SEPTEMBER/OCTOBER 1980
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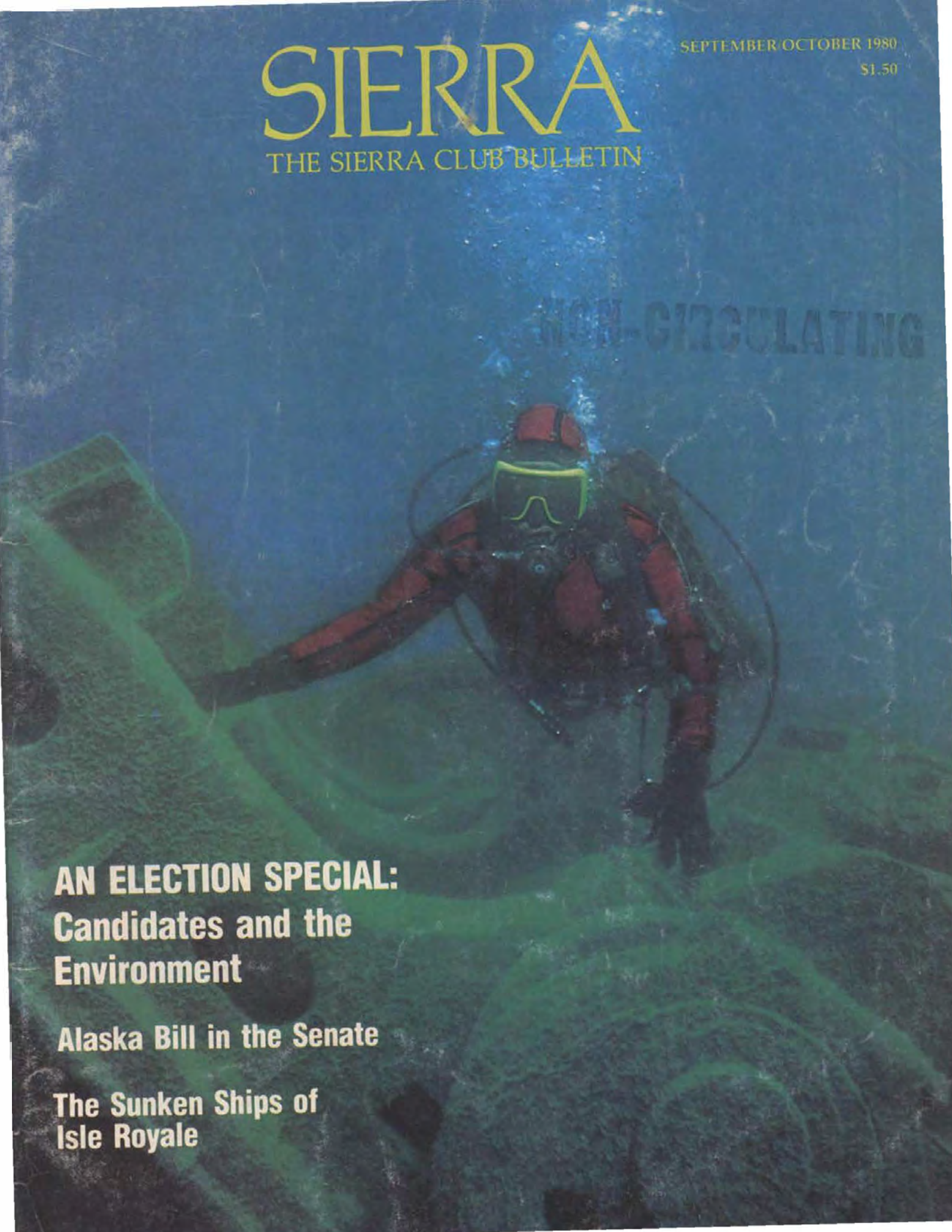
SIERRA

THE SIERRA CLUB BULLETIN

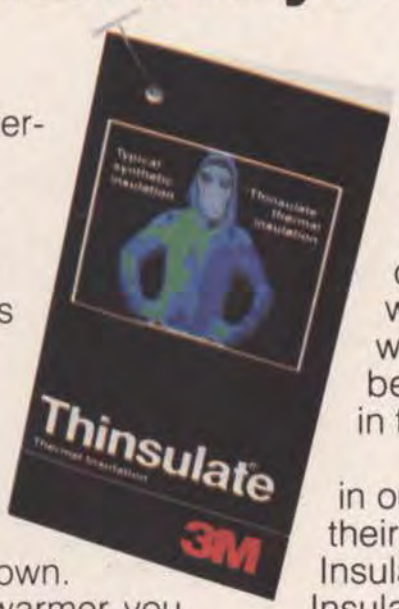


AN ELECTION SPECIAL: Candidates and the Environment

Alaska Bill in the Senate

The Sunken Ships of Isle Royale

If your sleek winter wardrobe carries this tag you're in for a very warm winter.



