URBAN KAYAKING • SPRING 1994 SIERRA CLUB OUTINGS

SIERRA

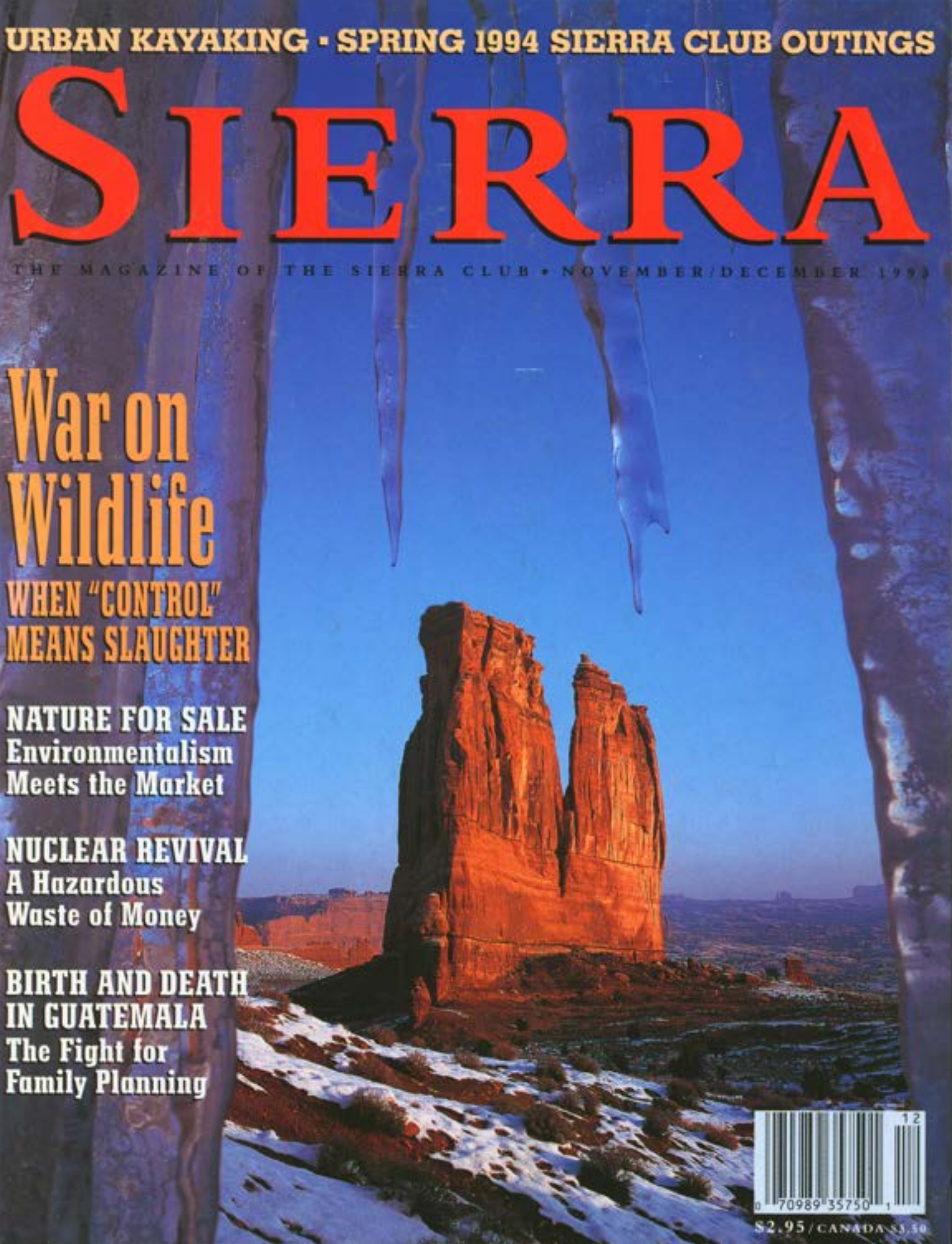
THE MAGAZINE OF THE SIERRA CLUB • NOVEMBER/DECEMBER 1993

War on Wildlife
WHEN "CONTROL" MEANS SLAUGHTER

NATURE FOR SALE
Environmentalism Meets the Market

NUCLEAR REVIVAL
A Hazardous Waste of Money

BIRTH AND DEATH IN GUATEMALA
The Fight for Family Planning



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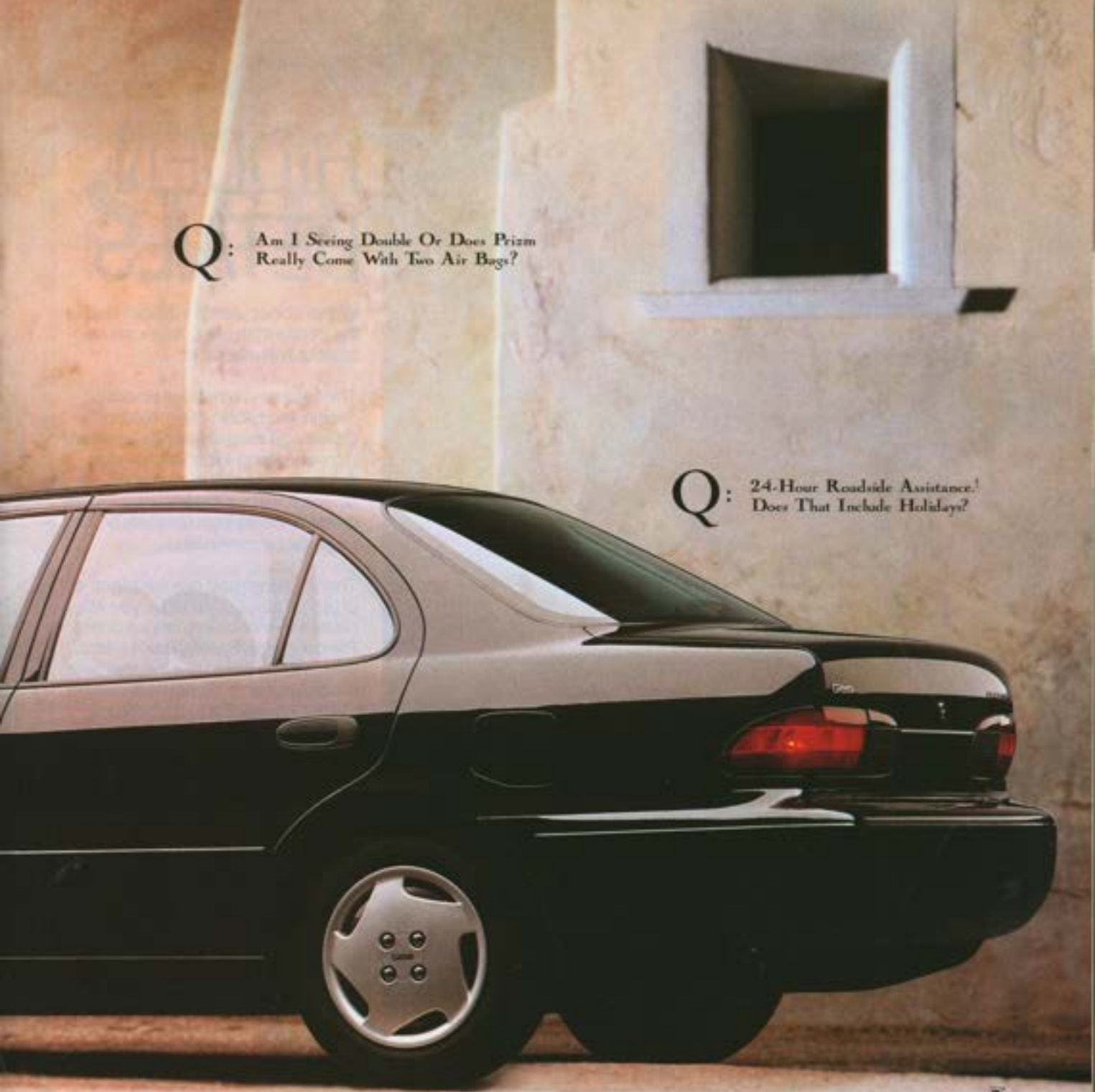

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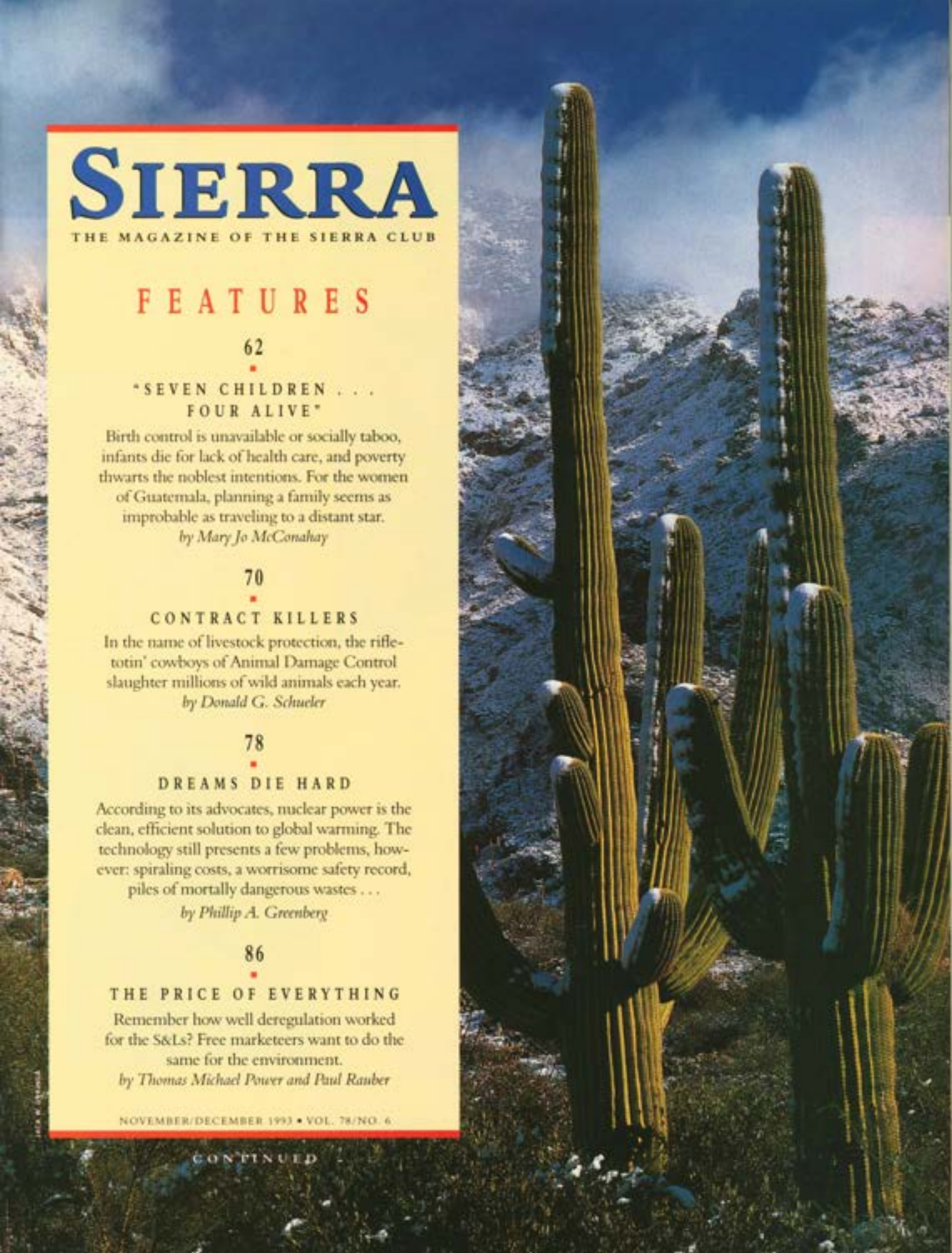

SIERRA

THE MAGAZINE OF THE SIERRA CLUB

FEATURES

NOVEMBER/DECEMBER 1993 • VOL. 78/NO. 6

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SIERRA

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AFIELD

DEPARTMENTS

COVER
"The Organ" at sunrise, Arches National Park, Utah.
Photo by Jack W. Dykinga

Free trade?, page 36

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WRITE *on the* WILD SIDE

SIERRA'S SIXTH ANNUAL NATURE-WRITING CONTEST

SIERRA welcomes your essay on any aspect of the natural world.
We will select up to three winning essays for publication in our July/August 1994 issue.

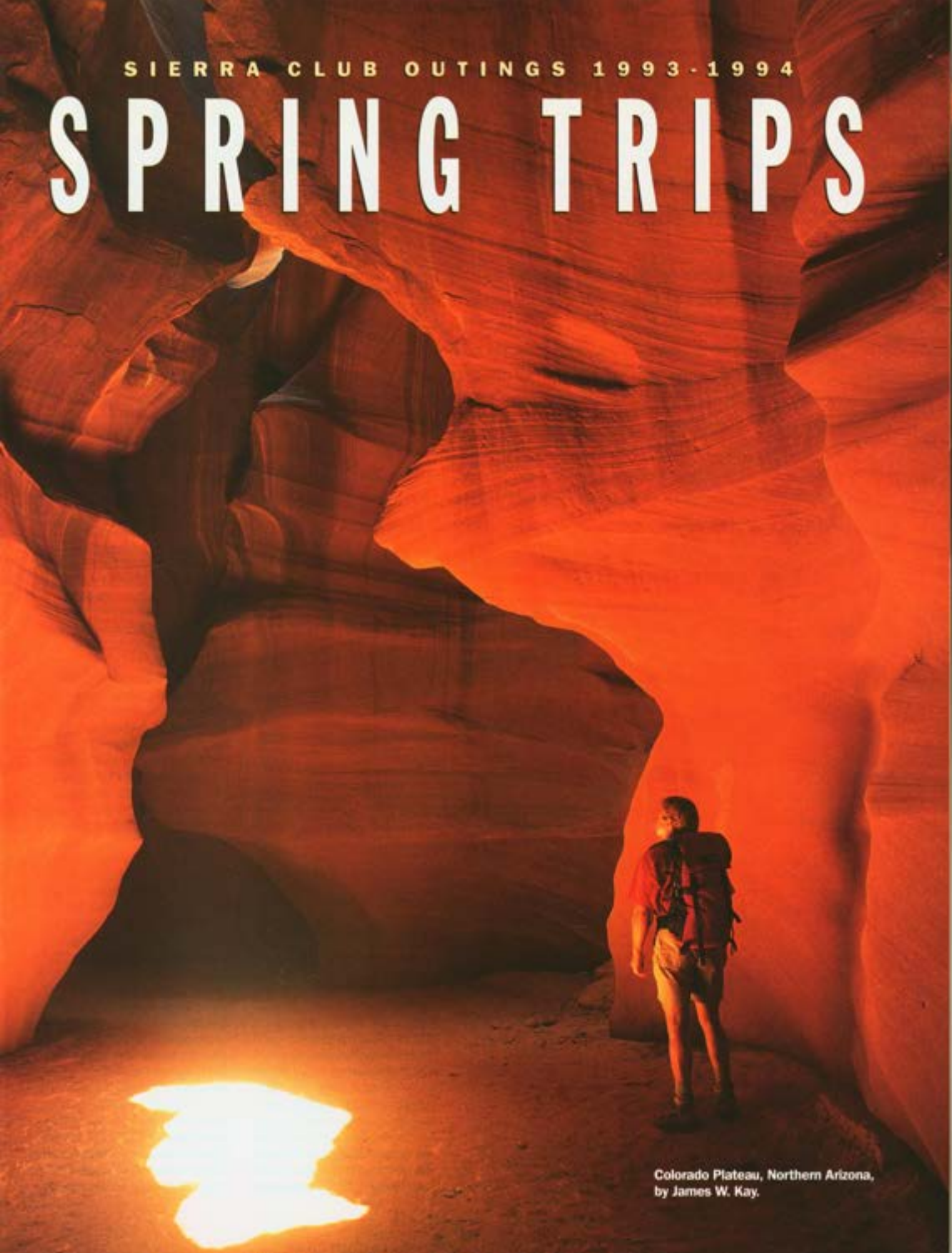
Each writer may submit only one manuscript. Essays must be limited to 2,000 words (approximately eight double-spaced pages). Handwritten or single-spaced manuscripts will not be considered. No poetry, fiction, previously published materials, or accompanying photographs, please.

Send your submission to *Sierra* Nature-Writing Contest, 730 Polk Street, San Francisco, CA 94109. Entries must be postmarked by February 1, 1994. Be sure to include a stamped, self-addressed postcard if you wish receipt of your manuscript to be acknowledged, and an SASE (with appropriate postage) if you wish your manuscript returned. We will not notify non-winning entrants of the results unless we have an SASE.

The contest is open to all professional and amateur writers except Sierra Club staff and their immediate families, and previous winners of this competition. Void where prohibited.

SIERRA CLUB OUTINGS 1993-1994

SPRING TRIPS



Colorado Plateau, Northern Arizona,
by James W. Kay.

SIERRA CLUB OUTINGS 1994

SPRING TRIPS

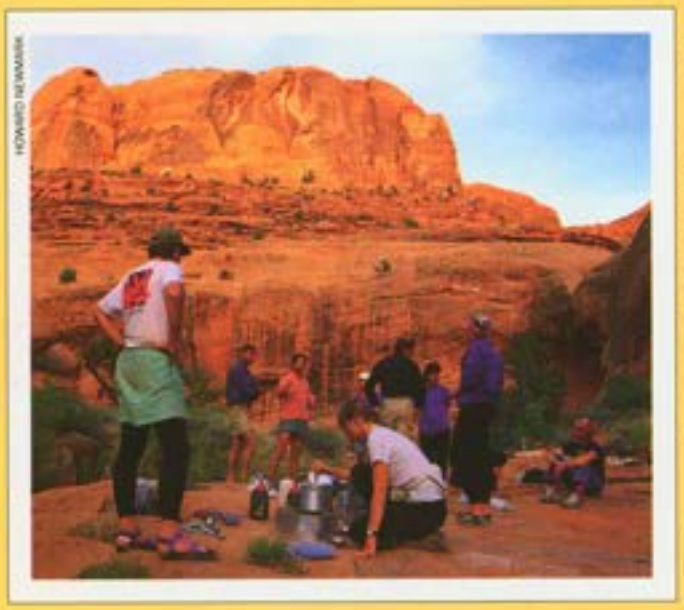
JERRY HAGER/ALPINE IMAGES

You don't have to wait till summer to enjoy the recreational offerings and natural bounty of the wilderness. This winter and spring, join our experienced volunteer leaders and fellow Sierra Club members on an outdoor adventure. ✷ There are over 70 trips to choose from, offering everything from the delights of cross-country skiing to the marvel of desert wildflowers and the rewards of springtime trail maintenance. Look over the brief descriptions that follow—you're sure to find something to get your year off to a good start. ✷ Before you sign up for a trip, please read the detailed brochure for the trip you're interested in, and the Reservation & Cancellation Policy. See page 24 for information on how to order trip brochures. The Reservation & Cancellation Policy appears on pages 24 and 25. ✷ Please note that all trips occur in 1994 unless otherwise indicated. Leader approval is required on all trips. ✷ A complete listing of our 1994 trips will appear in the January/February issue of *Sierra*. ✷ Questions? Call (415)923-5630.

BACKPACK

Backpack trips vary in length and difficulty. We have divided them into five categories: Light (L) trips cover up to 35 miles in four to five travel days, the remaining days being layovers. Moderate (M) trips may cover longer distances of up to 55 miles and involve more cross-country route-finding. Strenuous (S) trips cover as many as 60 to 70 miles with greater ups and downs and continuous high-elevation travel. Light-Moderate (L-M) and Moderate-Strenuous (M-S) are intermediate ratings. Individual trip brochures explain the ratings in more detail.

The Outing Committee welcomes diversity among its trip participants, and has made a strong effort to offer trips suited to individuals of a wide range of abilities and interests. We encourage all people, regardless of age, gender, race, religion or sexual orientation, to join us in our exploration and enjoyment of the wilderness.



HOWARD MCWILLIAMS

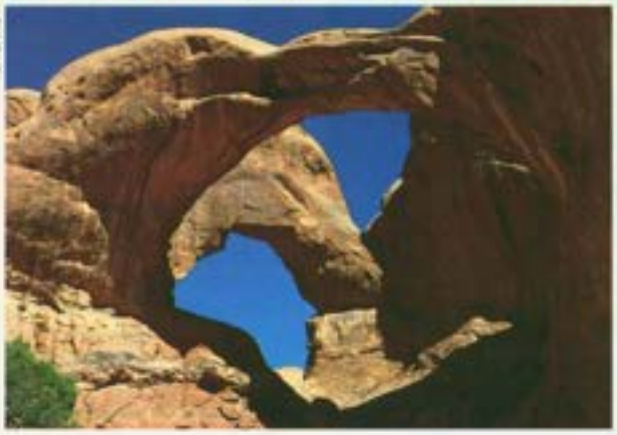
Just Around the Bend, Big Bend, Texas—February 6–14. Warm days, frosty nights, alpine forests, and agave-studded desert terrain are among the many remarkable contrasts found in Big Bend National Park. We begin our 50-mile adventure high in the Chisos Mountains, then descend timeless canyons to the desert floor and the heart of the most isolated and diverse park in the U.S. Food caches will lighten our packs. (Rated M-S) *Leader: Scott Kingham. Price: $450; Dep: $50.* **[94421]**

Superstition Wilderness Trek, Tonto Forest, Arizona—February 20–26. Hiking 50 miles east of Phoenix within the Superstition Mountain range, we'll traverse high Sonoran Desert terrain. Daily hikes will range from six to eight miles over well-marked trails. Famous for the legendary Lost Dutchman Gold Mine, the area provides a wide variety of desert flora and fauna and geological formations. There will be one layover day. (Rated M) *Leader: Jack Thompson. Price: $305; Dep: $50.* **[94031]**

Florida Trail Odyssey, Ocala Forest, Florida—February 27–March 5. Warm your winter-weary bones and escape to Ocala, the southernmost national forest in the continental United States. Our 37-mile hike on the Florida Trail skirts several ponds and grassy prairies ideal for viewing wildlife. We'll spend one layover day at Juniper Springs canoeing its clear, twisting stream lined with lush vegetation. Two food caches will lighten our loads. (Rated L-M) *Leader: Steve Rodney. Price: $375; Dep: $50.* **[94032]**

Castles in the Sky, Kofa Wildlife Refuge, Arizona—March 19–26. Dream beneath fantastic rock "castles" on this 40-mile, late-winter desert adventure. The Castle Dome Mountains, comprised of ancient volcanic rock, define Kofa's southern boundary and showcase the best of Sonoran Desert ecology, including 1,000 bighorn sheep. We'll travel off-trail through this unique moun-

Clockwise from top: California wildflowers; Arches National Park, Utah; Paria River area, northern Arizona; saguaro, brittlebush, and ocotillo, Arizona; Scorpion Gulch, Glen Canyon National Recreation Area, Utah.



tain range to explore and experience one of Arizona's most pristine wilderness areas. Suitable for experienced backpackers. (Rated M-S) *Leader: Scott Kingham. Price: $350; Dep: $50.* **[94033]**

Rainbow Bridge and Navajo Mountain, Arizona and Utah—April 2–9. In the cool high desert of the Navajo Reservation, we'll circle the north flank of 10,388-foot Navajo Mountain, following unmaintained trails through a wonderland of winding sandstone canyons, natural bridges, and domes. Except for a long, demanding first day, our pace will be leisurely, with ample time to enjoy deep pools, photography, and exploration. Vegetarian menu available. (Rated M) *Leader: Terry Gustafson. Price: $415; Dep: $50.* **[94034]**

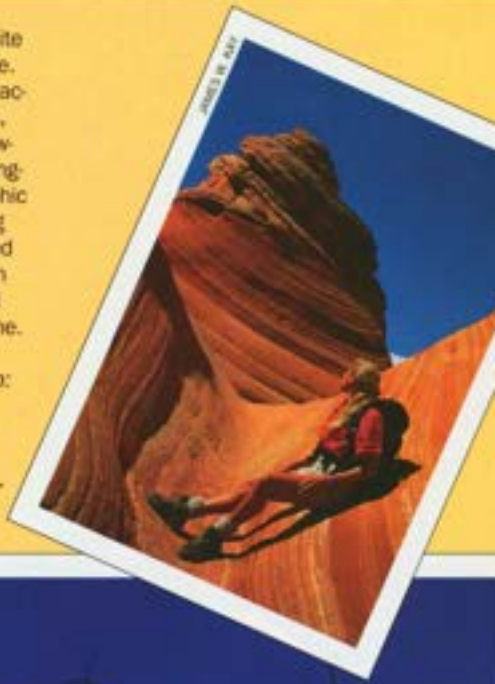
Arizona Trail, Superstition Wilderness, Arizona—April 3–9. Follow the footsteps of Salado Indians, Spanish explorers, and 19th-century ranchers and miners. Our 35-mile route along the Arizona Trail travels through Sonoran Desert, lush riparian canyons, and ponderosa-pine forests. Side trips take us to Indian ruins and an Indian medicine wheel. Four- to nine-mile daily hikes; frequent altitude changes; one layover day. Beginners in good shape welcome. (Rated M) *Leader: Lee A. Kintzel. Price: $390; Dep: $50.* **[94035]**

Anasazi Country, Southeast Utah—April 17–23. Hiking distances of less than six miles a day allow time for exploring. We'll explore the natural and cultural wonders of southeast Utah's Fish, Road, and Owl canyons, and camp in whispering cottonwood or juniper. Wildflowers, wind-carved Cedar Mesa Sandstone, and marvelous Anasazi ruins are all there for our enjoyment. Steep canyon entry and exit raise rating. (Rated L-M) *Leader: Neil Stufflebeam. Price: $405; Dep: $50.* **[94036]**

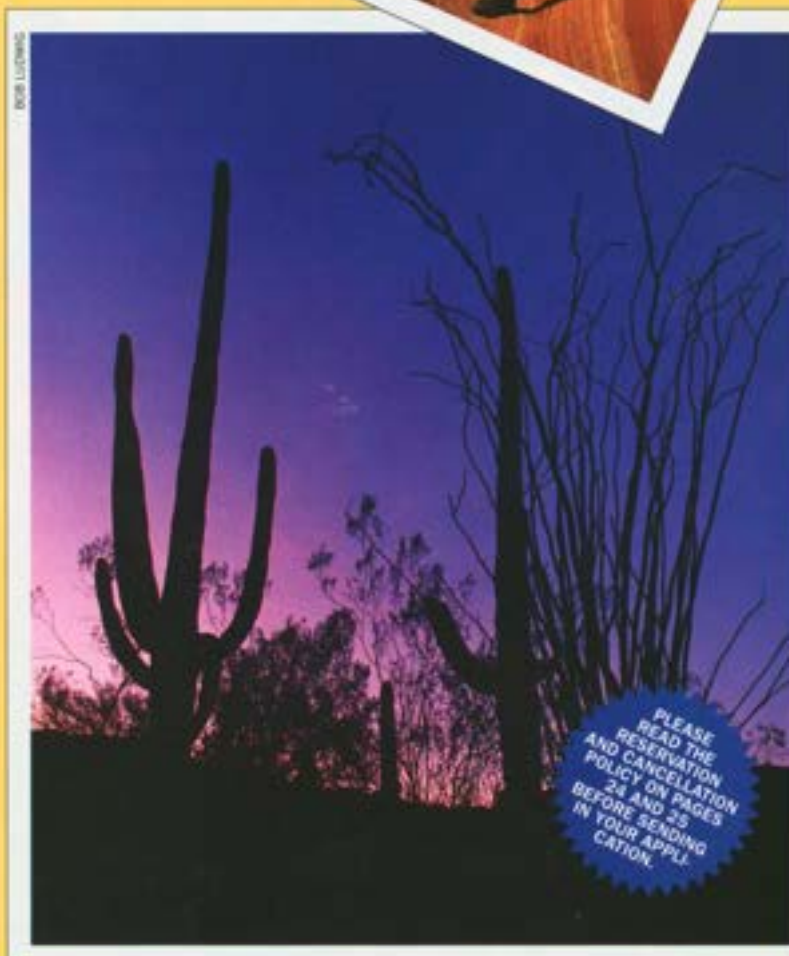
Galiuro Wilderness, Southeastern Arizona—April 17–23. This is real wilderness—rugged, primeval, seldom visited. Following old trails (or going cross-country) we'll hike over dry ridges with brightly colored soils and down into forested canyons with running streams and irresistible pools. In Redfield we'll see lovely wilderness that, thanks to the Nature Conservancy, is cattle-free. No layover days, but plenty of time to explore and enjoy. (Rated M-S) *Leader: Sid Hirsh. Price: $310; Dep: $50.* **[94037]**

Carmel River, Ventana Wilderness, California—April 23–30. On our spring sojourn we'll explore the ridges and rivers of the Big Sur coast country. Camps will either be on high ridges with expansive views or in two river valleys, where wildflowers bloom in abundance. Veteran backpackers and in-shape beginners are welcome. (Rated M) *Leader: Bob Berges. Price: $285; Dep: $50.* **[94038]**

Paria Canyon Wilderness, Arizona—April 23–30. Ooh and ah as you walk and wade through 36 miles of Arizona's exquisite contrasting desert landscape. This wilderness offers spectacular sandstone slot canyons, broad valleys, spring wildflowers, petroglyphs, and challenging side canyons. Photographic opportunities abound—bring plenty of film. Come prepared to enjoy optional side-canyon hikes, two layover days, and highly seasoned ethnic cuisine. (Rated L-M) *Leader: Martin Rosenthal. Price: $355; Dep: $50.* **[94039]**



Canyons and Mesas of the Rainbow Plateau, Arizona—April 24–30. Join the first



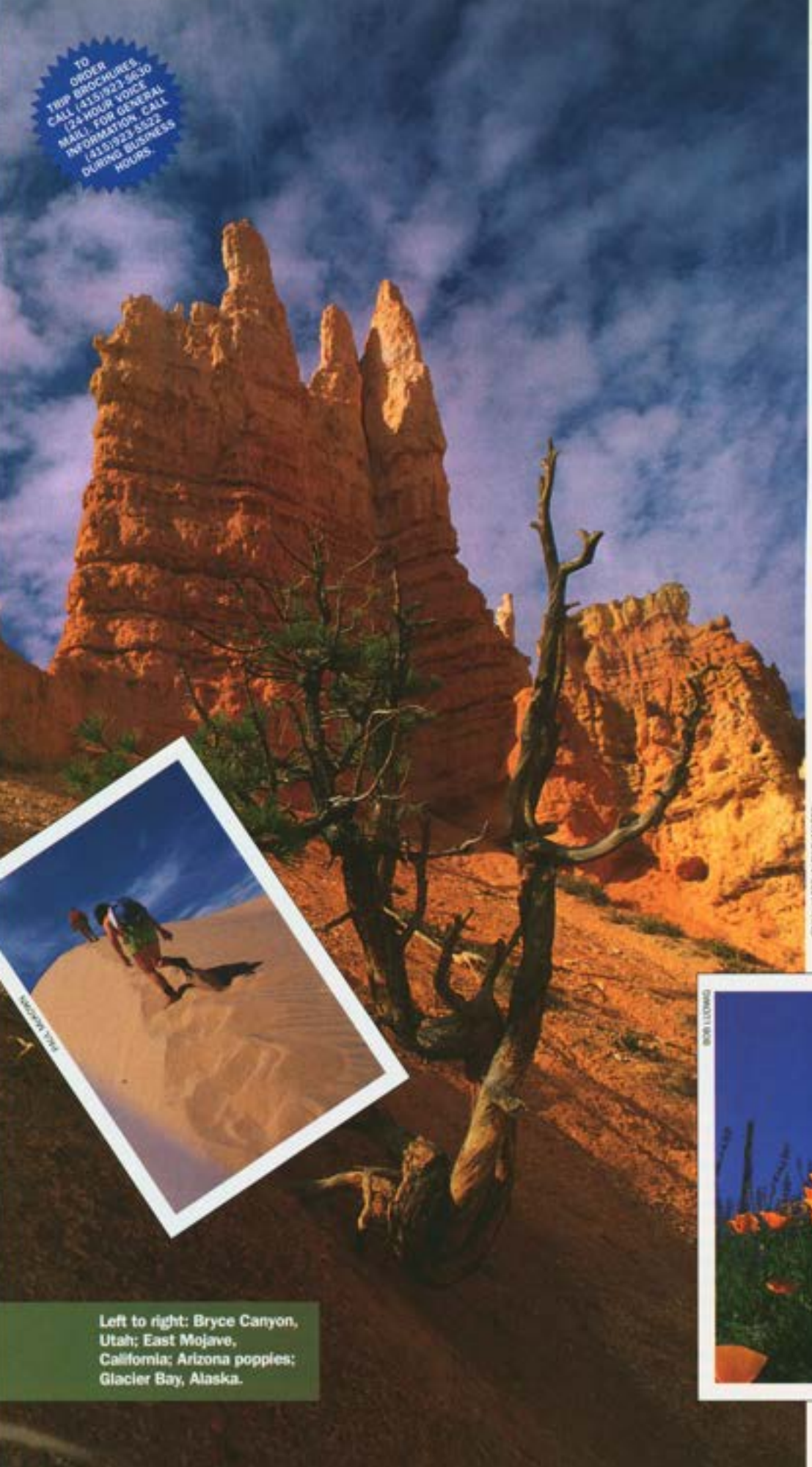
PLEASE READ THE RESERVATION AND CANCELLATION POLICY ON PAGES 24 AND 25 BEFORE SENDING IN YOUR APPLICATION.

TO ORDER TRIP BROCHURES, CALL (415)923.5630 (24-HOUR VOICE MAIL). FOR GENERAL INFORMATION, CALL (415)923.5522 DURING BUSINESS HOURS.

group to complete this rugged 31-mile cross-country loop on the Navajo Reservation west of Navajo Mountain. Traverse complex slickrock domelands, walk on a desert bench at the foot of towering cliffs, and explore a deep, sculpted sandstone canyon on our layover day. We'll cross 6,700-foot Cummings Mesa on our way back. Experienced hikers only. Vegetarian menu available. (Rated M-S) *Leader: Terry Gustafson. Price: $400; Dep: $50.* **[94040]**

Rainbow Bridge and Navajo Mountain, Arizona and Utah—April 24–30. Explore the grandeur of the redrock wilderness surrounding Navajo Mountain, a place sacred to the Navajo. The terrain is rugged and the trails unmaintained, but the maze of canyons and deep alcoves and the myriad rock formations will reward our efforts. Highlighting our trip will be a visit to Rainbow Bridge, the world's largest natural arch. At least one layover day is planned. (Rated S) *Leader: Larry Odoski. Price: $455; Dep: $50.* **[94042]**

Dirty Devil Sojourn, Southern Utah—April 24–May 1. With acclaimed backcountry author Steve Allen, our small group of experienced canyoneers will visit many of the rarely explored side canyons and slots of the Dirty Devil River. We will hike down at Burr Point and leave at the Angel Trail. Expect to wade across the Dirty Devil River



Left to right: Bryce Canyon, Utah; East Mojave, California; Arizona poppies; Glacier Bay, Alaska.

twice. (Rated S) *Leader: Della Lewis. Price: $540; Dep: $100.* **[94043]**

Kanab Canyon and Thunder River, Grand Canyon Park, Arizona—April 30–May 7. This trip begins with a steep but rewarding nine-mile descent to Thunder River, followed by explorations of the canyon's treasures—120-foot Deer Creek Falls, hidden canyons with beckoning pools, the narrows of Jumpup, and a spectacular panorama as we ascend Kwagunt Hollow to Sowats Point. Experienced hikers only; no layover days. (Rated S) *Leader: Gene Glenn. Price: $335; Dep: $50.* **[94044]**

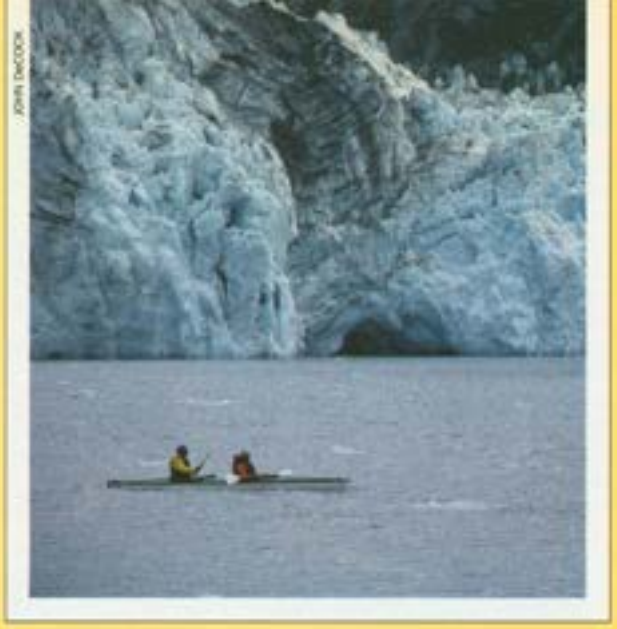
Sycamore Canyon Wilderness, Northern Arizona—May 1–7. Backpack seven days and 35 miles through a spectacular canyonland awash in color and vegetation. Unique cliff formations etched out by water and wind give way to rugged terrain for us to explore. Boulder-hopping and creek crossings on some trail sections will make for rough going, but we'll have two leisurely layover days to rest and dayhike. (Rated M-S) *Leader: Duane Ottens. Price: $420; Dep: $50.* **[94045]**

Sky Island Treasures, Cave Creek Canyon and Chiricahua Wilderness, Arizona—May 8–14. Bring binoculars for this easy-going "double exposure" adventure. First, three days of exceptional birdwatching and dayhiking from our 5,000-foot base camp at Cave Creek Canyon, a renowned birding hotspot. Second, we car-shuttle to our 8,400-foot trailhead for a 15-mile, four-day backpack (one layover) through lush alpine forest around 9,800-foot Chiricahua Peak and down Cave Creek Canyon. Beginners and laid-back veterans welcome. (Rated L-M) *Leader: Ed Marty. Price: $425; Dep: $50.* **[94046]**

Exploring Dark Canyon, Utah—May 14–21. Our trip through this desolate canyon begins at 8,000 feet in aspen and pine and descends into desert as the canyon empties into Lake Powell (2,700 feet). Beneath towering walls painted with desert varnish, we will discover crystal-clear aquamarine pools, waterfalls, and lush gardens. Two layover days are planned to fully explore side canyons and their treasures. (Rated M-S) *Leader: Alix Foster. Price: $460; Dep: $50.* **[94047]**

Gila and Aldo Leopold Wilderness Areas, New Mexico—May 15–21. Trek across the world's first designated wilderness areas. From the desert riparian areas of the Mimbres River and Black Canyon to the subalpine zone of Reed's Peak, Mimbres Lake, and McKnight Mountain, we travel amid wildflower meadows, abundant mountain lion signs, Indian ruins, elk herds, and ponderosa pine parklands. Cross-country travel and plentiful river-wading will create a challenge. (Rated M-S) *Leader: David Morrison. Price: $370; Dep: $50.* **[94048]**

Dark Canyon Descent, Utah—May 22–29. Towering cliffs, inviting pools, hidden waterfalls, and changing vegetation await the adventurous traveler to this spectacular desert canyon. Starting at 8,000 feet among aspen and pine groves, our route drops almost a mile through layers of sandstone, shale, and limestone to the lower reaches of the canyon near Lake Powell. We'll explore side canyons, test the waters, and soak up scenery on the way down. (Rated M) *Leader: Lasta Tomasevich. Price: $460; Dep: $50.* **[94049]**



JOHN DeCOOK

FIRST ANNUAL JOHN MUIR SOCIETY OUTING

Glacier Bay and Admiralty Island
July 8–16

The Sierra Club Outing Committee and the Centennial Campaign invite you to join Peggy and Edgar Wayburn on the first annual John Muir Society Outing. The Wayburns are longtime Sierra Club leaders well known for their dedication to the unique and highly endangered Alaskan ecology.

Southeast Alaska is home to an impressive diversity of wildlife: bald eagles, puffins, whales, sea lions, brown bears, moose, and more than 200 species of birds. Tidewater glaciers and high, sheer mountains, dramatic coastline, and dense rainforest—such sights can change one's life forever.

We will live aboard the *Wilderness Explorer*, a comfortable and well-equipped "floating base camp" from which we will take excursions in two-person kayaks or by foot, exploring the rich treasures of Glacier Bay and Admiralty Island. Our sea kayaks will allow us to experience the majesty of living glaciers at close range. Guided by naturalists, we will paddle in the long twilight, viewing wildlife and enjoying incomparable tranquility.

Each day will end in the comfort of our vessel, where we will enjoy delicious meals and discuss the day's activities with a knowledgeable corps of Sierra Club members and leaders. Sleeping accommodations are private two-person cabins with shower and toilet.

The trip begins in Juneau. From there we will fly to Gustavus, where we will spend our first night at the beautiful Glacier Bay Lodge. Both the flight to Gustavus and lodging at Glacier Bay Lodge are included in the trip price. The following day we will board the *Wilderness Explorer* and embark on our exploration of Glacier Bay and Admiralty Island.

Space is limited. Please contact the Outing Department to obtain a trip brochure. We hope you can join us on this unique and historic Sierra Club adventure.

Prices: All prices per person based on double occupancy. A deposit of $200 is required of all participants.

