Sierra Club Bulletin

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June 1976

1977 Foreign Outings
International Issues

Tropical Forests.

YOU ARE RIGHT to imagine them wildly beautiful.

You are right if you picture them strange; without winter, without drought: full of rare animals and plants, great ferns, air-living orchids, dazzling birds, and sometimes a hundred different kinds of trees growing on a single acre.

You are right to think of these woods as valuable. To scientists they are a laboratory. And to the people who live in these tropical countries, these forests give fine, plentiful timber, pure abundant water, and fuel.

There is one thing that these forests *do not have:* deep, fertile, nutrient-loaded soil. And here lies the danger. For all along the tropical belt these lavish woods are disappearing —through logging and through slash-and-burn farming practices.

Deforestation is a way of life for thousands. Cut, burn, plant and harvest, and then as the soil fails . . . move on.

It is not an easy way of life, but the itinerant farmers have no other. They have no other land. Yet the tropical countries are quite aware that their forests must be saved: without them the land is diminished, poor—a liability, even.

There are no easy answers. Yet answers must be found. The Sierra Club International Program has initiated a special study of tropical rainforests in cooperation with the Rural Welfare Council and the Government of Venezuela. Better techniques for sustained yield forestry and farming methods which stabilize and enrich the soils must be found if we are to save the tropical forests.

Through its research, through its publications, through its members worldwide—the Sierra Club is doing what it can to help.

We invite you to join us. As a member you receive: ☐ The Sierra Club BULLETIN: our international magazine. Colorful, up-to-the-minute, full of information . . . ☐ Discounts on Club books and publications . . . ☐ Membership in an active local chapter—and a subscription to its newsletter . . . ☐ Easy access to outings . . . and best of all . . . ☐ the chance to work on the issues; to be a part of the history of conservation in our time.

Sierra Club

Photos: *Martin Litton, Peter Arn*

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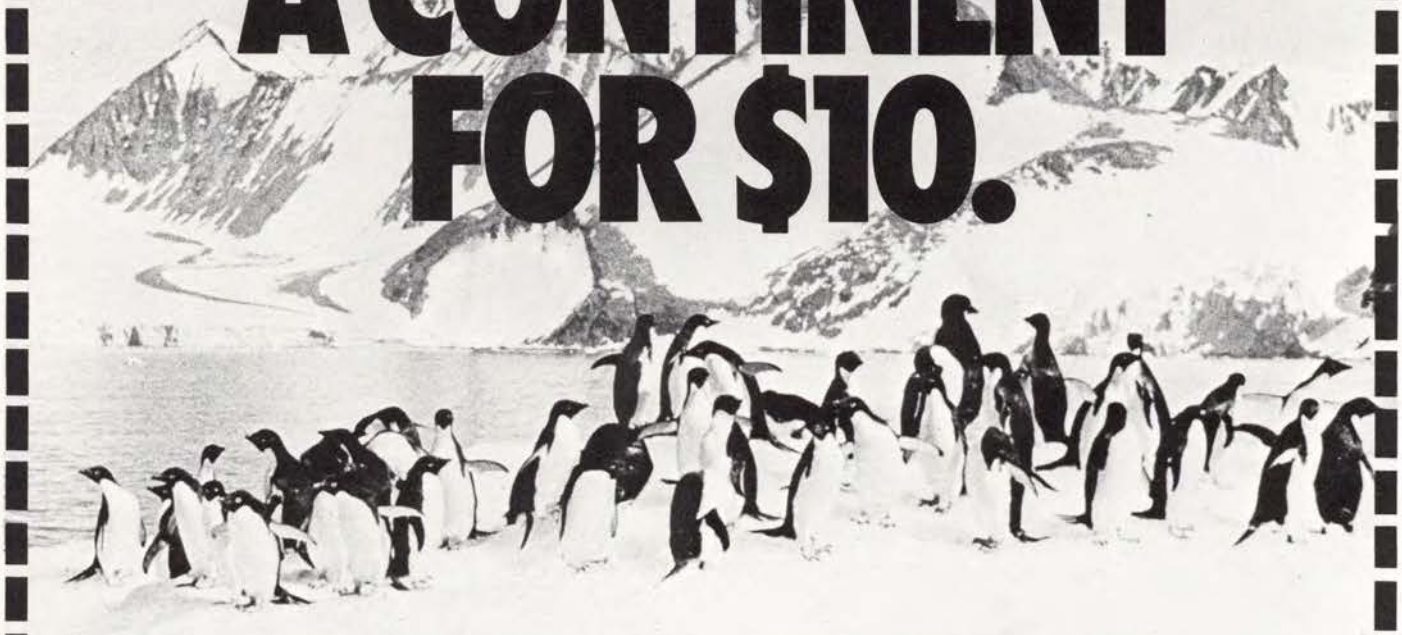

The continent is Antarctica, an area larger than the United States and Mexico combined. It is a natural laboratory and "mankind's last opportunity to establish solid baselines for understanding global processes."

It is governed by a 12-nation treaty. But the treaty does not control the exploitation of its natural resources. In June of last year, the treaty powers began to discuss how these resources of coal and iron, offshore oil and gas, and fish and marine mammals should be managed. There is still time, and a rare opportunity, for environmentalists to help frame sensible policies before national pressures and trade-offs result in irreparable damage.

But we must begin now. The Sierra Club has a fact sheet on environmental policy for Antarctica. We'd like to send it to you. More important, we need to maintain an environmental watch, to have our voice heard, and to keep you and the public informed.

For all of this, we need your help. Your ten dollars or more, tax deductible, and your name on the coupon below, can help to save the continent of Antarctica—if you act now.

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Sierra Club Bulletin

JUNE 1976 / VOLUME 61 / NUMBER 6

Cover: *Though wintry in aspect, this scene of ibex among the high peaks of Pakistan's Karakoram was taken during last summer on K2, second-highest mountain in the world. Photographer Galen Rowell reports on the region's vanishing wildlife in "Man & Beast in the Karakoram," page 8.*

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NICHOLAS A. ROBINSON

ON THE FRONTLINES OF

WHEN, IN 1881, John Muir sailed into the Bering Sea on the U.S. Revenue Steamer *Corwin*, he voyaged upon oceans vastly different than today. Nature still withstood the tampering of man, and was at once awesome and beneficent.

Muir could admire the sea, as he did ninety-five years ago on July 23rd:

> The sun is low in the northwest, bracing, cool, with a light breeze blowing over the polar pack. The ice is marvelously distorted and miraged; thousands of blocks seem suspended in the air; some even poised on slender black poles and pinnacles; a bridge of ice with innumerable piers, the ice and water wavering with quick, glancing motion. At midnight the sun is still above the horizon about two diameters; purple to west and east, gradually fading to dark slate color in the south with a few banks of cloud. A bar of gold in the path of the sun lay on water and across the pack, the large blocks in the line of vision burning like huge coals of fire. (*The Cruise of the Corwin*, 1917, p. 142.)

Today, Muir's keen mind would be forced beyond the wonder of natural forces. He would be pondering whether the increase of particulate matter in the earth's biosphere was shielding the sun's golden warmth and permitting extension of the ice pack as the earth cooled, or whether the carbon-dioxide "greenhouse" effect was heating the atmosphere and melting those blocks of frozen mirages.

Muir certainly would have to comment on how cautious the whalers and hunters must be if their species of game is to survive extinction. Muir would confront new societal goals of justice for the indigenous peoples he met, how to accomplish ecologically sound development, or how to share dwindling and exhaustible resources.

The perils of weather modification, air pollution and acid rains extending across countries would temper his appreciation of the gale. Knowing that DDT had accumulated in the fat of the polar bear and wildfowl would sober his delight in observing these inhabitants of the North.

Cultivated fields, New Territories, Hong Kong.

Frank Wing

Frank Wing

A farmhouse west of Kathmandu near the Annapurna range, Nepal.

The changes Muir would see in the Arctic appear in comparable guise in Africa's savannahs, South America's rainforests, Europe's tidal estuaries, Asia's river valleys, the Caribbean's coastal zones, the Antarctic seas and every other biome and ecosystem.

We simply cannot save Canada and the United States if we ignore what goes on around the world. The soon-to-be-published proceedings of last year's 14th biennial Wilderness Conference, entitled *EARTHCARE: Global Protection of Natural Areas*, are a virtual "State of the Natural World." The contributors expose eco-catastrophes in every region, but they also point to practical means of avoiding them.

The Sierra Club is tackling conservation problems of our globe's "commons" (oceans, polar regions and atmosphere) and also transnationally. The club collaborates with conservationists in other lands. The essays collected in this issue of the *Bulletin* illustrate several environmental battles which deserve the club's involvement. There are many more.

The priorities for environmentalists on the EARTHCARE front fall within the following broad categories:

- ONLY ONE EARTH: A high standard of protection must be imposed over the earth's commons. International authorities to en-

EARTHCARE

force such protection need to be fashioned. Nature's shared heritage is not to be plundered by a few. Personal, commercial and governmental values must be recast to accept these imperatives.

• LIVING RESOURCES: Conservation of all natural resources must be understood and required. Renewable resources may be harvested at a level that would sustain the resource as part of a balanced ecosystem, and not be depleted. Ecologically sound practices must

George Holton

Adélie penguins at Hope Bay, Antarctica.

be used for fishing, forestry, agriculture and other uses of living resources. The increasing spread of the earth's deserts must be studied and its human causes removed. Tourism must be for enjoying, never harming nature.

• RESEARCH: Identification of hazards to environmental quality remain a crucial need. Baseline studies are needed of environmental carrying capacity, of interaction between ecosystems and of our dependence on those systems.

• POLLUTION CONTROL: The discharge of persistent chemicals must be eliminated everywhere. Technological developments in pollution abatement must be widely employed. "State-of-the-art" pollution-control equipment and planning to avoid creating pollution must be required.

• METHODOLOGIES: Environmental management must be instituted for all human endeavors. Environmental impact assessment, training field ecologists, development of environmental law and efficient administrative systems are needed in all countries. Multinational corporate responsibility must be encouraged.

• POPULATION: Stabilization of population in all regions of the world should be a central focus in conserving the resources which sustain those populations.

• ENERGY: Energy sources must be catalogued and shared; diversity of energy sources needs to be encouraged and new sources developed and put "on line." Where allowed, nuclear generation of electricity must have strictest safeguards.

• WATER RESOURCES: Freshwater resources must be husbanded. Land-use impact on water supplies and wetlands must be controlled. Pollution of freshwater must be eliminated, and sanitary water-supply systems developed.

• HUMAN HABITATS: Human settlements must plan for a comprehensive quality of life for inhabitants. Open space, greenbelts, transportation controls, elimination of shanty-towns through adequate housing and employment centers, and a host of related issues must be pressed.

Village of St. George in northern Italy with the Tyrolean Alps in the background.

Frank Wing

George Holton

Tsisissat Falls on the Blue Nile, Ethiopia.

Obviously, each general category encompasses a multitude of specific issues. Conversely, problems such as land use comprise a part of each. Most are closely interrelated. The club's tropical-forestry project described in the April ***Bulletin*** partakes of each category, and our advocacy on behalf of a conservation coalition before the International Whaling Commission falls largely within the first two categories described above.

Through the club's International Program we are waging specific battles within each of these overall categories. Chapter and Group International chairpersons, as well as the club's International Office, have current information for anyone interested in this dimension of Sierra Club commitment.

Muir's vision of the dew continuously rising with the early morning sun as the globe turns inspires us today in our "Only One Earth" efforts. The problems are more acute than in the 19th century and the cause of nature conservation and care of our earth is ever more timely.

Nicholas A. Robinson is chairperson of the Sierra Club International Committee.

GALEN ROWELL

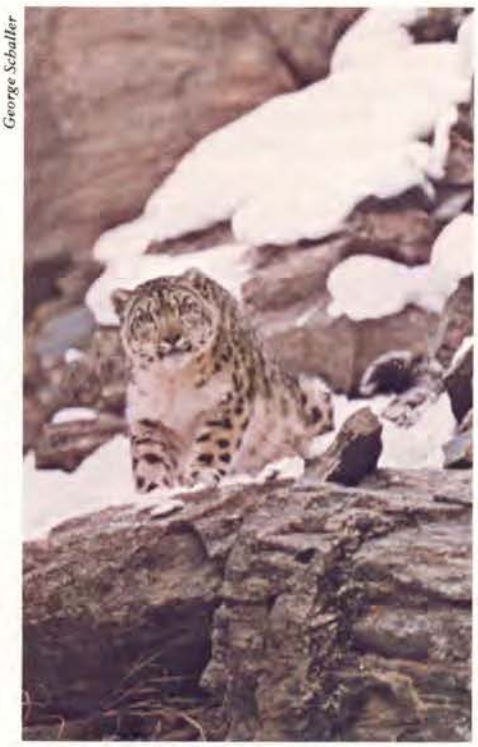
MAN & BEAST IN THE KARAKORAM

SOME OF the earth's most splendid mountain scenery is in the Baltoro Glacier region of the Karakoram Range in northern Pakistan. Seven of the world's seventeen highest peaks encircle the Concordia Amphitheatre, where glaciers pause before joining into a single stream for a thirty-mile plunge down a granite canyon that makes Yosemite seem like a city park. Although the single peak of Mount Everest is taller, this region—a thousand miles to the northwest—has the world's highest mean elevation. Another feature that sets it apart from most mountain areas of exceptional beauty is that it has no legal protection whatsoever.

We Americans have a long history of isolationism, and although it has dwindled from our politics, it still haunts our environmental thinking. Many of us are lulled into a false confidence that certain areas will remain pristine because of their geographical remoteness. I thought so until I trekked 250 miles round trip to K2, the 28,741-foot culmination of the Karakoram Range.

I had dreamed of visiting the Karakoram ever since I began mountain climbing in my teens. Over the dying embers of campfires in the Sierra Nevada, I found others who shared the same image: a light, self-contained expedition which would not get involved with high summits that required oxygen and hundreds of native porters. A phone call erased that image in an instant. I was offered a place on the 1975 American K2 Expedition. The choice was clear-cut: to go or stay home.

In April 1975, ten of us sat in an ancient high-ceilinged hotel room in Rawalpindi, Pakistan. We were waiting for a daily-scheduled flight to Skardu in Pakistan-held Kashmir, the embarkation point for the Karakoram. We had begun to realize why PIA airlines was locally called "Perhaps I Arrive," or "Please Inform Allah." The cloud-shy pilots fly only in perfect weather, so the flight was delayed eleven days. Stacked in the corner of the large room were dozens of five-gallon tins of rancid butter, purchased for our 600 porters at a cost of over $700. We were discussing the $2000 cost of our government-required porter insurance when someone knocked at the door.



George Schaller

George B. Schaller took the only known photographs of snow leopards in the wild, while studying them in the Karakoram in 1971. "When the last snow leopard disappears from the icy crags," Schaller says, "an intangible aura of mystery will vanish too."

A tall slender man dressed in American clothes entered the room. We had never seen him before. He asked if our expedition had someone named Dr. Schaller. We replied that Robert T. Schaller was our expedition doctor. He said, "My name is Dr. Schaller, too. I've been getting phone calls from a young lady I do not know in the United States. She's on the phone right now, in the hotel lobby." Rob Schaller, a marathon runner, shot out the door as if he had heard a starter's pistol. The new Dr. Schaller turned to leave. Something clicked in my head, but I thought, no, it couldn't be; this man is too young to have done all that. The man I'm thinking of must be seventy.

Leif Patterson, a step ahead of me, asked the new Dr. Schaller if he was by chance the zoologist, George B. Schaller, who had written "The Year of the Gorilla," and "The Serengeti Lion." Modestly, he answered "Yes," then departed nearly as quickly as his namesake.

Curiosity got the best of me and I visited George Schaller in his hotel room that evening. I learned, to my surprise, that he planned to follow our same route, walking two hundred miles round trip up the Baltoro Glacier nearly to the base of K2. Because our expedition might disturb what he had come to study, he had planned to go ahead of us, but had also been held back by the flight.

Galen Rowell

Nightfall in the heart of the Karakoram. 28,741-foot K2 looms above a campsite at Concordia, 14,000 feet below.

Looking about the empty room I asked him where all his provisions were. He would have to travel over glaciers at high altitude far beyond the highest village. He pointed to a small box on the floor that contained about twenty pounds of nuts and meats. Only one porter and a Pakistani friend would accompany him. His object was to survey large mammals in the K2 region and assess the need for a national park as proposed by the government. K2 is possibly the most remote high mountain on earth, not visible from any inhabited spot. Why would such a place need the protection a national park could offer? Schaller wasn't sure that it did, but he realized that time was running out for the once-remote mountains all too quickly. More people had visited the Himalayas in the last decade than in all preceding history. Until 1963, people walked to Mount Everest through wild country and villages that few foreign eyes had seen; now, the way has become a trade route for tourism, where the lives of villagers have begun to revolve around foreign visitors who change the native economy, social life and even the face of the land. At first glance, the scene does not appear much different than before, but it is as dissimilar as sighting a domestic dog instead of a wolf.

K2 and the Baltoro Glacier region missed this onslaught because the area was closed for political reasons from 1961 to 1974. Through no intent or forethought—most probably because of the lack of it—the government of Pakistan held this region back in time, saving it from excess clashes with modern culture. When the floodgates were opened in 1974, it was too late in the season to field a major expedition, but in 1975, nineteen mountaineering expeditions had permission to travel the same route toward the Baltoro. While they would certainly bring back new aesthetic and topographic information about the high peaks, they would do little to illuminate other concerns more basic to establishing a park. How much pristine flora and fauna are left to save? Does human habitation in the valleys make the concept of a park untenable? Who would benefit? Who would lose? Schaller's tiny expedition had a better chance of answering these questions than all the others combined, but as I talked to him in his hotel room, I wondered if we each might have our special brand of blinders. I would be marching straight toward K2 in a caravan of 600, as insulated from the true environment as a politician touring a ghetto in a limousine, while Schaller would walk the narrow path of science, rendering unfathomable splendor into a rigid jargon of numbers and words.

I couldn't have been more wrong. At first, Schaller's world seemed closed to me. He answered questions like a computer; just what I expected from a dedicated scientist. Then he began to quiz me:

"What route are you trying on K2?"

"The West Ridge. It's unclimbed, you know."

"Oh. That's on the other side of the mountain from the Italian route. You

must be going up the Godwin-Austen Glacier, then up the Savoia very near the Chinese border."

"Exactly. Our route lies directly on the border. How do you know so much about the mountain? You're supposed to be a zoologist, not a climber."

"I've read a lot about the expeditions. I used to climb some myself."

As the evening progressed, I learned that Schaller had been approached by a traveling lecturer while an undergraduate at the University of Alaska. The man was Heinrich Harrer, who made the first ascent of the famous Eiger North Wall in Europe and later attempted 26,660-foot Nanga Parbat in Pakistan, after which he was thrown into a British prison in India because World War II had started. Harrer escaped with a fellow climber and spent seven years walking across India and Tibet, ending up as a tutor to the Dalai Lama just before the Chinese invaded Tibet in 1951. Two years later, Harrer made the first ascent of Mount Drum, a 12,000-foot ice-covered volcano in Alaska; he was accompanied by a young student named George B. Schaller.

George Schaller

Now in his early forties, Schaller's interests seemed as diverse as a child's, as was his sense of wonder. He yearned to follow Harrer's tracks into Tibet, but had been turned down by the Chinese. He had studied the relationships between predators and prey in India, especially the tiger and the deer, and had made three prior visits to the Karakoram, once taking the only photographs of snow leopards ever made in the wild. Eating *chapatties* in a native village was far less foreign to him than reclining in a comfortable chair in Academia.

What separated him from most adventurers was his keen intellect. He assumed nothing unless he confirmed the facts for himself, thus avoiding the all-too-common plight of building a false pyramid of logic on top of someone else's misconception. At the same time, he would not quickly dismiss a statement just because it was not backed by a verified fact. Instead he would tuck it into his mind; a new avenue to investigate if the chance arose. He professed what was heresy to many wildlife managers: "It is sometimes necessary for radical protective measures to precede, rather than follow, scientific studies and surveys."

Pakistan was a classic example. Wildlife research was at least forty years behind North America. Only two intensive studies had ever been published on large mammals, whereas a single decade produced over 300 such studies on large East African mammals. Local universities were not ecologically oriented and Schaller believed that wildlife officials worked almost in an intellectual vacuum. "I met no one who knew details of the wildlife-research program in neighboring Iran," he mused. "I work mainly with large mammals not just because they are my specialty, but also because their status and condition normally indicate the concern with which a country treats its natural resources. In Pakistan, a great number of animals are on the threshold of extinction."

The night before I met Schaller, I had dined with a Pakistani who seemed most knowledgeable about local wildlife. When I asked about the Abominable Snowman, he laughed in open contempt. Schaller fielded the same question entirely differently:

> I don't know whether such a creature exists, but if it does it will be found in the forested regions between Nepal and Bhutan rather than in the arid Karakoram. I've studied photographs of the tracks and there are characteristics that have not yet been explained to my satisfaction. Some of them may be melted-out tracks of smaller animals, or of bears, but others have subtle things in common with gorilla tracks; things that no one could fake unless they had spent years studying primates. I'm not saying that the Abominable Snowman is a gorilla; quite to the contrary, but the latent similarities intrigue me. I would not be that surprised if an undiscovered large primate exists in very low numbers.

A few days later, Schaller joined us on a flight we chartered not only to Skardu, but also to reconnoiter K2. We crossed the moist Western Himalaya near Nanga Parbat, then watched the terrain plunge downward for 23,000 feet into the canyon of the Indus River, the largest land escarpment on earth. Beyond, the Karakoram swelled in an endless sea of white caps rising from arid valleys into the clouds. In the distance, K2 rose high above the others, a perfect pyramid hoisted on the shoulders of giants.

Only ten of our twelve tons of gear were on the flight, so we waited an extra week for another plane. Meanwhile, Schaller went about his survey, inviting me to join him one day. We rode with Pakistani wildlife managers to a nearby valley that was reported to have ibex—large wild goats that inhabit mountains in Europe, North Africa and Asia. Not far beyond the end of the jeep road, the officials stopped to go fishing. Schaller and I continued on, hiring a native boy to help us spot wildlife. When Schaller drank from a stream, I noticed that his posture was exactly like one of the big cats he had studied so long, a hint that he was somewhat more than a passive observer.

Treeless terrain

My image of lush mountain valleys dimmed after he told me that this valley, Shagarthang, was characteristic of the Karakoram. Except for planted orchards and shade trees, the terrain was practically treeless, broken only by a few scattered junipers. Insulated from the monsoon by the Western Himalaya, it was devoid of lush vegetation. The main wild growth was sagebrush and *ephedra*, similar to species inhabiting some of the high deserts of the American West. Cultivation extended beyond 10,000 feet, and livestock grazed much higher, usurping almost all the available wildlife habitat. In summer, ibex could graze steep-hanging meadows up to 18,000 feet, but their population was limited by the need to descend into lower valleys in winter, where they were often shot if they didn't starve. Even with these problems, the ibex were doing better than many other species.

The snow leopard, one of the rarest of big cats, has the Achilles heel of eating its dinner slowly. With prey species greatly depleted, they often resort to domestic sheep and goats. Many, while savoring their last supper, are killed by villagers. Others are shot for their valuable furs. There may be more skins for sale in city bazaars than live animals left in the mountains. Schaller estimated that only 250 still survived in all of Pakistan.

He told me that existing government controls were a series of paradoxes. There were large forest departments but few forests, and no range management departments even though much of the terrain was rangeland. There were strict laws against

Galen Rowell

Native porters carry loads through the Concordia Amphitheatre on the 110-mile march to K2.

killing large mammals in the Karakoram, but almost no enforcement. One of the Skardu officials openly traveled with a rifle and had recently shot nine ibex and eight mountain sheep.

The day ended without seeing a single large mammal other than domestic yaks, zoes, sheep and goats, but for Schaller it was not a failure. He questioned villagers carefully and gained considerable information on wildlife in the valley. To test them, he had thrown out a few curves about species that were not present. If they passed the quiz, he placed some credence in their reports of sightings.

While we waited for our remaining equipment, Schaller began the long trek up the Braldu River toward the Baltoro. Weeks later, we met him near the snout of the glacier. Excitedly, I told him about photographing a band of ibex from a few hundred feet away. He asked me for exact details, then told me that I had seen shapu, a subspecies of urial mountain sheep; ibex have bigger horns and a more grand appearance. Like a trophy hunter, I was disappointed. It was some consolation that shapu were rarer animals. Fewer than 1,000 existed in all of Pakistan. Related to the Rocky Mountain sheep, they were built more like an antelope, and they avoided danger by speed rather than climbing cliffs.

Schaller told me of his own disappointment. According to the Pakistan Forest Department there were 4,500 ibex, 2,500 shapu and 450 musk deer in the 1,600 square kilometers of proposed park. His survey of the heart of the same region indicated only about 100 each of ibex and shapu, with no sign of musk deer. He thought the department's figures were up to ten times too high. The low prey population supported very few predators. He found only old, faint signs of snow leopards and wolves plus the fresh tracks of one brown bear and several foxes. He never saw most of the high peaks because it had stormed every day. It was his opinion that the Baltoro Glacier was the ugliest in the world, and he seriously questioned whether much would be gained by creating a national park. Access was too difficult for most visitors, and wildlife could more easily be protected by stationing a game warden in the highest village. The shapu needed special attention to survive, but this could be done without park status.

As he shouldered his pack to leave, he said, "If you want to try your hand at photographing ibex, there's a large herd above Liliwa, next to the glacier. They're very hard to approach."

Walking across the Baltoro I agreed with him; it was certainly the ugliest glacier I had ever seen, completely covered with dark heaps of loose rock. I imagined that God's own construction company had run out of funds and left the scene incomplete. The weather was still stormy, and I saw little of the spectacular mountains. Passing all that beauty hiding in the mist was as frustrating as being blindfolded on a tour of the Louvre.

I reached Liliwa camp long before the porters, and there, thousands of feet above, were five ibex walking across steep snow. I climbed to within a few hundred yards of the animals at nearly 15,000 feet. I counted fifteen, and they were definitely aware of my presence. I tried not to exceed their toleration of closeness. When I moved a few feet nearer, they would group to retreat, but when I stayed back and pretended to ignore them, they would return to feeding on dead grasses buried under shallow snows. For several hours I watched them.

The first mountaineering expedition to explore the Baltoro region in 1892 had seen a small ibex herd carried to their deaths in an avalanche. I knew avalanches were a major cause of ibex deaths, but was amazed how much their behavior resembled trained mountaineers and cross-country skiers. They minimized the hazard by crossing steep snow one at a time and moving vertically rather than horizontally in areas of great danger, so that their paths did not bisect the slopes. Even their daily activity cycle was adapted to the hazard: they rested on ledges during the warm, dangerous hours of the afternoon. I plotted a way to get a closer view by forcing them toward a steep rock wall that could be climbed by a snow ramp leading back toward me. If they took the bait, they would climb to a ridge profiled against the sky nearly twice as close as their normal tolerance. With a 500mm lens I would try to get photos.

One by one the ibex climbed the ramp to a rock outcrop. There they regrouped and started for the next outcrop, does in the lead, youngsters in the middle and bucks bringing up the rear. The first ibex reached the crest of the ridge, looked down at me, then disappeared around the corner. Each animal took its turn while I shot a roll of film in a minute or two. Here were animal counterparts of human mountaineers. Their ancestors had forsaken a more predictable but mundane existence in the valleys for an active alpine life filled with objective dangers in the harsh world of rock and snow. I felt a strong kinship, and as evening neared I regretted having to descend to the noisy camp.

The next morning, not far from camp, the large tracks of a snow leopard paralleled our route. They were only hours old, and although I never saw the animal I felt something of its presence just from the prints in the snow. They symbolized a bond with times not that long ago when men, too, walked barefoot on the ice. I thought of the special attraction that recently glaciated valleys held for me, and realized that my emotions were dependent on finding bonds with things in my past. It was like returning to a forgotten street of my youth. Where things were changed and old buildings gone, there would be a dull ache, but it would take only a familiar tree or a crack in a sidewalk to make happiness flow into my life. In the Karakoram, much of that happiness came from meeting adversity and observing how it had shaped things. Was it my imagination, or did I see hidden similarities between the arc of a side glacier, the curl of an ibex horn and the twisting grain of a juniper, all hewn by the same wind, cold and snow that were now acting on my own body? I knew that Schaller had felt comparable emotions when he wrote, "The mountains will remain magnificent even without wildlife, but when the last snow leopard disappears from the icy crags, an intangible aura of mystery will vanish too."

