today, they would have set aside at least two big blocks of land, four times bigger (say) than Yellowstone Park, in each of the country's bioregions. (Big, to function properly over long periods of time; two blocks, because you don't want all your bears or wolverines or redwoods stranded in one spot.)

Historically, of course, the only place we had an opportunity to adopt such a farsighted plan in advance of large-scale human impact was Alaska. But in the other 49 states we still have a chance, and a need, to work backward toward that ideal. Though we may never achieve it all, we can achieve a great deal. According to Forest Service ecologist Hal Salwasser, "If biodiversity has a chance anywhere in the world, it is in North America."

But the task is immense. We've been beating back the forest for centuries, and it will take an equal effort to recover what we've lost. "The object," says landscape architect Leslie Sauer, "is to gradually shift the impact of our

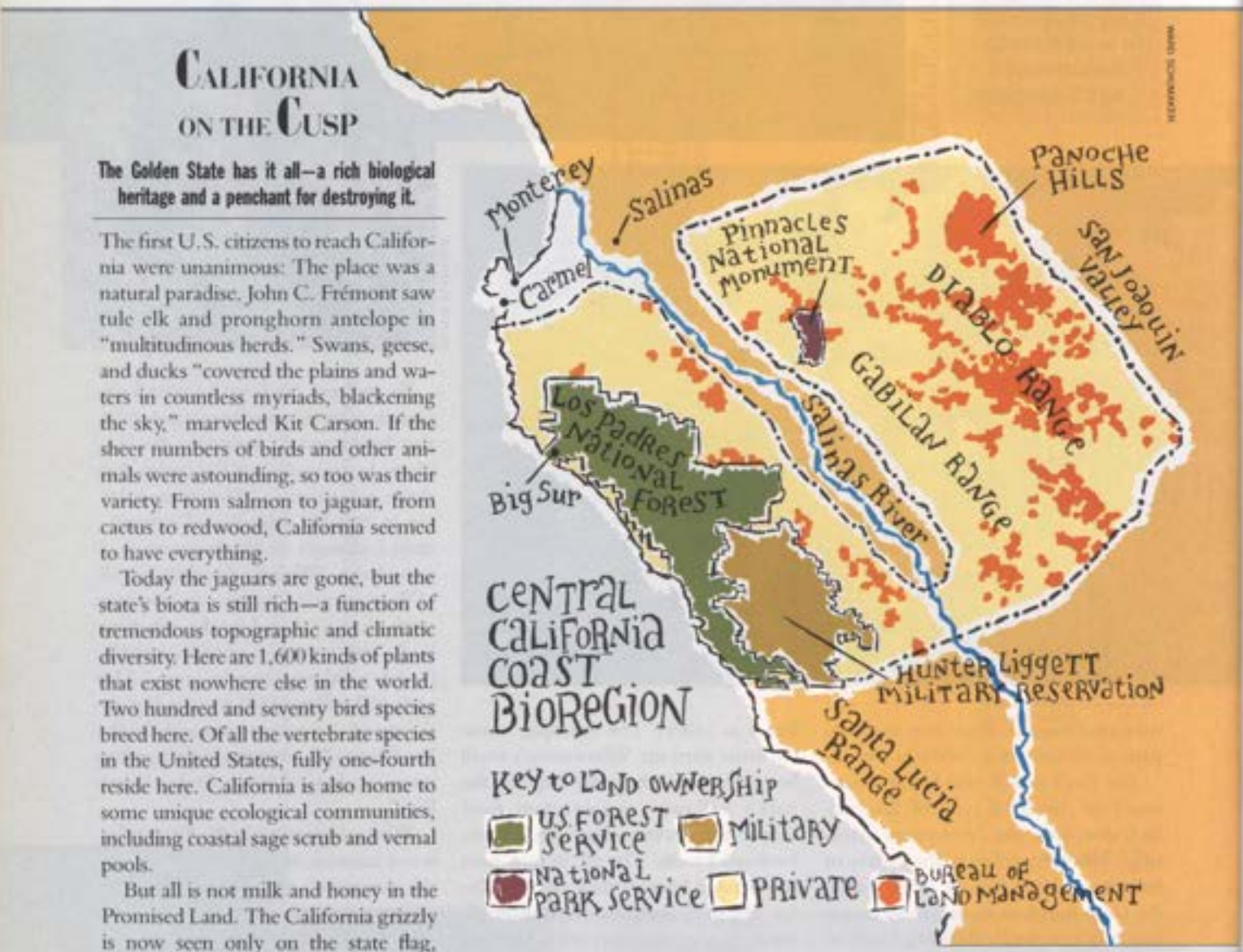
California on the Cusp

The Golden State has it all—a rich biological heritage and a penchant for destroying it.

The first U.S. citizens to reach California were unanimous: The place was a natural paradise. John C. Frémont saw tule elk and pronghorn antelope in "multitudinous herds." Swans, geese, and ducks "covered the plains and waters in countless myriads, blackening the sky," marveled Kit Carson. If the sheer numbers of birds and other animals were astounding, so too was their variety. From salmon to jaguar, from cactus to redwood, California seemed to have everything.

Today the jaguars are gone, but the state's biota is still rich—a function of tremendous topographic and climatic diversity. Here are 1,600 kinds of plants that exist nowhere else in the world. Two hundred and seventy bird species breed here. Of all the vertebrate species in the United States, fully one-fourth reside here. California is also home to some unique ecological communities, including coastal sage scrub and vernal pools.

But all is not milk and honey in the Promised Land. The California grizzly is now seen only on the state flag, having become extinct in 1922. Seventy-two other plant and animal species have also been lost, and the only blackened skies and multitudinous herds that most of the state's residents see are on the freeway.



The Sierra Club's John Hopkins dreams of a new system of private and public lands devoted to preserving California's biological heritage. Near Big Sur, for instance, he envisions a Central California Coast Bioregion that would encompass the lush redwood groves and conifer-hardwood forests along the coast and the more arid oak-pine forests, valley-oak savannas, and chaparral scrub inland. Wildlife corridors could eventually extend across the Salinas Valley, a prime agricultural area, and parts of the valley's long-lost riparian forest could be restored.

actions from being largely negative to being largely positive."

One of the first things we must do is reevaluate our existing system of national parks, wilderness areas, and wildlife refuges. Because these areas were chosen based on criteria that have little biological relevance, Harris calls them "an agglomeration of artifacts." These wildlands fail to promote biodiversity in two ways. First, regions and habitat types are unequally represented. The West is relatively rich in protected areas; the East, depauperate; the Midwest, bankrupt. We've saved plenty of snowcapped peaks and scree slopes, but lower-elevation forests, wetlands, grasslands, and coastal areas are underrepresented or, too often, absent altogether.

Second, many reserves are too small to maintain all the species once found

SKIP MOSER / DEMBINSKY PHOTO ASSOC.

The dwarf lake iris, one of the nation's 3,000 vanishing plant species.

According to two recent studies, California now has the largest number of endangered species of any state: a total of 900. The Center for Plant Conservation estimates that 133 California plant species may disappear within ten years. Many are endemics—plants that occur nowhere else.

"If they are lost here, they are lost to the world," says Deborah Jensen, an ecologist at the University of California at Berkeley.

Twelve percent of the state's land lies within national parks, wilderness areas, and other preserves. But these protected areas are not distributed evenly enough to guard against extinctions. While nearly 90 percent of California's alpine tundra is protected, less than 2 percent of its remaining perennial grasslands are. This disparity favors pikas and marmots at the expense of such animals as the endangered San Joaquin kit fox. Eighty percent of the state's coastal wetlands are gone, as are 90 percent of the riparian forests in the Central Valley. Agricultural development has shrunk Tulare Lake in the Central Valley, once the largest lake west of the Mississippi and a critical stop for the birds on the Pacific Flyway, by more than 99 percent.

Despite these losses, much of California's original biodiversity still exists and could be saved—if the state's citizens decide to do so. The greatest threats stem from urban growth. What's needed, according to Sierra Club Public Lands Committee Chair John Hopkins, is protection of habitat through such growth-management tools as local land-use plans and state legislation. He and other conservationists are working with Republican Governor Pete Wilson to develop effective state proposals.

In the long run, Hopkins says, a system of "bioregion management areas" will also be needed to link existing wildlife refuges, wilderness areas, and parklands with biologically important landscapes used for other purposes. "Preserving biodiversity is a more subtle concept than saving a redwood," Hopkins says, "but ultimately it's even more important."

Hopkins has his eye on a potential bioregion management area that spans several mountain ranges along the coast of central California (see map). Here and elsewhere, he says, citizens should work with federal, state, and local land planners to ensure that their regions' biological resources are shielded from harmful development. They should also encourage private landowners to establish wildlife corridors and to sell or donate their development rights to a public entity.

California, like many other states, is on the cusp: Decisions made in the next decade will largely determine how many plant and animal species survive. "Californians must decide how they wish their state to look fifty or a hundred years from now," says Hopkins. "Do we want one gigantic urban sprawl from San Diego to San Francisco? Or do we wish to preserve some of the natural majesty that drew so many of us here?"—*J.R.U.*

DAVID MUENCH

Pinnacles National Monument and beyond: the site of a new kind of conservation effort?

within them. According to biologist James Brown, "Refuges of less than 125,000 acres in which animals are tightly confined may lose more than half their species in a few thousand years." Thirty percent of the United States' national parks and 93 percent of its wildlife refuges fall into that vulnerable category.

The significant qualifier is "tightly confined." Nearly all reserves were originally embedded in a natural matrix; their boundaries were permeable. But now, as population growth and development continue, many parks and refuges are gradually being transformed into islands in a sea of humanity. (Roads are a chief culprit. "The highway system is just a killing machine," says Harris, noting that automobiles are now the leading cause of mortality among Florida's endangered mammals. The sole exception there is the seagoing manatee; its leading cause of death is collision with motorboats.)

Worldwide, habitat fragmentation weighs most heavily on wide-ranging carnivores—the wolves and big cats. But fragmentation also harms large herbivores, primates, and bears; habitat specialists like the giant panda and black-footed ferret; and species that require virgin forest, such as the lynx and red-cockaded woodpecker. Small creatures are not immune. As forests in the East shrink under development pressure, even songbirds and plants with modest spatial needs find themselves threatened.

Among wildlife managers there is a growing realization that fragmentation puts at risk everything conservationists thought they had saved. The fallacy of viewing the national park as a kind of ark has been exposed. Warns conservation biologist David Western, "If we can't save nature outside protected areas, not much will survive inside."

To prevent our parks and refuges from slowly losing their natural richness, it is essential to buffer them from development. According to William Penn Mott, former director of the National Park Service, "Stopping our concern at the boundary has got to be replaced with practical applications of buffer zones, regional planning, and consideration of the social and economic conditions adjacent to reserves." The benefits and difficulties of implementing these ideas are being demonstrated in the Rockies, where federal and state agencies, prodded by concerned citizens, are attempting to fashion a management strategy for the Greater Yellowstone ecosystem. The same grand experiment needs to be tried elsewhere—in the Everglades, the Cascades, the Sierra Nevada, and the Appalachians, for example—to create cohesive landscape units rather than mosaics of bureaucratic turf.

Wildlife corridors and protected lands called "stepping stones" can also help strengthen isolated refuges. By connecting existing parklands, stepping stones can aid migrating birds and wide-ranging predators and herbivores, while helping to link together patchwork landscapes.

"Creating corridors will be of particular importance in the East," says Harris, "where many existing reserves are simply too small to contain even a single panther or a viable population of black bears." An encouraging recent

STEVEN C. WILSON

DAVID MORRIS

Everglades National Park (at left) is gradually losing many of its signature wildlife species, including the Florida panther (above). Among the 30 panthers remaining in the park, defective sperm, kinked tails, and other abnormalities signal a loss of genetic fitness.

Okefenokee National Wildlife Refuge (at left) and its roseate spoonbills and alligators. The Forest Service is purchasing land to link the refuge to the Osceola National Forest, ten miles to the south.

example was the Forest Service's purchase of 29,000 acres in a corridor that will eventually connect the Okefenokee National Wildlife Refuge and the Osceola National Forest along the Florida/Georgia border, a move that will dramatically enhance the ecological integrity of both areas.

Wildlife corridors are not a panacea, however. They help animals more than plants, and some animals more than others. They can also pass along pests and diseases, and their effectiveness decreases as they become narrower. Despite these limitations, corridors are still one of the most effective tools we have for buttressing existing nature preserves.

Another urgent task is to "map the gaps and buy the hot spots"—to locate and purchase rare natural communities that aren't currently protected. In many countries, including China and England, biological inventories are a top priority. Not here. If you want to know how the land is shaped, the U.S. Geological Survey will sell you a topographic map. If you want to know what minerals are underground, fine—they have that mapped too. But if you want to find out what's on top of the ground, to locate an undisturbed stretch of riparian habitat in Arizona or a rare plant community in California, the government can't help you.

Federal agencies have provided limited support to some private efforts, however. With federal help, The Nature Conservancy has made great strides toward completing an inventory of the nation's rare and endangered species. "Gap analysis," a satellite-mapping program developed by the U.S. Fish and Wildlife Service, has also proven its worth in Idaho and may soon be employed nationwide.

Although new buffer zones, wildlife corridors, and protected hot spots will help bolster existing parks, wildlife refuges, and national-forest wilderness, our biological heritage cannot be preserved solely by these means, for

such lands cover only 7 percent of the United States. About 18 percent is currently used for agriculture. Cities and pavement claim another 3 percent. Biologist James Brown believes that the biodiversity battle will be won or lost on the remaining 72 percent of our land—the area he calls the semi-natural matrix or the semiwild. In the West, much of the semiwild is public land, managed by the Forest Service and Bureau of Land Management; in the East, it is mostly private. The semiwild now hosts a variety of human activities; the challenge facing conservationists is to balance biodiversity protection with grazing, timber-cutting, recreation, and mining. According to the Forest Service's Salwasser, it should be possible to "protect genetic resources, sustain viable populations, perpetuate natural biological communities, and maintain a full range of ecological processes while also meeting human needs."

Forests fragmented by clearcutting have been the bane of many woodland species in the West, including wolverines, pine martens, and spotted owls.

The key will be enlightened management, based on the principles of conservation biology. The Forest Service, BLM, and private landowners will have to start, in Aldo Leopold's words, "thinking like a mountain." Whether the "crop" these lands provide is sawlogs, grass, or recreational user-days, the objective should be to harvest a sustainable yield without damaging, or further fragmenting, the wildlife habitat.

What about the semiwild and "metroforest" along the densely populated Eastern Seaboard? Although these areas no longer meet the classic definition of wilderness, they still have a role to play in the preservation of biodiversity. Indeed, as the human population of the East continues to grow, the remaining undeveloped lands become even more valuable as wildlife havens. Fortunately, nature is resilient—after

In the Crow's Nest

Who *are* these conservation biologists, and what do they want us to do?

Reading scientific journals can often be like eating cold oatmeal, but *Conservation Biology* is an exception. In a recent issue, one scientist beseeched his colleagues to consider tithing 20 percent of their time and money to saving the rainforest: "There's a place for muddy boots, Washington wheeler-dealers, teachers, beetle fanatics, riverboat gamblers, and shy persons," Daniel Janzen wrote. "If you like tinkering with fancy machinery, do it for a tropical conservation organization."

Conservation biology—a discipline that didn't exist 20 years ago—has been described as "the science of scarcity." It's also been called a "mission-oriented, crisis discipline." The crisis is global extinction; the mission is complex yet easily expressed: to save what we can.