Deluxe Cabin	$3,495 (1 available)
AA Main Deck Cabin	$2,995 (3 available)
A Lower Deck Cabin	$2,795 (11 available)
B Lower Deck Cabin	$2,575 (3 available)

Trip Coordinator: Carol Dienger. **[94100]**

BASE CAMP

America's Tropical Paradise, Virgin Islands Park, U.S. Virgin Islands—January 23–29. We'll stay in rustic beachfront cottages in Virgin Islands National Park, which occupies most of the island of St. John. We'll spend mornings hiking and exploring forests and historic ruins. Afternoons will find us on marvelous white sand beaches, swimming and snorkeling among coral reefs, colorful fish, and sea turtles. Meals not included in trip price. *Leader: Dick Williams. Price: $755; Dep: $100.* **[94422]**

Lee's Ferry Exploration, Grand Canyon Area, Arizona—April 2–9. Lee's Ferry, known primarily as the "put-in" for Grand Canyon river trips, also offers dramatic geologic formations such as Marble Canyon and the Vermillion Cliffs, as well as the history of Spanish exploration, Mormon settlements, and early river runners. We will do moderate to strenuous dayhikes of Colorado River side canyons and other areas, following the steps of the Stanton Expedition and early pioneers. *Leaders: Shelley and David Mowry. Price: $390; Dep: $50.* **[94051]**

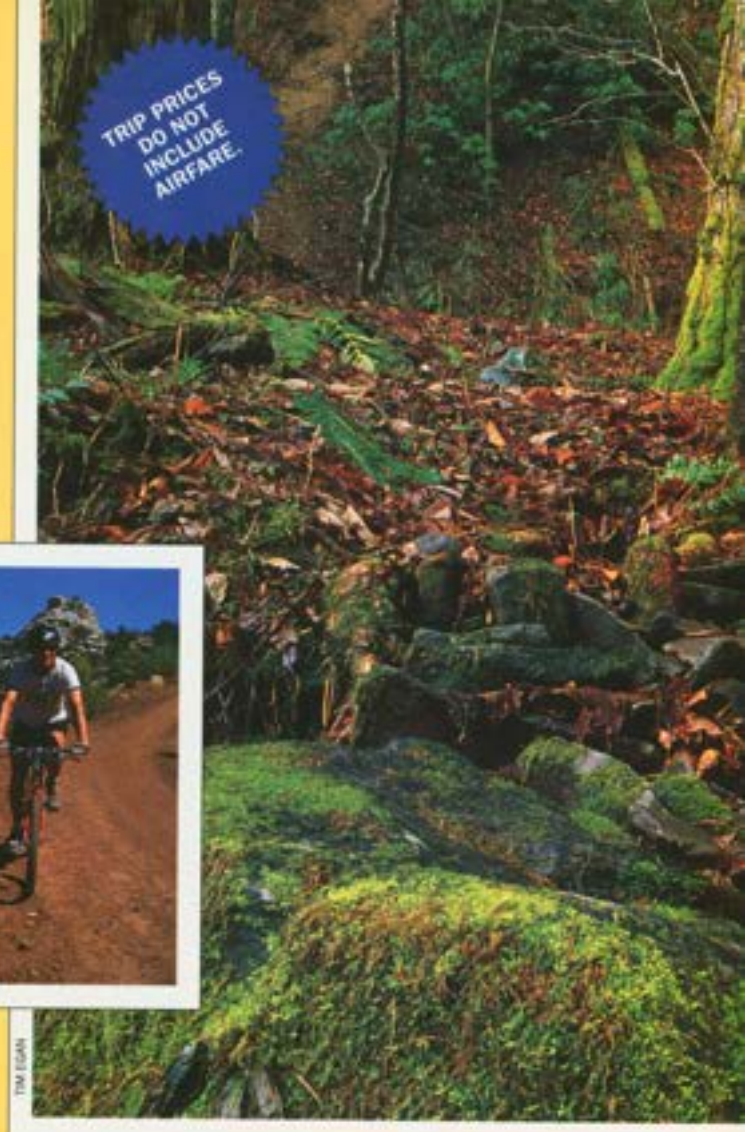
East Mojave Scenic Area, California—April 17–22. We'll explore the panoramas, sand dunes, and cinder cones of the proposed Mojave National Park, 100 miles southwest of Las Vegas. From our 5,600-foot camp we'll carpool daily to the trailheads. Hikes vary from easy to moderately strenuous; the toughest day is six miles with a 1,000-foot gain. Our pace is modest as we stop for flowers, wildlife, and talks on history and archaeology. *Leader: Rose Certini. Price: $325; Dep: $50.* **[94052]**

Naturalist's Puerto Rico—April 18–24. Explore the unspoiled island of Culebra, snorkeling and swimming pristine beaches and assisting with Fish and Wildlife Service surveys of nesting sea turtles. Hike the trails of El Yunque, the Forest Service's only tropical rainforest, a land of giant ferns, waterfalls, and exotic vegetation. Accommodations include a villa in Culebra and a historic hotel. Meals not included in trip price. *Leader: Marjorie Richman. Price: $800; Dep: $100.* **[94053]**

Cathedral Valley, Slot Canyons, and the Waterpocket Fold, Capitol Reef Park, Utah—April 24–30. Southern Utah offers some of the country's most fascinating rock formations, and Capitol Reef the best of the best—diverse and colorful pinnacles, spires, canyons, and arches. Using three base camps, we'll explore three very different areas—Chimney Rock Canyon, Cathedral Valley, and Upper Muley Twist on the Waterpocket. Intermediate hiking ability and great sense of adventure required. *Leader: Brian Vandegrift. Price: $485; Dep: $50.* **[94054]**

Spring in the Great Smoky Mountains, Tennessee—May 8–14. Here's what to expect: cool mountain trails, lush with wildflowers … a comfortable campground in historic Cades Cove, a 19th century frontier settlement … flexible dayhikes, some strenuous … option to ride a horse or bicycle … deer, black bear, otter, red fox, baby skunks … Abrams Waterfall, Alum Cave Trail to Mt. LeConte, Gregory Bald, Spence Mountain firetower, and the Appalachian Trail … and, of course, great food! *Leader: Betty Zucker. Price: $380; Dep: $50.* **[94055]**


JENNY HAGEN ALPINE IMAGES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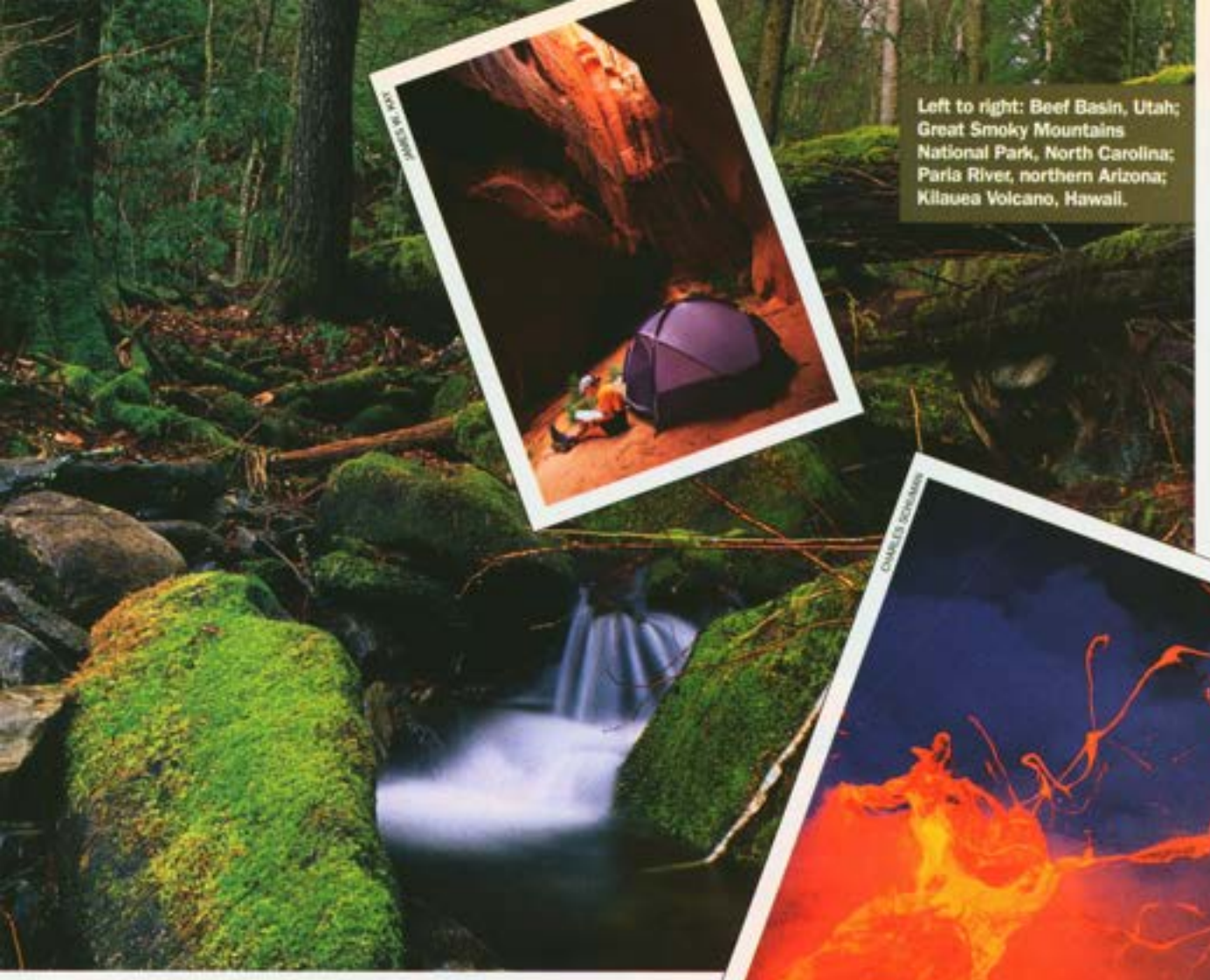
TRIP PRICES DO NOT INCLUDE AIRFARE.

BICYCLE

Virginia's Skyline Drive and Blue Ridge Parkway—May 22–28. See some of the East Coast's most scenic mountain landscape along one of the finest bike routes in the country. On this 210-mile, sag-wagon-supported trip, we'll average 30 to 40 miles between campsites and lay over one day in Shenandoah National Park. There's ample time to enjoy sightseeing, hikes to waterfalls and overlooks, relaxing, and the good food we're planning! *Leader: Ken Singletary. Price: $325; Dep: $50.* **[94056]**

FAMILY

Everglades Park, Florida—December 28, 1993–January 2, 1994. Come enjoy the "River of Grass." We will hike on jungle trails, over raised boardwalks, and along the coastline, and canoe through dense mangroves, canals, and muddy lakes. Whether hiking, canoeing, or relaxing, there will be plenty of wildlife to observe in this unique ecosystem, still recovering from the damage of Hurricane Andrew. Suitable for kids six and older. Rental canoe not included in trip



Left to right: Beef Basin, Utah; Great Smoky Mountains National Park, North Carolina; Parla River, northern Arizona; Kilauea Volcano, Hawaii.

price. *Leader: Marty Joyce. Price: adult $310, child $205; Dep: $50.* **[94423]**

Okefenokee Wildlife Refuge, Georgia—March 27–April 1. Join us in exploring the nation's largest freshwater swamp with your family. From our base camp at Stephen Foster State Park, we'll canoe through cypress forests and lily-pad ponds, hike on raised-platform trails, and visit abandoned settlements and historical sites. We may even catch a glimpse of the rare cottontail alligator. Suitable for families with some canoe experience and kids six and older. Canoe rental not included in trip price. *Leader: Marty Joyce. Price: adult $320, child $215; Dep: $50.* **[94057]**

Preschooler Adventure, Arches and Canyonlands Parks, Utah —April 10–16. Short, easy hikes make these parks ideal for families with budding hikers and parents with child-carry packs. Dayhikes allow us to explore the Windows, Fiery Furnace, Devil's and Delicate arches in Arches Park, plus the Needles District of Canyonlands Park. Other highlights include evening ranger presentations and a layover day to explore on your own. *Leaders: Margaret and Vern Clevenger. Price: adult $360, child $240; Dep: $50.* **[94058]**

Note: See Hawaii for another family trip.

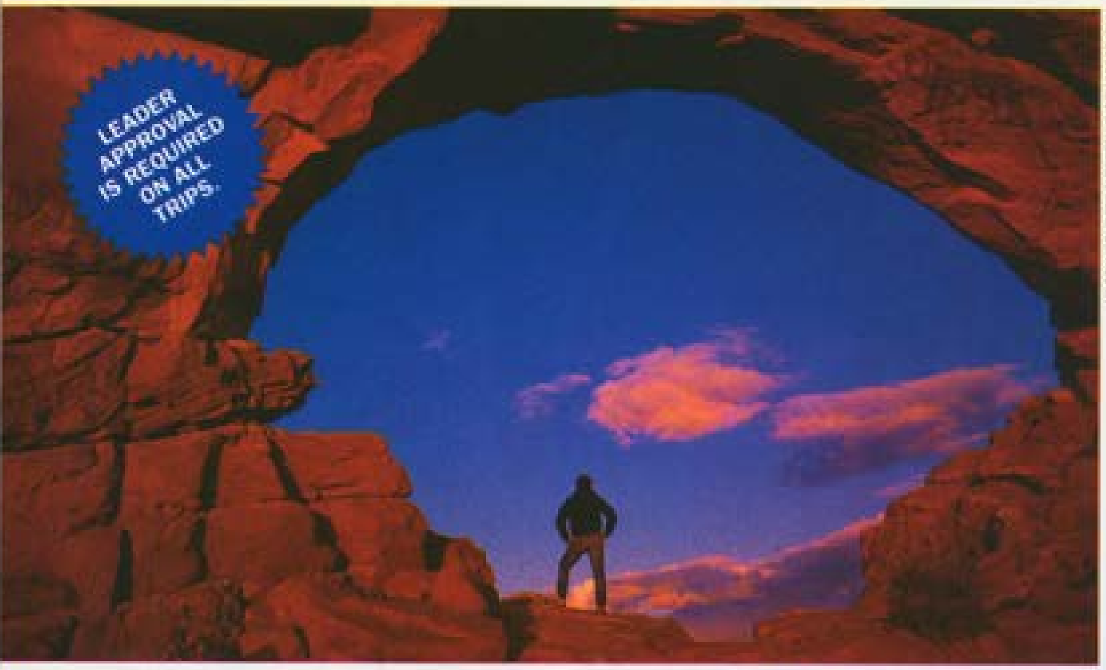
HAWAII

Maui Whale-Watch and Count Service Trip—March 12–26. Humpback whales and their calves winter in the sheltered waters off Maui before starting their journey north to Alaska. On this service trip, we will assist with ongoing research studying the effects on whales of increased boat traffic due to tourist activities. Our pace will be comfortable, with leisure time available to explore the beaches and mountains of this wonderful Hawaiian island. *Leader: Pat Davis. Price: $1,145; Dep: $200.* **[94060]**

Big Island Family Adventure—March 26–April 2. The island of Hawaii offers the visitor tropical scenery and numerous outdoor activities. We will sample the Big Island's exciting and surprising contrasts—volcanoes, fern forests, lava tubes, lush valleys, and picturesque beaches. Hiking, snorkeling, and sightseeing are some of the activities available. We will be staying in rustic lodgings at several locations. Children of all ages are welcome. *Leaders: Irma and Wayne Martin. Price: adult $815, child $545; Dep: $100.* **[94061]**

ate trek (maximum elevation 12,500 feet) starts in Gorkha, then continues along ridges and river valleys, until reaching our destination at Trisuli Bazaar. Contact with villagers, the warmth of our Sherpa and Tamang staff, and the watchful presence of the great Himalayan peaks make for a rewarding pilgrimage to the "Roof of the World." *Leader: David Horsley. Price: $1,680 (12-15)/ $1,880 (11 or fewer); Dep: $200.* **[93860]**

Rajasthan Desert Kingdoms, India—March 22–April 9. Join us for an exploration of the politically stable Indian state of



HIGHLIGHT

Utah Van and Hiking Tour, Southeast Utah—April 10–16. This 300-mile van circuit, originating and ending in Grand Junction, Colorado, will sample Utah's high desert (4,000 to 6,000 feet), including portions of Canyonlands and Arches National Parks, Natural Bridges National Monument, and some neighboring scenic lands. Four layover days offer opportunities for moderate hikes (some exposure to heights), photography, and sightseeing. Sharp spring weather likely, spring bloom a possibility. *Leader: Carol Baker. Price: $460; Dep: $50.* **[94062]**

Pinnacles and Prairie, Badlands Park, South Dakota—May 22–27. Serenaded by coyotes, the moonlight will illuminate colorful spires, pinnacles, and sawtoothed ridges in the "mako sica" (badlands). We will trek within the largest prairie wilderness in the United States amid mixed grasses and rugged barren landscape, and observe prairie dogs, bison, and other wildlife. Our primitive campsites provide pure air and outstanding sunsets in remote, quiet splendor. *Leader: Faye Sitzman. Price: $385; Dep: $50.* **[94063]**

INTERNATIONAL

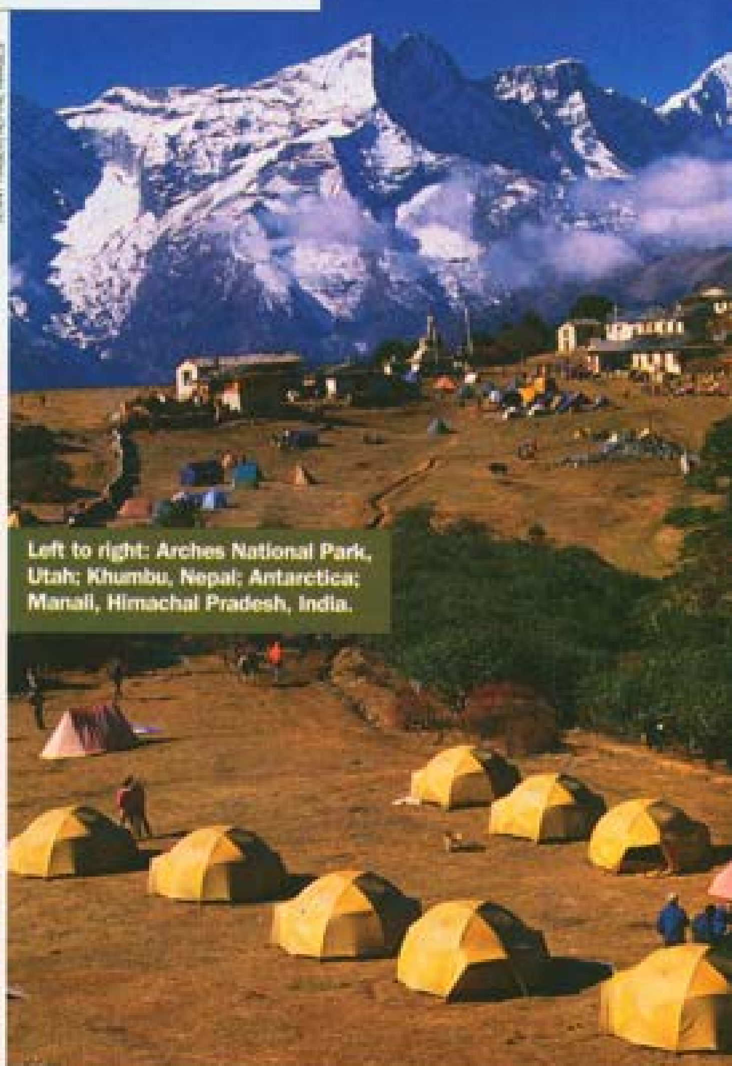
Please note that international trip prices are subject to change and do not include airfare. International trips are tier-priced; for an explanation of tier-pricing, see page 25.

ANTARCTICA

Adventure Cruise, Antarctica—February 7–20. For the first time ever the Sierra Club is offering members an opportunity to explore the seventh continent. Visit the Antarctic Peninsula as passengers aboard a polar-research vessel. The itinerary includes visits to Deception Island, Hope Bay, Lemaire Channel, Paradise Bay, Anvers Island, and more. This will be a voyage of adventure and exploration, with strong emphasis on wildlife and conservation. Zodiacs will be used for landings and visits to scientific bases. *Leader: Leo Le Bon. Price: $4,995 (16-20)/$5,245 (15 or fewer); Dep: $200.* **[94525]**

ASIA

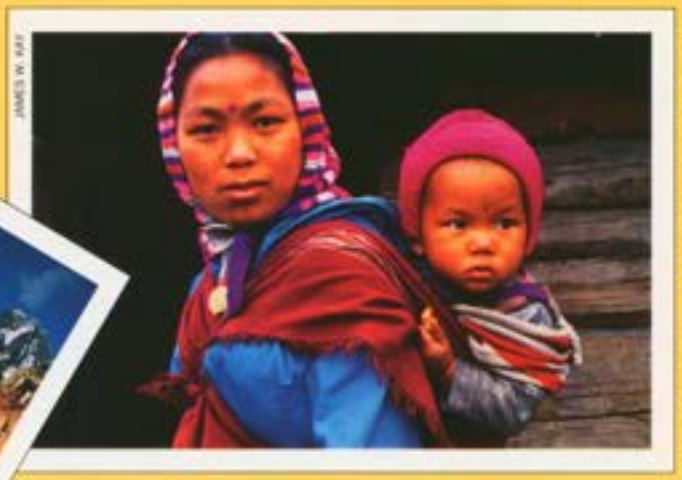
Gorkha-Trisuli Holiday Trek, Nepal—December 18–31, 1993. Leave the holiday madness behind and enjoy Himalayan wilderness solitude on this little-known route. This moder-



Left to right: Arches National Park, Utah; Khumbu, Nepal; Antarctica; Manali, Himachal Pradesh, India.

Rajasthan. It is a mosaic of beautiful landscapes, from desert dunes and citadels to lake-studded cities with gardens. The vibrant people reflect this colorful land in their religion, music, art, dance, and history. We will visit all five ancient desert cities, and enjoy a five-day camel safari across the dunes of the Thar Desert. A visit to the Taj Mahal in Agra will be another highlight. *Leader: Bob Madsen. Price: $2,390 (12-15)/$2,665 (11 or fewer); Dep: $200.* **[94545]**

Japanese Cherry Blossom Season—April 12–22. The annual blooming of cherry trees in Japan is nothing short of heavenly. We will be "snowed upon" by falling blossoms as we travel from Tokyo to Nikko National Park, around Mt. Fuji and north to the Japan Alps and the Sea of Japan. Our final destination will be Kyoto with its beautiful temples and gardens. Travel will be by bullet train and local buses, and accommodations will be in inns, a hot springs resort, and a 650-year-old temple. *Leader: Carolyn Castleman. Price: $3,890 (10-12)/$4,145 (9 or fewer); Dep: $200.* **[94555]**



The Hidden Kingdom on the Roof of the World, Kathmandu-Lhasa Overland, Nepal and Tibet—April 17–30. Few places have captured the human imagination like the isolated, windblown mountain fastness of Tibet. Protected for centuries by natural barriers, this high, semi-arid plateau with its ancient cities and Buddhist monasteries is now partially open to foreign travel. On this high-elevation trip, we explore and enjoy this mysterious land by bus and by foot. We'll visit cultural and historic sites, including Sakya Monastery in Shigatse, Tashilhunpo, and the Potala in fabled Lhasa. *Leader: Patrick Colgan. Price: $2,530 (12-15)/$2,805 (11 or fewer); Dep: $200.* **[94510]**

Southern Dolpo: Pokhara to Jumla, Nepal—May 9–June 10. At the edge of the Tibetan Plateau in the Himalayan rainshadow lies Dolpo—the legendary "Hidden Land" closed for years to trekkers. Heading west from Pokhara, we journey into a beautiful, wild, and crystalline landscape which few foreigners have seen. Crossing the great Dhaulagiri range at Jang La (14,800 feet) we enter a world of rugged people and remote monasteries, including Ringmo Gompa on the shores of Phoksumdo Lake. Maximum elevation is 16,800 feet at Kagmarala. *Leader: Cheryl Parkins. Price: $2,890 (10-12)/$3,145 (9 or fewer); Dep: $200.* **[94565]**

Following the Silk Road through China and Beyond—May 18–June 8. Get swept up in a wave of history and adventure! Starting at the ancient capital city of Xian, we follow the route of the great trade caravans to Dunhuang's Caves of a Thousand Buddhas. We'll visit the oasis town of Turpan and hike at the aptly named Heavenly Lake. After enjoying Kashgar's colorful Sunday bazaar we'll cross the Khunjerab Pass into spectacular northern Pakistan and the fabled land of Hunza. The trip ends in Islamabad. *Leader: Ruth Dyche. Price: $4,000 (12-15)/$4,275 (11 or fewer); Dep: $200.* **[94575]**

Hiking and Bus Tour through Central Asia, China, and Russia—May 22–June 10. Come sample the ancient history of remote central Asia, with its dramatic intermontane scenery, mosaic of cultures, and monuments to the medieval past. Enjoying the mobility of bus travel, we journey from Samarkand in Uzbekistan to Kashi in China, then north to the Fergana Valley in Kirghizstan and Alma Ata in Kazakhstan. Along the way, collect memories of dayhikes, tent-camping, traditional inns, colorful markets, and an inland sea perched between high mountain passes. *Leader: Bud Bollock. Price: $2,845 (12-15)/$3,125 (11 or fewer); Dep: $200.* **[94580]**

EUROPE

England's Coast-to-Coast Walk: From the Irish Sea to the North Sea—May 1–14. Join us on a walk across the breadth of England through three of the country's most scenic national parks—the Lake District, the Yorkshire Dales, and the North York Moors. Our moderate daily hikes will take us to the towns of Grasmere, Keld, and Robin Hood's Bay. Our luggage will be transported each day by minibus to our overnight accommodations in comfortable lodges and bed-and-breakfasts, where we'll meet fellow hikers from around the world. *Leader: Lou Wilkinson. Price: $2,630 (11-14)/$2,935 (10 or fewer); Dep: $200.* **[94560]**

Cyprus: Eastern Mediterranean Crossroads—May 14–29. The island of Cyprus is a microcosm of Mediterranean landscapes, archaeology, history, and cultural diversity. We explore this extraordinary little world by foot and by van, spending our nights in forest lodges, monasteries, and village homes. We'll encounter the breadth of Cypriot history, from the Neolithic settlement of Khirokitia to the finest examples of Byzantine painted churches. Bring a snorkel for the warm sea, and boots for hiking the uninhabited coast of the Akamas Peninsula and the pine-scented trails of the Troodos Mountains. *Leader: David H. Stewart. Price: $2,755 (12-15)/$3,030 (11 or fewer); Dep: $200.* **[94570]**

LATIN AMERICA

Holidays in Belize—December 20–28, 1993. Using a rustic lodge as our base, we'll explore Belize's lush interior, touring limestone caves and Mayan ruins, and rafting a gentle jungle river. A short plane flight to Flores, Guatemala, enables us to spend a full day at the magnificent Mayan ruins of Tikal. Then we'll move to the Caribbean coast and a palm-fringed island adjacent to a barrier reef. We'll stay at a simple guesthouse on the beach, snorkel in crystal-clear water, and feast on fresh seafood. *Leader: Sallee Lotz. Price: $2,055 (12-15)/$2,320 (11 or fewer); Dep: $200.* **[93850]**

River Rafting and Rainforest Adventure, Costa Rica—December 20–29, 1993. A natural-history paradise, Costa Rica possesses unmatched biological diversity. We'll view an active volcano at Poas National Park, then explore Corcovado National Park for three days—an unprecedented opportunity to see its unique wildlife. We'll also visit an archaeological site in the premontane forest of the Guayabo River Canyon. But the highlight of our trip will be three days of rafting on two of the most beautiful rivers in the tropics—the Pacuare and Reventazón, where we'll relish waterfalls, rapids, and inviting pools. *Leader: Margie Tomenko. Price: $2,150 (12-15)/$2,415 (11 or fewer); Dep: $200.* **[93855]**

Ecuador: Galápagos Islands and Quito Region—December 22–30, 1993. We begin by enjoying the beautiful city of Quito and its rich colonial history. We'll then explore Darwin's "Showcase of Evolution" for five days, cruising the Galápagos Islands in our private yacht. See exotic and rare birds, giant tortoises, and unusual wildlife, and swim with penguins and sea lions. Finally, we travel down the "Avenue of the Volcanoes" and visit Cotopaxi National Park, home to unique flora and fauna, expansive views of the Andes, and the world's highest active volcano. *Leader: Mary O'Connor. Price: $2,390 (7-9)/$2,770 (6 or fewer); Dep: $200.* **[93500]**

Belize: Reef and Ruins—February 15–26. We explore Belize's lush interior while staying at an ecology and conservation-oriented lodge. At the island city of Flores in neighboring Guatemala we'll have two full days to experience the magnificent Mayan ruins at Tikal. The remainder of our Central American adventure will be on a palm-fringed island next to a barrier reef. Here we snorkel in the crystal-clear waters of the Caribbean, learn about marine ecology and conservation, and feast on fresh seafood. *Leader: Lola A. Nelson-Mills. Price: $2,265 (10-12)/$2,520 (9 or fewer); Dep: $200.* **[94530]**

Magdalena Bay Sea-Kayaking and Whale-Watching, Baja California, Mexico—February 19–25. Few methods of travel allow a more intimate bond with nature than kayaking. Journey with us on the narrow waterways of tranquil Magdalena Bay, winter home for hundreds of California gray whales. We'll also see a wide variety of migrating shore- and seabirds as we paddle through mangrove-lined channels. Miles of uninhabited shoreline are a paradise for beachcombers. Inexperienced to expert kayakers welcome. Instruction will be given, and a support boat will carry duffel, food, and water. *Leader: J. Victor Monke. Price: $1,395 (10-13)/$1,440 (9 or fewer); Dep: $200.* **[94535]**

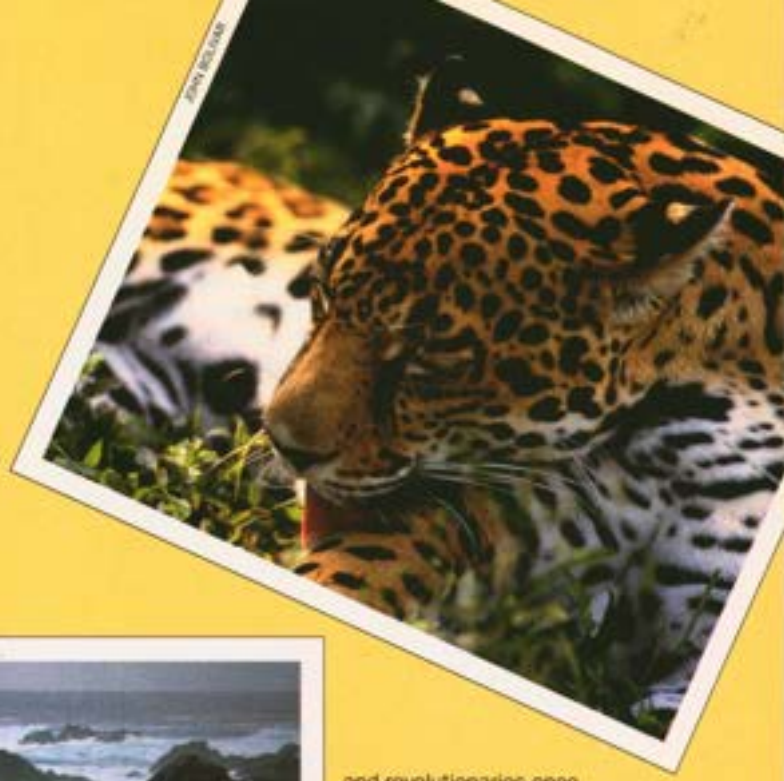
Patagonia Trek, Chile—February 19–March 5. Experience the magnificence of Patagonia on this easy-to-moderate trek in Torres del Paine National Park. Condors will glide effortlessly above us as we hike at elevations between 3,000 and 4,000 feet and see the dramatic silhouette of the Torres (towers) and Cuernos (horns) del Paine against the open sky. The area

Left to right: Yucatán Peninsula, Mexico; iguana, Costa Rica; Milford Sound, New Zealand; pelagic cormorant, Big Sur Coast, California; jaguar, Belize.

is home to over 100 species of birds, 25 mammals, and more than 200 different plants. Cultural exchange will be a highlight in Puerto Natales, where we'll stay in private homes. *Leader: John Garcia. Price: $2,585 (12-15)/$2,865 (11 or fewer); Dep: $200.* **[94515]**

Belize, Naturally: Reef and Beach Camping—March 4–12. Picture yourself camping on a palm-studded beach of smoothest sand, exploring an attractive fishing village nearby, hiking in the Cockscomb Jaguar Preserve, visiting with the Garifuna people, and boating up the aptly named Monkey River. From there you move to a tropical island on the longest reef in the Americas, where you can snorkel among giant corals and colorful fish, enjoy birdwatching, help the cook catch and prepare seafood feasts, or swing in your hammock. Two charter flights within Belize are included in the trip price. *Leader: Mary O'Connor. Price: $1,390 (14-18)/$1,600 (13 or fewer); Dep: $200.* **[94540]**

Cultural Exchange and Rafting Adventure, Costa Rica—April 3–9. Get a glimpse of Costa Rica's unmatched biodiversity. We will spend four days rafting the Pacuare and Reventazón, beautiful and exciting rainforest rivers with fern-laced waterfalls and enchanting side streams. One night we will camp along the Pacuare, while other nights we'll be guests in private homes or at a rustic mountain hotel. The last day we will tour the Carara Biological Reserve with its abundant bird and wildlife. *Leader: R. Kurt Menning. Price: $1,650 (12-15)/$1,895 (11 or fewer); Dep: $200.* **[94550]**



PACIFIC BASIN

Exploring New Zealand—February 6–26. New Zealand offers the visitor many outdoor activities. Beginning in Auckland, we will explore the country's attractions by dayhiking and sightseeing our way to Christchurch. We will see steaming volcanoes, erupting geysers, bubbling-hot mudpools, a Maori village, glowworm grottoes, the Kauri forest, alpine valleys, Milford Sound, snowcapped mountains, and glistening glaciers that extend down into subtropical rainforest. *Leader: Ray Simpson. Price: $3,015 (9-11)/$3,300 (8 or fewer); Dep: $200.* **[94520]**

SERVICE

Last Texas Frontier, Big Bend Park, Texas—March 6–12. Conquistadores and Comanches, Texas Rangers, rustlers, and revolutionaries once roamed this untamed wilderness. Brushing and rebuilding trail from our base camp along the Rio Grande will gentle some of that wild heart. *Leader: Harry Allan. Price: $250; Dep: $50.* **[94064]**

Big Sur, Ventana Wilderness, California—March 25–April 2. The rugged Ventana Wilderness offers spectacular views and an unsurpassed springtime wilderness experience. Come help us maintain trails overgrown by dense chaparral. *Leader: Maura Eagan. Price: $260; Dep: $50.* **[94065]**

North Rim Trail Work, North Kaibab Forest, Arizona—April 4–13. We'll hike into the Kanab Creek Wilderness Area in the remote western Grand Canyon to repair trail on the esplanade, then explore fern grottoes, hidden waterfalls, and Anasazi art. *Leader: Debbie Northcutt. Cook: Jasmine Star. Price: $325, Dep: $50.* **[94066]**

Buffalo River Trail Construction, Arkansas—April 17–23. We'll help complete an important segment of the Buffalo River Hiking Trail, with time to enjoy Ozark hills-'n-hollers, creeks and wildflowers, history and humor. No experience necessary. *Leader: W. E. "Bill" Riecken, Jr. Price: $210; Dep: $50.* **[94067]**

Redrock Trails, Broken Arrow Area, Coconino Forest, Arizona—April 17–23. With its canyons, redrock formations, and forested mountains, this is a wilderness of unexcelled beauty. We will construct a new backpacking trail and still have ample time for dayhiking and photography. *Leaders: Pamela and Jerry Meyer. Price: $245; Dep: $50.* **[94068]**

Return to the Escalante, Glen Canyon Recreation Area, Utah—April 17–23. Experience the Coyote Gulch area of dramatic Escalante Canyon while stabilizing trails and controlling non-native flora. Leisure time will be spent hiking between worksites and exploring the endless side canyons and alcoves. Suitable for experienced backpackers. *Leaders: Cathy Underwood and Harry Allan. Price: $255; Dep: $50.* **[94069]**

Historic Indian Trail Restoration, Nantahala Forest, North Carolina—April 23–30. From base camp we'll do restoration work on an Indian trail that once connected Charleston, South Carolina with Chota, the historical capital of the Cherokee Nation in North Carolina. Enjoy bird-migration, spring wildflowers, and never-timbered Joyce Kilmer Memorial Forest. *Leaders: Vivian and Otto Spielbichler. Price: $235; Dep: $50.* **[94070]**

Springtime Arches, Arches Park, Utah—April 24–30. Chuckwagon cooking and wranglers to do it mean hard work without hardship. Redrock trail maintenance, fence-building, and exotic vegetation removal are our springtime goals. Challenges for beginners and veterans. *Leader: Linda Thibodeaux. Price: $245; Dep: $50.* **[94071]**

Ringing the Canyon, Chaco Culture Historical Park, New Mexico—May 1–7. Enjoy six moderately strenuous days of desert landscape, camaraderie, and Indian archaeology while building three-strand fence along the park's new boundary. You'll have every afternoon off to explore the sites. *Leader: Mike Kobar. Price: $245; Dep: $50.* **[94072]**

Chaco Canyon Archaeology, Chaco Culture Historical Park, New Mexico—May 8–14. Revegetation and ruin-preservation will keep us busy in this mysterious canyon, famed for its extensive Anasazi Indian ruins. At 6,500 feet, this will be a moderately strenuous trip. *Leader: Barbara S. Gooch. Price: $250; Dep: $50.* **[94073]**

North Country Scenic Trail, Ohio—May 8–14. Help reach the goal of 2,000 trail miles by the year 2000! This segment of the planned New York-to-North Dakota trail follows the Buckeye Trail in Wayne National Forest. Fish, hike, paddle, and swim on our day off. *Leader: Joe Gottler. Price: $225; Dep: $50.* **[94074]**

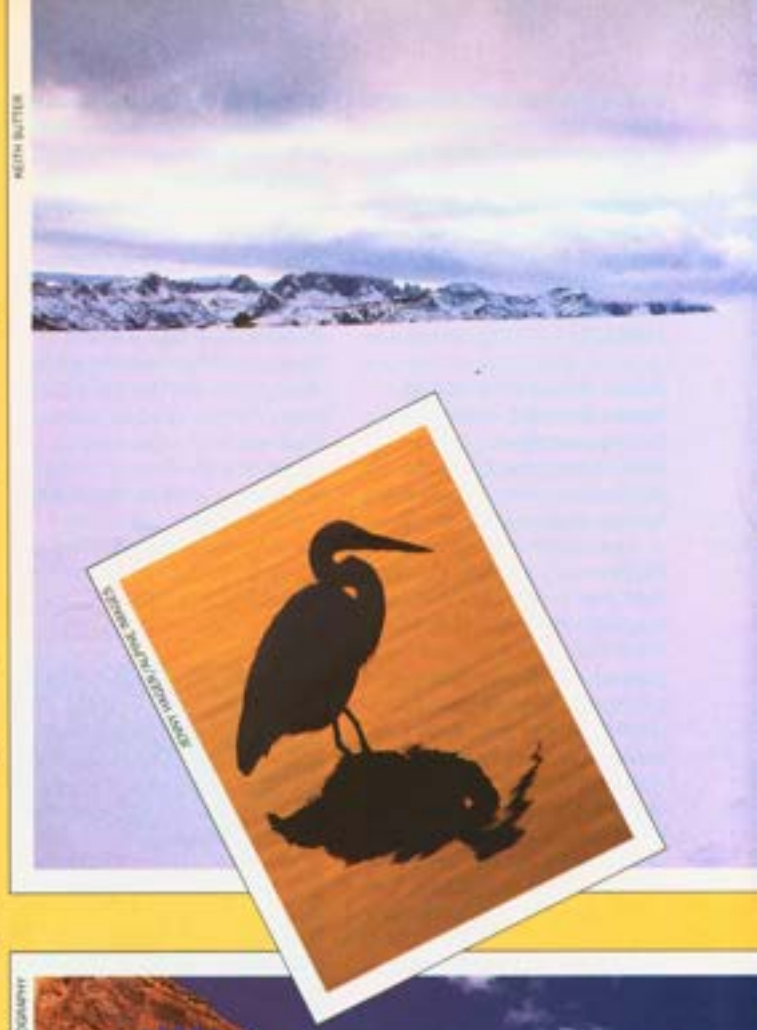
Tusayan Trails, Grand Canyon, Arizona—May 22–28. Work on the Arizona Trail amid ponderosa pine and enjoy views of the Grand Canyon. We'll have time to hike and photograph the area from our base camp at historic Hull's Cabin. *Leader: Linda Takala. Price: $230; Dep: $50.* **[94075]**

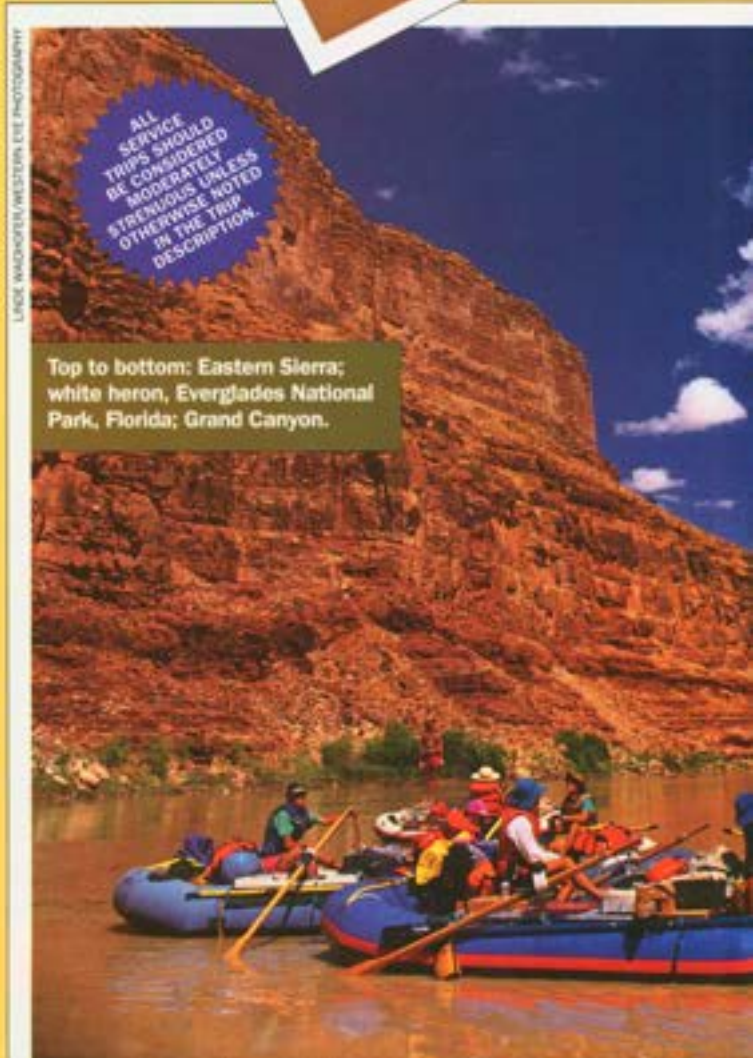
Note: See Hawaii for another service trip.

SKI

High Sierra Skiing I—January 30–February 4. Enjoy Nordic ski lessons and tours while staying at the Sierra Club's own rustic Clair Tappaan Lodge near Donner Summit. Develop and improve skiing skills—diagonal stride, Telemarking, ski-skating, and other techniques—in an area of heavy snowfall. You'll also enjoy warm accommodations, camaraderie, good food, a hot tub, and other amenities. Your leader is a certified ski instructor. *Leader: Herb Holden. Price: $390; Dep: $50.* **[94424]**

Sugarcamp Ski, Northwestern Minnesota—January 31–February 4. Cross-country skiing and other winter pleasures await skiers of all ages and abilities at this old maple-sugaring site. Wander through the woods on short to moderate loops of groomed trail, or try snowshoeing, ice-skating, and





Top to bottom: Eastern Sierra; white heron, Everglades National Park, Florida; Grand Canyon.

ice-fishing. Then retire to the rustic comforts of the main lodge—outdoor hot tub, saunas, bottomless cookie jars. Suitable for beginners and families. *Leader: Sarah Reinke. Price: $600; Dep: $100.* **[94425]**

Superior Ski Trails, Boundary Waters Canoe Area Wilderness, Minnesota—February 7–11. Escape to the quiet of the Northwoods snow country on groomed and tracked trails that wander through pine and birch forests, between frozen lakes, then back to cozy cabins and home cooking. Ski in the gentle glow of lanterns, listen for distant wolf music, track a wild moose, and relax in the sauna. Snowshoeing, ice-skating, and broomball too! *Leader: Faye Sitzman. Price: $590; Dep: $100.* **[94426]**

High Sierra Skiing II—February 27–March 4. See description for trip #94424 above. *Leader: Herb Holden. Price: $390; Dep: $50.* **[94427]**

Spring Skiing in the Sierra—April 17–22. Cross-country skiing at its best! This popular trip offers corn snow, Telemarking, Nordic downhill, and backcountry. It's all here at the Sierra Club's Clair Tappaan Lodge near Donner Pass, where the average snowfall is the highest in the Sierra Nevada. There will be daily lessons, and tours to Castle Peak, Crow's Nest, and German Ridge led by a certified ski instructor. Enjoy great food, warm accommodations, and a hot tub! *Leader: Herb Holden. Price: $390; Dep: $50.* **[94428]**

WATER

CANOE

Please note that the following trips require some canoeing experience, and that canoe rental is not included in the trip fee.

Everglades Park, Florida—February 20–25. We camp at the southern tip of the park, a threatened subtropical wilderness. Daily explorations take us through mangrove and buttonwood, freshwater ponds, brackish water, coastal prairies, and saltwater marshes—home to rare plants, birds, and animals. This leisure trip is for competent canoeists who enjoy birding, animal-watching, and photography. (Grade B) *Leaders: Vivian and Otto Spielbichler. Price: $250; Dep: $50.* **[94077]**

Canoeing Okefenokee Swamp, Georgia—March 20–25. From base camps on the east and west edges of the swamp, we will canoe various sections of the Okefenokee. We'll explore coastal prairies and cypress forests, habitat for birds, mammals, and reptiles. This trip is for canoeists of all ages who enjoy birding, animal-watching, and photography. (Grade B). *Leaders: Vivian and Otto Spielbichler. Price: $310; Dep: $50.* **[94078]**

Spring Fever, Boundary Waters Canoe Area, Minnesota-Ontario Border—May 22–28. Paddle and portage in the Northwoods while fishing is at its peak. We won't see many people as we explore some of the Boundary Waters' most remote lakes. On layover days search for Indian pictographs, view dramatic waterfalls, or hook into Northern pike and walleye. Get a taste of summer at the end of spring. (Grade B) *Leader: Joanne Broady. Price: $480; Dep: $50.* **[94079]**

RAFT

Grand Canyon, Arizona—April 21–May 4. Experience this premier whitewater journey down 225 miles of the mighty Colorado! In late April the Grand Canyon offers solitude, unspoiled camps, cooler days, resounding quiet and only-in-spring waterfalls, wildflowers, and wildlife. We will enjoy world-renowned Class IV and V rapids, marvelous side-canyon hikes, and light displays that only spring can offer. Minimum age 11. *Leader: J. Victor Monke. Price: $2,295; Dep: $200.* **[94080]**

Canyons of the Owyhee River, Oregon—May 1–4. When the canyons come alive with spring wildflowers, melting snows from the east slope of the Cascades swell their rollicking rapids. These dramatic, remote multicolored canyons are often compared with those in Utah, such as Bryce and Zion. Wildlife abounds. This is a rare opportunity to experience this unique river-wilderness gem. Trip fee includes transport from and to Boise, Idaho. *Leader: Wheaton Smith. Price: $920; Dep: $100.* **[94081]**

Yampa River, Dinosaur Monument, Utah—May 23–27. The Colorado's last undammed tributary, the Yampa roars 72 miles through the colorful canyon maze of Dinosaur National Monument. Most days we float serenely through the canyon, its 1.5 billion-year-old walls towering 2,000 feet over us while we observe bighorn sheep, eagles, and other wildlife. Late May mountain runoff provides over 40 Class III rapids, including Warm Springs Rapid, one of the legendary "Big Drops." Minimum age 8. *Leader: Blaine LeCheminant. Price: $525; Dep: $100.* **[94082]**

Dolores River Raft, San Juan Forest, Colorado—May 30–June 3. This 100-mile float in a primitive red-sandstone canyon is second only to the Grand Canyon float in unbroken miles of river running and quality of whitewater. We start in a deep canyon with coniferous forest and clear water; one Class IV rapid and numerous lesser rapids will delight you. This trip may be done in conjunction with #94084 below. Minimum age 10. *Leader: R. Kurt Menning. Price: $655; Dep: $100.* **[94083]**

Colorado River Canyons, Colorado and Utah—June 5–7. This float on the Upper Colorado River starts quietly in a stunning sandstone gorge called Horsethief/Ruby Canyons, an area studded with spires, windows, arches, and box canyons, where horse thieves and bandits once hid. We then enter Westwater Canyon with its wild bucking rapids surrounded by igneous rock over 1.7 billion years old. This trip can be done in conjunction with trip #94083 above. Minimum age 10. *Leader: R. Kurt Menning. Price: $500; Dep: $100.* **[94084]**

Reservation and Cancellation Policy

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

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

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

Applications: One reservation form should be filled out for each trip by each person; spouses and families (parents and children under 21) may use a single form. Mail your reservation, together with the required deposit, to Sierra Club Outing Department, Dept. #05618, San Francisco, CA 94139. No reservations will be accepted by telephone.