This is the essence of what must be preserved by national parks: unstructured wildness where people can imagine their own destinies.

Schaller and I returned home with perceptions of the Karakoram enhanced by our own special interests. I was disappointed not to have climbed K2 and his wildlife Shangri-La had not proved to be a reality. His memories were dominated by glimpses of animals moving against a misty backdrop of mountains. Mine were of cold and sterile peaks in which wildlife decorated the foreground. These were not opposite viewpoints, but rather subtle shifts of the same basic impressions.

In a similar way, we differed on the park proposal. Schaller recognized that scenic grandeur alone would qualify the K2 region for park status, but his biological orientation made him question whether this was the place for a park. He believed that other areas of the Karakoram might be more suitable "as last refuges for animals and plants, as repositories of genetic stock in the event that some day the species may be needed to revitalize this plundered land."

I still hold to the old belief that national parks should be shrines celebrating the grandest works of nature. The view from the Concordia Amphitheatre exceeds anything in McKinley, Yosemite or Grand Canyon parks. Nothing I have ever seen compares with one spring night spent at Concordia, when the cloud curtain rose after a storm and the moon shone on a vast, circular stage of incredible peaks.

Unfortunately the opposite extreme is also present within the proposed boundaries. Unlike Schaller, I found no scarcity of large mammals. One species, my own, dominated all the others. Nineteen groups composed of up to 600 individuals far exceeded the meager resources of the lower valleys. Unlike other wildlife, these feral creatures had an apparent defect in their social mechanisms that lowered the carrying capacity of their habitat by concentrating them in the same places, which became quickly denuded of vegetation. Traveling with the largest group, I once observed the result of a three-day layover in one locale. The earth, the water and the smell of the air were polluted by more than a thousand fresh piles of excrement! This barren, brown battlefield was but a wafting on the first breeze of a human tornado yet to come. The Pakistani government forbids airdrops or airlifts, thus ensuring that mass human impact will continue to increase. For the journey to the base of K2, porters must carry their own food for ten days beyond the highest village. By government regulation, they are allotted two pounds of food per day and a maximum of a fifty-five pound load. In perfect weather, with no porter strikes, such as we experienced, and with only half rations for the return, more porters would have to be hired to carry food than to carry expedition loads.

The problems of preservation in wildlands that have native residents are exceedingly complex. They cannot be solved within the normal concept of a national park. Either that concept must be modified into an overall plan to fit the K2 region, or proper measures must be undertaken individually, which seems unlikely at best. One thing seems certain: remoteness alone will no longer do the job. What is at stake is not just another frontier, but one of our planet's final strongholds.

Galen Rowell was a member of the American 1975 K2 Expedition which failed to climb the world's second highest mountain, but was able to explore areas that had been closed to visitors for more than a decade. A forthcoming Sierra Club book by Rowell will tell the full story of the trials and tribulations of the unsuccessful expedition.

Supertankers and the Law of the Sea

On Wednesday, May 12, the Spanish tanker Urquiola *went aground and exploded off the northwest coast of Spain near the town of La Coruna, a prosperous fishing and resort community. The ship was carrying 110,000 tons of crude oil from the Persian Gulf. Oil is spilling from the ship, contaminating shellfish beds and spreading a black film over the coastal waters and resort beaches. The local fishing industry employs 6,000 people, and according to a CBS news report, seafood sales began to drop only days after the spill. By contaminating the fishing grounds and fouling local beaches, one medium-sized tanker has probably ruined, at least for a time, the two resources on which the local economy depends. Very little has been done since the spill to clean up the mess. [The Editor.]*

NOEL MOSTERT

ALTHOUGH the international oil-tanker industry is now fighting its worst economic crisis, with hundreds of ships laid up in different parts of the world, the unhappy fact is that tanker losses for 1975 may prove to have been the highest on record, once final figures are in. This year, 1976, began with the dramatic loss of two ships of more than 200,000 tons, and if this rate of disaster continues, 1977 will be even worse.

At this moment, the 280,000-ton Onassis supertanker *Olympic Bravery* lies disintegrating on the French side of the English Channel. Fortunately, she was empty when she went aground a few months ago, but it's no use offering that fact as consolation to those living along the coasts near the wreck; for the bunker oil *Olympic Bravery* carried already has fouled miles of beach and destroyed thousands of sea creatures. What if she had been fully laden? By the grace of our own good fortune, only one serious accident so far has involved a full cargo of oil. That was the 206,000-ton Shell tanker *Metula*, which went aground in 1974 in the Magellan Strait in one of the world's richest marine-life areas. The remoteness of the area saved the ship from the publicity it deserved. No attempt was made to clean up the enormous amount of oil that went ashore, and, according to United States experts who investigated the pollution, it will remain lodged on the beaches and in the inlets for perhaps another ten years, continuously affecting life.

It is against this background that we must consider the environmental risks of big tankers and the legal means of ensuring that they do as little damage as possible. The economic plight of the tanker owners does not mean relief from the problem of pollution. Far from it. It means that the dangers are immensely greater than they have ever been, and that they will increase rapidly from now on. For the world tanker fleet is now dominated by big ships, and these vessels will carry most of the world's oil for years to come. Tanker casualties have always been high, but up to now the accidents have mainly involved smaller ships because these dominated the world tanker fleet. Accidents in the future will happen mainly to big ships because they are the ones we will have. Accidents will be caused by sudden foundering owing to structural failure, engine-room flooding, explosion, or breakdown, which have been among the principal causes of small-ship losses. Accidents are also caused by bad navigation, collision and misjudgment.

Aside from all these conventional hazards, the big ships take us into entirely new areas of risk, which could mean that their accident rate will be even higher than that of smaller tankers. Their explosive risk has proven more unpredictable, they are immensely more difficult to maneuver, and they offer a special danger because of their great draft. They also present a special danger because, unlike smaller ships, they are almost constantly at sea. As a result, their crews suffer greater psychological deterioration, which means that efficiency can be seriously affected.

The head of the Shell Oil tanker fleet (since retired) told me in a tape-recorded statement that his own experience proved that small ships, which move constantly in and out of port, were a smaller risk than big ships, whose long voyages resulted in a decline of efficiency after a certain period. In this regard, big ships are now operating at sometimes half their normal service speed of fourteen knots, prolonging their voyages and creating the depressing effect of hardly moving at all.

Tanker owners are cutting every corner possible in maintenance and operation of their vessels to save what they can and where they can. Not only do they have huge financial burdens imposed by laid-up and unpaid-for ships, but inflation has raised all ship operating costs to very high levels. Therefore we face immediately the problem that hundreds of giant ships laden with immense quantities of oil are operated by seamen who spend more time on board and who are under orders to keep running costs at a minimum.

For the past eighteen months, marine underwriters have been issuing alarmed statements about these conditions and the rising curve of big-ship losses. Anyone who reads the maritime trade papers will know what I mean. In fact, in its issue of March 11, 1976, the leading international shipping weekly, *Fairplay*, carried the first of several articles on very big supertankers and their problems under the headline "Large rewards losing appeal against the big risk."

Fairplay is to the shipping industry what the *Wall Street Journal* is to American business, and the problems it outlined are the very ones which the oil industry and the tanker industry have spent millions of dollars

Noel Mostert is the author of Supership. *The article printed here is adapted from a statement written for the Sierra Club Office of International Environmental Affairs for presentation to the fourth session of the Third UN Conference on the Law of the Sea.*

in denying. I will quote the article extensively because, for once, the oil and shipping industries will have to carry their denials to their own trade press, should they, in this instance, wish to make them.

> The stranding of the 275,000 ton *Olympic Bravery*, together with the recent loss of the 224,000 ton *Berge Istra* has emphasized the high rate of casualty that has been suffered by large vessels in recent years.
>
> Unlike the large passenger vessel, with which they compare in size, the VLCC [Very Large Crude Carrier] has only one deck—its main deck—and below that it relies solely on its internal tank bulkhead construction and shell plating for its strength. Contrasted with the normal operation of the large passenger vessels, the VLCC must be able to meet a monsoon this week and an Atlantic gale the next, subjecting it to severe hogging and sagging, with broad decks subjected to the weight of tremendous quantities of seawater because of low freeboard. Other stresses and strains will occur when a vessel which was empty a few hours before has many thousand tons to lift as rapid loading takes place. At discharge ports, the vessel may only be able to dock at high tide and delays may result in the ship sitting on her bottom plates before the draft can be lightened sufficiently for the available water.
>
> The very structure of the VLCC is controversial. In the early '60's the Japanese, alarmed at the cost of the old-fashioned methods of riveting giant ships, pioneered many of the early constructional techniques of VLCC construction. In October 1972 this led the Japanese Ministry of Transport to censure two of Japan's biggest shipyards (Ishikawajima-Harima and Kawasaki) for negligence in construction. Fifty-five VLCC's were called in for repairs.
>
> Hull underwriters are confronted with entirely new factors of risks when they rate tankers over 200,000 d.w.t. [deadweight tons], perhaps the most serious concerning draft. It seemed that one aspect of operating VLCCs, which had not perhaps received enough attention from the shipping industry, was the fact that the hydrographers had not kept pace with demands.
>
> Other problems are structural weakness which may arise in service, availability of graving docks, adequacy of tugs to handle VLCCs if they run into trouble and an adequate supply of competent masters. Basic underwriting rates are based on deadweight tonnage and on value. Certain repair costs could be roughly pro rata to size—for instance, damage by fire, stranding, grounding, collision, etc.—but a bigger vessel may still have only one propeller, one shaft, one engine, it does not need to be drydocked more frequently, crew's wages do not grow in proportion, nor does the capacity of any necessary tug. On the other hand, plates are thicker and more expensive, bridge equipment more complicated and expensive in a new ship, larger drydocks are less readily available, and everything is bigger and yet just as vulnerable to damage.

It is academic at this point to discuss whether we should or should not have these ships. Certainly every argument to justify them has completely collapsed, and the principal of these is the argument that they help reduce the price of oil. On the contrary, the evidence today is that they probably have increased it, once all economic considerations are taken into account. Aside from the fact that there was no conspicuous reduction of the price of oil when the tanker owners were making conspicuously large profits in 1972/73, the fundamental economic fact of these ships is that their profitability is calculated upon full employment during the life of the ship, a laughable concept these days. As Dr. P. D. McTaggart-Cowan, Executive Director of the Science Council of Canada, who undertook exhaustive studies of these ships and their impact, told me,

> If one includes the external costs, such as the creation of very large and sophisticated new unloading and docking facilities, and makes allowance for other than full employment during the life of a ship, the perceived economies of scale in very big ships have quickly become figments of the imagination of the financiers. Ultimately, the consumer pays. I suggest that this would be the case without any allowance for potential environmental costs.

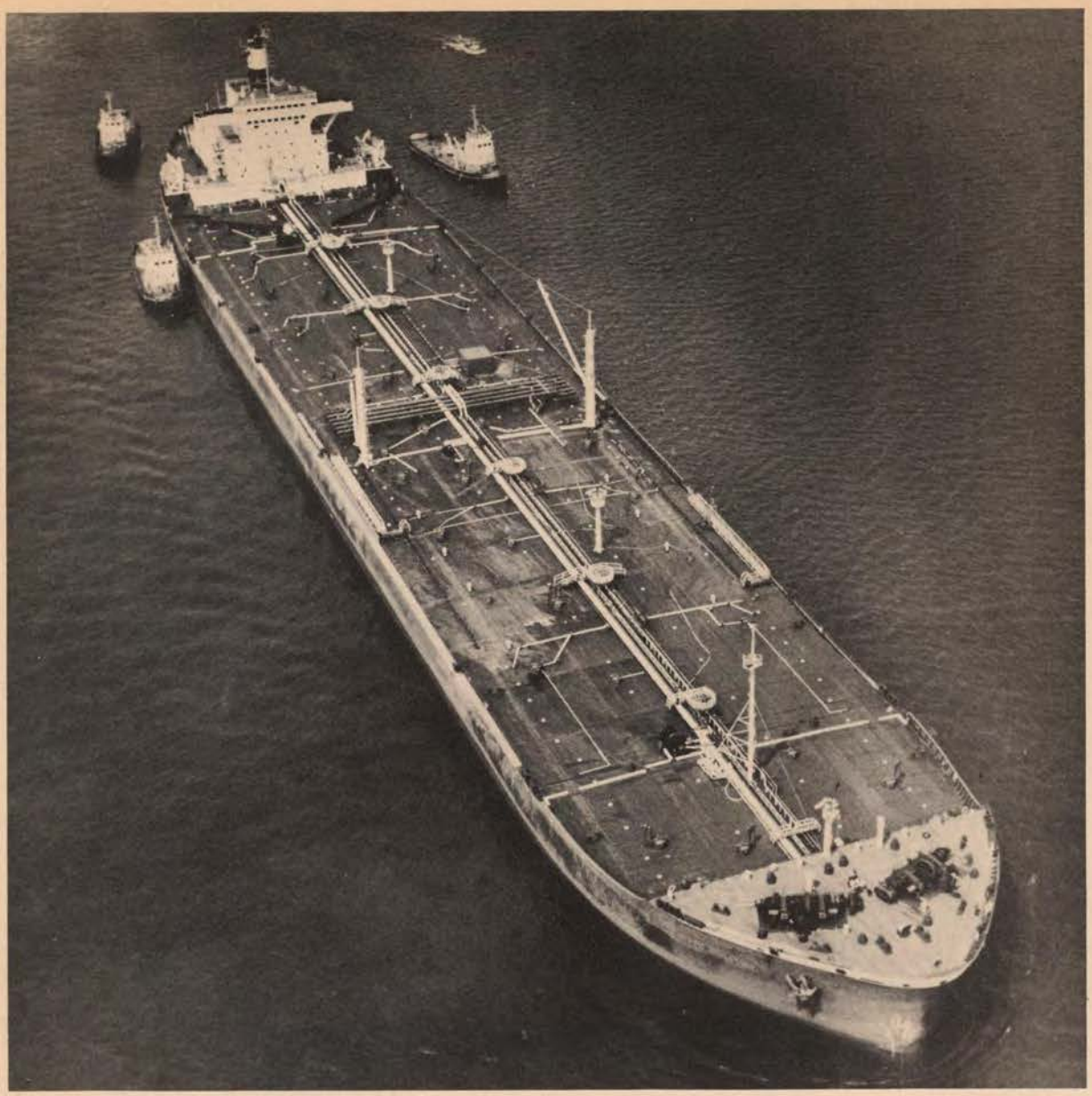
The most exhaustive technical paper on big ships to be published in the United States, "Tankers and the U.S. Energy Situation," which was read to the December 1973 meeting of the Philadelphia section of the Society of Naval Architects and Marine Engineers, declared unequivocally that ". . . adverse environmental effects or the costs of providing off-shore terminal systems could outweigh any transportation savings of large tankers." That paper, incidentally, was wholly in favor of big ships. But, like practically every serious study of the big ships, it made nonsense of the principal argument in their favor.

The point these days is that we are stuck with big ships. They are the ones that we have, that will move the oil and that we must now think about and contend with. What we must also firmly accept is that the oil has to move over the seas, that to imagine we can dispense with oil tankers is ridiculous; they become daily more necessary than ever. Oil consumption remains vast; economic recession in the developed world, in Japan, Europe, and North America especially, has not meant that oil consumption has fallen drastically, but rather that consumption has not increased at the spectacular annual rate it did through the sixties and early seventies.

Shipbuilding boom

The cause of the present slump in the tanker industry lies with those big annual increases in consumption that characterized the sixties. The tanker owners and oil industry believed such increases would go on forever. Tanker owners in the late sixties and early seventies were making so much money, anything from four- to seven-million dollars profit on a voyage, that they began ordering ships at an unprecedented rate. The world entered the biggest shipbuilding boom in its history. In 1973, tanker owners ordered as much tonnage as already existed: that is, they doubled the world's tanker fleets, which already accounted for forty percent of world merchant tonnage. They did so because they were paying for their ships in just a few voyages, but they killed their own golden goose, the tanker market, by smothering it with too many ships. The most generous and conservative estimates within the tanker industry indicate that the surplus of ships will remain until the early 1980s, which means that the tanker owners are going to be in very rough financial water until then.

We are, of course, not so much concerned with the financial health of the international tanker community as we are with the consequences of their folly upon the environment. In 1975, the National Academy of Sciences told us quite clearly why we should be worried about tankers. In a report titled "Petroleum in the Marine Environment," which is by far the most painstaking and comprehensive document of its kind in existence, the Academy estimated that at least 6.1 million tons of oil go into the oceans every year and that the single biggest source is the oil tanker and its operations. I myself consider the Academy's figure to be extremely conservative because it is based on statistics supplied by the oil industry and which I myself question. Nonetheless, it is symptomatic of the sort of mis-



leading public information provided constantly by the tanker industry that, five months after the Academy's report had been published, the industry claimed at a press conference in London that "the hard fact is that the seas are now cleaner of oil than before the mid-sixties." This statement was offered by Mr. Robin Sanders, principal information officer of the P & O Line, which is the largest of Britain's independent tanker owners. Mr. Sanders either didn't know what his own industry knew, which is inexcusable in an information officer, or he didn't know of the existence of the Academy's report, which is equally inexcusable.

The Academy report tells us that tarry masses are appearing in increased quantity in formerly unpolluted areas such as the east coast of Africa, areas of the Mediterranean and many islands in the Indian and Atlantic Oceans; and it tells us that scientific experiments show that these tarry masses originate from the tanks of oil tankers, and from bilge discharges.

Most of the pollution we have suffered so far has been caused by oil tankers washing their tanks with seawater and then flushing that water back into the oceans. But insurance statistics indicate that we are now moving into the era of the giant spill caused by mishaps to very big ships. Both tank discharge and mishap are to a considerable extent the result of bad management and bad shipboard practice, which in turn can be laid to the fact that a majority of tankers are registered under flags of convenience, where the terms of service, seamanship and regulation leave much to be desired, to say the least.

But it is nonsensical to put the entire blame on flags of convenience or to pretend that if they were removed from the oceans the problem would be solved. Obviously it is better to have ships manned by properly trained people and answerable to the maritime laws of Britain, the United States, Japan or Scandinavia. But that is no guarantee that we have moved into a better world. Far from it. The independent owners are mostly nationals of responsible maritime powers, and their fleets are often divided between their own and various flags of convenience. They have served only their own interests, not the public's. They have fought every

measure to make tankers stronger and safer, and they have misled the public at every turn. Even when standards are good, the nature of tanker life, with its boredom and its psychological deterioration, can bring serious hazards. The chief officer aboard the P&O tanker on which I traveled told me that on another ship of the same size the master had ordered him to lay course in the English Channel against the traffic (as a safety measure ships in the Channel and other high-hazard areas move in separate lanes, downbound and upbound). Last November a 250,000-ton Onassis tanker and a British warship collided in the Channel, and the accident caused a serious oilspill. The accident was attributed to misjudgment aboard the Royal Navy ship, whose personnel could scarcely be more highly trained as seamen. When accidents thus happen as a result of the judgment of the most skilled of sailors, all the more reason to demand the absolute maximum in precaution. The independent ship owners, regardless of whether they are under the flags of convenience or not, have, through their repeated attempts to prevent or delay or misrepresent stronger regulations for their ships, long since disqualified themselves for public sympathy. The tanker business would be better off without them.

Larger market share

The oil companies have indicated that they will be taking a larger share of the tanker market in the future: far better to use their own idle tonnage than charter an outsider's. This, I believe, is an excellent trend, if it gets the independents out of the business. The oil companies, with an anxious eye on their public image, are more careful about their ships, and in any event they are more accessible in the event of damage than a flag-of-convenience owner whose ship is locked inside a multitude of legal complications. (Every Onassis ship was at one time a separate company.)

I am not going to deal with the many good laws passed by the International Maritime Consultative Organization (IMCO), which, commendable and necessary, nonetheless are, to all intents and purposes, ineffective because there is no legal means of truly enforcing them on the high seas.

Some strong form of control is desperately needed for the tanker industry, and the opportunity has never been better. There is only one effective means of controlling the pollution and destruction of the seas by tankers, and that is through strong local laws imposed by the states to which they sail. This suggestion has been vigorously opposed by the tanker and shipping industries, and will continue to be. They have always preferred voluntary efforts, but these have never been good enough because they will never spend a penny unless they have to and, besides, they have resisted every single measure of merit, such as double bottoms, and reduced tank sizes, because these would cost more. Instead, in 1968, they managed through their influence at IMCO to get permission for tankers to load heavier cargoes and to carry full summer loads through the winter zone off the Cape of Good Hope.

The appalling degree of cynicism in the industry can only be judged by another quote from *Fairplay:*

> To shipowners not involved with the desperate problem of employing millions of tons of seemingly unemployable crude carriers the new role of the tanker owner as an enthusiastic exponent of ecology may seem a little bizarre.
>
> After years of pressing for deeper loading, and fiercely resisting all changes that would reduce the carrying capacity of their ships, suddenly all tanker-owners are passionately interested in the environment and are discussing with enthusiasm the advantages of double bottoms, segregated ballast and redrawn load lines that will hopefully use up some of the huge surplus of unwanted tonnage.
>
> Of course, like the oil saving speed limits that were forced upon road users in the wake of the OPEC price increases, subsequently being retained because of the lives that were being saved, the proposed changes to the load line rules and the requirements for segregated ballast will be easy to make but very hard to repeal.
>
> Once these changes are invoked as a safety or oil pollution preventative measure it will be almost impossible to go back to the bad old days of deeper loading and no ballast.
>
> The principal advocate of these measures to "use up" surplus tonnage has been the International Association of Independent Tanker Owners.
>
> (8 January 1976, p. 7)

Nothing I have seen or heard or read in five years of research on tankers conveys more explicitly the appalling double standards of their owners who, through the United Kingdom Chamber of Shipping, denounced at a press conference in London in May, 1975, the idea of double bottoms and praised large tankers generally as among the safest and most reliable craft afloat.

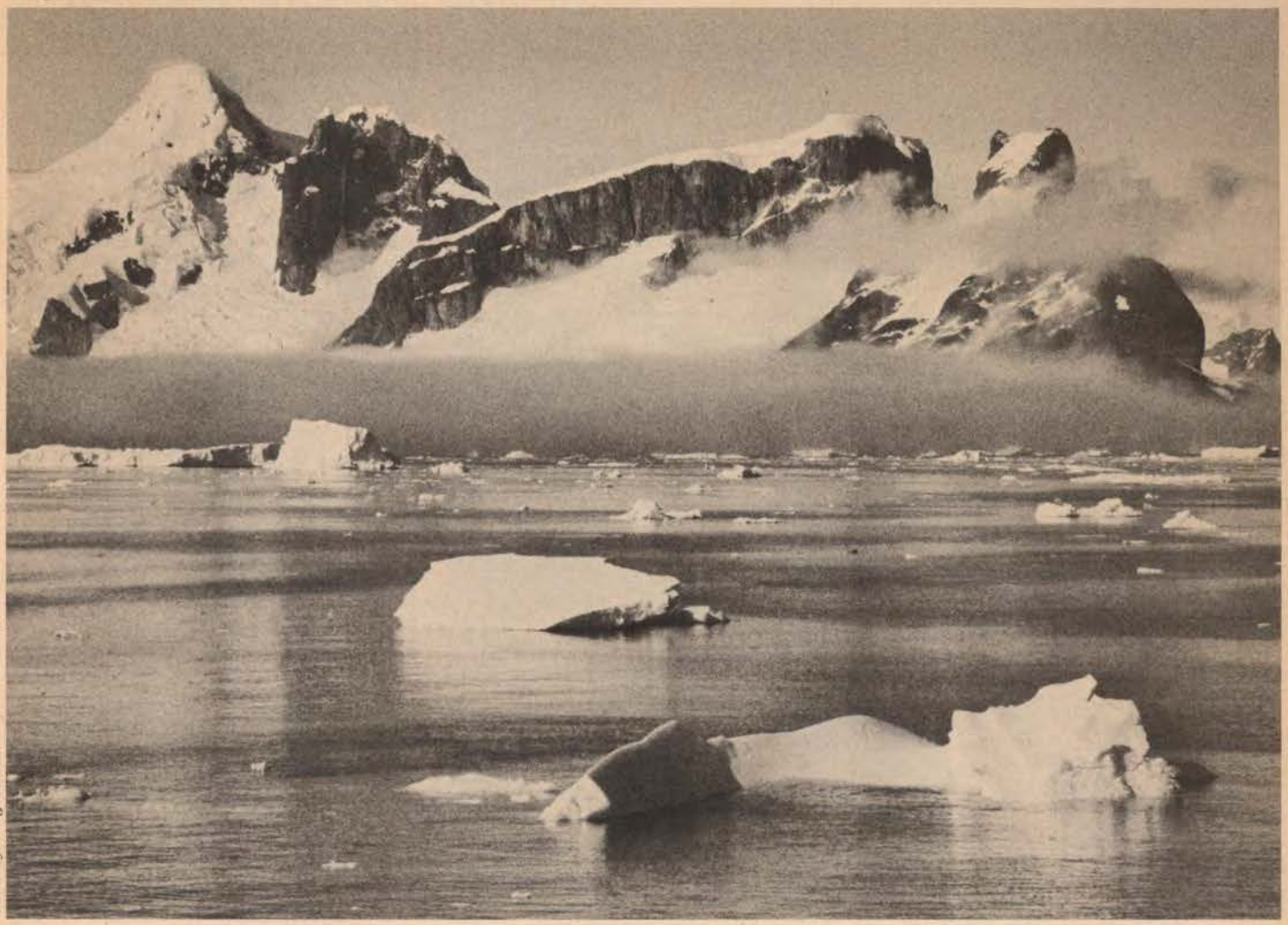
Not only should their every suggestion as quoted by *Fairplay* be accepted, but they should be given a time limit within which to apply them. IMCO is hopeless as a means of applying this, because of the very length of time involved in making legal any of its regulations and, as mentioned earlier, because of the lack of means of proper enforcement.

Meeting standards

Nations should now individually draw up codes that not only embody the aforementioned proposals from the industry itself, but that establish firm rules on standards of tanker operation, crew health and training, service, etc. The Canadians already are establishing such a system. They will use computers to provide available information on ships approaching their ports. If any vessel fails to meet accepted standards, it will either be fined, or refused admission. Only through this national unilateral approach can we hope to start to minimize the pollution caused by tankers. If, through economic recovery, oil imports once more start rising in Europe, Japan and North America, the present high rate of big-ship accidents will certainly increase. No coast can afford the pollution of a major VLCC disaster, but I fear that within the foreseeable future many will.