What criteria should determine the location, shape, and size of nature reserves? How can these reserves be managed to meet the needs of wildlife *and* area residents? If there are only, say, a few dozen black-footed ferrets left on the planet, how should they be bred to retain the greatest genetic diversity? These are some of the questions with which conservation biology grapples.

Drawing insights from population dynamics, landscape ecology, and evolutionary biology, the rapidly growing field has lots of real-world import, despite its brief tenure in academia. In one sense conservation biologists are using the ivory tower as a crow's nest, peering at a coming catastrophe. From this vantage point they see an urgent need to reorder our society's priorities. Conservationists, they say, should reassess their work: The world's wildlife preserves are too small, isolated, and fragmented to prevent extinctions of native flora and fauna. Outdoorspeople should put down their backpacks, kayaks, and fishing rods long enough to lend a hand.

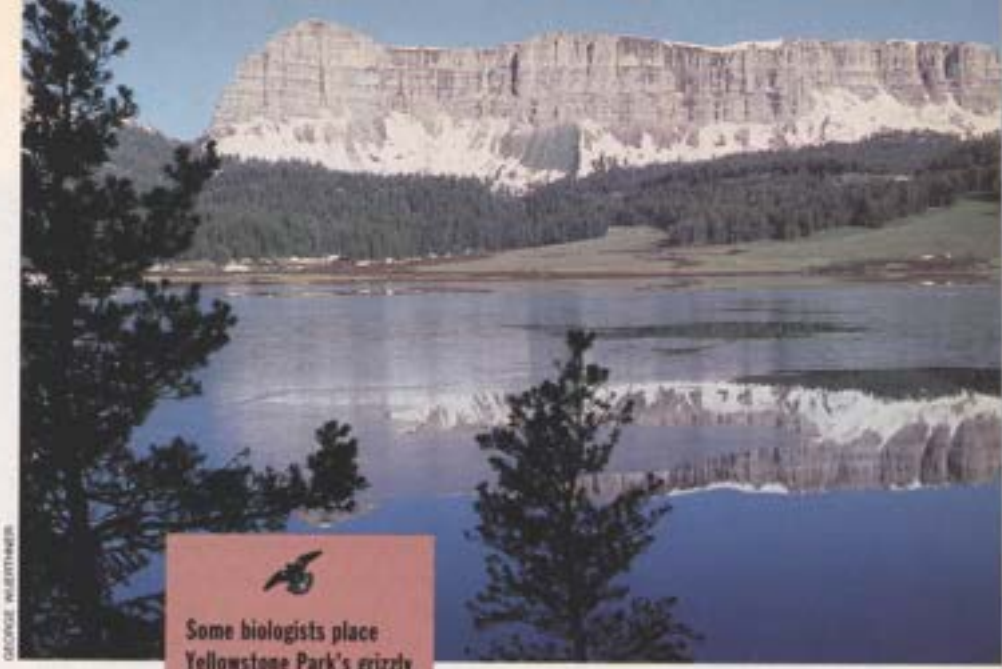
There's a consensus among conservation biologists that:

- the Forest Service needs to halt runaway roadbuilding;
- wildlife managers need to recognize that what's good for the hunter is not always good for wildlife;
- range managers must repair the range—cattle and cheatgrass don't make an ecosystem;
- predator-control agents should use next year's budget to buy a guard dog for every rancher, then retire;
- politicians should help lead us out of the mess we're in, for once putting biological necessities before politics.

Perhaps because recommendations such as these haven't yet elicited a course change, conservation biologists can be expected to grow increasingly vocal in the future—speaking insistently, as one puts it, "on behalf of the less articulate members of the evolutionary tree."—***J.R.U.***

an absence of many decades, cougars have returned to New England—and the eastern landscape has not reached the point of no return. Says Zev Naveh, an Israeli ecologist, "My part of the world has been heavily grazed for thousands of years. Compared to the goatscape we are working with, your country offers wonderful opportunities."

To seize those opportunities, says Leslie Sauer, "We in the East must set our sights higher. There should be no place where there is no wildness at all, no site where natural values are not deemed important. It's time to make a habit of restoration, to take streams out of pipes, rivers out of channels, pavement off of meadows."



GEORGE WUERTHNER

Some biologists place Yellowstone Park's grizzly population among "the living dead," those species on the way out. But that prognosis could change if humans work hard to accommodate the bear. To this end, the Sierra Club has challenged a recent Forest Service decision to lease prime grizzly habitat southeast of the park near Brooks Lake (above) for oil and gas development.

Large tracts of wilderness in the East are rare, but Reed Noss says "wilderness recovery areas" could be created in the Appalachians by closing roads, restoring habitats, allowing natural fires to burn, and reintroducing extirpated animals such as the panther, bison, and elk. In the Northeast, the Sierra Club and other conservation groups are working to establish extensive reserves within the 26 million acres of forest that carpet Vermont, New Hampshire, Maine, and northern New York. (See "Let It Be Woods," page 54.)

Such ideas may seem visionary. But so was the notion, once upon a time, of even a single national park.

The movement to preserve biodiversity represents a natural evolution of conservation strategy. It is both the next step on the road to a land ethic and the ultimate grassroots challenge. Meeting that challenge will require sweat, dedication, and a willingness to take a new look at the American landscape. Nature preserves, new forestry and grazing practices, wildlife corridors, more enlightened land management, public participation at all levels of government, restoration—each will have a role to play.

For those who decide to take on these tasks, the work could be satisfying—just as it was for a handful of Sierra Club volunteers who began trying to restore a degraded park on the outskirts of Chicago 14 years ago. They prowled railroad grades gathering native seeds, cut thickets that were choking ancient oaks, lit fires to kill invading weeds, and perused 19th-century journals for botanical insights.

As news of their labors spread, more and more people turned out to help. This year more than 3,000 people, a veritable Noah's army, will volunteer their time and talents. Their mission is to salvage something of tremendous significance, a landscape that was said to exist no longer in North America—a tallgrass savanna, a grassland with trees.

Nature Conservancy staffer Steve Packard has been one of the project's guiding lights. Asked what his experiences have taught him about preserving biodiversity, he replies, "Restoring the prairie has been like building a cathedral. Thousands of people are involved, and none of us understands more than our own little part of it. Sometimes I visit the site, and the birds are flying around or the flowers are blooming, and I think to myself, 'My goodness, all this depended on us.' And it did. It feels wonderful." ■

JAMES R. UDALL, *of Carbondale, Colorado, explicated global warming in the July/August 1989* Sierra. *His work has also been published in* Audubon, National Wildlife, *and* Outside.

►*For more information, see "Resources," p. 124*

IN THE STATE OF NEVADA

Friday

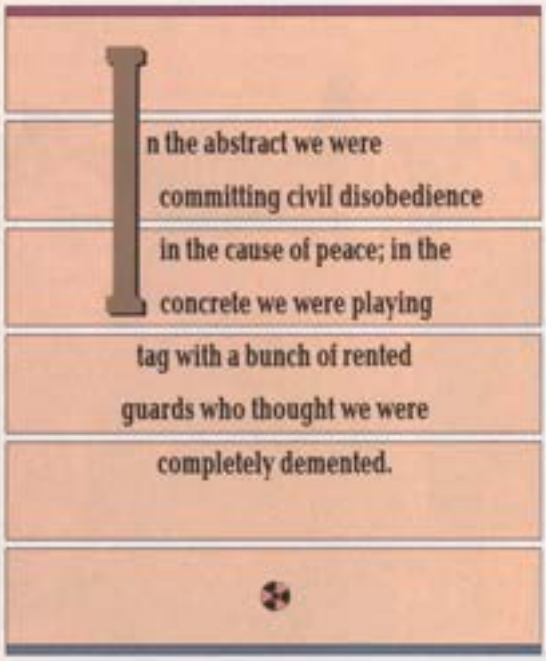
As dawn slid over Skull Mountain I arrived at camp, ten hours hard driving from home. It was too dark and too late to pitch a tent, so I bundled my sleeping bag around me and curled up on the car seat. An hour later, groggy and aching, I gave up on sleep and ventured out with my tin cup in hope of coffee. Someone who'd seen my little brother up at the gate of the camp sent me his way. • In the morning light everything looked familiar again: the hard, pale ground paved with rocks, the roads kicked into dust, the scattered tufts of thorn and creosote bushes—the terrain of the Great Basin, the plateau between the Sierra Nevada and the Rockies that doesn't drain into either side of the Continental Divide. For one thing, there's practically nothing to drain. Range after range of mountains, each separated from the next by a flat expanse like the one the camp was on, recede for hundreds of dry miles east across Nevada and into Utah. Over the Funeral Mountains to the west is Death Valley and the beginning of California. • The particular basin we were camped in is sliced in half by Highway 95; on the other side of the road from us was the Nevada Test Site, where the U.S. government explodes prototypes of all its nuclear bombs. On our side hundreds of cars were scattered around the land; distant figures toted water, made breakfast, and lined up to use the chemical toilets. This was the Peace Camp, where thousands gather every spring, getting ready to invade the test site. • I remembered to be afraid of the dust, the dust that might be radioactive, the dust that over the next few days would powder everything to biscuit color. Actually, most studies suggested that the radiation levels around the test site were about the same as those in Las Vegas, 70 miles south—though that wasn't necessarily comforting, especially if you lived in Las Vegas. • The Nevada Test Site is big in the way that only things in the West are big. Nellis Air Force Base, which incorporates the test site, covers 3.1 million acres, bigger than some New England states, bigger than nearly any national park. Out here it's standard practice to drive hundreds of miles for minor reasons, and a hundred miles along the empty highways across basin and range have little in common with the same distance through a lusher landscape. For mile after mile nothing seems to change at all; then the mesa on the horizon looms up and goes by and a new mesa appears. There's a ghastly majesty about the bigness and the

by Rebecca Solnit • photographs by Richard Misrach

Princesses Against Plutonium, Nevada Test Site, 1988

slowness of the landscape, with its bare, forbidding geology. The U.S. government chose the arid West for the bulk of its bombing projects because there are so few people around to object—the state of Nevada has about three-quarters of a million citizens, half of them in Las Vegas—and because this landscape is supposed to be worthless already.

Half a mile down the road to 95, I found my brother and eight of his friends piled in a station wagon and joined them. They were on their way down the highway to blockade the workers coming from Las Vegas to Mercury, the town inside the test site. They were merry, burbling inconsequentialities, joking, drinking out of water bottles, botas, and canteens, clad in jeans, flannel shirts, T-shirts championing other events and causes, shorts, army surplus gear, bandannas, shawls, ethnic oddments, tights, and thermals. Early in the morning, the test site is still cold.



We passed the main gate to the test site, also the way to Mercury, and kept going. Built in the 1950s, Mercury has been partially evacuated, the first nuclear ghost town in a state full of mining ghost towns. Women and children are forbidden to live there because of the radiation risks, and most of the Mercury workers live in Las Vegas. By day the town is a faint glimmer of dust-colored buildings a few miles into the site, but by night it looks like a quilt of fallen stars, the only electric lights visible anywhere from the camp.

The theory of civil disobedience is a noble one, first articulated by Henry David Thoreau; the practice of civil disobedience is more variable. Many religious people, notably Catholics and Quakers, commit civil disobedience with quiet fervor; a lot of anarchists and others young and radical bring to it an insurrectionary spirit that suggests nonviolence is less an ideal than a strategy. Civil disobedience is a strange thing, since you can't commit it without the collusion of the government, and the whole exercise often comes to resemble some vast choreographed game. We put our bodies where they aren't supposed to be, which to us signifies commitment to our ideals and opposition to unjust governance—but to the authorities it signifies our lawlessness. And so, when they arrest us, we all, sheriffs and Thoreauvians, find our convictions strengthened. And when the cases are tried, defenses of necessity and Nuremberg principles are never allowed to be introduced in court, so we're tried as common misdemeanor criminals. Still, civil disobedience has a proud directness to it, unlike all the supplicatory lobbying and petitioning that somehow endorse the imbalance of power they seek to redress.

My brother has been arrested dozens, maybe even hundreds of times. He is an anarchist and an organizer, and though I think he was originally an anarchist in the casual sense that innumerable punks were in the 1980s, he has since read his Bakunin and Kropotkin and is now very serious about his beliefs. Not anarchy as in chaos, I should add, but as in the absence of hierarchies: Anarchism is a venerable political philosophy predicated on direct democracy—which works out in practice to mean interminable meetings to achieve consensus on all decisions, a virtuous and necessary tedium. Somewhere along the line, my brother reinvented himself as a regular guy with an air of easygoing camaraderie—he never became humorless about his ideals, and the ridiculous is something we both rejoice in. At some point in his early 20s he also stopped being as pale as I am, though we are still similarly thin, with a similar demeanor; anyone who knows one of us immediately recognizes the other. If it weren't for my brother, I probably wouldn't have come to Nevada. He makes it possible for me to keep up on the anarchist-activist scene without actually being a part of it.

The arrests, which began at seven in the morning, were rowdy. Activists had been expected to wander into the test site, but not into oncoming traffic, so the sheriffs, thick and redfaced, in tight, shortsleeved uniforms the same color as the dust, were irate. Worker-laden luxury cruiser buses, pickups, Winnebagos, and Jeep Cherokees began to pile up as sheriffs and activists thwarted each other on the northbound side of the divided, four-lane highway. Because this was a surprise action, there was no place to take the blockaders until some empty buses came, so they were handcuffed and set down by the side of the road. The crowd on the highway thinned and the crowd on the shoulder thickened; then everyone rushed back onto the road and sat down again. Some people held on to each other, and many refused to move, so they had to be picked up or dragged. Traffic backed up for half a mile. As I watched the burly men picking up skinny young blockaders by legs and arms stiff with resistance, I began to see what frail material bodies are to put between the landscape and

Die-in, Nevada Test Site, 1988

the military. Watching the sheriffs carrying away all these people and putting them on buses, my eyes filled with tears. After the buses pulled away I went back to camp and pitched my tent beside three yuccas and crawled in and went to sleep.

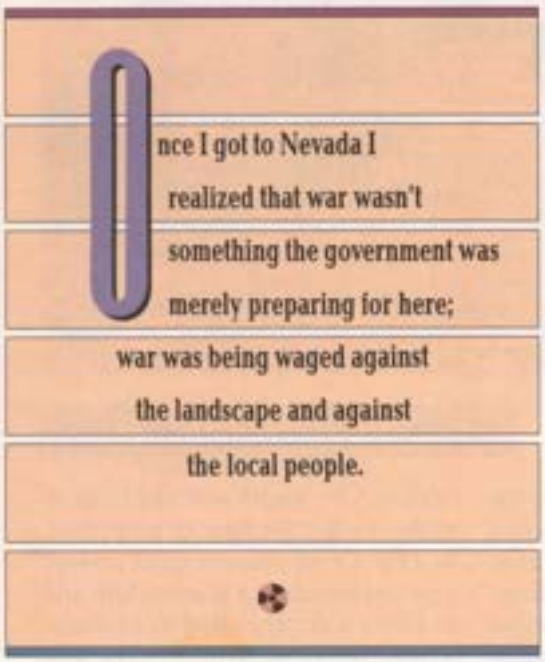
This was my third spring at the camp. The actions had begun in earnest in 1985, when religious activists decided that it was time to turn to one of the very sources of the arms race, the Nevada Test Site, where nearly every type of U.S. nuclear bomb has been tested since the dawn of the atomic age. They began holding an annual Lenten vigil there, and the spring actions grew and grew. (Around the equinoxes were the only times most people could bear to camp out in the high desert, because of the ferocious heat of summer and cold of winter. Even in spring the nights can be freezing, and the daytime temperatures climb into the 90s.) This year attendance was down a little, probably because so many Americans took the peaceful changes in the Soviet Union and Eastern Europe as a sign that everything would turn out all right without their participation. The Cold War, popular wisdom had it, was thawing nicely.