Reservations are confirmed on a first-come, first-served basis. However, since acceptance by the leader is required (based on applicant's experience, physical condition, etc.), the reservation is confirmed subject to the leader's approval, for which the member must apply promptly.

When a trip is full, later applicants are put on a waitlist.

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

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

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

Deposit: A deposit is required with every trip application. The amount of the deposit varies with the trip price, as follows:

Trip price per person	*Deposit per person*
Up to $499	*$50 per individual*
$500 to $999	*$100 per individual*
$1,000 and above	*$200 per individual*

The deposit is applied to the trip price when the reservation is confirmed. All deposits and payments should be in U.S. dollars.

Payments: Generally, adults and children pay the same price; some exceptions for family outings are noted. You will be billed upon receipt of your application. Full payment of trip fee is due 90 days prior to trip departure. Trips listed in the "International" section require additional payment of $300 per person six months before departure.

Please note that payments are due at the above times, regardless of your leader-approval status. If payment is not received on time, the reservation may be canceled and the deposit forfeited.

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

The trip price does not include travel to and from the roadhead or specialized transportation on some trips (check trip brochure). Hawaii, Alaska, and International trip prices are all exclusive of airfare.

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

Infrequently the Sierra Club finds it necessary to cancel trips. The Club's responsibility in such instances is limited in accordance with the Trip Cancellation Policy. Accordingly, the Sierra Club is not responsible for nonrefundable airline or other tickets or payments or any similar penalties that may be incurred as a result of any trip cancellation.

Confirmation: A reservation is held for a trip applicant, if there is space available, when the appropriate deposit has been received by the Outing Department. A written confirmation is sent to the applicant. The reservation is confirmed subject to the leader's approval. If there is no space available when the application is received, the applicant is placed on the waitlist and the deposit is held pending an opening.

When a trip applicant is placed on the waitlist, the applicant should seek immediate leader approval so that in the event of a vacancy the reservation can be confirmed. When a person with a confirmed reservation cancels, the person at the head of the waitlist will automatically be confirmed on the trip, subject to leader approval. The applicant will not be contacted prior to this automatic reservation-confirmation except in the three days before trip departure.

Refunds: You must notify the Outing Department directly during working hours (weekdays 9–5; phone 415-923-5522) of cancellation from either the trip or the waitlist. The amount of the refund is determined by the date that the notice of cancellation by a trip applicant is received at the Outing Department. The refund amount may be applied to an already-confirmed reservation on another trip.

For More Details on Outings

Each outing is described in detail in individual trip brochures. We highly recommend reading a brochure before signing up for a trip. Trips vary in size, cost, and physical stamina and experience required. Don't sign up for the wrong one! Read the brochure, and 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.

A complete listing of all our 1994 International Outings will appear in the January/February issue of SIERRA, but it is available to you now for $1.

Name _____

Address _____

City _____ State _____ Zip _____

❑ Please send a 1993–1994 International Outings catalog. $1 is enclosed.

❑ Please send me the following trip brochures. (Order by trip number. The first three are free; extras cost 50 cents each.)

#_____ #_____ #_____

TOTAL ENCLOSED: $_____

Do not mail cash. Make checks payable to Sierra Club.

Clip coupon and mail to: **Sierra Club Outing Department,** 730 Polk St., San Francisco, CA 94109. **#5**

IMPORTANT INFORMATION ON SIERRA CLUB OUTINGS

Mail To:
Sierra Club Outing Dept.
Dept. #05618
San Francisco, CA 94139

1. All reservations are subject to the reservation/cancellation policy of the Outing Committee; leader approval is required for all outings. Cancellation fees apply unless you are waitlisted at time of cancellation.
2. A signed liability release is required for all international trip participants.
3. All participants age 12 and over must be Sierra Club members to attend an outing.
4. Your address may be released to other trip participants for purposes of ride-sharing or other trip-related purposes.
5. Not all trips can accommodate special dietary needs or preferences. Contact the leader for this information before applying.
6. Applications for trip space will be accepted in the order they are received at the following address:

   Sierra Club Outing Dept.
   Dept. #05618
   San Francisco, CA 94139

7. Please do not send Express Mail to this address. Doing so will delay your application.

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   San Francisco, CA 94139

7. Please do not send Express Mail to this address. Doing so will delay your application.

OUTING RESERVATION FORM

Please read important policy information on reverse.

MEMBERSHIP NUMBER	TRIP NUMBER	TRIP NAME	DEPARTURE DATE

YOUR NAME	HAVE YOU RECEIVED THE DETAILED TRIP BROCHURE? YES ☐ NO ☐
STREET ADDRESS	YOUR HOME PHONE ( )
CITY STATE ZIP	YOUR WORK PHONE ( )

PLEASE PRINT YOUR NAME AND THE NAMES OF OTHER PEOPLE IN YOUR PARTY	MEMBERSHIP NUMBER	AGE	RELATIONSHIP	NUMBER OF OUTINGS YOU'VE BEEN ON: CHAPTER	NUMBER OF OUTINGS YOU'VE BEEN ON: NATIONAL	YEAR OF LAST NATIONAL OUTING
1.			SELF			
2.						
3.						
4.						

PER PERSON COST OF OUTING	TOTAL COST OF THIS APPLICATION	DEPOSIT ENCLOSED	FOR OFFICE USE ONLY

Recycled Paper

PLEASE MAKE CHECK PAYABLE TO SIERRA CLUB
MAIL TO: SIERRA CLUB OUTING DEPARTMENT, DEPT. #05618, SAN FRANCISCO, CA 94139

01

OUTING RESERVATION FORM

Please read important policy information on reverse.

MEMBERSHIP NUMBER	TRIP NUMBER	TRIP NAME	DEPARTURE DATE

YOUR NAME	HAVE YOU RECEIVED THE DETAILED TRIP BROCHURE? YES ☐ NO ☐
STREET ADDRESS	YOUR HOME PHONE ( )
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1.			SELF			
2.						
3.						
4.						

PER PERSON COST OF OUTING	TOTAL COST OF THIS APPLICATION	DEPOSIT ENCLOSED	FOR OFFICE USE ONLY

Recycled Paper

PLEASE MAKE CHECK PAYABLE TO SIERRA CLUB
MAIL TO: SIERRA CLUB OUTING DEPARTMENT, DEPT. #05618, SAN FRANCISCO, CA 94139

01

TEAR OFF ENVELOPE HERE.

YOU MAY ENCLOSE CHECKS OR MONEY ORDERS WITH SAFETY.

(FLAP IS GUMMED.) ENCLOSE IN THIS ENVELOPE, FOLD FLAP, SEAL AND MAIL.

THIS ENVELOPE IS FOR *OUTING RESERVATIONS ONLY.*
PLEASE *DO NOT* USE FOR MEMBERSHIP FORMS.

Send membership forms separately to avoid processing delays.

PLACE
STAMP
HERE

Sierra Club Outing Dept.
Dept. #05618
San Francisco CA 94139

The Cancellation Policy applies to all reservations, regardless of whether or not the leader has notified the applicant of approval.

The Outing Committee regrets that it cannot make exceptions to the Cancellation Policy for any reason, including personal emergencies. Cancellations for medical reasons are often covered by traveler's insurance, and trip applicants will receive a brochure describing this type of coverage. You can also obtain information regarding other plans from your local travel or insurance agent We encourage you to acquire such insurance.

Trip leaders have no authority to grant or promise refunds.

Transfers: For transfers from a confirmed reservation made 14 or more days prior to the trip departure date, a transfer fee of $50 is charged per application. Transfers made 1 to 13 days prior to the trip departure date will be treated as a cancellation, and the Cancellation Policy will apply. No transfer fee is charged if you transfer from a waitlist. A complete transfer of funds from one confirmed reservation to another, already-held, confirmed reservation will be treated as a cancellation, and will be subject to cancellation fees.

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

Emergency care: In case of accident, illness, or a missing trip member, the Sierra Club, through its leaders, will attempt to provide aid and arrange search and evacuation assistance when the leader determines it is necessary or desirable. Costs of specialized means of evacuation or search (helicopter, etc.) and of medical care beyond first aid are the financial responsibility of the ill or injured person. Since such costs are often great, medical and evacuation insurance is advised, as the Club does not provide this coverage for domestic trips. Participants on international outings are covered by limited medical, accident, and repatriation insurance. Professional medical assistance is not ordinarily available on such trips. Be sure your insurance covers you in the countries involved.

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

Please don't bring these: Radios, sound equipment, firearms, and pets are not allowed on trips.

The following obligations are undertaken by trip applicants: to accurately and completely furnish any personal information requested for leader approval; to carefully review all information furnished about the requested trip and to understand as thoroughly as possible the physical and mental demands of the trip and the risks to be encountered on the trip; to properly equip themselves for the trip in accordance with recommendations of the leader and of the Sierra Club; to respect the customs of countries visited, avoid breaking any applicable laws and to refrain from antisocial conduct during the trip; to follow environmental guidelines and regulations while on the trip in accordance with direction from the leader; and, to always respect the rights and privacy of other trip members.

INTERNATIONAL TRIP TIER-PRICING

International outings are tier-priced. This means a trip's price is dependent on the number of participants. Two prices are listed for a trip, showing the signup levels associated with each.

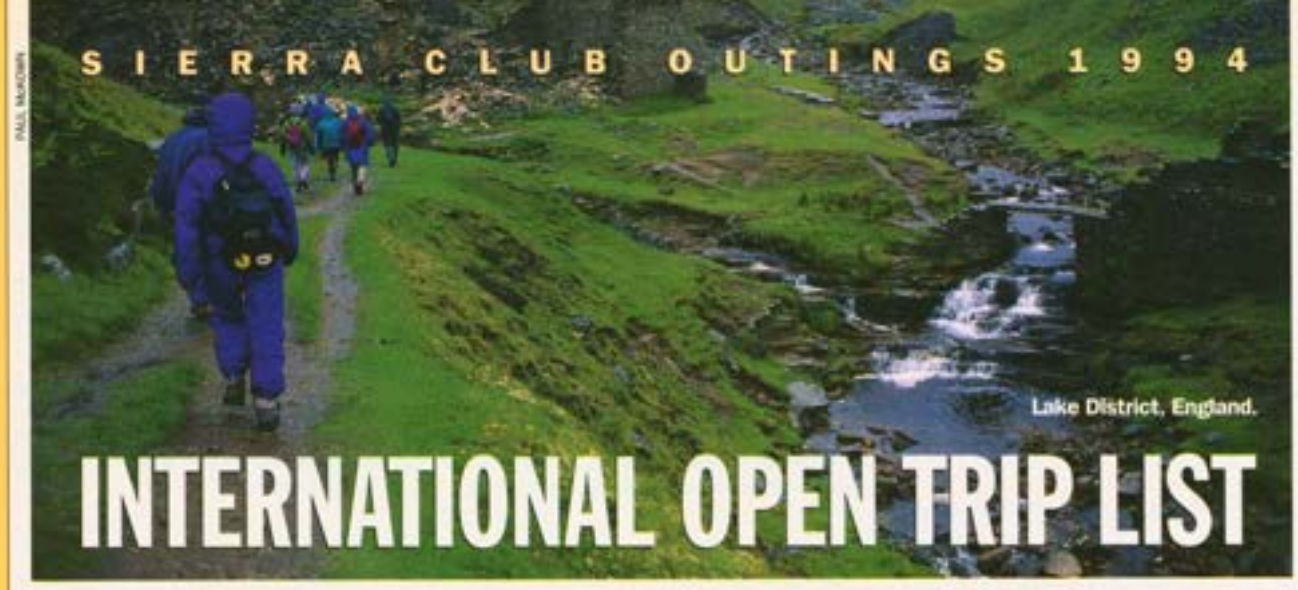
Final billing is based on the signup level at 90 days prior to the trip departure date. If the signup level goes up sufficiently between the billing and departure dates, the lower tier price will apply, and refunds will be issued after the trip is over.

Cancellations from trips where the tier price has changed are subject to our reservation and cancellation policy. All regular cancellation fees will apply.

Time or event of cancellation	Amount forfeited per person	Amount refunded per person
1) Disapproval by leader (once leader approval information has been received by the leader)	None	All amounts paid toward trip price
2) Cancellation from waitlist, or the person has not been confirmed three days prior to trip departure	None	All amounts paid toward trip price
3) Trip canceled by Sierra Club	None	All amounts paid toward trip price
4) Cancellation from confirmed position or confirmed position subject to leader approval		
a) 90 days or more prior to trip departure date	$100 or amount of deposit, whichever is less	All amounts paid toward trip price exceeding forfeited amount
b) 60–89 days prior to trip departure	Amount of deposit	As above
c) 14–59 days prior to trip departure date	20% of trip fee, but no less than the amount of deposit	As above
d) 4–13 days prior to trip departure date if replacement can be obtained from waitlist	30% of trip fee, plus $50 processing fee, but in no event more than 50% of total trip fee	As above
e) 4–13 days prior to trip departure date if replacement cannot be obtained from waitlist (or if there is no waitlist at the time of cancellation processing)	40% of trip fee, plus $50 processing fee, but in no event more than 50% of total trip fee	As above
f) 0–3 days prior to trip departure date	Trip fee	No refund
g) "No-show" at the roadhead, or if participant leaves during trip	Trip fee	No refund

Mail checks and applications (excluding those sent by express mail) to:
Sierra Club Outing Department
Dept. #05618, San Francisco, CA 94139

Mail all other correspondence (including express-mail applications) to:
Sierra Club Outing Department
730 Polk St., San Francisco, CA 94109



INTERNATIONAL OPEN TRIP LIST

In addition to the winter and spring trips described on pages 12–23, the following summer and fall 1994 international trips are also available. Send in the coupon on page 24 for the 1993–1994 International Outings catalog, or for individual trip brochures. International trips are tier-priced; prices do not include airfare. Look for a complete listing of 1994 international outings in the January/February issue of *Sierra*.

TRIP #	TRIP TITLE	DATES	LEADER	PRICE
AFRICA				
94595	Exploring Kenya by Track and by Trail	June 18-July 3	Paul McKown	$3,685/3,965
94617	Mt. Kenya Climb	July 4-11	Paul McKown	$1,885/2,025*
94620	Ngorongoro Crater to Zanzibar, Tanzania	July 12-26	Kern Hildebrand	$3,340/3,615
94635	Botswana Wildlife Safari	August 14-27	Ruth Dyche	$4,370/4,650
ASIA				
94695	Altai and Tien Shen Mountains, Kazakhstan	Sep. 4-27	Frances Colgan	$3,980/4,260**
94655	Manaslu Circle Trek, Nepal	Oct. 17-Nov. 16	Cahit Kitaplioglu	$2,855/3,130
94670	Kang Chu Himal, Nepal	Nov. 10-Dec. 7	Patrick Colgan	$2,740/3,015
94675	Trekking and Touring in North Vietnam	Nov. 28-Dec. 11	John DeCock	$3,220/3,415
EUROPE				
94585	Cumbria Service Trip, Lake District Park, England	June 1-15	Gary Swanson	$2,205/2,455
94590	Tyrolean Summer Dream, Hiking and Biking in Austria	June 18-July 2	Dan Noble	$2,575/2,850
94605	Norway's Lofotens and Midnight Sun	June 21-July 2	Mark A. Larson	$2,825/3,105
94615	Haute Dauphine, French Alps	July 3-13	Jerry South	$2,340/2,615
94640	Mountains of Contrast: The Diverse Dolomites, Italy	Aug. 29-Sep. 11	Wayne Martin	$2,705/2,980
94600	Insider's View of the Loire Valley, France	Sep. 5-13	Lynne Simpson	$2,180/2,455
94645	Hiking the High Tatras, Slovakia	Sep. 5-17	Wayne R. Woodruff	$1,945/2,205
94660	Sailing and Hiking in Greece	Oct. 21-Nov. 3	Carolyn Castleman	$3,245/3,525
LATIN AMERICA				
94650	Exploring the Land of Eternal Spring, Northwestern Costa Rica	Oct. 15-23	Ligia Fernandez Molina	$2,200/2,475
94665	Sea of Cortez Kayaking, Baja California, Mexico	Oct. 22-28	Blaine LeCheminant	$1,395/1,440
94680	Holidays in Belize	Dec. 18-26	Tim Wernette	$2,140/2,415
94685	Enchanted Isles, The Galápagos, Ecuador	Dec. 22-29	Dan Noble	$2,565/2,945
94690	Cultural Exchange and Rafting Adventure, Costa Rica	Dec. 24-30	Sallee Lotz	$1,650/1,895
RUSSIA				
94610	Lake Baikal Service Trip, Southern Siberia, Russia	June 28-July 17	Cheryl Draves	$1,895/2,075
94625	Kamchatka, Russia	July 25-Aug. 6	Jerry Clegg	$2,230/2,505
94630	Russia through the Back Door	Aug. 8-22	Dolph Amster	$2,930/3,205

*This trip must be done in conjunction with trip #94595 or #94620. **New trip! Write or call for the detailed trip brochure.

A strange sporting event took place the other day. A man in a fetal position under a hurdle caught a runner in midair.

Is this fun, or what?

Antonis Achilleos, pro busboy, amateur shooter, dove under a hurdle to catch a flying woman with his Nikon N6006. Please don't try this at home.

To Antonis Achilleos, part-time busboy, full-time amateur photographer, it is. In fact, to Antonis, making great photographs is more fun than making touchdowns, jump shots or holes in one.

Homestretch
by
Antonis Achilleos, busboy

One afternoon, while driving to get a Slurpee, he spotted a vision of beauty in sweat socks flying through the air.

Something clicked.

He grabbed his Nikon N6006, leaped out of his car, then flung his body under a hurdle and waited. Was it worth it?

What do you think?

Antonis used an N6006 to experiment with and expand creativity.

It autofocuses quickly and precisely in light as dim as a single candle. There's Spot Metering, Center-Weighted Metering, and Matrix Metering, for rapidly changing light conditions or fast-moving action.

"Hey, Mister, duck!"

There's a powerful pop-up flash with 28mm coverage. Here Antonis brightened the foreground by increasing the flash one stop. And he underexposed one stop to maintain the ominous sky and provide contrast to the brightly lit foreground.

To create a sense of motion (as if she needed it), he used Rear Curtain Sync, which fires the flash just before the shutter closes, and he shot at 1/15th. Even though the flash isn't designed to cover the entire frame, Antonis chose a 24mm AF Nikkor to exaggerate the angle. He could have picked any one of nearly eighty legendary lenses. The same lenses most pros use behind the dugout or in the end zone.

This is it. The Nikon N6006. Autofocusing, a built-in flash, interchangeable Nikkor lenses. It's how amateurs get their stuff in magazines. Just ask Antonis. For a free booklet call 1-800-NIKON-35.

See the N6006 at authorized dealers where you see this symbol. For more on the exclusive Nikon MasterCard, call 1-800-NIKON-35.

The N6006,® however, is the Nikon for people who don't have press credentials. Or sideline passes.

You see, this is the Nikon that amateurs show their stuff with. This is the Nikon for people with a passion for photography who just happen to be dentists, plumbers, or busboys.

This is the Nikon photo buffs make part of their everyday wardrobe.

Because who knows what you'll see flying in the air on your way to 7-Eleven?

Mark Mardon

Small Fry Get the Big Picture

When veteran children's-book author Joanne Ryder was a young girl, her father, an amateur entomologist, would take her on hikes and teach her the ways of insects—demystifying the likes of a praying mantis by encouraging her to hold it in her hand. At home in the evening, she would pore over storybooks about collies (her favorite dog) and other domestic animals. As an adult, her fond memory of many hours spent with books and learning about creatures big and small led Ryder to a career of writing natural history for youngsters. She savored the idea of helping to shape kids' attitudes about nature: "When you're young," she says, "you pick up ideas like shiny pebbles."

Ryder was recently tapped to produce a series of titles for Sierra Club Books for Children, joining a growing list of talented authors and illustrators from across North America and overseas who are contributing to one of the finest collections of nature books for children anywhere. The program, with more than 40 titles in print, has garnered numerous honors, including a National Book Award for *The View From the Oak* by Judith and Herbert Kohl, which examines the notion that people are only a small part of the world, not the masters of it.

The children's series was begun in 1975 by Sierra Club Books Publisher Jon Beckmann, who perceived a need for the Club to reach out to a new generation, bringing a down-to-earth experience of nature to children.

"Other publishers do books about animals," says series editor Helen Sweetland, "but many of those animals are anthropomorphized—they wear clothes and talk. For the most part we avoid that." (She notes one exception, *The Seal Oil Lamp*, a traditional Eskimo folktale that includes a talking mouse.) "We want to treat the natural world in a realistic, accurate way," says Beckmann, but he admits he wouldn't turn down "an environmental *Winnie the Pooh*."

Sweetland points to a colorful array of books spread out on a conference table in the Sierra Club Books' office in downtown San Francisco. The jacket covers convey at a glance much of the books' style and substance: on one, seven bats in a row swoop past a brilliant full moon; on another, a peregrine falcon perches atop a concrete gargoyle overlooking a city; on a third, photos depict elementary-school students in Washington state working to bring a polluted salmon stream back to health.

And in fact, the series is designed to convey scientific and environmental topics to children precisely and imaginatively. One set of natural-history primers, for example, with titles like *What Is a Bird?* and *What Is a Fish?*, is aimed at children ages seven to ten. The texts and drawings clearly explain basic concepts of biology, while the design, utilizing photographs by Oxford Scientific Films, dazzles even grown-ups. (Advice to parents: read these books yourselves if you want to keep pace with your kids.)

One of the most popular writers and illustrators in the series is Barbara Bash of upstate New York, who specializes in picture books for children ages six to ten. She conceives her work in cinematic terms, opening her scenes with the Big Picture, then zooming in for a tight focus. In preparing *Urban Roosts: Where Birds Nest in the City*, a volume for inner-city kids, she spent a year observing sites in Manhattan, first painting pigeon-filled cityscapes, then painstakingly recording the bird nests and shelters she found upon skyscraper window ledges or within dark tunnels in Grand Central Station.

Bash receives many letters from admiring readers. Following publication of *Tree of Life: The World of the African Baobab*, her biggest fans turned out to be students at a Catholic mission school in Namibia. The fifth-graders were "spellbound" by the book's literary quality and strong sense of place, according to their American teacher, Timothy Abbott. Because many of them had never seen a full-grown baobab, Abbott led them on a field trip to look at specimens 700 to 1,000 years old. As the kids gazed at the trees, they took turns reading aloud from Bash's book. Then, inspired by her artwork, they drew their own pictures of native plants and animals.

Especially popular among grade-school librarians and third- to sixth-grade teachers are the books of Margery Facklam, who has a knack for simple explanations of complex wildlife topics—among them animal communication, hibernation and sleep, symbiosis, and, most recently, intelligence. Her book on the phenomenon of extinction, *And Then There Was One*, garnered the "Best

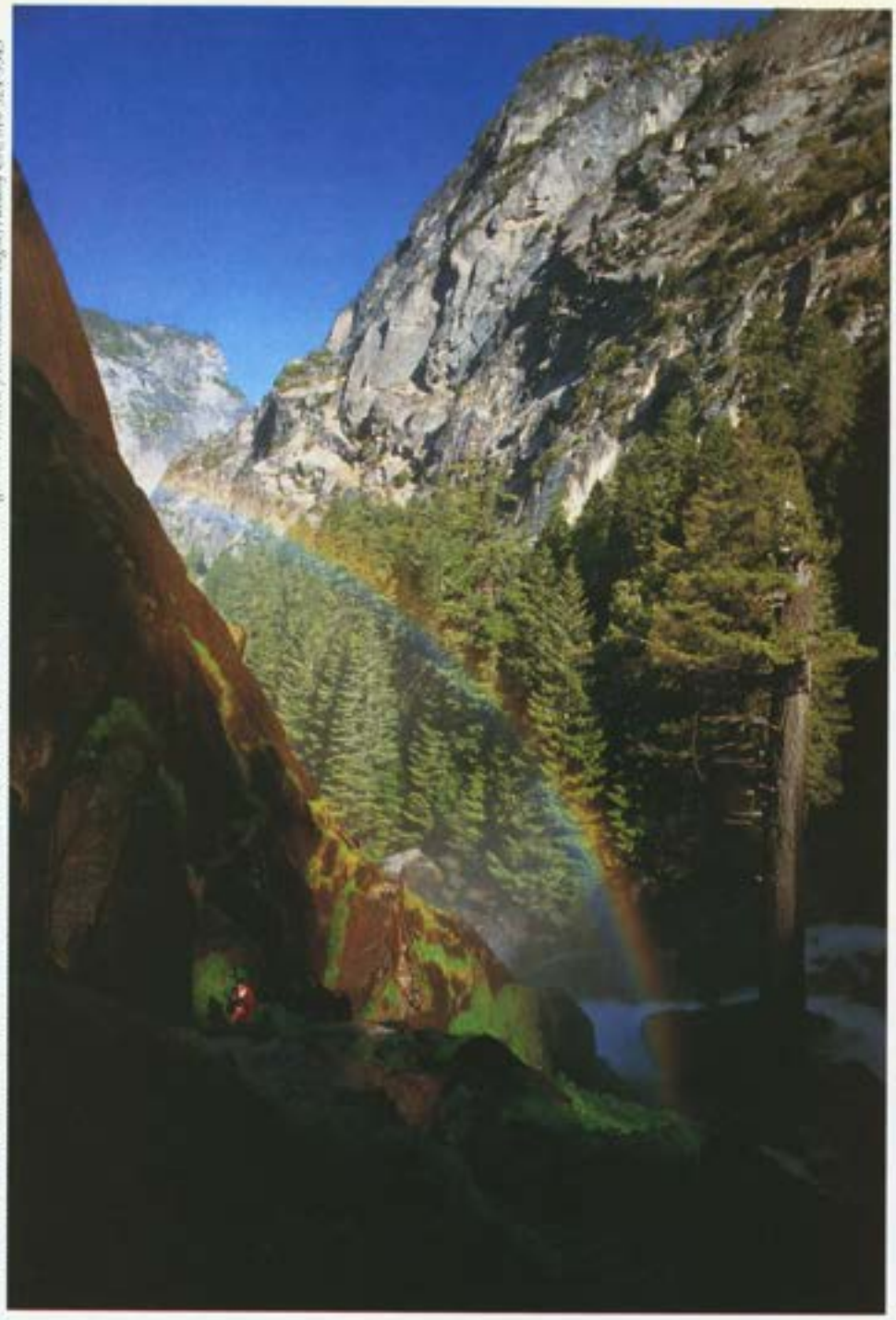


Photo: Galen Rowell, Rainbow on Mist Trail, Yosemite. Fine art photographs and posters of Galen Rowell's images are available from Mountain Light, Albany CA, 510-524-9343

Nature

Health

Energy

Whether you're day-hiking or on a major expedition, low-fat, high-energy ***PowerBars*** raise and sustain energy better than anything else.

*The people who make PowerBars recycle wherever possible. We buy and use recycled materials for our boxes, shipping containers, office paper and promotional materials. We urge our customers to recycle wherever possible and, when visiting natural areas, to help preserve the environment by packing out what you pack in.

For a free 10 page **Nutrition and Energy Guide**, call **800-444-5154.**

$1.69 each
Protein: 10 g.
Fat: less than 2 g.
Carbohydrate: 42 g.
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Book of the Year" award from *School Library Journal* in 1991. It tells the sad tales of several endangered or extinct animals, including that of Lonesome George, the last surviving member of his species of giant tortoise, who resides at the Darwin Research Station in the Galápagos Islands.

"Kids today are worried, scared, and concerned about animals," Facklam says. "Yet somehow adults are not giving them accurate information." A big part of the problem is that today's urban kids know less about the nitty-gritty of frogs, crows, badgers, and such than children of previous generations knew. Her goal is to present creatures up close, personalizing (but not humanizing) them in ways that let kids more easily understand natural history and environmental issues.

For Ryder, an author's first duty—no matter how important the topic—is to convey to youngsters the joy of exploring nature. This makes writing for children fun, "because you have to go back to that time when everything was fresh and new." She especially enjoyed writing *Dancers in the Garden*, which focuses on the hummingbirds that she loves to spend hours observing in San Francisco's Golden Gate Park. She had the added pleasure of collaborating closely with a celebrated artist, the fine-arts printmaker and scientific illustrator Judith Lopez.

"Most children's-book writers aren't afforded the opportunity to work directly with the artists," says Ryder. The publishers usually set up the partnerships between them "like an arranged marriage," and often the illustrators' visions don't correspond to the authors' ideas: "I once wrote a book about my family, and the artist turned them into sheep."

Keenly aware that as a book author she's competing with television, videos, and personal computers for kids' attention, Ryder still feels assured of a loyal audience. "A book is a very private, personal experience," she says. "You step into another world, and nobody else is sharing it." ■

► *For more information, see "Resources," p. 112.*

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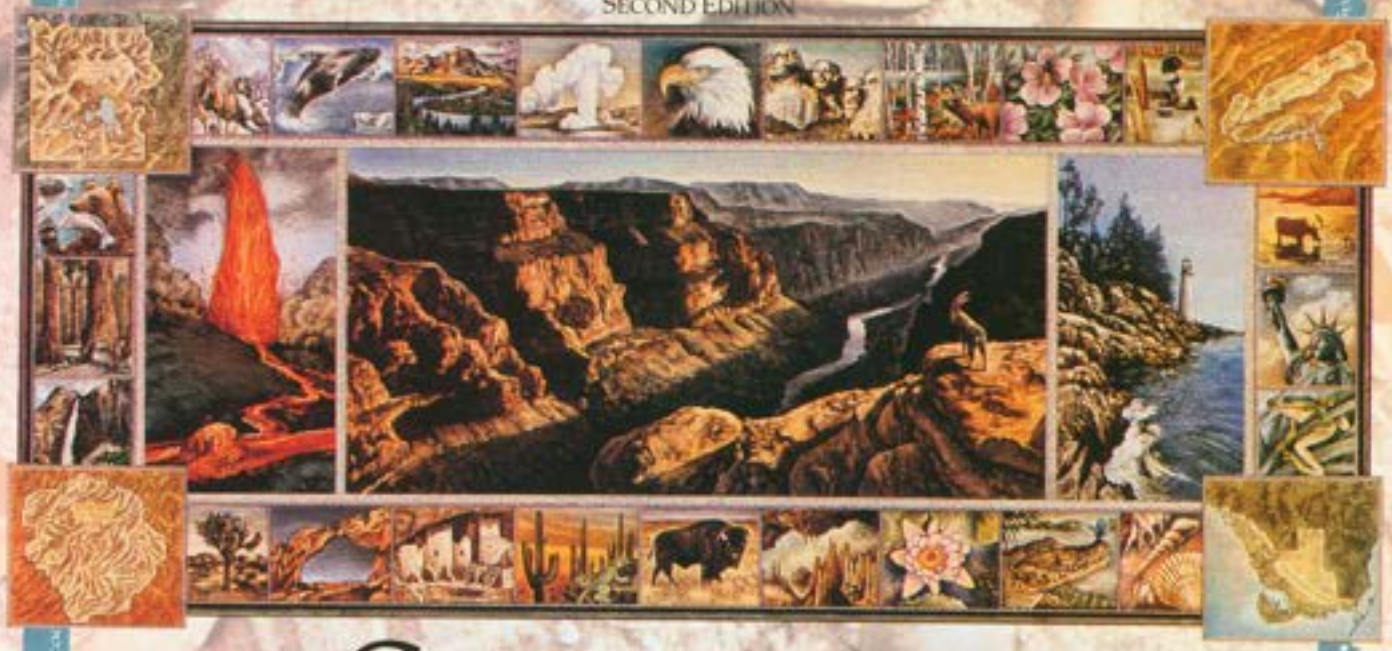

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LETTERS

PROLES PLAY THROUGH?

If the intent of Bruce Selcraig's "Greens Fees" (July/August) was to gore the ox of the golf industry . . . mission accomplished! If it was to illuminate the environmental issues relevant to golf-course development, we'd say you missed by a mile. The photographs chosen for the article (graded soil, bulldozers, groundskeeper with protective mask spreading chemicals) were obviously selected to distort the issues and inflame the reader.

However, all the distortions in the world will not alter these facts:

- The Cape Cod study, cited by Selcraig as open to several interpretations, clearly shows that registered turf pesticides properly used on golf courses do not create toxicologically significant concentrations in local groundwater.
- Golf-course superintendents are educated, licensed, and compelled to pursue lifelong continuing education. Much of this training is devoted to the proper use of chemicals.
- The United States Golf Association (in conjunction with several universities) commits millions of dollars to ongoing research on turf grasses that are disease- and drought-resistant.
- The press for new golf courses is not driven by the whims of the rich or the unbridled greed of developers. Golf is, and always has been, a sport supported by a broad-based population (24 million U.S. golfers), and the demand for places to play golf has never been greater. In the United States there are four public courses built for every private one, and many of the private courses are supported by middle-class members.

Robert Muir Graves, Damian Pascuzzo, Daniel Bucko, Neal Meagher
Robert Muir Graves, Ltd.
Golf Course Design & Development
Walnut Creek, California

Bruce Selcraig replies: *That Graves and his associates would say* Sierra*'s use of a half-dozen photos revealing what* really *goes on at golf courses "distorts the issues" shows what sort of fawning, scrutiny-free press course-developers have come to expect. Virtually every golf magazine and book in print is filled with photos of fabulously manicured courses. But you'll almost never see how they got that way—no shots of bulldozers ripping trees from the ground, no masked workers applying chemicals. (Several companies travel the world taking publicity shots of these golf gardens, yet they are so compromised by their ties to the golf industry that one such firm told* Sierra *it would supply photos for my article only if it were not identified.) American golf's reputation has, in large part, been shaped by incurious, public-relations photography. The photos that offend Graves et al. so much are, for me, like an ocean breeze in a stale company museum.*

The suggestion that the golf industry is making a great effort to attract the working-class golfer ignores the fact that the increase in the number of so-called public courses over private ones has more to do with the real-estate market than with developers' affinity for the golfing proletariat. Many parts of the country have seen a big downturn in the luxury-housing market, meaning fewer country-club developments attached to private golf courses. But that doesn't mean courses aren't still being built. They are—only now they're often labeled "daily fee" courses and charge $40 to $80 for a round of golf . . . hardly a lure for the working class.

As for the Cape Cod chemical study, I reported what it is suggested I overlooked: that no "currently registered" pesticides were found in "toxicologically significant" amounts. Yet few responsible scientists, knowing what we do about previously "safe" levels of lead, dioxin, and a host of other toxics, would suggest that one study puts the matter to rest. In truth, the EPA has not yet established "safe" levels for many chemicals used on golf courses, particularly with regard to their effect on aquatic life.

Finally, I, too, am impressed with some *golf-course superintendents. If they were freed from the green-at-all-cost demands of club owners and the golfing public, they could probably make the game much more environmentally sound. Yet the vast majority of them have been heavily indoctrinated by the chemical industry, whose "research" is treated as gospel at most courses.*

I'm reminded of a recent exchange with a super in New Mexico. When I asked the name of his most commonly used chemical, he was stumped. "Oh, I know the name," he said, rubbing his forehead. "I can picture the label and everything. Well, I can't remember it, but the salesman from Scots [chemical company] would know. He tells us what to use and when to use it."

"Greens Fees" accurately portrayed America's destructive addiction to golf, a game that perfectly reflects our alienation from the living land. The appetite for pretty scenery is not only dangerous to flora and fauna, but is also a serious threat to human communities. Bruce Selcraig could not have picked a better example of this than the planned La Cienega de Santa Fe project in New Mexico.

La Cienega (which means "marsh" in Spanish) is a lush oasis in the arid lands south of Santa Fe. People have lived in this fertile valley for several hundred years; it has been home to a vibrant Hispanic community for more than 250 years. The proposed golf course would straddle the *acequia* (ditch) that has carried water to the community's fields and gardens since at least 1715. The developers originally proposed to pipe and bury the ditch, and build a driving range over the top; they have also proposed to water the course with potentially polluting nitrate-contaminated wastewater from Santa Fe's sewage-treatment plant. To the developers, the golf course and the 140 $300,000 homes surrounding it will "upgrade the gateway to Santa Fe." To the community of La Cienega—rural, traditional, 65-percent Hispanic—the project is cultural genocide.

Fortunately, the community has won some battles against the developers. Opposition forced them to withdraw

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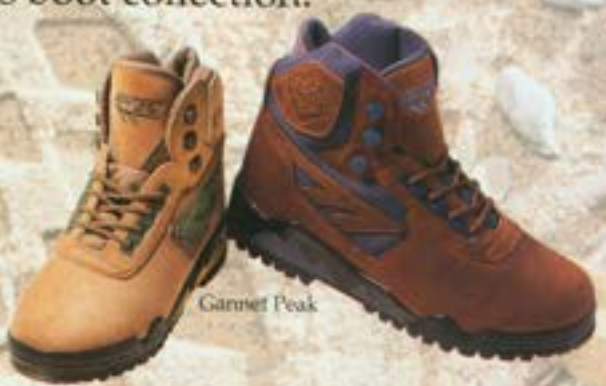

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their application to irrigate the golf course with wastewater, pending further study. When a team of economists and anthropologists advised the State Engineer that the project would irreparably harm the community and accelerate the trend of displacement of native peoples in the upper Rio Grande Valley, the developers withdrew their application to transfer water rights to the project.

Still, the project lives; as long as there is money in golf-course/residential projects, the developers will not quit. But the community knows that unity and perseverance ultimately prevail over mere lust for gold. And they well know that nature is not the only victim when golfers come to town.

Eric Ames
Santa Fe, New Mexico

The writer, an environmental attorney, represents Residents and Friends of La Cienega, a community organization. He is also co-chair for water issues in the Sierra Club's Rio Grande Chapter.

A PLAN IN THE MAKING

As the official responsible for oversight of the State of California's unprecedented program to protect the coastal sage scrub habitat of Southern California (including its resident species like the gnatcatcher)—and as a former executive director of the Sierra Club—I take strong issue with aspects of *Sierra*'s recent story on that effort ("Pact With the Developers?" July/August).

The Natural Communities Conservation Planning (NCCP) program is designed to move beyond conventional application of the Endangered Species Act and to take preventive actions to restore and maintain entire habitats. Twenty years of experience with the ESA tell us that the act's species-by-species listing-and-recovery planning processes have been insufficient to protect biological diversity. Additional tools are needed if we are to engage in effective ecosystem management.

In addition to the gnatcatcher, there are as many as 90 other potentially threatened or endangered species of plants and animals in the coastal sage scrub habitat of Southern California. Governor Pete Wilson's program would provide protection for all such species at a time—prior to listing—when useful intervention is possible.

Despite the fact that conservationists of every stripe have enthusiastically embraced the NCCP process, there are still those—including, at times, representatives of the Sierra Club—who prefer the status quo of gridlock and confrontation. Your article was misleading in that:

- It states that NCCP was conceived "in an attempt to head off the listing of the gnatcatcher." In fact, the program was conceived to conserve entire ecosystems and thus prevent the decline of multiple species.
- It suggests that federal listing of the gnatcatcher was necessary in order to augment the supposedly inefficient protection provided by the state. Interior Secretary Bruce Babbitt disagrees, saying, "The only effective way to protect endangered species is to plan ahead

to conserve the ecosystems upon which they depend. . . . I applaud the cooperative effort [in California] to protect the gnatcatcher."

• Habitat loss pending implementation of the NCCP is a significant issue, but the estimate cited in the article has been disputed by state and federal wildlife officials. Many of those acres cited were lost before the NCCP program got under way, and several hundred others were mitigated according to criteria proposed by the U.S. Fish & Wildlife Service.

• Finally, regardless of one's view of the San Joaquin Hills Toll Road in Orange County, efforts to prevent its construction by listing the gnatcatcher under the ESA have been unsuccessful and, at times, in conflict with environmentalists' desires to engage in ecosystem planning. The U.S. Fish and Wildlife Service—the federal agency whose oversight reassures the author—determined that the toll road is not a long-term threat to the survival of the gnatcatcher.

Ecosystem planning is a much more complex but ultimately more rewarding endeavor than site-by-site, species-by-species management. Little wonder that this approach is strongly preferred by scientists, conservationists, and policymakers alike.

Douglas P. Wheeler
Secretary for Resources
State of California
Sacramento, California

Bob Hartman, Sierra Club regional vice-president for Southern California, replies: *Environmentalists share Secretary Wheeler's optimism that the NCCP program will move beyond the conventional species-by-species listing and recovery planning processes to actually protect biological diversity. But we also recognize that this new approach is charting previously unexplored territory in addressing species and habitat protection. It is this recognition—not any preference for "the status quo of gridlock and confrontation"—that motivates our scrutiny of the program.*

The NCCP program is not yet clearly defined. The ultimate goals and objectives of a coordinated, comprehensive, multi-jurisdictional program have been neither stated nor agreed upon. The species to be included, the habitats to be preserved, and the methods for establishing a functional regional preserve system have not been delineated. Meanwhile, some jurisdictions in San Diego County continue to process project applications without knowing whether by so doing they are helping or hindering the proposed preserve system.

Given the national significance of this listing and the potential use of the California effort as a national model, the Sierra Club believes that a cooperative effort to develop the NCCP program provides an opportunity for advancing species and habitat protection. At the same time, we believe a critical analysis of its progress is warranted.

✍ Sierra *welcomes letters from readers in response to recently published articles. Letters may be edited due to limitations of space or in the interests of clarity. Write to us at 730 Polk Street, San Francisco, CA 94109.*

WAYS & MEANS

Trade Secrets

CARL POPE

Looking at the ruins of Europe in 1919, French Premier Clemenceau declared that "war has become too important to be left to the generals." Looking at the global natural-resource disasters left behind after 45 years of the Cold War, environmentalists have come to realize that foreign policy is too important to be left to the diplomats.

That conclusion, which implies that Congress and the public have a right to be informed of the environmental consequences of foreign-policy decisions, lay behind a pioneering lawsuit brought last year by the Sierra Club, Public Citizen, and Friends of the Earth. The suit argued that the National Environmental Policy Act (NEPA) obliges the U.S. government to disclose the environmental consequences of the proposed North American Free Trade Agreement. In July, when Judge Charles Richey ruled that the government must indeed file an Environmental Impact Statement on NAFTA, the major media came completely unglued.

"Death Threat to NAFTA," "Environmental Misstep," and "The Trashing of Free Trade" were among the headlines. "The law must not be permitted to become the tool by which the special interest leaders of Public Citizen, the Sierra Club, and Friends of the Earth obtain oversight of foreign policy," thundered the *Albuquerque Journal*.

With liberty, justice, and information for all

"An utterly loopy decision," opined *The Wall Street Journal*. Columnist George Will declared that the lawsuit constituted a new form of "anarchy" produced by "judicial activism," and that no one could really predict the environmental consequences of NAFTA. (A notable exception was *The New York Times*, which calmly pointed out that "it is sound policy to factor environmental considerations into international agreements.")

What's all the shouting about? Surely those voting on the treaty (and those citizens who may be governed by it) deserve answers to such fundamental questions as whether the United States would retain the freedom to shape its own environmental policy.

The media hysteria is partly due to the fear that if the public and Congress *are* given the facts, the agreement may be rejected. More significantly, it is a visceral reaction against opening up foreign policy to public debate and control. Judge Richey's critics, who include the Clinton administration, argue that the president's ability to make foreign policy must remain unfettered, and that compliance with NEPA infringes upon presidential powers.

But the exercise of unfettered power is a danger to democracy as well as to the planet. Environmentalists are asking for accountability: institutions must take responsibility for the effects of their actions on future generations, other species, and the biosphere.

The common people, allege the diplomats and their pundit allies, lack the sophistication to judge highly technical questions of international trade. That is exactly why the public needs the information required by Judge Richey. Having seen the results of diplomatic monopoly in the *maquiladora* mess on the U.S./Mexico border, we cannot afford to entrust the North American environment to unaccountable bureaucrats. ■

Log Book

HANNAH HINCHMAN

In May I bought an old house. I decided to buy it after discovering that behind the cheap, wood-patterned fiberboard paneling there stood big logs, hand-adzed by the "tie hacks" who cut railroad ties from the surrounding Wyoming forests at the turn of the century. At the nearby Dubois Museum I once watched a man fashion one of these ties, transforming a tree into a regular, smooth-sided timber. It required skill and balance to stand on the beam, notch it, and swing the broadax rhythmically to remove each chunk of wood. All the logs in my house are exposed now, and the marks of the adze look like the crosshatching in a superb pen-and-ink drawing.

The house has become my bond to this little town and to the mountain ranges that flank it. Stands of lodgepole pine, the source of the timber that went into these walls, grew thickest and were easiest to cut at the head of our valley, where the Continental Divide drops away from the Wind River Mountains, then rises to meet the Absaroka Range.

So I sit and write, protected from the valley's winds by the bodies of its trees, and stay warm by extracting the energy contained in other trees. I'm fueled by the bodies of animals that walked beneath them, and refreshed by the water that percolates through their roots. My neighbor—housed, warmed, fed, and watered by the same substances—comes over to visit. He looks at the logs, looks at my drawings of the logs, and discusses with me methods of chinking them based on what he learned from his father, who also lived his life sustained by the generosity of this place.