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SIERRA

THE SIERRA CLUB BULLETIN

SEPTEMBER/OCTOBER 1980 **VOLUME 65/NUMBER 5**

Cover: A diver inspects the wreck of the Glenlyon, *a freighter that sank in Lake Superior in 1924. The shipwrecks are now an unusual attraction off the shores of* Isle Royale National Park *(see page 43). A Northern Michigan University photograph; Bob Sheridan, photographer.*

Sierra Club Gift Memberships
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For your convenience, an enrollment form has been inserted in this issue of Sierra.

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Sierra Club

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Praise for Photo Contest

I wish to thank one and all for the superb job you did in presenting and handling *Sierra*'s first photo contest (July/August). Jon Nickles' first-prize cover photo was magnificent! Such lovely detail! I found it exciting to go through my slides to select contest entries. And after seeing the beautiful work of the winners, I'm challenged even more to improve my own photography. I'm proud to have been one of the 702 contestants.

Emily Schwilke
Whittier, California

A Technical Solution?

In 1976, I asked Professor E. J. Lizst of the California Institute of Technology if a technical solution to the problem of nuclear waste exists. He said indeed one does—bombarding wastes with neutrons, thus changing their atomic weights. The normal source of neutrons is uranium, but uranium in use creates as much radioactivity as is destroyed. However, in the process of laser fusion, the neutrons are obtained "free," and the problem is solved. Lizst said that setting up such a system is strictly a problem of engineering.

Last winter, I asked Ted Taylor the same question when he spoke at Caltech. He confirmed Liszt's statement and then went on for five minutes about what a good idea it was, that it is feasible and would not cost as much as one would think. He quickly went over my head—not difficult on such a technical subject.

I have written many letters to politicians on this issue, and only Senator Harrison Schmitt replied in a manner indicating that he had read and understood my point. The others, when they replied at all, sent only excerpts from recent speeches and requests for money.

My point was that this method of decontaminating nuclear waste is a desirable way to solve the storage problem. Liszt said that the stores of military plutonium are larger than the amount of commercial wastes at this time, and he is anxious to see it deactivated. Lizst added that neutron bombardment would work on all radioactive waste and would deter nuclear proliferation.

Your recent article on nuclear power in the July/August issue ("Nuclear Myths," by Marvin Resnikoff) did not hit on this subject exactly, but I am writing to ask if the author can reply specifically. Naturally, I think that waste decontamination is a better idea than having to fight the government every time it proposes a storage site.

Merwin Lucas
Glendale, California

Marvin Resnikoff replies:

This idea, known as partitioning and permutation, entails separating long-lived radionuclides from high-level waste and converting the waste to shorter-lived radionuclides by neutron bombardment. The idea is not feasible at present or in the foreseeable future. First, certain long-lived radionuclides must be separated from high-level waste (HLW). This usually means that the spent fuel has already been reprocessed for plutonium and uranium recovery and the HLWs are liquid. Radionuclides such as iodine-129 (17-million-year half-life), technetium-99 (213,000-year half-life) or carbon-14 (5730-year half-life) would be separated from the liquid HLW. This difficult process produces secondary wastes and adversely affects HLW solidification and long-term stability of the waste form. Further, the separation efficiencies are not high. The considerable problems of reprocessing spent fuel pale in comparison to further chemical separation of specific long-lived radionuclides. Assuming (for argument's sake) that the separation is done, these radionuclides would be placed in a neutron environment.

Laser fusion has been suggested, but a workable fusion process does not exist, though it has been under development since 1952. Transmutation is also possible in light-water reactors (LWR), but the process needs higher fuel enrichments, since these materials would be absorbing neutrons. After all, the spent fuel has just been removed from the reactor because fission products were competing for neutron capture; and now some of these fission products have been put back in. Some long-lived radionuclides, such as carbon-14, do not absorb neutrons well, and light-water reactors may produce more neutrons than can be consumed. For more information, see the classic reference on this subject, H. C. Claiborne, *Effect of Actinide Removal on the Long-Term Hazard of High-Level Waste*, ORNL-TM-4724, January 1975. If you see a glint of hope after reading this reference, share it with us. In these troubled times, it would be great to say that the Sierra Club solved the high-level-waste problem.