In past years a few people had actually walked to ground zero and stopped nuclear tests. Getting there meant carrying 70-pound packs weighed down with gallons of water, walking by night and sleeping in gullies by day, for three or more days. In 1986 a team showed up at ground zero and disrupted a planned test, and in 1988 a woman walked to an observation tower at ground zero and locked herself to a steel pole.

The guidelines for such actions were terrifying in themselves: "The Nevada Test Site is a highly radioactive place with many hot spots, dumps, and storage areas. . . . Little can be done to protect your body from beta and gamma rays, which are unseen and penetrate your body. Alpha particles, however, are found on dust particles that can be breathed in or ingested. Cover your face when walking in the wind. Do not eat food dropped on the

ground. . . . A large test can throw someone three meters into the air at ground zero and kill them. There is a rippling of ground motion that goes out from this center. Detonations create limited earthquakes. The Nellis Air Force Base surrounds the test site on the east, west, and north. Depending on which part you venture through, you will have to deal with ammunition strafing, falling bombs, and unexploded bombs on the ground. . . ."

You might expect that the place where all our nuclear weapons are tested would be a major national security area, but the government has always counted on remoteness and indifference to shield its actions. It was interesting to realize that national security could be undone by a loosely organized and unarmed bunch of people. The first year I walked in with friends, into the arms of the waiting guards. The second year I went in with a bunch of anarchist women, after agreeing that we'd pair off so that no one got abandoned or left at the guards' mercy without a witness. We went in about a mile north of the main gate so we'd have time to hike a ways before we were discovered.



We only got about a quarter mile into the site that spring afternoon in 1989 before we were spotted by helicopters swooping low overhead, men in paramilitary costume leaning out ready to jump. For Americans my age the sound of helicopters is a strange one, nostalgic and exotic, reminiscent of the war that ran on TV all through our grade-school years, not a sound I associate with the desert. But when the hovering copter got low enough to pelt us with gravel stirred up by its rotor blades, we ran, and the men leapt out and ran after us. I took off madly over the bad footing of the desert, with its soft patches of sand, cobbled stretches, boulders, and loose rocks, only slowing down enough to keep pace with the woman I'd paired off with. The anarchists were all wearing red and purple and black, and I in my dusty khaki regretted that we were so visible and wondered how well I'd do alone. I ran for a ways without looking back, and then turned my head a little and saw a man in camouflage all but close enough to grab me, far closer than I had expected.

I gave up easily, letting them handcuff my hands behind my back, but my companion resisted, telling the two guards why she was there and by what right, citing the fact that the land was stolen from the Shoshone, that she was obeying Nuremberg principles. Now I can't even remember who she was, only the conviction with which she refused to cooperate. Because she wouldn't walk, they herded us into another gully and handcuffed us ankle to ankle. One man stood guard while the other went for reinforcements. There was nothing to say.

The second guard returned with a third man, and while one walked behind me the other two picked my partner up by her arms and legs, one on each side, and carried her. We had progressed a couple hundred yards in this manner when an older guard joined our group, snarling at his colleagues not to indulge my companion. He got them to drag her, and then told them to stop taking her around the obstacles, and they began to pull her through thorns and cactus. Near tears, she finally gave up and asked them to stop, and we walked to the waiting van, where we rejoined some of the other women in our group. She took off her hiking boot and took out her Swiss Army knife, and I tried to pull out as many thorns as I could with its tweezers. Some of them were huge, and one long one broke off deep in her foot.

I have difficulty connecting the abstract with the concrete. In the abstract we were committing civil disobedience in the cause of peace and survival; in the concrete we were scrabbling around in the scrub, playing tag with a bunch of rented guards who thought we were completely demented. I always had trouble seeing the guards as representatives of U.S. military policy rather than as rednecks with limited career options.

The invisible background to all this, to our plastic handcuffs, to the thorn that broke off in my companion's foot, to the whole ramshackle Peace Camp and its banners and its ripples into the larger world, the background we would never see, was the subterranean explosion of huge nuclear weapons in preparation for war.

In the early 1950s, when nuclear-weapons tests were still above ground, no precautions were taken at all; soldiers were sent to witness the tests so the army could study their reactions, and locals were never warned. The predawn explosions had been visible hundreds of miles away. Now there was nothing to see: All tests had been underground since the uproar over strontium 90 and the atmospheric testing ban of 1963. The radioactive clouds didn't disappear when testing moved

Continued on page 112

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Every seam gets it -- because we seal every stitch exposed to the inside of the garment with our Gore-Seam™ tape to ensure total waterproofness. Seams are where water really tries to make inroads. Other so-called "waterproof" clothing can leak through thousands of forgotten stitch holes.

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Would You Buy An Umbrella Riddled With Holes?
Of course not. But that's what you're doing when you buy other so-called waterproof outerwear not made with Gore-Tex® fabric. You're buying garments that aren't *really* waterproof, because thousands of invisible stitch holes aren't sealed and can leak. And many fabrics have a so-called waterproof coating that can break down and allow water to enter. No holes, no leaks -- only Gore-Tex® outerwear is designed for complete waterproofness – and comfort.

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Before they are manufactured to sell, every Gore-Tex® outerwear style is pummeled by pounding rain -- the equivalent of 3 inches of rain, or a nasty downpour. To absolutely ensure that each style of Gore-Tex outerwear is waterproof, indicators alert us of even the tiniest drop of water, and then the garment heads back to the drawing board.

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Our innovative seam sealing techniques and other sophisticated technologies now block every point where water can possibly enter -- hoods and pockets, flaps, cuffs and zipper closures. We have designed – and even patented -- the most advanced and demanding tests in the world to assure you that Gore-Tex outerwear is not only completely waterproof, but also provides you with breathable comfort. For weather protection without equal, there is only one choice: **Gore-Tex® Outerwear: Guaranteed To Keep You Dry®.**

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Since our standards are for total waterproofness, no detail is insignificant. Every garment style is *thoroughly* examined and every swatch of fabric is carefully selected and tested before becoming part of Gore-Tex® outerwear. Only Gore-Tex outerwear has a worldwide program that guarantees you to be dry -- and comfortable.

GORE-TEX
Outerwear
Guaranteed To Keep You Dry®

LET IT BE WOODS

Continued from page 61

"So think globally and act globally," I yell, as I stretch out in the grass by the truck (at last), munching a cheese sandwich and waving a carrot stick for emphasis. I am immediately reminded by my wife that I have not always been so pure of mind or large in spirit, that I too have suffered the temptations of the marketplace.

Okay, okay, so I once had a nonpreservationist impulse. Once. A while back the Town of Greensboro, with its insatiable appetite for more and more revenue, kept inching up the tax rate, then did a vague, aerial survey of the properties of all its landholders. I was informed that our plus-or-minus 100 acres was more plus than minus—was in fact 200 acres—and received a staggering bill for reappraisal. Okay, so my impulse was to chop our outback into 10-acre parcels (the minimum allowed by local zoning) and sell it. "I'll clearcut the sucker and turn it into hunting camps!" I howled. "I'll dust it with Agent Orange! I'll set it on fire!" In the end, thanks to Lynn's fondness for moose scat (and her suggestion that I put my money where my environmental chin wags), I did not act on that impulse. Like my father, I decided to let it be woods.

Whether the owners of some 21 million acres of wildlands in New York, Vermont, New Hampshire, and Maine can afford to let it be woods, or are willing to, or are made to, is probably the most important matter that has faced New England in this century. But we can start small. I'm writing the new forest-lands council today to propose a Mud Pond State Wildlife Refuge and a Shat Acres National Park. New England can have our bear, moose, and pickerel weed; I can have a tax credit. ■

PAGE STEGNER, *who spends his summers in Vermont, is the director of creative writing at the University of California at Santa Cruz.*

►*For more information, see "Resources," p. 124*

...IT'S TIME TO INCREASE FEDERAL FUNDING FOR PUBLIC TRANSIT

If you use public transit, you're already doing your part to relieve traffic congestion, improve air quality, and conserve energy. And if convenient public transit isn't available to you, it should be.

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Federal funding for highways has increased almost 80% over the past 10 years. Yet traffic congestion, air pollution, energy waste and dependence on foreign oil increase every day.

Meanwhile, federal funding for public transit has declined over 50% since 1981.

If you think this is the wrong way to go, there's something you can do about it. You can join with over 150 national organizations that make up Transit NOW and tell Congress to provide more funds for public transit options.

With more transit options, we can:

- Save time and money in our daily travels
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- Save business and industry billions of dollars in lost travel time
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Send the attached post cards today, while Congress is deciding which route to take. It's time to drive home the point about more funding for public transit.

THIS IS NO TIME FOR A TOKEN COMMITMENT

Dear Member of Congress_____:

I strongly urge you to support increased federal funding for transit options, including rail, bus, carpools, and vanpools, because I believe that America's future rides on transit.

According to a national survey conducted in June 1990, 82 percent of all Americans strongly agree that, "We must begin now to provide more transportation choices and reduce dependence on driving alone in personal cars." Count me among them.

Please let me know your views on this critical issue.

Name _____

Address _____

City_____ State_____ ZIP _____

SUPPORT INCREASED FEDERAL FUNDING FOR PUBLIC TRANSIT

AMERICA'S COALITION FOR TRANSITNOW

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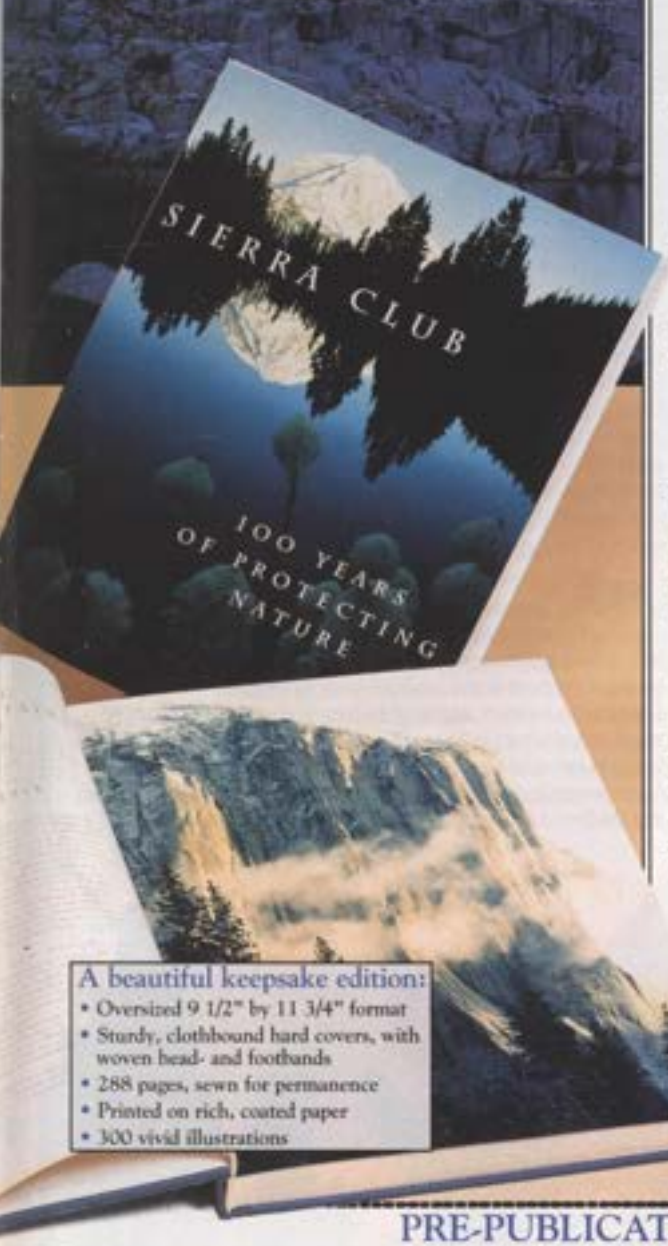

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NEW YORK CITY

GREEN AGAINST ALL ODDS

You'd think it would be easier to move to Missoula and start over than to try to survive as an environmentalist in New York City. But there they are, working with (and around) their 7 million fellow residents to manage the effluvia of one of the world's great metropolises and to ensure that every resident can find some peace in the out-of-doors. Step out onto the sidewalk and check out the difficulties and delights facing New Yorkers yearning to breathe (and stroll) free.

Among major U.S. cities, only freeway-entwined Los Angeles has nastier air pollution. New York City has never met federal standards for ground-level ozone and carbon monoxide; air quality, which gradually improved following passage of the Clean Air Act in 1970, declined after 1980 due to a 25-percent increase in the number of motor vehicles in the metropolitan area. The good news: Carbon-monoxide levels may not meet federal requirements, but at least they're no longer five times higher, as they were 20 years ago. And because of restrictions on leaded gasoline, high-sulfur coal, and garbage incineration, the city's air is freer of lead, sulfur dioxide, and soot.

New York City is surrounded by 578 miles of waterways, most of them filthy. Every day sewage plants treat 1.8 billion gallons of waste, but another 4.5 million gallons of sewage and 7,000 pounds of heavy metals flow directly into the environment. All hell breaks loose during wet weather, when the city's antiquated system of sewer pipes routinely overflows. Water pollution has been reduced since the 1970s, but it will be many years (if ever) before you'll want to dip a toe into the Hudson.

While pondering their environmental predicament, New Yorkers can drink up. The city's drinking water is among the best in the world, thanks to a system that taps 1.5 billion gallons of water each day from 2,000 square miles of watershed as far as 100 miles away. But proposed development in rural areas threatens to send sewage, road salts, acid rain, and agricultural runoff into the works.

Now that the world's tallest building is in Chicago, New York has had to settle for the world's largest landfill, the 3,000-acre Fresh Kills site on Staten Island. Opened in 1948 and nearly full today, its 2.4 billion cubic feet of everything imaginable fill more than 25 times the volume of the Great Pyramid at Giza. New York's once-lauded recycling ordinance (which requires the city to recycle 25 percent of its trash by mid-1994) has become one of the first casualties of devastating citywide budget cuts. Environmentalists accuse officials of instead pushing their favorite project, municipal incinerators, despite Mayor David Dinkins' campaign promise in 1989 to delay incinerator decisions until the recycling program could prove itself.

New Yorkers aren't well known for keeping quiet when something bothers them. According to the Citizens Committee for New York City, 10,000 block associations, neighborhood groups, and tenant and youth associations help individuals be heard over the urban din. Many are environmental groups; some have broad concerns (such as the Greenbelt Conservancy, City Parks Foundation, and Neighborhood Open Space Coalition), or single-neighborhood interests (West Harlem Environmental Action, Coalition for a Livable West Side, Prospect Park Alliance); still others have names meant to inspire gritty urbanites, like the Green Guerrillas and the Toxic Avengers.

PLACE SETTING

Text by Reed McManus • Illustration by Julia Gorton

The 18,000 members of the New York City Group of the Sierra Club's Atlantic Chapter are hip-deep in the Big Apple's muckiest issues, plus dozens more: supporting farmers' markets, promoting water conservation, scrutinizing the city's upcoming redistricting, protecting the waterfront from the never-ending crush of development, and preserving watersheds and recreation forests in the region. When they need a break from City Hall, they turn to the chapter's outing program, which caters to the needs of car-free urban residents.