Cutting down to the purely local

If I were to draw this set of interconnections, I think it would take the shape of an intricate piece of Celtic knotwork, the kind found in ancient illuminated manuscripts. One strand, ultimately linked in a circle, but with so many spur loops and smaller subweavings that it's easy to get absorbed in the details. My piece of knotwork would have one loose strand, however, threatening to unravel the whole design: the dump.

Before I moved in, I ripped through the layers of this house, creating piles of debris that represented changing ideas of comfort and beauty. I wanted to recover the original dignity of the building, but in the process reduced to trash many cubic yards of manufactured material and many hours of hard labor. What to do with the masses of rotted carpet pad and coils of ancient black-sheathed wiring? How about shattered linoleum tile and a frightening mother-of-pearl toilet seat?

With growing distress I made repeated trips to the badlands dump, arranging my offerings attractively, hoping some clever scavenger would rescue them before the bulldozer came. Standing before the mountain of discards, I wished for an alchemist's furnace into which I could pitch it all, then shovel fresh topsoil out the other end. But no such transfiguring device exists that can keep up with the velocity of our production. From now on, I want whatever I absorb into my life to become firmly woven into the knotwork.

The other night I had a grimy nightmare involving acres of old insulation, plastic paneling, and shredded tarpaper. I was to make birdhouses for a host of disheartened birds. They didn't want to live in the houses I made, but they had no other choice. I woke up surrounded by big logs, coherent both in their native strength and in the skilled craftsmanship that shaped them. In that post-dream moment, they seemed like an old and valuable manuscript, worth a lifetime of study. ■

GOOD GOING

Touched

SETH ZUCKERMAN

Antonio stands in the stern of the skiff, scanning the waves. Suddenly he guns the engine, and the nose of the 20-foot boat lifts as we skim toward the dark shapes that float like logs in the center of the lagoon. Moments later our skipper cuts the motor, and we drift to within 30 feet of a gray whale and her calf as they roll, slice the air with their flippers, and thrust their heads partway out of the water. Just as we grow accustomed to the spectacle, the mother swims toward us and dives beneath our boat.

Now that we are close enough to the whales to be covered by the fine mist they spout, a conversation I had the night before doesn't seem so academic. Shiloh had confessed his desire to touch a whale, while John and I—teachers from his high school—poohpoohed the idea. The lagoon is not a petting zoo, we lectured; these are wild animals, not goats or tame rats.

I had spoken as one who peers through binoculars from the beaches and cliffs of California's north coast as the gray whales steam past each winter and spring. Swimming inaccessibly through Pacific swells, they are en route between their summer feeding grounds in the Bering Sea and their calving and breeding lagoons off the coast of Baja California. Now I've traveled nearly 1,500 miles to see them in their southern habitat, much as I've followed salmon to their spawning grounds in a creek near my home. Last night, the notion of touching a whale seemed an interspecies *faux pas*, about as sensitive as caressing a mating salmon.

Off the coast of Baja, a short and sweet romance

The mother and calf leave us far behind. Our ten-dollar, hour-plus ride finished, we motor toward shore and wade to the beach. The workday is nearly over, and we chat with the boatmen.

"These are Mexican whales," declares one.

John, ever the precise biologist, stammers in broken Spanish, "But they feed near Alaska."

"*Si*," I note, "*pero aqui se chingan.*" (Genteel translation: "But this is where they procreate.")

That breaks the ice, and we are invited to the shack that serves as the boatmen's office and bunkhouse. Over chicken, tortillas, and cans of cold Tecate, we learn that the whale-watching concession is held by our hosts' farming village, 25 miles away. The profit from the mostly foreign tourists who visit the whales every January through March augments the income from the onion, watermelon, and chile harvests. Earnings have funded community projects such as a house for the schoolteacher, and now cover residents' health insurance.

Among the beer-drinking boatmen Luis stands out, quietly sipping his mineral water—an alcoholic who's been dry for four years. His colleagues say he is the best whale-finder in the bunch. He has a personal relationship with one gray, they tell us, whom he has named Maria Mercedes, after a character in a Mexican soap opera, a voluptuous, tough-talking, 18-year-old newspaper vendor in Mexico City. They speculate that this whale has the hots for Luis because she lets his boat approach very close. Take a trip with Luis, they suggest, and you can see Maria Mercedes.

We camp on a dune overlooking

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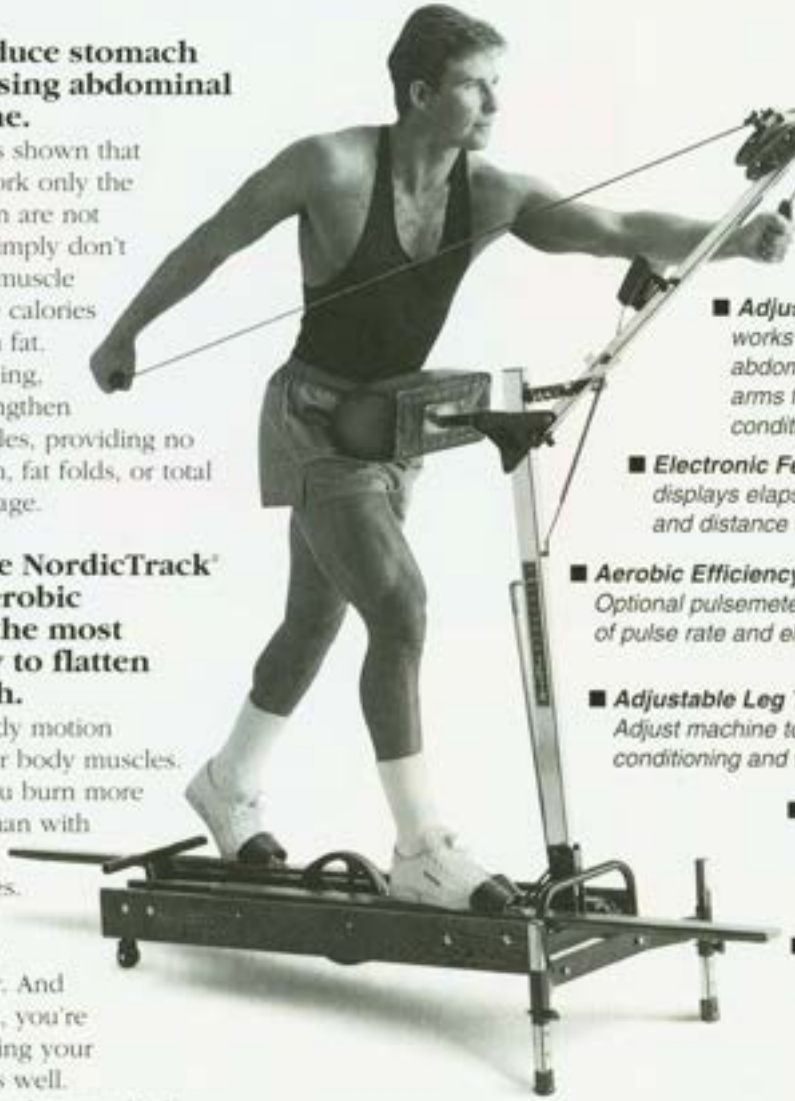

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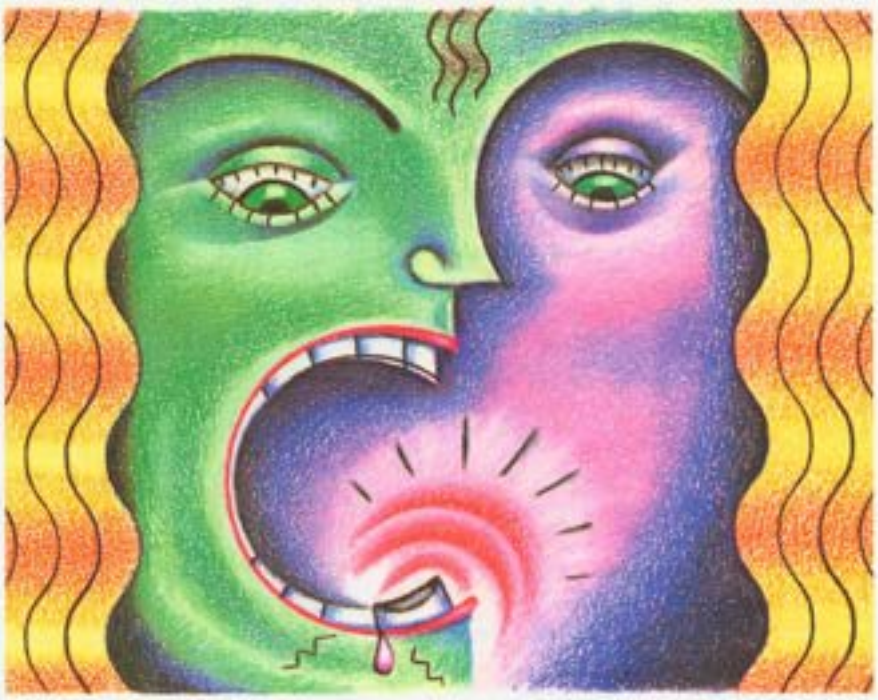
water backed by steep desert hills. A couple of times a minute, we hear a deep "phoom" echo through the night, the sound of whales breathing in the bay. Formerly Scammon's Lagoon, named after the whaling captain who discovered it (and nearly exterminated its cetacean population), it's now called Laguna del Ojo de Liebre (Hare's Eye Lagoon) and protected as a national park. The whales numbered some 4,000 when whaling ceased in 1946; last year, when they became the second animal to be removed from the U.S. endangered species list, they were thought to number more than 22,000.

The next morning we board Luis' boat and set out to find Maria Mercedes. Within ten minutes, Luis spots her, recognizing the white blotch on her dorsal fin. He slows the engine, steering in a wide curve to sidle up alongside whale and calf. Maria dives and swims ahead; even from underwater the beating of her flukes makes the water well up in smooth places, which Luis follows. The pair break the surface and we coast alongside them. By now Maria is swimming lazy circles around the boat, coming closer and closer. Even the calf is nearly as long as the skiff, and Maria herself at least twice its length. They are mere feet away, occasionally crossing under the boat.

I realize that no one could touch Maria unless she wanted them to, and my objections to whale-touching melt away. When she edges alongside the boat and exchanges glances with me, I reach over the gunwale and lay my hand on her flank. I expect a crusty surface ridged with barnacles, but my fingers rest on soft, yielding skin, like a chubby, hairless human. My fingers tingle for a while, but what still sizzles in my mind is the eye contact, mammal to mammal, one who'd stayed ashore and one who'd returned to sea. ■

SETH ZUCKERMAN *is a freelance writer in Petrolia, California.*

BODY POLITICS



Mercury Mouth

■

MICHAEL CASTLEMAN

In 1983, Marie Zammarchi of Fremont, California, developed persistently irritated gums. When her dentist replaced some of her fillings, the problem grew worse; she suffered from fatigue, strange rashes, and constant indigestion. Six years later her troubles had not abated. Finally Zammarchi was referred to Ward Eccles, a dentist with unusual feelings about fillings.

Eccles heard Zammarchi's story, took one look inside her mouth, and told her he'd like to replace her silver fillings with composite resin. "Within two weeks of the switch," Zammarchi recalls, "I started feeling better."

■

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Ward Eccles knows the risk firsthand. He gave no thought to his own mouthful of amalgam fillings until the late 1970s, when an interest in nutrition spurred him to read about essen-

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H. Sports	1	2	3	4	5

tial trace elements. At first, he dismissed any doubts about amalgam safety. In dental school, his professors had assured him it was safe. But the more he researched it, the more concerned he became. In 1981 Eccles stopped using amalgam, and began urging his colleagues to abandon it as well. He had his own amalgam fillings removed in 1983. "My allergies improved tremendously," he says, "and I found I had more energy."

Eccles' and Zammarchi's stories are what scientists call "anecdotal evidence," personal testimonials that carry little scientific weight. Eccles readily admits that the case against amalgam has not been proven, but he says the anecdotes have grown so numerous that "something must be going on."

The ADA accuses amalgam foes of unscrupulously preying on the public's fear of environmental contamination to make big bucks from filling-replacement. Eccles does not recommend that everyone have their amalgam removed, a process which in itself releases a considerable amount of mercury. "If you're healthy and have a strong immune system, there's probably no need to have your amalgam taken out," he says. "But if you're chronically fatigued or have vague, persistent symptoms your doctor has been unable to treat, it might help you feel better."

I've had a half dozen amalgam fillings since childhood, and have experienced none of the symptoms the material allegedly can cause. But when my six-year-old son developed a cavity, I wasn't wild about his getting an amalgam filling. I asked his dentist what material he used. "Your choice," he said, "either amalgam or composite." Amalgam, he explained, was covered by our dental insurance, but composite was not. If I wanted composite, I'd have to pay $80 out of pocket. Call me paranoid, but I wrote the check. ■

►*For more information, see "Resources," p. 112.*

HEARTH & HOME

Recharge It

■

MARC LECARD

As we all know, batteries don't last forever. And when the flashlight dims or the tape deck begins to warble, you may be left with a double handful of toxic heavy metals to get rid of somehow. Until very recently mercury has been the main villain, but in addition to mercury, other hazardous metals such as lead, cadmium, chromium, and silver lurk in those little cylinders.

Americans buy about 4 billion batteries a year, and throw out 2.5 billion of them. Household batteries make up a relatively small proportion of the waste stream by volume, but they are a significant source of contaminants; more than 80 percent of the mercury in the waste stream, for instance, can be traced to discarded batteries. When buried in landfills, battery casings will eventually corrode, and heavy metals may leach into groundwater. Burning batteries is no better, and maybe worse: if they are incinerated, the toxics are released into the atmosphere, and the incinerator ash becomes contaminated and thus harder to dispose of safely. Incineration is the major cause of environmental mercury contamination.

■

Sitting in the dark with a tuckered-out laptop?

The two most common battery types are alkaline and carbon/zinc. Up to now these have always contained mercury, to improve operation and extend shelf life. Feeling pressure from environmentally conscious consumers and government regulators, however, manufacturers have been busy developing a "new generation" of batteries with reduced amounts of mercury. Some claim to contain none at all.

The button batteries used in cameras, calculators, etc. can contain mercuric oxide, silver oxide, or lithium—all of which are toxic. Some states have considered banning button batteries outright.

Rechargeable batteries offer a solution to some of the problems of disposables, though they have problems of their own. The most

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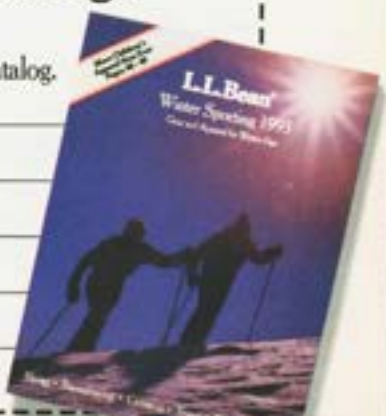


common rechargeables (nicads) are made from nickel and cadmium; cadmium, unfortunately, is yet another toxic metal, and more than half the cadmium in the U.S. waste stream comes from discarded batteries. Nicads cost more and hold their charge only a third as long as standard disposables—but a good nicad can be recharged up to 1,000 times, so you won't throw out nearly as many, and you'll save quite a bit of money, even factoring in the price of a recharger.

Rechargeable alkaline batteries are now available, some with reduced mercury content. Alkaline rechargeables don't need recharging as often as nicads, but they tend not to last as long, holding up for only 25 to 100 recharges.

Currently, the best bet is the nickel metal hydride battery—a rechargeable with no toxic heavy metals at all. These store more electricity, outlast other rechargeables, and cost about the same. And when they finally wear out, you can toss them with a clear conscience.

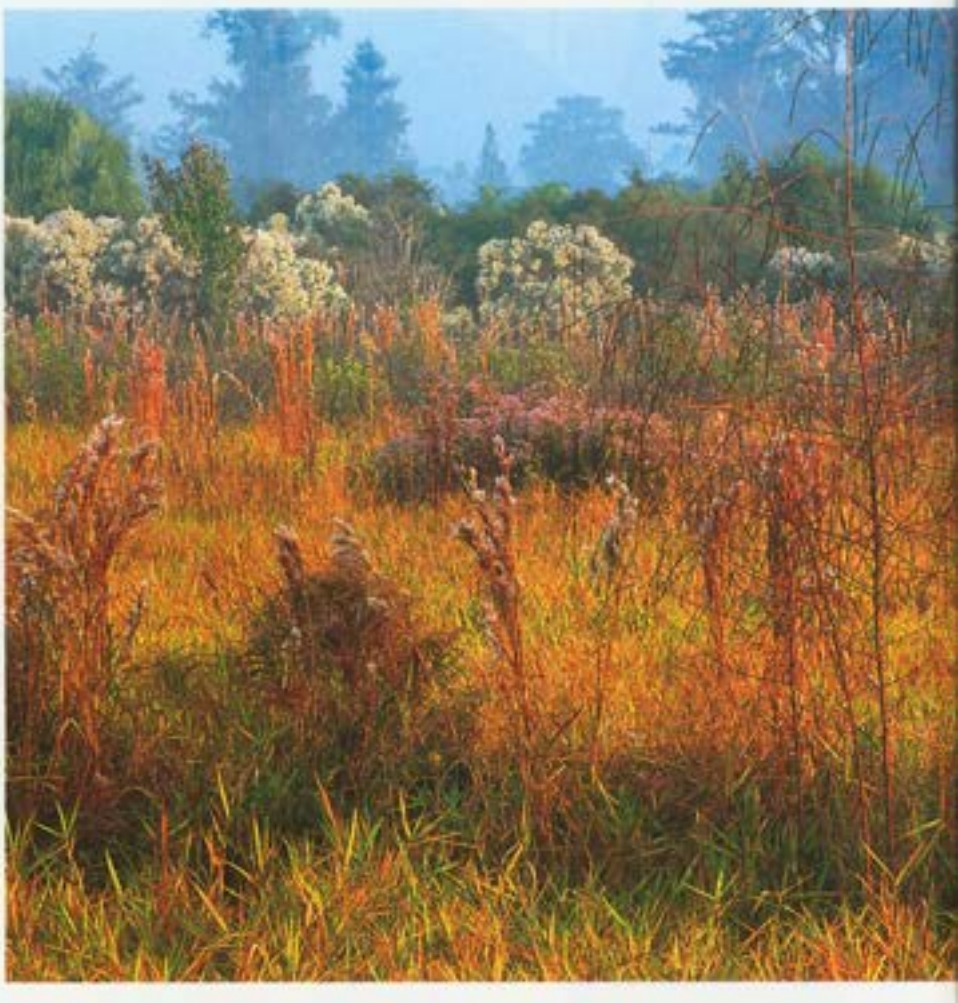
The technology for recycling household batteries exists, but the only plants in the world for recycling alkaline batteries are located in Japan and Switzerland. Button-cell batteries are regularly being recycled, and are often collected at the place of purchase. Nicads can (and should) be recycled, though as yet there is only one firm in this country that will do so.

If you're not sure about the toxics content of your worn-out batteries and can't recycle them, dispose of them as hazardous waste. Keep them separate from the rest of your trash and tote them to your local hazwaste collection center.

Given the energy waste and risk of pollution most batteries represent, however, you may want to take a hard look at your battery needs and see how many you can live without. ■

► *For more information, see "Resources," p. 112.*

WHEREABOUTS



American Xanadu

ROBERT CRUM

Walking one day along a dike in a nearby marsh (or "prairie" in the Floridian parlance), I found a smallish, elongated insect with its woody, knobbed carapace and long legs arranged like twigs on a small branch—a walking stick. As it perched on my finger, it suddenly released a little puff of mist. The mist serves as a protective mechanism: if the bug's imitation of a stick fails to fool a bird, the spray is its last defense. To a bird, it's pretty vile-smelling stuff. But for me the olfactory sensation was quite different, and I stood there in the broad light, thinking of Drambuie.

The wonders of Florida reside in such nuances, in the sway of Spanish moss in the silky morning breeze, in the white curve of a snowy egret's neck. Every available inch of this country fills in with the details of leaf and shadow by day, and the din of frog song by night. On hot, humid, summer afternoons chlorophyll seems to leak into the very air.

ROBERT CRUM

For a long time after I moved to the north-central part of the state, I missed what couldn't be found here: topographical variation, panoramic distances, the startling transfigurations of autumnal foliage. A geology buff, I was especially distressed by the lack of rocks. Most of Florida is a giant sandbar. The lowest areas are swamp; the highest (often only a few feet higher) are scrub. The only waterfalls begin at ground level and descend into sinks—craters where the buried limestone bedrock has dissolved and fallen away.

I am not the first to feel myself a stranger in the American subtropics. The names that the area's first white settlers gave to the landforms they came across seem, at best, to suggest their own confusion. Marshes were

Angels ply the rivers, and poets praise the springs

■

called prairies, and stands of trees were called hammocks. At worst, the names express a deep contempt and fear of the land. For me, the most unfortunate example of this is the name given to one of the local rivers: the River Styx—the waterway which, according to Greek mythology, the souls of the dead cross into Hades.

I now wonder if the early settlers weren't just annoyed that this land wasn't as compliant as others they had known. But those who came with different intentions found a different country. One of the early explorers of the region was William Bartram. I often think of him as a kind of Mozart of a naturalist, not because of his prose style, which tended to be prolix and grandiose, but because of his talent for turning common themes (clouds, streams, flowers) into evidence of heaven on earth. An ecstatic from the word go, he relates how the hooves of his horse turned red after riding through mile after mile of wild strawberries. He swooned over flowers, and gloried in the mammocumulus cloudscapes that are this region's substitute for mountains. He especially loved the big, turquoise-sided springs that percolate up through the limestone.

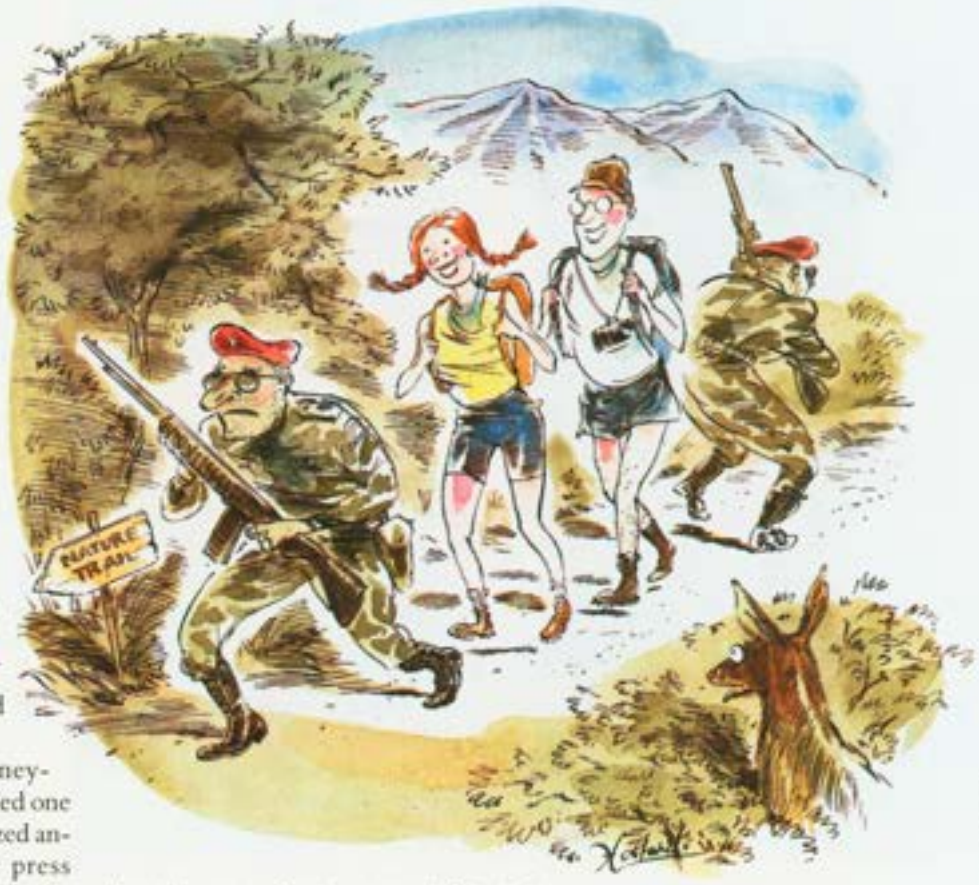
Samuel Coleridge happened to be reading Bartram's *Travels in Florida* just before writing his visionary poem "Kubla Khan." It is often noted that the creative spark for that work was opium, Coleridge's drug of choice, but it's not generally known that much of the imagery derives from Bartram's descriptions of Florida. Today Coleridge's "caverns measureless to man" are popular spots for scuba divers. Some of the cool streams that issue from the springs, which flow "five miles meandering with a mazy motion through wood and dale," are crowded with inner-tubers in summer. But during the rest of the year, those "deep romantic chasms" usually belong to those who take the time to visit.

One recent afternoon I took my canoe out on the River Styx. It was a bright day toward the end of spring, and I paddled as far as I could, until the river spread into a swamp. From there it was a matter of poling the canoe and getting out to lift it over logs. From all that I saw, this was not a river in Hell. Squadrons of white ibis worked the shoreline, drilling their curved red bills into the muck. Overhead, a rare wood stork spread its black and white wings. The alligators seemed surprised to have had their pleasure dome found out, and splashed into the water like huffy senators. The columns of bald cypress towered skyward, and their reflections in the water, mixed with blue sky and green foliage, gave the illusion of as much light and space below as there was above.

I have seen rivers that could qualify as Stygian, but those—high in fecal content and toxic waste—are not works of nature. Fortunately, there are no such rivers around here. If heaven has a local address, I think it may well be a spot such as this, where the insects smell of expensive liqueurs and the mockingbird, after a particularly long, beautiful riff (according to Bartram), "springs into the air as though to retrieve its soul." The limestone below the sand is two miles thick. Sharks' teeth wash out of the soil after every deluge. And after every bout of withering summer humidity, the afternoon thunderstorms bring raindrops big enough to knock you over. ■

ROBERT CRUM's *children's book on Native American powwows,* Eagle Drum, *will be published next year by Four Winds Press.*

When Nature Turns Nasty



On June 5, a great white shark killed 35-year-old Therese Cartwright as she was scuba diving off the coast of Tasmania while her quadruplets looked on from a nearby boat. Five days later at Byron Bay in New South Wales, a 16-foot shark with a similar sense of melodrama attacked John Ford, a newlywed who heroically pushed his wife Deborah out of the shark's path before he was killed and partially consumed.

"Shark took my husband—honeymoon bride tells of attack!" screamed one paper. "A decade of bloodshed," oozed another. Driven into a frenzy by press accounts, many irate Aussies called for the eradication of all "white pointers," as the great white is called there.

Meanwhile, in Hawaii, a number of well-publicized attacks by tiger sharks on surfers and body-boarders led to a vigilante effort to kill as many sharks as possible: "I don't think all the sharks in the ocean are worth one human life," veteran Honolulu surfer James Jones told the papers. A state-sanctioned shark task force keeps the islands' famous beaches safe for tourists by killing offending animals. In Hong Kong, an enterprising company came out with shark-attack insurance: a $250,000 payout to the beneficiaries for a mere $50 a year.

BY PAUL RAUBER

Can humans coexist with animals that, given the opportunity, might kill them? By going up against our species' instinct for self-preservation, certain other species are endangering themselves. On the Loxahatchee River in Florida, a 400-pound alligator named Big John killed 10-year-old Bradley Weidenhamer during a pause on a canoeing trip with his parents and Little League team. Big John was subsequently hunted down and executed, despite the doubts of biologists that alligators might ever become accustomed to preying on 10-year-olds. Calls went up around the state for the elimination of alligators from Florida's parks.

In California, as suburbs creep into once-remote foothills, encounters with mountain lions are becoming increasingly common. In April 1992, a cougar pounced on a Sacramento man dressed in camou-

Animals who bite people and the people who kill them.

■ ■ ■

Suddenly I was embroiled in a heroic struggle with breakfast.

William Henderson remembers sunrise in Northern Mississippi.

I'd come for a getaway from my Monday through Friday, bacon and eggs, sit in gridlock, punch-the-clock life. I got away. The fish wasn't so lucky.

When I was a boy, my Dad and I came here a lot. Just the two of us. A lot of fishing and man-talk. I miss him, but the joy my daughter and I share is every bit as warm. Here. In this place we've come to call, very simply, "ours." Where we are embraced by nature.

Perhaps that sunrise showdown between fish and father wasn't all that epic, and maybe the fish didn't hang over both sides the old black skillet. Yet with every retelling of our story the fish gets bigger, and I can't help but notice that my daughter's giggles have suddenly become much deeper.

But time has a way of doing that.

Even in this place where time ambles at such a softer pace.

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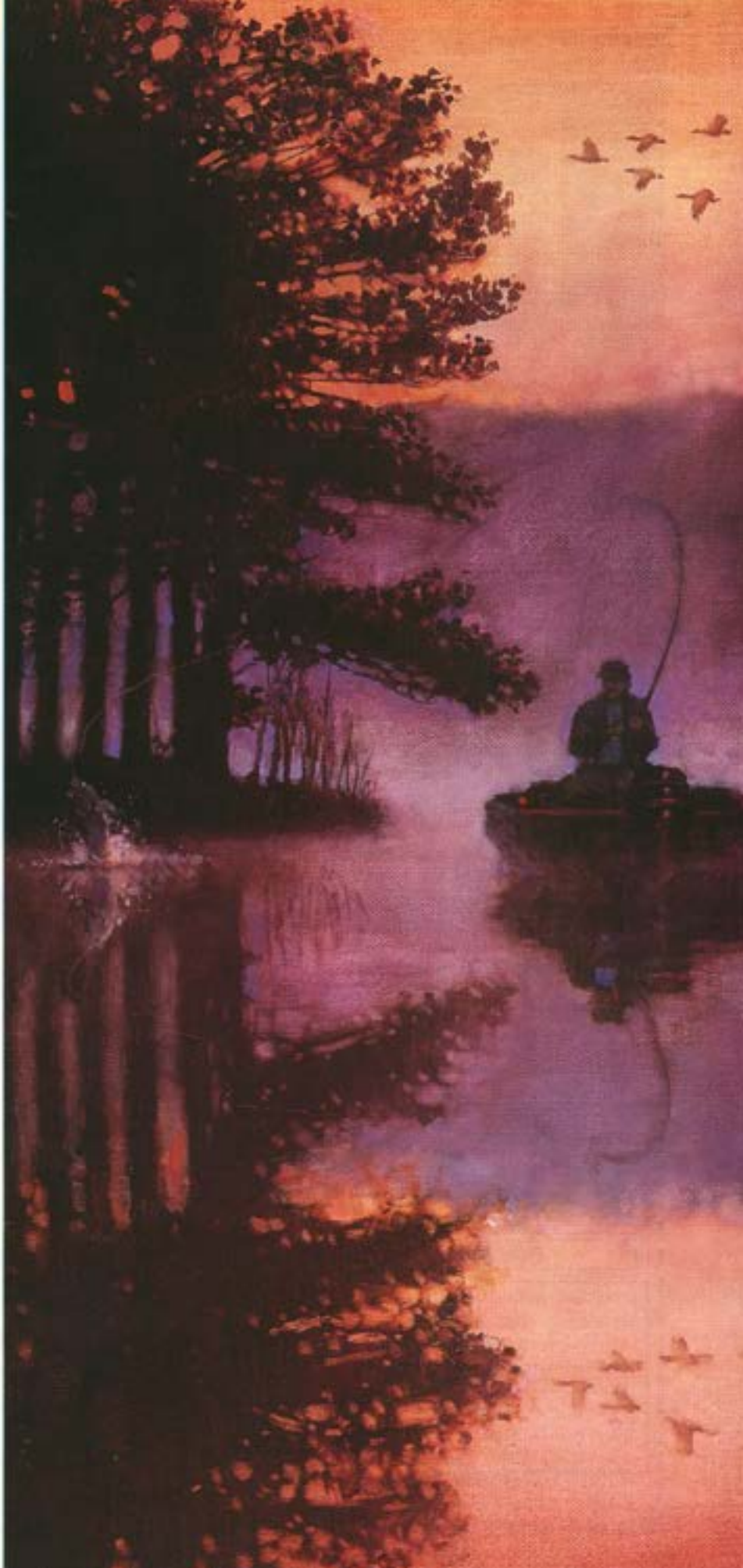

flage crouching next to a turkey decoy and blowing a turkey call. (The *Los Angeles Daily News* had him "dressed up as a turkey" as well, which seems unlikely.) The hunter was able to shake the cat off. Not so lucky was five-year-old Laura Small, who in 1986 was looking at tadpoles in a stream at Caspers Wilderness Park in Orange County with her parents when a mountain lion seized her and dragged her into the bushes. A hiker beat the animal off with a stick; Laura was left blind in one eye and partially paralyzed.

In the inevitable lawsuit, County Attorney Barry Allen argued that "the county is not responsible for the acts of a wild mountain lion." The jury found otherwise, ruling that the county did not adequately warn park visitors of the dangers, and awarding the child damages of $2 million. The result is that minors were barred from most areas of the park, and adults are now required to sign waivers of liability before entering.

The state's hunting lobby is using the increased incidence of lion/human encounters in an attempt to overturn Proposition 117, the Sierra Club–supported 1990 ballot initiative that outlawed the sport-hunting of mountain lions. Calling the lions "a growing threat to public safety" and "a threat to unprotected children," the weekend warriors offer themselves as guardians of California's women and children. True, no non-rabid cougar has actually killed anyone in the state since 1890, but a big cat *did* recently kill a Glendora homeowner's Doberman and consume it next to the Jacuzzi.

Grizzlies do kill people, about one every other year. While this rate is fairly constant, bear attacks are lurid by nature, always alarming, and hence matchless newspaper copy. Responding to an article in the *Calgary Herald* about a grizzly-bear attack ("The bear put my head in his mouth"), reader Al Binnie responded that he would not mind if every bear in Canada were shot. "Why should the public have to put up with this when we only want to

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Fiona McDougall, NYT

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PRIORITIES

enjoy the countryside?" he demanded.

Not all of the public *was* putting up with it: following a depredation in Canada's Jasper National Park, two grizzlies were found poisoned by large doses of strychnine. In the month following two deadly bear attacks in south-central Alaska within a two-day period in July 1992, 17 bears were killed. Last year in Montana's Glacier National Park alone, ten "problem" grizzlies and nine black bears were killed. Eighteen more were moved "because they showed little fear of humans."

These days, any large animal with teeth that doesn't fear humans is in deep trouble. In addition to the problem of inexorable habitat destruction that they share with all wildlife, predatory megafauna are also cursed by the involuntary roles they play in our nightmares. ("In the night, imagining some fear, how easy is a bush supposed a bear!" says Theseus in *A Midsummer Night's Dream*.) Were our subconscious minds responding to more realistic risks, we'd all be having bad dreams about Bambi; deer are responsible for killing about 130 people a year (mostly by getting in the way of our cars). The next-most-murderous creature is the bee (43 deaths a year), followed by dogs (14), rattlesnakes (10), and spiders (4). Grizzlies and mountain lions take 15th and 16th places respectively, lagging behind such menaces as jellyfish and goats.

A critter does not seem to qualify for bump-in-the-night status, however, unless it's bigger than we are and has teeth. But popular attitudes are shifting; increasing numbers of people find the prospect of bumpless nights the scarier alternative. Stephen Herrero, a biologist at the University of Calgary and author of the classic *Bear Attacks*, continues interviewing victims of same and notes a hopeful trend: "People who have suffered grievous physical assaults are uniformly saying, 'It was my fault, don't hurt the bear.' I was amazed at how consistent people were in the opinion that the attacks were just part of having these animals in the wilderness—and these are people who have paid the price."

Bears, however, may be a special case, because they are so much like us: plantigrades with eyes that swivel and mothers who dote on their young. (Many grizzly attacks occur, in fact, when hikers, joggers, or mountain bikers surprise a sow with cubs.) "We can see in bears many of the characteristics we respect and value in ourselves," says Herrero. "But it's a big jump from there to an ecosystem orientation, to reasoning that a tiger shark is as important as a bear is as important as a person."

While sharks share the role of apex predator with bears, they have cold blood; are never what you could call cuddly; and labor under the stigmatizing sobriquet of "man-eater." John McCosker, director of San Francisco's Steinhart Aquarium, calls the popular notion of rogue sharks with a taste for human flesh "pure fantasy." In fact, with the possible exception of tigers, there is little evidence of "man-eating" animals at all. Dr. Charles Jonkel of the Ursid Research Center in Missoula, Montana, asserts that "grizzlies do not have a predator-prey relationship with man," and calls the killing of bears involved in attacks "biologically unsound" and "the result of political pressure." Paul Beier, a lion specialist at the University of Arizona, says that very limited data indicate a 30-percent chance that an attacking cougar will strike again within 50 miles and two years. But mountain lions, he hastens to point out, are adapted to attacking ungulates with long necks, "and we don't have much of a neck."

Making sure that lions don't predate again is only one of several reasons for capital punishment, Beier suggested at last year's Fifteenth Vertebrate Pest Conference. In addition to allowing biologists to perform an autopsy to assess possible reasons for the attack, the execution of offending animals also "helps satisfy the understandable grief of the family and the human instinct for retribution" and "may reduce the legal liability to the land manager in

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This hat features a simple shape with circular ear band and truncated-triangle-shaped top; the bottom edge is somewhat curved to provide excellent coverage for the ears.

EAR BAND

This one velcros together in the back so it will fit virtually any head. Its lower edge is curved so that the ears remain covered at all times without having the front of the band crawling down over the eyes.

PERUVIAN HAT

Our Peruvian hat has the same top shape as the Alpine, but adds generous pointy ear flaps. The chin cord adjusts with a cordlock to avoid the obnoxious effort of tying strings in a cold wind with gloves on. The cord allows the ear flaps to be held in place on top of the hat in a very stylish fashion when not needed for ear warmth.

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SHERPA HAT

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case there is a subsequent attack."

As was seen in the Orange County lawsuit, this can be a substantial motivation, and national parks in grizzly country now take great pains to inform visitors of biologically correct deportment. Would-be backcountry hikers at Denali National Park in Alaska are made to watch a video on bear avoidance, and Glacier Park is considering a rule restricting hiking in certain areas to parties of four or more. (If you're really worried, remember that no bear attack has ever been recorded on a party of six or more.)

Such warnings prevent many unfortunate human/grizzly encounters —encounters in which, notes Jonkel, "the bear always loses." In fact, sensible precautions can deter almost *all* predator attacks, and will save not only your skin but the animal's as well. They can also enhance the visitor's wilderness appreciation.

The only drawback to all these warnings, notes Beier, is that they cannot help but exaggerate the danger: "If cougars are dangerous enough to require a warning," he writes, "then warnings for many other hazards—from rattlesnakes to cliffs to poison oak—will also be needed throughout thousands of square miles of wildlands, including national parks, national forests, and BLM lands. This raises the specter of wilderness areas blighted with guardrails and warning signs, or, worse yet, 'wildlands' that are sanitized for the visitor's protection."

"People are beginning to understand that we do not have control over wild animals, and that we are invading their space," says Laurie Macdonald, chair of the Sierra Club's National Wildlife Committee. "Encounters are a risk we take when we enter these animals' territories, and we have to accept the consequences of our actions. That doesn't mean to behave rashly, but to accommodate ourselves to natural processes, and to the wild laws that are out there."

► *For more information, see "Resources," p. 112.*

Babbitt's New Life List

Taking stock of all that crawls, swims, walks, or flies.

Interior Secretary Bruce Babbitt strode confidently into Washington earlier this year with environmental guns blazing. "The winning of the West is past," he declared. "People don't want to win the West; they want to save it."

Yet from the moment Babbitt was confirmed he has been occupied more with salvaging than saving; more with politics than preservation. Controversy over species teetering on the edge of extinction, such as the spotted owl, the California gnatcatcher, the Delta smelt, and the red-cockaded woodpecker have mired him in disputes that demand immediate attention and to which there are no perfect solutions.

It doesn't leave much time for visionary planning. Yet Babbitt has managed to keep one of his prime dreams alive with the establishment this fall of a new scientific agency. "The National Biological Survey," Babbitt says, "will provide the map we need to avoid the economic and environmental train wrecks we see scattered across the country. We need to know more about the environment, to expand our knowledge of what's out there." Babbitt's assumption is that better information about where the nation's plants and animals live, how they're faring, and what they need for survival would teach communities how to coexist with species such as the Northwest's spotted owl *before* they're clinging to their last perches. As he told Congress at a July 15 hearing, "I would hope ten years from now the Endangered Species Act is virtually forgotten—that there aren't any endangered species any more."

In his enthusiasm for publicly sponsored science, Babbitt is a direct descendent of General John Wesley Powell, the one-armed explorer and public servant who helped convince Congress to set up the U.S. Geological Survey in 1879, and who headed the agency for 13 formative years. Babbitt does not have the blank map of the West before him that Powell did, however. The nine agencies under Babbitt's wing, including the USGS, National Park Service, Bureau of Land Management, and U.S. Fish and Wildlife Service, manage and study almost half a billion acres of federal land. Outside Interior, at least a dozen multimillion-dollar federal and non-federal programs survey biota, and some studies and collections from an ancestor agency are also extant: ensconced in the Department of Agriculture in 1896, the Division of Biological Survey probed nature's secrets for 41 years, until it was replaced by the less purely scientific Fish and Wildlife Service in 1939.

"We are working in a rich field," says Babbitt's deputy science advisor, Robin O'Malley, describing the maps, reports, collections, and computer disks that contain jumbles of isolated facts the survey hopes to piece together. "Until now there was no way to know what we have."

While consolidating the research of others, the Biological Survey will also conduct its own investigations—adding to the nation's list of plant and animal species and researching the most critical issues facing controversial areas such as Florida's Everglades and the Southern California coast. At the same time, it will work toward streamlining the Interior Department's overall scientific program. In the past, O'Malley says, agencies have undertaken duplicative studies on subjects of common interest, such as streamside restoration and fire ecology. Now those agencies can rely on the Biological Survey for such work.

In an era of federal austerity, Babbitt was forced to pluck almost all of the survey's 1,700-member staff from sibling agencies: more than a thousand scientists from the Fish and Wildlife Service (a quarter of that agency's roster) and several hundred from the National Park Service and other agencies.

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PRIORITIES

Likewise, most of the Biological Survey's $160-million funding was wrung from other Interior budgets.

Some observers are apprehensive about the shakeup. "The idea really can't be productive if it is attempted on the cheap, and if it means an end to other research," says Sierra Club Chairman Michael McCloskey.

"My research needs include everything from exotic-plant control to the hole in the ozone layer," says Stanley Albright, western regional director of the Park Service. "Who's going to set the priorities?"

Albright and people like him will help set the priorities, Babbitt responds, and many researchers will stay in their present locations completing work they've begun with other agencies, whether they are studying ozone damage in the lofty pines of Kings Canyon National Park or hydrology in the swamps of Florida. In Babbitt's view, the survey won't subtract from existing efforts. By coordinating and focusing them (and by expanding the Interior budget slightly), he says, it will add to the nation's scientific might.

Some legislators and members of the anti-environmental Wise Use movement fear that such detailed knowledge will inevitably lead to further listings under the Endangered Species Act and perhaps even to "takings," which they define as government bullying that renders a piece of property less valuable. In fact, the survey's mappers *do* hope to go beyond the bounds of federal land in their efforts. But Babbitt assures critics that while plants and animals have no respect for boundaries, government researchers do: the Biological Survey will collect information from landowners only with their permission; it will not manage or regulate them. And the project's ultimate goal is to enable all interested parties to hammer out species-protection strategies well before the lives of animals and the livelihoods of property owners are endangered.

For any of this to work, the nation needs to piece together a comprehensive biological picture. Just as Powell cautioned that old rules about homesteading would sabotage wise settlement of the West, Babbitt believes that the old Interior Department, with its primary focus on parks and other preserves, was failing to protect the nation's biological heritage. "We must ask how we are living on the land," Babbitt says. "Unless we extend our view beyond existing protected areas, we don't have a chance."

—Joan Hamilton

Corporate Crybabies

U.S. industry tries to pass the buck on Superfund.

Like approaching sirens, the wails of corporate executives herald the start of debate on the reauthorization of Superfund, the country's program for cleaning up abandoned toxic-waste dumps. From the op-ed columns and sob stories in the popular press, one might easily conclude that the real victims of our polluted aquifers and neighborhoods are not the citizens being poisoned, but the industries that did the poisoning and are now being asked to pay for it.

Here, for example, is John Johnstone, Jr., chairman, president, and CEO of Olin Corporation, in the premiere issue of *Eco*, the magazine of corporate environmentalism: "Flawed from the outset by extravagant remedial standards and a severely punitive liability scheme," laments Johnstone, "Superfund cleanups have been bogged down for more than a decade in costly, protracted legal battles and bureaucratic delays."

(Johnstone has a personal interest in the matter, as his Olin Corporation has been responsible, over the years, for a number of Superfund sites. In 1982, Olin had to pay out $24 million to people living near its Superfund site in Huntsville, Alabama; as late as 1991, the EPA was still trying to get the com-

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pany to clean up its 102nd Street dump in Niagara Falls, New York, where dioxin was found at 630 times the federal action level.)