I am aware that this advocacy of a national unilateral solution might seem contrary to the idea of a universal Law of the Sea. But I advocate it because it is, finally, the only means of enforcing what is really required. Ultimately, IMCO should be given the sort of powers that the United Nations gave the International Civil Aviation Organization (ICAO), which was established by international treaty with a mandate to write its own regulations and forms of compliance. This sort of authority has allowed ICAO to set down the principles of international aviation and have them accepted by every nation on earth, whether they were signatory to them or not. Until such power is a reality for IMCO, and the Law of the Sea should make some initial effort to see that it is, individual nations must set the standards for tankers using their ports. **SCB**

Big Stakes at the Bottom of the World



Photos by George Holton

Antarctica up for Grabs

Edmund A. Schofield

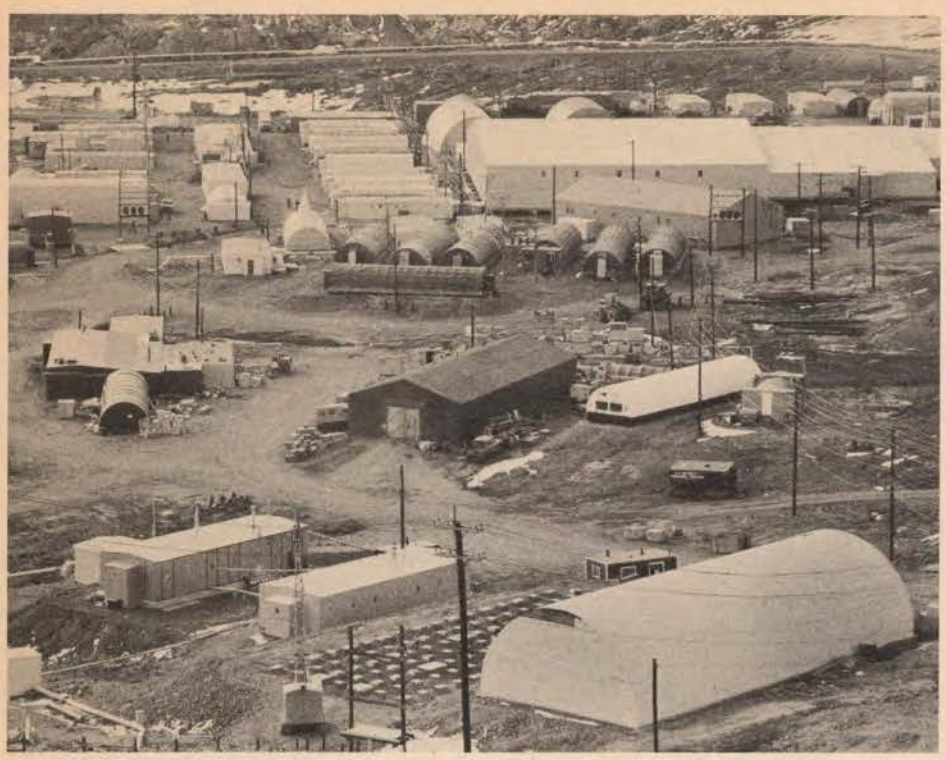
ANTARCTICA, a showplace for international scientific cooperation since 1957, may soon become an arena for economic squabbling and resource exploitation. Recent evidence indicates that large deposits of minerals, including natural gas and possibly even oil, may exist in Antarctica and under its continental shelf. Predictably, in distant board rooms and government offices, men with a quick grasp of their own best interests have begun to count and confer, assessing their chances at the bottom of the world. The remarkably enlightened Antarctic Treaty, in many ways a unique document, has governed international relations on the continent since 1961, but may soon face revision to accommodate purposes other than the purely scientific. The treaty nations have scheduled an official meeting in Paris, beginning June 29, to discuss the subject of mineral exploration and exploitation in Antarctica "in all its aspects in relation to the Treaty." The results will serve as the basis for further discussions next year.

The Antarctic Treaty was born of the spirit of international cooperation that characterized the International Geophysical Year (IGY) of 1957-58, when Antarctica was selected for special study. Subsequent discussions among the twelve participating nations led to the adoption of the treaty. Under its terms, Antarctica has been reserved for peaceful purposes: military uses are prohibited and international cooperative research specifically encouraged. Whether this spirit can survive the expected rush to cash in on the continent's valuable mineral resources is a matter of speculation.

Comprising one-tenth of the earth's surface, Antarctica is intimately linked to the rest of the planet's biological and geophysical systems by ocean currents, atmospheric circulation and animal migration. Enormous amounts of energy and matter are continually entering and leaving the Antarctic by these pathways. Its enormous ice cap contains eighty-five percent of the earth's ice and, by reflecting most of the solar heat it receives, exerts a profound influence on climates, and hence, life-support systems, even of regions in the Northern Hemisphere.

One large, uncontrolled oil spill under an ice sheet could absorb vast quantities of solar energy that otherwise would be reflected to space, with devastating consequences. In Antarctica's stormy waters, where winds up to two hundred miles per hour have been measured, oil spills would be the rule rather than the exception.

The exploitation of Antarctica's resources might also result in serious pollution of the world's oceans. Frigid waters flow north from the Antarctic beneath the warmer waters of the In-



dian, Pacific and Atlantic oceans, ending up in some cases in the Northern Hemisphere. Thus, pollutants of all kinds could be transported many thousands of miles in the deep Antarctic bottom waters.

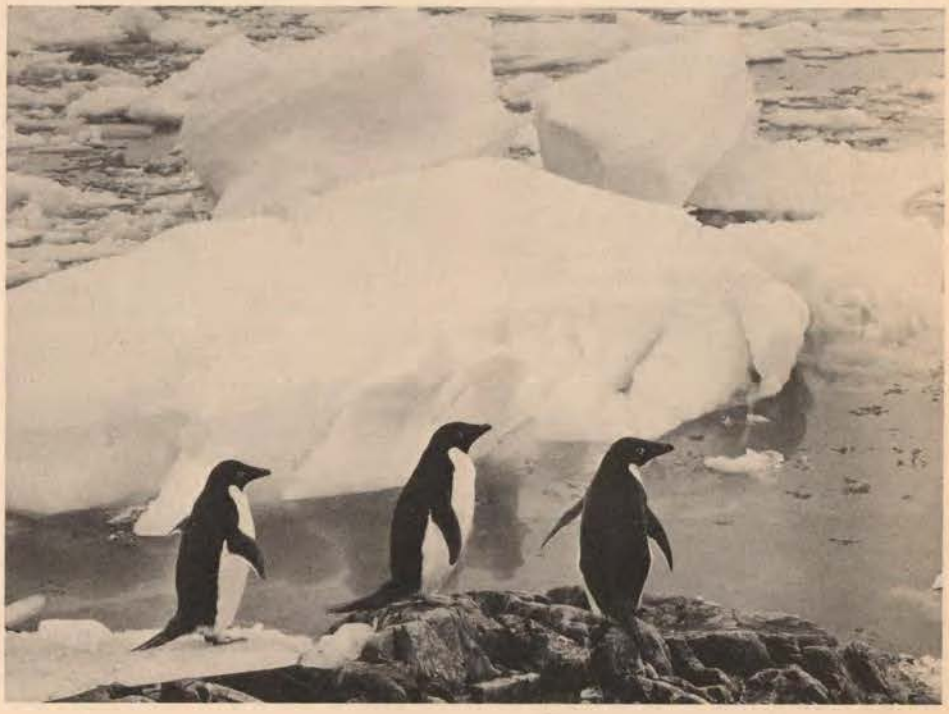
Even now, the very presence of scientists with their power driven vehicles and space heating installations inevitably introduces pollution. Disposal of wastes is a difficult problem. And although there has so far been little tourist activity, if it increases, there could be deleterious consequences.

Oceanic currents also carry pollutants *to* Antarctica. Ten years ago, scientists discovered that penguins and other animals in the region, where pesticides have never been used, contained measurable amounts of DDT and related compounds—even though the animals never leave the area. The implications of this discovery are serious both for marine life in general and perhaps even for humankind. For even by global standards, Antarctica's marine ecosystems are extraordinarily productive, and if exotic compounds applied thousands of miles away can contaminate them, pollutants originating within the region will have an even greater impact. For millennia, whales have annually migrated into Antarctic waters to feed upon the billions of tons of shrimplike krill that live there. Penguins and other animals also feed on krill, and human beings are beginning to harvest them as well. At a time when world food supplies are dangerously low, proposals that could disrupt Antarctica's bountiful marine environment and possibly the world's climate as well, must be considered carefully.

Mineral exploitation would also endanger Antarctica's own unique flora and fauna. Many species of oceanic birds rely on the region for nesting and as a migratory feeding ground. Both migrants and nesters depend on a healthy marine environment, but in addition, nesters require ice-free sites near the coast, the very sites where human enterprise would be likely to locate its facilities. Some species of birds congregate in enormous colonies, making them vulnerable to oil spills and similar disasters. Entire populations could be wiped out in this way. The nesting birds enrich the infertile soil with essential nutrients derived from the teeming life of the Antarctic Ocean, permitting a few microscopic organisms and even fewer visible plants to inhabit the harsh terrestrial environment of the continent. Thus, much of what happens to Antarctica's marine environment is bound to affect its own terrestrial ecosystems, not to mention marine life and weather patterns half a world away.

From the beginning, the Antarctic Treaty nations have given environmental protection a central place in their deliberations. Their "Agreed Measures for the Conservation of Antarctic Fauna and Flora" designate Antarctica as a "Special Conservation Area"; provide for the protection of its animals, plants and ecosystems; and prohibit the introduction of alien species. In addition, they have led to a system of "Specially Protected Areas," sites of outstanding scientific interest that warrant special care. Similar designations for marine areas and special research sites are now being considered. The treaty has also nurtured the "Convention for the Conservation of Antarctic Seals," which has been submitted to the treaty nations for ratification. Though weak in some respects, it is necessary because no other protective agreement exists.

While the conservation measures and



system of preserves set up so far by the Antarctic Treaty are commendable, their impact and overall scope are too limited. They are framed in too narrow a philosophic context. Their most serious drawback is that they do not preclude exploitation of Antarctica's mineral resources outside the designated preserve areas. Lost somewhere in all the rhetoric about environmental protection is the very first question that ought to be asked about the possible exploitation of Antarctica's mineral resources: not how, when or by whom, but *whether* to exploit them at all.

The Second World Conference on National Parks, meeting in 1972 at Grand Teton National Park in Wyoming, unanimously recommended that "the nations party to the Antarctic Treaty should negotiate to establish the Antarctic Continent and the surrounding seas as the first world park, under the auspices of the United Nations." After the conference, the International Union for Conservation of Nature and Natural Resources sent diplomatic notes to the twelve treaty nations calling their attention to the recommendation. None of the nations have replied.

More recently, Maurice F. Strong, first executive director of the United Nations Environment Programme and now director of Petro-Canada, in an address to the Thirteenth Pacific Science Conference in Vancouver, noted Antarctica's importance as an "environmental regulator on a global basis." He expressed hope that the twelve original signatories to the treaty would consider a moratorium on development of the Antarctic "at least until its consequences can be fully evaluated." He also endorsed the idea of an international park.

Is the spirit of the Antarctic Treaty in any real jeopardy? More important, is the integrity of Antarctica's wildness in danger? Right now, there are too many unknowns, too many imponderables, to give an unequivocal answer. However, the State Department has recently awarded a contract to the Ohio State University's Institute of Polar Studies, to prepare a Scope Environmental Impact Statement on the effect of exploration and exploitation of mineral resources in the Antarctic. The study should be completed by December, 1976. If, in response to escalating demands for mineral resources the United States decides to press for a revision of the treaty, we hope it will take the results of this study carefully into consideration.

In arriving at a decision, humanity should recognize that Antarctica, like the atmosphere and the oceans, is a world "commons" belonging to all peoples and all nations. Given its crucial role in influencing the world's climate and in maintaining the health of marine food chains, Antarctica's natural systems should be tampered with lightly, if at all—if ever.

Edmund A. Schofield is the Sierra Club's Research Director.

REGIONAL REPRESENTATIVE'S REPORT

Alaska: A Better Route for the Gas Pipeline

EVER since controversy began over the route for a natural-gas pipeline from Prudhoe Bay to the "Lower Forty-eight," conservationists have suggested that the pipeline should utilize existing transportation corridors and facilities and under no circumstances should go through the Arctic National Wildlife Range or the adjacent "National-Interest Land" proposed as a southern extension to the range. Measured against these standards, the Arctic Gas consortium's proposed primary route across the north slope of the range and its secondary route around the edge of the range are completely unacceptable. Although the El Paso Natural Gas Company's plan for a combined pipeline/liquefied-natural-gas system involves using the existing oil pipeline corridor and facilities almost all the way south to Prince William Sound, environmental problems also exist with this alternative—location of facilities in the sound itself and at Point Conception, California. The route preferred by environmentalists would utilize the existing pipeline corridor as far south as Fairbanks and from there would follow the Alaska Highway to the "Lower Forty-eight."

Although this route was analyzed by the Federal Power Commission (FPC) and the Interior Department in their environmental impact statements (EIS) on the two competing gas-pipeline applications, it remained until recently a largely academic alternative since no one had applied for it. Nevertheless, in its final EIS, FPC's environmental staff "strongly recommended that neither of the [two applicants'] proposals be approved as proposed." The staff preferred the Alaska Highway alternative to Arctic Gas' proposal and said that El Paso's pipeline should terminate in already-developed Cook Inlet, instead of Prince William Sound, and that facilities in California should be located at the port of Oxnard rather than at Point Conception (which has rougher waters and is largely undeveloped). Of these two preferred alternatives, the staff found the Alaska Highway route to be "the most environmentally acceptable system to transport Prudhoe Bay gas to the Lower 48 states."

Now, a new competitor has proposed to utilize the Alaska Highway route. Northwest Pipeline Corporation has announced it will file an application with the FPC for permission to construct the Alaska segment of a pipeline down the Fairbanks/Alaska Highway corridor. Its Canadian partners would build the segment through Canada, connecting to existing pipelines in northern British Columbia and Alberta, which already reach to the sixtieth parallel.

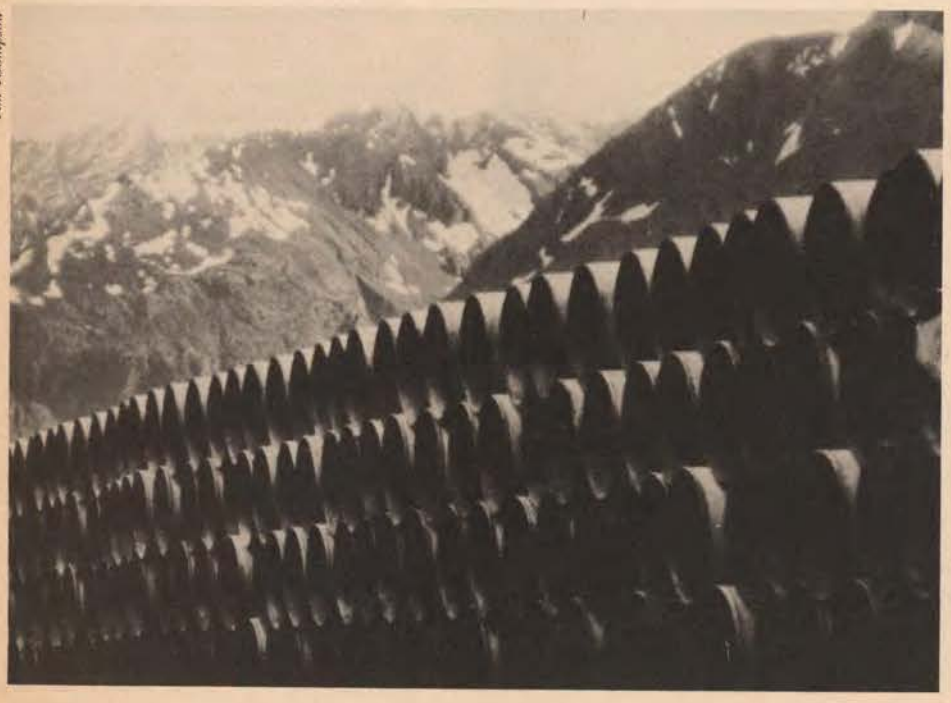
A proposal with such apparent environmental advantages deserves careful scrutiny by the FPC. Northwest Pipeline is not expected to file its application until July 9, however, so there is a chance it will not be admitted to the FPC proceedings. Administrative law hearings have been under way for months, and the judge is eager to finish them soon. In Canada, the lateness of Northwest Pipeline's application should not be a significant problem. The company has said: "Since the National Energy Board of Canada has had to begin anew its hearings on competing Canadian routes, we do not believe our filing will delay regulatory approvals. Rather, we are convinced it will prove helpful to both countries in determining the best possible method of transporting frontier gas to their respective markets."

Should the FPC not accept Northwest Pipeline's application, the opportunity for Congress to give the Alaska-Highway alternative equal consideration will have been compromised. The Department of the Interior's EIS analysis of this route was necessarily superficial, since the agency did not have a specific plan before it. This is why it is essential that Congress direct the FPC to conduct administrative law hearings on the highway option. Bills are now pending in Congress that would set procedures for congressional and presidential review of the FPC's ultimate choice. It will be up to conservationists to ensure that Congress orders a full FPC study of this new proposal.

Both Arctic Gas and El Paso are unhappy with the new competition and may try to rally their political allies to block careful consideration of the highway route. Senator Mondale, for example, has twenty-six cosponsors on Arctic Gas' bill to approve that company's line, and Governor Hammond is under extreme pressure from local chambers of commerce to sell Alaska's share of Prudhoe gas to companies promising to build an "all-Alaska" line, i.e. from Prudhoe Bay all the way to Prince William Sound.

The issue now is whether Congress can be persuaded to look at all the choices rather than just those offered by the companies who got there first when we knew the least.

Jack Hession
David Levine



Tim Thompson

WASHINGTON REPORT

Brock Evans

Domestic Politics and International Problems

BECAUSE decisions made by the United States often affect the entire globe, it is natural and inevitable that nations with a vital stake in such decisions should attempt to exert influence here in Washington. The presence of the so-called International Establishment is one of the features that makes Washington such an exciting and interesting city. Foreign flags on big black limousines whisking over to the State Department, a babble of tongues in the local supermarket, an incredible number of superb ethnic restaurants—these are some of the outward manifestations of the city's cosmopolitan outlook.

But we are concerned with what goes on behind the scenes, with the ways in which decisions are made, decisions affecting not only foreign policy but environmental concerns both here and abroad. For example, the Administration's decision to grant favorable terms for export licenses to American timber companies resulted in an increase in cutting in the virgin forests of the Pacific Northwest, timber destined for sale to Japan. A decision by the Department of Transportation to fund road building in Panama can in effect destroy some of the wildest lands on earth. Any number of foreign-aid proposals can result in projects abroad that serve to diminish or destroy the world's rapidly vanishing wilderness and wildlife habitat.

These kinds of decisions are made every day here, but they rarely get into the news, even though questions of foreign policy occupy a great deal of the time of Congress, the Administration and certainly the press. The concerns of the International Establishment are easily the most glamorous in the city.

During the last week of April alone, hearings were being held in Congress on such varying issues as European security, Cambodian relations, human rights in Chile, the Panama Canal, foreign investments and funds for Radio Free Europe. The debate over the new treaty with Spain received a great amount of attention in the press; hearings held by the House Merchant Marine and Fisheries Committee to consider an embargo on products from all foreign states engaged in commercial whaling received almost none.

But that's the way it goes, and our day-to-day attempts to secure a greater consideration of the environmental implications of international decisions must go on in any case. For the most part, our efforts in this respect are the same as those we direct toward domestic questions—testifying before key committees, drafting or supporting amendments to legislation, attempts to delete appropriations, lobbying for votes on the House floor.

One such effort already underway may well be resolved by the time this article is read, namely the attempt of the Sierra Club and other organizations to persuade Congress to increase the annual appropriation for the United Nations Environment Programme (UNEP). The United States promised at the 1972 Stockholm Conference to pay a share of the program, about ten million dollars a year, but this figure has never been attained. As a result, quite a few promising environmental projects around the world are faltering.

Although the techniques of influencing legislation on international questions is largely the same as for domestic issues, the cast of characters involved is vastly different. Normally, on domestic matters, we are used to dealing, or being in conflict with, specific industries, trade associations and congressional committees. The international arena—the foreign affairs committees—is usually different, as are the players. A random thumbing through the lobbyist's bible, known as "The Washington Influence Directory," which lists almost two thousand groups, turns up some interesting names: the American Hellenic Institute Public Affairs Committee, the American Israel Public Affairs Committee, the Canned and Cooked Meat Importers Association (Argentina), the Taiwan Fireworks Manufacturers Association, the International Economic Policy Association and many others. Some of these groups have obvious purposes, others are more obscure. Some are represented by high-priced Washington law firms; others have lobbyists of their own. There are hundreds of such listings, and the groups operate in every way possible to secure their ends—at the quiet embassy parties that seem to go on every night, in the immense and even quieter State Department complex or in the rough-and-tumble halls of Congress. Billions of dollars, millions of acres of land and vast commitments of resources and lives are often at stake.

Because international environmental matters have not traditionally been a major Sierra Club priority, this office has been unable to devote as much time to them as might be appropriate. Where possible, we work with allies more familiar with the international scene—various members of Congress and such groups as the United Nations Association, the Friends Committee on National Legislation and various church groups with an interest in environmental affairs.

The wide scope and large number of environmental issues before Congress that have international implications is indicated by the following sample, all of which have been under consideration so far this year:

- Controls on the exports of nuclear materials, which reflect the club's efforts to restrict the sale of these dangerous substances to foreign countries;
- International Energy Research and Development appropriations, where we have supported increased funding for safer and less environmentally harmful energy technologies;
- The House resolution to boycott products of countries engaged in commercial whaling;
- Legislation to regulate proposed mining in the deep ocean, an issue with profound implications for international law.

Indeed, even such issues as the recently passed law extending jurisdiction over fisheries to two hundred miles off our coast raise a host of international considerations. Other, ostensibly domestic issues also have implications for other countries: the proposed Arctic gas pipeline, for example, where the least desirable route would cross Canada after passing through the Arctic Wildlife Range. On this issue, as on similar ones, the Sierra Club, especially its Western Canada and Ontario chapters, works with other environmentalists in Canada to coordinate strategy and tactics.

The international scene in Washington is indeed fascinating and offers good opportunities as our awareness of international environmental problems continues to grow. We are all becoming increasingly aware that decisions made in this country can directly affect some of the most beautiful and important places on earth. It would be well if we had the resources to put more effort into influencing how decisions affecting these places are made. SCB

News

BLM Organic Act—a public-lands crisis

A potentially disastrous version of the BLM (Bureau of Land Management) Organic Act is being molded in the House Interior Committee. In its present form (at press time) H.R. 5224 would give special privileges to miners, stockmen, private cabin permittees, developers and local counties at the expense of responsible management for our public lands. Conservationists are fighting for the following amendments to H.R. 5224: (1) Deletion of the provision that automatically reopens BLM and National Forest lands closed to mining and requires Congress to scrutinize every Interior Department "withdrawal" of BLM and National Forest lands from mining; (2) Deletion of the provision that requires BLM to depend on county sheriffs and state police for enforcement of BLM regulations; (3) Deletion of the provision that prohibits the Interior Secretary from enlarging National Wildlife Refuges and Ranges; (4) Deletion of the provision that sets grazing fees below fair-market value, perpetuates biased "grazing advisory boards," and grants ten-year grazing permits to ranchers; (5) Deletion of the provision that requires the Forest Service to pay off private-home permittees if the land they occupy is opened for general public use; (6) Provisions to strengthen the BLM's review of wilderness, deleting the loophole that allows wilderness study areas to be opened to development before Congress has decided whether to preserve them as wilderness; and (7) Deletion of the provision that gives state and local governments special influences over land-use planning for BLM lands and National Forests. Environmentalists feel that if these conservation amendments are not adopted the bill should be rejected.

Smashing legal victory for porpoise

In a surprisingly comprehensive decision by U.S. District Court Judge Charles B. Richey in Washington, D.C., environmentalists won a major victory in the ongoing fight to stop the increasing slaughter of porpoise incidental to commercial tuna-fishing operations. In his decision, Judge Richey banned the practice of "fishing on porpoise" with huge purse-seine nets that entrap these marine mammals along with the tuna. "Steps which ensure the protection and conservation of our natural environment must, almost inevitably, impose temporary hardships on those commercial interests which have long benefited by exploiting that environment," stated Richey in his decision. The ban is effective May 31, 1976. Although no appeal is expected, a massive attack on the Marine Mammal Protection Act, under which the decision was made, has been launched in Congress. *All Sierra Club members should immediately write their representative and senators urging them to hold firm to the letter and spirit of the Marine Mammal Protection Act of 1972, and oppose any weakening amendments which would give the tuna-fishing industry a permanent license to kill porpoise.*

BWCA: new life for old threats

Wilderness values in the Boundary Waters Canoe Area (BWCA) in Northeastern Minnesota are once again being threatened by timber interests, snowmobilers and motorboaters. At a recent hearing in Duluth, the Sierra Club was hung in effigy as club spokesman Charles Dayton testified that narrow local interests must not be allowed to dictate the uses to which this national treasure will be put. He stressed the inconsistency of motorized recreation with management of the BWCA as wilderness. In addition, legislation which would split the BWCA into a separate National Recreation Area and a Wilderness Area has been introduced in the House by Congressman James L. Oberstar (D-Minnesota). This bill, an attempt to resolve some of the controversy over the timber and motorized-recreation issues, concerns the club because some areas protected by current law from logging and intensive motorized use would not be under Oberstar's proposed legislation. When this bill is considered in Congress, your representative should know that the BWCA has important wilderness values that must be given full protection.

Energy legislation on the verge in Congress

Breeder reactor: Conservationists are supporting two amendments to the ERDA Authorization Bill affecting the Clinch River Breeder Reactor. These amendments to H.R. 13350 would require the federal government and private contractors to share cost overruns above $2 billion, and would require demonstration that a plant's operation would provide adequate protection for public health and safety before a construction permit is granted. **Energy Standards for Buildings:** The question of whether energy conservation standards for buildings should be mandatory or voluntary is the stumbling block in the way of final congressional passage of the Energy Conservation and Insulation in Buildings Act of 1976. Conservationists support the Senate's mandatory provision, but the House Banking Committee refuses to strengthen its voluntary language. No conference date has been set. **Solar Energy:** The prospects for a vigorous solar program look significantly more promising since the release of a dramatic new study which indicates that a ten-year research-and-development effort costing $1 billion could provide economically competitive solar electricity at any desired scale. The report inspired an amendment by Representative Jeffords (R-Vermont) to increase the authorized funding for solar energy by $116.2 million over the $229.2 million now in the authorization bill for fiscal year 1977. **OCS:** Important reforms in OCS oil-and-gas leasing and development, which will have critical bearing on the upcoming development of frontier areas in the Atlantic, Gulf of Alaska and California outer continental shelves, are contained in a bill, "Amendments to the Outer Continental Shelf Lands Act" (H.R. 6218), which may soon be acted upon by the House. H.R. 6218 faces many weakening amendments and a possible presidential veto.

News

Forestry bill mark-up completed in Senate—floor fight next

The Senate Agriculture and Interior Committees had just finished their joint mark-up of forestry legislation as we went to press. The product, still known as the "Humphrey Bill," S. 3091, although strengthened in several respects from the original woefully weak version, is far from strong enough to adequately protect our National Forests. The most significant changes made in committee were the addition of provisions to give some protection to the sustained-yield concept of forest management, and to restrict the Forest Service from uncontrolled logging in fragile and marginal parts of the National Forest System. During the floor fight, the Sierra Club will support a series of amendments to be offered by Senators Jennings Randolph (D-West Virginia) and Dale Bumpers (D-Arkansas) which would: (1) guarantee multiple use and sustained yield of timber; (2) give protection to Eastern mixed hardwood forests from excessive clearcutting; (3) prohibit excessive cutting of immature trees; (4) give better protection to critical wildlife habitat and plant communities; (5) require that all forest areas scheduled for timber sale be inspected by professional foresters first; (6) require the Forest Service to delay and give notice before it begins logging in any roadless area; and (7) further limit logging in economically marginal areas. *Although the Senate floor fight may be over by the time this reaches you, there is still time for letters, wires and telephone calls to your representative in the House. Please ask him or her to support strong timber-management-reform legislation similar to that proposed in the original bill supported by the Sierra Club in the House—H.R. 11894, authored by Representative George Brown of California.*

Land and Water Conservation Fund victory

By an overwhelming vote of 392 to 3, the House passed H.R. 12234, "Amendments to the Land and Water Conservation Fund," which will gradually increase the annual authorization of the fund to $800 million by 1980. An important amendment by Representative Keith Sebelius (R-Kansas) to delete language permitting use of the fund to build indoor skating rinks and swimming pools passed 248-147, and was included in the final House bill.

Toxic-substances bill bogged down

After five and a half years of effort to pass the Toxic Substances Control Act, the bill appears to be once again bogging down in Congress. The roadblock is Representative Harley Staggers (D-West Virginia), Chairman of the House Commerce Committee, who is refusing to schedule prompt action on the bill, H.R. 10318, thus eliminating the possibility for funding in the fiscal year 1977 budget.