In a congested city, the "outdoors" usually includes sidewalks and traffic. Defending pedestrians, cyclists, transit riders, and kids is a group called Auto-Free New York, which explores "the upper limits of devehicularization of the nation's largest city." The organization has pushed for tolls on all city bridges, the creation of "play streets," banning cars from Central Park's roads, and limiting the blasts from car alarms. Cyclists from its parent organization, Transportation Alternatives, were acquitted of charges that they blocked a bridge that had been closed to nonmotorized vehicles. The judge ruled that "the death and illness of New Yorkers as a result of additional air pollution" were more odious than the conduct of the activists.

Despite visiting Soviet Premier Nikita Khrushchev's comment in 1960 that "there is no greenery—it is enough to make a stone sad," New York City has a surprising amount of open space. According to naturalist Steven Garber, 25 percent of the 300 square miles that make up the city's five boroughs is parkland, much of it tree-covered. Not the biggest, but certainly the most celebrated, is Central Park, which rose out of 840 acres of bogs, bone-boiling works, pig farms, and glacial leftovers. It now supports 1,400 species of trees, shrubs, and flowers.

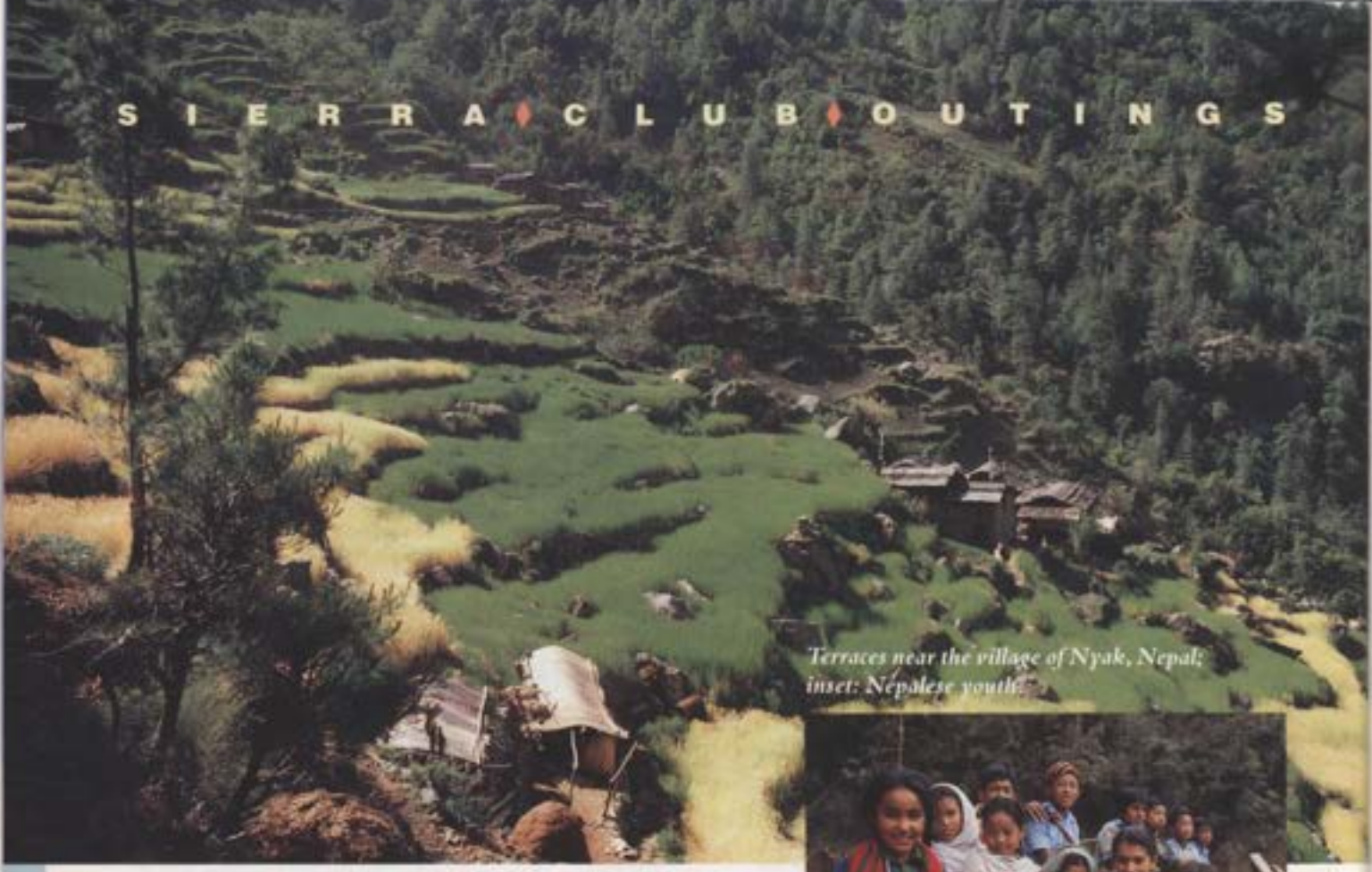
"A park, however splendid, has little appeal to a family that cannot reach it," proclaimed Lyndon Johnson in the mid-1960s when he turned the attention of federal park officials toward urban open spaces. In 1972, Gateway National Recreation Area became one of the first two urban national parks in the United States. Today 10 million people visit the 26,000 acres of forest, marsh, and landfill surrounding New York Harbor each year. At the park's nature center city kids learn, according to one ranger, "that not every bird is a pigeon."

It's not easy managing parks in a metropolis. ■ The Parks Department must prune its 1992 budget by 38 percent to help close the city's $3.5-billion budget gap. As "nonessential" services, parks are among the first to suffer: 1,300 workers (22 percent of the staff) were laid off in June. ■ An estimated 2,000 homeless people live in Manhattan's parks. Unable to address the underlying problems of insufficient housing and social services, the agency has begun enforcing nighttime curfews with chain-link fences and padlocks—often with the full support of nearby residents. ■ A year-long attempt to enlist barn owls in the park system's rat-control program failed last year because people stole the nesting boxes, and the city returned to poisons. The toxic chemicals aren't used during bird migration season, but their effect on local mammals is devastating, according to naturalist Garber. "New York rats are stuffed with so much pesticide, they're walking chemistry sets," said one Central Park official (though that is not the department line). ■ Throughout the city, gardeners, park staff, and residents have had to chain down shrubs to prevent theft. Mother's Day and Easter are critical times, although professional rustlers work all year. The crisis has sparked a science of floral bondage—cables, wire lattices, barbed wire, and a device called a duckbill are used to anchor plants to the earth. ■ Central Park guide Steve "Wildman" Brill led 15,000 people on tours of the park's edible plants until his bosses, concerned about liability problems, forced him to stop. Despite the risk of eating dandelions seasoned by passing dogs, Brill claimed his plants were healthier fare than food from the park's concessions.

There are more than 200 plazas in Manhattan, built by developers eager to earn credits they could cash in for approval of bigger buildings. Some are gray tombs designed to be unappealing both to loiterers and office workers. Until a 1975 law mandated it, many didn't offer public seating. In one case, designers revitalized a plaza by taking cues from the drug dealers who had commandeered it: They placed inviting amenities in the areas most visible to passers-by—formerly the dealers' turf.

About 750 community gardens have sprung up throughout the five boroughs. The city agency Operation Green Thumb and private groups such as the Green Guerrillas, The Trust for Public Land, and Cornell University's agricultural extension offer neighborhood groups seed money, instruction, equipment, and leases to unused city property. Most plots are in poor neighborhoods, providing a bit of open space as well as an estimated half-million dollars worth of vegetables each year.

►For more information, see "Resources," p. 124



Terraces near the village of Nyak, Nepal; inset: Nepalese youth.

1991–92 International Open-Trip List

Space is still available on the outings listed below. If you act promptly, you can probably find a spot on one of them. Use the coupon to send for a trip brochure. International trips are tier-priced; prices do not include airfare.

Trip Number		Dates	Trip Fee (including deposit)	Deposit Per Person	Leader
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92515	Annapurna Circuit, Nepal	Oct. 5–31	2175/2385	200	Jerry Clegg
92520	Kangchenjunga: Guardian Spirit of the Great Snows, Nepal	Nov. 4–Dec. 4	2560/2795	200	Patrick Colgan
92535B	Langtang Holiday Trek, Nepal	Dec. 22, 1991–Jan. 4, 1992	1355/1520	200	David Horsley
Latin America					
92513	River Rafting, Jungle, and Beach Adventure, Costa Rica	Oct. 20–26	1835/2075	200	J. Victor Monke
92525	Discover the End of the Earth: Patagonia and Tierra del Fuego, Argentina	Nov. 12–28	3125/3380	200	Carol Dienger
92530	Thanksgiving in Belize: Reef and Ruins, Central America	Nov. 23–Dec. 2	1800/2025	200	Margie Tomenko
92540	Holidays in Belize: Reef and Ruins, Central America	Dec. 22–31	1800/2025	200	Peter Owens
92545	Holiday Kayaking in the Sea of Cortez, Baja California, Mexico	Dec. 23–29	1220/1300	200	Harry Neal
Mediterranean					
92510	Egypt and the High Sinai	Oct. 12–26	2465/2715	200	Ginger Harmon

Trip Number		Dates	Trip Fee (including deposit)	Deposit Per Person	Leader
1992 OUTINGS					
Africa					
92548	Kenya Coast and Wildlife Safari: From Lamu to the Maasai Mara	Feb. 7–20	3605/3840	200	Ruth Dyche
92590	Madagascar Revisited	Apr. 16–May 3	3735/3990	200	Patrick Colgan
92625	Portrait of Kenya: A Leisurely Photo Safari	June 22–July 4	3230/3485	200	Carolyn Castleman
92640	Aardvarks to Zebras: A Safari to Kenya's Game Parks and Preserves	July 25–Aug. 9	3475/3730	200	J. Victor Monke
Asia					
92550	A Journey to Thailand: Temples, Hills, and Beaches	Feb. 11–27	2230/2490	200	Wayne Martin
92570	Annapurna Chitwan Trek, Nepal	Mar. 2–20	1710/1900	200	Peter Owens
92580	Japanese Alps and Country Inns	Apr. 6–18	3370/3625	200	Carolyn Castleman
92600	Manaslu Circle Trek, Nepal	May 9–June 5	2310/2535	200	Cheryl Parkins & Peter Owens
92635	Batura Glacier and Nanga Parbat Treks, Pakistan	July 12–Aug. 6	2705/2960	200	David Horsley & Peter Owens
92665	Southern Dolpo: Pokhara to Jumla, Nepal	Oct. 5–Nov. 7	2805/3060	200	Cheryl Parkins
92675	Annapurna Sanctuary and Royal Chitwan Park Jungle Safari, Nepal	Nov. 11–Dec. 3	2100/2325	200	Laurie-Ann Barbour
93700	Lanjung Holiday Trek, Nepal	Dec. 19, 1992–Jan. 1, 1993	1435/1605	200	Peter Owens
Europe					
92605	John Muir's Scotland	May 10–23	3420/3675	200	John & Jane Edginton
92610	England's Coast to Coast Walk: From the Irish Sea to the North Sea	May 31–June 13	2495/2775	200	Lou Wilkinson
92630	Adventure in Iceland: Hiking the Lava Caves and Moorland	June 24–July 8	2920/3180	200	Ellie Strodach
92645	Trolls and Fjords of Norway	Aug. 17–27	2010/2260	200	Kathie Brock
92655	Mountains of Contrast: The Diverse Dolomites, Italy	Aug. 31–Sept. 13	2620/2875	200	Wayne Martin
92660	The Dordogne: Its History, Culture, and Ecology, France	Sept. 7–17	2120/2375	200	Elaine Adamson
92670	Romania's Fall Colors	Oct. 5–17	1835/2080	200	Jim Halverson
Latin America					
92553	Belize: Reef and Ruins, Central America	Feb. 15–24	1865/2085	200	Lola Nelson-Mills
92555	Magdalena Bay Whale-Watching, Baja California, Mexico	Feb. 16–22	1295/1375	200	Jon Kangas
92575	The River of Ruins: An Archaeological Adventure by Paddle-Raft, Mexico	Mar. 14–24	2710/2965	200	John Garcia
92585	A Sailing Sojourn in the British Virgin Islands for Artists and Photographers	Apr. 16–23	2205/2625	200	Chuck Blouin
92595	Costa Rica: River Rafting, Jungle, and Beach Adventure	Apr. 18–25	1935/2190	200	Carolyn Braun
92615	Endangered Forests of Costa Rica and the Ecuadorean Amazon	June 1–14	2890/3225	200	Wheaton Smith
92680	A Holiday Adventure: Rio de Janeiro and the Rainforests of Brazil	Dec. 20–31	2800/3055	200	Gail Solomon
Soviet Union					
92620	Lake Baikal Service Trip	June 9–28	1635	200	Bud Bollock
92650	The Soviet Far East	Aug. 18–Sept. 6	3720/3975	200	Bob Madsen

For More Details on Outings

Outings are described more fully in trip brochures, which are available from the Outing Department. Trips vary in size, cost, and the physical stamina and experience required. New members may have difficulty judging which trips are best suited to their abilities and interests. Don't sign up for the wrong one! Ask for the trip brochure before you make your reservations to save yourself the cost and inconvenience of changing or canceling a reservation. The first three brochures are free. Please enclose 50 cents apiece for extras. Write or phone the trip leader if any further questions remain.

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White Death

Continued from page 64

(Asbestosis sufferers often develop fat, clubbed fingers, a sign of severe oxygen deficiency.) An affliction usually associated with massive, prolonged exposure, asbestosis is no longer so common in the United States; today it is increasingly becoming a Third World disease.

While it is firmly established that asbestos has a "dose response" relationship to cancer—i.e., the greater the dose, the higher the risk—there is considerable debate as to whether there is a "threshold" level below which asbestos fibers are safe to inhale. Even quite brief exposure to asbestos can result in lung cancer or the extremely painful tumor of the lung cavity called mesothelioma. "If they ever give you your choice of what you want to die from," advises attorney Steve Kazan, who has represented scores of asbestos victims, "pick something else."

The most ruinous days for American workers came during and immediately after World War II, when widespread and rarely controlled shipyard use of asbestos exposed thousands to lethal doses. In the postwar building boom, asbestos sheeting and spray-on acoustic ceilings (the ones that look like cottage cheese) became standard in many schools, homes, and public buildings. Victims from that era describe working in conditions with asbestos dust so thick they couldn't see. "Here comes daddy the snowman!" children would call as their fathers came home, covered in asbestos dust. Many such children later fell ill themselves, as did the women who washed the workclothes. Even family dogs died of mesothelioma.

Because of the long latency period for asbestos cancers (lung cancers and mesotheliomas often do not develop until 20, 30, even 40 years after exposure), victims did not start dying in large numbers until the 1950s and '60s. (Washington state, whose wartime shipyards offered a relatively high level of asbestos protection, now suffers the highest mesothelioma rate in the nation, workers at dirtier shipyards in other parts of the country having already died of asbestosis.)

In 1964, Irving Selikoff of the Mt. Sinai Medical Center presented irrefutable documentation of the deadly nature of asbestos; only then did warning labels begin to appear on asbestos products. (Sacks of Canadian asbestos, however, remained unlabeled until 1969.) Selikoff's findings marked the beginning of the end for asbestos use in the United States. The first steps were taken by the Occupational Safety and Health Administration (OSHA), whose eight-hour inhalation limits have declined from 12 fibers per cubic centimeter in 1971 to 0.2 today. (A standard of 0.1 is now being considered.) The OSHA regulations were repeatedly challenged in court by the Asbestos Institute, which claimed they were neither necessary nor technologically feasible.