Johnstone's comments are just a small portion of the multimillion-dollar public-relations campaign launched by polluting industries and their insurance companies in hopes of establishing the terms of debate for the coming Superfund reauthorization. That done, next year they can approach Congress, hat and checkbook in hand, with the expectation of getting the rules rewritten in their favor—which means having someone else foot the bill.

Even without the industry campaign, Superfund defenders are hard to find. Superfund is the program everyone loves to hate: it's slow (only 181 of nearly 1,300 identified sites have been cleaned up thus far), expensive (since 1980, corporate and individual taxpayers have shelled out $13 billion, polluters $7 billion), and bureaucratic (it takes an average of nine years from the time a site is identified until it's cleaned up). Bill Clinton calls it a "disaster," and even EPA Administrator Carol Browner admits that "today, more than 12 years after the enactment of Superfund, the job we face cleaning up hazardous waste sites seems more formidable than ever." It all seems very far away from the crash program established in 1980 that was supposed to clean up the country's worst abandoned toxic hot spots, send the bill to the culprits, and close shop.

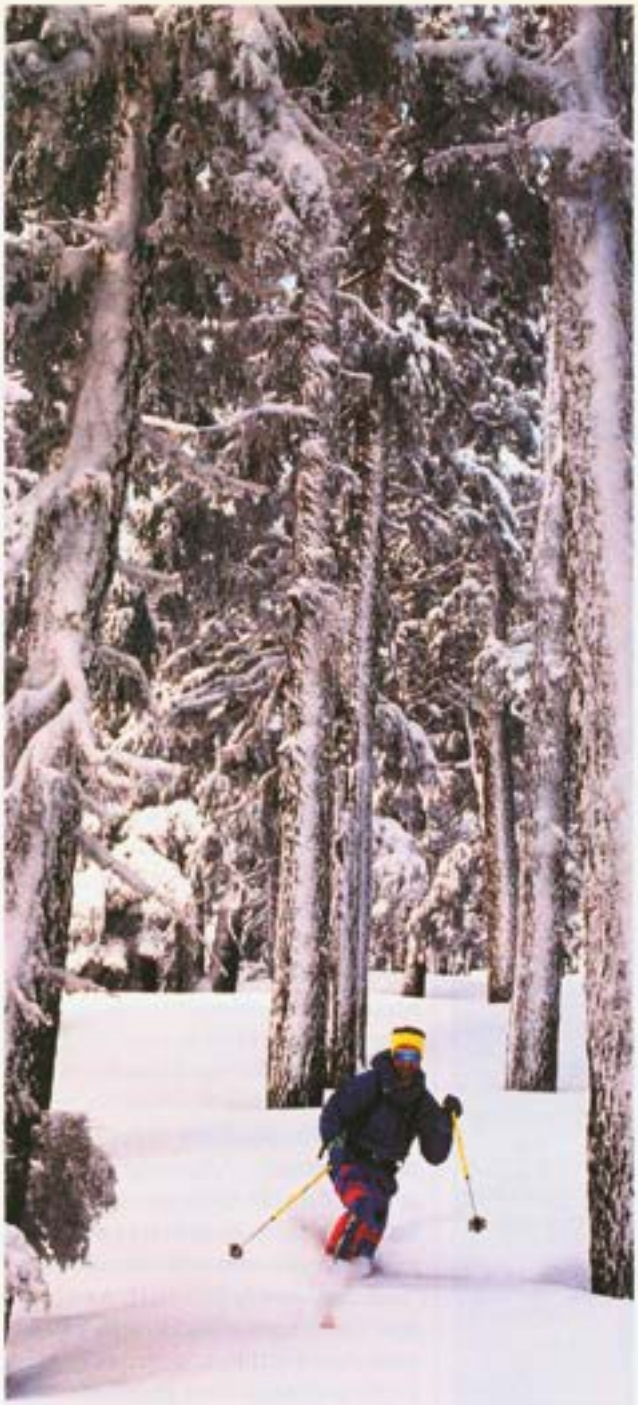
The fight over Superfund is not about whether the program is working, but about where to fix the blame for its failures. Is it the legislation itself, or just the way it's been administered? Industry assumes the former, and is calling for wholesale changes to the law—changes that will make a faltering program much worse.

For starters, the polluters would like a less zealous standard for cleanups. "How clean," they whine, "is clean?" The typical dismissive corporate formulation of the EPA standard is given by John Kyte of the National Association of Manufacturers, when he says that the EPA requires cleaned sites "to be so clean that people can eat the dirt."

As ridiculous as it may sound to corporate executives, many people do eat dirt, especially infants and toddlers, who put their hands in their mouths a lot. In addition, according to the Centers for Disease Control, 5 to 10 percent of all children eat dirt directly, a condition known as "pica." Dirt-eating is a major cause of lead poisoning in children; hence the worry in predominantly Latino and African-American West Dallas, Texas, which has been poisoned by a lead smelter for decades. While state and federal officials have known about the problem for at least ten years, not until this May did the EPA finally declare the smelter and neighborhoods within a mile and a half of it a Superfund site. Dirt is also the issue at another Superfund site in Fort Valley, Georgia, where this August several hundred mostly African-American residents were told not to let their children play in it anymore, as the soil in several neighborhoods around a pesticide factory was contaminated with 43 times the national average of arsenic.

Industry's idea of Superfund reform is to have cleanups tied to the future "intended use of a property." If an old refinery site is just going to be used for a new refinery, the argument goes, why worry about making it clean enough for a playground?

The trouble is that poison doesn't always stay inside its designated chain-link fences, and that intentions often fail to translate into reality. Of course it's hard to imagine that someone would build houses on top of a toxic-waste dump, but it is certainly not unprecedented, as the citizens of Love Canal and many other communities can attest. "We make plans 30 to 100 years into the future," says Michael Gregory, a member of the Sierra Club's National Hazardous Materials Committee, "but the conditions we create and the waste we generate will be around for thousands of years." In Washington, D.C., for example, there is a proposal to build a new stadium for



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the Redskins football team as part of a mixed commercial and residential development on top of what is now a heavily polluted railyard—a use never "intended" until very recently.

The industry view of cleanliness is of little comfort to the 41 million people living within four miles of Superfund sites. According to Bernard J. Reilly, corporate counsel at DuPont, "the existence of toxic wastes at a site does not necessarily mean that they pose a threat to nearby residents," as "it is difficult at best to determine whether exposure to hazardous wastes can be blamed for medical problems when a long gap exists between exposure and disease."

Difficult, yes, but not impossible. Assistant Surgeon General Barry Johnson reports that "proximity to hazardous waste sites" can now be associated with an increased risk of birth defects, some cancers, neurotoxic disorders, and other maladies. In addition, doses of some common groundwater contaminants, even below legal levels, have been linked to birth defects. Unhappily for DuPont and Olin, the legal exposure levels of many toxic substances are now shown to be, if anything, too weak.

"Far more than any other environmental program," Reilly goes on, Superfund "makes no rational attempt to link costs with benefits." Industry's preferred solution is increased use of "risk assessments," which would ignore toxic messes that kill only, say, one person in a million. Unhappily again for the polluters, most people are stubbornly resistant to risking their health or that of their families for the greater profit line of a large corporation. As far as the potential victims are concerned, says Sierra Club activist Gregory, "quantitative risk assessment is a form of legalized premeditated murder, a decision that some nameless, faceless persons with bad luck are expendable and condemned."

But the real beef of the anti-Superfund cabal is what lawyers call "joint and several liability." In plain English,

that means that the polluters pay; if some of them have fled to Rio or gone out of business, then any responsible party who's left has to pay. In practice, this means that the polluters' insurance companies have to cough up for their bad risks—to the tune of about $2 billion a year, they estimate. This is why the American Insurance Association is lobbying so hard to have future cleanups paid for out of a tax-based trust fund rather than out of their profits.

Of course, while it's waiting for Congress to stick taxpayers with the bill, the insurance industry is hardly signing off on every claim that comes across the desk. The way the EPA enforces joint liability encourages responsible parties to sue everyone in sight, hoping to redistribute the final cleanup burden. It is this dodge that has led to massive lawsuits against pizzeria owners and Girl Scout troops; it also accounts for much of the cleanup delay, and for the public's (correct) impression that the only ones really cleaning up from Superfund are the lawyers and consultants.

"The corporate approach is that they want as little negative impact on the bottom line as possible," says Darryl Malek-Wiley, a member of the Sierra Club's Ethnic Diversity Task Force who works with communities near Superfund sites in the South. "They find that it's cheaper to pay attorneys than to pay the fines. A lot of the litigation explosion you hear about is corporate environmental attorneys trying to fight off paying what they should pay."

Environmentalists are determined to hold on to the "polluter pays" principle, a position endorsed by the EPA's Browner. But what happens when the polluter is the Department of Energy or the Department of Defense, and the site is a nuclear-weapons complex or a decommissioned military base? "The contamination at federal facilities is going to make what the chemical industry has done look like peanuts," predicts Ross Vincent, chair of the Sierra Club's Pollution Campaign Steering Committee. The Defense Department, he says, is already echoing the arguments of private industry: that fu-

ture use must be considered, that risk assessments will show that maybe they don't need to clean up every little bit. "Once Congress decides that's good for DOD and DOE, it won't take long for the chemical manufacturers to come asking for the same thing."

So what *is* wrong with Superfund? Little that effective implementation and political will couldn't fix. From its earliest days, Superfund has been administered by people who had an ideological interest in seeing it fail; while the program was conceived in the Carter administration, it grew up as an unwanted and abused child under Reagan and Bush. Many of its provisions have seldom been implemented, such as that allowing treble damages to be assessed against recalcitrant polluters. The custom under Republican administrations was to hold off on actual cleanups until it was clear how much money responsible parties could be persuaded to pay, and then to tailor the cleanup to meet that amount. Originally, however, the law contemplated the EPA, where necessary, doing the cleanup first and then billing the responsible parties. If that were done now, the insurance companies could still sue whomever they chose, but communities menaced by toxics would no longer be held hostage to the outcome.

An easy way for Congress to stiffen the EPA's spine would be to include real citizen participation in its Superfund reauthorization. Too often, the people actually suffering from Superfund sites are not consulted until the EPA and the polluters have already worked out a deal. At that point, if the citizens are able to raise the necessary matching funds to obtain a technical-assistance grant, they find that it can only be used to hire a consultant to explain the EPA's data to them—not to do an independent analysis. If Congress gave citizens a role in the process right up there at the table with the polluters, environmentalists say, those corporate executives would no longer be in doubt about how clean was clean. —*P.R.*

► *For more information, see "Resources," p. 112.*

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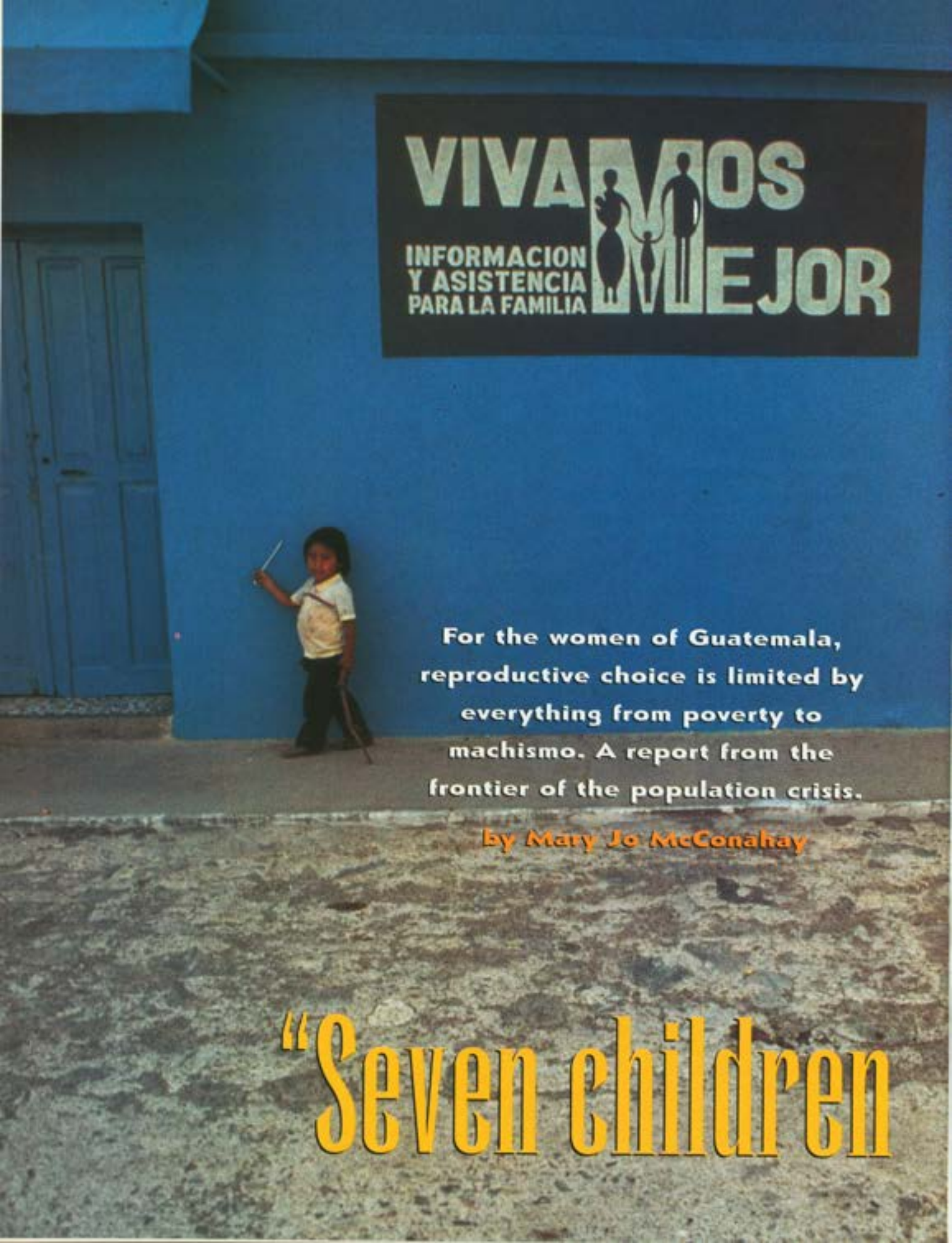
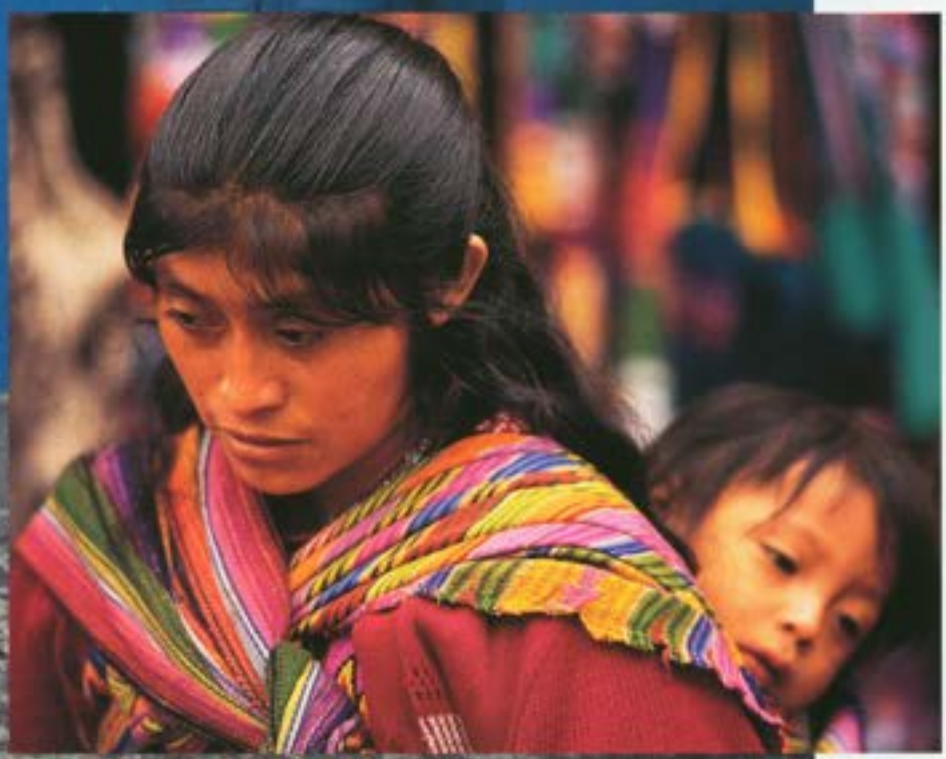


For the women of Guatemala, reproductive choice is limited by everything from poverty to machismo. A report from the frontier of the population crisis.

by Mary Jo McConahay

"Seven children



...four alive"

What is lovely about Mezquital's mild rain, I think as I enter the hospital anteroom, is that it mercifully mutes the odor from rivulets of open sewage. Taking a seat among two dozen women waiting to see a doctor, I note that the rain also muffles the cacophony of radios blaring from the thousands of tin-walled shacks that compose this squatters' settlement, this "misery belt" that girds the bloated capital of Guatemala.

A government health worker in blue-jeans strides into the room and holds up a stark black-and-white drawing.

"What do we have here?" she asks her suddenly captive audience. "A mere girl whose body is not ready for pregnancy, and whose baby will be born weak. And here? A señora with a baby on her back, one inside, and others trailing behind, one after another, born ping! ping! ping! like the notes of a marimba. Look how the señora's strength is disappearing."

She tapes drawings of women at high risk—women too skinny, too fat, over age 35—onto the wall in a cruciform pattern. "What shape do the pictures make? Yes, a cross. And what does a cross mean to us? Yes—death."

There is little delicacy in the effort to spread family-planning information in Guatemala, which, with 10 million residents, is the most populous nation in Central America. But if teaching methods are

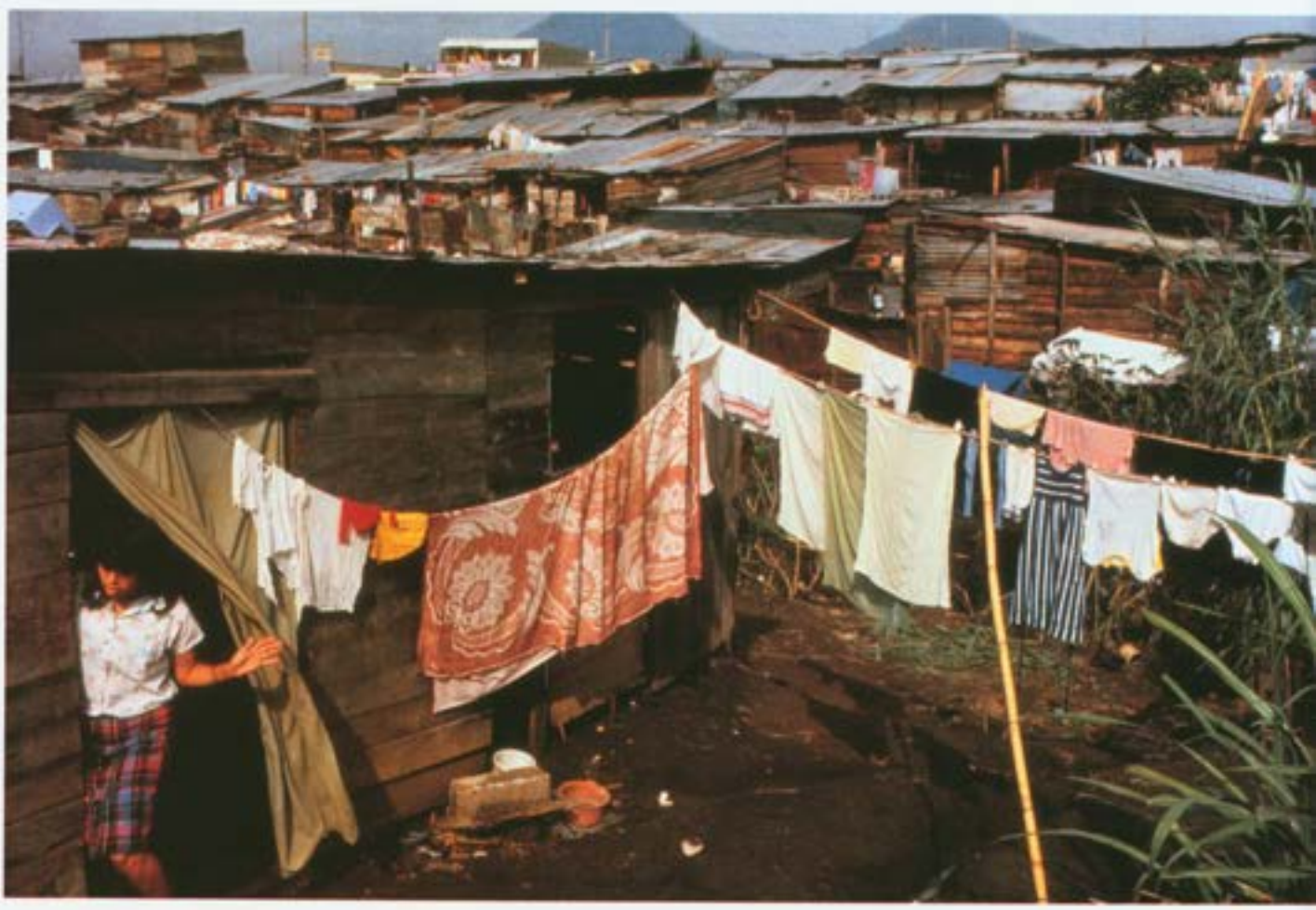
stark, so are the facts of daily life in a neighborhood like Mezquital. Women landless in the countryside or squeezed out of other slums fight alongside men to claim these patches of vacant wasteland as their own, marking out tiny lots with the powdered lime they use in making tortillas. They live under sheets of plastic for months, then graduate to huts with dirt floors. They line up their children behind them and face off army troops carrying automatic weapons who try to dislodge them. It is a bravery and decisiveness that contrasts deeply with the women's lack of control over their own health and the survival of their children.

Close-packed Mezquital looks like a population bomb exploded. But here the words "family planning" and "reproductive rights" might as well be names of stars, so far are they from what residents call their deepest concerns: cholera, intestinal worms, food for the morning.

Mezquital, the squatter community on the fringes of Guatemala City. Such settlements are filled with a high proportion of mothers trying to raise their families alone.

Guatemala's population is doubling every 22 years; Guatemala City's has doubled to 2 million in the last decade. While the governments of many Latin American countries have quietly encouraged family planning among their predominantly Roman Catholic citizens, with positive results, Guatemala has not. Non-Latin diplomats experienced in the region call this "the most conservative country in the hemisphere," and stabilizing the population here presents a staggering challenge.

About 95 percent of the world's population growth is taking place in developing countries like Guatemala, and high growth rates contribute to the difficulty these countries have in safeguarding what's left of their natural resources and in pulling themselves out of poverty. But lowering family size is not merely a matter of distributing condoms; those who have worked longest in family-planning programs say that it also entails providing basic health services and improving the lives of ordinary citizens, especially women.



There is a delicate balance between emphasizing family planning as key to economic development, and emphasizing development as something that must come before women can make their own, uncoerced decisions about birth control. That balance is likely to be debated increasingly in the run-up to the United Nations' International Conference on Population and Development scheduled for Cairo next year. Like last year's Rio de Janeiro conference on the environment, and this year's international human-rights meeting in Vienna, the Cairo conference is certain to spotlight different perceptions among nations on issues of shared importance, this one perhaps the most basic—and controversial—of all: human reproduction.

For Jayne Lyons, a public-health specialist who has lived and worked for international agencies in Guatemala for 15 years, family planning means making contraception choices accessible, but "it also means availability of oral-rehydration supplies [diarrhea is one of the leading causes of infant death in developing nations], an emphasis on breast-feeding, and building latrines." It implies informing women of the facts: that infant mortality doubles when mothers are under 18, and babies born three or more years apart have a 50-percent-better chance at survival. "Birth spacing saves people's lives," she says. "It's not a liberation issue."

Nor does family planning bring up abortion in the same terms as it does in many countries. (Some nations, including Japan, Taiwan, and South Korea, have stabilized their populations through the introduction of safe, inexpensive abortion.) In four months of talking about population with Guatemalans, mostly women, I found no one who advocated abortion as a planning "option" or a "right"—although neither did anyone think it a "wrong" that should be punished.

The influential Roman Catholic Church takes a strong public stand against abortion. Even outside the Church, however, abortion is widely considered a tragedy, although a sometimes unavoidable one. I was surprised to hear strong anti-abortion sentiments expressed by the staff of a clinic that passed out condoms, provided IUDs and birth-control pills, and performed sterilizations. "Oh, we're all against abortion here," said a young attendant. "There are so many things you can do to prevent conception in the first place."

Botched abortions have been a primary cause of death for Guatemalan women for decades. In response, 27 years ago Dr. Roberto Santiso and about 20 other health workers founded a volunteer group called the Association for Family Welfare, known by its Spanish initials APROFAM. Today, funded by low user fees, U.S. AID, the International Planned Parenthood Federation, and the governments of Japan, the Netherlands, and others, APROFAM has become an almost nationwide family-planning service and education institute. But because APROFAM and other smaller endeavors are short of money and political clout, they cannot meet the demand for their services. At present, about 23 percent of Guatemalan women use family-planning facilities. As in Africa and elsewhere in the developing world, such assistance is only accessible to a fraction of those women who want it; health workers estimate that another 30 to 50 percent of Guatemalan women would take advantage of family-planning services were they available.

The infant mortality rate in Guatemala is 54 per 1,000. Public-health specialists hope that home visits by health-care workers will lower that number—and subsequently reduce the birth rate.

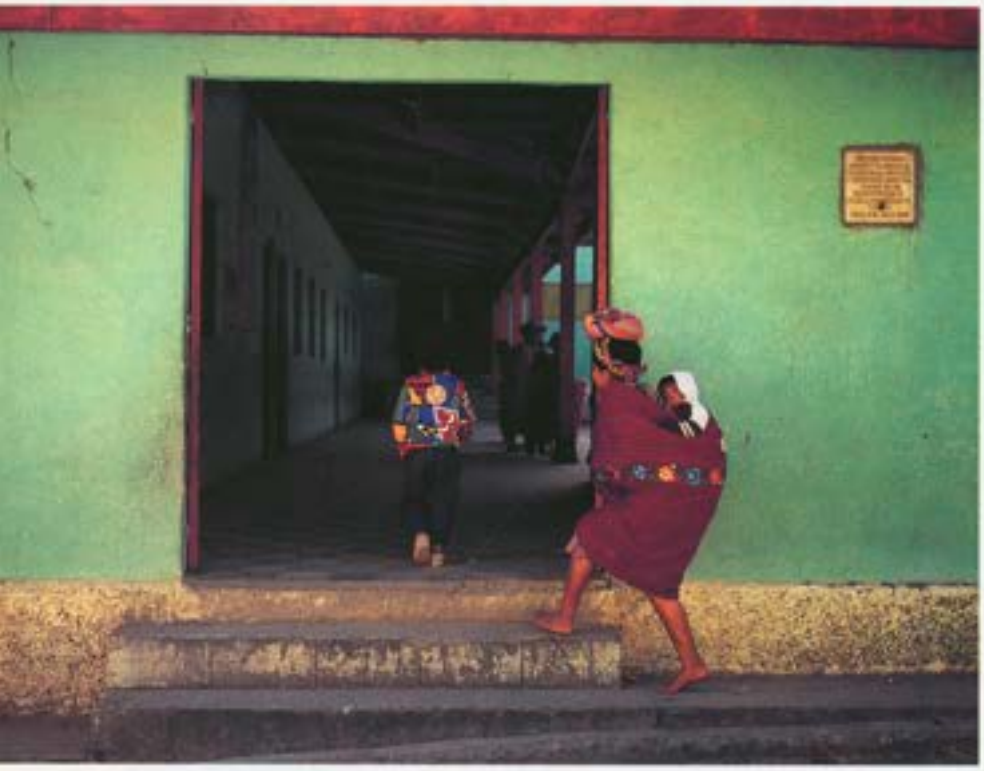
Santiso believes that in addition to access to family-planning "methods," women must be given the opportunity to care for and educate the children they already have. "We must provide the couple, and especially the woman, the human right to plan her family," he says. "Decline in the overall population growth rate can only be part of the difficult process of development itself, which includes access to education, employment, production, and housing."

Indeed, health workers must start with the basics at every door. "We have organs we see, and organs we don't see, and this is where the man's seed joins with our seed to make the

baby," Lucia Araujo, 28, a mother of three, tells a toothless woman of 39. The older woman, barefoot in the mud, looks as if she were seeing a picture of a uterus for the first time. When Araujo asks how many children the woman has, she answers in the two-part fashion of the poor: "Seven . . . four alive."

The rains have not yet begun in the highland province of Chimaltenango. Roads are so dusty that Indian women walking to fetch water appear first as moving puffs of an obscure dun color, the shade of the clay on the denuded mountainsides. Only when my car is practically upon them can I see their bright costumes: long skirts of indigo stripes; full blouses (*huipiles*) woven intricately in the sharpest reds, blues, and oranges; bird figures on cotton ribbons plaited and twisted around their heads like diadems.

By the map, I am only 60 miles northwest of the muddy gulches of Mezquital, four hours by winding roads, but this is another world. It is home to Cakchiquel Indians, one of 22 indigenous Maya groups that make up more than 60 percent of the country's population. (Indian leaders in Guatemala point proudly to the fact that by the 1950s they had recovered their pre-conquest numbers, despite savaging disease that came with the Europeans and centuries of forced labor and indigence.)



Access to education in Guatemala is the poorest in Central America: most children do not finish the sixth grade. Literacy, extremely low in the countryside, is an important part of family-planning efforts.

As I drive into the town of Puerto Abajo, I see a few women scrubbing clothes at the *pila,* a communal fountain with cement tubs. Puerto Abajo is so destitute it cannot even afford a roof over its *pila* to keep off the sun. Most of the surrounding hills have been stripped of forest cover, the trees felled and chopped up for cooking fires. Dust devils materialize, skip, and, evanescent, disappear again.

The women on the porch of a clinic are more reserved than city women. They greet me, but then chat only with each other.

"There are medicines here to buy," says one.

"We've had to buy wood today," says another. "I didn't bring any other money."

"Are you going to see the doctor?" a nurse at the door calls out to a young mother wearing plastic sandals, whose baby of about six months in bright pink taffeta peeks out from under her shawl. The young mother colors at being singled out, peers into the window and says she hasn't decided yet.

"Señora, have you had your pap test? Why not take advantage of the situation while the doctor is here?" the nurse asks an elderly woman. The señora, Reina Salvador, has come to care for her numerous grandchildren while her two married daughters see the doctor; she smiles and waves dismissively, as if the nurse were flirting with her. No one—grandmother, kids, several women—will be coaxed inside off the hot porch.

This is the first time APROFAM has visited Puerto Abajo's simple clinic, which serves about 2,000 people in six villages. Health promoter Feliciana Xocop arrived daily by bus for a month to prepare for the visit, speaking in Cakchiquel about the advantages of birth spacing and the importance of prenatal care. Her best moments came at the washtubs, she told me, where women are accustomed to much intimate and even bawdy chatter among themselves as they beat their clothes, secure in the familiarity of the *pila* scene. "I know we could reach the men too if we could talk to them calmly, one by one, when they come home from the fields," Xocop said. But APROFAM's small budget precludes travel to this remote place at night, when there are no buses.

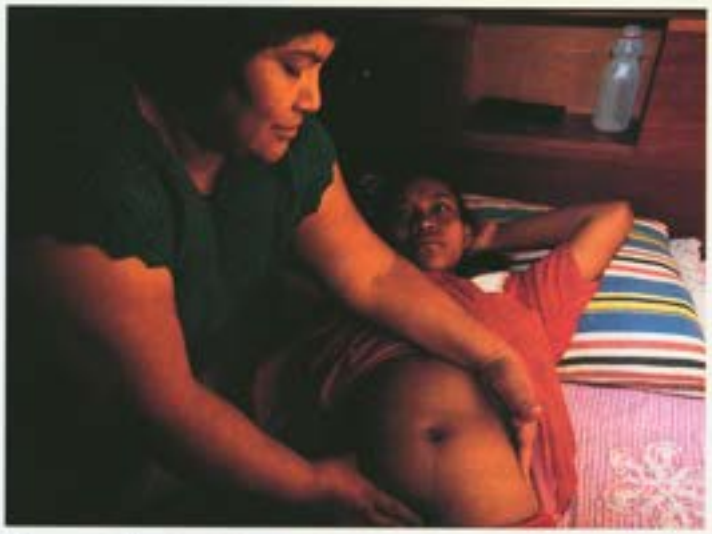
Suddenly Xocop herself appears at the clinic door, calling to the women by first names in a gay mix of Spanish and Cakchiquel. "Oh, come on in," she tells one of Reina's daughters, a 34-year-old named Loida who is nursing a newborn, her 11th. "You haven't walked all this way just to say hello to me!"

Inside, Xocop talks to Loida and her younger sister, who is obviously pregnant. She uses the language of planting and cultivation that is well understood by these women who live by the growth and harvest cycles of corn. Xocop is univer-

sity-educated, one of the few Maya who are, but she continues to wear the same bright, precisely patterned *huipil* and long skirt that mark her as indigenous. The sisters seem to trust her, perhaps assuming—because she is an Indian woman—a common history of suffering. (In fact, Xocop's young husband and a dozen schoolmates were "disappeared," or murdered, in the political violence of the early 1980s.) The sisters are shy in front of me so I leave them with Xocop, who later recounts their conversation.

"Like all the women, they begin by telling me they feel chronically tired. 'Of course you do,' I say, and then we talk about the land." When you plant your cornfield, Xocop reminds those who are pregnant, you weed, fumigate, fertilize, irrigate, and care for the growing plant consciously and tenderly. "I say, 'Well, your body is much more delicate than the land and the baby inside more precious than the plant. Do you go to the doctor? Take vitamins? What do you eat?' " Those with several children, like Loida, complain they don't have time to keep their children, or themselves, clean.

Midwives are often the only health resource for Guatemalan women; they are such an accepted part of rural life that the government now offers to train and certify them.



"Then I ask them, 'When you harvest beans, do you leave another seed in the soil right away?' They answer, 'Oh, no, you have to let it rest.' Then I say, 'And your womb? It has just given birth. It must rest for its time, too.' "

Dr. Juan Carlos Valle arrives in a pickup truck, having hitched a ride from the APROFAM clinic in the provincial capital. He examines the sisters and a dozen other patients. He performs pap smears, the electricity needed for the light robbed momentarily from overhead utility lines, because this bare-bones outpost doesn't have its own supply. Schoolchildren take advantage of a doctor's rare presence to ask for de-worming medicine. Outside, Reina Salvador is fretting that Loida should not have "the operation" they have heard about—sterilization by tubal ligation—because "women take the children God gives them." After all, Reina herself had ten; just one died from whooping cough, and another "from the evil eye" after a drunk stared at her. Later Valle tells me Loida Salvador has made an appointment to come by bus to the provincial clinic for "the operation" in four days, but given the opposition she must deal with at home, he is doubtful he will see her again.

Sterilization is not the only recourse that family-planning programs suggest. But a far greater education effort than that which has taken place until now is necessary to convince Guatemalan men and women of the ease and safety of other methods. Men may associate

condoms only with going to prostitutes, for instance, and consider vasectomies not at all; wives crumble in embarrassment at the thought of suggesting them. The pill, and even the IUD, remain suspect as causes of various physical ailments vaguely lumped together as "cancer." Injections become problematic where women are unlikely to return to clinics (because of travel costs, internal migration, or simply losing track of dates) for follow-up shots.

To the extent that family-planning programs in Guatemala work at all, they do so because of people like Xocop and Valle. Xocop, for instance, spent eight years as a social worker in a public hospital in Guatemala City, seeing "too many 13-year-olds from the countryside" who ran away from home, pregnant. "And I saw 48-year-olds too, with 15 kids, whose husbands suddenly left them." The experience pulled her back into the rural villages from which she came, to promote sex education and the idea of preparing young girls for "a marriage, not to accept a series of relationships with kids in each one."

Valle, 31, in some ways had to come farther ideologically. As a medical student in the early 1980s, he absorbed an understanding typical then at the sprawling National University: family planning was a euphemism for a cynical policy of the complacent rich toward the too-numerous, rebellious poor. "We suspected the theory behind those programs was 'it is easier to kill a guerrilla in the womb than in the field,'" he says. Those were some of the most violent days of the now 32-year-old civil war that has cost more than 100,000 lives and still refuses to sputter out. The nation was deeply polarized, with many feeling that family-planning programs, especially those funded by the same foreign countries (including the United States) that supported a murderous army, were one more tool in the hands of those who would squelch revolution at any cost.

In Valle's case, internship in a public hospital transformed him from "a firebrand to a fireman." He scrambled to keep hemorrhaging women from dying of high-risk, often undesired pregnancies. A personal turning point was the day he was helpless as nine women died, one after another, the victims traced to a single midwife who had used an unclean umbrella rib to provoke their abortions. "I began to think," he says, "that these things could be avoided."

In the following days I accompanied Xocop to highland villages where she knocked on cane gates or engaged women on roads covered with ancient obsidian shards, missing no remote corner to spread the word that help was available for those who wanted it. For all the desire I saw among women with eight, ten, twelve children to prevent more pregnancies, I became aware of the community voices that warn Indians to beware of family-planning programs. One articulate peasant, who was a lay Catholic leader as well as the village first-aid attendant, gave Xocop a typical response: except for the rhythm method, all means of birth control are a "sin," and "suspect."

"Culturally the Maya people do not accept artificial methods of birth control or sterilization because they alter harmony with nature," insisted a newspaper ad signed by 13 Maya social and cultural organizations. The ad, published early this year during debate over national population policy, continued: "The basic premise used today is the same as the 1940s . . . when it was argued that the Maya population was an obstacle to the development of Guatemala: the smaller the Maya population, the greater the development. Evidence shows us something quite different."

Feliciana Xocop will not deny the facts. "This idea of extermination has a history," she says. "When the Spanish came, it was a massacre for us." More recently, 440 Indian villages were destroyed by the army, by its own count, in the counterinsurgency of the 1980s. Of some 100,000 dead in more than 30 years of war, many

Above: The Roman Catholic Church remains powerful in shaping attitudes toward birth control. Below: The Petén is besieged by homesteaders and illegal loggers.

were unarmed Indians suspected of revolutionary sympathies. Of thousands of internally displaced people, and 40,000 refugees in Mexico still waiting to come home, most are Indians. "Our history is not forgotten," says Xocop.

For Indian women who have lived discrimination (Xocop herself had to borrow "Western" clothes to land her first jobs because employers refused to hire her in Indian dress), it can be easy to suspect an ulterior motive in externally funded programs from the capital that say "have fewer babies." The ambiguous response to these programs goes to the heart of the uneasy relationship between rich countries and poor ones, between national capitals that represent the outside world, and the generally neglected interiors.

Nevertheless, Xocop and other indigenous women who advocate family planning suggest that some local leaders do not give women "the liberty of their own decisions," as one said. "This [birth control] is not the solution to our problems, but it's part of a solution," said another. "I don't care where the money comes from, if it helps my people."

The future on their backs: Guatemalan women have an average of six children. Family-planning services reach only a third of those women who would make use of them.

BILL CARSON - BRUCE COLEMAN INC

Those who work on population issues often see what they do through the optic of human rights, or of health. But in the discussions leading to the Cairo conference, environmentalists are looking through another lens: the well-being of the planet. And the view from the Petén, Guatemala's northernmost province, is a sobering one.

The vast, 13,300-square-mile Petén is one of the fastest-growing regions in the Americas. Population in the 1960s: 20,000. Today: 350,000. A government projection for the year 2014, based on current rates of birth and migration: 1.5 million. The Petén is an outland, a frontier region like South America's Amazon or Nicaragua's forested south. Its dark jungle paths lead the traveler back to the green soul of proportion, to a proper perspective on the balance among plants, insects, rain, and animals, of which the traveler is one, just one. An afternoon spent alongside a hidden lake the color of the moon, where birds from the United States and Canada winter among tule reeds and floating white lotuses, shrinks geography, making one realize how deeply the world we know in the North is dependent on preserving places like this one in the South.

I see the environment factor up close on a 100-mile, six-hour jeep ride from Flores, the capital of the Petén, to El Naranjo, a border town on the San Pedro River. Unlike most roads in the Petén province, this is a good one because it has been carved out of the jungle and maintained by an oil company to transport crude from the Xan fields, in the wetlands beyond Naranjo, to a refinery near Flores.

Seventy-two tankers pass my jeep, but my tally is low because I began driving late in the day; tanker drivers like to start early so their loaded trucks are less vulnerable to guerrillas, who prefer to ambush them and dump the oil when approaching darkness provides cover to escape. A couple of buses and a few farm trucks are the only other vehicles I see.

But that does not mean the road is a lonely one. Rather, it is a moving picture of the population crunch that is pushing landless farmers to the farthest edges of Latin America's agricultural frontiers and into its pristine forests. In the last decade homesteaders have slashed and burned their way through so much primary tropical jungle in the Petén that the 500-square-mile region around the Naranjo road has become up to 50-percent deforested. The migrating families arrive singly or in groups, plumb the Bible to christen their new towns for luck (New Canaan, New Paradise), and erect tiny churches named with survival in mind (Noah's Ark). But driving past the settlements hour after hour in the reflected heat of flaming trees, through gray haze, in the face of numbing, repeated vistas of stumpy acres smoking under fine ash, feels most like traveling through

Continued on page 98

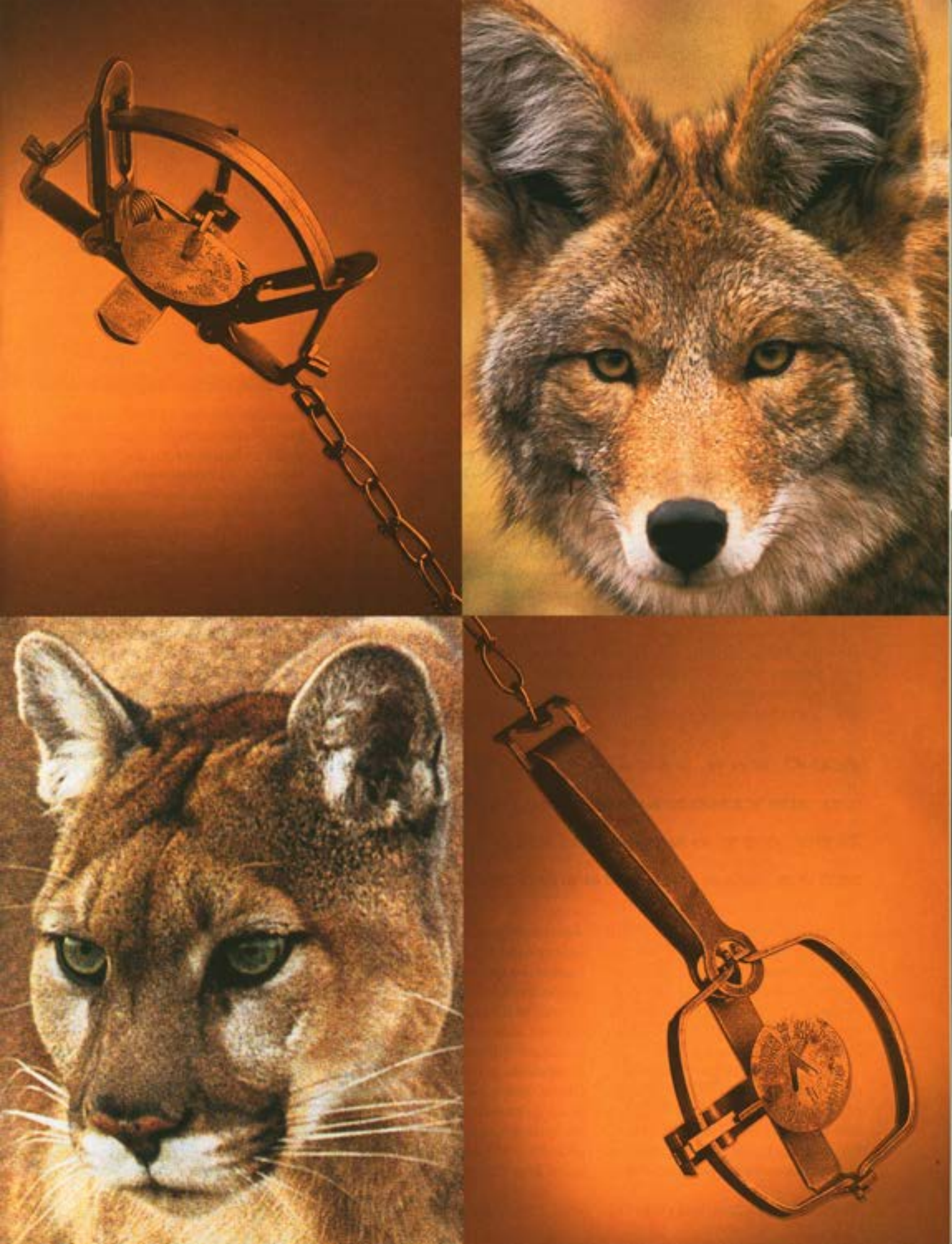
CONTRACT KILLERS

AS A PUBLIC SERVICE LAST YEAR, AGENTS OF THE FEDERAL ANIMAL DAMAGE CONTROL program destroyed more than 2.2 million wild animals, only slightly fewer than they had dispatched the previous year. Though 71 percent of the 1992 casualties were blackbirds, grackles, and European starlings guilty of eating farmers' grain or behaving as pests in urban areas, hundreds of thousands of other wild creatures were eliminated, among them coyotes, foxes, mountain lions, and wolves. Federal trappers and hunters variously "controlled" everything from Canada geese that pooped on golf courses to cattle egrets that sometimes made the mistake of roosting near airports, to beavers that caused timberlands to flood, raccoons that raided garbage cans, bears that foraged in dumps, and foxes that raided poultry farms.