Law of the Sea conference adjourns

Another step in the long march toward a new convention on the Law of the Sea was taken Friday, May 7, when the third United Nations Conference on the Law of the Sea adjourned an eight-week session in New York after receiving a revised version of a text to be used as a basis for further negotiations. During this most recent session, the Third Committee, concerned with protection of the environment, has worked on several aspects of marine pollution and research. Nations have been charged with the general obligation to preserve and protect the marine environment, and a number of treaty articles assigned countries specific environmental obligations. These include: (1) participation in future global and regional diplomatic conferences; (2) provisions for technical assistance, pollution monitoring and environmental-impact assessment; (3) setting standards and means of enforcement for the control of both land-based and vessel-source pollution and the dumping of wastes at sea.

The conference has scheduled another session at U.N. Headquarters to begin August 2, after a brief three-month recess. Still to be resolved are important conflicts over resource sharing, specific dispute-settlement procedures, and enforcement responsibilities for the control of pollution from ships.

Club News

Special awards presented at annual banquet

At its annual banquet in San Francisco, May 1, the club honored seven conservationists for their outstanding achievements. The awards and their recipients are as follows:

The **John Muir award** was presented to Jacques Cousteau for his work in increasing humankind's understanding of and concern for the ecology of the oceans. Captain Cousteau was the speaker at the dinner.

The **William Colby award** was presented to Ruth Bradley, wife of the late honorary president of the club, Harold C. Bradley, long time club leader and founding member of the Sierra Club Council.

The **Walter A. Starr award** was presented to Raymond J. Sherwin, former director, for his continuing contributions to the club as International Vice President (1973-1975) and as co-chairman of the EARTHCARE Conference.

The **Ansel Adams award** went to Scott Heppel of the Tennessee Chapter, creator of a widely acclaimed slide and tape show on the Great Smokies.

A **Special Achievement award** was presented to Michael Williams for his long-standing efforts leading to the recent discontinuation of plans to build the Kaiparowits power plant in southern Utah.

A **Special Achievement award** was presented to Nicholas Robinson for his leadership in the club's internatonal conservation efforts, especially the conception and carrying out of the first international wilderness conference, EARTHCARE.

A **Special Achievement award** went to Lorin Gill of the Hawaii Chapter for his work in developing and promoting the chapter's "High School Hikers" program and the Hawaii Service Trip program.

Board election brings new directors; dues increase

Three new members were elected to the Sierra Club's Board of Directors during the club's general election. They are: Mark Ganopole Hickok, an Anchorage, Alaska resident active in the Alaska Chapter; Ellen Winchester, current chairman of the club's Energy Committee, from Tallahassee, Florida; and Leslie V. Reid, a precision machinist from Los Angeles who chairs the club's Labor Liaison Committee.

Continuing on the board in addition to the five members of the Executive Committee (Calkin, Futrell, Cellarius, Smith and Gill) are: Phillip S. Berry, an Oakland, California lawyer; Kathleen Brown Bjerke, a Midland, Michigan university environmental-systems instructor; Joseph Fontaine, a science teacher from Bakersfield, California; John H. Ricker, a Phoenix, Arizona physician; Theodore A. Snyder, Jr., a Greenville, South Carolina trial lawyer; June Viavant, a student counsellor from Salt Lake City, Utah; and Edgar Wayburn, a San Francisco physician.

In addition, the membership chose to approve the first dues increase since 1971—from $15.00 to $20.00 for regular memberships.

Brant Calkin elected Club president

At its annual organizational meeting on May 1-2, the Club's Board of Directors elected Brant Calkin of Santa Fe, New Mexico, as its new president. Calkin, 42, a biologist employed as the Executive Director of Frontera del Norte Fund, is currently the chairman of the Governor's Advisory Committee on Wilderness in New Mexico and has served on many other governmental advisory boards in that state. He is also former chairman of the Club's Rio Grande Chapter. Other officers elected to the Board's Executive Committee include: Vice President, William Futrell, an Athens, Georgia professor of environmental law; Secretary, Richard Cellarius, an Olympia, Washington biology professor; Treasurer, Lowell Smith, a research physicist from Washington, D.C.; and Fifth Officer Kent Gill, a Davis, California English teacher and immediate past president of the Club.

Board action on solar energy

Solar Energy: The board revised a previous policy on solar energy. The augmented policy states:

The Sierra Club believes that solar energy can become an important source of power for our society. The Club supports federal, state, and local incentives for the commercial production and installation of small-scale residential and industrial solar collection systems, where the technology is already proven. The use of solar heating and cooling systems in new government buildings is encouraged by the Club whenever possible.

The Club supports increased federal and state funding for research, development, and demonstration in solar energy applications, with emphasis placed on the development and deployment of decentralized systems for both heating and cooling and for the generation of electrical power.

The Sierra Club supports the construction and testing of a limited number of demonstration central-station solar-electric power plants, providing that during the demonstration phase, the environmental, social, and economic impacts are completely evaluated and publicly presented by an independent body or panel not directly associated with the building of these plants.

The Sierra Club acknowledges the probable benefits of central station solar power plants over conventional nuclear or fossil fuel power plants. These benefits include minimal air pollution; a minimal transportation-support network; the elimination of hazardous chemical or radioactive wastes; and the elimination of mining. While recognizing that a solar-electric power plant may utilize as little as thirty percent of the land used by an equivalent fossil-fuel or nuclear plant when mining lands are included, the Club is nevertheless concerned about the widespread and indiscriminate deployment of large-scale solar-power systems because of the potential for requiring large areas of presently undeveloped land and for facilitating the continuing and escalating waste of energy in this country.

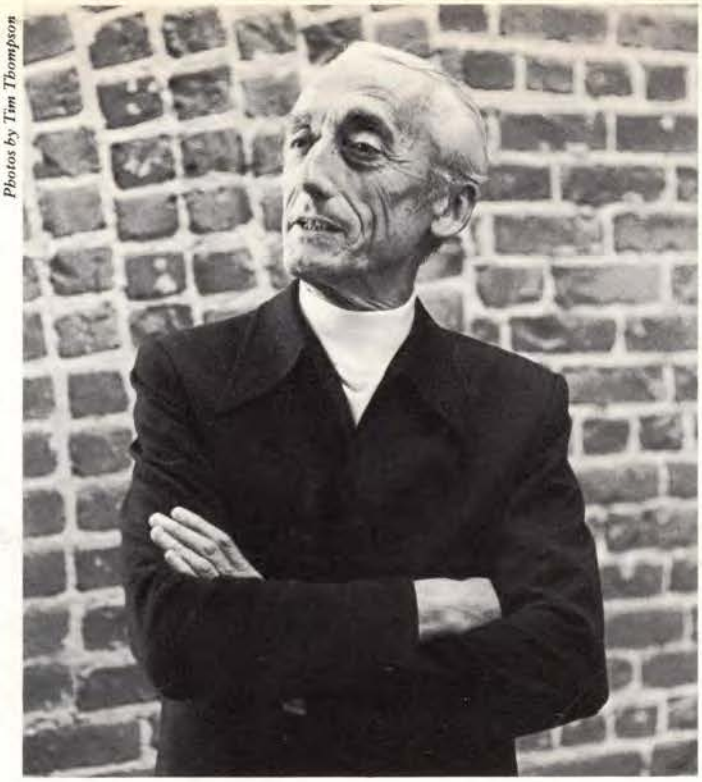
(It was understood that "transportation-support network" does not include transmission facilities.)

Board actions on full employment and B-1 Bomber

"Full Employment and Balanced Growth Act of 1976": The Sierra Club endorses the goal of full employment as embodied in the "Full Employment and Balanced Growth Act of 1976."

We will insist, however, that all federal funds expended under the provisions of this act be used for environmentally sound projects with priority given to environmental restoration, pollution control, energy alternatives and other projects designed to improve the quality of life.

B-1 Bomber: The Sierra Club requests that, consistent with existing federal law, the operational B-1 bomber program be subjected to the NEPA process leading to the development of a thorough EIS prior to the inclusion of the program in the federal budget.



Photos by Tim Thompson

Reasonable Utopias

JACQUES COUSTEAU

This article is the text of a speech given by Jacques Cousteau at the Sierra Club's 1976 Annual Banquet, which was held in San Francisco on May 8. On that occasion, the Club presented Captain Cousteau with the John Muir Award for his outstanding contributions to furthering an understanding and appreciation of marine ecosystems.

JANUARY 1973—Having crossed the Antarctic circle, *Calypso* heads south along Adelaide Island, en route to Marguerite Bay. I am on the bridge, to make a decision about sending my son Philippe in our helicopter, as our vanguard, to the British Station at the southern tip of Adelaide. A wind, force five, blows; the sea is agitated. On our path, scattered blocks of ice oblige us to alter our course occasionally. It is three o'clock in the morning. A low sun showers the scenery with a pristine, unreal pink dye. A cavalcade of huge tabular icebergs files across the horizon. Along the coast, a thick mist rises from the sea, and above, low clouds of cold steam. The majestic glaciers and ice-capped mountains of Adelaide emerge and stretch up toward a half moon of silver engraved in a purple sky. At a cable's length, a few orcas loudly cough their blows of vapor. Everything, here, is water: water solid, water liquid, water in fog and cloud, water alive, water immense, overwhelming, but, also, water little, humble, fragile. Surrounded by a majestic beauty that still haunts me today, I know that here, the sea is only a couple of degrees from freezing solid, that life teems at the edge of death. In the Antarctic, the vulnerability of our magnificent world is exposed, a message that we refuse to read.

Cruising three months in the Antarctic waters, flying 120 hours by helicopter in search of cetaceans, we have observed only two humpback whales, two groups of sei whales, half a dozen packs of orcas. Not one single blue, not a single finback! But everywhere, heaps of bleached bones, tragic monuments to human folly. The seals were scarce, but seal hunting was about to resume. Penguins proliferated, fattening from the krill left over since the slaughter of whales. But dead penguins were found, poisoned by distant pesticides, brought here by oceanic currents.

Every two weeks, a liner poured two thousand tourists on the Antarctic peninsula. The scientific stations, whatever their nationality, however conscious of the damage done their guests may be, are surrounded by heaps of litter that may accumulate there and will remain for near eternity. I knew that 2,000 miles from us in another part of Antarctica, the sinister silhouette of the first off-shore drilling ship announced the approaching new fate of the last near-virgin continent: today, investigations have discovered coal, gas, oil, iron and about as many ore deposits as in any other land mass.

Oh! I know that the Antarctic deep-sea coring operation was only for science! The tragic irony of the social systems we live in is that such a monumental hypocrisy is forged by very sincere people. The drillers, the sailors, the geophysicists are all working for scientific institutes; the results will be published in learned magazines. It is none of the scientists' business, by definition, to deal with what may be done with their findings. The geologist and the nuclear physicist work for the advancement of knowledge and wash their hands of any responsibility. This "Pilatic syndrome" has been institutionalized, so that inventors and finders simply surrender all their substance to the elected adventurers who rule our so-called democratic world. And, if at the end of a career, a respectable scientist revolts and protests, he will be given half a column of the 23rd page of a local newspaper. If Ivan Schmovik, candidate to the Presidency of Trans-

bosnya, sneezes, or declares that Albania interferes in the internal affairs of Transbosnya, every television network will invite him and give him prime time. But if Linus Pauling expresses his fears about the future of mankind, that is only matter for a brief note. The most formidable thinkers of our time have rarely access to the news, at most once or twice in their career, if they write a popular book. They have no access to electronic mass-media. (There are no decibels for Nobels.) It is high time the independent scientists realize that their duty is to help evaluate and control the applications of their findings. It is high time that all uses of science and technology be constitutionally submitted to the final rulings of a Scientific Supreme Court.

Our fears about the Antarctic have a special origin: a nostalgic feeling or premonition that the continent of ice may be our last wilderness. But everywhere else, abuses of technology and forgeries of information are even worse than in the Antarctic. Never before has the marine environment been misrepresented, and then raped, cut-up, poisoned, as it is today:

- All urban and industrial effluents from 500 million Europeans and Africans flows freely, practically without treatment, into the Mediterranean, the near-closed sea that was the cradle of civilization;
- Most large cities systematically dump their refuse offshore;
- Millions of tons of toxic chemicals find their way into the ocean through direct dumping, or indirectly in rivers or rain.

When the *Cavtat* sank off Otranto with drums containing hundreds of tons of highly poisonous lead tetraethyl, nations and companies quarreled, but nothing was done to defuse such a time-bomb. When in France the Supertanker, *Olympic Bravery,* the unsinkable pride of the Onassis fleet, recently ran aground in Ouessant, nothing was done for one full month until a storm broke the ship in two and generated a near-catastrophic oil spill.

On April 28, 1976, the barge *Sparkling Water* was rammed by the Colombian freighter *Tarrambi*, twelve miles southeast of Ambrose Light. Over one million gallons of highly toxic chemicals used in the manufacture of pesticides were dumped into the sea. The spill has already damaged some shellbeds, but the Coast Guard reports that the spill is drifting away southeasterly. So that the danger, being now "out of sight," is promptly set "out of mind," and everyone can go back to business.

Dumping nuclear wastes in the sea, after the irresponsible operations of France, the European Organization Euratom and the United States, was suspended because deep sea photographs had demonstrated that some of the drums were crushed open. Nevertheless, major grants are given today to resume this horrible practice, hopefully with a higher degree of ephemeral security. And licenses are

granted to extradite the dangerous nuclear power plants offshore, on floating barges. Madness could not go farther.

Meanwhile, swamps are filled, coastline development neutralizes the natural and only breeding grounds of thousands of species of marine creatures, huge industrial complexes are built on the seashores or along rivers, with no significant protection. Multinational corporations now build their plants in those developing countries that have no environmental-protection regulations. Overfishing is such that the whale population has decreased at least 92 percent. The catch of most commercial fish like herring, sardines, anchovies, tuna and swordfish has dropped by an average of 40 percent in the past ten years in spite of an increase in tonnage of the fishing fleet and in spite of the availability to industrial fishermen of scientific and technologic data. An estimate of two miles of coral reef is destroyed every day with crowbars to furnish souvenir shops, often those of scientific institutions, with shells and pieces of coral. Highly evolved creatures like dolphin and orca are exhibited as clowns in anti-educational marine zoos. Spearfishermen kill or scare away the last groupers and lobsters of the reefs.

This overview, far from being pessimistic or exaggerated, is, on the contrary, incomplete and carefully toned down. While I am talking to you, the most tragic masquerade of all times, the Law of the Sea Conference, is being staged. For two years, incompetent diplomats and government delegates work hard to turn around 180 degrees the recommendation of the Sea Bed Committee and of the very U.N. resolution that had given birth to the Conference. The debates reveal the exaggerated pretensions of national sovereignty of all coastal countries over a fluid, elusive element. International by essence, the sea is about to be sacrificed by virtue of a treaty that will butcher the ocean in pieces 200 miles wide, as if water was land; that delivers these moving, enormous areas to the good or bad will of each country; that fails to regulate the deep-sea resources; and that only reassures the conscience of the delegates with a parody of environmental recommendations.

Since the beginning, those who knew about the ocean were politely heard once and eliminated from discussions. The great absence of the conference was the Waters of the World.... At the Law of the Sea Conference, there was a lot of Law but very little Sea.

The Universe as we know it, whether the result of blind forces or created by God, originated 15 to 20 billion years ago. The initial explosion must have endowed the cosmic material with an unimaginable amount of energy. Our telescopes and radiotelescopes give us information about some aspects of the universe as they were as long ago as five billion years. We have data from a time span covering one-third or one-quarter of the age of the world. Such data have confirmed that ever since the beginning, an overall degradation of energy has taken place. The deterioration has been expressed in mathematical terms, and the quantity that has been imagined to measure it is called *entropy*. Entropy grows constantly, and as it grows, the

energy of the universe decreases and the cosmos evolves toward a final pattern of cold, simplified, immobile, dead chaos.

A very important peculiarity of all elements is that they are generally found in gaseous or solid state. Molten iron, molten rocks, are much rarer than solid or gaseous iron or rocks because they remain liquid in only a relatively narrow range of temperature. But the rarest liquid of all is water: first because even ice or vapor is extremely scarce in the universe, but also because water only remains liquid between 0° and 100° centigrade, a very narrow margin indeed.

If we zero in on the solar system, the earth is the only planet where liquid water is to be found in any appreciable quantity. And even that quantity is small. The United Nation's poster for Environment Day, June 5, illustrates a comparison that I had made in 1959: if the earth were reduced to the size of an egg, all the water in the oceans, the lakes, the rivers, the ice caps, would amount to one single drop, hardly capable of moisturizing the egg. When we contemplate the vastness of the ocean, it is only a measure of how minuscule our persons are. In fact, there is on our planet only a very small, very finite, very precious and very vulnerable water reserve.

In this large expanding and cooling universe, in at least one tiny corner, life was born. It may have been born in other places as well, but, needing water quantity and quality, life must be exceedingly rare. Life, as we know it, made its appearance in water about three billion years ago and still depends on water. The "life expectancy of life" on earth extends probably until the sun becomes a red giant, in another four billion years. The miracle of life, the adventure of life is not yet halfway through its possible existence, and as our species is about two million years old, the human race could continue to thrive 2000 times as long as it already has. In order to fully realize our responsibilities in the face of such a vast future, we must abandon our individual consciousness and develop a global consciousness. We must switch from the motivation of individual profit to that of profit for humankind.

Environmental consciousness must be founded on a critical analysis of the past 15,000 years. The conclusions of such an analysis are very surprising: 200 years ago, at the dawn of the industrial age, the situation was far less serious than today, but it was hopeless. The record of neolithic, protohistorical and historical man, engraved in fossils, deep sea cores and in buried or submerged vestiges, is a continuous record of irreversible man-made destructions:

- Countless animals eliminated by Asians invading America through the Bering Strait;
- The Sahara, a deep forest, destroyed and turned into desert by nomads and shepherds 8000 years ago;
- Arabia Felix, a garden that became a waste of sand;
- The idyllic Greek islands, deforested to build ships and provide homes with firewood, turned now into mere pieces of sterile rock;
- The Cape Verde islands, completely bare today, but described as paradises by Bartolomeu Diaz;
- Europe's wolves, bears, rain forests...
- Africa's jungles cut for timber, and so on.

All these acts of destruction occurred in 12,000 to 15,000 years. They were done very slowly, but they were irreversible, and these wounds have not yet even turned into scars.

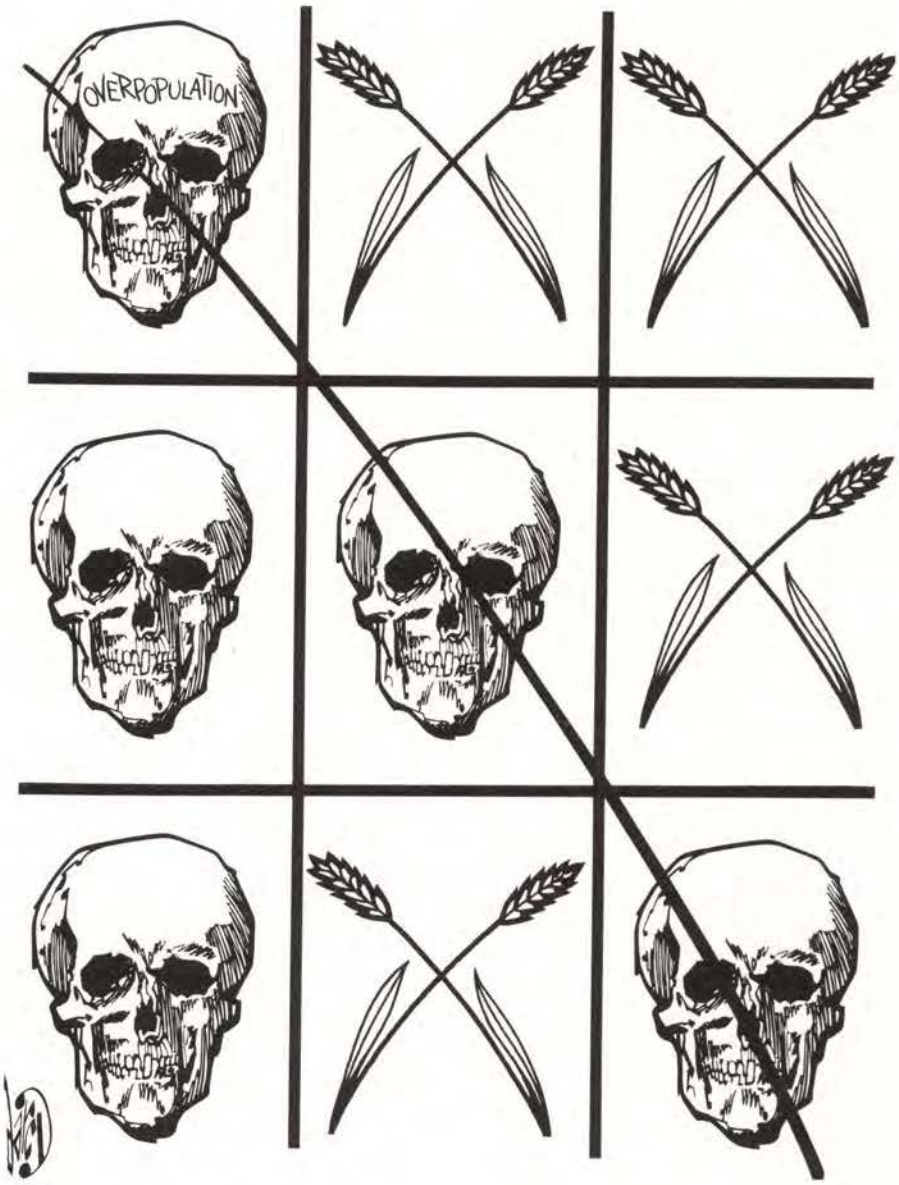
Today, in the fury of misguided progress, destructions have become exponential, hysterical, catastrophic! But, paradoxically, the same science and technology used for reckless pilfering of resources, have also developed, available on a shelf, all the means, all the solutions to reverse the trend. Yesterday, our ancestors did not know, and they could do nothing anyway. Today, we know, and we can, but we don't. We are living a nightmare, when our hands desperately reach for an easy, accessible cure, while incomprehensible forces paralyze us. Let us awaken from this nightmare, a world where any reasonable solution is declared utopian.

Meanwhile, the little pulse of life, thriving on water, still turns shining drops of water into living jewels. At least locally and apparently, life defies the universal law of degradation, creating highly complex organic molecules, organizing chaotic matter into unbelievably well-programmed structures of trillions of cells, like my grandchildren, for example. It is the contemplation of life that inspired Father Teilhard de Chardin to envision three infinities: in addition to the infinitely big and the infinitely small, Teilhard told us there also was the infinitely complex—life. This is what we should all be fighting for. **SCB**

The Population Institute's

CARTOON CONTEST WINNERS

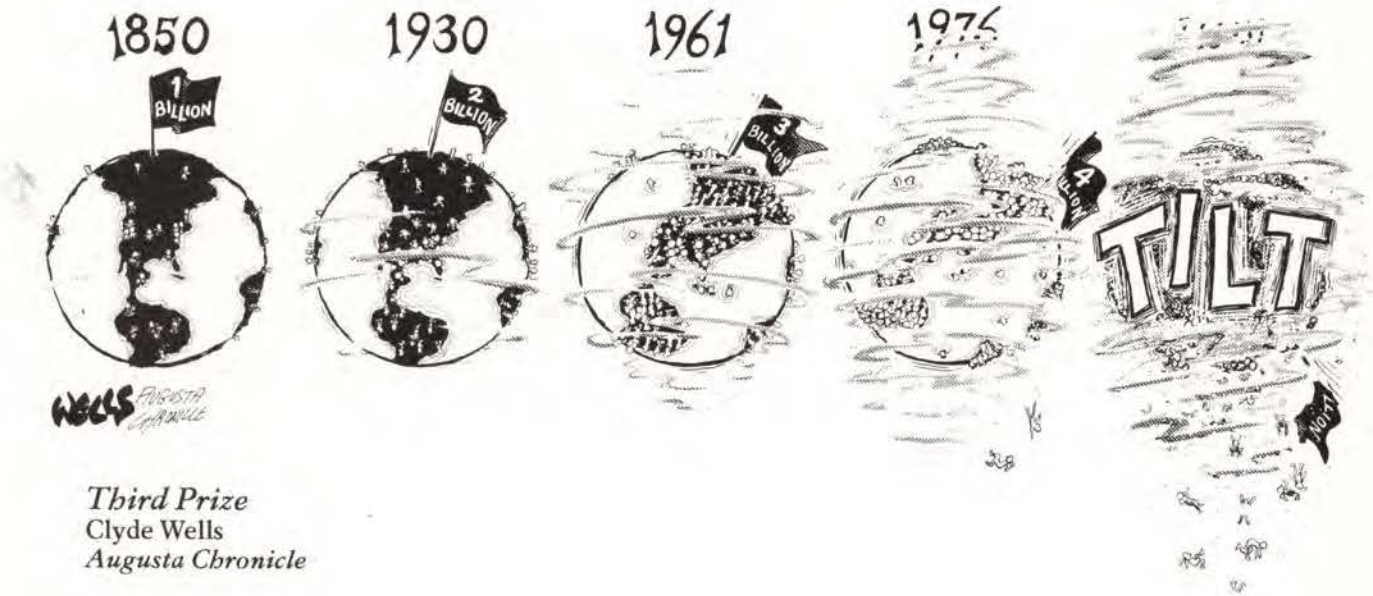
THE Sierra Club Bulletin *is pleased to present the winners of the Third Annual Population Cartoon Awards, sponsored by the Population Institute. The competition is intended to honor cartoonists whose work has helped to develop greater public awareness of the need to bring population into balance with resources and of the interaction between an oversupply of people and the vital issues facing mankind today. The cartoons presented here appeared in various publications between April 1, 1975, and March 31, 1976. To those who might object that the population problem is too grave to merit laughter, we commend the wisdom of the ancient sage Gorgias, who held that "humor is the only test of gravity," and of Mark Twain, who said, "The secret source of humor is not joy but sorrow. There is no humor in heaven."*



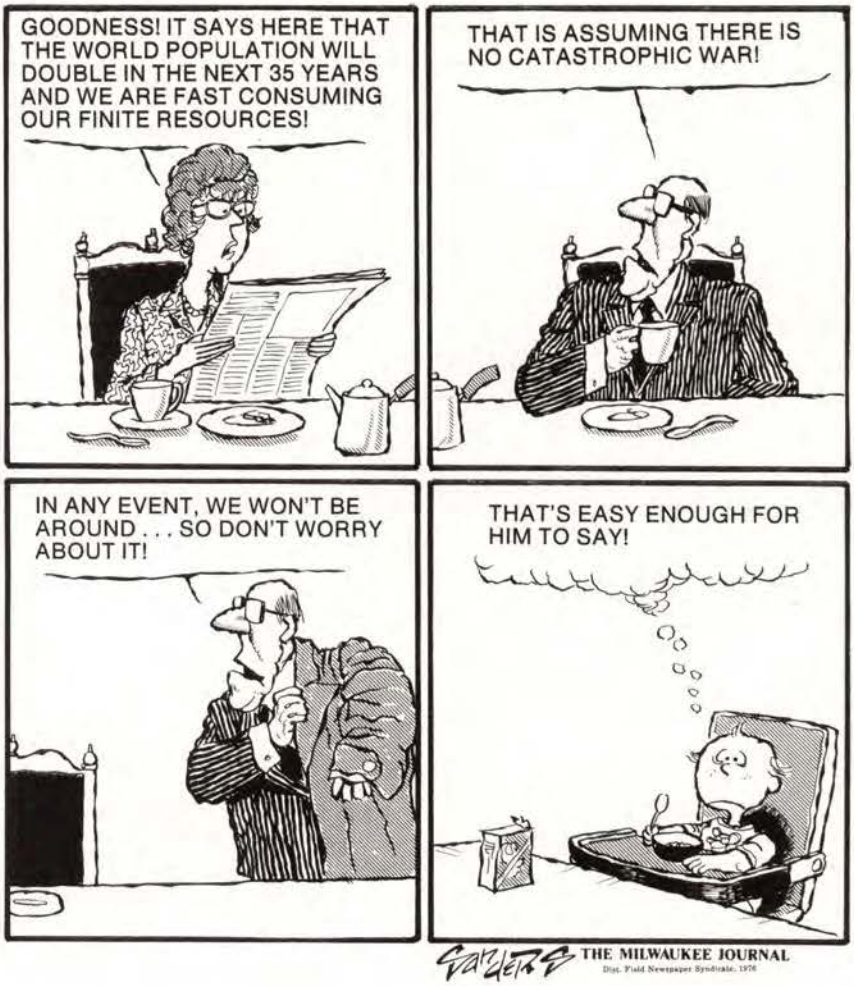
First Prize
Tom Darcy
Newsday
Los Angeles Times
Syndicate

The modern four horsemen

Second Prize
Robert Graysmith
San Francisco Chronicle
Chronicle Features Syndicate



Third Prize
Clyde Wells
Augusta Chronicle

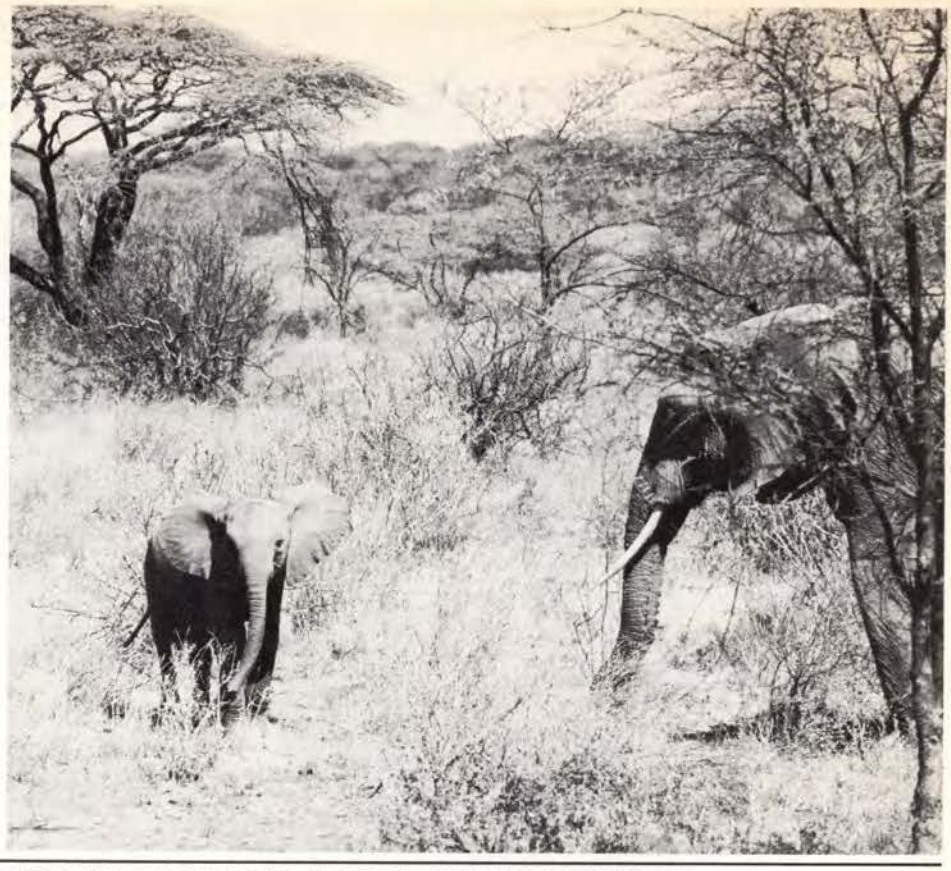


Comic Strip Panel Category Award
Bill Sanders
Milwaukee Journal
Field Newspaper Syndicate

Editorial Category Award
Jack Gold
Kentucky Post

"Merry Christmas, darling. I've had a vasectomy!"