"Why is Canada so grimly determined to prevent the United States from protecting the health of its citizens?" asks Ray Sentes, a political scientist at the University of Regina in Saskatchewan. A former insulation installer who suffers from asbestosis, Sentes has become one of Canada's leading critics on the issue. His country's concern about U.S. regulation, he says, is "based partly upon the fear that the safer standard would be adopted in those Third World countries which look to the United States as a model."

The Canadians lost their suit over the OSHA standards, but carried the fight to the EPA, which in the early 1980s was studying the larger question of whether asbestos ought to be allowed at all. The Canadian asbestos industry mounted a frantic $2.5-million lobbying campaign. An internal EPA memo of 1984 explains the sensitivity of the issue: "The Canadians have indicated to us confidentially that in terms of the Canadian domestic political situation, it is important the Canadian federal government appear it is doing all that it can to protect the domestic industry. It is equally important to the Canadians that this not be inter-

preted as opposition to a health-related regulation for solely economic and trade considerations."

Canada attempted to head off EPA action by meeting secretly with the Office of Management and Budget, newly empowered by Ronald Reagan to review federal regulations. In 1985 the asbestos industry's wish came true when the OMB wrested rule-making authority from the EPA. In the uproar that followed, a congressional committee found that the OMB had "engaged in secret communications with outside parties, leaving other interested parties on the sidelines watching a different game." The EPA regained control and proposed its total asbestos ban in 1986, although implementation was stalled until 1989.

That ban was, of course, challenged by the Canadians; the Fifth Circuit Court of Appeals is expected to rule on the matter by the end of the year. Asbestos Institute president Gratton confidently foresees "the rule either being repealed or at least remanded back to [the EPA] for major modifications." Experience has made optimists of the Canadians. "It's never over until it's over," explained Canadian Ambassador to the United States Allan Gotlieb upon leaving Washington in 1988, "and in the U.S. system of government, it's never over."

Asbestos mining in Canada provides scarcely 2,000 jobs, and accounts for only one percent of total mineral exports. Substitutes are available for all uses of asbestos, and the industry could easily be allowed to wither away. Why then is Canada so fiercely resolved to prop it up?

The answer lies in the symbolic, almost sacrosanct role the fiber plays in the politics of Quebec, where 85 percent of Canada's asbestos is mined. The Quebec pits were the site of a celebrated and bloody strike in 1949 (ironically, over health-and-safety issues), where a young lawyer named Pierre Trudeau first made a name for himself defending the workers. Thirty years later, the government of Quebec stepped in to rescue the foundering industry by nationalizing two of the largest mines at the cost of half a billion dollars. Suddenly the cause of asbestos became entwined with the cause of Québécois nationalism—and therefore unassailable.

"Quebec politicians were very clever tactically," says Sentes. "They stated openly a decade ago that if you criticize the Quebec asbestos industry, you are anti-Quebec. Remember that we're in a constitutional crisis now: People want to hold the country together. Those who would normally be critical of Quebec are biting their tongues."

Shut out of Western markets but immunized against internal criticism, the Canadian asbestos industry set its sights on markets in developing nations. "The time has come," announced Quebec Asbestos Mining Association President Marcel Dorais in 1980, "to rehabilitate asbestos in the world." This effort was aided in 1986 by Canada's coup in persuading the Geneva-based International Labor Organization (ILO) to approve a convention endorsing the so-called "controlled use" of chrysotile asbestos, the sort mined in Canada. (See "Which Bullet to Choose?" page 65.) Since that time, the convention has been ratified by only ten countries (among them Sweden, which bans asbestos use within its own borders). Nevertheless, it has provided a fig leaf of international sanction to Canada's export efforts.

Through trade unions, the Asbestos Institute, and its own embassies, Canada set out to woo the developing world. Canadian unions invited Third World labor leaders to Canada for all-expenses-paid junkets; the Asbestos Institute held seminars on "controlled use" in 60 countries; Canadian embassies appointed officers to "manage" asbestos issues and to give away thousands of tons of free samples. Even EPA chief William Reilly did his part, announcing in 1989 that the U.S. asbestos ban "should not be seen as a signal to other nations, especially developing nations, that use of these products should be discontinued." By the late 1980s sales to the Third World

Continued on page 110

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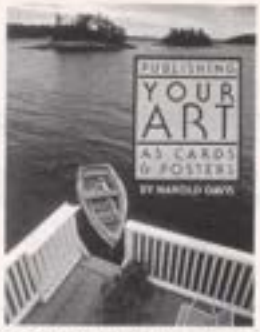

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FERTILITY, IMMIGRATION & POPULATION: THE "EXCRUCIATING CHOICES"

The country is headed in the wrong demographic direction — toward some 400-500 million in the next century, at present rates. Specialists, in our **NPG FORUM** series, have made a strong case that it should be headed the other way. Perhaps to half our present 250 million.

That bald calculation may shock you, but you may still agree that present population growth must be turned around to fit our energy, environmental and resource realities, to arrest the social disintegration in our large cities, and to help bring an increasingly alienated and desperate underclass into the economic mainstream.

The problem is: how? Demographer Leon Bouvier points out that the U.S. population would still be well over 200 million by 2080, even if American women averaged only 1.5 children and if net immigration were reduced to 300,000 annually. (One million or more may be expected under the Immigration Act of 1990.) If we are really going to turn population growth around, we will need sharp reductions in both immigration and fertility.

As David Simcox said in his essay, this would involve some "excruciating choices." Immigration, if it is not to drive population growth, will need to be in rough balance with emigration, or less than 200,000. This was about the level from 1920-1960. It would still be the largest sustained migration level in the world. We could admit only genuine refugees, not all those who are simply tired of poverty or chaos or dictatorship at home. Immigrants with needed skills rather than simply those with American relatives. If the choice is painful, it should be addressed honestly, not decided by default and political cowardice.

As to fertility: the real task is to persuade the less educated to bring their fertility down to the levels prevalent among the educated. If we could, it would give the nation a chance to give smaller cohorts of poor children a better education, and thus to help them out of the cycle of poverty. This isn't a question of race. It is one of economic class. Adjusted by education or income, blacks and whites are about equally fertile.

You won't hear these issues discussed in many places. They are too sensitive. You will find them in the NPG FORUM series on optimum population, as demographer John Weeks and editor Lindsey Grant discuss in detail how fertility can be influenced without coercion.

If you agree that these are important issues and want to learn how we are addressing them, write

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accounted for half of Canadian asbestos exports. (Much of the rest goes to Japan for processing into building materials, which are then exported to developing nations.)

Helping to finance these sales are both the Canadian International Development Agency and the World Bank. In 1988 the World Bank even joined the Asbestos Institute in hosting a seminar in Washington, D.C., to promote the use of asbestos-cement pipe, which carries much of the Third World's drinking water (a use no longer permitted in the United States). "But for the financing of the World Bank," notes Sentes, "a lot of those countries would not be using asbestos-cement pipe." David R. Obey (D-Wisc.), chair of the House Appropriations Subcommittee on Foreign Operations, protested the bank's involvement. Writing to Barber Conable, then-president of the World Bank, Obey pointed out that at the same time the bank was promoting asbestos use abroad, it was spending several million dollars to remove the asbestos from its own office buildings in Washington, D.C. "I think you would agree," Obey wrote, "that it is unacceptable that U.S. taxpayers' support of the World Bank should underwrite such a double standard." Conable refused to halt loans for asbestos-cement projects.

Canadian officials aggressively defend their export policy. "We recognize that if there is to be any future to the asbestos industry worldwide," says the Asbestos Institute's Gratton, "it has to be through the implementation of safe use." (This is an improvement, at least, on the attitude exhibited in a 1977 memo from a salesman for the Carey Canada asbestos firm: "I do not believe that we should raise problems with people who are more primitive than we are or less educated. We cannot, in all cases, impose American standards on other people.") According to the Institute, asbestos *can* be used in complete safety, provided appropriate (and sometimes expensive) precautions are taken, such as the use of elaborate ventilators and respirators.

While there is general agreement that asbestos exposure can be minimized in a modern factory, the sad truth is that industrial-safety standards in the developing world are often notable by their absence. Thailand, for example, imports more Canadian asbestos per capita than any country except Malaysia. But Virah Mavichak, the government official responsible for overseeing hazardous substances, concedes that his country is unprepared to handle asbestos safely. "We don't have the proper equipment," he admitted in the *fifth estate* documentary. "We don't have the trained people."

"The Canadians expect that they can go to some country, hold a two-day seminar, and then pronounce the country a free-fire zone," says environmental consultant Castleman. "The burden is on the asbestos industry to demonstrate that it is practical to routinely use asbestos in a thoroughly controlled way in developing countries."

Gratton admits that workplace conditions in the Third World can fall short of ideal. "There has to be the political will to protect workers," he says. "If you have a country or a plant that doesn't give a hoot for the protection of its workers, you cannot force it to do so." Indifference to public-health problems abroad, he asserts, is not peculiar to Canada: "That's why the United States exports so much tobacco to developing countries."

When not on the defensive, the Asbestos Institute sometimes presents its asbestos exports as a lifesaving boon to the Third World. Scott Houston, the institute's director of regulatory affairs, boasts that "Asbestos-cement products . . . have proven invaluable in furthering public-health objectives," such as providing communities with fresh drinking water and sewer service at a quarter of the cost of plastic pipe. (Critics claim that a variety of harmless fibers, including wood fiber, are available for strengthening cement pipe.) Gratton takes the argument one step further. "The only morally acceptable policy is not to ban it," he says. "If Canada were to go along to stop shipments to these countries, it might give Canadians a better conscience, but it

would not stop workers from being exposed to the fiber, because it would just come from somewhere else."

That somewhere, it is suggested, would be the Soviet Union, the second-largest exporter of asbestos, with sales of about a third the Canadian total. From what little is known about Soviet export practices, Soviet consciences have no reason to rest easy either. Visitors to Vietnam report "absolutely horrifying" conditions at an asbestos-cement plant there, with workers slicing open bags of Soviet asbestos and dumping them into mixing tanks with no ventilation equipment whatsoever. The only warning on the Soviet sacks is "Use No Hooks." To further promote asbestos exports, says Gratton, the Soviets and the Canadians have now formed the International Fiber Safety Group "to promote safe use, especially in the developing countries."

Murder is a name we reserve for death when it is intentional and immediate, when cause and effect are as close as pulling a trigger and watching the body crumple. When the deed is planned in advance we call it "premeditated," and consider it especially heinous. Theoretically, the length of time between cause and effect is immaterial; there is no statute of limitations for murder.

Practically, however, the greater the gap, the greater the room for lawyering. Canada sells hundreds of thousands of tons of asbestos to the Third World in full knowledge that years later it will result in thousands of painful deaths. Yet the nation acts as though its responsibility ends with the perfunctory safety seminars provided by the Asbestos Institute. The same denial of responsibility has been the industry's hallmark since the suppression of the first report on the fiber's hazards in 1935. For the Canadian asbestos industry, willful ignorance of the deaths caused by its product has become a way of life. ■

PAUL RAUBER *is an associate editor of* Sierra.

►*For more information, see "Resources," p. 124*

Nevada

Continued from page 94

underground. When the bombs explode in their shafts deep in the ground, they create huge caverns filled with hot, pressurized radioactive gases. As the gases cool, the earth above caves in, and in at least 42 cases gases have escaped into the atmosphere and been registered off-site.

The antinuclear movement has changed in recent years, broadening its focus from the potential dangers of nuclear war to the constant dangers of the weapons' very existence: the tests, the byproducts, the economic burden they impose, the insoluble problems of radioactive-waste disposal. And once I got to Nevada, I realized that war wasn't something the government was merely preparing for here; war was being waged against the landscape and the locals. The state of Nevada was a state of war. It was hard to remember all this when pulling thorns out of someone's sweaty foot with my hands cuffed together in the back seat of a security van.

The land of the Nevada Test Site is itself under considerable dispute. The U.S. Department of Energy, which oversees the site, has an agreement whereby Nye County authorities have responsibility for security. Nye County has a population in the low thousands, however, and though it gets paid to arrest us, it doesn't get paid to prosecute us. So county officers round us up and haul us away and toss us out; we serve as a kind of seasonal income. Some people say that the county is trying to irritate the DOE into patrolling its own premises by letting us off so lightly.

The land shouldn't really fall under the jurisdiction of either of these parties, however, because Abraham Lincoln ceded it in perpetuity to the Western Shoshone Nation in the 1863 Treaty of Ruby Valley. The Nevada Test Site is stolen Indian territory—or, rather, part of a stolen sovereign nation of some 43,000 square miles. The Shoshone have been trying to get their land, which they call Newe Segobia, back for decades, without much success. The government tacitly recognizes their claim, at least to the extent of having put $26,145,189.89 in the bank as payment for it. But the Western Shoshone don't want this ludicrously small amount; they want their ancestral land returned. The Shoshone give activists permits to be on their land, and one of the pleasant things that can be said to one's arresting officer is that he is, in fact, the one who is there illegally.

There's something profoundly, quintessentially American about getting arrested at the Nevada Test Site: the very issues are not cowboys and Indians, but land, war technology, Thoreauvian civil disobedience tactics, bureaucratic obfuscation, and Native American land rights. To start the day in the cold of a desert morning, sitting on rocks and drinking coffee, to fill your water bottle and mill around with friends and acquaintances as the day gradually creeps toward hotness, to sit through a sometimes stirring, mostly dull rally of speeches and music (folk to punk and back again), to commit the fairly abstract act of climbing under a wire fence that separates the rocky expanse of cactus and thorn bushes from the rocky expanse of thorn bushes and cactus, to be confronted by hired help in the wrong kind of camouflage, to go through numerous pairs of disposable plastic handcuffs as the sheriffs rearrange their captives, to idle in a sort of cattle pen built just for us, to be escorted after many hours in the sun into a special luxury bus and be given a ride down scenic Highway 95, to be interrogated by hardfaced sheriffettes with piles of teased hair who are irritated by anyone who wants to give a more complicated name than Jane Doe or Shoshone Guest, to be tossed out into a small town, to catch up on the well-being of friends and head for fast food and ice cream in the middle of the night, to plunk quarters into slot machines while waiting for the food to come, winning the occasional handful of change, to burn up thousands more gallons of gas getting driven back to

the camp, to wind through the rocks and thorns in the dark to a sleeping bag on hard, uneven ground under a sky more full of stars than almost anyplace else in the world—could anything be more redolent of life, liberty, and the pursuit of happiness?

And in 1990 I got cowboys. Friday afternoon the arrestees from the roadblock started trickling back to the Peace Camp. I ran into Bob Fulkerson from Citizen Alert, a group "working for public participation and governmental accountability in issues of concern to Nevadans." Bob, a fifth-generation Nevadan of the kind that gets called rangy, told me stories about the military and the state all afternoon, and then invited me to come on a caravan tour of Nevada leaving on Sunday. In his cheerful, laconic way he filled me in on the DOE (Department of Energy), MOAs (military operation areas), FONSIs (findings of no significant impact), Secret Area 51, the bombing of Native American reservations, and the people driven out of Dixie Valley by incessant sonic booms from Navy planes. As we talked, a dust devil ripped through the camp, picked up hundreds of Shoshone permits—small white slips of paper—and spun them 50 feet into the air, then lifted high a huge black tarp and carried it, flapping loudly and looking like a pterodactyl, over the camp.