Animal Damage Control, an agency of the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, exists solely for the purpose of controlling wildlife when it comes into conflict with people. In practice, "people" usually means influential ranchers and farmers; "conflict" means economic loss from "varmints" that prey on livestock or from birds that plague crops; and "control" almost invariably means killing the wildlife blamed for that loss.

When it got rolling 60 years ago, ADC's first assignment was to conduct, at the behest of the lifestock industry, a pogrom against predators. Although it now operates nationwide, ADC is most entrenched in the West, where far and away its most well-funded and controversial function is its continuing war on allegedly troublesome predators that attack livestock, especially coyotes accused of killing sheep. (According to the USDA's latest data, close to half a million sheep and lambs in the United States are taken by predators each year, nearly 60 percent of them by coyotes in western

TRAPPING COYOTES, POISONING EAGLES— JUST ANOTHER DAY ON THE RANGE FOR THESE BUCKSHOT BUREAUCRATS. SOUND LIKE TOUGH DUTY? IT'S AS EASY AS ADC.



states. These figures, however, are reported to the government by sheep growers, and are likely to be highly inflated.) By the 1970s, with ADC's help, the largest predators—grizzlies, mountain lions, wolves—had been wiped out in most of their natural range. Nevertheless, the conflict between politically powerful ranchers, especially sheep ranchers, and the less-well-connected predatory mammals that they target continues to rage on.


Sierra Club wildlife defender Pat Wolff.

For the past 12 hours, environmental activist Patricia Wolff has been proselytizing all over Santa Fe, pressing the flesh and helping officiate at fund-raisers, all the while trying to answer my pesky questions. By 10 p.m., when she picks up on a conversation begun early in the day, she is dead-tired—and more apt than usual to shoot from the lip.

"I'll grant that he's sincere," she reluctantly concedes of fellow New Mexican Curt Mullis, "but that doesn't mean I have to like or respect him."

In Wolff's view, what Mullis does for a living is akin to child beating: he is the state director of ADC. Mullis, along with his counterparts in other western states, earns his keep by ensuring that any wildlife species that makes itself unpopular with the livestock industry is trapped, snared, poisoned, shot from a plane, gassed in its den, or otherwise disposed of in a damage-controlling way. Even if, as often happens, it isn't actually doing any damage.

ADC NOW PAYS MORE LIP SERVICE TO ENVIRONMENTAL PROTECTION. BUT OUT ON THE RANGE, NOT MUCH HAS CHANGED.

As chair of the wildlife committee of the Sierra Club's Rio Grande Chapter and manager for a Santa Fe group called Forest Guardians, Pat Wolff is active on many fronts, opposing destructive development projects and watchdogging the Forest Service. But she leaves no doubt that ADC is the adversary she most loathes. "I've always loved animals," she explains. "When I first learned about ADC's war on wildlife and saw photos of animals being tortured and killed, it outraged me that a federal agency should be slaughtering wildlife for the benefit of the ranchers—with taxpayers' money."

Right then, she resolved to act.

Although it took many months to wrest the relevant data from ADC, she collected some pretty damning evidence about the way the agency does business in New Mexico. The educational backgrounds of the "biological science technicians"—more commonly known as trappers—that ADC boasts of employing have been blacked out in the records Wolff acquired under the Freedom of Information Act, but under the heading of previous experience, such occupations as "mecanic" (sic), "Santa Claus," and "prairie dog poisoner" are listed. (The technicians need not possess college degrees, but are expected to understand biological principles and know how to use snares, traps, firearms, and poisons.) More important, the "selective methods of control" used by the technicians turn out, on the evidence of their own reports, to be neither very selective nor cost-effective. In one notorious case, ADC trappers—working on public lands—spent almost 500 hours killing 56 wild animals, including 28 coyotes, a deer, several skunks, badgers, porcupines, and foxes—plus a hognosed snake (mysteriously listed as a "target species")—all in response to a rancher's claim that a coyote had killed one lamb worth $83. In another incident, 24 animals, including two inadvertently trapped deer, were destroyed in response to the "confirmed" kill of one lamb by a bobcat and one deer by a coyote. In a third, 11 "non-target" kit foxes gave their lives so that seven "target" coyotes might also die—even though the government trapper did not confirm any livestock loss.

Pat Wolff's campaign against ADC has not gone unnoticed by some of that agency's more ardent supporters. Harassing calls and a death-threat letter have come her way—unsettling experiences for anyone, and especially for a divorced woman living alone with a nine-year-old daughter. Those threats don't intimidate her, Wolff says, "because I have a lot of inner strength." Now, however, as the last of the day's fund-raisers draws to a close, it is obvious that her supply of strength is temporarily used up.

Still, she can't resist one last shot at ADC before calling it a night: "You know, when I first started dealing with them, all I wanted were a few reforms. But it wasn't long before I became really pissed off at their arrogance and intransigence. They don't want the public to know what they're doing."

A platinum-bright leghold trap hangs dramatically on the wall behind Curt Mullis' desk, making its own bold, emblematic statement—one that any wildlife lover would interpret as deliberately provocative. Yet when I talk with him one afternoon, Mullis seems, if anything, a bit defensive. A fit-looking, hazel-eyed man who could be a model for a Marlboro ad, Mullis reminds me of a type often encountered in the Vietnam era: a good soldier who believes he is being unfairly handicapped while trying to fight an unpopular war. When, glancing at the trap above his head, I ask him, "Does it ever bother you that animals as sensitive to pain as your own dog or cat should have their legs crushed by a thing like that?" he answers: "Yeah, well, I've thought about that. But you have a mission to accomplish, so you accomplish it."

When the subject of The Photo comes up, Mullis looks grim. A snapshot of the severed heads of 13 Arizona mountain lions killed by ADC was widely publicized in the news media three years ago, igniting a firestorm of protest. It was a catalyst in the formation of several organizations in the West that want ADC abolished. Mullis' voice is edged with bitterness when he recounts that the heads, preserved at the request of the U.S. Fish and Wildlife Service (which until eight years ago had overseen ADC), had been covertly photographed by a disgruntled FWS employee whose motives, he claims, were more personal than environmental. But then he adds: "The Photo may have done some good. I've seen more change in the program in the last three or four years than I have in the rest of my career."

Although I believe Mullis believes ADC is improving—becoming more selective in its control methods, and more environmentally aware—I don't share his conviction. Ever since I started keeping tabs on ADC some 20 years ago, its leaders have been saying the same thing. True, the agency now pays more lip service to environmental protection. But out on the range, not much has changed.

Take, for instance, the way coyotes are hunted. Mullis explains that control of the animals is "species specific"—a euphemism that means the killing is wholesale, without regard to whether individual coyotes are taking livestock or not. In practice, however, it is not even very "specific" to the target species. Traps, snares, and poisons inadvertently dispatch many thousands of non-target animals. In addition, some predators other than coyotes, notably bobcats and foxes, are shot or trapped even though sheep growers themselves do not regard them as a serious problem. Like coyotes, they have the misfortune of being furbearers as well as predators, and in some states ADC is legally allowed to defray part of its costs by selling pelts.

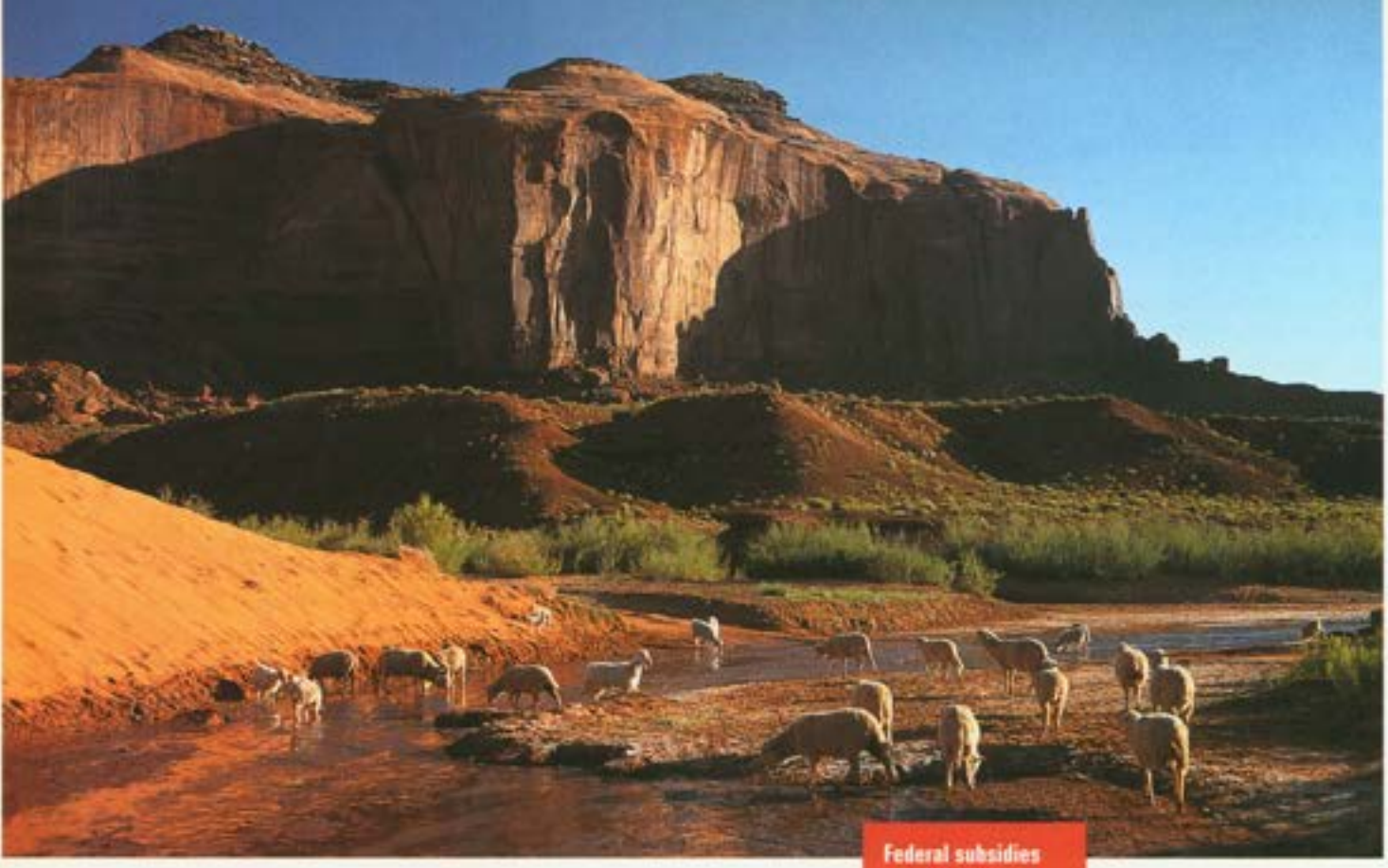
The photo that launched an outcry. When this picture was made public in 1990, activists called for ADC to be abolished.

ONE YEAR'S TOLL

In 1992, the USDA's Animal Damage Control Program exterminated 2.2 million wild animals representing nearly 140 different species, most of them birds. A partial list of the deceased follows. A full tally would include, among others, several alligators, bats, and crows, many laughing gulls and ravens, a brace of pronghorn antelope, a quanta of ringtails, magpies, owls, and turtles, and a Polynesian rat.

Species	Number Reported Killed by ADC
Armadillo, Nine-Banded	6
Badger	1,023
Bear, Black	231
Beaver	15,097
Blackbird	1,424,902
Bobcat	1,243
Coyote	97,966
Dove, Zebra	15,906
Egret, Cattle	3,567
Fox	10,601
Grackle	164,478
Lion, Mountain (Cougar)	234
Marmot/Woodchuck	1,686
Muskrat	480
Nutria	824
Opossum, Virginia	2,832
Otter, River	190
Peccary, Collared (Javelina)	778
Pheasant, Ring-Necked	93
Pigeon, Feral (Rock Dove)	3,170
Porcupine	1,139
Raccoon	7,558
Skunk, Striped	7,851
Starling, European	364,112
Wolf, Gray/Timber	114

Source: U. S. Department of Agriculture, Animal and Plant Health Inspection Service.



Federal subsidies (including animal damage control) contribute to what limited prosperity the U.S. sheep industry enjoys.

For Mullis, these are side issues. The fundamental issue is that sheep and coyotes don't mix. "If we didn't have a coyote-control program around the sheep out here," he says, "there wouldn't be any sheep industry left in this country."

I continue thinking about all this while having lunch at an Albuquerque restaurant with Ednen Hindi, a sheep grower of Lebanese descent. Like most ranchers I have talked with over the years, he seems a decent, friendly person. He has a shaky nervousness about him that doesn't run to type, but this is an aftereffect of a fall he took on his ranch a couple of months ago that almost cost him his life. He is slowly recovering, but still looks as though an amiable slap on the back would snap him in two.

In a thin, earnest voice, he is telling me how coyotes "got us pretty good last year—43 lambs and five ewes out of a herd of 580 sheep" before ADC came to the rescue. "Coyotes are smarter than people," Hindi insists. One of the wily animals learned to jump fences and killed four or five of his lambs in a single night.

Hindi is uncomfortable when I probe him for his thoughts on the system of federal support that keeps the sheep industry, including his own small operation, from going belly-up. I refer to the federal subsidies that pay sheep growers as much as two and a half times the market value of their wool, to bargain-basement grazing leases on public lands, and to the funding of ADC. (Nationally, the federal government pays about three-fifths of ADC's $30-million budget, but in some western states more than half of the agency's funding comes from livestock associations and the state and county governments they influence.) When I ask Hindi if he really believes that the cost/benefit ratio works out in this equation, he replies thoughtfully that "it depends how much our country wants to have a sheep industry and preserve rural economies." The small ranching communities in New Mexico depend on sheep growers, he says. What will the government do about all the unemployed, he asks, if people like him go out of business?

"HERE WAS THIS MAN WORKING FOR THE GOVERNMENT, LAUGHING AND BRAGGING ABOUT KILLING HUNDREDS OF EAGLES."

Statistics cannot measure human hardship, so I do not point out to Hindi that, compared with the displacements caused by closures of military bases and factories, the sort he is talking about is

minimal. Nor do I question his faith in the altruistic motives of western legislators who are trying hard to keep sheep ranchers in business at public expense, although I am somewhat cynical on that score. Some western politicians are "welfare" ranchers themselves, and many more fear that if the livestock industry is made to pay fair-value fees for exploiting public lands, the same will be asked of the mineral companies that are among their chief campaign contributors.

The issue I do not skirt is Ednen Hindi's future. No matter what the government does or doesn't do, he is going to be out of business before too many more years have passed. The reason is sitting next to him at the table. Ednen, Jr., a boy in his mid-teens, has been quietly eating his lunch while his father and I talk. He has decided that when he goes to college he will study engineering. "And that's what I want for him," says Ednen, Sr. "I don't want him to be a sheep rancher. It's too hard a life. And there's no retirement, no vacations, no disability benefits."

Hindi, still in his 40s, is young for a sheepman. Most of his peers are 20 years older, and almost every one of them I have met has recited this same refrain: when they die, their sons will not take their places.

But there is no question that in Hindi's view, ADC makes his hard life a little easier. Having talked with Curt Mullis before our meeting, he now takes great pains to assure me that the agency "isn't really on the ranchers' side either." They are sticklers for correct procedure, he insists, even requiring him to produce proof of predation, such as puncture marks in a lamb's throat, before providing help in trapping or killing the offending animals. This claim seems questionable, since there is no ADC regulation requiring such proof, and even if there were few ADC trappers or hunters would pay much attention to it.

Whether or not Hindi is polishing up ADC's tarnished image for my benefit, there is no doubting the candor of his reply when asked what he would do if the agency were abolished.

"What would I do?" he replies incredulously. "Why, I'd go out and find any poison I could. That's the only way I could survive."

It is precisely this reaction that worries some people when the subject of abolishing ADC is broached. Among them is Terry Grosz, the U.S. Fish and Wildlife Service's assistant Rocky Mountain regional director of law enforcement—a big, bearish man with a soft voice and a handshake that approximates the grip of a leghold trap. He is troubled by the Bureau of Land Management's recent decision, in response to administrative appeals by the Humane Society, to ban ADC activities on all BLM lands in Wyoming and Montana, and on some BLM lands in most other western states, until adequate environmental assessments have been prepared. The loophole in this temporary injunction is an exception for "emergency circumstances" that, as many environmentalists are pointing out, is big enough for an elephant to walk through. But even so, Grosz's sources are telling him that some ranchers have already "overreacted" by setting out baits laced with highly toxic predacides.

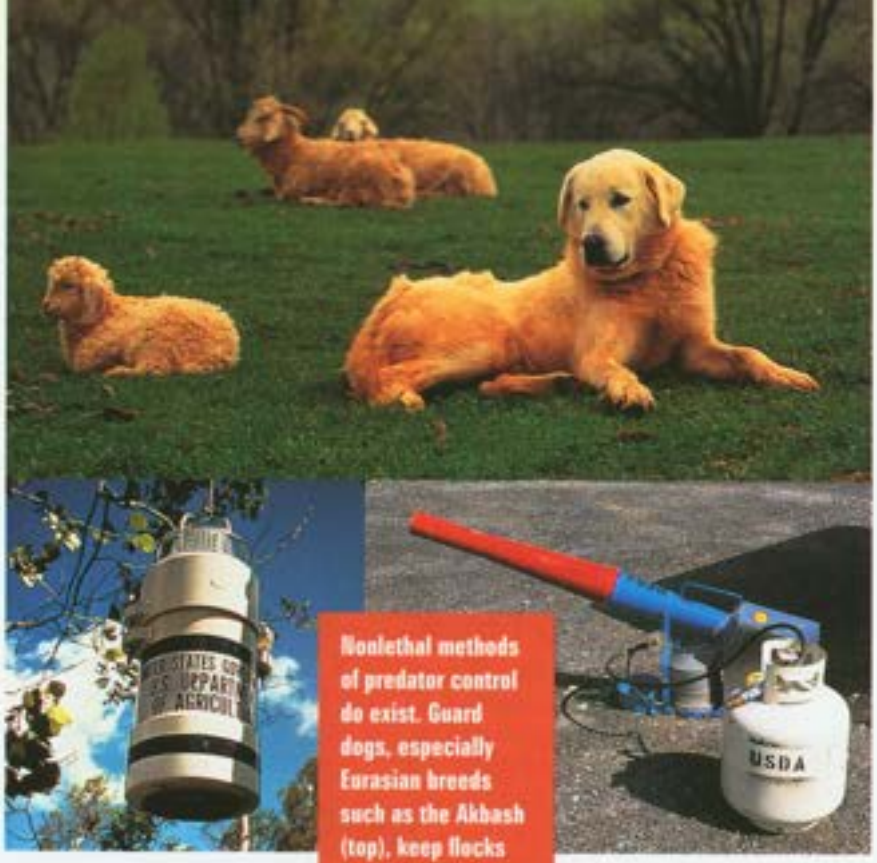
"Without animal damage control in some form," says Grosz, "it's goin' to be a pure goddamned disaster for wildlife, not to mention regulatory agencies such as mine." He imagines that with ADC eliminated, ranchers would revert to their Old West ways, taking matters into their own hands.

The question is whether the ranchers—at least a considerable number of them—have ever done anything else. The answer seems to be no. The use of poisoned baits to kill coyotes, as well as golden eagles, is still standard procedure on many western ranches. Although most of the poisons used, such as Temik (the trade name for aldicarb), are legally available for licensed agricultural uses, they are so deadly that they often kill vultures and foxes that feed on the carcasses of animals killed by the poisoned bait.

Like notches carved by a gunfighter, a line of strung-up coyotes testifies to one sheep rancher's skill at clearing his spread of predators.

Ranchers claim they have no choice but to use these untidy methods. But in fact they do. Animal Damage Control's own research center in Denver has come up with a number of truly selective, even nonlethal means of predator control, among them guard dogs and a strobe-and-siren scare device that can send the wiliest coyote scampering for the hills. Some ranchers have employed these techniques with consid-

erable success, but Doug McKenna, an FWS enforcement agent who has investigated wildlife poisonings in Utah, Wyoming, and Colorado, is not very sanguine about their widespread use. "Guard dogs, for example, work great, but take a lot of effort. It's just a whole lot easier for a rancher to lace something with poison and walk away." And ADC field people know it's being done, he adds grimly.



Nonlethal methods of predator control do exist. Guard dogs, especially Eurasian breeds such as the Akbash (top), keep flocks from harm. High-tech devices such as the siren-and-strobe "Electronic Guard" (left) and a noisemaking propane cannon (right) scare off would-be attackers.

Few persons are better qualified to talk, from the inside looking out, about the extra-legal ties among ranchers, state predator-control personnel, and ADC than 37-year-old Rex Shaddox. He is a round-faced, sad-eyed man with a droopy mustache and a western drawl whose appearance in no way suggests he could have been as good as he evidently was at leading a double life. About three years ago, he began working as an assistant on a predator-control research project sponsored by Wyoming's Department of Agriculture and the Wyoming Woolgrowers Association. During the months that followed, he became so disturbed by what he was seeing and hearing that he finally volunteered himself to the FWS's Enforcement Division as an informant.

Even now, long after the sting operation in which he was involved is over, he cannot distance himself from the excitement and danger that were a part of his life back then. In my Denver motel room, he is unable to sit still for long, and hyperventilates as he talks.

"It was Andy Allen who really disgusted me," he says. "I'm used to how the ranchers talk, but here was this man working for the government, and laughing and bragging to me about killing hundreds of eagles." That's when Shaddox decided to get in touch with the enforcement people at FWS.

The case of Andy Allen might serve as an example of what Sierra Club activist Wolff terms ADC's "intransigence and arrogance." Fifteen years ago Allen was found guilty under the Bald Eagle Protection Act and the Airborne Hunting Act for illegally killing eagles—many of them shot from a helicopter—while working as an ADC trapper in Texas. His superiors, who did their best to obstruct the investigation of the crime, had no choice but to fire him after his conviction. Yet, knowing his background, the ADC director in Wyoming, William Rightmire, rehired him in 1989, explaining that "he was a good hand, and he'd paid his price to society."

Whatever Rightmire's attitude and loyalties, he did nothing illegal in rehiring Allen, who one year ago voluntarily resigned and returned to Texas. But that is more than can be said for other goings-on in the world (some might say the underworld) of Wyoming predator control in which Shaddox was immersed. By keeping his eyes and ears open, taking notes and photos, and making tapes, he learned in detail how ADC trappers failed to post required warning signs at sites where they set M-44s (spring-activated devices that shoot cyanide into the mouths of any coyotes that trigger them); how they collected and secretly buried eagles killed by ranchers' poisoned baits; how they conducted aerial hunts without obtaining landowners' permission.

Most disturbing was how higher-ranking officials ignored or condoned these practices, sometimes engaging in illegal activities of their own. One of the men found guilty along with Allen was predator-control consultant for the Wyoming Department of Agriculture. He confessed to selling ranchers confiscated cyanide, strychnine, and long-outlawed Compound 1080 that he was supposed to be keeping under lock and key.

After Shaddox's role in the undercover operation became widely known, he moved his family to another state to escape death threats directed at them as well as himself. Now, pacing my motel room, he exclaims between short breaths, "I mean, this stuff is serious. Only now I'm not sure anymore that there's anyone out there who gives a damn about it all."

MANY PEOPLE "OUT THERE" DO, IN fact, care deeply. But quick-fix solutions concerning predator management

Continued on page 97

C 458

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The ads feature photographs of nesting ospreys, baby sea turtles, and a Wisconsin dairy farmer and her cow, with text extolling birdwatching, clean air, and fresh milk. Ads for your favorite environmental organization? Not quite. If the advertising industry gave awards for cynicism, these would be this year's winners. The product they are selling is nuclear power.

Desperate times call for desperate tactics, and the nuclear-power industry is in enough trouble to try to pass itself off as an ecologically correct enterprise. Even after 12 years of beneficence from the Reagan and Bush administrations, no new U.S. reactor has been ordered since 1978. Every plant ordered since 1973 has been canceled, and, according to a 1992 opinion poll, 65 percent of the public opposes building any more.

The industry has only itself to blame. Despite lavish government subsidies, its decline comes as the result of interminable plant-construction schedules, horrendous cost overruns, ballooning operating expenses, persistent safety questions, and a chronic inability to dispose of its growing stocks of dangerous radioactive waste.

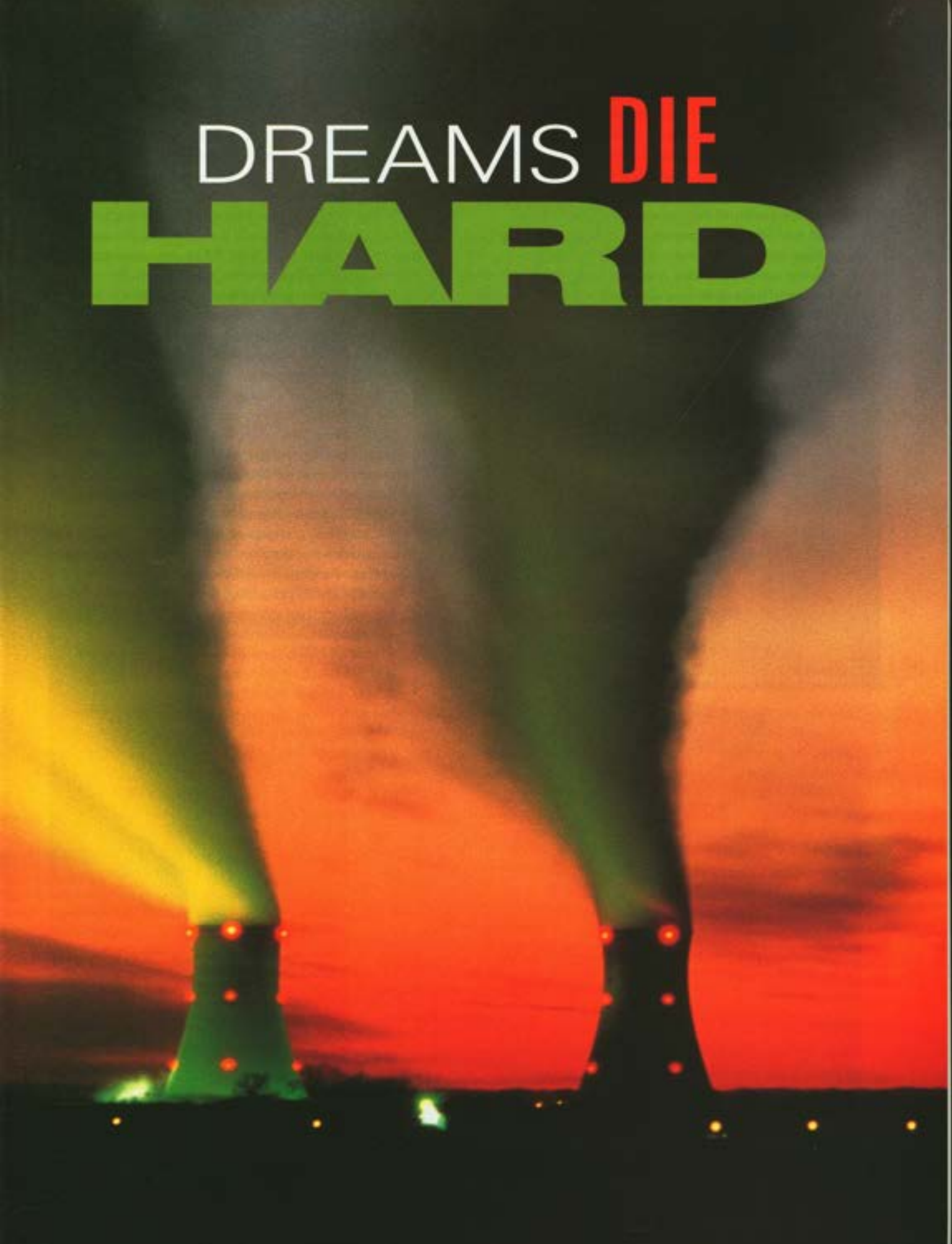
WALL STREET WON'T FINANCE IT. ITS REACTORS MELT AND LEAK. ITS GARBAGE LASTS FOREVER. ITS CUSTOMERS FEAR IT. STILL, THE NUCLEAR INDUSTRY CLAIMS TO BE POISED FOR A COMEBACK.

Mindful of this sorry record, utilities and their financial backers are leery of committing the $4 billion to $7 billion it costs to construct a nuclear-power plant, especially when cheaper, more predictable, and more reliable alternatives are available. "If anyone suggests a nuclear reactor to a utility board of directors," admitted the president of a reactor-manufacturing company a few years ago, "they'll send for the guy with the net, and with good reason."

The public is equally wary. The accidents at Three Mile Island and Chernobyl served as compelling reminders of the unforgiving nature of nuclear technology. In this realm, human frailty and technological hubris can result in the destruction of surrounding communities, the sudden and total loss of a multibillion-dollar investment, and endless legal and financial nightmares for the reactor's owners.

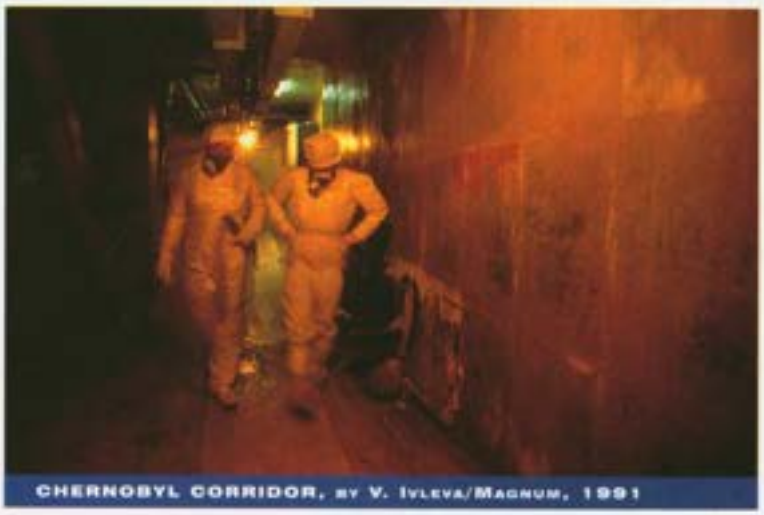
BY PHILLIP A. GREENBERG

DREAMS DIE HARD



And even though the Cold War is over, the menace of nuclear-weapons proliferation still lurks just beyond the perimeter fence. Reports of weapons programs conducted at "research" nuclear facilities in North Korea, Iraq, and South Africa have jolted the international community, reminding it that civilian nuclear-power programs can also be tempting sources for the plutonium and enriched uranium needed to build nuclear weapons.

With the industry losing steam, its boosters sniffed the promising scent of (otherwise odorless) carbon dioxide. Although the nuclear industry commits many environmental sins, emitting large quantities of greenhouse gases and other air pollutants is not among them. On this slender basis, its public-relations arm (with an annual budget of more than $20 million) has set to work casting nuclear power as the environmentally friendly energy option.



CHERNOBYL CORRIDOR, BY V. IVLEVA/MAGNUM, 1991

Since its problems only become more apparent with the passage of time, the industry is scrambling to engineer a quick comeback. Recently, nurtured by the recumbent Nuclear Regulatory Commission (NRC) and fueled by more than $21 million in PAC contributions since 1985, nuclear supporters have won several legislative and regulatory victories that diminish the public's ability to oppose new reactors. And contrary to President Clinton's campaign promises, his proposed budget allocates several hundred million dollars for nuclear-power research, including $22 million for a dangerous new generation of experimental reactors. The nuclear establishment's revival strategy is focused on one objective: winning a new reactor order to break the 20-year drought.

CONDITION CRITICAL

There are currently 109 nuclear reactors licensed to operate in the United States, with only two more under active construction. (The number actually operating is substantially lower, since at any given time many reactors are closed for repairs or refueling.) Last year nuclear power provided about 20 percent of the nation's electricity production and 8 percent of its total energy.

Worldwide, there were 423 operable nuclear reactors at the start of 1993. While the United States maintains the largest number—roughly a quarter of the world total—17 other countries (including Germany and Japan) are more reliant on nuclear power for their electricity needs.

Stopped cold in the United States, nuclear-power growth has also slowed to a trickle in most of the rest of the world. At the end of 1992, construction was actively under way at fewer than 50 plants worldwide, with almost a third of those in Japan (nine) and France (five). Most new reactors should be completed within the next few years. Given the expected rate of plant retirements, however, the Worldwatch Institute projects that by the turn of the century global nuclear capacity will be at most only slightly higher than it is today.

In Western Europe, as in the United States, infatuation with nuclear power was short-lived. Austria, Belgium, Britain, Denmark, Finland, Greece, the Netherlands, Norway, Spain, Sweden, and Switzerland have all announced nuclear moratoria, bans, or phaseouts. Germany, which hasn't ordered a new plant since the 1970s, quickly shut all five archaic Soviet-designed plants in the former East Germany after the country was united.

Only France retains its old passion for fission, just as it does for the *force de frappe*, its independent nuclear-weapons capability. Fifty-six French reactors account for 73 percent of the nation's electricity—a larger share than anywhere else in the world. But the heavily subsidized state-owned agency that operates France's $145-billion nuclear program has run at a loss for much of the past 20 years, accumulating a debt of $35 billion, and its financial future is unclear. Some observers—including the International Energy Agency, an arm of the industrialized nations' Organization for Economic Cooperation and Development—have questioned the wisdom of relying so heavily on nuclear power. The discovery of a serious generic flaw in France's vaunted standardized plant designs, for instance, could lead to disastrous nationwide electricity shortages.

Japan, with the world's third-largest nuclear-energy program, generates a quarter of its electricity from nuclear power, and hopes to boost that share to half soon after the year 2000. To achieve that goal, it is pressing ahead with an ambitious program to build 40 new plants by the year 2010—a target the Worldwatch Institute believes it will be unable to meet. Japan maintains the world's most active breeder-reactor program, in hopes of becoming self-sufficient in plutonium. (Theoretically, breeders create more fuel than they use by irradiating uranium during operation to produce plutonium, which can in turn fuel other plants.) After several unanticipated delays, a prototype breeder is scheduled to start up next year.

But Japan's increasing reliance on nuclear power is also breeding public unease. After the Chernobyl accident, more than 3 million Japanese signed petitions asking for a moratorium on nuclear power. A 1990 opinion poll revealed that

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almost half the population believes that nuclear power is unsafe. Public confidence was further shaken by two widely publicized reactor accidents in 1989 and 1991, one of which resulted in a small radioactive release.

The high costs and heavy technical demands of nuclear power have largely restricted it to the industrialized nations. Outside Europe, only seven less-developed countries have active nuclear programs, and only three operate more than one or two reactors: India (nine), South Korea (nine), and Taiwan (six). Less than one percent of the developing world's energy comes from nuclear power.

ENVIRONMENTALISTS ARE FOOLING THEMSELVES IF THEY THINK THE INDUSTRY WILL WALK AWAY FROM A $500-BILLION INVESTMENT.

WORST-FEARS DEPARTMENT

Rattling its chains behind every rosy industry pronouncement is the specter of Chernobyl, the world's worst nuclear-power disaster—to date. Official Soviet estimates of immediate deaths from the 1986 meltdown ranged between 31 and 250. Some Ukrainian authorities, however, claim that several thousand people have already lost their lives. Most estimates of deaths from radiation-induced cancer over the long term range between 2,500 and 39,000 (although some significantly higher numbers have also been suggested). Two thousand villages were abandoned, 180,000 people resettled, and more than 15,000 square miles of land contaminated. Ominously, the hastily erected concrete "sarcophagus" encasing the burned-out reactor is now showing signs of failure; its collapse could release huge amounts of heavily contaminated radioactive dust into the atmosphere, and could cause additional radiation injuries and deaths.

Incredibly, it could all happen again. In the Commonwealth of Independent States and Eastern Europe, 15 Chernobyl-style RBMK reactors continue to operate, as well as 10 other older Soviet-designed plants. None were built with safety systems that meet Western standards. "There is a growing international consensus that [these reactors] should not be operated any longer than absolutely necessary," NRC chairman Ivan Selin testified before Congress. The Russian Academy of Sciences itself has urged that the RMBK reactors be shut down.

Yet in some Eastern European countries, the antiquated plants provide a significant portion of all electricity, and their owners are reluctant to close them. Russia announced last

CHERNOBYL SARCOPHAGUS, BY JAMES LENAGER, 1990

MUTATED LOVE, BY MARK HECKMAN, 1991 (commissioned by Americans for a Safe Future)

year that the RBMK reactors would continue to operate, and if that bothered Western nations, they were welcome to help pay for safety improvements.

The price tag is the problem: the World Bank estimates that upgrading Eastern European nuclear plants would cost about $24 billion. Alternatively, shutting down the reactors and building generators to produce electricity from Eastern Europe's ample natural-gas supplies would take only three years and cost $18 billion, in addition to several billion more annually in fuel costs. This option has been received cooly by the Eastern nations, who prefer to sell as much natural gas as possible to the West for hard currency. The West worries about another accident at older Chernobyl-style reactors, but not enough to take on the financial burden of either course.

IT COULD HAPPEN HERE

Safety and reliability problems continue to plague nuclear power, alarming an already skittish public and driving up costs. Every year, further difficulties seem to emerge. Current headaches include the following:

• The nuclear core of a reactor is encased in a massive steel structure called a "pressure vessel." Long-term neutron irradiation can weaken these structures; such "embrittlement" was the primary cause of the early closure of Massachusetts' Yankee Rowe plant in 1991. This year, the NRC revealed that 18 more U.S. reactors may also be at risk.

• Incidents in July 1992 and early 1993 revealed that at one type of reactor, gauges indicating levels of cooling water are prone to malfunction—a defect the NRC admits could lead to a meltdown. After a year's vacillation, the NRC finally ordered the operators of 37 reactors to ensure that water-level indicators were working properly, and to fix suspect equipment at the first shutdown for repairs or refueling.

• Roughly 80 U.S. reactors use a material called "Thermo-Lag" to protect essential electrical cables in the event of fire or accident. Unfortunately, tests suggest that this substance doesn't meet NRC performance standards. Nevertheless, the NRC has not forced utilities to replace the stuff, allowing them to compensate with increased fire patrols and monitoring devices instead. In August 1992, the NRC's own Inspector General released a report criticizing the commission's laxness on the issue.

"AS A GENERAL PROPOSITION, THERE IS NOTHING 'INHERENTLY SAFE' ABOUT A NUCLEAR REACTOR."

• Steam generators are massive heat exchangers inside nuclear plants containing thousands of tubes and pipes. Steam generators are extremely expensive to repair, and potentially dangerous as well. An internal NRC staff memo released in late 1992 by the Union of Concerned Scientists noted that multiple tube breaks could result in a core-melt accident (a contention subsequently rejected by NRC managers). As of mid-1992, unanticipated wear and leakage had forced utilities to replace 12 steam generators. Over the next 17 years, 50 to 60 more replacements may be required, at a cost of hundreds of millions of dollars each.

• The nuclear industry and its allies have never been keen to advertise the overall risk of a disaster. But under pressure from Congress in the mid-1980s, the NRC revealed that the risk of a severe core-melt accident at the nation's 100 nuclear reactors was roughly 45 percent over a 20-year period. Commissioner James Asselstine, the toughest regulator to serve on the NRC in the past decade, added that because of

substantial uncertainties in the estimates, the probability was actually somewhere between 6 and 99 percent. Small wonder the industry prefers not to talk about it.

THE MONEY HOLE

The nuclear industry's most intractable problem is how to take out the garbage. The creation of nuclear power results in two major classes of radioactive waste: high-level waste, mostly in the form of intensely radioactive spent fuel; and less radioactive (though still dangerous) low-level waste. The latter includes contaminated disposable elements of reactor systems (such as filters) and common materials contaminated during plant maintenance and operation (such as gloves, tools, and rags). Additional waste in both categories is generated by Department of Energy facilities that process plutonium and highly enriched uranium for the nation's nuclear-weapons program.

Although the nuclear industry has long claimed that the disposal of radioactive waste presents no problem, acceptable sites and technology for the permanent isolation of spent fuel and high-level waste have yet to be demonstrated in any nation. (Many environmentalists take exception to the concept of "disposal," since nothing but the passage of extremely long periods of time can really make nuclear waste go away.) By the end of last year in the United States, more than 24,000 metric tons of commercial spent fuel were in storage, primarily at about 70 reactor sites in more than 30 states; 2,000 additional tons are produced every year. High-level waste from nuclear-weapons production in storage as of 1990 amounted to an additional 1.4 million cubic feet.

In 1987, Congress designated Yucca Mountain in Nevada as the prime candidate for a national nuclear graveyard. (See "Gambling With Tomorrow," September/October 1992.) But rather than serve as a repository for the country's commercial spent fuel and high-level waste, Yucca Mountain has thus far swallowed only its money. The Department of Energy estimates total construction costs for the facility at $26 billion, of which $6 billion is just to determine whether the site is suitable. Such studies have already cost more than $1 billion. Despite the massive infusions of cash, the opening of Yucca Mountain continues to recede, mirage-like, into the future. In 1989 the DOE announced that the opening date had slipped from the original target of 1998 to 2010 at the earliest. But this year the General Accounting Office (GAO) concluded that, given the DOE's poor management, site investigation alone would take at least 5 to 13 years longer than planned, further delaying the opening and increasing the project's total cost.

"Yucca Mountain is a complete disaster," says Bill Magavern, who runs Public Citizen's Critical Mass Energy Project. "Hundreds of millions of dollars are literally being thrown down a hole every year, and yet the opening date keeps getting pushed back. It's not an honest scientific process; it's being dictated by politics. Rather than actually trying to assess whether the site is suitable, the DOE is attempting to prepare the site for licensing and waste emplacement."

Last year retired Air Force General Joel T. Hall, a DOE consultant on Yucca Mountain, resigned and wrote a stinging letter to then-Secretary James Watkins making similar allegations. Exacerbating such concerns, the DOE recently began construction of a 25-foot-diameter tunnel into the mountain, supposedly to perform site studies. The unnecessarily large size of the shaft, critics charge, suggests that it is actually an access ramp into the repository, and thus a big step toward readying Yucca to receive the nation's hottest waste.

During the presidential campaign, Bill Clinton pledged to order a review of the Yucca Mountain project. A reappraisal was also requested this spring by the GAO and 21 governors of western states. But when Energy Secretary Hazel O'Leary announced the review this summer, environmentalists were disappointed to find it limited to contracting and finances. Meanwhile, with some power plants running out of space to store spent fuel, the DOE has been searching for a locality or Native American tribe that would accept a "temporary" national storage facility in exchange for a multimillion-dollar annual payment. Two southwestern tribes have expressed possible interest.

URANIUM DRIVE-IN, BY ROBERT DAWSON, 1985

LOW-LEVEL WASTE, HIGH-LEVEL CONTROVERSY

Although low-level waste contains only a small percentage of the radioactivity in all U.S. nuclear waste, it constitutes by far the greatest bulk—more than 140 million cubic feet as of 1990. Nuclear-power plants generate slightly more than half of commercial low-level waste (and 80 percent of its radioactivity); industrial sources another third, with the rest coming from nuclear medicine and research.

In the early years, six scattered burial sites accepted all the nation's commercially generated low-level waste. By 1979, three had closed permanently after unexpected leakage. The states with the remaining dumpsites became uncomfortable

WASTE ISOLATION PILOT PLANT NUCLEAR CROSSROADS, NEW MEXICO, BY PATRICK NAGATANI, 1979

with taking on the role of nuclear trash bins in perpetuity. In January 1993 the Beatty, Nevada, site closed, leaving only Richland, Washington, and Barnwell, South Carolina.

Aware of the geographic inequity, Congress in 1980 made each state responsible for providing for the disposal of its own commercially generated low-level radioactive waste, encouraging states to band together in interstate compacts to do so. To date, nine such alliances have been formed and approved by Congress, with a tenth in the works. Five states and the District of Columbia still lack compact partners and may have to go it alone.

But even where states have agreed to "host" new sites, little or no progress has been made. New York backed off its initial review of five possible sites because of fierce local opposition; unimpressed, South Carolina threatened to cut off its dumping rights. Vehement community opposition has also kept Nebraska from nailing down a site, causing an official from its compact partner Kansas to accuse it of bad faith. Michigan was even expelled from the Midwest compact after its legislature adopted criteria so restrictive that its compact partners doubted any site in the state could ever be approved. Interior Secretary Bruce Babbitt recently asked California to hold a public hearing on the state's proposed Ward Valley site, further delaying—or possibly derailing—its opening. Only in Texas is there a chance that a new dump might open any time soon.