Magazine Category Award
Don Madden
Playboy



Beverly Stevenson

RESERVATIONS FOR SIERRA CLUB TRIPS

IMPORTANT NOTICE! Reservations for Sierra Club Outings are subject to all Outing Department policies on applications, cancellations, refunds and transfers printed in the January 1976 issue of the Sierra Club *Bulletin*. A copy of these rules may be obtained from the Outing Department. Members are urged to check policy before making reservations. A single deposit covers most family reservations. Trips requiring a deposit for each person are so marked.

SUPPLEMENTAL INFORMATION

Write for the Trip Supplement for the specific outing which interests you, to Sierra Club Outings, 530 Bush St., San Francisco, CA 94108. Foreign Outing supplements will be sent as soon as available. Send 50c for each supplement requested *beyond the first five.*

MAIL TO: SIERRA CLUB OUTING DEPT. — P.O. BOX 7959 RINCON ANNEX, SAN FRANCISCO, CA. 94120

MEMBERSHIP NO. (CHECK BULLETIN LABEL)			Trip number	Trip name	Departure date
Print Name: Mr. Mrs. Ms.	FIRST	LAST	DEPOSIT ENCLOSED $	(Leave blank)	No. of reservations requested
Mailing Address			**If you have already received the trip supplement, please check.** ☐		
City	State	Zip Code	Residence telephone (area code)	Business telephone (area code)	

PLEASE PRINT **YOUR** NAME AND THE NAMES OF ALL FAMILY MEMBERS GOING ON THIS OUTING	Age	Relationship	Membership No.	How many trips have you gone on? Chapter	National
1.					
2.					
3.					
4.					
5.					
6.					

Jack Dozier

1977 FOREIGN OUTINGS

In 1977, Sierra Club trips will visit every continent except Antarctica, giving more than 1000 members a never to be forgotten experience.

(560) Chile—January-February. Leader, Stewart Kimball, 19 Owl Hill Rd., Orinda, CA 94563.

This is a 23-day car-camping expedition throughout Chile, from the northern deserts east of Antofagasta to the lakes near Puerto Mont. We will fly together to our starting point, stopping at Santiago, thence by bus to Tocona. From that point we will go south along the coast to Santiago. We will then hike in one day (mules carry the baggage) to a proposed national park area in the Andes. Returning again to Santiago, we will continue southward to the National Parks of Los Paraguas and Conguillio and to the lakes farther south. We will return home from Santiago. During our trip, we will be accompanied by members of the Federacion Andinismo de Chile. Approximate cost: $1150 plus air fare.

(550) Guatemalan Archaeology and Jungle—January 3-20. Leader, Ellis Rother, 903 Sunset Dr., San Carlos, CA 94070.

We jeep and hike through jungle, highlands, earthquake rifts, past volcanoes, down jungle rivers to visit ancient cities with a working archaeologist, camping as we go; then to Antigua, seat of Spanish conquest. We will be among today's Aztecs and Mayans, many still living ancient ways and weaving tribal costumes. This is a trip of fascinating discovery in the heartland of ancient American civilizations. A trip for active people. Minimum age 18. Cost to be announced.

(565) Baja Driving-Hiking Adventure—January 24-February 4. Leader, Betty Osborn, 515 Shasta Way, Mill Valley, CA 94941.

Our loop trip in 4-wheel drive vehicles will include camping and exploring the coastal areas of both the Sea of Cortez and the Pacific Ocean, with side excursions into the central mountains—probably as far south as Bahia de Los Angeles. We will visit Scammon's Lagoon, whale breeding grounds, Spanish Missions, and ruins of old Russian and English settlements, and enjoy unique botanical sights. Moderate hiking optional. Good swimming and snorkeling; also shell and rock collecting. Experienced guides will accompany us. Approximate cost: $565 from San Diego.

(570) Galapagos Islands, Ecuador—January 25-February 15. Coordinator, Howard Mitchell, 65 Hillside Ave., San Anselmo, CA 94960.

This is the season of calm water and tropical rains, when all the vegetation is lush and green. At this time of year, Elliot Porter took many of the photographs in **Galapagos, The Flow of Wildness**. The warm currents of El Nino are flowing through the islands and snorkeling and swimming are wonderful, sometimes followed by a refreshing rain for washing off the salt water. Photography of birds and animals is exceptional. Planned is an overnight hike to the Alcedo Crater to see the giant tortoises in their native habitat. We shall visit the Darwin Research Station. Approximate cost: $1750 plus air fare.


Al Schmitz

(46) Cinnamon Bay, St. John, U.S. Virgin Islands —January 3-17. Leader, Fred Sawyer, 567 High Rock St., Needham, MA 02192.

Relax on a picture-postcard beach, swim or snorkel in the clear warm waters of the Caribbean or explore the mountain trails and lush tropical forest. There will be opportunities to sail or motor to neighboring islands in the American and British Virgin Islands. Fully equipped tents are provided. The costs of air fare and boat rentals are not included in the trip price. Approximate cost: $290.

(580) Trisuli Valley Natural History Trek, Nepal —March. Leader, Stuart Dole, 1500 Mills Tower, San Francisco, CA 94104.

Three weeks of moderate hiking north of Kathmandu in the Trisuli and Mailung Khola valleys, separated by a 12,500 foot pass. A base camp in Trisuli Valley, in a forest of hemlocks and rhododendron, will have a backdrop of Ganesh Himal and Langtang Himal. A naturalist will go with us, and the trip will end with a visit to the game refuge in the Terai. Leader approval is required. Approximate cost: $1300 plus air fare.

(585) Rim of Kathmandu Valley Natural History Trek, Nepal—March 4-26. Naturalist, Dr. R. L. Fleming, Kathmandu; leader, Al Schmitz, 2901 Holyrood Dr., Oakland, CA 94611.

When rhododendrons are abloom and birds migrating, we will make a two week trek around the rim of the valley, attaining an altitude of almost 10,000 feet and affording magnificent views. We will camp every night. Porters will carry all baggage. Daily walking distances seldom exceed 5 miles. In addition, we will have a full program of sightseeing in Kathmandu and spend 2 days at Tiger Tops. An optional trip of one week visiting highly interesting places in northern India is an added feature. Approximate cost: $1100 plus air fare.

(587) Winter Walking in Norway—March 16-31. Leader, Betty Osborn, 515 Shasta Way, Mill Valley, CA 94941.

This will be a ski touring and snowshoe scouting trip for both the experienced and the novice. We will base camp in three different areas, primarily at Finse, an area famous for winter beauty and excellent ski touring. We will be guests in the huts of the DNT whose members will guide the group on daily excursions and on possible overnight ski tours to nearby self-serve ski huts. The group will visit at least one, perhaps two other areas on the Bergen-Oslo railroad or perhaps travel north and west to the slopes of the famous Jotunheimen mountains. Leader approval is required. Approximate cost: $475 plus air fare.

(590) Mideast-Phoenicia to the Ottoman Empire—April 15-May 9. Leader, Mike Maule, Rt. 14, Box 334, Richmond, VA 23231.

Sample 7000 years in 25 days of Mideast spring; see widely varied western Asian geology. Ride camels two days (that's enough!); ride Arab horses into Petra; visit Roman cities, Phoenician ruins, crusader castles; overlook the Euphrates and Dead Sea; and much more. Camp with desert nomads and push through teeming markets. Most travel will be by bus, lodging in hotels. We plan to visit Syria, Jordan, Lebanon, maybe Turkey. The exact route is flexible enough to avoid conflict and see the areas which are quiet. Approximate cost: $1350 plus air fare.

(595) Scotland—June 11-28. Leader, Tony Look, 411 Los Ninos Way, Los Altos, CA 94022.

Walk with us over bonnie banks and braes, in the misty highlands and out by the purple islands to discover the beauty, colorful history and the environmental challenges facing Scotland today. The walks are moderate; accommodations will be in hostels or small hotels. Leader approval is required. Approximate cost: $600 plus air fare.

(610) Hindu Kush Himalaya Trek, Pakistan—June 28-July 27. Leader, Peter Owens, 123 N. El Camino Real, San Mateo, CA 94401.

This 4-week trip will feature trekking, jeep rides and some local buses through an area rich in history. Explore the Indus River route of the Sikh general Akbar, the Malakand Pass of Churchill's youth, the Swat valley of Alexander the Great, and Kipling's Kafiristan, recently seen in the film *The Man Who Would Be King*. Our moderate trek of 17 days will take us across a 15,500-foot snow pass as we go from Swat into Chitral. A jeep trip over Lowari Pass into Dir and on to Peshawar, the Paris of the Pathans, will end our trip into this fascinating Moslem region. Leader approval is required. Approximate cost: $895 plus air fare.

(625) Kenya: Northern Frontier, East Africa—June 20-July 16. Coordinator, Al Schmitz, 2901 Holyrood Dr., Oakland, CA 94611.

On this popular outing we will travel from the Tanzania border to Lake Rudolf. Among the areas covered will be the Masai-Mara Game Reserve, Lake Nakuru, the Samburu-Isiolo Game Reserve and Lake Rudolf and Marsabit National Park. The general pattern of our trip will consist of three nights under canvas followed by a night in a lodge. Travel will be by landrover, and we will hike in the parks and preserves as regulations permit. The outing requires a spirit of adventure and cooperation and is suitable for anyone in good physical condition. Approximate cost: $1650 plus air fare.

(603) Land of the Sun Kings, Peru—June 19-July 24, 1977. Leader, Ray Des Camp, 510 Tyndall Street, Los Altos, CA 94022.

On this 36-day trip you will travel by bus, plane and foot to Lima, Trujillo, Cajamarca, Huaras, Ica, Nazca, Arequipa, Puno, and Cuzco. We plan also a three-day side trip to La Paz. You will have opportunity to observe and study much that is significant from Pre-Inca and Inca times through colonial and modern, including Indians in their homeland, living much as they were when Pizarro conquered the country. The final days of the trip

will take you through the Inca highlands and will be climaxed by a four day hike to Machu Picchu over an original Inca road. Approximate cost: $1600 plus air fare.

(638) Southern Norway Trek—June 28-July 13. Leader, John Ricker, 2950 N. 7th St., Phoenix, AZ 85014.

This is the first Sierra Club trip to Southwest Norway, hiking in Rogaland-Setesdal and the southern part of Hardangervidda. The area is relatively low in elevation, made up of many rivers, irregularly scattered lakes and fjords, rising to 1000-1500 meters on the higher plateau of Hardangervidda. The country is known for its good trout fishing. Nights (no darkness!) will be spent in mountain huts and hostels. The trip is moderate, but will require some experience and the ability to carry a light pack 8 to 10 miles a day. We will start near Stavanger and end at Oslo. Leader approval is required. Approximate cost: $650 plus air fare.

(600) Galapagos Islands, Ecuador—July (22 days). Coordinator, Howard Mitchell, 65 Hillside Ave., San Anselmo, CA 94960.

(636) Galapagos Islands, Ecuador—August (22 days). Coordinator, Howard Mitchell, address above.

In these months the cold currents from the south Pacific are flowing through the islands, and cool winds and dashing waves make for thrilling sailing. We will walk among seal and bird colonies, see marine and land iguanas, and have penguins watch us while we take photographs. Swimming and snorkeling in the cool water (about 74°) is pleasant. Planned is a two-day hike to the fumaroles in the crater of Alcedo, and here are the largest and most numerous tortoises in their native habitat. We shall visit the Darwin Research Station. Approximate cost: $1725 plus air fare.

(605) France: The Alps to the Mediterranean—July 5-19. Leaders, Lynne & Ray Simpson, 604 Hartnell Place, Sacramento, CA 95825.

A summer excursion heading south from Geneva on the French side of the Alps—visiting a variety of mountainous recreational areas—from the highly developed resort to the more rustic hiking-oriented national parks. There will be at least one overnight hike. French views on conservation will be discussed. We will drive ourselves in buses and do some of our own meal preparation in hostel accommodations. Good physical ability is necessary for the moderate hiking will reach altitudes of approximately 11,000 feet. This trip is suitable to families. Leader approval is required. Approximate cost: $650 plus air fare.

(630) Camping, Hiking and Game Viewing in Tanzania, Kenya and Zambia—July 14-August 13. Coordinator, Al Schmitz, 2901 Holyrood Drive, Oakland, CA 94611.

We will visit by landrover the finest game viewing areas near the Kenya-Tanzania border, such as Amboseli Game Refuge near Mt. Kilimanjaro, Tarangiri and Manyara National Parks, Ngorongoro Crater, Olduvai Gorge, the Serengeti Plains and the Masai-Mara Game Refuge. A one-week walk is planned through Kafue National Park in Zambia under the guidance of park rangers and the final days of the outing will be spent at Victoria Falls. Hiking distances are moderate. There is no age limit, but a spirit of adventure and tolerance is needed. Approximate cost: $1600 plus air fare.

(620) Yugoslavia: Mountains and Sea Coast—July 20-August 10. Leader, Ross Miles, 21230 Homestead Road, Cupertino, CA 95014.

Beginning in Ljubljana, this trip takes us through some of the most beautiful portions of Yugoslavia. In Slovenia we hike in the Kamnik and Julian Alps. Our nights are spent in huts and hostels. We travel down the Dalmatian Coast visiting the famous caves of Postojna and Diocletian's Palace. At Split we take a steamer through the islands to Dubrovnik. We leave the coast at Petrovac and travel to the Montenegro mountains, where we have a base camp. In these spectacular mountains day trips have been arranged. Our trip ends in Titograd. Moderate hiking up to 10 miles a day. Leader approval is required. Approximate cost: $650 plus air fare.

(650) Australia Down Under—September (4 weeks). Leader, Ann Dwyer, 125 Upland Rd., Kentfield, CA 94904.

Australia is more than kangaroos, koalas and kookaburras. It is the Australian Alps, the Great Barrier Reef and Alice Springs of the vast interior. We will see them all, including a profusion of wildflower species found nowhere else in the world. Leader approval is required. Approximate cost: $2300 from San Francisco.

(700) Annapurna Circle, Nepal—October. Leader, Norton Hastings, 100 Quarry Rd., Mill Valley, CA 94941.

This strenuous trek will attempt to circle the massifs of Annapurna Himal, Lamjung and Ganesh Himal, in an area newly opened. We'll walk north up the Kali Gandaki Gorge, cross Thong La at 17,000 feet and then move south through the Marsyandi Valley. If snows block the passes, we'll base camp in Annapurna Sanctuary for high-altitude hiking. Leader approval is required. Approximate cost: $1450 plus air fare.

(705) Makalu to Everest, Nepal—October & November. Leader, Doug McClellan, 88 Ridge Rd., Fairfax, CA 94930.

Forty-five days of high-altitude travel, with ten days on glaciers. From Dharan Bazaar, we cross the Arun River, ascend the Barun Glacier and cross Sherpani Col at 20,046 ft. Then west over the lower Barun and Hongu glaciers, on to Loboche, and Namche Bazaar. Basic mountaineering knowledge and experience is necessary. Leader approval is required. Approximate cost: $1950 plus air fare.

(710) Mexico, Glimpses of Past and Present—November 12-December 13. Leader, Ray Des Camp, 510 Tyndall Street, Los Altos, CA 94022.

After ample time in and around Mexico City, we will tour by air-conditioned bus the states of Mexico, Puebla, Oaxaca, Chiapas, Tabasco, Campeche, Yucatan, Quintana Roo and Vera Cruz. We will visit Indian markets (Toluca is one of the largest), colonial and modern cities, and many archeological sites from the Pyramids of Teotihuacan to the Mayan cities of Chichen-Itza, Palenque, and Bonampak. There will also be a taste of tropical beaches with one night on the Gulf of Tehuantepec and several at Can Cun, on the Caribbean Sea. Approximate cost: $1050 from Mexico City.

(715) Holiday Special: Galapagos, Peruvian Bird and Easter Island trip—December 20-January 15, 1978. Leader, Al Schmitz, 2901 Holyrood Dr., Oakland, CA 94611.

Spend Christmas and New Year's on the tropic waters in the Galapagos Islands with their abundant bird, animal and marine life. Wander through Quito's cobblestoned streets and enjoy Lima's famous churches during the holiday season. Subject to permission we'll inspect the spectacular bird life on Peru's famous guano islands near Pisco. A few days in Santiago, Chile, will be the prelude to our flight to Easter Island for a 3-day stay. This outing has a capacity for 15 persons. Approximate cost: $1550 plus air fare.

Kent Schellenger

Foreign Underwater Trips

(400) Galapagos Islands, Ecuador—May 28-June 21. Leader, Kent Schellenger, 19915 Oakmont Drive, Los Gatos CA 95030.

Once again we set out on the 63-foot ketch *Sulidae* to explore "Darwin's Islands," on land and undersea. Terrestrial life is alone worth the trip: birds of many kinds, iguanas, the famed giant tortoises, and exotic vegetation. Yet the marine life is equally enthralling and much less known: Fish, many species of which exist nowhere else, sea lions, marine iguanas, and diving birds stagger the imagination. For divers with ocean experience. South American sightseeing extensions are possible. Leader approval is required. Approximate cost: $1,900 plus air fare, less for accompanying non-divers.

(401) Grand Cayman, Tropical Reef Biology, British West Indies—June 11-22. Leader, Rob Spivack, Box 796 Catalina Island School, Avalon, CA 90704.

Illustrated lectures followed by underwater field trips comprise this informal course for the certified diver with no science background. The leader, a professional marine biologist, offers instruction for casual participation or college credit, with ample time for diving Cayman's justly famous reefs. Biology, natural history, ecology and identification of tropical marine organisms are covered. The base is a small divers resort, an hour from Miami. Leader approval is required. Approximate cost: $850 plus air fare, less for non-divers.

(402) Grand Cayman, Tropical Reef Biology (Intermediate), British West Indies—June 23-July 4. Leader, Steve Webster, 3202 Maddux, Palo Alto, CA 94303.

A successful experiment in 1976, we again offer this sequel to the beginning course. Alumni are expected to return to continue ongoing research; others will start new projects, individual or collective. Instruction by the leader, a professor of marine biology, is augmented by maximum diving geared toward research projects, with ample time for sheer enjoyment of the prolific reefs. For certified divers with some background, casual participation or college credit. Leader approval is required. Approximate cost: $850 plus air fare, less for non-divers.

(403) Bonaire, Netherlands Antilles—June 28-July 9. Leader, Kent Schellenger, 19915 Oakmont Drive, Los Gatos, CA 95030.

Little known except to divers, this Dutch island off the coast of Venezuela offers a 21-mile coral reef of great beauty. Fish life is prolific and unafraid; spearfishing has never been allowed. And the reef lies a few kicks offshore, making expensive dive boats unneeded. The island itself offers some night life, but more natural beauty, including exotic birds. We plan to stay in cottages and make our own meals with the help of our diving cook. South American travel can be added. Leader approval is required. Approximate cost: $950 including air fare from Miami, less for non-divers.

(404) Truk and Ponape, Micronesia—July 20-August 7. Steve Zuckerman, 2640 Alabama Ave., St. Louis Park, MN 55416.

In 1944, a furious attack by the U.S. Navy sank 33 Japanese ships in Truk Lagoon. Diving on these ships, now being reclaimed by the sea, will be an unforgettable experience. Nearby we will explore coral reefs whose beauty is as yet unscarred by man. This longer trip has a further dimension, a chance to observe Pacific island culture. En route we stop at Ponape, visit the city of Nan Madal, the Nett Cultural Center, and a Kapingamarangi village. Trip leader is Truk's former medical officer. Leader approval is required. Estimated cost: $1650 including air fare from San Francisco; lower for non-divers.

Boat Trips In Guatemala & Mexico

(412) River of Ruins Raft Trip, Guatemala & Mexico—15 Days Mid-March, 1977. Leader, c/o Frank Hoover, 900 Veteran Ave., Los Angeles, CA 90024.

Rafting down the River of Ruins (Rio Usumacinta), visiting Maya ruins of Yaxachilan and Piedras Negras, exploring tropical jungles and having fun in the back country of Guatemala and Mexico makes this an irresistible trip. The 1976 trip was highly successful. Camping in this tropical jungle is not hard, weather is warm and the trip not particularly strenuous. Members will help with rowing, organizing activities and transportation and (hopefully) learning much about running river trips. Approximate cost: $710 plus air fare.

(414) Whale Watching Leisure Boat Trip, West Coast of Baja, Mexico—Mid January 1977. Leader, Monroe Agee, 13750 Rivulet Rd., San Jose, CA 95124.

Six days round-trip San Diego to San Ignacio Lagoon, birthplace of the whales. We stop at islands, uninhabited except for occasional groups of Mexican fishermen. We see elephant seals during their breeding season, harbor seals and California sea lions. We observe nesting birds, descend a lava tube and climb a volcanic crater. This trip is dedicated to save the whales. Approximate cost: $395 from San Diego.

(416) Sea Of Cortez Leisure Boat Trip, Mexico—March 26-April 2. Leader, Elmer Johnson, 622 Locust Rd., Sausalito, CA 94965.

(417) Sea Of Cortez Trip—April 2-9. Leader, Herbert Graybeal, 29 Country Club Dr., Suisun, CA 94585.

(418) Sea Of Cortez Trip—April 9-16. Leader, Martin Friedman, 353 Montford Ave., Mill Valley, CA 94941.

(413) Sea Of Cortez Trip—November 19-26. Leader, Monroe Agee, 13750 Rivulet Rd., San Jose, CA 95124.

These cruises are adventures in sea life, designed to meet the requirements of both the physically active and the more sedentary. The four trips go between La Paz and San Felipe. These are coastal trips along the east coast of Baja California. We will visit exotic islands and observe the abundant sea life of whales, dolphins, sea lions, frigate birds, boobies and pelicans as they go about their undisturbed way. Approximate cost: $575 from San Diego.

1977 Spring Ski-Touring

(258) Ski Touring Clinic, Steamboat Springs, Colorado—January 9-14. Leader, Sven Wiik, Box #5040, Steamboat Village, CO 80499.

Here is an opportunity for five days of excellent skiing with all levels of touring instruction. Your instructors will all be certified. The trip leader is former Olympic Nordic coach. Program includes selection and care of equipment, ski-touring technique, half and full day tours, all covered by the fee payable to the club. Separate arrangements must be made directly with the Scandinavian Lodge for room and board. Cost is $60.

(47) Adirondack Ski Touring—January 16-22, 1977. Leader, Walter Blank, Omi Rd., W. Ghent, NY 12075.

A series of cross-country tours in the Adirondack Forest Preserve. Trips run daily for all levels of skiers. A chance to upgrade the level of your skiing and visit remote areas of the Adirondack Park in mid-winter. The first five nights will be spent at a delightful farmhouse with home cooked meals. Lunches will be on the trail. The sixth night we will ski into two remote cabins heated by wood stoves. Packs and sleeping bags are required for the last night. Skis may be rented. Leader approval is required. Cost is $170.

(48) Cross Country Ski, Rocky Mountain Park, Colorado—January 30-February 5, 1977. Leader, Kurt Newton, 130 Pearl Street #701, Denver, Colorado 80203.

Come join us for seven days of fun-filled ski touring in Western Rocky Mountain Park. We'll sleep in a Park-Service Building, with daily trips radiating from there. Trips will vary in distance and terrain. Our tours will take us close to the Continental Divide, through the wintering grounds of an elk herd, and will include leisurely trips by moonlight. Cooking great food on a wood stove and swapping ski lies with congenial companions are a couple of the things that will occupy our evenings. Leader approval is required. Cost is $95.

(49) Cross Country Ski, Rocky Mountain National Park, Colorado—February 27-March 5, 1977. Leader, Lee Baker, 1122 Pearl, #102, Denver, CO 80203.

We will spend seven days in this glorious park, sharing it only with the local elk herd and other assorted wildlife. We will tour from our streamside cabin base camp into an area near, and maybe on, the Continental Divide. Individuals will furnish their own equipment, and some cross-country experience is necessary. Cooking, cabinkeeping, woodcutting, etc. will be communal activities. Moonlight ski tours in Colorado powder, overnight snow camping for those interested, plenty of good food and companionship, will contribute to a pleasant outing. Leader approval is required. Cost is $95.

(259) Superior-Quetico Ski and Snowshoe, Minnesota-Canada—February 27-March 5, 1977. Leader, John Wheeler, 2690 Huron, Roseville, MN 55113.

Ski or snowshoe, listen to the cry of the wolves. Photograph, sketch, or just drink in the beauty of the frozen Northland. Our base camp is located 30 miles from Grand Marais, Minnesota, on the Gunflint Trail, one mile from Minnesota's Boundary Waters Canoe Area. We will be taking day trips from our cabin-based camp, with overnight trips if desired. Everyone will share in food preparation and clean-up. No experience necessary; minimum age 15. Cost is $125.

It's Not Too Late to Sign Up For a 1976 Wilderness Outing

More than three quarters of the Sierra Club's 1976 outings are filled, with waiting lists for most. But many openings are still available. If you act promptly you can probably find space on any of the trips listed below. But hurry!