Late in the afternoon, with my head whirling from acronyms and horror stories, I set out due west for the mesas that overhung the camp site. After about ten minutes I ran into Richard Misrach walking an equally straight line south. He was carrying a camera that would unbalance nearly anyone else: a huge mahogany box on a tripod as tall as he is. A view camera that makes 8 × 10 negatives, it is his equipment of choice. His pictures are usually of luminous expanses in which something is going wrong, images in which the beauty of the landscape is overlaid but never obliterated by environmental damage. I was supposed to be writing about these controversial photographs for a New York art magazine, and we'd been talking about landscape ideology back at home. We began again here, and the fruit of my research spilled forth. The American West, I asserted, was defined as wilderness, and this definition made its development possible: Wilderness meant willfulness, intimated a need for taming, described the land as empty and waiting to be filled, denied that anyone was already at home in it. This myth asserted that the land was without a past, pure, and waiting to be given a future, that it was a resource to be given meaning by man. The history of the West was the history of breaking the will of the land. Even Thoreau's pal Emerson wrote to John Muir that the wilderness was a sublime mistress but an intolerable wife. The myth of wilderness was established in the art and literature of the 19th century and imposed on the land itself. I made Richard listen to me go on about the relationship between romantic aesthetics and the mauling of the West. Finally he told me that he had to go because the light was perfect; he continued south and I continued west.

Space is different in the desert. The harshness of the elements makes you conscious of the minuteness of your body and its supports in the vast expanses. In the temperate world, we live at middle distance. Hills and buildings diminish the sky, houses and cities are big and valleys are small, the space between things is not so intimidating. Only the Shoshone, Paiute, and Washo have ever loved the land out here—and maybe some of the ranchers whose cattle overgraze it. Mark Twain said that Nevada could make the devil homesick, and he never came back. Vacationers go to other states to see deserts and mountains, to Utah, Arizona, Colorado. Pioneers who didn't make it to California usually gave up in the Great Basin, and its frontier history is filled with summertime disaster stories about lack of water as awful as the Donner party's wintry starvation a ways north of here. The early history of Nevada is one of men burrowing beneath the ground, in the great Comstock Lode and all the other silver and gold deposits that left the landscape

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The recent history of Nevada has been aerial, with bombers, jets, and missiles crisscrossing the sky. So much of Nevada is restricted military airspace that commercial flights have to take a lengthy zigzag across the state, and more is being put off-limits all the time. Nuclear weapons have followed a different course: In the 1950s test explosions rose higher and higher into the air above Frenchman Flats, and ever since 1963 they have been biting into the earth, in pits as much as a mile deep.

Saturday

On the morning of March 31, 1990, the People's Comprehensive Test Ban Treaty was signed by representatives from Japan, both Germanies, and the Netherlands, by American Peace Test organizer Jackie Cabasso, Kairot Umarov of the Soviet Union's Nevada–Semipalatinsk Antinuclear Movement, and Raymond Yowell, Chief of the Western Shoshone National Council. The signing, on an impromptu stage, was the prelude to the event of the day, the mass arrests. This year, the Shoshone participants would lead a procession to the cattleguard at the main gate, then cross it to be arrested; those of us who wanted to join in their land-rights claim as well as in the anti-testing stuff could follow them. I decided to follow.

I walked along the barbed-wire fence that delineates the boundary of the test site, while guards in camouflaged dune buggies watched from the other side. On the fence itself signs warned against trespass, and other signs declared the land a habitat-preservation area for the endangered desert tortoise. The sun felt menacing, and there was no shade. There used to be piñon pines in this part of the Great Basin, and their nuts were a staple of the Shoshone diet, but the government tore out all the trees in the name of range improvement. Trees, turtles—nothing in this place escaped being an issue. The air was thin and clear, and the sun poured down.

A mere trench dug in the road with steel bars running across it, safe enough for tires and human feet but too treacherous for hooves, the cattleguard across the main gate of the Nevada Test Site is one of its boundaries. It is illegal to pass over, though nothing stops people from gathering on either side of the road that leads across the cattleguard to Mercury. There we congregated and milled. I ran into Richard again. After a drink from my bota, we picked up our discussion where we had left off yesterday. As the Shoshone were walking across the cattleguard a few yards away I found myself saying, "But Richard, you have to finish telling me about the new myth of the American West." He said, "You know, you really need to cross that line pretty soon if you're going to get arrested."

I offered no resistance as the guards tightened the disposable plastic handcuffs and snipped off the ends, which dropped into the dust. (The test site

must be littered with thousands of handcuffs and ends by now.) The plastic cuffs lack the ominous resonance of metal handcuffs, looking less like appurtenances of crime and punishment than like industrial fasteners; they make it clear that we're just being packaged for efficient processing. They operate on a simple principle: Teeth go through a notched slot that prevents them from going the other way, so the cuffs can get tighter but not looser—unless you happen to have a safety pin to pry open the notch with, as I did. Inside the dusty pen I liberated a couple dozen women from their handcuffs and squatted in the shrinking shade of the wall that divided us from the men. Not much else happened. I thought about what Richard had told me: That he has no theory of the American West, only that the old one no longer works.

Coherence is a great lure, and making sense out of things is what artists are supposed to do. Landscape has always been defined by urban dwellers as a refuge, a place where nothing happens. European landscapes, with their ruins, usually came after history; American landscapes, with their inviting expanses and sexy metaphors, were usually waiting for history, like the Sabine women waiting for the Romans. Pristine landscapes were art and could be lush and breathtaking; devastated landscapes were news and likely to be small and ugly. In American landscape art, there was no tradition for representing landscape between the before and after, for recognizing landscape as a field of action: After nature came disaster, after the sublime came real estate.

Richard's pictures violate this grammar of landscape to depict something that no one else has. They show that our recent history has been incoherent; its crimes don't correspond to our categories. Looking out the window of the bus that carried us to the town of Beatty, with re-cuffed hands in lap, I could see that Nevada was still beautiful even though it was overgrazed, bombed, irradiated, and stolen, that the land was saturated with tranquil

late-afternoon light even though it was a battlefield.

Sunday

Sunday morning I looked all over camp for the locals from Citizen Alert who were going to take me out to see a bomb crater, and I couldn't find them anywhere. Giant puppets, made to be carried by four people apiece, were being assembled, and the camp looked like a circus. There was going to be an April Fools' Parade to the gates, the inevitable gates. Richard, my brother, and a cluster of others were painting their faces white and costuming themselves as Death. Finally I saw Bill Rosse, one of the Shoshone elders, short and barrelchested with a big, silver belt buckle and a handlebar mustache. When I asked him if he knew where the Nevadans were, he looked intently at me for a minute and suddenly gave me a bear hug. He had known who I was immediately, although he'd never seen me before. He thought my brother and I were twins; I explained my slight seniority. I teased him back about knowing who he was: There was a picture of him in the information tent, with a scrawled note that he'd had five bypasses and was recovering nicely. I told him that he must have an unusually large heart, since most people had only four valves. He told me he was coming along on the trip himself and steered me to the back seat of Chris Brown's car.

On Highway 95 to Beatty again, I found out what I had been seeing on all those earlier trips. Chris, who is the entire southern staff of Reno-based Citizen Alert, kept up a running commentary on geology, history, botany, and local politics.

We passed Yucca Mountain, a dark ridge a few miles east of the road. Clouds hung over it, making it look even darker, and its barren sides had eroded into gaunt ribs. Yucca Mountain is where the DOE intends to bury all the nation's high-level radioactive waste. This plan has become a major source of controversy between Nevada and the federal government, since the state strongly opposes using the mountain as a nuclear dump. The feasibility studies themselves have come under attack from the state, from Chris' group, and from antinuclear groups across the country, but the DOE is anxious to do something with the 50,000 tons of high-level radioactive waste that have accumulated over the decades of our nuclear history. Yucca Mountain has a likelihood of seismic activity that makes it a poor locale for a radioactive waste dump, and Chris added that the ridge is the result of a volcano that isn't very old, in geologic terms. And something more fantastic: The mountain breathes. One day a geologist saw a piece of paper left over a core-sample tunnel float upwards, and further investigations uncovered a gentle current of air coming out of the mountain, or sometimes going into it. Nothing much was done about this discovery, though a breathing mountain full of radiation is an uncomfortable idea.

Beatty is "Gateway to Death Valley"; Tonopah calls itself "Home of the Stealth." We stopped at the supermarket there, where I found a display of Stealth Bomber coffee cups and baseball caps. It was exciting to see sweet rolls in cellophane wrap and cold vegetables and bottles of wine, almost as exciting as it had been to stick my face under running water during a pit-stop in Beatty. Bob and his friend Kit Miller bought a colossal pot roast, beer, bacon, eggs, and fresh milk.

(Kit, Bob, Bill Rosse, and a few others on the trip had that quality I think of as Western: a good-natured, jokey, unflappable demeanor rooted in competence in the physical world, in knowing what to do with trucks, campfires, sheriffs, and dogs—and seemingly not worrying much about the rest of it.)

At Tonopah we left Highway 95 and turned east. The road passed bomb bunkers, earthen mounds designed to minimize the impact of accidental explosions. Chris told bomb-storage stories about the incredible quantities of decaying explosives cached around the state. The range we passed through was bigger and lonelier than any I'd

seen before. We were about two hundred miles northeast of the Peace Camp and we were still circumnavigating the test site.

Seven mustangs loped across the road, five chestnuts, a bay, and a black. Three days into Nevada and halfway across the state, I was beginning to forget where I'd come from and what I did there. The stories about military atrocities and the roll of the landscape mesmerized me, and the spectacle of exuberant wild horses seemed of a piece with this expedition with cowboys and Indians, something I'd read about but never quite believed in. I am used to being on the coast, where foreign countries and world affairs rub against you every day; here the isolated basins and ranges seemed to swallow everything up. It was hard to imagine the places where the Stealth Bomber might be used, hard to remember that there was anyplace else at all. The strange, pointless war being waged against the landscape seemed unrelated to international politics, as though testing weapons were an end in itself, or as though Nevada were the enemy.

It didn't matter here that the Cold War might be ending. The generals said that withdrawing from Europe just meant that they needed more land for tests and training at home. It didn't matter that the arms race had halted when so many tons of radioactive waste were already waiting to be dumped. The fight against testing had started out as a pacifist concern, but it had become an ecological one; the arms race had come to be seen as a clear and present danger rather than potential devastation. The Shoshone had joined in as environmentalists concerned about the well-being of their land and their jurisdiction over it. After all, all they had ever conceded to anyone else was right of passage.

Our destination was Moore's Station, a revamped pony express stop in a cluster of dying trees about fifteen miles down a dirt road in central Nevada. Built into a bluff, the station consists of half a dozen stone outbuildings and a handsome two-story house with windowframes open to the elements. The orchard of apple trees was dry and nearly leafless, and the tall poplars were brittle-looking, though a stream ran through the pasture. There were real mountains in the distance. Moore's Station seemed like a place where nothing had ever happened and nothing ever would. For me there was nothing to do but wander slightly dazed from the day of driving. Bob and Kit and a few of the others built a huge campfire out of dead tree limbs lying around, and by the time the roast was ready to come out of its dutch oven the sun had set and the heat from the fire was welcome.

The rest of the caravan arrived in the darkness. Bill took out his guitar and sang late into the night, after explaining that it wasn't that he hated women but that he loved country music. His lyrics were all rancorous or melancholy reassessments of ruined relationships, except for the cowboy songs about grievous bodily harm from gor-

ings and stampedes, and he beamed through them all. Beers came out, a bottle of wine went from hand to hand. The wind rotated the heavy campfire smoke around the circle as reliably as a clock hand, but stepping back from the circle of light meant entering bitter cold, and we all basted in the heat.

Monday

Monday morning I was filthy, freezing, stinking of smoke. Birds sang, which they never did at the test site. We got the fire going again, and I huddled near it with a cup of coffee. The night had been so cold the eggs had frozen, and we had to leave before they could be scrambled. We went to see the petroglyphs and the bomb crater, which were very near each other, a juxtaposition too portentous to comment on. The petroglyphs were unusual and beautiful: whole sheets of rusty pattern on the pale sides of a white gulch, strange figures and lines and jagged bolts and circles. Petroglyphs always make lost cultures seem more distant; they are evidence of a complexity of thought that is now irrecoverable. I can't imagine the people who inscribed them, the way of life in which art was stored unobtrusively throughout the landscape, the way they might have been read.

The crater made by an atomic test in 1968 had its own strangeness. There was a shallow basin about thirty yards across where the earth had dropped, and the bushes growing in it were paler than the bushes anywhere else. It was completely quiet; the road, the crater, and the petroglyphs were the only traces of human presence. A plug stuck out of the 3,000-foot shaft the bomb had been dropped down, a ten-foot-wide cylinder. I went up to it to read the little plaque, set at eye level, which said "Operation Faultless." And then I turned and went home. ■

REBECCA SOLNIT *is an art critic, essayist, and environmental activist based in San Francisco.*

▸*For more information, see "Resources," p. 124*

REVIEWS

THOMAS J. LYON

Winter: Notes From Montana
by Rick Bass
Houghton Mifflin
$18.95

Winter: Notes From Montana offers good evidence that the Yaak country in northwestern Montana has, in John Muir's phrase, "grown into" Rick Bass. A Texan who went to college in Utah, Bass then took a job in Mississippi, only to find that the summons of the mountains had become insistent. When the settling urge came to him, his compass pointed wild and north. He and his friend (now wife) Elizabeth determined, after much searching, that the Yaak River Valley was right. *Winter* tells the story of slowing down, learning the ropes, committing.

At first came almost a frenzy of preparation: Winter on the Yaak is serious, and the couple had arrived late (in September). By February much wood had been chainsawed and split, and certain lessons about backup parts for the generator, battery charger for the truck, and water-pipe technique had been learned. But the real beauty of this book is in how Bass, who at first saw the landscape as an obstacle to be overcome, grew to a more native acceptance and accommodation, and simultaneously experienced the opening up of a great joy. On a February night, the couple returned from Libby, a 45-mile trip, an expedition of some scale on a snowy evening. "Wiser souls would've stayed in town," but the lure of home was strong, so they put on chains and forged ahead, "the cold snowy night pressing in like the greatest friend. . . . We feel like kids: it's night and the world is ours."

There is an irrepressible energy in this book. There are also some huddling and cold hands, some doubt, and some potentially serious mistake-making (Bass seems to be a truth-teller of a writer), but the main sense is of engagement. Bass writes with the zest of coming into a country and finding it wild enough to inspire the best he can give it, the best he can live.

Refuge: An Unnatural History of Family and Place
by Terry Tempest Williams
Pantheon
$21

Terry Tempest Williams' locus is the enormously wide, very nearly flat basin that holds the Great Salt Lake; in particular, the marshy country on the lake's northeast arm, where lies the Bear River Migratory Bird Refuge. The refuge opened Williams' eyes to the thronging abundance of life and, in some quiet, inner fashion, set a standard for the way the world ought to be. It became a continuing revelation: Much of *Refuge* delivers classic natural history, showing the author's investment in a particular terrain, and her pleasure in learning its ways.

But in the middle 1980s, after several unusually heavy winters and much runoff from the mountains to the east, the Great Salt Lake began to rise, overtopping the dikes at Bear River Refuge, drowning the productive, carefully managed marshlands. This was, for Williams, the dismantling of the great, good place.

At the same time, the author's mother was diagnosed with cancer. And here an already interesting book rises to a new level, becoming a dramatic narrative of two parallel encounters with natural process. Williams' mother's slow, downward slide took on a certain inevitable convergence with the events at Bear River. The author's universe had become both tenuous and intense—she had been given a trial in the meaning and reliability of the scheme of things.