Equitable as it may be, spreading the burden of low-level-waste management invites stasis. Although understandably wary of a federally imposed solution, too many states have attempted to foist their own solutions on unwilling localities, thus creating a public backlash. Ironically, many antinuclear observers agree that the process set up by Congress may result in *too many* sites; a smaller number, carefully selected and managed, might serve better than the 12 to 15 now envisioned. The immediate challenge is to balance national, regional, and local interests in an atmosphere already poisoned by fear and mistrust. The ultimate challenge, of course, is to employ energy alternatives that do not produce large quantities of by-products so toxic that no one wants to live near them.

HELLO, WE MUST BE GOING

Having failed to fulfill its youthful promise, the nuclear industry is now suffering the infirmities of advancing age. Originally, the NRC and its predecessor, the Atomic Energy Commission, granted plants 40-year operating licenses. Over the next two decades, 38 reactor licenses are scheduled to expire. What to do? The industry and federal regulators have agreed in principle on a simple solution: extend the licenses for another 20 years. When current NRC chair Ivan Selin took office in 1991, he announced that license renewal was his "highest priority."

But license extensions are not the panacea the industry had imagined. The operators of the two plants selected by the industry as test cases, Monticello and Yankee Rowe, decided not to proceed; a closer look convinced them that the

costs of repairing and maintaining the plants past their original expiration dates would be too high. Monticello's operators "indefinitely deferred" their application: Yankee Rowe's problems were so serious that the reactor closed prematurely.

It appears that many large plants will not make it to the 40-year mark. Eighteen U.S. reactors have already shut down for good, among which only Yankee Rowe operated longer than 25 years. In the past 5 years alone, utilities have permanently shut down 5 reactors prematurely rather than attempt expensive repairs. In addition to Yankee Rowe, the list includes 24-year-old San Onofre 1 and 15-year-old Rancho Seco in California, Oregon's 16-year-old Trojan, and Colorado's 10-year-old Fort St. Vrain (an experimental reactor that never operated reliably). A sixth, the Shoreham plant in New York, closed before ever operating at full power because no credible plan could be devised to protect the surrounding population in the event of a serious accident.

NUCLEAR ENERGY SOAKED UP 65 PERCENT OF ALL FEDERAL ENERGY RESEARCH-AND-DEVELOPMENT FUNDS FROM 1948 TO 1992.

Of course, a seventh large reactor was shut down permanently in 1979 in Pennsylvania: the infamous Three Mile Island Unit 2. In addition, five of the oldest commercial reactors were retired years ago because needed repairs were too expensive: California's Humboldt Bay, Illinois' Dresden, Pennsylvania's Shippingport, New York's Indian Point 1, and Nebraska's Hallam, as well as six additional small, very early plants.

With these reactors closed and many others approaching the end of their useful lives, the industry faces the dilemma of decommissioning. Initial cost estimates for dismantling nuclear plants have proven to be as unrealistic as were those for building them 20 years ago. In 1988, the NRC put the costs of decommissioning at $105 million to $135 million for large plants, depending on their type. The GAO and others criticized those numbers as far too low, a conclusion eventually accepted by the industry itself. The utility that owns the comparatively small 175-megawatt (MW) Yankee Rowe plant has projected that decommissioning will cost $247 million, and recent estimates for dismantling the 330-MW Fort St. Vrain reactor stand at $333 million.

A 1990 study by Public Citizen found that utilities' median estimates for decommissioning large reactors (700 to 1,299 MW) ranged between $191 million and $268 million (depending on the size class), with one plant coming in at a high of $466 million. Even those astronomical numbers were eclipsed by the recent $541-million estimate to dismantle the 1,100-MW Trojan plant, while Indiana Michigan Power looks to spend as much as $550 million each to decommission its two 1,000-MW Cook reactors.

What makes decommissioning so expensive? Contributing factors include high radiation levels, the complex dismantling techniques required to prevent radiation exposure, the huge amounts of waste involved, and the escalating costs of getting rid of it. Despite volumes of technical studies, decommissioning is still largely uncharted territory. Since no big commercial reactor has ever been dismantled, techniques and even tools remain to be developed. In the nuclear industry, lack of experience has usually been a reliable indicator of higher costs down the road. In the coming decades, dismantling reactors and disposing of their contaminated parts may well become the industry's largest annual expense.

BREEDING TROUBLE

Aware of the problems with existing reactors, nuclear-power proponents are betting their future on new designs that they claim will be cheaper and more reliable. The DOE has subsidized these efforts with grants of more than $140 million. Major vendors have already submitted standardized designs for "advanced light water reactors," for NRC approval; these are only slightly modified versions of present-day reactors. They hope to be able to sell at least one of these plants in the United States and thus break the 20-year losing streak. But even many friends of the industry believe that evolutionary changes are not enough, and have called for an entirely new generation of "advanced reactors."

TOWERS, BY B. ADELMAN/MAGNUM, 1979

Some so-called advanced reactors are nothing more than new versions of a bad old idea: the liquid-metal breeder reactor. To date only a few prototype breeders have been built, and the goal of producing substantially more fuel than is used has proven elusive. Industry advocates decided to declare this deficiency a virtue by rechristening one design as an "actinide recycle" reactor. Instead of creating excess plutonium, this reactor would be designed to burn it, thus solving the Yucca Mountain problem.

Continued on page 102


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$59.95
$59.00
$29.95

THE PRICE OF EVERYTHING

MAYBE IT HAS SOMETHING TO DO WITH THE APPROACHING MILLENNIUM: the lion will lie down with the lamb, and toxic polluters will drink herbal tea with environmental activists. The wonderful new development is lauded in the press and preached from scores of think tanks. No longer, we are told, do we have to rely on threats of fines or jail time in order to get industry to do the right thing. The business leaders of today, working together with enlightened environmentalists, have discovered in the magic of the marketplace a cheaper, more effective, and less contentious remedy to just about any environmental ailment.

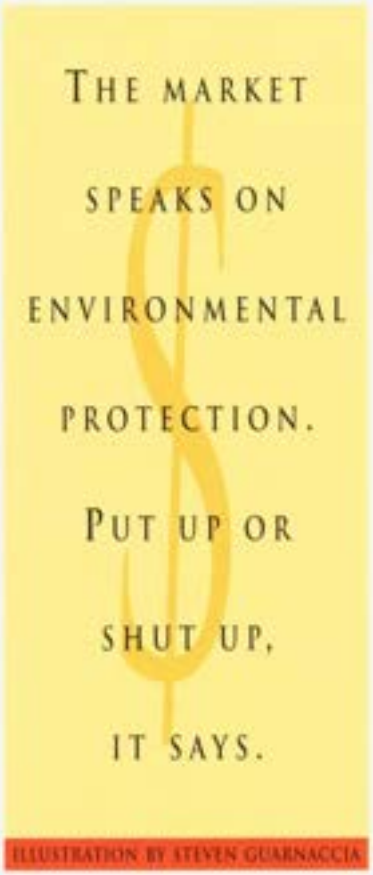


ILLUSTRATION BY STEVEN GUARNACCIA

The debate over environmental protection in the 1990s fills the ideological vacuum left by the end of the Cold War. It is now fashionable, for instance, to compare government regulation to the "command-and-control" economic arrangements of the former Soviet Union. As the Soviet system failed, the analogy suggests, so too will a regulatory system based on the *diktat* of federal bureaucrats telling industry how much pollution to reduce and how to reduce it. "Command and control" is said to cost U.S. businesses $140 billion a year, handicapping the economy, hobbling the recovery, and unfairly vilifying many environmentally concerned Americans who just happen to own polluting industries.

The alternative to this clumsy, old-fashioned, and vaguely unpatriotic-sounding system is "free-market environmentalism" (a.k.a. "new resource economics"), which promises to harness the vigor and inventiveness of capitalism to heal the earth. To do so, it proposes to vastly expand our present notion of private property, to sell that property to the highest bidder, and then to let the logic of the market sort things out.

Already a new property right has been created: the right to pollute. One section of the 1990 Clean Air Act allows plants that pollute below certain levels to sell pollution "credits" to dirtier concerns; innovative, clean industries profit from their cleanliness,

BY THOMAS MICHAEL POWER AND PAUL RAUBER

while the dirty industries pay for their sins until they can get around to cleaning up their acts. A market in these "pollution credits" has been established at the Chicago Board of Trade, where rights to emit tons of sulfur dioxide are bought and sold like pork bellies or soybean futures.

Having set prices on pollution, free marketeers are also trying to figure out what those who enjoy environmental quality should be made to pay for it. What will the market bear for the use of a regional park? Hopefully the public will pay more for Sunday hikes than the local developer will for condos, because if not, farewell forest. And if people want wolves in Yellowstone National Park, free marketeers argue, they should be willing to pay for them, cash on the barrelhead. It's just a question of settling on the price.

Not all proponents of free-market environmentalism subscribe to all of its logical but occasionally wacky conclusions. Every ideology has its ideologues; in this case, they are the libertarian-minded think tanks and academics who have provided the theoretical spadework for the new discipline. More common, however, are those who seek to pick and choose at the free-market table, ignoring dishes that don't coincide with their interests. Many businesses, for example, are enthusiastic about market solutions, but only when they result in a further giveaway of public resources. Contrarily, some environmentalists advocate market mechanisms in the name of efficiency, reasoning that making environmental responsibility cheaper will result in a corollary reduction of political opposition, the end result being the possibility of greater protection.

This, crudely put, is the position of the Environmental Defense Fund, the most market-oriented of the major environmental groups, as well as of some individuals within the Sierra Club. "We're finally getting past the debate about whose position is morally superior and moving on to a point where we will accomplish real reductions in pollution and resource use," says Dan Dudek, a senior economist at the EDF. His organization, which helped write the pollution-credit section in the Clean Air Act, looks forward to the establishment of national markets for nitrogen oxides, and perhaps even global markets for CFCs and carbon dioxide.

A big plus for free-market environmentalism has been its bipartisan support; neo-liberal Clintonian Democrats and anti-regulatory Bob Dole Republicans embrace it with equal enthusiasm. *Mandate for Change*, candidate Clinton's policy blueprint, contained a chapter ("The Greening of the Market") calling for a harnessing of the "daily self-interest" of firms and individuals to replace "command-and-control" regulations. During the campaign, Clinton himself said that we must "recognize that Adam Smith's invisible hand can have a green thumb," and called for a "market-based environmental-protection strategy."

This is a bitter draught for many environmental activists, weaned on regulatory triumphs like the National Environmental Policy Act and practiced in lobbying the government to toughen environmental laws, not abandon them. Most environmentalists are innately suspicious of economists anyway. They are the ones, after all, who tend to portray environmental quality as an expensive frivolity; who tell us that pollution controls hamper productivity and threaten private property; that zero levels of toxic releases are a naively impossible goal; and that protecting endangered species without regard for the economic consequences is irrational—as, perhaps, are many environmentalists.

(This suspicion of the dismal science is well warranted historically. From its beginning, the intellectual mission of Anglo-American economics has been to demonstrate the secret logic of allowing businesses to maximize profits, unfettered by social controls. That was, after all, Adam Smith's goal—to depict the selfish, even antisocial actions of private commerce as ultimately benefiting the public. No wonder the business community enthusiastically supported the intellectual venture that came to be known as economics.)

Yet these same wary environmentalists frequently endorse the use of economic instruments—perhaps without quite realizing it, and often to the profound distress of the affected industry. They insist, for example, that a price be put on empty beverage containers to create an economic incentive for recycling. (The deposit idea is now being considered for other, more dangerous solid wastes, such as automobile batteries, or refrigerators containing CFCs.) They argue that water "shortages" in arid regions result from the absence of incentives to conserve when the low price of government-subsidized irrigation reflects neither what the water costs to provide nor its value in alternate uses. They attack government subsidies for destructive programs such as the U.S. Forest Service's below-cost timber sales. Yet they remain queasy about extending this approach to all other environmental problems—with good reason, as it turns out.

FREE-MARKET ENVIRONMENTALISTS OFTEN SEEM MORE CONCERNED WITH THE MARKET THAN WITH THE ENVIRONMENT.

This ambivalence reflects a healthy respect for the limitations of market "solutions." Economic instruments are tools, but using them does not require us to embrace a new ideology or to jettison all government regulation. It *does* require environmentalists to determine when such

tools can be used productively, and which specific sort of tool is appropriate to a given situation or industry. It requires the adoption of an explicitly pragmatic approach to solving environmental problems. Most importantly, it requires that political problems be faced first.

Whenever environmental policy is made, three crucial issues must be resolved:

- What level of environmental protection is desired in each particular location?
- Who is going to pay the direct costs of achieving the targeted level of protection?
- What policy tools will be used to achieve these levels and to impose the costs?

Since economic instruments are merely policy tools, it's no use talking about them until the first two far more contentious questions have been settled. Otherwise, market mechanisms will end up doing what they have always done, i.e., maximizing profits by ignoring pollution or shifting environmental costs elsewhere. Market measures, then, are appropriate in situations with firmly established pollution-control objectives, where conventional environmental regulation would result in pure economic waste. Say, for example, that we have decided to reduce the amount of solid waste going into a city's landfill. Instead of issuing a decree ordering such a reduction by every citizen and business, we change the way garbage fees are paid; instead of extracting them from property taxes, as is usually the case, we start charging by weight or volume, and institute curbside recycling at the same time. Recyclers get a break, and others pay in relation to the amount of garbage they produce. Here economic instruments have something to offer, but only *after* the basic political questions have been settled.

This was not entirely the case in the pollution-permit market created by the 1990 Clean Air Act and implemented earlier this year. This pet program of the free-market environmentalists was designed to ease the pain for industries required to halve their 1980 level of SO_2 emissions by 2000. While promising in theory, however, its actual implementation revealed a number of hidden problems.

Unaddressed, for instance, was the question of who had to live with continued high levels of pollution. When the geographic area over which pollution credits can be traded is very large—nationwide in the case of SO_2—the effect of the market can be to stick some people in dirty areas with the bill. In some parts of the country air quality dramatically improves; in others, serious pollution problems persist with the full blessings of the market and the law. (The geographic question is what got World Bank Chief Economist Lawrence Summers in such hot water last year when his memo about the "impeccable" logic of dumping toxic waste in the "underpolluted" Third World was leaked to the press.) At its worst, trading pollution rights can legitimize continuing pollution. In one of the very first acid-rain trades under the new program, the Wisconsin Electric Power Company sold a Pennsylvania utility 20,000 tons of pollution credits. Under Wisconsin law, however, the company would not have been entitled to emit the pollution in the first place—yet federal law still allowed it to be peddled to Pennsylvania.

DESTRUCTIVE BEHAVIOR SHOULDN'T BECOME LEGITIMATE SIMPLY BECAUSE IT IS BACKED BY THE LARGEST WAD OF CASH.

Meanwhile, East Coast utilities have been selling their SO_2 credits to midwestern power plants, allowing them to continue burning high-sulfur midwestern coal. But what goes around comes around: the midwestern emissions ultimately drift back through the Atlantic and New England states, where they fall as acid rain.

Since it was concern over acid rain in the Northeast that led to the Clean Air Act's SO_2 caps in the first place, New York is now trying to prevent its utilities from selling SO_2 permits to upwind states. In the Midwest, on the other hand, ratepayers pay higher bills in order to finance their utilities' SO_2 purchases, but don't see any reduction in local SO_2. Had their utilities been forced by regulation to reduce emissions, at least the higher bills would have been offset by cleaner air; now the public pays for "pollution control," but gets none.

Supporters of emission trading argue that New York's fears are overstated, and that the benefits of local utilities cleaning up enough to sell credits far exceed the relatively small excess SO_2 blown in from upwind. Indeed, the Sierra Club itself has intervened with Ohio's public utilities commission in support of an acid-rain-reduction plan consisting of emission trading, energy efficiency, and use of low-sulphur eastern coal. "By forcing the marketplace to the lowest-cost solution that really works," says Sierra Club Ohio Chapter Energy Chair Ned Ford, "environmentalists gain credibility and enhance the opportunity for further reduction."

Of course, a simpler market mechanism could have been employed by taxing emissions above a certain level. While this would have had the same effect of rewarding the clean and punishing the dirty, it is anathema to free-market ideologues, whose interest is the creation of new private-property rights—in this case, a right to pollute.

Ironically, some of the businesses pollution-trading systems are supposed to assist don't want to play ball. The Ohio Power Company would prefer simply installing a scrubber. In Southern California, two dozen major businesses are opposing an emission-trading scheme proposed by the South

Coast Air Quality Management District, claiming that it would "substantially raise the costs" of pollution control, and pleading to be allowed to continue with "command and control."

Many environmentalists also attack pollution-credit trading as fundamentally flawed. That is not necessarily true. The real problem is that the program was established before all the basic questions were answered—in this case, what level of environmental quality should be assured for *all* areas covered by the trade. Those answers can only be reached through a political process, not bought at the market.

There is a fundamental conflict here that goes far beyond the use of economic instruments. Environmental protection necessarily involves the transfer of control over very valuable resources from one group of people to another. These resources are the wealth of the natural world, extractable and otherwise, and the limited capacity of the air, water, and land to assimilate the wastes associated with economic activity. Historically (and to a considerable extent today), this natural wealth has been the province of industry. The Forest Service sells the national forests for a song to giant timber companies; the Bureau of Land Management allows gentlemen ranchers to denude the public range for a pittance; the 1872 Mining Law gives away the public's mineral wealth to multinational corporations. Until very recently, the cost of waste disposal was however much it took to build a smokestack, or a drainpipe to the nearest river.

Taken for granted, these hidden subsidies—economists call them "externalities"—are not reflected in the price of commodities. Timber is cheap because the Forest Service gives it away; driving is cheap because drivers don't pay for air pollution. The real cost, of course, is paid in sick children, eroded farmlands, vanished fisheries, and extinction of species, and is shunted to the public, preferably the public of future generations.

Over the past several decades, the environmental movement has attempted to transfer control of these natural resources—worth, literally, trillions of dollars—from the commercial sector to the public. A transfer of wealth of this magnitude cannot take place without considerable conflict. In the past, such power shifts have required revolutions.

The continuing struggle over environmental policy, therefore, is hardly surprising. Economic instruments can make a modest contribution toward resolving it, to the extent that they can reduce the cost of environmental protection. But the fundamental conflict over who controls the use of our air, water, and landscapes cannot be decided merely through a change in the instrument of enforcement.

BUSINESS SOMETIMES ARGUES that it doesn't really matter *who* pays the direct costs of pollution control, since the costs will ultimately be borne by the general citizenry in the form of higher prices anyway. But in this case environmentalists have Econ 1-A on their side: it is elementary economic theory that markets can change behavior only if the full costs of an activity—the externalities—are incorporated into the immediate prices paid. If the price of gasoline included the direct costs of maintaining a permanent fleet (let alone fighting a war) in the Persian Gulf, our transportation system would reform itself in a hurry.

If the free marketeers based their program on charging the true environmental costs for all resources used, the environmental movement would sign up *en masse*. But ideological free-market environmentalists often seem more concerned with the market than with the environment; they tend to feel that equity—the distribution of access to scarce resources, or the right to a clean and healthful environment—is less important than economic efficiency and property rights.

This is exactly what is being demanded in the current attempt to expand the legal concept of "takings" to include environmental regulations. (See "Look Who's Taking," September/October.) By this theory, any environmental regulation that results in lost

Wild Should Wild Remain.

"Man always kills the thing he loves, and so we the pioneers have killed our wilderness. Some say we had to. Be that as it may, I am glad I shall never be young without wild country to be young in."

ALDO LEOPOLD

"We need wilderness preserved—as much of it as is still left, and as many kinds . . . It is important to us . . . simply because it is there—important, that is, simply as an idea."

WALLACE STEGNER

"The love of wilderness is more than a hunger for what is always beyond reach. It is also an expression of loyalty to the earth, (the earth which bore us and sustains us), the only home we shall ever know, the only paradise we ever need—if we had the eyes to see."

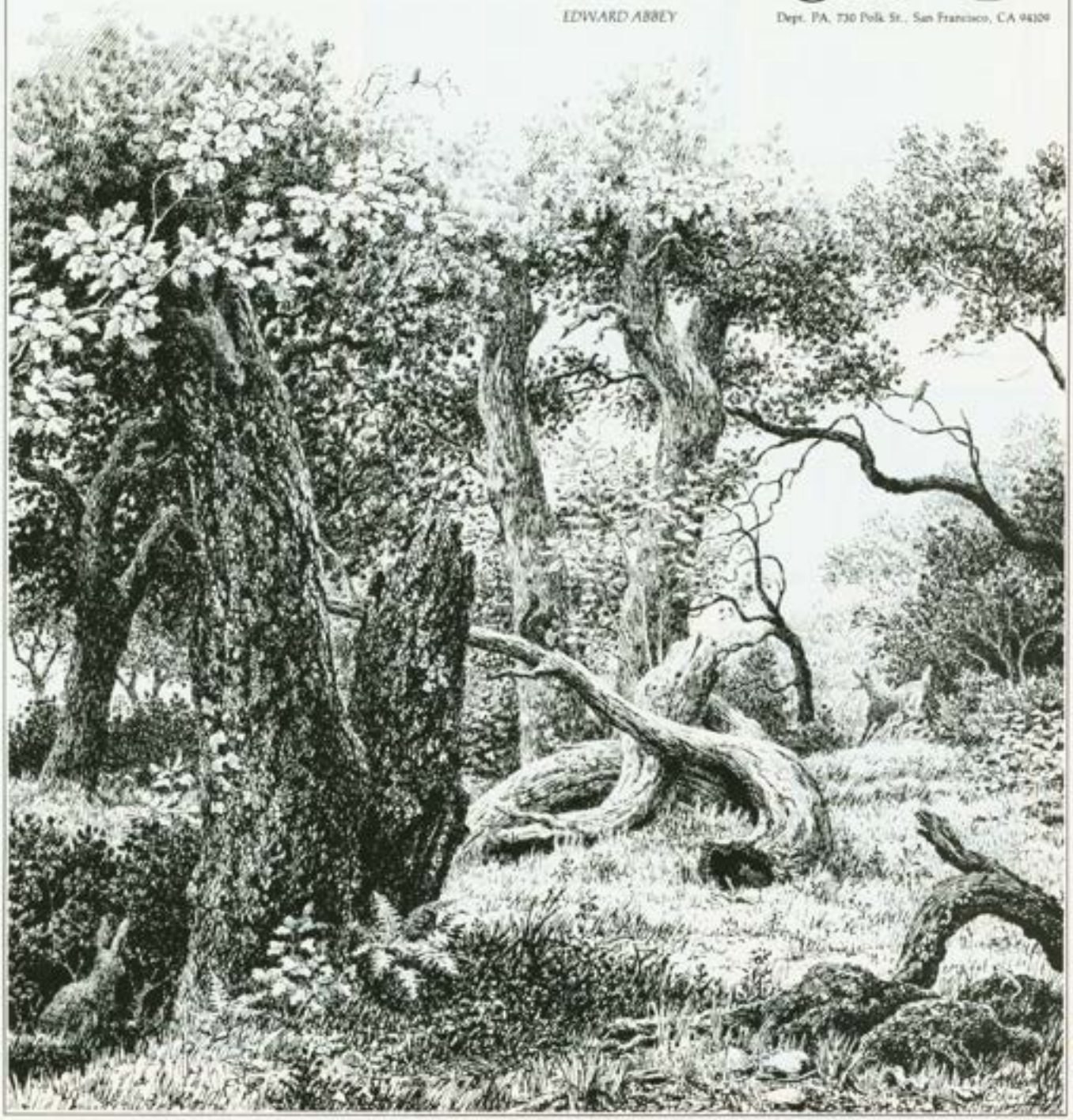
EDWARD ABBEY

"The clearest way into the Universe is through a forest wilderness."

JOHN MUIR

SIERRA CLUB

Dept. PA, 730 Polk St., San Francisco, CA 94109



profits requires government compensation. This assumes, of course, that people have a "property right" to pollute or damage the environment in any way they wish, and that the public has to pay them if that right to damage the environment is changed or revoked. Oddly, free marketeers somehow always assign property rights to those doing the polluting rather than to those being damaged by the pollution.

This is one example of the huge ideological gulf that separates the vision of a good society shared by most environmentalists from that of the free-market enthusiasts. Environmentalists act collectively to preserve certain qualities associated with the natural and, often, social environments. In this sense, they are fundamentally conservative: they wish things to remain the same, or even to return to a previous preferred condition. It is ironic, then, that their suspicion of market instruments is sometimes taken as proof of their "watermelon" character: green on the outside but red on the inside.

Free marketeers, on the other hand, are enthusiastic about the constant change that a market economy encourages, and are suspicious of any efforts to guide the direction of the economy or society collectively. They see such attempts as authoritarian, economically destructive, and tantamount to socialism. The economy for them is an adventure of unknown destination. Columnist George Will, for instance, writes fondly of the "billions of daily decisions that propel a free society into an exhilaratingly unknown future." We should learn to enjoy the excitement and change, and trust that the overall result, whatever it may be, will be much better than anything we could collectively arrange.

IDEOLOGICAL FREE MARKETEERS insist that we should not use individual market tools without buying the whole package. Advocates such as John Baden of the Foundation for Research on Economics and the Environment (FREE) object strenuously to the use of market instruments "simply as tools for the efficient delivery of environmental goals . . . [while] the goals themselves remain collectively determined." Again, environmentalists are plainly the conservatives to the radical free marketeers, who are willing to trust everything to their faith in the inevitably positive outcome of market forces.

It is not necessary for the environmental movement to respond to one type of extremism and ideological wishful thinking by adopting another. Incentives *do* matter, and market instruments can help us, collectively, to protect the environment. Consider, for example, the following possibilities:

- In western rural areas, streams often run dry during peak summer irrigation periods. Because irrigation water is usually provided at very low cost to farmers, it is often used inefficiently (growing rice in California's Central Valley, for example). One solution is to allow government fish-and-wildlife agencies, water-quality agencies, or private-sector environmental groups to purchase water rights from farmers and use them to protect streams and their associated fisheries. These rights could be purchased on the basis of a willing buyer and a willing seller, a straightforward market transaction. Another approach is simply to raise the price of the water to the farmers to more closely approximate its real cost, thus discouraging ecologically foolish uses.
- Many of the most serious urban environmental problems—congestion, air pollution, noise—are associated with the automobile. Driving is rewarded in many ways, such as when businesses provide free parking for employees. But what if employers paid employees the cash value of parking privileges in higher wages, and then charged full cost for the parking? Those who choose to use mass transit or car pools would have higher net incomes, but no one would be worse off. Resources might well be saved and environmental costs reduced. Similarly, public agencies could charge commuters the full costs—including environmental costs—of using private automobiles. Increasing rush-hour tolls for lone drivers while forgiving them to carpoolers are steps in this direction.

• In the same vein, dramatically raising the price of gasoline to reflect its real costs—a ready military, poisoned ecosystems in Alaska, polluted low-income neighborhoods next to refineries—would shortly result in increased fuel efficiency and reduced automobile usage. Other auto-related costs, like collision insurance, could also be included in the gas price.

These examples are purposely speculative to give a feeling for the range of environmentally productive uses for economic instruments. Once environmentalists begin to think in this direction, they are likely to generate many more ideas. Call it "the magic of the marketplace."

SOME FREE-MARKET IDEAS, while undeniably creative, need careful scrutiny. A good example is the proposal to charge increased fees to recreational users of public lands. (See "What Price a Walk in the Woods?" May/June.) The idea is to provide a positive incentive for bureaucrats whose revenues are closely tied to the amount of economic activity they generate. The more timber they harvest, the more mines they permit, the more land they lease for grazing, the larger are their budgets. (Since the government does not factor externalities into the equation, these activities show up as pluses on bureaucratic balance sheets, even when the activity results in a net loss to the public.)

Because recreationists pay few if any fees, the argument goes, no revenue is associated with their interests and the land managers ignore them. Hence the notion to charge hikers, campers, and skiers whatever the market will bear, thus producing a cash flow that will impress the bureaucrats enough to preserve and enhance recreational values. This, we are told, will automatically provide protection for public lands, because recreational fees would bring in far more than the timber, forage, and mineral charges that now largely finance these agencies.

Recreation-fee advocate Randal O'Toole explicitly suggests that if public lands were in private hands, the widespread environmental damage we

observe in the West would be much reduced. This is hard to believe for anyone who has ever flown over the Pacific Northwest and seen the checkerboard of clearcut private lands next to still-intact bits of public forests, or peered beyond the beauty strips in Maine.

There is no doubt that when an agency develops a financial stake in serving a particular clientele, it becomes a strong advocate for that clientele's interests. Consider the many state fish-and-game agencies. Funded primarily by the sale of fishing and hunting licenses, they are single-minded defenders of fishing and hunting interests. In Montana and Wyoming, fish-and-game agencies have resisted wolf reintroduction because they fear that wolves will reduce the number of ungulates available to hunters. The Montana agency has opposed listing of the grizzly bear as an endangered species because it would ban grizzly hunting, and has also refused to support the reintroduction of bighorn sheep in any area where they could not be hunted.

The moral is that when cash flow alone guides government agencies, some perversity almost always follows. In order to imagine how a recreational-fee system might work, one need look no further than those national-forest areas that have been surrendered to intensive downhill-ski development. Nor does giving recreationists more influence in the management of wild areas necessarily guarantee a haven for backpackers and birdwatchers. The Bureau of Land Management could well find that more money could be made sponsoring off-road-vehicle rallies than from either backpackers *or* cattle. Perhaps currently roadless wildlands would produce a larger cash flow were they open to motorized tours: snowmobile trails, helicopter lifts into campsites, Going-to-the-Sun-type roads through all of the spectacular mountain country. Already the solitude of the Grand Canyon is marred by the noise of sightseeing aircraft; in the Wasatch Mountains of Utah, backcountry skiing has been almost completely displaced by heli-skiing.

There is an important distinction to be made here. When we are talking about relatively common commodities such as timber or forage or minerals, it is perfectly reasonable to expect market approaches to work. After all, we already trust the production and use of those commodities to commercial markets. But to most of us, the management of our public lands is not (or should not be) primarily about adjusting slightly upward or downward the quantity of 2x4s or sheep pasture or phosphate rock that make it onto the market. The issues at stake in the management of public lands—biodiversity, wilderness, sustainability—go far beyond the world of commodities and the language of economics.

The problem with this method of influencing public-land management is that many of the things we want public lands managed for do not and cannot have dollar values attached to them. There is no way for cash-flow analysis to put an accurate price tag on a spotted owl or a grizzly bear, nor to indicate what wilderness is worth. Rather, we seek to protect wilderness and grizzlies not as playgrounds and playthings for tourists and fee-payers, but because we wish at least some small part of our natural heritage to continue to exist apart from us and our cash registers. Wilderness is "valuable" to us precisely to the extent that it is *not* used by humans; consequently, "use" is meaningless as a measure for accurately valuing it.

MARKETS ARE NOT NEUTRAL, technological devices. They are social institutions whose use has profound consequences. All societies purposely limit the extent of the market in order to protect their basic values. We, for instance, do not allow the buying and selling of votes and judicial decisions; we do not allow the selling of the sexual services of children; we do not allow human beings to be sold into slavery.

Free-market enthusiasts assume that market-oriented, calculating, self-regarding (i.e., "greedy") behavior is all that is needed for a good, responsible

society. Such behavior, they assert, should be encouraged, not constrained. But what kind of decent society can depend upon this type of motivation alone? Selling certain things, in fact, degrades them: selling praise, spiritual favors, intimacy, the privileges of citizenship, or the outcomes of athletic events does not enhance their value, but reduces or destroys it.

Even the commercial market is built on a basic morality that takes the larger society and its values into account. Well-functioning markets do not simply spring into being spontaneously. Rather, they are regulated by elaborate public and private social institutions like courts, contract law, industrial associations, and our stock, bond, and commodity exchanges. When the regulatory apparatus breaks down, so do the markets, as can be seen in the recent history of the savings-and-loan industry. Without social structures the pursuit of commercial gain degenerates into banditry, as is evident in the drug trade, in frontier societies (such as our own in the last century), or in countries like Somalia where those social institutions have collapsed. Unadorned market-oriented behavior leads to "gangster capitalism," not to the good society.

This raises a disturbing aspect of the use of economic instruments to solve environmental problems. A basic assumption of the free-market approach is that motives don't matter, only results. If bribing polluters out of polluting works, fine. If giving civil servants bonuses for obeying the law is effective, pay them. Assume the worst of all human beings and arrange incentives to harness the basest of human motives. This is the social logic of free-market environmentalism.

But to most of us, motives *do* matter. A lie is not the same as a mistake; murder is not the same as self-defense or manslaughter; prostitution is not the same as love. Oliver Wendell Holmes once said that even a dog distinguishes between being stumbled over and being kicked. Most of us have at least the sensibilities of that dog. We do care about the motives of our fellow citizens; it matters if someone seeks to protect the community and its land base because they actually care, as opposed to doing it only to protect their pocketbooks (or pick ours). Ethics and conscience matter, and markets can undermine both.

The basic operating principle behind a "free market society" is an antidemocratic one: that peoples' preferences, whatever they may be, should be accepted and given an importance in proportion to the dollars that back them up. But most of us—including those without a great deal of money—have moral and social values that lead us to be very critical of some preferences, the expression of which we seek to block regardless of their financial backing. Even when we do not support the use of legal restrictions to constrain their expression, most of us would be uncomfortable passively accepting all market outcomes as legitimate. Instead, we seek social and cultural means to discourage some and encourage oth-

ers. That is what "manners" and "public opinion" and "community standards" are all about. One of the worrisome things about allowing the use of public lands to be determined entirely by the highest bidder is the implicit legitimization of those outcomes. Destructive behavior should not automatically become legitimate and acceptable simply because it is backed by the largest wad of cash.

Environmentalists should be concerned with the waste of *all* resources: natural, social, and political. Policies that are unnecessarily costly and that do not accomplish their objectives involve pure waste, and should be reexamined. Economic instruments for controlling pollution and managing public lands *can* offer more efficient ways to reach our objectives; at the very least, by reducing the cost of environmental control, they open up the possibility of attaining higher standards of quality. Many market plans begin by setting a goal, and then proceed to attain it in the least costly way. That is a positive approach. Finally, economic instruments can solve certain types of environmental conflicts to the mutual satisfaction of all involved—a rare and attractive option in an otherwise contentious struggle.

But this mutual satisfaction can never be achieved by the commercial-market mentality alone. On the contrary, that mentality tends to gnaw away at the ethical underpinning of society, and can even undermine the foundations of markets themselves: witness the insider trading, market manipulation, and regulatory corruption scandals of the 1980s. The social and community values that environmentalists hold should not be abandoned to an ideological fad. They are crucial to building a healthy society, and should form the basis for the pragmatic decisions that will get us there.■

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in the West are about as easy to implement as a peace plan for Bosnia. Because most of ADC's activity in the West is for sheep protection, some people feel the simplest solution would be to hasten the demise of the nation's sheep industry by buying Australian wool products or simply doing without wool and mutton. Others think the trick would be to sever the symbiotic relationship between livestock growers and ADC—to forbid the agency to accept funds from livestock associations and county governments.

The preponderant environmental view, however—certainly among grassroots organizations in the West—is the one advocated by Pat Wolff: eliminate ADC altogether. Yet as brilliantly simple as it appears, this solution is not without its complications. As Terry Grosz and Ednen Hindi both point out, ranchers would likely overreact to ADC's termination. No doubt many more would resort to illegal poisons.

Even so, enforcement of existing laws should be able to contain such problems, environmentalists argue. Indeed, many see policing and prosecuting illegal hunting and trapping as the best tactic. After the eagle trial in Texas, in which ADC trapper Allen and two ranchers were convicted, there were no reports of eagle killings in the state for some time. Enforcement agent Doug McKenna says the FWS learned a lot from the Wyoming undercover operation: "How to investigate, how to find the evidence, how to prosecute." If the penalties for illegal killing included taking away ranchers' grazing leases on public lands as well as fines, McKenna adds, "well, those big ranchers are scareder of that than anything else."

Would the elimination of ADC mean the end of the need for organized, above-board predator control? Not likely. Raccoons would still spread rabies in the East; blackbirds and starlings would continue invading midwestern farmlands; coyotes would sometimes kill livestock. Somebody somewhere would have to devise a realistic strategy for dealing with conflicts between humans and wild animals.

But many staunch activists are not about to let the absence of clear-cut solutions keep them from advocating a dramatic next step. "The deeper I look into the ADC matter," Wolff says, "the more I'm convinced that nothing will change until the agency is abolished." ■

Editor's Note: *Though Pat Wolff may not be satisfied with a fraction of a loaf, we can reveal that ADC has decided to change at least its name, if not its function. The agency announced at presstime that it will henceforth be known as "Wildlife Services."*

DONALD G. SCHUELER *is the author of* Incident at Eagle Ranch *(Sierra Club Books, 1980; University of Arizona Press, 1991) and, most recently,* Temple of the Jaguar: Travels in the Yucatan *(Sierra Club Books, 1993).*

► ***For more information, see "Resources," p. 112.***

Seven Children . . .

Continued from page 69

the Valley of the Shadow of Death.

Like other Latin jungle outlands, the Petén has become a convenient human trash heap, where politicians can banish those who represent the continent's great problems: land concentrated in the hands of a few, increasing poverty, and explosive population growth. The Petén cannot take hundreds of thousands more people into its rainforest. It cannot be a political safety valve and also remain home to the greatest concentration of biodiversity north of the Amazon.

Amanda Blanco, a slim, thoughtful, dark-eyed woman in her early 40s, lives in El Naranjo behind her husband's tiny store, where the dirt road I have been traveling meets the river. From her house Blanco can watch the company ferry float the tankers across the river toward the oilfields. She can also see rough-hewn dugout canoes that wait for illegal immigrants from Central America and even Asia, who cross downriver into Mexico on their way to the United States. Amanda Blanco is content to live in the Petén, which is better than the used-up, dust-bowl town she comes from in the country's east, but her 18-year old daughter Evilin longs to walk down to the boats and start a journey to Los Angeles.

"I'm proud in a way she wants to go, because there is not much here for a woman, you know," confides Amanda one night, closing the curtain on the room where her daughter sleeps, offering me a chair on the porch where some air circulates. "Evilin's friends have been getting pregnant since they were 11 or 12. In some ways this place is *perdido*, lost . . ."

If the road to El Naranjo is a metaphor for the rapid growth of rural Central America, Amanda Blanco symbolizes the typical resident, a woman for whom the term "family planning" has no personal resonance whatsoever. "If God wishes," she will someday bear a tenth child, she says, although she does not think it likely. It has been almost

three years since her last baby was born, a son named Edwin; the two decades before that were such a regular calendar of pregnancy and nursing years that "I would be pregnant again by this time, right, if I were going to be pregnant at all?" We look up on the clapboard wall at snapshots of Edwin at age four months, a charming little chubby guy lifting his head with great effort from a crawl position, then—successful—grinning elatedly into the flash. The day after the photos were taken, Edwin came down with diarrhea, Amanda tells me. The government clinic was out of medicine, the nearest telephone five hours away. The bumpy, eight-hour bus ride to the provincial hospital with the wasting child seemed to take forever. "We got those pictures back after he died," she says, and looks down from the wall in a long display of smoothing her skirt.

From the porch we hear fervent, amplified singing from evangelical churches, competing with beery renditions of "*Volver, Volver*" from the prostitution bars. Sound-track gunshots burst from a shack next door, where I had seen a couple dozen men and boys huddled around the night's video presentation, *Land of the Criminals*. It seems everyone is trying to make as much noise as possible before the town generator shuts down at 10 p.m. and dark truly comes. It is then that the sparser, more fitful sounds of the jungle night will take over: frogs, a howler monkey, a persistent riff of wind on the river. Here among the closer silences on her porch, however, it becomes clear that while Amanda Blanco may live in a rough frontier town, she shares feelings with the women in Mezquital and Chimaltenango.

Having so many children, she says, "may have hurt my health, and I think that is why I am always tired." But when we start to talk about available birth-control methods she looks uncomprehending, then giggles, as if pills, diaphragms, IUDs, and injections belong to inhabitants of a planet where she might never reside. In a response to the idea of birth control I have heard so often from women over four

months that it sounds like a refrain, Amanda Blanco intones, "My husband won't allow it. He thinks it will make me go with other men . . ."

DAYS LATER, BACK NEAR FLORES IN THE lakeside town of Nuevo San José, I talk to Marina Reyes and Brenda Mayo, both 36, who turn the refrain on its ear. "I tell my neighbors, 'Look at me, I've had the operation,' and they say, 'Well, she's not doing so bad,' " Reyes laughs.

Mayo is the more militant-sounding of the two friends. "Institutions come in and say the forests are disappearing and there is no more land left, so we have to control our population. Well, we Maya have always taken care of the forests, and of the land, which we have held communally. But now that they are privatizing the land and the rainforest, they decide there are too many of us.

"What we have to do is figure ways for women to take advantage of these family-planning programs our own way, not to suspect they are being imposed on us, because if not, we are going to continue to have others thinking for us," Mayo concludes with a flourish.

Around the rough wood table in the home Mayo has made of an abandoned lumber mill, her three young sons listen to us as they eat lunch. Outside, vegetables grow in a lush garden, part of a self-sufficient agricultural project Mayo, Reyes, and some 30 other women started about five years ago "in case our husbands walk out on us, or we're left widows." A primitive solar cooker sits in the yard, and manual sewing machines crowd a side room where the women learn dressmaking and jam-making, "to help bring in cash so the men won't be tempted to knock down the rainforest." Already days are hotter, they worry, and if the jungle disappears altogether drought will come. The women named their project after Ixchel, the Maya goddess of fertility.

"As long as a woman has no opportunity to speak among her companions, to know what she wants and what to do with her own body and culture and everything that revolves around it, others are going to continue speaking for us," says Marina. Until then, Brenda agrees, "free choice" remains a "relative" term, the property more of those who can afford to have fewer children because they know those born will live and prosper to take care of themselves and their parents.

Mayo and Reyes tell me that "we must break the silence about certain negative things in this culture." A nurse comes to mind, a single mother who serves a jungle outpost and who surreptitiously passes out condoms she refers to as "chocolates" to youth who ask for them (keeping a supply of real chocolates to give to other family members who overhear and want some too), whose patients are so grateful for her help in family planning that they have made her a godmother seven times—to deeply wanted, healthy babies. "At first I felt guilty introducing the methods because I know the Church doesn't like them, and I am a catechist too," the nurse told me. "But later I realized that I am giving the women something that they want, and that the Church does not want children to suffer, either."

ON A STEAMY DAY WHEN THE RAINS ARE aching to start, I return to Dr. Valle's main clinic in Chimaltenango. He is

POPULATION, THE ENVIRONMENT, AND THE SIERRA CLUB

FOR 30 YEARS THE SIERRA CLUB HAS BELIEVED that human population must be stabilized at a level consistent with the long-term sustainability of life on Earth. Because the current world population of 5.5 billion is already placing an intractable strain on ecosystems in almost every nation, a first step is ending the continuing increase of almost 100 million people a year.

Over the past three years, the Club has put its Washington, D.C., lobbyists and its grassroots activists throughout the country to work pressuring Congress to increase U.S. funding for family-planning programs as part of an international effort to ensure universal availability of birth control by the year 2000, and eventual population stabilization. We have met with significant success: the annual U.S. appropriation for international population programs has increased by 60 percent, from $270 million three years ago to $430 million this year, with the likely prospect of another $100 million in 1994. These funds go to governments and private agencies to train health-care workers and to establish and operate family-planning-related health services in dozens of countries throughout the world. The increased appropriations have resulted in an increase in the number of clinics and the number of countries served.

The Club also supports expansion of U.S. assistance to government and independent agencies that are working to change the social and other structural conditions that affect planned family size. These include improving the status of women in such areas as health care, education, and economic development.

A new three-year project of the Club's Population Program is assisting activists throughout the United States in determining and promoting public understanding of local carrying capacities—the level of population and consumption a region can sustain over the long term without degrading the environment. Volunteers are also working to ensure that family planning is included in any national health-care system and to develop stronger Club policies for U.S. population stabilization at a sustainable level.

With more than 175 population committees in its chapters and groups, the Club combines volunteer and staff energies to present our case to members of Congress and to the Clinton administration. For more information about our efforts toward population stabilization, contact the Population Program, 408 C Street, N.E., Washington, DC 20002; (202) 547-1141.

about to perform tubal ligations for 6 women, ages 20 (4 children, 3 alive) to 43 (8 children, all living).

Before I know it, he instructs a nurse to help me into a face mask and a blue gown, and ushers me into the operating theater with its sparkling white tiles. This is the real thing: Valle plunges a nail-like rod gently into the navel, the patient having been tilted backward, head down on the table to let the intestines fall out of the way. With one to two liters of gas pumped in to swell the abdomen, Valle inserts a long silver tube with a light on the end. "Look," he says when he's finished, and moves my head so I can see a pink-red tube inside cinched with a tie of thread. "*Bonito, no?*" encourages a nurse, crinkly eyes above her mask purposefully leading mine to the patient, who is waiting for a response. "*Muy bonito,*" I say.

This is market day in Chimaltenango, and from outside comes the braying and bleating of hundreds of animals being bought and sold. A preacher's voice rings out: "Here you suffer because of violence, because of the cost of living, but in the heavens are none of these things. Here you can't even afford a gold filling for your rotten tooth, but there with God you'll walk streets of gold."

The last patient walks in and smiles at me before she lies down; I recognize Loida Salvador from the small clinic at Puerto Abajo. She apparently has overcome any objections her mother and husband might have had to "the operation." Loida's chart: 11 children, 8 alive.