Two New Domestic Trips Added for This Summer. A family knapsack trip to the Western side of the Teton range, Wyoming, for families with children 8-14, with some knapsacking or Wilderness Threshold experience.

A High-Light to Utah's outstanding High Uintas Primitive Area. A moderately paced high altitude trip with layover days featuring tundra ecology study, fishing and peak climbing.

See listings for Family Knapsack trip #121 and High-Light trip #131. Detailed trip descriptions are available from the Outing Department.

Fred Lackner, Jr.

Trip Number		*Date*	*Trip Cost (Incl. Deposit)*	*Deposit*	*Leader*
	ALASKA				
52	Admiralty Island Canoe Trip	July 11-18	340	50	Jon Tillinghast
57	Glacier Bay, West Chichagof Boating-Hiking	Aug. 15-28	475	50	Chuck Johnstone
	BASE CAMP				
66	Sierra Nevada Natural History, Sequoia Park, Sierra	July 11-23	230	25	Bob Miller
67	Granite Park Alpine Camp, John Muir Wilderness, Sierra	July 18-30	215	25	Emily Benner
69	Rush Creek Alpine Camp, Minarets Wilderness, Sierra	July 25-Aug. 6	215	25	Dick May
70	Fernandez Pass, Minarets Wilderness, Sierra	July 25-Aug. 6	215	25	Ed Miller
71	Summit Lake, Yosemite Park, Sierra	July 25-Aug. 6	215	25	Jerry Fritzke
74	Ruby Mountains, Humboldt Forest, Nevada	Aug. 7-14	145**	25	Joanne Barnes
77	Merriam Creek Back Country Camp, Sierra	Aug. 14-28	275	25	Bob Cockrell
79	Hooper Lake Alpine Camp, Sierra Forest, Sierra	Aug. 15-27	215	25	John Freiermuth

Trip Number		Date	Trip Cost (Incl. Deposit)	Deposit	Leader
81	Death Valley Christmas Camp, California	Dec. 19-28	170	25	Dick May
82	Organ Pipe Cactus Monument Natural History Trip, AZ	Dec. 19-28	185	25	c/o Ray Des Camp
	**Children under 12 $125.				
	BICYCLE				
89	Oregon Trail, Western Nebraska	Sept. 12-25	205	25	Faye Sitzman
	BURRO				
90	South Warner Wilderness, Northern California	July 10-16	165	25	Doug Parr
93	Margaret Lakes, John Muir Wilderness, Sierra	July 25-Aug. 7	270	25	Ted Bradfield
94	Pioneer Basin, Inyo Forest, Sierra	Aug. 7-20	270	25	Doug Parr
	FAMILY TRIPS (Other trips with family rates are listed under Base Camps)				
			Parents and one child / *Each addl. child*		
	Family Canoe				
117	Main Eel River Teen-Age Trip, Northern California	June 30-July 6	320 & 80	25	Barbara & Bill Bair
118	Rogue River Teen-Age Trip, Oregon	July 24-30	405 & 100	25	Stan Young
119	Klamath River Teen-Age Trip, Northern California	Aug. 2-8	395 & 100	25	Janet & Dan Clinkenbeard
	Family Knapsack				
121	Western Range, Tetons, Wyoming	Aug. 22-29	340 & 90	25	Natalie & Dick Dickens
	FOREIGN 1976* (Trip price subject to change; does not include air fare)				
478	Angel Falls, Venezuela	Aug. 7-23	1750#	50	Terry Davis
485	Netherlands Afoot and Afloat	Sept. 7-17	550	50	Ellis & Margaret Rother
510	Kenya Mountains to the Sea	Sept. 30-Oct. 22	1600	50	Al Schmitz
515	Ganesh Himal-Gurka Himal, Nepal	Oct. 2-Nov. 6	1375	50	Edith Reeves
520	Pokhara to Jumla, Nepal	Oct. 30-Dec. 5	1450	50	John Edginton
525	Natural History Trek through Kathmandu Valley, Nepal	Nov. 18-Dec. 11	900	50	Dr. Robert S. Fleming/ Al Schmitz
530	Hoggar Mountains Camel Caravan, Southern Algeria	Nov. 28-Dec. 17	1350	50	c/o Al Schmitz
540	Polynesian Christmas: Fiji, Tonga, Tahiti	Dec. 10-Jan. 7	900	50	Ann Dwyer
	*Per person deposit. #Includes air fare from Los Angeles.				
	HAWAII* (Other Hawaii Trips are also listed under Underwater Exploration.)				
125	Island of Hawaii	Aug. 9-19	555****	25	Jim Dodds
127	Oahu, The Windward Side	Dec. 27-Jan. 3	445††	25	Walt Weyman
	*Per person deposit; includes Hawaii round-trip air fare. ****Children under 12 $455; Hawaii residents $255. ††Children under 12 $345; Hawaii residents $145.				
	HIGH-LIGHT				
131	High Uintas Primitive Area, Ashley Forest, Utah	July 18-29	150	25	Allen Malmquist
134	Northern Yosemite, Sierra	July 10-24	345	25	Stuart Dole
136	Lower Minam River, Wallowa Mountains, Oregon	July 24-31	225	25	Ruth Ann & Jim Angell
137	Geology of Mt. Regions, N. Fork San Joaquin, Sierra	July 29-Aug. 5	220	25	Marsh Pitman
138	Green River Lakes Loop, Bridger Wilderness, Wyoming	Aug. 2-13	370	25	Charles Engberg
140	Island Lake Loop, Bridger Wilderness, Wyoming	Aug. 16-27	350	25	Allen Malmquist
141	Western Slope of the Tetons, Idaho-Wyoming	Aug. 21-31	305	25	Blaine Le Cheminant
143	Glacier Ridge Circle, Sierra	Sept. 11-18	200	25	Donald Parachini
144	Horseshoe Canyon, Utah	Sept. 20-25	250	25	Don Lyngholm
145	Pine Valley Mountains, Utah	Sept. 25-Oct. 2	220	25	Ray Des Camp
146	Canaan Mountain, Utah	Oct. 2-9	200	25	Allen Malmquist
147	Superstition Wilderness, Arizona	Dec. 27-Jan. 1	150	25	Les Albee
	KNAPSACK TRIPS (Other Knapsack Trips are listed under: Family Knapsack, Service)				
162	Cloud Canyon Geology, Kings Canyon Park, Sierra	July 9-19	140	25	Sandy Knapp
164	Mount Zirkel Wilderness North, Colorado	July 11-17	110	25	Dave Schalk
170	Susquehannock Trail, Pennsylvania	July 17-25	115	25	Tom Thwaites
171	Trans-Cascade, Glacier Peak Wilderness, Washington	July 18-30	150	25	Dave Corkran
172	Mount Lindsey, Sangre de Cristo Range, Colorado	July 19-28	110	25	Bob Berges
177	Blackcap Basin Loop, Sierra	July 24-31	75	25	Chet Williams
186	Big Baldy-Pistol Creek, Idaho Primitive Area, Idaho	Aug. 8-21	155	25	Arthur Beal
193	Tchaikazan Valley, Coast Mountains, B.C., Canada	Aug. 11-23	250*	25	Tom Erwin
196	Caribou Mountain, Tweedsmuir Park, B.C., Canada	Aug. 18-28	150	25	Gary Tepfer
198	Unicoi Mountains, Slickrock Wilderness, N.C.-Tenn.	Aug. 22-28	140	25	Lincoln Roberts
200	Sierra Crest: Mount Abbot to Red Slate Mtn., Sierra	Aug. 23-Sept. 3	100	25	Jim Skillin
202	Trinity Alps Art, Northern California	Sept. 3-11	130	25	Ellen Howard
203	Bench Valley-Blackcap Basin, Sierra	Sept. 7-15	80	25	Ralph Huntoon
205	Triple Divide Peak, Yosemite, Sierra	Sept. 13-23	105	25	Burwell Taylor

Trip Number		Date	Trip Cost (Incl. Deposit)	Deposit	Leader
206	Huckleberry Lake Leisure Trip, Sierra	Sept. 18-26	80	25	Anneliese & Ken Lass
207	Paria Canyon, Arizona-Utah	Sept. 25-Oct. 1	90	25	Tim Ryan
208	North Kaibab/Clear Creek, Grand Canyon Park, Arizona	Oct. 16-23	105	25	Don Campbell
209	Buffalo River Wilderness, Arkansas	Oct. 17-23	100	25	Bill Bates
211	Grand Canyon, Arizona	Dec. 27-Jan. 1	90	25	Lester Olin
	*Includes air flight from Williams Lake.				
	JUNIOR KNAPSACK				
219	Painted Dunes, Lassen Park, Northern California	July 4-11	80	25	Norm Weeden
223	Palisades West, Kings Canyon Park, Sierra	July 26-Aug. 3	95	25	Dave Neumann
	SADDLE-LIGHT				
229	Stony Creek-Canadian Rockies, Banff, Alberta, Canada	Aug. 10-15	345	25	Kathy Jones
	SERVICE TRIPS*				
	Trail Maintenance Projects				
245	Pacific Crest Trail, Tahoe Forest, Sierra	June 30-July 9	50	25	Peter Friedman
246	Renshaw Lake, Sun River District, Montana	July 2-11	50	25	Bill Bankston
248	Renshaw Lake, Sun River District, Montana	July 13-22	50	25	John Eibert Jr.
250	Harrison Lake, Selkirk Range, Kaniksu Forest, Idaho	July 18-27	50	25	John Kassel
251	Deep Creek, Teton Ranger District, Montana	July 25-Aug. 3	50	25	Melissa Brown
252	Mirror Lake, Spanish Peaks, Montana	Aug. 3-12	50	25	John Kassel
253	Moose Creek, Selway-Bitterroot Wilderness, Montana	Aug. 7-16	50	25	Melissa Brown
255	Collegiate Peaks, Pike-San Isabel Forest, Colorado	Aug. 24-Sept. 2	50	25	John Stansfield
260	Superstition Wilderness, Arizona	Dec. 27-Jan. 2	50	25	Rodney Ricker
	*Per person deposit.				
	SKI TOURING				
258	Ski Touring Clinic, Steamboat Springs, Colorado	Jan. 9-14 '77	60	25	Sven Wiik
259	Superior-Quetico Ski & Snowshoe, Minnesota-Canada	Feb. 27-Mar. 5 '77	125	25	John Wheeler
	UNDERWATER EXPLORATION*				
266	Lanai and Kona Coast, Hawaii	July 6-16	690††	50	Lou Barr
267	Kona Coast, Hawaii	July 31-Aug. 11	860†††	50	Bob Sextro
	*Per person deposit. ††Includes Hawaii round-trip air fare; additional $150 for divers. †††Includes Hawaii round-trip air fare; additional $115 for divers; includes basic scuba instruction.				
	FOREIGN UNDERWATER EXPLORATION* (Total cost is approximate and does not include air fare)				
421	Grand Cayman Tropical Reef Biology (Intermed.), B.W.I.	July 16-27	790††	50	Steve Webster
423	Samoa, Fiji & Tonga	July 7-27	2050***	50	Ann Gladwin
	*Per person deposit. ††$570 for non-divers. ***Includes air fare from San Francisco.				
	WATER TRIPS				
	River Raft Trips				
279	Westwater-Cataract Canyon Raft-Hiking, Utah	June 21-27	390	25	Rolf Godon
288	"River of No Return," Main Salmon, Idaho	Aug. 16-21	345	25	Greg Horner
289	Middle Fork, Salmon River, Idaho	Aug. 19-24	395	25	Victor Monke
290	Hells Canyon of the Snake River, Idaho	Aug. 22-27	325	25	Herb Graybeal
291	Chilcotin-Fraser Rivers, B.C., Canada	Aug. 22-31	750	50*	Lynn Dyche
	*Per person deposit.				
	Canoe Trips (Other Canoe Trips are listed under: Alaska, Family Canoe)				
308	Quetico-Superior Leisure Trip, Minnesota/Canada	June 27-July 10	295†	25	Stu Duncanson
310	Missinaibi River, Ontario, Canada	July 27-Aug. 7	230	25	Dick Williams
313	Klamath River, Northern California	Aug. 9-15	150†	25	Judy Hacker
314	Kipawa Reserve, Quebec, Canada	Aug. 9-19	215	25	Mike Maule
316	Rio Grande Canyons, Texas	Oct. 16-23	110	25	John Baker
317	Dismal Swamp, Virginia & North Carolina	Oct. 24-30	120	25	Mike Maule
	†Canoes included in trip cost.				
	Boat Trips† (Other Boat Trips are listed under: Alaska, Foreign)				
411	Puerto Vallarta, Mexico	Nov. 8-20	*	50	Margaret & Ellis Rother
414	Whale Watching Leisure Trip, Baja Mexico	Mid-January, 1977	395**	50	Monroe Agee
	†Per person deposit. *Approx. $580 from Los Angeles, $540 from San Antonio, $435 from Puerto Vallarta. **From San Diego; price is approximate.				

John Lewallen

The Economist as Metaphysician

Small Is Beautiful: Economics As If People Mattered,
by E. F. Schumacher; Harper & Row, New York, 1975. Paper $2.45

I HAVE BEEN called a crank," E. F. Schumacher told a San Francisco Bay Area audience last fall. "I like that concept. A crank is small, useful, nonviolent—and causes revolutions!"

Schumacher's audience of some 1,500 middle-class, middle-aged opponents of nuclear power obviously loved the man and what he was saying. In an intellectual climate as jaded by predictions of apocalypse as by growth-economy boosterism, Schumacher has arisen as a sort of technocratic Maharishi, a button-down guru proclaiming great hope for humanity beyond the demise of gigantism run amok.

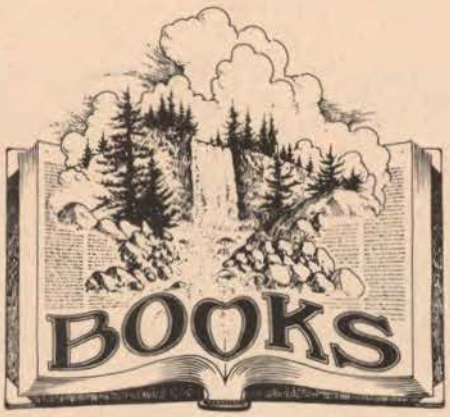
The influences of this ecologically aware British economist stem largely from his book *Small Is Beautiful: Economics As If People Mattered.* First published in 1973, *Small Is Beautiful* was quickly accepted by the leading prophets of environmental crisis. Soon it was picked up by people looking for a positive vision to scatter the gloom cast by *The Limits to Growth* and other dismal future predictions.

Now, a friend of mine, who is an economist at the University of California, finds he can scarcely go to a party without someone mentioning Schumacher and his book. California Governor Edmund G. Brown, Jr., announced he had read the book and liked it, leading some news writers to try to "psych out" the enigmatic presidential hopeful as a follower of Schumacher's economics.

In short, *Small Is Beautiful* is the rage among those who embrace what may be called the "Gentle Revolution": the diverse, disorganized and uncontrollable movement to build a grassroots economy in harmony with the natural environment. My economist friend read the first half of the book. "A polemic," he judged. "It contains no facts as evidence."

Schumacher begins *Small Is Beautiful* with an essay on "The Problem of Production," in which he asserts that economists who believe the problem of production has been solved overlook "the vital fact" that modern economies are using up "the irreplaceable capital which man has not made, but simply found, and without which he can do nothing." To him it is obvious that modern economies are rapidly exhausting nonrenewable resources such as fossil fuels, and destroying natural environments in the process. "One reason for overlooking this vital fact," he states in this opening essay, "is that we are estranged from reality and inclined to treat as valueless everything that we have not made ourselves."

Are one man's facts another man's polemic? Just what does *Small Is Beautiful* say, and why has it risen to prominence out of the current welter of "world-saving" books?



Many readers of the essays that make up *Small Is Beautiful* are most attracted by Schumacher's concept of "intermediate technology." Schumacher comes closest to formulating this concept in the essay "Technology with a Human Face":

> The technology of *production by the masses*, making use of the best of modern knowledge and experience, is conducive to decentralization, compatible with the laws of ecology, gentle in its use of scarce resources, and designed to serve the human person instead of making him the servant of machines. I have named it *intermediate technology* to signify that it is vastly superior to the primitive technology of bygone ages but at the same time simpler, cheaper, and freer than the super-technology of the rich.

This concept is by no means unique today, and has been much better elaborated in the pages of publications such as the *Whole Earth Catalog.* But to focus on Schumacher's technological suggestions and his sweeping proposals for decentralizing economic activity is, it seems to me, to miss the main power of his message.

"The modern world has been shaped by its metaphysics, which has shaped its education, which in turn has brought forth its science and technology," Schumacher asserts. Elsewhere in the book —in "The Greatest Resource: Education," where much that underlies his thinking comes clear—he adds:

> The task of our generation, I have no doubt, is one of metaphysical reconstruction. . . . We are suffering from a metaphysical disease, and the cure must therefore be metaphysical. Education which fails to clarify our central convictions is mere training or indulgence. For it is our central convictions that are in disorder, and, as long as the present anti-metaphysical temper persists, the disorder will grow worse.

Schumacher is the economist as metaphysician, the economist who dares speak of good, evil and God. To members of the Gentle Revolution, many of whom are deeply concerned with the spiritual relationship between human beings and the natural world, Schumacher's focus on the human soul strikes a responsive chord.

Schumacher sums up his view of our metaphysical crisis in one paragraph in "The Greatest Resource: Education":

> The ideas of the fathers in the nineteenth century have been visited on the third and fourth generations living in the second half of the twentieth century. To their originators, these ideas were simply the result of their intellectual processes. In the third and fourth generations, they have become the very tools and instruments through which the world is being experienced and interpreted. Those that bring forth new ideas are seldom ruled by them. But their ideas obtain power over men's lives in the third and fourth generations when they have become a part of that great mass of ideas, including language, which seeps into a person's mind during his "Dark Ages."

Following are the "six leading ideas" that Schumacher says were thought up in the nineteenth century, and that are ravaging the twentieth: evolution, competition (survival of the fittest), economic determinism (Marxism), subconscious determinism (Freud's theories), relativism, and positivism.

"It is the sin of greed that has delivered us over into the power of the machine," thunders Schumacher in "Peace and Permanence." The only escape is through wisdom, he believes, and, "to be able to find it, one has first to liberate oneself from such masters as greed and envy. The stillness following liberation—even if only momentary—produces the insights of wisdom which are obtainable in no other way."

Schumacher strikes at the core of modern economic theory, where he finds the most vicious sort of competitive fervor. Rather than quibbling with Lord Keynes over how to structure this or that economic aspect, he quotes what that spiritual father of modern economics said in 1930:

> For at least another hundred years we must pretend to ourselves and to everyone that fair is foul and foul is fair; for foul is useful and fair is not. Avarice and usury and precaution must be our gods for a little longer still. For only they can lead us out of the tunnel of economic necessity into daylight.

Lord Keynes, Schumacher believes, had better gods than he put forth, for "those that bring forth new ideas are seldom ruled by them." But people born in the third and fourth generations after Keynes have absorbed his and other nineteenth-century ideas during childhood, and now interpret the world through those ideas.

In "Buddhist Economics," the most famous essay in *Small Is Beautiful*, Schumacher focuses on "right livelihood" as a central means for literally working our way toward metaphysical reconstruction. To Schumacher, accepting unemployment is "surrender to the forces of evil." This faith in the redeeming powers of meaningful labor is at least as Calvinist as Buddhist. Schumacher notes that his use of Buddhism is "purely incidental," and that he could have drawn the same message from any other great religious tradition.

As he sees it, our present economic emphasis is on the product rather than the person. This obsession with products is destroying both people and the earth. His metaphysics lead him to reverse the consumer ethic: "Since consumption is merely a means to human well-being, the aim should be to obtain the maximum of well-being with the minimum of consumption."

In *Small Is Beautiful*, as when fielding questions before an audience, Schumacher is content to sketch broadly the outlines of a decentralized, fully employed, nonviolent society. He evades answering most questions about details. Not, I believe, because he does not have the answers, but to keep from getting bogged in the irrelevant. Heal the center, he is saying, and all other good works will follow naturally.

"I have no power to destroy the big things that exist," he told a Bay Area questioner. "They will die if the basis of their existence is no longer there."

Many members of the Gentle Revolution are taking up the task of metaphysical reconstruction. Throughout Northern California, rural and urban, I have encountered people experimenting with environmental harmony from spiritual foundations of Sufism, Christianity, Buddhism, Hinduism, Judaism, and many other disciplines of the soul. The same goes on throughout the country.

It is difficult to write about this phenomenon without sounding soft-headed, insubstantial and irrelevant. Yet what is more relevant than people's fundamental beliefs? We have lost the very language with which to speak of spirit, and it is precisely this kind of discourse that Schumacher believes must be reestablished.

E. F. Schumacher's great contribution is his spanning of the gap that has split the "technical world" from the "spiritual world." By being both economist and metaphysician, he has begun to create a new metaphysical basis for economics. It would be a disservice to us all to categorize him as merely a proponent of medium-scale enterprise, and to place *Small Is Beautiful* with other competing "proposals" in the same old marketplace.

John Lewallen, one of the editors of the Grass Roots Primer, lives in Oakland, California, and with his wife, publishes the North County Star.

Robert A. Irwin

SMALL MAY be beautiful, but sometimes "big" is, too. As heretical as that thought may be to environmentalists, the Sierra Club has endorsed it by taking a stand for growth—its own. At the club's annual meeting in San Francisco on May 1-2, the Board of Directors authorized a program to reach a goal of 250,000 members by 1980. As of April 1, 1976, total membership stood at 161,791, a gain of 5,394 since the first of the year. To reach the 1980 goal an average ten percent net annual increase in members would have to be achieved. If—and it is a big "if"—the amazing pace of fourteen percent net annual increase set during the first three months of 1976 can be sustained, the goal of 250,000 members could be reached well before the target date of 1980. (Actual performance over the past few twelve-month periods, however, has shown a more modest annual growth rate of five to six percent—still a marked improvement over the two to three percent of the last two or three years.)

But even if a ten percent growth rate is possible, is it desirable? Why should the Sierra Club want to become larger? The board believes that a larger membership will make the club a stronger, more effective environmental organization, with more political impact, more troops and more financial resources. In his memo to the board, Executive Director Mike McCloskey observed that such growth would not entail any significant changes in the structure, character, or operations of the club. Like any other institution, he said, the club has an optimum size, probably well under the half-million mark. The Sierra Club, however, already has the infrastructure (with its present staff, methods of operations, and forty-nine chapters in all states and Canada) to support and supply leadership for a much larger active membership than it has now. McCloskey went on to list a few specific benefits a larger membership would bring to the club:

- As the club grows, there will be more organized groups in more congressional districts (perhaps eighty percent of them) and a greater base for letter-writing and other contact with congressmen and other politicians.
- An impressive growth in members would show skeptics in government and the press that our point of view continues to enjoy strong public support.
- A membership of 250,000 would tend to rank us in size with other major public-interest organizations such as Nader's Public Citizen and Common Cause.
- More members would bring in additional funds, "which can be used to improve the effectiveness of our programs."

A Surge in New Members

There is nothing startlingly new about the club's efforts to recruit new members, nothing new except that now a definite goal has been set, with an incentive to make budgetary provisions to achieve the goal. As mentioned in this space last month, the club's national

Membership Committee, since its reactivation in 1972, has primarily been concerned with developing means of attracting new members and reducing the number of nonrenewals, which now run at the rate of some 2,000 a month. Fortunately, in recent months, the number of new members joining has been twice that of the old members dropping out. Part of this increase in new members can be attributed to the club's direct-mail solicitations. Nonetheless, about three of every four new members continue to be brought into the club through the efforts of individual members. Thus the efforts of each one of us in the club are essential if we are to reach the 1980 goal. Membership drives at the chapter and group levels can be expected to be stepped up.

The New England Chapter has already announced an ambitious drive to sign up new members between April 1 and July 4, 1976, with three camping-equipment prizes as inducements to the two most successful recruiters. One prize will be awarded by raffle to a newly recruited member.

The direct-mail solicitation for new members and funds is a fairly recent tactic for the club. At a recent meeting of the Membership Committee, Denny Wilcher, in charge of the club's program funding, reported on the results of test mailings made from various lists. Some were obtained on an exchange basis from other conservation or public interest groups; others were purchased from magazines with readers likely to be interested in the Sierra Club. To date, with appeals mailed to over 550,000 persons, the response has been an exceptional 1.7 percent. Under the new program, mailings will be doubled, and if a response rate of at least 1.2 percent is achieved, some 12,000 new members a year would be gained. That would leave another 38,000 to be recruited by individual members each year in order to achieve a *net* gain in membership of 20,000 a year.

Two New Recruiting Tools

Two other new Sierra Club recruiting tools are now in use. North Carolinian Denny Shaffer of the Joseph LeConte Chapter has developed an eye-grabbing, four-color pamphlet and display holder to be placed in a number of different locations, such as backpacking and sporting goods shops and bookstores. They will be aimed at people who are not likely to know much if anything about the club but who may be enticed into finding out more about us and thus become members. He and Wilcher, with the cooperation of a few selected chapters, will make test distributions. If the pamphlets produce results, they will be made available to all chapters and groups for placing in the most productive types of establishments all over the country.

A second membership-recruiting tool is a twenty-minute slide show on the Sierra Club with a synchronized tape commentary. While its primary purpose is to help orient new members to the club, it also is a productive means of introducing prospective members to the Sierra Club and of acquainting them with its programs and causes. The carousel and tape are available from George Denise of the Member Services Department at club headquarters. There is a five-dollar charge, and the borrower must pay for the return shipping. Two weeks delivery time is necessary, and the slides and tape may be kept for two weeks. Denise will be mailing a detailed memo on the slide show to all chapter and group leaders soon.

And finally, most of the members receiving the regional appeals shortly will find enclosed a form on which they may nominate prospective members who will then be sent applications. A test mailing of 5,000 produced 600 nominations from present members in late 1975.

Land Use Primer

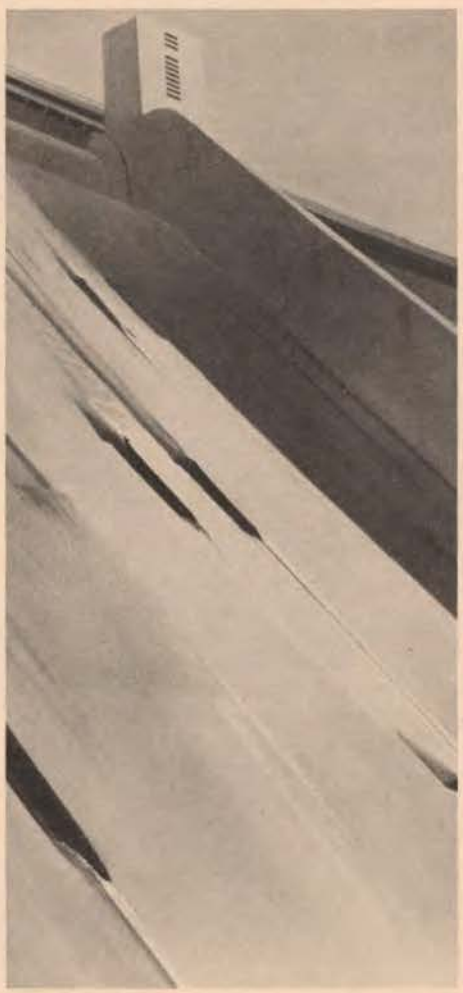
An easy-to-read primer on the local land-use-decision process is being prepared for fall release by the National Land Use Committee. Therefore, if you have any ideas or material you wish to see included, send them now to Kent E. Watson, 2033 22nd Street, San Francisco, CA 94107.

The Council Newsletter

If you have asked for it and did not get it (or if you didn't and want it), write to Jeanne Gahagan (not Editor Ann Van Tyne), Council Office, Sierra Club, 530 Bush Street, San Francisco, CA 94108.

Join the Data Bank

The deadline for being included on the Sierra Club Office of Research's first "experts" list is July 1, 1976. The office is building a network of specialists in all scientific and technical disciplines, including economics and the social sciences. If you wish to enroll, please send the following data to Catherine Gasparini, Sierra Club Research, at club headquarters: name; age; address; phone numbers; academic training (and degrees); professional experience; and publications.