River of Traps: A Village Life
by William deBuys and Alex Harris
University of New Mexico Press
$19.95

William deBuys and Alex Harris, just out of college in 1972, gravitated (like many others) to northern New Mexico, long famous for its landscape's mystique. Perhaps, like D. H. Lawrence, who came there in 1923, they were magnetized by the area's lingering image of spiritual and natural wholeness. They looked for land in the high, remote Trampas River drainage. Despite a realtor's warning that they would get their "ass peeled" in the Hispanic villages there, they held to the dream, got a house, fit in with the neighbors, and began to learn how to irrigate.

River of Traps tells that story, and describes their elderly neighbor, Jacobo, their mentor in the life of the rural village, whose approach to life is utterly pragmatic, labor-intensive, and nearly cash-free. In deBuys' humorous, compassionate, and clear prose, and Harris' engrossing photographs, there is evidence that Jacobo taught these men a simple wisdom, something from an older time.

But *River of Traps* doesn't indulge in folk nostalgia. In the time of Jacobo's youth, after all, the hills around the village were thoroughly sheep- and goat-blasted, and each family had (seemingly) as many children as it could. Things are easier now, after the outmigration that had to happen once the kids became adults—the land is coming back. Through it all, Jacobo stays in place, his values and his way of life rock-steady.

Living by Water: Essays on Life, Land, and Spirit
by Brenda Peterson
Alaska Northwest Books
$15.95

Brenda Peterson's *Living by Water* is also about getting close to a place and accepting its terms. In her case the chosen locality is dominated by a body of water, Puget Sound, and thus the necessary adjustment is toward fluidity, openness, and change. Her property grows or shrinks according to the tides; on windy nights, her house (and her bed with it) rocks to the "waves of air"; the same wind off the water, during the day, rattles her upstairs study. The "by" in her book's title means both "adjacent to" and "according to"—her theme is the need to harmonize with the elemental, with the wildness and flow of things. This requires a widening of perception and feeling that can make our usual, sheltered intelligence seem paltry.

In the collection's final essay, Peterson ventures a broad-gauge recommendation: "To be supported daily by so yielding and yet strong a force as water perhaps lends the Northwest some natural grace that we would do well to consciously imitate"—a simple, curative suggestion.

The Unforeseen Wilderness: Kentucky's Red River Gorge
by Wendell Berry
photographs by Ralph Eugene Meatyard
North Point Press
$19.95

Originally published in 1971, revised and expanded now, *The Unforeseen Wilderness* offers two of Wendell Berry's dimensions, the prophetic-agrarian and the contemplative, at their harmonious best. He is fighting a proposed dam on the Red River of Kentucky here, specifically, but as he brings to bear his own experience of the threatened river, and adds analysis of the greed and unconsciousness underlying so much of "progress," his thought opens out to the way we live in the world.

Berry has the knack of vivifying the topography of a place, the texture of its

light and shade, the feel of its air. His images of the landscape have the simplicity and directness of experience. Berry's themes of humility before the creation and the consequent sense of life as a process of discovery are grounded in such images. His recommendations, in both the personal and public-policy spheres, thus come across as earned, concrete, and right, not merely cerebral or righteous.

BRIEFLY NOTED

Each generation has its own idea of how to enjoy the outdoors. That's a central proposition of ***The Tourist in Yosemite, 1855–1985*** (University of Utah Press; $19.95) by Stanford E. Demars. Not all approaches to park enjoyment have been benign: During the Gilded Age of the late 19th century, for example, fashionable tourists tended to be imperious and condescending toward hired trail guides, and were "scathingly racist" toward Yosemite's Indians. In the late 1960s and early '70s, "noisily vulgar marijuana smokers" turned the valley into a conflict zone between establishment types and flower children. Even so, Demars concludes, the National Park Service's dual mandate—to conserve the parks *and* to provide for their enjoyment—is a good and necessary one. . . . Hans Huth's 1957 classic ***Nature and the American*** examined three centuries of changing attitudes toward the land—the basic notions that led to the conservation movement in the United States. The book has been reissued by the University of Nebraska Press ($9.95, paper) with a new introduction by historian Douglas H. Strong. . . . Geographer Lary M. Dilsaver and historian William C. Tweed tell how Sequoia and Kings Canyon national parks were established, how developers tried to take over portions of them, and how conservationists warded off those threats in ***Challenge of the Big Trees*** (Sequoia Natural History Association, available from the University of Arizona Press; $24.95). . . . To discover the historical and social roots of modern ecological problems in Africa, peruse the new paperback edition of journalist Peter Forbath's ***The River Congo*** (Houghton Mifflin; $10.95). Written in 1977, the book remains a useful account of the European conquest of equatorial Africa. While the tone is mostly dispassionate and the author is respectful of European explorers' accomplishments, the tale becomes a horror story as the brutality of the conquest and its destructive aftermath are made clear. . . . A modern replay of 18th- and 19th-century plundering of Native American lands is occurring in Canada. Journalist Boyce Richardson tells the story in an updated version of ***Strangers Devour the Land*** (Chelsea Green; $14.95, paper), first published in 1976. The book describes Quebec Premier Robert Bourassa's obsessive drive to build hydroelectric dams throughout the vast James Bay wilderness in the northern part of the province, thereby flooding much of the land and driving away many Cree Indians. The fight to halt the project continues to occupy Sierra Club activists in the U.S. as well as in Canada, since the scheme looks to profit from the sale of power to utilities in the Northeast.—***Mark Mardon***

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- ***Our National Parks*** by John Muir. Ten essays, illustrated with wood engravings ($10, paper).
- ***Wasting Away*** by Kevin Lynch. A look at our throwaway culture ($25).
- ***Chemical Deception*** by Marc Lappé. Insight into society's toxics dependence ($25).
- ***The Vermillion Parrot*** by David Rains Wallace. A wild detective fantasy ($18).

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AFIELD

"Good Going," page 25

For a taste of wild Jamaica, contact Sense Adventures, Box 216, Kingston 7, Jamaica, W.I., or call Peter Bentley at (809) 927-2097.

For more general information write to the Jamaica Tourist Board, Tourism Centre Building, 21 Dominica Dr., Kingston 5, Jamaica, W.I., or call one of their regional offices in New York City, Chicago, Dallas, Los Angeles, Miami, Toronto, or Montreal.

"Hearth & Home," page 27

Worms Eat My Garbage by Mary Appelhof (Flower Press, 10332 Shaver Road, Kalamazoo, MI 49002). The bible of worm composting.

Rodale Guide to Composting by Jerry Minnich and Marjorie Hunt (Rodale Press, 1979). Indispensable.

The Earthworm Book by Jerry Minnich (Rodale Press, 1977). Contains a good chapter on vermicomposting.

The Simple Art of Home Composting, $3 from the Ecology Action Center, P.O. Box 118, Santa Cruz, CA 95061.

The Formation of Vegetable Mould Through the Action of Worms, With Observations on Their Habits by Charles Darwin, 1881 (reprinted by the University of Chicago Press, 1985). For those who like to start at the beginning.

To get your hands on the worms themselves, write or call Flowerfield Enterprises, 10332 Shaver Road, Kalamazoo, MI 49002, (616) 327-0108; Gardener's Supply Company, 128 Interstate Road, Burlington, VT 05401 (they also sell prefab worm composters); or The Earthworm Company of Santa Rosa (California), (707) 539-6335.

"As It Happened," page 28

The History of the Sierra Club 1892–1970 by Michael P. Cohen (Sierra Club Books, 1988).

The Sierra Club: 100 Years of Protecting Nature by Tom Turner (Harry Abrams, 1991).

DEPARTMENTS

PRIORITIES

Wolves, page 32

Wolves by Candace Savage (Sierra Club Books, 1990). A lavishly illustrated work of natural history.

Montana Wolf Recovery, an occasional newsletter from the U.S. Fish and Wildlife Service in Montana, is available from Ed Bangs, USFWS, 301 S. Park, Box 10023, Helena, MT 59626.

Utilities, page 36

► Add your name to the list of activists who receive energy alerts. Write to the Energy Campaign Desk, Sierra Club, 730 Polk St., San Francisco, CA 94109.

An Energy Efficiency Blueprint for California is available free from Barakat & Chamberlin, 180 Grand Ave., Suite 1090, Oakland, CA 94612.

Highway Funding, page 38

► Sierra Club Urban Environment Committee: phone Sue Edwards at (301) 757-3362.

► Sierra Club Transportation subcommittee: phone John Holtzclaw at (415) 776-2211.

Transit Now, 1317 F St., Washington, DC 20004; phone (202) 638-0215.

PLACE SETTING

New York City, page 46

The Urban Naturalist by Steven Garber (John Wiley & Sons, 1987). A field guide to the natural history of urban areas.

Urban Wilderness: Nature in New York City by Jean Gardner (Earth Environmental Group, 1988).

The New York Environment Book by Eric Goldstein and Mark Izeman (Island Press, 1990). Nearly everything there is to be said about the subject.

► New York City Group, Sierra Club, 625 Broadway, 2nd Floor, New York, NY 10012; phone (212) 473-7841.

► Atlantic Chapter Regional Outings Committee, Sierra Club, P.O. Box 880, Planetarium Station, New York, NY 10024; phone (718) 370-2096.

FEATURES

Northeast Forests, page 54

The Sierra Club Guide to the Natural Areas of New England by John Perry and Jane Greverus Perry (Sierra Club Books, 1990). Covers state and national parks, forests and wildlife preserves, and lands in the public domain.

Asbestos, page 62

Outrageous Misconduct: The Asbestos Industry on Trial by Paul Brodeur (Pantheon, 1986). Classic account of the asbestos coverup.

Asbestos: Medical and Legal Aspects (3rd edition) by Barry I. Castleman (Prentice Hall, 1990). The definitive textbook.

"Asbestos: Scientific Developments and Implications for Public Policy" by B.T. Mossman, J. Bignon, et al., *Science*, January 19, 1990.

Breath Taken, Bill Ravanesi's photographic exhibit on the ravages of asbestos, will be on display during November at the Walters Gallery of Rutgers University, and February 14–April 17, 1992, at the Museo Italo Americano in San Francisco. For a catalog of the exhibit, which includes essays by Paul Brodeur, Barry Castleman, and others, send $25 to the Center for Visual Arts in the Public Interest, 348 Congress St., Boston, MA 02210. *Breath Taken: The Video* is available from Fanlight Productions, 47 Halifax St., Boston, MA 02130; phone (617) 524-0980.

White Lung Association, P.O. Box 1483, Baltimore, MD 21203-1483; phone (301) 243-5864. A national, nonprofit organization for asbestos victims, their families, and people exposed to asbestos.

Asbestos Victims of America, P.O. Box 559, Capitola, CA 95010; phone

Continued on page 128

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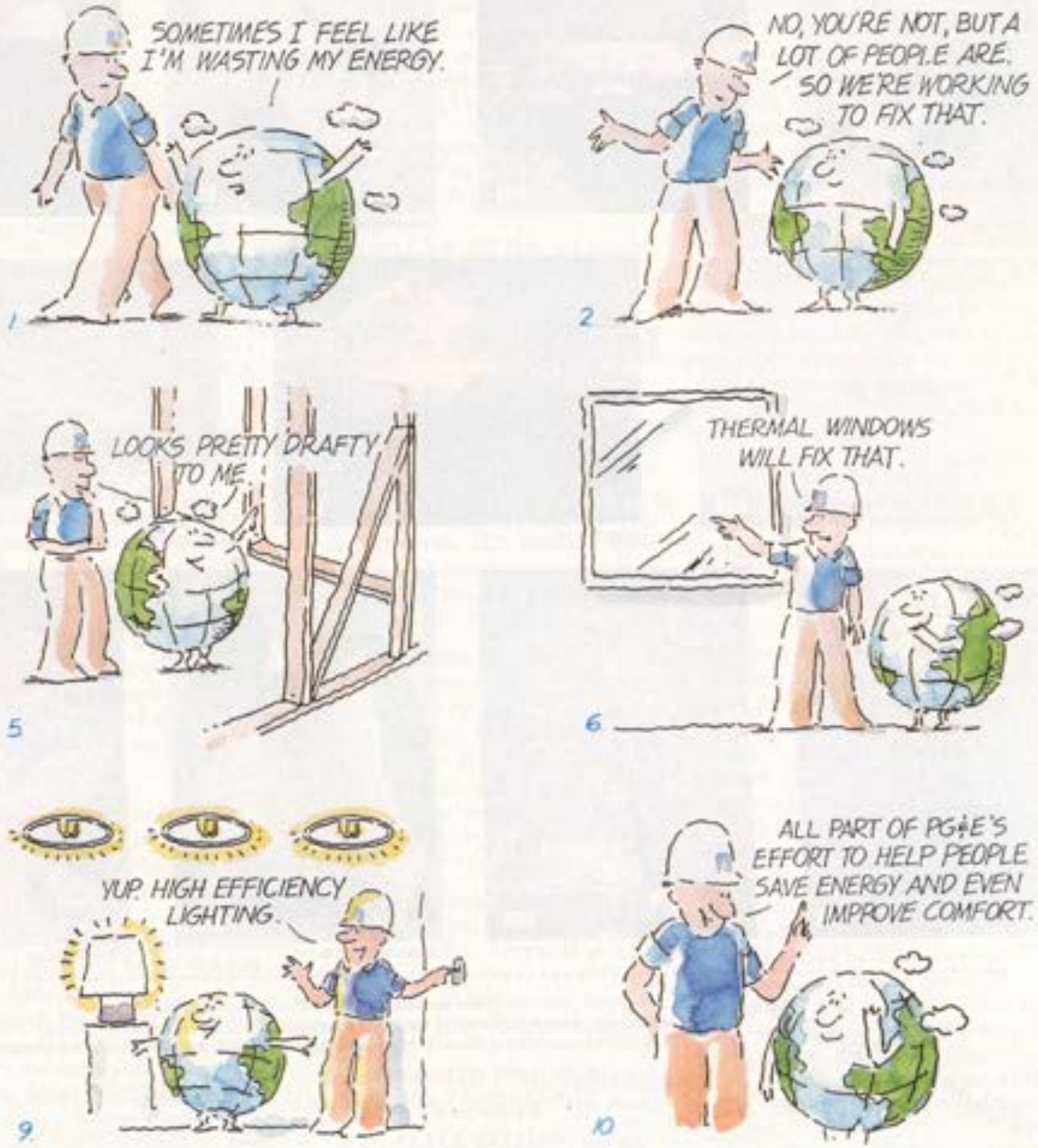

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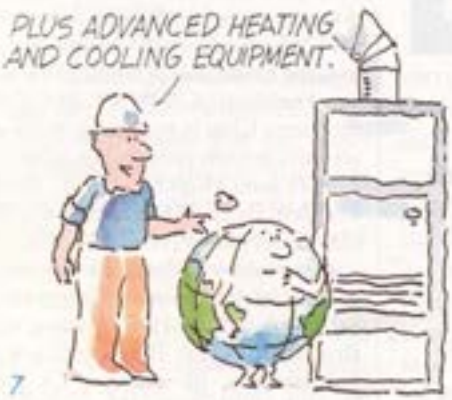

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Continued from page 124

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Asbestos Institute, 1130 Sherbrooke St. West, Suite 410, Montreal, Quebec, Canada H3A 2M8. Promotes the "controlled use" of asbestos.