Later her mother, Reina, asks sheepishly to borrow bus fare home because she spent her last pennies on two eggs for Loida, after the nurse said the patient would need a post-op dinner with protein. There will be no streets of gold for her back in the village, but when Loida Salvador leaves that day, she says she feels *tranquila:* calm, tranquil, relieved. And anxious to go home to her children. ■

MARY JO MCCONAHAY *is Central America editor for the Pacific News Service.*

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But making a dent in the nation's stock of spent fuel would require a huge number of expensive new plutonium-fueled reactors, each with its own costly fuel-reprocessing complex. And the plutonium would hardly disappear; even after hundreds of years only a portion would be "recycled," leaving even larger quantities of highly radioactive waste for "disposal."

Moreover, most breeder designs (including the actinide recycle reactor) call for the use of liquid sodium for cooling and heat transfer. But liquid sodium ignites in air and reacts explosively if it comes into contact with water. "Using liquid sodium to cool a nuclear reactor is as clever as looking for a gas leak with a candle," says Dan Becker, the Sierra Club's chief energy lobbyist. "It's an invitation to disaster."

The actinide recycle reactor is perhaps the industry's worst and most dangerous idea in the past decade. Resurrecting breeder-reactor technology would require overturning a long-standing bipartisan national policy against reprocessing spent fuel, a policy that arose out of concerns about nuclear-weapons proliferation. It would instead create an energy economy dependent on the production and processing of hundreds of tons of highly toxic plutonium, and would open the door to theft or diversion of plutonium for nuclear-weapons manufacture.

The Clinton administration originally canceled the research-and-development budget for the actinide recycle reactor, only to restore $22 million after pressure from Illinois and Idaho, the states whose research facilities would receive most of the funds.

An entirely different concept for advanced reactors has been promoted by industry boosters for more than a decade: a new generation of what they optimistically call "inherently safe" plants. The claim is that safety would be ensured by design innovations that would use passive phenomena (for example, gravity rather than engineered pumping systems), to shut down a plant automatically in the event of a mishap.

Like their predecessors, however, these plants would be enormously costly to build and operate, and their "inherent safety" is a myth. The California consulting firm of MHB Associates, founded more than a decade ago by three former General Electric nuclear engineers, has debunked the notion that any nuclear reactor could be fail-safe. "As a general proposition," MHB wrote in a technical review for the Union of Concerned Scientists, "there is nothing 'inherently' safe about a nuclear reactor. Regardless of the attention to design, construction, operation and management of nuclear reactors, there is always something that could be done (or not done) to render the reactor dangerous."

Lately the industry has shied away from the "inherently safe" label, perhaps recognizing that if one of those reactors were built and suffered a serious accident, nuclear power would surely be finished for good. Several years ago, General Electric quietly changed part of the name of its widely circulated PRISM design—"Power Reactor Inherently Safe Module"—from "Inherently Safe" to "Innovative Small."

LET'S BURN MONEY INSTEAD

In February 1985, the cover of *Forbes* magazine was emblazoned with the following pronouncement: "The failure of the U.S. nuclear power program ranks as the largest managerial disaster in business history, a disaster on a monumental scale. . . . Only the blind, or the biased, can now think that most of the money has been well spent."

Although environmentalists can claim some credit for slowing the nuclear juggernaut, Wall Street has posed the biggest barrier, the industry's enormous cost overruns having made financial backing hard to find. A DOE study found that 75 nuclear plants cost three times as much as originally projected. At least ten plants cost four to eight times as much, and skyrocketing decommissioning estimates make the eventual totals look even worse. The industry's cumulative cost overruns come to a staggering $100 billion.

Construction costs for recently completed plants are among the highest in the industry's history: $4.6 billion for Hope Creek in New Jersey, $7.2 billion and $4.1 billion for Comanche Peak 1 and 2 in Texas, and $6.6 billion for New Hampshire's Seabrook, a cost that drove its primary owner, Public Service of New Hampshire, into bankruptcy—the first private utility to seek bankruptcy protection since the Depression. In some states, public utility commissions have refused to allow construction expenses incurred due to mistakes or poor management to be passed on to consumers. According to the Edison Electric Institute, more than $16 billion in nuclear-power-plant construction costs have been disallowed by state commissions in utility-rate hearings around the country.

In a study for Greenpeace of nuclear power's costs since the industry's inception, Komanoff Energy Associates concluded that from 1950 to 1990, total U.S. expenditures on nuclear energy approached half a trillion dollars. The utility industry anted up $395 billion (in constant 1990 dollars), with another $97 billion coming from various federal government subsidies. Looking more closely at the latter, the Congressional Research Service calculated that nuclear energy soaked up 65 percent of all federal energy research-and-development funds from 1948 to 1992.

"What ever happened to 'making it in the marketplace?'" asks Scott Denman of the Safe Energy Communication Council, a group formed in 1980 by environmental organizations (including the Sierra Club) to promote renewable energy and to counter nuclear-industry propaganda. "Nuclear has received the lion's share of federal R&D since 1948," Denman notes, "and yet this supposedly 'mature' 25-year-old industry continues to siphon off hundreds of millions of dollars of taxpayer money each year for waste disposal, cleanup, and pipe dreams. That takes needed funds away from the more promising renewable technologies that are cleaner, safer, and cheaper sources of energy."

THE INDUSTRY'S GUARDIAN ANGEL

While it may be losing support in the financial community, the nuclear industry still has friends where it counts: at the U.S. Nuclear Regulatory Commission. In 1989 the NRC signaled its willingness to entertain "generic" or "standardized" designs for new nuclear-power plants, evaluated independently of any particular site. (To date every nuclear plant built in the United States has been custom designed, necessitating unique reviews for each plant before and during construction.) The commission is now reviewing standardized design proposals from several major reactor vendors. Nuclear proponents hope that NRC approval of one or more of these designs, which is anticipated in 1995 or 1996, will speed licensing and shorten construction time.

The industry won another item on its wish list when George Bush signed the 1992 National Energy Policy Act, authorizing "one-step" licensing for new nuclear reactors. According to these new rules, the NRC may grant both construction *and* operating licenses before any construction begins. And once the plants are built, the new regulations make it far more difficult—some believe effectively impossible—for critics to raise safety questions in open hearings. In fact, the plants could be in operation before such questions were addressed.

These changes dovetail nicely with three crucial regulatory favors previously granted by the NRC. In 1987, reversing previous doctrine, the commission allowed itself to approve utility emergency plans even in cases where state authorities believe no realistic plans were possible. (Without this rule change, Diablo Canyon, Seabrook, and Shoreham might never have operated, had the respective state governments stuck to their emergency-planning objections.) In 1989 the commission approved "site-banking," allowing utilities to seek approval for nuclear-plant sites without stipulating the design that would be used, and to then hold the approved site for up to 20 years. And in 1990 the commission adopted regulations making it easier to extend plant licenses.

The U.S. nuclear industry was built largely through similar efforts to stifle criticism and bend the regulatory and political process to further the industry's goals. Its advocates have never understood that the short-term gains of such a strategy are far outweighed by the long-term public mistrust and stiffened opposition it engenders.

DOWN BUT NOT OUT

Although the nuclear industry is pressing hard to solicit a new reactor order, it faces a tough sell on Wall Street and in utility boardrooms. Total U.S. electrical-energy demand has grown modestly over the past two decades, at an average rate of around 3 percent annually. Aggressive energy-efficiency programs as well as competing technologies such as wind power, solar, and cogeneration can accommodate much of the need for new power at far lower costs than nuclear energy—if they are given the chance. The 1992 National Energy Policy Act also granted environmentalists some of their wishes, perhaps the most important of which was the breaking of the major utilities' stranglehold on access to transmission of electric power across their grids. This and other advances should make independent power producers and alternative technologies more competitive in future years—and nuclear energy even less attractive by comparison.

As for the Clinton administration's stand on nuclear power, the jury is still out. Many nuclear-power opponents were cheered by the election of the man whose campaign book *Putting People First* stated that the nation should "oppose increased reliance on nuclear power," and that there is "good reason to believe that we can meet future energy needs with conservation and the use of alternative fuels."

But as on many environmental issues, the administration is sending mixed signals. For example, in his first State of the Union address, Clinton announced that "We are eliminating programs that are no longer needed, such as nuclear-power research and development." In practice, however, nuclear power's portion of the DOE's 1994 budget request was still $146 million and included funds for the actinide recycle reactor. "Bill Clinton has the right rhetoric with the wrong budget," complains Public Citizen's Magavern. "We'd love to see them 'eliminate' the wind-energy budget with the same kind of money."

The United States is in a unique position to exercise strong energy and environmental leadership. And as the planet's largest energy consumer and leading economic power, it bears primary responsibility for addressing global warming and the related environmental problems of a fossil-fuel–based society. The solution is no secret: numerous studies have outlined the enormous potential of energy efficiency and alternative energy technologies, if only an aggressive national effort were dedicated to those resources. Instead of making that commitment, however, the United States has squandered billions on outmoded, expensive, polluting, and sometimes dangerous nuclear and fossil-fuel energy technologies.

The nuclear-power industry may be in trouble, but it has the resources to weather a long storm before it expires. Taking its demise for granted would be an enormous mistake; environmentalists are fooling themselves if they think that the industry and its allies are going to walk quietly away from a $500-billion investment. If the United States is to move toward safer and cleaner energy technologies, an essential component of any environmental strategy must be to confront directly the false promise of nuclear power. ■

PHILLIP A. GREENBERG *is an independent energy and environmental-policy consultant in San Francisco. He served as assistant for energy and environment to former California Governor Edmund G. Brown, Jr., and worked on energy issues as a subcommittee staff member with the U.S. House of Representatives.*

► ***For more information see "Resources," p. 112.***

REVIEWS

Always Getting Ready: Upterrlainarluta Yup'ik Eskimo Subsistence in Southwest Alaska
by James H. Barker
University of Washington Press
$50 cloth; $29.95 paper

The subsistence lifestyle of indigenous people is enthusiastically supported by most environmentalists, who get warm-and-fuzzy feelings from the idea of ancient tribes living in harmony with nature. As romantic as this notion sounds in the abstract, however, those who don't have to practice it themselves often find it repellent in the particulars. In subarctic Alaska, where James Barker has worked as a reporter and photographer since 1973, subsistence is not a matter of seeds and nuts: it involves killing many creatures that environmentalists otherwise struggle to preserve.

Those who feel squeamish viewing photographs of a seal being skinned or a milk-white beluga whale being dragged ashore will be made less so by his respectful account of the life of the Yup'ik Eskimo of southwest Alaska's Yukon Kuskokwim Delta. Through his words and images documenting a Yup'ik year as measured by its hunting seasons, he shows how being in harmony with nature can mean always being ready to kill its creatures. He cites a Yup'ik song:

> It slowly circles me,
> the endeared emperor goose
> who circles me.
> Here I sit on this small piece
> of detached earth,
> a piece of tundra
> floating on the river,
> I wave to that bird
> and it comes this way.
> So what do I do?
> Obviously, I hunt it with my gun.

It's easiest to hunt birds, Barker learns, when you can fool them by acting as though you really don't need them. This is difficult for the Yup'ik, who really do: they depend on more than 650 pounds of wild protein per person per year (compared to the national average of 222 pounds of meat, fish, and poultry per person).

The subjects of Barker's fine black-and-white photographs almost always bear looks of intense concentration: mending nets, repairing outboard motors, hunting with a slingshot. "All through the year we are getting ready," says Agnes Kelly Bostrom, "getting ready for fishing, for berry picking, for potlatches, getting ready for winter. We are always getting ready to go somewhere to get foods. And because we are so religious, you know, we are always getting ready for the next life."

As with most native peoples on this earth, the Yup'iks' name for themselves, *yup'iit,* means "real people." Barker succeeds in making their world real for those of us who subsist at the Safeway supermarket. ***—Paul Rauber***

The Wealth of Nature: Environmental History and the Ecological Imagination
by Donald Worster
Oxford University Press; $25

The eloquent, scholarly, and passionate essays in this collection will infuriate the advocates of public-land privatization and free-market environmentalism. Worster explains how 40 percent of the United States' land came into the public domain, why it should remain there, and how it sustains ethical values that simply cannot be understood in economic terms.

"Indeed," writes Worster, "one of the most effective ways our democracy has devised to rescue itself from near extinction at the hands of holders of private wealth has been through public land ownership. That discovery has been part of the legacy of the American conservation movement." As a historian of the West (author of *Dust Bowl*), he understands better than most how land has been defiled wherever laissez-faire capitalism was unleashed. He is also a harsh critic of policies, such as irrigation subsidies, that allow agribusinesses to damage the environment.

In the title piece, Worster delivers a withering attack on the idol of privatization, Adam Smith, who "set out to revolutionize the study of human economics in total disregard of the economy of nature." Because Smith regarded human activity in desacralized, instrumentalist terms, Worster says, he destroyed reverence for nature and overturned traditional religious sanctions against human greed, paving the way for the unbounded profit-seeking that Worster sees as the chief culprit in environmental degradation. The antidote is a "new, post-materialist economics . . . in which economic philosophers put back into the picture all that Adam Smith and his disciples have left out: the full economy of nature, the intrinsic worth of all beings, the beauty and wonder of the cosmos." If nothing else, bashing Smith as an eco-culprit is an intelligent break from the now-ritual harping about environmental scapegoats such as patriarchalism, Cartesianism, Judeo-Christian religions, Marxism, etc. ***—Bob Schildgen***

The Village of Bom Jesus
by Lloyd E. Hill
Algonquin Books of Chapel Hill; $16.95

The residents of Guajará, at the edge of the upper Rio Juruá in remote northeastern Brazil, exist in a place where modernity has yet to intrude, though it is faintly calling like

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distant drumming. The people go about their business unhurriedly, fishing, clearing fields with machetes and axes, hunting for meat and pelts, shooting the breeze with neighbors, and, if necessary, exorcising evil spirits. A peculiar, fat calico cat—Born Jesus—wanders among them, making himself useful by keeping poisonous snakes at bay, warning strangers to behave (weaned in a litter of pups, he can growl meaner than any dog), and trotting alongside hunters to act as their bird retriever.

In focusing this novel on the lives of a few individuals and one cat, author Hill, a Texan who once farmed and fished in the Amazon Basin, fashions several tales in a style at once simple and poetic. A girl's inner strength overcomes her mother's sadistic cruelty; an agreeable young man, relocated from the city to the village, challenges the local superstition that keeps a young woman bedridden; a hunter's need to support his pregnant wife leads him to embark on a perilous quest for a rumored giant monkey (an episode remarkable as much for its humane attitude toward wildlife as for its suspense and vivid jungle imagery).

There's a fable-like quality to Hill's storytelling, as when the girl Mariquinha sings a song to the setting sun and "all households, all paths being trodden, all boats being docked, all fell silent. Conversations halted, arguments were forgotten."

Yet Hill wisely avoids letting his tale drift into fantasy, always keeping it grounded in experience: even when an angry great ape harangues the hunter for contributing to his species' plight, we know the occurrence is taking place in the man's mind, induced by a hallucinogenic fruit. Such deft touches of magic realism produce an exquisite dreaminess: no quantity of scholarly books about disappearing exotic species—no number of journalistic accounts of the tropical forest's demise—could ever convey as eloquently as this little novel does the shimmering evanescence of life deep in the Amazon rainforest. ***—Mark Mardon***

Wilderness Ethics: Preserving the Spirit of Wildness
by Laura and Guy Waterman
The Countryman Press; $13, paper

What constitutes proper comportment in the wilds? Must one always wear earthy colors while hiking, or is it sometimes acceptable to trek or climb in outfits of flaming scarlet and electric blue? Is it invariably in bad taste to bop through the woods hooked up to a Walkman, or to whip out a cellular phone to call home from a mountaintop? These are the kinds of questions raised and thoughtfully answered by Laura and Guy Waterman, the Ms. and Mr. Manners of climbing and hiking in the Northeast.

The Watermans' fervent desire is for all trekkers and climbers to possess traditional wilderness values, meaning a humble respect for true "wildness," which is invariably primeval, threatening, and free of jarring reminders of civilization. They disapprove of any behavior that detracts from the "pure" wilderness experience, or that fails the test of complete self-reliance.

While the authors make a token effort to weigh the relative virtues of several ethics issues, their stance is ultimately uncompromising. Search-and-rescue operations, for example, coddle irresponsible climbers; paragliders (one-person flying contraptions) make getting down from mountains too easy, and mountain huts make winter survival too comfortable. But their hardened attitude does raise nagging questions: aren't they being snobbish? Aren't they a mite out of touch with the times? In deploring an increasing number of wildland "users" (most of whom do not live up to the Watermans' standards), the authors turn up their noses at those less rugged and disciplined than themselves. And in complaining about such wilderness "intrusions" as mountain bikes and show-off climbers in flashy Lycra tights, they're arguing on what appears to be the losing side of a generational battle, since speed and dazzle are all the rage among many young adults who frolic in the wilds.

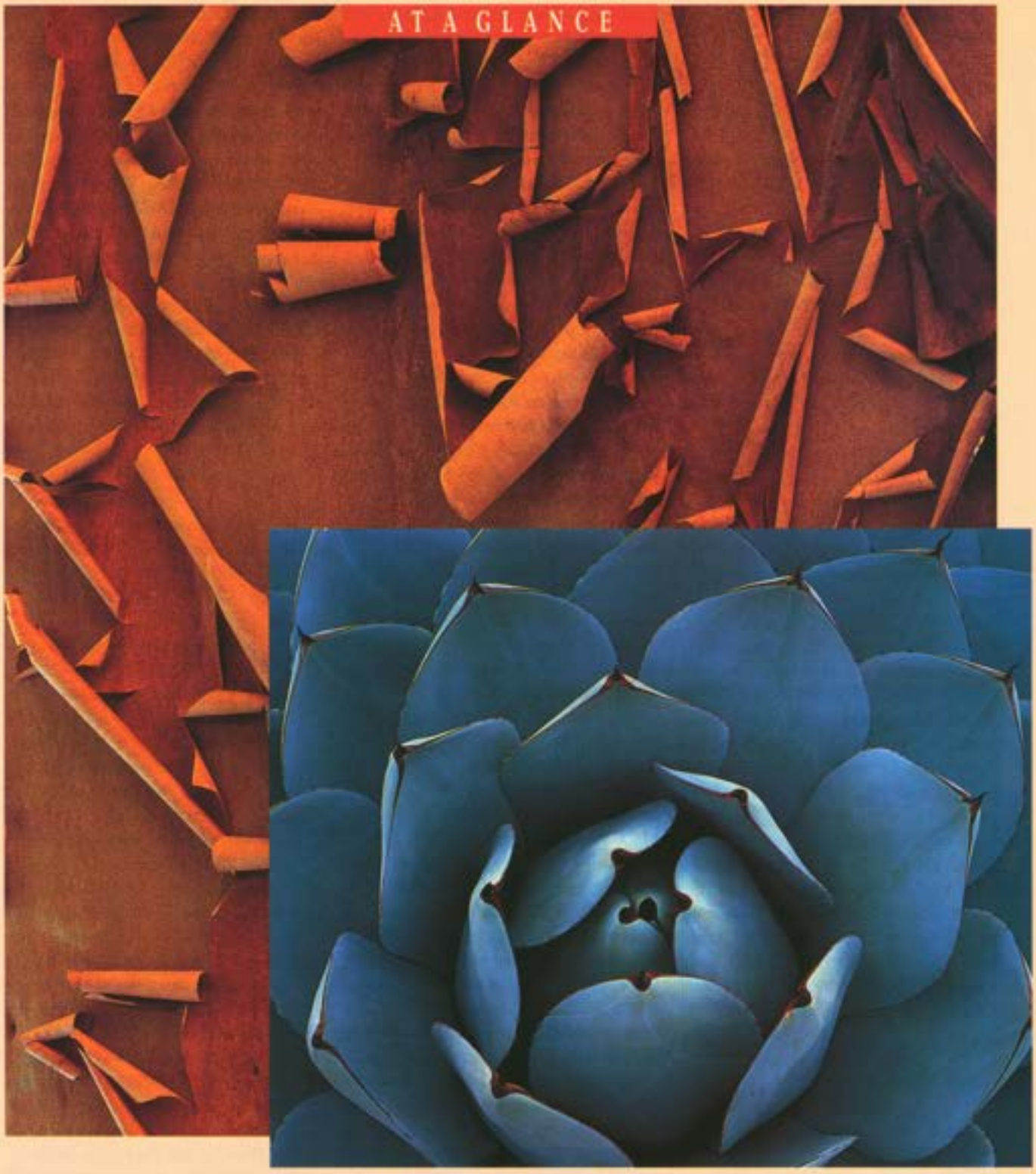
Fortunately, the Watermans recognize that neither they nor anyone will have a final say in these matters, and so they temper their dogma with good humor—all the while holding readers' attention with marvelous accounts of their own hardy outdoor adventures in New England. ***—M.M.***

The Green Fuse: An Ecological Odyssey
by John Harte
University of California Press; $17.95

An environmental scientist, Harte packs a good bit of his own inspired lyricism into a collection that takes its title from Dylan Thomas' "The Force That Through the Green Fuse Drives the Flower." His theme is the connectedness of all life, perceived scientifically: "The unity that emerges from the findings of ecology and other earth sciences today is a profound one, and it has shattered [the] conventional view of isolated ecosystems."

Harte tells how he came to his insights through a research odyssey that led him to study salmon in southwest Alaska, hydrology in the Everglades, salamanders in the Rocky Mountains, coral reefs in the Java Sea, the endangered snow leopard in Tibet, and the birds and trees of Sage Hill, Vermont, where his nature studies began as a child. The joy of scientific work is best expressed in the story of his investigation of hydrology in South Florida that demonstrated the hazards of draining swamps: his discoveries were instrumental in convincing Congress to form Big Cypress National Preserve.

Harte does sometimes stray from his scientific journey into apparently less familiar demographic and theological terrain. In discussing China's environmental crisis, for example, he seriously understates that nation's population problem. He also claims that reverence for the future is "foreign to virtually all religious beliefs." This ignores the prophetic aspect of religion, of which Harte himself is an eloquent heir, not to mention the future-directed theologies inspired by Teilhard de Chardin. Ironically, Harte's apocalyptic warning that besides the "green fuse" there is a fuse that "if left to burn . . . will destroy us" has its own, rather ancient sacred sources. ***—B.S.***



By Nature's Design
Text by Pat Murphy
Photographs by William Neill
Chronicle Books
$18.95 (paper)

Artichokes and agave (inset) hold in common the tendency of their leaves to form tight, spiral clusters in what we call a rosette pattern, after the flower whose petals are similarly arrayed. In nature, individuals as well as species grow and distribute themselves in ways that maximize the (sometimes limited) energy and spatial options available to them. Nature has become exquisitely skillful at this kind of economizing over the eons; the visible results make for some powerful, and beautiful, photography. Main photo: the outer and inner surfaces of madrone bark dry at different rates, causing the curling shown here.

BRIEFLY NOTED

Perhaps more than any other animal, coyotes have a notorious reputation to live down (or up to)—something made clear in ***A Coyote Reader*** (University of California Press; $30, cloth; $13, paper), edited by William Bright. Selections from Mark Twain, Gary Snyder, Simon Ortiz, and others fall under such chapter headings as "Coyote the Glutton," "Coyote the Lecher," "Coyote the Thief," "Coyote the Loser," and "Coyote the (Horny) Old Man." Needless to say, these make for fine reading around campfires out West. . . . In an effort to understand the forces tearing at the rainforests of Brazil, concert-pianist-turned-journalist Binka Le Breton ventured through southwestern Amazonia, interviewing Indians, loggers, ranchers, river people, settlers, rubber tappers, miners, and idealists from church and non-governmental organizations. She presents a readable and insightful report in ***Voices From the Amazon*** (Kumarian Press; $14.95, paper). . . . A vibrant environmental movement has emerged in North America in recent years, organized by people of color—African-Americans, Latinos, Asians, Pacific Islanders, and Native Americans—who perceive that minority concerns have been neglected by mainstream conservation groups. The movement's goals are articulated by several activists and academics in ***Confronting Environmental Racism: Voices From the Grassroots,*** edited by Robert D. Bullard, with a foreword by the Reverend Benjamin Chavis, Jr. (South End Press; $16, paper). . . . In ***Organizing for Our Lives: New Voices From Rural Communities*** (NewSage Press, 825 N.E. 20th Ave., Suite 150, Portland, OR 97232; $24.95, paper), photojournalist Richard Steven Street and oral historian Samuel Orozco vividly depict minority groups in California struggling to achieve social and environmental justice. Among the communities they portray are those of immigrant laborers from Mexico and Central America who have erected sprawling shantytowns in the canyons of San Diego County, and farmworkers fighting the construction of a toxic-waste incinerator near their Central Valley town. . . . The overwhelming impacts of immigration and population growth on the Golden State are examined, along with a broad range of other issues, in ***California's Threatened Environment: Restoring the Dream,*** an anthology edited by Tim Palmer (Island Press; $15.95, paper). This "state-of-the-state" report, with essays by noted authorities on natural resources, also looks at questions of land use, water distribution, energy consumption, and air quality. . . . To see exactly what California conservationists are trying so hard to protect, take a look at B. "Moose" Peterson's ***California: Vanishing Habitats and Wildlife*** (Beautiful America; $21.95, paper). The book presents a glowing photographic portrait of the state's natural bounty, while its concise text describes the threat to deserts, marshes, grasslands, old-growth forests, and other life zones. All in all, an especially effective call to action. . . . Is there any need for yet another book dealing with the Sierra Club's namesake mountain range? Yes, when it's by George Wuerthner, a committed conservationist and first-rate photographer. Apart from its quality images, what distinguishes ***California's Sierra Nevada*** (American and World Geographic Publishing, P.O. Box 5630, Helena, MT 59604; $14.95, paper) is Wuerthner's effectiveness in communicating the principles of wildlife biology and botany that apply to the range. He knows his mountain science well, having spent years as a wilderness ranger, botanist, teacher, and writer. . . . Fascinating tales and archival photos make Michael Zanger's ***Mt. Shasta: History, Legend, and Lore*** (Celestial Arts; $17.95, paper) must reading for mountain enthusiasts. . . . The breathtakingly beautiful landscapes of northern Arizona form the backdrop of ***Red Rock, Sacred Mountain: The Canyons and Peaks from Sedona to Flagstaff*** (Voyageur Press; $19.95, paper). Stewart Aitchison's text and photos reveal the secrets of cinder cones, aspen groves, ponderosa-pine forests, ancient cliff dwellings along the Mogollon Rim, weather patterns on the San Francisco Peaks, and much, much more. . . . A remarkable desert setting less well known to those outside of Arizona, but familiar to Tucson-area residents, is examined in ***Sabino Canyon: The Life of A Southwestern Oasis*** by David Wentworth Lazaroff (University of Arizona Press; $16.95, paper). From streamside cottonwoods to mesquite forests to paloverdes and saguaros clinging to cliff ledges, this is a site of fascinating biological diversity and a place well worth exploring, even if only by way of the text and photographs of this book. ***—M.M.***

NEW FROM SIERRA CLUB BOOKS

- ***Endangered Peoples*** by Art Davidson, with photographs by Art Wolfe and John Isaac. ($30).
- ***The Law of the Mother: Protecting Indigenous Peoples in Protected Areas,*** edited by Elizabeth Kemf. ($25).
- ***Cougar: Ghost of the Rockies*** by Jim Dutcher and Karen McCall. ($20, paper).
- ***Wild Cats: Lynx, Bobcats, Mountain Lions*** by Candace Savage. ($30).
- ***Peregrine Falcons*** by Candace Savage. ($20, paper).
- ***The World of the Sea Otter*** by Stefani Paine and Jeff Foott. ($25).
- ***The Traveler: An American Odyssey in the Himalayas*** by Eric Hansen. ($25).
- ***Galen Rowell's Vision: The Art of Adventure Photography*** by Galen Rowell. ($25).
- ***Adventuring in New Zealand: The Sierra Club Travel Guide to the Pearl of the Pacific*** by Margaret Jefferies. ($15, paper).
- ***Canyons of the Southwest: A Tour of the Great Canyon Country from Colorado to Northern Mexico*** by John Annerino. ($25).
- ***The Sierra Club Mother Earth Postcard Collection.*** ($9, paper).

Richard Manning Leonard, mountaineer, lawyer, and longtime Sierra Club leader and activist, died at his home in Berkeley, California, on July 31, 1993, at age 85.

A pioneer both in mountaineering and in environmental litigation, Dick Leonard joined the Sierra Club in 1930, drawn by his interests in rock climbing and conservation.

Born in Ohio and raised in Berkeley, Leonard learned to climb in Berkeley's Cragmont Rock Park (along with Club contemporary David Brower). He was instrumental in developing and refining rock-climbing techniques now in general use, such as the ropework he learned on a Sierra Club High Trip from Englishman Robert Underhill. (Ropes had not previously been used for rock climbing in the United States.) In the 1930s he participated in several historic climbs, including the 1934 first ascent of Higher Cathedral Spire in Yosemite Valley, on which he, Bestor Robinson, and Jules Eichorn introduced the use of pitons in this country.

Over the years, Leonard took part in major Sierra Club victories and controversies, among them the effort to protect Kings Canyon as a national park, the battles for Dinosaur National Monument in the 1950s and Redwood National Park in the 1960s, and the campaign to keep the Grand Canyon free of dams.

Foreseeing that the Club would lose its tax-exempt status because of its political activities, Leonard incorporated the Sierra Club Foundation in 1960 to provide exemption for donations earmarked for nonlegislative projects, leaving the Club (which did indeed lose its tax-exempt status as a result of the Grand Canyon campaign) free to continue lobbying effectively.

An experienced litigator, Leonard helped the Club use the courts in pursuit of its objectives. In 1963 he founded the Conservation Law Society to handle legal matters for the Sierra Club and other nonprofit organizations; it was the first public-interest law firm in the United States.

From self-described "Young Turk" in the 1930s and '40s to a voice of moderation and compromise in his later years, Leonard was an advocate of cooperation rather than adversarial relations with land-use agencies and industry, and did not always agree with what he felt to be some of the Club's more radical pronouncements and actions. Yet he never wavered in his commitment to the cause of conservation.

During his many years on the Board of Directors, Leonard served as secretary, treasurer, and president. Between 1937 and 1951 he was chairman of the Outing Committee, continuing the High Trips begun in 1901 by Will Colby and expanding the program to include many excursions, among them the first winter trips. He lived to see the Sierra Club grow from 2,500 to 500,000 members, from a purely California club to an environmental organization with chapters throughout North America.

In addition to his work with the Sierra Club, Leonard served as president of the Save the Redwoods League, on the council of the Wilderness Society, and as national director of the Izaak Walton League.

He is survived by his two daughters, and by Doris, his wife of 60 years, whose dedication to conservation and the protection of wilderness has been the equal of his own. ■

Eric Scigliano

The Urban Kayaker

Experienced sea kayakers love to tout the exotic and arduous sides of their sport. They'll regale you with tales of communing with orcas in Johnstone Strait or with calving gray whales in Bahia Magdalena. They'll awe you with accounts of wrestling 20-foot midwinter breakers on Washington's storm-hammered Olympic Peninsula, or dodging icebergs and Kodiak bears on lonely Alaskan odysseys. The ultimate thrill-seekers will recount perilous ocean crossings and first descents down sketchily mapped tropical rivers.

What they may not tell you is that kayaking is also a sport with a quiet side, one that lets you satisfy your craving for the freedom of life on the water without leaving town. I'll admit that my home, Seattle, is particularly well suited to paddling. But this, with a few details changed, is the sort of kayaking that you might enjoy on the bays, rivers, lakes, canals, or fens of any but the driest city.

Today I'm taking my seven-year-old daughter, who stands half the height of a kayak paddle, out for her second jaunt. I've elected to rent a double-seat kayak from a shop on the western shore of Lake Union, in Seattle's industrial core. The double is wider and more stable than a single-seater, and also works well when one paddler in a duo is stronger than the other.

Before her debut, Kathryn was terrified, as are many adults the first time they squeeze into a slim, bobbing boat and seal themselves in (permanently, some fear) beneath the cockpit's water-repelling spray skirt. This time around, Katy feels like a pro and can't wait to start. I send her up to the front seat while I take up the rear position, where two foot-pedals control the rudder. Liability releases signed and life-jackets cinched, we shove off, quickly falling into a choreographed cadence, our blades dipping in and pulling out of the water in unison. We skirt the "private" side of live-aboard sailboats and lavish houseboats, feeling a bit like spies. The snooty proprietor of one floating bed-and-breakfast tries to shoo us away, but I just laugh; this is a public lake, and all waters are open to those who paddle.

We cut across a quarter mile or so to the far shore. When a large boat passes close by and too fast, I turn the bow into its wake, shaking off the spray rather than listing in its trough. I give Katy a rough-water primer, tipping the kayak halfway

How paddle and kayak can redefine your city limits.

▲ ▲ ▲

over and showing her how to use her paddle to brace and recover. She gasps in alarm, then gains new confidence.

We head under University Bridge, marveling at the massive counterweights that raise and lower it—a spectacle seen only by boaters and mallards. The passage opens onto water-lily and cattail-packed marshes; we've moved from the working lake to a wild shorescape just three miles from downtown skyscrapers. A defile of Canada geese paddles past, squawking as if to scold us for intruding. As we turn a corner in the reedy labyrinth, we chance upon two skittish rails building their secret nest. We glide past so quietly they do not stir, just as the ancient Aleut hunters who invented this supremely seaworthy craft thousands of years ago must have crept up on otters, sea lions, and other unsuspecting prey.

On a day like this, when the weather is fair and the water smooth, paddling seems as effortless as a leisurely stroll, and the responsive boat feels more like a second skin than a confining shell. Perhaps no other sport imparts such immediate, beguiling gratification.

Before getting *too* beguiled, however, do a little mental back-paddling. Even this placid ride is *sea* kayaking, and sea conditions are famously variable. Read John Dowd's *Sea Kayaking* or Randel Washburne's *Coastal Kayaker's Manual.* Follow their equipment checklists—spare paddle, flares, and airbags or sealed bulkheads, for starters. Learn lifesaving bracing and recovery strokes, self- and team-rescue techniques, and maybe (opinions vary on this) an Eskimo roll or two. Check local kayak clubs and shops for paddling and safety classes; make your first open-water expedition with a seasoned instructor.

Above all, learn to enjoy and respect the sea, a fickle host that yields mastery to none, though it opens itself graciously to those—of every age—who come to it bearing paddles. ■

ERIC SCIGLIANO *is a senior editor at the* Seattle Weekly.

► *For more information see "Resources," p. 112.*

RESOURCES

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Join activists working on issues that concern you. Contact the Campaign Desk, Sierra Club, 730 Polk St., San Francisco, CA 94109; phone (415) 776-2211.

To receive semimonthly updates on the Club's conservation campaigns, subscribe to the *National News Report*. Request a free sample copy and subscription information from the Campaign Desk.

AFIELD

"Body Politics," page 40

For mainstream dentistry's perspective on mercury in amalgam fillings, ask for the American Dental Association's pamphlet on amalgam, available from ADA, 211 East Chicago Ave., Chicago, IL 60611; (312) 440-2500.

The Foundation for Toxic-Free Dentistry is an organization of anti-amalgam dentists. For their information packet, send a stamped, self-addressed, business-size envelope with 52 cents postage to FTFD, Box 608010, Orlando, FL 32860-8010.

"Hearth & Home," page 42

Nickel metal hydride batteries, nicad rechargeables, and harder-to-find gizmos like solar-powered rechargers are listed in catalogs from Real Goods Trading Company, 966 Mazzoni St., Ukiah, CA 95482-34771; (707) 468-9292, and Seventh Generation, Colchester, VT 05446-1672; (800) 456-1177.

DEPARTMENTS

CLUBWAYS

Kids' Books, page 28

For a complete listing of all Sierra Club Books for Children, request a free copy of the *Sierra Club Books Mail-Order Service Guide* by filling out the Reader Service Card in this magazine, or by contacting the Sierra Club Store, 730 Polk St., San Francisco, CA 94109; (415) 923-5500. The store offers discounts on bulk orders, including a special 20-percent discount to teachers on all children's books.

PRIORITIES

Nasty Nature, page 46

The best way to avoid messy encounters with large predators is to use your brain. No trip to bear country is complete without a copy of Stephen Herrero's *Bear Attacks: Their Causes and Avoidance* (Nick Lyons Books, 1985). Likewise, divers, surfers, and kayakers would do well to study John McCusker's *Great White Shark* (HarperCollins, 1991). The Mountain Lion Foundation, P.O. Box 1896, Sacramento, CA 95812; (916) 442-2666, is a good source of information on cougars; their director is the Sierra Club's Mark Palmer. Paul Beier's analysis of "Cougar Attacks on Humans in the United States and Canada" appears in the Winter 1991 edition of the *Wildlife Society Bulletin*.

Superfund, page 54

The Superfund reauthorization debate is just now getting underway in Congress, and will likely stretch out through much of next year. If you want to get involved in the Club's efforts to strengthen the bill, contact Doris Cellarius, Chair, Hazardous Materials Committee, at 2439 Crestline, Olympia, WA 98502. Or you might simply contact your legislator and insist that the reauthorized Superfund retain the "polluter pays" principle, that cleanup standards not be weakened , and that technical-assistance grants be made easier for citizen groups to obtain.

OUTDOORS

Sea Kayaking, page 110

Read up before paddling off. Some good books on the subject: *Sea Kayaking: A Manual for Long-Distance Touring* by John Dowd (University of Washington Press, 1988); *Coastal Kayaker's Manual* by Randel Washburne (Globe Pequot Press, Old Saybrook, CT, 1993). The excellent quarterly *Sea Kayaker* (P.O. Box 17170, Seattle, WA 98107-7170) will surely whet your appetite for maritime meandering.

FEATURES

Animal Damage Control, page 70

The Sierra Club's national wildlife policy calls for any control of predators to be aimed at individual problem animals. At presstime, the Club's Public Lands Committee was considering a policy guideline that would call for the Animal Damage Control Program to be terminated on public lands, and for public-land agencies to contract for any necessary control of individual predators with state or provincial wildlife agencies. For more information contact Rose Strickland, Chair, Grazing Subcommittee, Sierra Club, P.O. Box 8409, Reno, NV 89503; (702) 329-6118.

Nuclear power, page 78

Dan Becker and Melanie Griffin in the Sierra Club's Washington, D.C., office follow nuclear issues and work with other D.C.-based public-interest organizations as well as with members of Congress and their staffs. Contact them at 408 C St., N.E., Washington, DC 20002; (202) 547-1144.

Nuclear Information and Resource Services (NIRS), 1424 16th St., N.W., Suite 601, Washington, DC 20036; (202) 328-0002, provides anti-nuclear information and materials to grassroots groups and activists; a specialty is tracking the activities of the Nuclear Regulatory Commission. NIRS publishes a regular newsletter called *The Nuclear Monitor*, and is preparing an on-line computer database.

Public Citizen's Critical Mass Project publishes detailed but understandable studies on a wide variety of nuclear-power and safe-energy issues, including plant-safety records, decommissioning costs, and renewable energy. For a copy of their publications list, write them at 2000 P St., N.W., Washington, DC 20036; (202) 833-3000. ■

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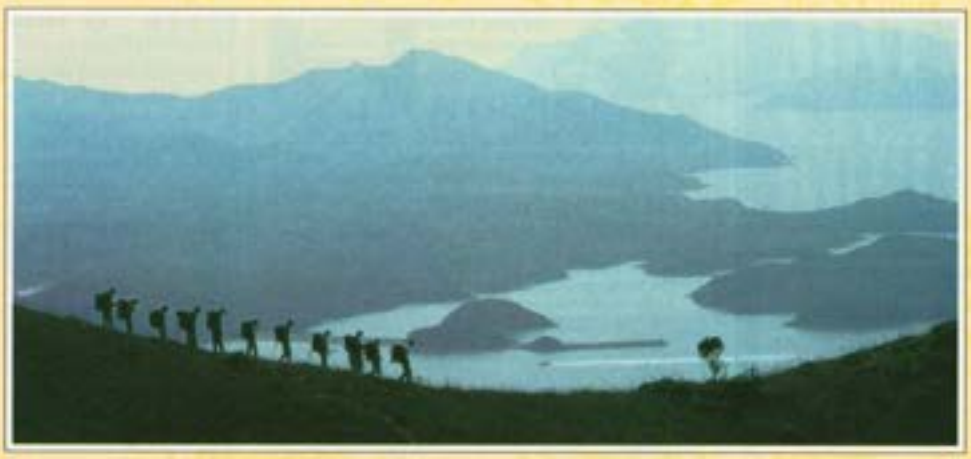

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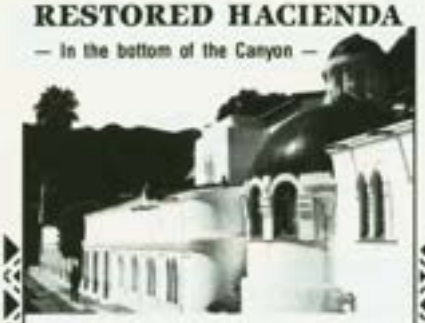

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WHAT ENVIRONMENTAL ADVICE (IF ANY) SHOULD INDUSTRIALIZED NATIONS PROVIDE TO THE DEVELOPING WORLD?

The common use of the term "developing world" to refer to Third World countries eloquently testifies to our own bias on this issue. It is the "industrialized nations" that need development (or restoration)—spiritually, morally, and ecologically. Transnational concentrations of wealth and power instinctively seek to reduce us all to a global monoculture founded on materialism and consumption, a sure formula for disaster as we come up against the laws of nature.

Kenneth Edlund
Delmar, New York

America advises the world by example: "Be frenetic consumers." Most developing nations are doing the best they can. If we want to influence these countries positively, we must outgrow materialism, develop green technologies and share them generously, and respect life more than wealth.

Scott R. Hartley
Fairfield, Iowa

Hold our feet to the fire until we set an example for all, by following wholesome leadership . . . from you!

George Woodwell, Director
Woods Hole Research Center
Woods Hole, Massachusetts

First, preserve your indigenous germ plasm, knowledge, culture, and values. Second, support the work of your traditional, sustainable farmers and grassroots non-government organizations (NGOs), who are proving it possible to get excellent yields without depending on expensive, hazardous pesticides and other Green Revolution practices. Third, base your decisions on the real economic costs, including the "hidden" long-term environmental, health, and social impacts of technologies. Fourth, work with supportive groups in industrialized countries to assure fair trade and stop our export of banned pesticides and other hazardous technologies. Fifth, continue the often frustrating work of educating us "northerners" about the negative impacts of our unsustainable consumption patterns and economic structures.

Terry Gips, President
International Alliance for Sustainable Agriculture
Minneapolis, Minnesota

For God's sake, learn from our mistakes! Don't destroy soil-based economies for the sake of oil-based ones. Don't look for the bottom line: look out for the seventh generation. Don't embrace the ruinous habits of growth and consumption. Remember this lesson: You can't have your Earth and eat it, too.

Gar Smith, Editor
Earth Island Journal
San Francisco, California

First of all, the advice should be primarily that which is requested by NGOs and citizens' groups at the grassroots level in the developing country itself; in other words, by real people trying to solve real problems. Also, the advice of "industrialized nations" should be primarily the advice of the citizens of those nations, not necessarily of the governments. Finally, I think it would be especially important to urge the citizens of developing nations to, above all else, make sure they do not sacrifice their cultures or identities or irreplaceable natural wonders in their search for "development" (i.e., industrialization).

Bill Mankin
Sierra Club International Committee
Atlanta, Georgia

One very important lesson learned by many developed countries can certainly be generalized to the developing world: environmental cleanup is much more costly than preventing pollution and resource degradation in the first place. Markets for environmentally improved technologies are booming worldwide, and these advances can help poorer countries leapfrog over the dirty stages of industrialization suffered by the richer countries.

The widespread adoption of improved technologies is by no means assured, however. Realizing the economic benefits of, for example, adopting and adapting environmentally sound public policies, industrial processes, or agricultural practices will require long-term investments in building human, institutional, and technological capabilities to address the root causes of environmental problems. It will be up to the leadership in individual countries to give priority to and direct this transition to sustainable development.

John Sewell, President
Overseas Development Council
Washington, D.C.

Developing countries should resist the temptation to become industrialized. Instead, they should strive to preserve the flora and fauna unique to their area, and develop low-key tourism to show off these preserves. Economic self-sufficiency will follow as people from industrialized societies beat a path to their unspoiled shores. Mother Earth will get a rest from insults as diverse as pavement and manicured golf courses, and endangered species will get a new lease on life.

Joyce Long
Sayville, New York

We should be providing the developing world with clean energy technologies, such as solar, wind, and non-destructive geothermal/hydropower. We can either do that or suffer the consequences of poor nations burning their oil and coal reserves to get the energy they'll soon need.

Michael Foster
San Francisco, California

The industrial world should give developing nations five pieces of advice:

1. Reduce population growth.
2. Reduce population growth.
3. Reduce population growth.
4. Reduce population growth.
5. Reduce population growth.

John E. McConnaughy III
Anchorage, Alaska

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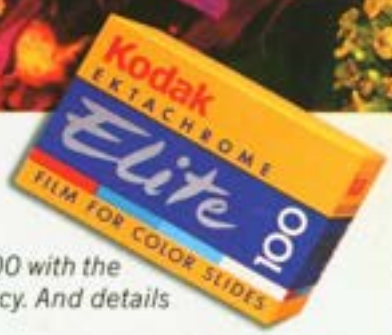

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