Club member tackles Interior

Spillway: Shasta Dam, by New York artist John Button, is one of seventy-eight paintings in the Department of the Interior's Bicentennial Art Exhibition, which opened April 27 at the Corcoran Gallery of Art in Washington, D.C. The department commissioned forty-five painters to record their impressions of the contemporary American landscape, reviving a tradition harking back to the days of Thomas Moran and Winslow Homer more than a century ago. Button, a life member of both the Sierra Club and the Save the Redwoods League, was aware of the continuing plight of the redwoods and wanted to paint them for the exhibition. The Interior Department, however, asked him to paint "a dam or something" because the national parks were already well represented in the exhibit while other departmental activities were not. Button acceded to this request and agreed to paint the Bureau of Reclamation's Shasta Dam in his home state of California. Since the show's curator had told him to interpret his subject however he pleased, Button tried to make his dam as menacing and frightening as possible, even though the officials at Shasta Dam might have wished for a gentler, more prettified treatment. The painting was accepted for the show, but Button still wanted to paint the redwoods. So with-

out official commission, he donated his large elegiac *The Final Redwoods* to the exhibit. After the show closes in Washington on June 13, it moves to Hartford (July 4-September 12) and Boston (October 19-December 7). In 1977 and 1978, it will visit Minneapolis, Milwaukee, Fort Worth, New York, San Francisco and Atlanta, before leaving on a tour of Europe.

The Dues-Hike Vote—a Clarification

Some who cast ballots in the last Sierra Club election appear to have some mistaken notions about the club's dues schedule. And perhaps they are even now paying higher dues than they need to. Although the membership recently approved the dues increase by a nearly two-to-one margin, the Judges of Election noted that many of the "nay" voters had written critical comments on their ballots. Most were from students or retired persons, who said they could not afford to pay twenty dollars a year.

The fact is that neither students nor retired members will have to pay twenty dollars; they do not even have to pay the current fifteen dollars. *The increase pertains to the "Regular" membership category only.* The dues for all other categories will remain exactly as they have been. Senior dues (age sixty and over) and student dues (for any full-time student of any age) are and will be only eight dollars a year. Members in either of these categories are not expected to pay the dues for "Regular" members. Furthermore, the vote to increase "Regular" dues has made it less expensive for a "Senior" to join the Sierra Club, for it also eliminated the five-dollar admission fee. Thus a Senior will pay only eight dollars, instead of thirteen dollars, to join the club.

The Judges further reported that participation in the election (29.7 percent of the ballots mailed out) was "definitely higher in 1976 than in the past several years."

Sierra Club Honored

THE Sierra Club is pleased to announce that it has received a special award from the *Diplomatic World Bulletin*, a publication dedicated to serving the United Nations and the International Community. The citation reads, in part: "For its continued and unfailing adherence to the principles of environmental improvement throughout the world over so many years, DWB makes a special award. The Sierra Club for its outstanding work as a private organization fighting for conservation of the environment throughout the world. . . ."

Bigger Airports

To the Editor:

John Dunn's recent *Bulletin* article, "Takeoff and Landing in Atlanta" [March 1976] presented many excellent nontechnical reasons why Atlanta doesn't need another gigantic airport. Here are several mildly technical ones that say he is right:

From 1971 to 1973, we worked with many Shelby County, Kentucky, citizens to defeat a 30,000-acre airport planned for that rural county near Louisville. Since that victory, we adapted what we learned to the national scene. Here are the conclusions of a report that required several thousand hours of "blood, sweat and tears." It indicates that John Dunn is very probably right in *all* his statements:

1) The per-mile cost to the user for traveling to distant airports is about eighty cents per mile for each additional mile from the central user area, for each use of the airport. Thus, a new airport for Atlanta, moved even ten miles farther away, would cost its users an additional $160 million annually; twenty miles farther, $320 million annually, and so on.

2) STOL (short takeoff and landing) aircraft, as demonstrated by DeHavilland's "Twin Otter" and new fifty-passenger "Dash 7," will be able to increase airport capacity by more than twenty-five percent merely by using close-in parallel runways and currently unused airspace.

3) Succeeding generations of avionics will further increase airport capacity by allowing much closer parallel runways and vastly improved low visibility and IFR (instrument) operations.

George Rose

4) Our current conclusions, based on the above and allowing for the use of larger, quieter and more efficient planes, would seem to indicate that air transport entered its slower-growth phase several years ago and that future growth in the average number of enplanements will be much closer to two or three percent annually than to the eight to ten percent often quoted.

5) The noise problems of the older aircraft could be nearly eliminated with proper retrofits, to be amortized by a five-percent ticket surcharge.

6) All of the above have persuaded us that today's updated airports, with tomorrow's better planes, might carry tomorrow's passengers with ease. There would seem to be little need for vastly expanded or large distant airports, nor even of greater numbers of planes than the 2,300 flying today. These conditions would seem to apply for at least several decades in the future.

If the tentative interpretation of our research to date is even approximately correct, vast changes are in store for America's air-transport industries.

Fred Hauck
Dan Hauck,
Environmental Consultants,
Shelbyville, Kentucky

Gas Pipeline

To the Editor:

Brock Evans deserves applause for his presentation of conservationist concerns over natural-gas pipeline impacts on the Arctic National Wildlife Range (ANWR). However, his Washington Report, "Alaska's Second Pipeline," does contain errors which might mislead his readers.

In the first place, there is no "Arctic Gas Company" made up of major oil and gas producers, as claimed by Evans. Two companies, Alaskan Arctic Gas Study Company and Canadian Arctic Gas Study Limited, have been preparing applications to U.S. and Canadian regulatory agencies. Both of these companies are currently made up of twelve U.S. and Canadian natural-gas pipeline and distribution companies and three Canadian oil and gas producers.

Evans' claim that "all environmental groups" oppose the proposed North Slope routing denies the fact that many responsible environmental scientists with extensive Arctic experience prefer the proposed ANWR crossing to any other pipeline route from Prudhoe Bay and that the Department of the Interior has so far

not announced any other route which it feels is preferable. And, while pipeline proponents have been active in providing information, no dollar figure is given to support what constitutes Evans' "a great deal of money" for "lobbying" efforts. This is especially unfair because no mention is made of the millions of dollars which have been spent by the study companies in the most extensive multi-year environmental research program ever undertaken as part of a private-project application to regulatory agencies in North America.

Despite Evans' repeated reference to an EIS [environmental impact statement] prepared by the Department of the Interior and the Federal Trade Commission, no such document exists. The Department of the Interior and the Federal Power Commission have both released their own Draft EISs, but no final EIS has yet been prepared by either agency. Evans apparently is referring to the Department of the Interior's Draft EIS. Quoting alleged impacts from this as yet unsubstantiated working draft as if they were in fact the considered opinion of environmental experts is not responsible reporting. For example, the quoted claim that compressor stations could be heard for 30 to 40 miles is simply not true (2 to 3 miles has been predicted under normal conditions by noise experts). Even within this 2 to 3 mile radius, no significant adverse impacts have been predicted at compressor-station locations by environmental scientists who have conducted field tests of wildlife response to compression station noise (except for snow geese which have been avoided in station siting). And while aircraft can certainly disturb wildlife, pipeline surveillance aircraft will have to follow the same altitude and timing rules as all other aircraft which have been flying in the ANWR airspace for many years. Evans' closing, "—the last place in Alaska where mountains still tumble onto unspoiled foothills and plains, where the yearly migration of animals and birds proceed undisturbed as they have for thousands of years," is as naive as it is poetic.

Finally, the fact that the proposed natural gas pipeline across the ANWR also follows a "corridor," the well-established Mackenzie Valley transportation corridor in Canada, is never mentioned. The need to cross the ANWR in order to bring Canadian natural gas from the Mackenzie Delta fields to markets in Southern Canada is also never mentioned. The proposed pipeline is an international project and is being designed to minimize environmental impacts while bringing natural gas from both Prudhoe Bay and the Mackenzie Delta to the market areas in both the U.S. and Canada. Evans's omission of a clear description of the purposes of the proposed pipeline seem intended to leave the reader with the incorrect impression that the route selection was capricious.

But at stake here is not the resolution of any understandable differences of opinion between pipeline proponents and the Sierra Club Board of Directors. The issue is honest reporting required to fulfill, "not blind opposition to progress, but opposition to blind progress." Evans should take off his blinders.

A. B. Walters
Pacific Lighting Gas Development Co.

Brock Evans responds:
Whether there is or is not a legal entity officially named "Arctic Gas Company" is not the point. I am now looking at twenty-five volumes of draft environmental impact statements; they consistently refer to the "Arctic Gas" proposal for a pipeline. Everyone on Capitol Hill knows who "Arctic Gas" is: it is not El Paso Gas, and it is not the environmentalists. "Arctic Gas" is the consortium of companies that wants to build a pipeline through the Arctic Wildlife Range. That *is* the point.

It may very well be that the "environmental scientists" hired by the consortium said what they were paid to say —that they favor its route through the range—but their support in no way negates my statement that environmental groups, with no financial stake in the route, oppose it. In fact, one of these environmental scientists testified recently before the Federal Power Commission that his group had given only the most cursory attention to alternate routes.

Walters may call Arctic Gas' activities in Washington, D.C., "providing information," but again, everyone on Capitol Hill knows that Arctic Gas has spent a great deal of time and money in an enormous lobbying effort on behalf of its proposal, which now has surfaced in the Senate in the form of a bill sponsored by Senator Walter Mondale (D-Minnesota) and others. Such things do not occur by accident: a group must lobby hard to persuade several senators to sponsor its bill.

Walters makes much of my reference to an environmental impact statement, when, in fact, the document in question is a *draft* environmental impact statement. This quibble, however, does not alter the fact that page after page of this report documents the disastrous implications of running a gas pipeline either through or adjacent to the Arctic Wildlife Range. Arctic Gas is indeed lobbying very hard to see that the *final* environmental impact statement does not criticize its proposed route so thoroughly and persuasively as has the current draft. The consortium may succeed in silencing some of the fish-and-wildlife experts within the Department of the Interior who already have had the courage to speak out against this route. As for noise impact, experts we have talked to disagree with those hired by the consortium.

Walters can cite all the so-called environmental data he wants in support of Arctic Gas' proposed route across the Arctic Wildlife Range, but everyone knows the route was not chosen for environmental reasons. Almost three years ago, we told pipeline interests that we would have to oppose this route and urged them to choose another, such as down the Alaska Highway. The real reason Arctic Gas proposes to destroy the wildlife range with its pipeline is because of a decision made in a corporate boardroom long ago, which apparently is not to be changed under any circumstances. All the money it has since spent on "environmental studies" has been to justify this decision, not to consider alternatives.

Walters and the Arctic Gas consortium may claim to be concerned for wilderness and wildlife, but their actions thus far dramatically highlight the difference between them and the Sierra Club more than anything I could say.

Noise-Impact Study

To the Editor:
I am a psychologist—and Sierra Club member—who studies the reactions of individuals to environmental problems. The federal government has awarded me a grant to investigate the impact of a new noise problem in a community. By contacting neighborhood residents before the noise begins, shortly after it starts, and again sometime later, I hope to describe more clearly the problems people face in trying to adjust to noise.

Significant noise impacts occur frequently, but the agencies responsible are often reluctant to talk about the noise they are about to impose on the community. As individuals sensitive to local environmental quality, I hope your readers can help me locate a site for this project. The site should be a location where a substantial new noise problem is expected to begin some time in the next fourteen months. It could be a newly opened highway, a change in traffic pattern that will bring additional traffic onto quiet streets, a noisy new factory, a new runway at an airport, a long-term construction project, a new auto race track or any environmental change that will impose a new noise burden on a community. At least a couple hundred residents must be affected. If you know of such a project, please write me as soon as possible.

Neil Weinstein
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Box 231
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CLEANSING THE WINE-DARK SEA

Photos by Louis Saliba

A typical fishing village in Malta. The boats are traditional, though fishing techniques are improving.

LOUIS SALIBA

BETWEEN February 2 and 16, 1976, representatives from sixteen Mediterranean coastal states met in Barcelona, Spain, to discuss the first legal instruments designed to prevent and control marine pollution on a cooperative regional scale. Held under the auspices of the United Nations Environment Programme (UNEP), and attended by representatives of most U.N. and other international agencies, the conference agreed on a convention which may well be a milestone in the history of the world's "oldest" sea. The "Barcelona Convention" for the protection of the Mediterranean Sea against pollution is perhaps as significant in its underlying concept as in its material content. This is best expressed by the last preambular paragraph, which recognizes

> the need for closer cooperation among the states and international organizations concerned in a coordinated and comprehensive regional approach for the protection and enhancement of the marine environment in the Mediterranean Sea Area.

The convention provides for cooperation and action on all forms of marine pollution: dumping from ships and aircraft, ship discharges, sea-bed exploration and exploitation, pollution from land-based sources, and pollution emergencies. Actions would include monitoring programs, scientific and technological cooperation, and liability and compensation for damages. Each aspect will form a separate specific protocol annexed to the main convention, with possible exceptions where already existing global treaties provide for the special treatment of endangered regions. The first two protocols, on dumping wastes from ships and aircraft, and on cooperation in cases of pollution emergencies, were discussed and finally agreed upon at the Barcelona Conference. Preparations for completing the rest are already in progress.

This convention is not the first to address such problems, but for the Mediterranean it has a special significance. Perhaps for the first time in the region's history, several nations have banded together against a common enemy and are looking at pollution control not simply as an end in itself, but as the first step toward extending mutual cooperation in the region to other fields.

The conference did not confine itself to legal issues. It also passed a number of resolutions, one of which requests the executive director of UNEP to take all necessary steps for the early establishment of a special

Fort Manoel in Malta's Grand Harbour complex.

regional center to coordinate activities for combating oil pollution. This center will be located on the island of Malta.

The name Mediterranean conjures up images of ancient Egypt, Troy, Tyre and Carthage; of the Greek, Persian, Roman and Ottoman empires; of the Crusades and the Knights of St. John of Jerusalem; of the Barbary Corsairs. Throughout the centuries, up to the present day, its history has been an endless succession of strife, in which only the names of the major protagonists have changed. Recently, its climate, the beauty of its coastline and immediate hinterland, and its warm blue crystal-clear waters have made it one of the world's most popular tourist resorts.

Eighteen countries on three continents (Europe, Africa, and Asia) border its shores: Spain, France, Monaco, Italy, Yugoslavia, Albania, Greece, Turkey, Syria, Lebanon, Israel, Egypt, Libya, Tunisia, Algeria, Morocco, and the two island states of Cyprus and Malta. Differences among these countries in natural resources, population densities and numbers, economic development, and ethnic and political characteristics are large enough to make the Mediterranean basin one of the most heterogeneous assemblies in the world. It is this feature, perhaps, which makes the transition from an isolationist to a common approach especially significant.

The Mediterranean Sea is a fairly large body of water extending 2,000 miles from the Strait of Gibraltar, which connects it with the Atlantic, to the Suez Canal, which connects it with the Red Sea. It is thus virtually enclosed. Its total area is 1.2 million square miles, but its comparatively deep waters give it a volume of one million cubic miles. It has very few major rivers flowing into it—apart from the Rhone, the Po, the Ebro and the Nile, the rest are small, and its rapid evaporation rate results in a very high salinity level: 3.62 percent in the West rising to 3.92 percent in the East.

The clarity of its blue waters makes it attractive for the tourist, but is the result of its low nutritive capacity. Waters entering from the Eastern Atlantic are already depleted, which makes the Mediterranean a relatively poor fishing ground even under the best conditions. Water enters the Mediterranean by means of surface currents through the Strait of Gibraltar and leaves via deeper currents through the same narrow passage, the average circulation time being eighty years. Mixing occurs between the upper and lower layers at various points, but any pollutant discharged into the Mediterranean from its own shores, or from the Atlantic, generally remains there, either on the surface or in bottom sediments.

The total population of the eighteen Mediterranean nations has been estimated at 300.66 million. This includes countries like France, Spain, and Morocco, which also make up part of the Eastern Atlantic coastline, so the actual Mediterranean population is lower. It is estimated that sixty million tourists visited the area in 1973. Even though a major urban complex

is rapidly expanding along most of the Mediterranean coastline, this figure should be modified because (a) not all actually stay near the coastline, and (b) they are transient visitors, and no accurate records in terms of length of stay appear to be available. Nevertheless, the amount of domestic sewage being discharged into the Mediterranean, either directly or through rivers, is increasing rapidly. Again, though various estimates of the total organic load have been made, these have been based mainly on population numbers and calculation of the average "product" per person per year, rather than on actual measurements at the points of discharge. Increased industrialization, originating along the developed northwest coastline, but now rapidly extending, has resulted in an appreciable discharge of wastes and byproducts into the sea through a variety of channels. Agricultural expansion, increased production and use of pesticides in every coastal country has added a further source of pollution.

Perhaps the greatest immediate problem is oil pollution. The Mediterranean has for centuries been the short-cut to the Persian Gulf and the Far East, and ships of all nations regularly sail across it. The closing of the Suez Canal in 1967 considerably reduced this traffic, but even so, the General Fisheries Council of the Mediterranean (GFCM), an arm of the United Nations Food and Agriculture Organization (FAO), calculated that in 1970, out of 300 million tons of crude oil loaded in Mediterranean harbors, 300,000 tons were being discharged annually into the sea through tanker-ballast release. Another 20,000 tons regularly reach the sea from refineries. GFCM estimated that total spillage would approach 450,000 tons by 1976. This poses a grave problem not only to relatively scarce marine life, but also to the tourist industry through continuous pollution of beaches and coastal resorts.

Until recently, measures taken to prevent and control Mediterranean pollution have been, for the most part, purely national. Each country, to varying degrees, studied its own problems and took steps it considered the best, or, at any rate, the most practicable, to limit them. The vast differences among the problems of the various states has obviously led to a complicated mosaic of national legislation and practical measures, each concerned with the degree of control necessary for what one might call "internal consumption."

Pollution of the sea, however, respects no national boundaries. Various pollutants diffuse into, or are carried on, the complex current system and end up at points sometimes far beyond their origins. Because the Mediterranean is almost completely enclosed, pollutants tend to accumulate. The sea's increasing deterioration is causing concern not only among international organizations and individual scientists, but also among those countries that, while not polluters themselves, are affected by pollutants originating from other states. Many now realize that no amount of purely national legislation or effort can produce an answer.

Malta provides an appropriate example. Situated in the middle of the Mediterranean, sixty miles southeast of Sicily and 180 miles northeast of Cape Bon in Tunis, the Maltese Islands lie in the narrowest part of the sea, where the Sicilian ridge physically divides it into eastern and western basins. The total area of the islands —Malta, Gozo, and Comino—is just over 120 square miles. The sharply indented coastline has a total length of 180 miles. Predominantly rocky, with a large area of its land unsuitable for agriculture because of the scarcity and shallowness of its soil, Malta has a particular beauty of its own, both natural and historical. Originally forming part of a land-bridge connecting Europe and North Africa, it possesses some of the world's best-preserved prehistoric megalithic temples. Throughout the ages, it has successively passed into the hands of Phoenicians, Carthaginians, Romans, Arabs, Normans, Castilians and Aragonese, before being handed over to the Knights of St. John in 1530. They, in turn, were driven out by Napoleon in 1798. Following a brief period of French rule, Malta became part of the British Empire for over 150 years, eventually achieving independence in 1964, and becoming a republic within the British Commonwealth in 1974. All these foreign influences have left their

marks on the population, the language, and produced what can only be described as an abundant architectural heritage.

The economy of Malta is based on industry, agriculture, and tourism. All are in an active stage of development, the islands having had to pass through a period of transition from a major military and naval base to an economically self-sufficient state based on more peaceful pursuits. The transition is not complete, yet even the crying demand for new industries and more modern agricultural techniques has not led to shelving environmental considerations. Malta's industries are "light," producing virtually no toxic smokes or effluents. In setting up new factories and plants, care is taken to ensure specifications that will minimize environmental repercussions. In some instances, this has necessarily involved delay in establishing industries that would have brought considerable improvements to the local economy. In 1971, pesticide legislation was drastically modified to restrict the use of DDT and other persistent chemicals, even though local climatic and physical conditions considerably accelerate their rate of decomposition. Also in 1971, a coordinating mechanism was established for linking together all the government departments concerned with environmental problems. Here, instead of setting up separate environmental agencies, it was decided that the best way to achieve efficiency in the face of limited manpower and resources was to create a means of liaison and cooperation.

Formed in 1971, the Malta Human Environment Council is made up of senior government and university representatives, each of whom has executive or scientific duties in his own particular sphere. Each department, while remaining geared to its own field, is thus also able to carry out work of an interdisciplinary nature through its liaison with council members. The council operates under a cabinet minister responsible for environmental matters.

Nevertheless, by 1972 Malta started to feel the effects of pollution from outside sources. Tourist beaches, picturesque old fishing villages and the rugged rocky coastline became littered with oil patches and tar balls, the result of tanker discharges sometimes occurring many miles outside Malta's territorial waters. As a result, in June 1972, the armed forces, totalling 600 men and including a maritime division, had to take up a new responsibility—that of dealing with oil pollution at sea. Military patrol boats were equipped with antipollution equipment, and a special operational system was devised to try and neutralize oil slicks before they reached the shore. This could not, however, eliminate the ubiquitous tar-ball problem, and the work of the beach-cleaning gangs of the Malta Tourist Board had to be considerably increased. Already active in the international field, and having played a leading part in the initiation of the Law of the Sea Conference, Malta now took a further initiative and called a special meeting of Mediterranean states in July 1972 to discuss regional cooperation, with the emphasis on marine pollution.

Meetings on the Med

Meanwhile, many scientists began to draw attention to the Mediterranean's gradual deterioration. Between 1971 and 1975, the number of international meetings on pollution of the Mediterranean, organized by every institution imaginable, both official and otherwise, had become unmanageable. In some instances, problems were exaggerated, and so many different views were expressed and approaches suggested that, at one stage, it was never certain whether the end would be chaos or apathy from a glut of duplicative and disconnected efforts.

Cohesion was restored when, late in 1974, UNEP emerged as the coordinating U.N. agency. Calling a meeting of Mediterranean states in Barcelona in January 1975, Executive Director Maurice Strong explained the proposed plan as a three-pronged attack on the problem, involving (1) a set of legal instruments in the form of a convention and supporting protocols to cover all aspects of marine pollution; (2) a number of scientific research and monitoring projects, each under the auspices of the appropriate U.N. agency, to find out the *exact* state of pollution in the sea; and (3) a long-term plan for the region to coordinate economic development with environmental protection, taking into account both overall regional needs and the particular problems of each individual state. All three aspects were approved.

At this point, Malta raised another consideration. In a document circulated at the Barcelona meeting, the Maltese delegation, led by Ambassador Joe Attard Kingswell, pointed out that the UNEP Action Plan would take time to come to fruition. In the meantime, the problem of oil pollution, soon to be aggravated by the impending reopening of the Suez Canal, could easily result in a major disaster through an accident at sea, and would in any case be accentuated by the increase in tanker traffic. Malta pointed out the pressing need for a regional anti-pollution center to coordinate activities on a practical scale, and made a formal offer to host it. Apart from its central location and general political acceptability, Malta was also equipped with excellent dockyard facilities (including one of the most modern tank-cleaning units in the Mediterranean) and ample telecommunication and allied facilities. The center would ensure, by building up a complete inventory of regional oil-combatting resources and the necessary communication machinery, that prompt action would be taken against any major spillage. Moreover, it could be done in a very short time.

Since this was a relatively new concept, the conference asked UNEP to carry out formal consultations at the government level. Following a technical meeting of experts held in Malta in September 1975, the objectives and functions of the center were agreed upon and endorsed at the Plenipotentiary Conference in February this year. Estimated to cost 1.6 million dollars up to 1980, the center is expected to be fully functional by early 1977. Initially scheduled to deal with communications, training, information-exchange and coordination, it could also, in the future, take up an active operational role in actual oil-spill control at sea.

The comprehensive regional program is now well under way. It has been born out of a spirit of cooperation in which both polluter and polluted have realized their responsibilities and their mutual interdependence. Its eventual fruition should go a long way toward preserving and enhancing one of the world's oldest natural and historical environments.

Louis Saliba is a lecturer in biology at the University of Malta, and consultant to the Malta government on environmental matters.

CANADA'S VALHALLA

Photos by Dewitt Jones

Nemo Battlements at the headlands of Nemo Creek in the Valhalla Range.

IN THE southeastern portion of British Columbia, nestled in the Selkirk Mountains, lies the Slocan Valley. Slocan Lake, thirty miles long, wends like a fjord among the verdant valley walls and towering peaks of the Valhalla Range. Because of the outstanding scenic and recreational qualities of this area, sometimes referred to as the Lucerne of North America, valley residents have been fighting to preserve at least a portion of it from clearcut logging, already approaching dangerously close. This would be called the Valhalla Nature Conservancy Area.

Slocan Lake itself is one of the few larger lakes in this section of B.C. that remains relatively undisturbed; the water is still pure enough to drink. The pristine character of its shores contrasts sharply with the developments sprawling along Kootenay, Shuswap and Okanagan Lakes. Nor does Slocan Lake suffer from fluctuating levels, as do many of the other interior lakes, following construction of the dams agreed upon in the 1961 Columbia River treaty with the United States.

Highway 6 runs along the eastern shore, but along the western shore, where the proposed conservancy area would be located, there is neither road nor habitation. The highway passes through the villages of Slocan, Silverton, New Denver, and Hills, communities established during a brief flurry of silver mining around the turn of the century. The rewards failed to live up to prospectors' expectations, and what remained were some false-fronted buildings, old railways, and a few people who found the valley too lovely to leave. The source of much of the region's appeal is the wildness of the proposed Conservancy Area, which dominates the view across the lake and is untouched except for limited logging in the 1920s.

The first attempt to set aside a portion of the Valhallas was embodied in a 1970 proposal by the Kootenay Mountaineering Club, which advocated inclusion of the southwestern section of the watershed within a provincial park. Unfortunately, this proposal was not well publicized and drew little public support.

Increasingly, however, residents of the valley want to preserve at least a small part of it from the chainsaw. In 1974, their interest culminated in another, larger proposal submitted to the B.C. Parks Branch by the late Ave Eweson, a biologist. His plan, the Valhalla Proposal, called for the establishment of a 122,000-acre nature-conservancy area on the west side of the lake, embracing six major creek

We would like to thank Pat Kariel, David Sternthal and Wayne McCrory of the Western Canada Chapter for their helpful contributions to this article. The Editor.

drainages and ascending from the lakeshore to the heights of the Valhalla Range. This area encompasses eighteen miles of shoreline, including many sandy beaches and low-lying winter feeding grounds for mammals and birds, as well as historic Indian pictographs; six major creeks, which tumble to the lake over magnificent waterfalls from their headwaters in the alpine tarns and larger lakes that dot the high country; and a rugged chain of both barren and glaciated peaks extending along the spine of the Valhalla Range, which runs about ten miles from the lakeshore.

Although wildlife populations in the area have never been high, they have remained stable because of limited human activity. Larger mammals include mule and white-tailed deer, grizzly and black bear, cougar, mountain goats and possibly mountain caribou. Among the common smaller mammals are lynx, mink, bobcat, wolverine, ermine, marten and coyote. Birdlife includes such species as the golden eagle and harlequin duck.

Nemo Creek, the last unexploited drainage in the Slocan watershed, has seen no commercial logging, nor has it been badly burned for several centuries. It supports stands of old-growth forest, ranging from lakeside cedar and hemlock measuring over six feet in diameter, to spruce and subalpine fir at higher elevations. Streams cascade 3,000 feet down the rock wall that forms the north bank of the lake for several miles, known locally as the "Nemo Embattlements." Near its confluence with Slocan Lake, Nemo Creek rushes over waterfalls, tumbling through a primeval, moss-covered forest characterized by the B.C. Forest Service as "mature and decadent timber."

Evans Creek has its headwaters in the Hird Lakes area, overlooked by the Mt. Bor massif. Its drainage includes Evans Lake, the largest in the proposal area and inaccessible on foot. The area near Evans Lake is home to stands of yellow cedar, a very rare species in the B.C. interior, which are now protected in an ecological reserve. One of the smaller drainages, Sharp Creek, arises from the New Denver Glacier, which forms part of the vista that villagers in New Denver awake to each morning. As early as 1910, the New Denver Improvement Society constructed a trail from the lakeshore to the glacier; it still attracts hikers and skiers.