Biodiversity, page 80

▶ Write to your representatives. In the House, urge them to support two biodiversity bills: H.R. 585, introduced by James Scheuer (D-N.Y.), and H.R. 2082, introduced by Gerry Studds (D-Mass.). In the Senate, urge support of S.58, initiated by Daniel Patrick Moynihan (D-N.Y.). All three bills call for greater coordination of federal, state, and private efforts to protect species. Each would establish a research center charged with drafting a national strategy for protecting biodiversity. The Scheuer and Moynihan bills would make biodiversity conservation a national goal by adding it to federal agencies' mandates.

▶ Sign on with Sierra Club volunteers in your area who have already begun biodiversity projects. To add your name to the Club's biodiversity mailing list, write to Gene Coan, Sierra Club, 730 Polk St., San Francisco, CA 94109. In California the Sierra Club is recruiting biodiversity activists in each county. For information contact John Hopkins, Chair, Biodiversity Task Force, 409 Jardin Place, Davis, CA 95616; phone (916) 756-6455.

Conservation Biology: The Journal of the Society for Conservation Biology is published quarterly. For information, write to Brenda Twersky, Blackwell Scientific Publications, Inc., Three Cambridge Center, Suite 208, Cambridge, MA 02142.

Extinction: The Causes and Consequences of the Disappearance of Species by Paul and Anne Ehrlich (Random House, 1981).

Conservation Biology: The Science of Scarcity and Diversity by Michael Soulé (Sinauer Associates, 1986).

Biodiversity, edited by E. O. Wilson (National Academy Press, 1988). A collection of illuminating essays.

Nevada Test Site, page 90

▶ Sierra Club Military Impacts on the Environment Committee, c/o Madge Strong, 4415 View St., Oakland, CA 94611.

Citizen Alert, Box 5391, Reno, NV 89513.

American Peace Test, P.O. Box 26725, Las Vegas, NV 89126; phone (702) 386-9824.

Bravo 20: The Bombing of the American West by Richard Misrach and Myriam W. Misrach (Johns Hopkins Press, 1990). ■

The Sierra Club's 100th anniversary celebration is now under way. A new 52-page booklet, *100 Sierra Club Environmental Heroes*, profiles a cross section of grassroots activists from all over North America, in acknowledgment of the distinctive spirit that characterizes the Club. The individuals cited have dedicated themselves to a broad spectrum of issues, including desert protection, toxic-waste disposal, mining-law reform, and wilderness preservation.

Copies of *100 Heroes* are $2.50 each for Sierra Club members ($5 for nonmembers) from Sierra Club, Dept. SA, P.O. Box 7959, San Francisco, CA 94120. Include $1.75 per order for postage and handling.

A collection of 33 historic images from the Sierra Club's William E. Colby Memorial Library and the Ansel Adams Publishing Rights Trust has been assembled to commemorate the Sierra Club's Centennial and to honor its first president, John Muir. Prints from the album are available for purchase; subjects range from Muir and early Club outings to panoramic vistas of Yosemite Valley (below) and the Sierra Nevada.

For a brochure describing how to order from the Sierra Club Centennial Photograph Album, send $1 to Sierra Club, Dept. SA, P.O. Box 7959, San Francisco, CA 94120.

Network Earth, Turner Broadcasting's weekly environmental magazine series, has teamed up with the Sierra Club to offer the Network Earth Computer Forum, an interactive computer link. Any viewer with a personal computer and a modem can log onto the forum via the CompuServe Information Service in order to question *Network Earth* staff about the shows they air, exchange comments with other viewers by means of an electronic bulletin board, and communicate "live" with environmental experts during regularly scheduled conferences. Thanks to information provided to the forum by Sierra Club staff and volunteers, users will be able to obtain updates on pressing environmental legislation.

For information about accessing the Network Earth Computer Forum, call CompuServe at 1-800-848-8199. Mention *Network Earth* for a free introductory membership and an hour of free time on the system. ■

Reed McManus

All in a Day's Walk

A hike is simplicity itself. Unencumbered by responsibilities or a heavy load, you head off for an afternoon or a day. Soon your mind falls in behind the cadence of your stride, and all is well. That is, until a muscle or two begins to ache and you start to consider the potential perils of being truly on your own: thirst, hunger, cold, wet, darkness, losing your way, and even injury.

It's enough to scare you into carrying gear for every conceivable emergency—an approach that is certain to take the joy out of walking. You sweat more, ache more, tire faster. But there is a happy compromise that enables a walker to feel comfortably safe and comfortably unburdened.

Think small. Instead of filling your daypack until you can fill it no more, take only the essentials: map, compass, watch, first-aid kit, knife, flashlight, matches, firestarter (such as a fire ribbon), whistle, sunglasses, sunscreen, toilet paper, extra clothing, food, and water. Pack the small items in a nylon bag and match them to a checklist before heading out.

If you don't know how to use your equipment, it will be dead weight no matter how light it is. Good map-reading and compass skills will keep you on track, and they're essential if you head off-trail. Use current topographical maps to plan your route, and refer to them on the trail. If you're traveling through unfamiliar terrain, consult guidebooks or local authorities unless your reckoning skills are top-notch. Even with limited compass aptitude, you can take a bearing and orient your map. And leave word of your route with someone, especially if you're traveling alone. Know the weather patterns for the area you'll be hiking, and get an update locally before setting out. Be willing to head back if the weather turns ominous or the hike becomes too arduous.

You can fudge a bit on first-aid skills. With a good set of instructions, in a pinch you can learn how to treat some previously unfamiliar trailside problems. At a minimum, though, know how to deal with blisters, cuts, scratches, and sprains, and how to avoid overexertion, hypothermia, and altitude sickness. A dayhiker should carry moleskin and a needle for blisters, bandages (adhesive and elastic), gauze and adhesive tape, aspirin, antibiotic ointment, and tweezers. Add to this, depending on your health and location, a

Get out and enjoy the sun, trees, and sky. But don't forget about the cold, rain, and snow.

▲ ▲ ▲

snakebite kit, insect repellent, and allergy medicine.

Your risk of becoming a pack rat is greatest when loading up on food, water, and clothing. You don't want to deprive your body of nourishment when it's on the march, and there's great pleasure in unveiling a picnic miles from anywhere. But you can trim ounces and bulk by packing high-energy edibles and avoiding extraneous packaging. As for water, there's hardly a place left where you can dip a Sierra Club cup into a stream without the risk of ladling up *Giardia lamblia*. You can carry all the water you think you'll need (at two pounds per quart), treat trailside sources with iodine tablets (and put up with the nasty taste they produce), or tote along a compact filter (and tolerate its bulk).

Clothing always threatens to overflow your pack. Because inclement weather often appears on short notice, you need to be prepared for cold, wet, and wind. A nagging survival instinct may tell you to bring everything—hat, sweater, parka, rain gear, long pants, long underwear, extra socks—but that will leave you slogging along like a backpacker. Packing for bad weather on a summer hike is not the same as packing for a multiple-day trip. If you know *for sure* that you can get back to your car, basecamp, or house even in darkness or rain, pack light. You can hunker down to weather an afternoon storm wearing a poncho, sweater, and shorts. You won't be lolling in luxury, but you'll be dry. (Scratch this if you're in an area where temperatures can plummet; there you must be prepared for the worst.)

Walking light is a luxury. As long as you've got the gear and skills to stay safe, the work you put into paring down your equipment will pay off: You'll cover more ground with less effort. But your discipline can also have the opposite effect. Those now-empty spaces in your pack may beckon you to splurge on trail luxuries such as fishing gear, a field guide, binoculars, a novel, or a kite. The choice is yours; either way, you'll be prepared for the unpredictable. ■

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WOULD YOU EVER BREAK THE LAW IN SUPPORT OF AN ENVIRONMENTAL GOAL? UNDER WHAT CIRCUMSTANCES?

Yes, I would, I have, and I will again. When I'm concerned about an environmental issue, I write letters (lots of them), attend hearings and rallies, support boycotts, and vote. If I have exhausted my legal options, I believe that civil resistance is the most effective form of action. Wearing buttons and Earth Day T-shirts is not enough. We have to walk our talk and be willing to take risks. As I tell my opponents, we environmentalists may be a pain in the neck to live with, but we make great ancestors.
C. R., Washington

Only under extreme circumstances, when human lives or well-being are at stake, would I feel justified in breaking the law. I would not do it to save the spotted owl or protect the Arctic National Wildlife Refuge. I might do it to protect children from lead poisoning.
J. K., Connecticut

I would break the law if the goal involved the protection of animals.
J. R., New Hampshire

The ends never justify the means. This is a country based on law, not emotionally charged, elite environmentalism.
G. W. C., Massachusetts

There are times when a person is not only justified in violating the law, but morally obligated to do so. The United States for the last ten years has been governed by administrations that have been both overtly and covertly hostile to environmental protection and wilderness preservation. The first line of defense for those opposed to such destructive policies is, of course, legal action. However, as Reagan-Bush appointees come to dominate the federal judiciary, that recourse may become inadequate. The choice could be to surrender or to fight, be it by a form of passive resistance or by active monkeywrenching with the Earth First! forces.
R. A. W., Texas

When we accept the premise that we can break the law to suit our purposes, we give up the "moral high ground" in our society. It doesn't matter whether we are "right" or "wrong." Witness the backlash against Earth First! for their unlawful tactics. They've done more harm to the environmental cause by turning away potential supporters than they can ever offset with their small victories.
T. F. S., California

Nonviolent civil disobedience has a long and proud tradition—Thoreau, Gandhi, and Martin Luther King were the inspiration for movements that brought down the regimes of Eastern Europe and almost did the same for China. An act of civil disobedience is the last resort of the individual when the government no longer listens. Whether it involves one person sitting in front of a bulldozer or millions marching through the streets, it forces the government and the world to acknowledge their existence.
T. K., California

Civil disobedience is usually a flash in the pan.
M. S., Pennsylvania

Without civil disobedience, Jim Crow would be alive and well, and civil rights would be an unfulfilled dream.
J. W., New Mexico

We who care about this planet and its creatures have been manipulated, lied to, patronized, threatened, and physically assaulted by bureaucrats, industry leaders, and elected officials—so yes, I will nonviolently defend the Earth that sustains us all and I will speak for the voiceless.
M. H., New Jersey

Of course! There is a higher law that governs the universe and the natural systems inside it. That is the law to be obeyed. Civil disobedience and monkeywrenching are acceptable. These methods have been called radical. I consider the unchecked destruction of a delicate ecosystem that supports so many to be radical. Hell, I'm a conservative.
J. B., Ohio

I would like to believe that if it became untenable to obey the law, I would not do so. But I don't think that my children could understand that Mommy was in jail because the "bad guys" had to be stopped. What they would see was that Mommy was not with them. So at this point in my life I couldn't violate the law because of these prior living commitments to which I owe myself.
M. W. B., Virginia

Having worked within the court system for 17 years as a probation officer, I'm well aware of the risks involved in violating laws. There are expenses and inconveniences which I would not be prepared to undertake at this point. However, if I believed that the lives of my family and friends were in jeopardy due to an environmental problem, I might violate the law if all other means of getting attention or assistance were exhausted.
C. F., Ohio

Based on my present surroundings, I would have to think very hard before jeopardizing my freedom in support of an environmental goal. I am writing to you from an 8' × 12' jail cell, my home for the last ten months. Though my crime bears no connection to an environmental cause, I can attest to the fact that being in jail is no "day in the park." I've come to a new understanding of the value of freedom and I cannot see putting myself through this again for any reason. I feel very strongly about the environment and I plan to make a career in fighting for it, though I'll stick to lobbying for change through legal means.
E. P., New Jersey

I would not break the law. I can't think of any way to bring the environmental movement into disrepute quicker.
R. F. J., Michigan

FOR NEXT TIME...

CAN YOU BE A MEAT-EATER AND CONSIDER YOURSELF AN ENVIRONMENTALIST?

Send your pithy responses to "Last Words," *Sierra*, 730 Polk St., San Francisco, CA 94109

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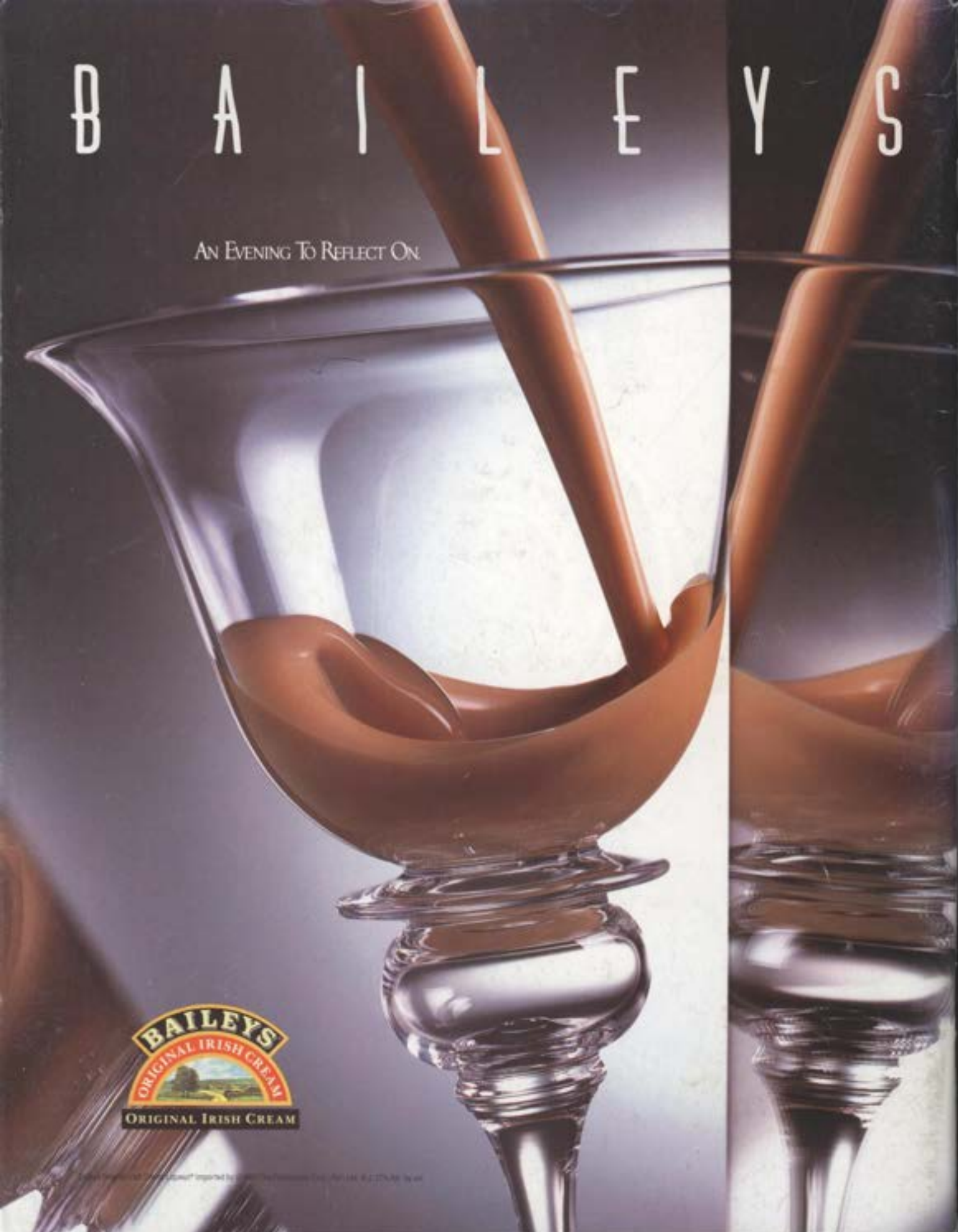
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