The area offers such diverse recreational activities as boating on Slocan Lake; climbing among the granite peaks, where the Kootenay Mountaineering Club maintains a cabin at Mulvey Basin; skiing on the New Denver Glacier; camping on the sandy beaches; hiking amid the splendor of the mossy forest, with occasional glimpses of waterfalls; and fishing in the mountain lakes. It is this very diversity which makes the area unique among the B.C. parks of the southern interior.

In contrast to the unspoiled beauty of the watersheds within the area are the major drainages immediately north and south of it. To the north lies Shannon Creek, where the predecessors of Triangle-Pacific Company, or Tri-Pac, have left in their wake over 1,000 acres of continuous clearcut. In April 1975, Tri-Pac, a subsidiary of a New York-based multinational corporation, was successfully prosecuted by the B.C. Fish and Wildlife Branch for devastating Hoder Creek, a once-thriving trout stream just to the south. Hillsides are eroding; the huge clearcut patches usually hidden from public view are becoming disturbingly visible as logging continues; creeks are becoming silted up; fish and wildlife are suffering.

Tri-Pac's Intention

The beautiful drainages that are home to the last remaining stands of giant cedar, hemlock and spruce are being converted to timber by a series of logging plans. In its twelve-year logging plan, made public early in 1975, Tri-Pac revealed its intention to log the old-growth forests along Nemo and Wee Sandy Creeks within the decade. These stands provide excellent habitat for a remnant population of mountain caribou and are denning grounds for both black bears and grizzlies.

Preservation of the Valhalla wilderness is perhaps more complicated than a similar campaign in the United States would be, for it means convincing the B.C. government that wilderness is a legitimate land use, even to the extent of pre-empting resource exploitation such as logging. A wilderness system such as that of the United States does not exist here. The concept of a nature-conservancy area has been created to make it possible to preserve certain areas in their natural state. It is distinct from the park category in general in that resource exploitation, including both logging and mining, is not automatically excluded from provincial parks.

The idea of a nature conservancy was first used successfully in the Purcell Mountains to the east of the Valhalla region. Here, environmentalists, including the Western Canada Chapter, attempted to prevent a lumber company from clearcutting the beautiful Fry Creek watershed. After a two-year campaign, environmentalists finally saw the area designated for conservancy with provision for management by the Parks Branch "as a roadless tract in which both natural features and ecological communities are preserved intact and where the natural progressions of the environment can proceed without alteration."

Saving even this narrow access corridor was a "first" for this portion of southeastern B.C. Although there are five small wilderness parks in the region, only four percent of their total area is at elevations below 5,000 feet. Within the Kootenays, less than .01 percent of the frontage on large lakes is preserved for public recreation. The unique characteristic of the Valhalla Proposal is that it calls for the preservation of an area that includes both a substantial portion of shoreline and a complete representation of life zones from the low elevation of the lake to the summits of the mountain range.

Ave Eweson, originator of the Valhalla Proposal, was killed in the crash of a small plane shortly after submitting his proposal to the provincial government. His efforts have since been taken up by valley residents, who established the Valhalla Committee in January 1975. An initial letter-writing campaign to provincial resource ministers proved fruitful. In replying to correspondents, the Parks Branch indicated a desire to carry out an extensive study of the prime wilderness portions of the Valhallas during the summer. However, these letters also clearly expressed a reluctance to pursue park status for this area, claiming that the Kootenays were already relatively well represented in the provincial parks system.

In early August, 1975, three Parks Branch personnel spent two weeks flying over and hiking about the area. The data they gathered are now being collated into a report that probably

will be submitted to the Nelson Inter-Sector Committee, a regional, interagency resource-advisory group serving the provincial government. Other resource-oriented branches within the government, such as the Forest Service and the Fish and Wildlife Branch, will presumably also make presentations regarding their interests in the area.

Current conflicts in the Kootenays between conservationists and commercial interests, reflected in the controversy surrounding the Valhalla Proposal, result from overcommitment of Crown (public) lands to timber interests in the 1950s. Virtually no allowances were made for recreation, wildlife or other non-logging interests. Today, 200,000 acres of Crown land in the Slocan Valley are leased to Tri-Pac and over 550,000 acres are otherwise committed to logging. Since only a tiny portion has been set aside for parks, proponents of the conservancy do not feel it is unreasonable to ask that 122,000 acres be set aside as wilderness.

The only conflict lies with those who have vested interests in extracting timber: the B.C. Forest Service and Triangle-Pacific Forest Products. Ray Hatch, Tri-Pac's logging superintendent, recently told the press that his company would probably not object to no-logging status in the southern half of the proposed conservancy, although he is "opposed to most parks." Estimates based on Forest Service data suggest that the 122,000 acres included in the proposal contain about six percent of the good- and medium-quality growing sites available to Tri-Pac. Given the size of their current operation—a single small sawmill—such a small cut in their quota is not unreasonable. However, if plans for a proposed fiberboard manufacturing plant materialize, any cut in the allowable annual harvest would jeopardize its development.

Despite attempts to circumvent the work of conservationists, support for the preservation of the Valhallas is growing. The Valley Resource Society, mother organization of the Valhalla Committee, is on the verge of becoming the starting point for a locally elected board that, in cooperation with provincial agencies, will oversee the management of natural resources in the Slocan watershed. This move would give the board jurisdiction over forests, mining, water, agriculture, and fish and wildlife resources. The Valley Resource Society has formally endorsed the Valhalla Proposal, including the provision that the area be put under Parks Branch control.

The Society is also promoting more local control and smaller logging operations. It has recommended that the annual allowable cut be lowered, that rural woodlots be made available to small logging companies under more personal, responsible management, and that various steps be instituted to prevent waste. These measures, in conjunction with others, would help to provide increased and more diversified employment opportunities, minimize waste, maximize public involvement in resource-use decisions, and allow for the establishment of the Valhalla Conservancy without economic loss.

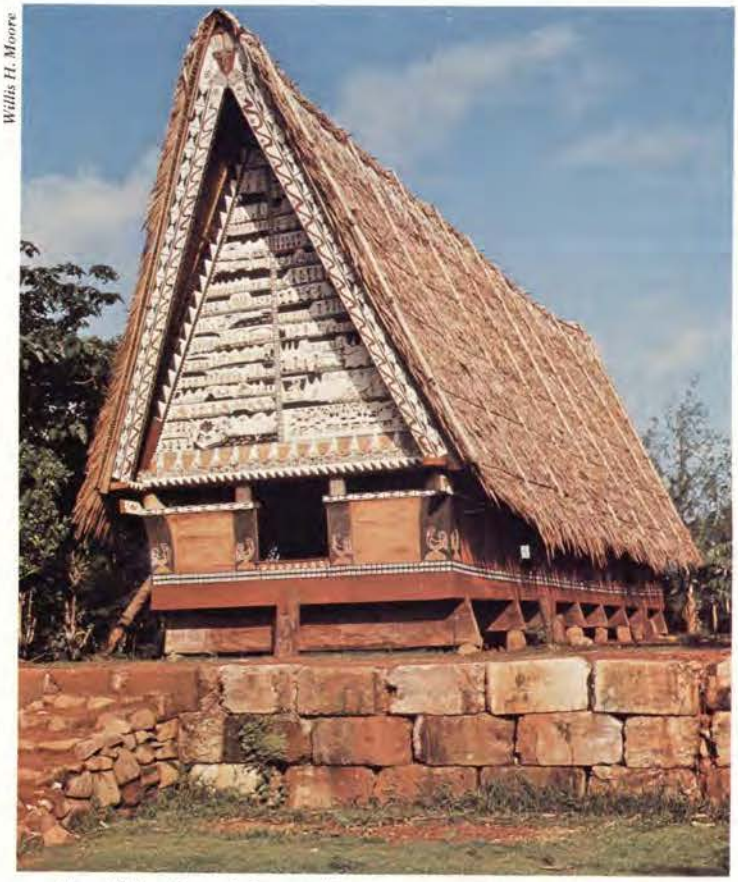
Once the Parks Branch report has been presented to the Nelson Inter-Sector Committee, it is expected that local public hearings will be scheduled. Ultimately, however, legislation to implement the proposal must come from the B.C. Environment and Land Use Committee, which is composed of nine ministers in the provincial government who make land-use decisions after integrated consideration of all available data.

Considering the sluggish pace at which legislatures usually work, together with a recent change in government which has brought in an entirely new set of ministers, it is imperative that the support of concerned citizens continue if the Valhallas are to receive the protection they deserve. Following presentations by Valhalla Resource Committee Secretary Cecil Stedman, a Sierra Club member, to local groups in Calgary and Vancouver, the Western Canada Chapter has endorsed the proposal. The B.C. government needs to hear from club members and other residents in the more populous portions of B.C., the Vancouver and Victoria metropolitan areas, in order to become convinced that establishment of the Valhalla Conservancy would benefit many citizens throughout the province, and not just those living in or near the Kootenays.

Supporters are therefore urged to write personal letters to the Hon. Grace McCarthy, Minister of Recreation and Tourism, with copies to Jim Nielsen, Minister of the Environment; Tom Waterland, Minister of Resources; and Bill King, MLA for Revelstoke-Slocan. The address for all is: Parliament Buildings, Victoria, B.C.

In the text of his Valhalla Proposal, Mr. Eweson emphasized "the pristine splendor of untouched West Kootenay wilderness and an increased determination that an area should be set aside to preserve this heritage and perpetuate it . . . . As a truly representative and diverse specimen of the West Kootenay ecosystem, landforms, hydrology, and wildlife habitat, with a history of only minimal human activity, the Valhalla area is unique . . . . Such an area, under proper protection, would serve as a sanctuary, a museum and monument" of natural history and beauty. **SCB**

Clear cut near a lake similar to Slocan.



Willis H. Moore

A traditional men's house, "Abai," a source of community and artistic pride for the village. This is Palau's newest "Bai," constructed by and for the Palau Museum, Koror.

PORT PACIFIC

a Superport for Palau

WILLIS HENRY MOORE

Since Captain Cook's voyages through the Pacific in the eighteenth century, the Western World has at once regarded the region with extravagant romanticism and cool mercantile ambition. Only Africa vies in our imaginations as a place of fable and fortune. Even now, we are reluctant to abandon the clichés by which we know the Pacific Islands, our rich mythology composed of Captain Bligh and Cook himself, of Gauguin and Robert Louis Stevenson, of Lord Jim and Moby Dick, of copra and pearls. Places like Bora Bora, Pago Pago, Pitcairn and Palau seem the stuff of fiction, yet, of course, they do exist. We can no longer suffer our naiveté about the region, no more than we can in Africa, for today the Pacific Islands are confronted with problems that confound mythologies —poverty, pollution, resource exploitation and the destruction of native cultures. The following tale of Palau describes a new South Seas that is fast replacing the paradise of our imaginations.

The Editor

PALAU, the westernmost islands of the Caroline group, lies about five hundred miles due east of the Philippines. Comprising some 200 islands and islets, it is part of the vast United States Trust Territory of the Pacific Islands (USTTPI), which covers most of Micronesia. Administered by the Department of the Interior under a mandate from the United Nations, the Trust Territory includes islands captured from Japan during World War II. Palau remains largely undeveloped despite 400 years of domination by outside powers (Spain, 1589-1899; Germany, 1899-1919; Japan, 1919-1945; United States, 1945 to date), but if Robert Panero and Associates get their way, the island will soon become the site of a major petroleum port.

Panero, who founded the Port Pacific Development Corporation, envisions a $500 million facility at Kossol Harbor, at the island of Babeldaob in northern Palau. Protected by reefs and providing a natural deep-water anchorage capable of accommodating million-ton tankers, Kossol Harbor is larger than the harbors of New York, Kobe, Rotterdam and Singapore. More important, it lies astride the Lombok-Tokyo oil-shipping lane. Palau is famous for its clusters of jewel-like islands, bordered by lagoons rich in wildlife and surrounded by one of the most spectacular coral reefs in the world. Port Pacific would not only degrade or destroy this environment, but drastically disrupt the local economy and indigenous culture.

The debate over Port Pacific is extraordinarily complex, involving cultural, political, economic, environmental and military considerations. Its rationale, as set forth in reports by Panero early in 1975, lies in the increasing world demand for energy and the possibility of another oil embargo by the major oil-producing nations. Financial interests in Iran, Japan and the United States each have a stake in the project; the Pentagon supports it for reasons of its own. Robert Panero thinks big, for the corporation is talking about a $1.3 billion investment by 1990, plus more than $500 million additional for onshore facilities. The international consortium's plan assumes that the Palauans themselves will have no more say about their future than they have had in the past. It depends on the willingness of United States bureaucrats to force a future of their choosing on the islands' inhabitants.

The initial proposal envisions Port Pacific as a trans-shipment facility where oil would be transferred from supertankers to smaller ships bound for Korea, Japan and perhaps the United States. The San Francisco-based Bechtel Corporation is studying the feasibility of this plan for Nissho-Iwai and the Industrial Bank of Japan. Dependent on imported oil for eighty percent of its energy needs, Japan's efforts to put itself in a better bargaining position with respect to the

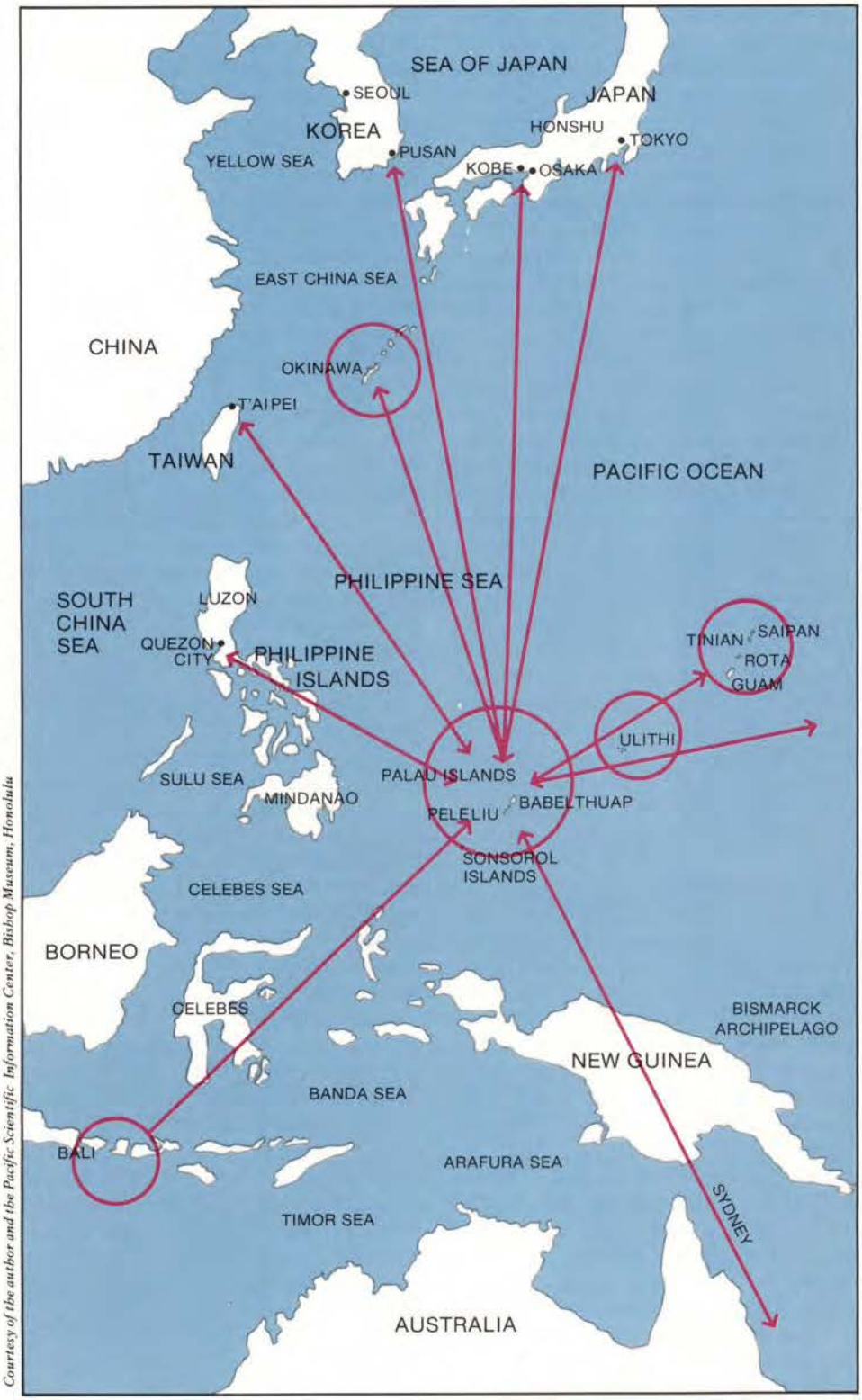
Organization of Petroleum Exporting Countries (OPEC) have focused on oil storage as a way of alleviating the effects of possible future embargoes. Because of an acute shortage of available land, Japan has been unable to build storage facilities or increase its harbor capacity to accommodate million-ton tankers. Fishermen and environmentalists have virtually guaranteed that no large central tank farms will be built in Japan or Okinawa. Port Pacific, however, could store a three-month supply of oil for Japan, and the smaller tankers leaving Palau could be accommodated by Japan's existing harbor facilities.

The most logical location for a "Port Pacific" would be Indonesia, except that Indonesia is a member of OPEC. Thus, according to Panero, Palau has the advantage of lying within the American sphere of influence and of being the only site whose stability and security is guaranteed by the United States military. Other considerations are almost as important. For example, in comparison with Japan's now-strict pollution standards, Palau's controls are lax. Its fishing industry is small, so even in the event of a major oil spill, compensation to fishermen would be nowhere near what Japan has already had to pay out for accidents in the Malacca Straits and at the Mitsubishi refinery. Palau is also considered to be "out of the typhoon belt," though it suffered a devastating typhoon in 1967 and a bad one in 1976. Supporters of Port Pacific are little worried by possible adverse reactions from Palau's 14,000 inhabitants, even though fifteen to twenty percent of them would have to be relocated in the course of construction.

Palau may seem to be an ideal site for a superport to Panero and his associates, but scientists and environmentalists do not share this enthusiasm. Their reasons for opposing the project were summarized in a strongly worded recommendation adopted in 1975 by the fifty-five-year-old Pacific Science Association:

> Whereas Japanese, U.S., and Iranian interests are planning a massive supertanker oil-storage facility near Babeldaob Island; whereas any such installation would involve extensive dredging and other disturbance of the present relatively undisturbed and flourishing Kossol Reef system, and possibly also of other locations onshore; whereas few details of the nature, scale and impact of such a development are available; whereas no environmental impact statement on the project exists; whereas no recognized coral-reef scientists have been involved in such environmental enquiry; whereas marine scientists consider the site to be of a value unequalled in Oceania and of an order of importance rendering it eligible for destination as a World Heritage Area as defined by UNESCO; whereas the reef is particularly rich in numbers of marine species and possesses a wide diversity of habitats; whereas the social impact of this project would be extremely disruptive; and whereas alternative sites of less scientific importance and threat to human populations exist: Therefore be it resolved that the Pacific Science Association strongly urges the appropriate authorities that this project should be abandoned for Palau on scientific grounds and also grounds of potential adverse effects upon the human population and biota of Palau.

Edward Johnston, then High Com-



Courtesy of the author and the Pacific Scientific Information Center, Bishop Museum, Honolulu

missioner of the USTTPI, criticized the Association for "prematurely condemning the proposed superport project," ignoring that its recommendation was based in part precisely because the promoters were apparently unwilling to provide the association with specific data. Several reports on the project have been prepared (two by Panero and one each by Bechtel and "Mitre"), but none was readily available. Copies could be obtained only through "contacts" in Washington, D.C., and all requests for information or comment were referred to Washington, rather than to regional administrative offices.

Johnston condemns the Pacific Science Association for voicing the same concerns expressed by an official of the Environmental Protection Agency's Office of Water Programs in a letter to the Office of Micronesian Status Negotiations: "Since the [Panero] report includes virtually no information on environmental conditions at Palau," the letter said, "I am assuming that little work has been performed in this area. Our primary recommendation would be that extensive baseline studies be undertaken to establish the nature of the reef system." When Johnston was High Commissioner, however, he actually forbade a recognized scientist based on Guam from visiting the Kossol Reef Area. (Incidentally, Johnston, following the incidents cited above, resigned as High Commissioner to take an executive position with the Pacific Area Travel Association, whose members rely on a beautiful Pacific Basin to attract tourists.)

Acceptance waning

When the Panero Report of May 1975 finally surfaced, it indicated that Palau could well become the energy hub of the Pacific, being conveniently located 500 miles east of Manila, 1,000 miles from Sydney and 2,000 miles from Tokyo. But as the concept "aged" during the later months of 1975, its general acceptance waned. Residents of the Palauan hamlet of Ollei, who claim traditional ownership of the Kossol Reef superport site, have called for a halt to negotiations on the project, judging that the project's impact on the environment, culture and society of Palau would be too great.

Though increasingly unpopular, the project has refused to die because it is regarded as an important move in a chess game played for very high stakes. Top military authorities in Washington, Hawaii and Guam all want to assure that the northern Pacific remains an "American ocean" and to this end advocate large military facilities in Guam, the Northern Marianas and Palau. Talk of military "bases" in Palau have gone on for ten years now.

Officials in the Department of the Interior have quietly but firmly supported Port Pacific for a variety of reasons, among them, though not admitted, the desire to counter criticism of the United States' administration of the Trust Territories. The "TT Government," as it is sometimes called, has often been castigated for failing to improve transportation facilities and promote more rapid economic development. Apart from direct federal expenditures, Micronesia is in some ways worse off economically in 1976 than in 1946, and some residents wish the Japanese were once again administering the region. The "American ghetto" on Kwajalein Atoll in the Marshall Islands (the Marshallese live on nearby Ebeye) has made them the richest in Micronesia, and the superport proposal would seem to make Palau even wealthier. The United States is anxious to take some positive steps before 1981, when the trusteeship expires and the status of the islands of Micronesia is due to change. The Northern Marianas just recently became an American commonwealth, but the political future of other island groups in the region is still uncertain.

Some Palauans feel that the prospect of economic independence is not to be passed up. The prospects of fishing, boat-building and tourism have not provided much capital, jobs or prosperity. Being a "kept" society, even when the keeper has recently become more generous, does not appeal to many in Palau. The Palauans are a proud, capable, traditional and aggressive people. After 400 years of contact with outside cultures, much of their culture remains intact. It has survived even despite Palau's hosting more Japanese than native Palauans during the years before World War II.

In January 1976, the Palau legislature formally requested the feasibility study of Port Pacific be prepared with "full cooperation of proper local authorities and subject to the final approval of the Palau Legislature. . . ." Legislator Isaac Soaladaob pointed out, however, that the proposed four-million-dollar study was to be done by Panero, and he feared that competent scientists would not be invited to participate.

Critics of Port Pacific also fear that the superport is no more a final step than was the Alaska pipeline. A multi-million-ton storage and trans-shipment facility begs the building of a refinery close by, along with related petrochemical industries and, according to many observers, even a zinc and bauxite facility. Where would the energy to run such plants come from? It has been suggested that atomic energy would be the most feasible source. Thus, Palau would become a prime target in the event of a global war just as it was in World War II, when Palauans suffered greatly during the fighting for Peleliu and Koror.

Cause for alarm

Who would run the Palau facilities? According to one report, the project envisions a nearby city of 12,000 people, a city of non-Palauans. Experiences with Van Camp in Pago Pago and with Potlatch in Savaii, Samoa, suggest that the Palauans have good cause for alarm at the prospect of so many outsiders moving to the islands. Already, there has been talk of using Ulithi Atoll to the northeast as yet another anchorage for tankers.

So far, the people of Palau have been little consulted about the Port Pacific project, and it has been charged that their traditional chiefs have been ignored deliberately. Yet the final decision on Port Pacific should be made by the Palauans, rather than the United States bureaucracy or an international investment consortium. Dr. Roland Force of the Bishop Museum in Honolulu has said: "My negative sentiments in respect to this project are offered with the full realization that the ultimate decision lies with the people of Palau. The interaction of Palauans with their marine environment has always been a vital one, and there is historically no real separation of the people from their environment. The reef system north of Babeldaob has a well-recognized importance to all Palauans since it is the ancestral in-migration route from legendary Ngeruangl."

Willis Henry Moore is a member of the Sierra Club's Hawaii Chapter and Education Coordinator at the Bernice P. Bishop Museum in Honolulu.

The Source.

Air, water, energy, food and shelter—these are the basics of life. And the time has come when basic decisions must be made—decisions about clean air and water, about energy conservation, about food and shelter for a rapidly increasing world population. These problems are restricted to no single nation or region. No people can afford to ignore them.

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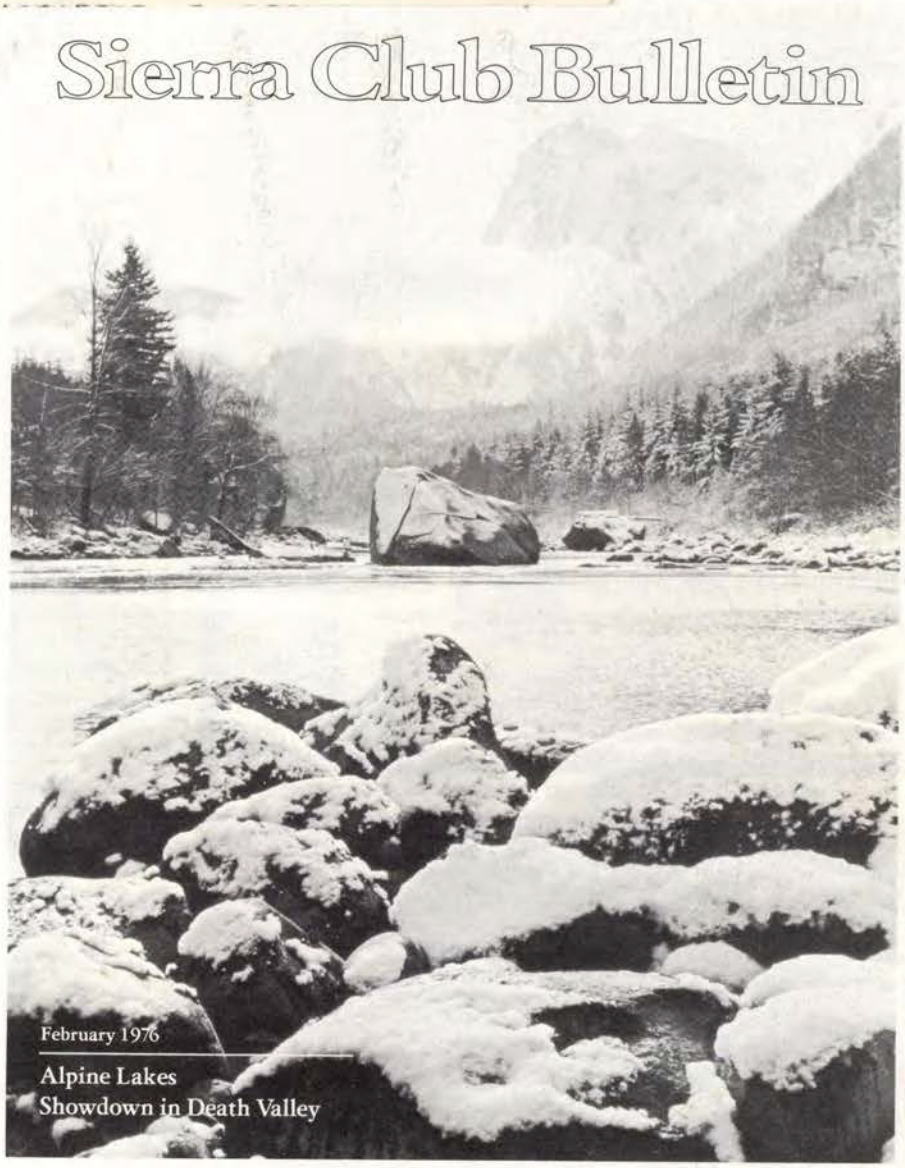

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