On Cycling

You have published an article about bicycling by a person who does not know how to ride a bicycle ("Cycles in Cities," by Peter Harnik, March/April). For many years, the bicycle has been looked upon by Americans as a child's toy. Most of us learned to ride as children and were told to stay out of traffic. When we became old enough to drive automobiles we gave up bicycling. In Europe, however, where the bicycle has always remained a part of traffic, adults ride with confidence; bicycles and autos are a workable, reasonably safe traffic combination. Because the United States lacks this tradition, Mr. Harnik has been able to ride as he does.

Bicyclists like Harnik want bike paths, bike lanes and curving, narrow roads (which statistics show to be less safe than wide, straight roads), so they can feel safe in their incompetence. It's as if a hiking advocate asked for paved concrete stairways to be constructed in lieu of mountain trails.

John S. Allen
Brookline, Massachusetts

Sly as a Bear

Jonathan Ela's "Sly as a Goose" (July/August), about the attempts to lure geese to Louisiana, reminded me of similar attempts to re-establish black bears there in the 1960s. At the time I was a kid growing up in Mississippi, and this is how I recall the story:

In order to live up to its self-proclaimed image as a "Sportsman's Paradise" (touted by the auto license plates), the state of Louisiana imported black bears from Minnesota to re-establish the species, long since blasted into oblivion. As the geese with clipped wings walked out of Louisiana, these bears were apparently willing to swim the Mississippi River to escape, because bears suddenly appeared in Mississippi, across the river, much to the surprise and consternation of the local citizenry. My favorite episode involved a bear that first appeared one morning sitting in a magnolia tree in front of the county courthouse in Raymond, but several more harrowing encounters were reported in the newspapers.

Maybe these animals are trying to tell us something about Louisiana.

Dan Benton
Sacramento, California

ELECTIONS 1980

Introduction

FRANCES GENDLIN

POLITICS DOMINATE as we present a special feature on the upcoming elections. Although the Sierra Club does not endorse candidates for national office, we are this year covering in as much detail as possible the environmental views and voting records of the candidates—presidential and congressional—hoping to help you make the most informed choice possible. Since its earliest days the Sierra Club has been involved in the politics of conservation. But today, the need to become politically active is greater than ever. Sierra Club President Joe Fontaine says, "The Sierra Club is going to participate more and more in the political process. Our traditional tools—lobbying, letter writing, publications—need to be augmented with new approaches. Our political involvement will remain nonpartisan and clearly focused on environmental issues and choices. But 'involvement' is the key word."

Actually, *Sierra* began its coverage of the presidential candidates in its May issue, with an interview of Representative John Anderson, and we continued in July by publishing a talk with Senator Edward Kennedy.

Few special-interest magazines are privileged to publish private interviews with presidential candidates, and it wasn't easy for *Sierra* to become a priority in their outrageously busy schedules. That the campaign staffs and press officers were as helpful to us as they were indicates their real and growing understanding that the support of the environmental constituency is vitally important to the election of their candidates.

We started calling the candidates in early January—although we had been trying (always, it seemed, on the verge of success) to see the President for almost two years. All the candidates expressed positive interest, but we were shunted, nonetheless, from one office to another, from press aides to scheduling desks, from advance men to local contacts and finally, from "I'm sorry we can't fit you in right now" to "Call again next month." Persistently, more calls were made, always stressing *Sierra*'s almost 400,000 readers, people strongly interested in energy and the environment, issues that are visibly paramount for the first time in a presidential campaign.

Finally, after months of uncertainty, we were told that John Anderson would be in Racine on an evening before the Wisconsin primary, and he could give me an hour of his time around six o'clock.

Racine was bitterly cold in March and the wind whipped the old hotel as I arrived from more temperate San Francisco. Because my name is not an easy one, I don't usually say it to unsuspecting room clerks, but instead hand over a credit card and just say, "I have a reservation." After checking in, my name still unspoken, I walked across the lobby to find a Secret Service agent waiting. "Are you Frances Gendlin?" he asked, quietly, but determined. He then asked for my social security number and birthdate. He seemed apologetic, but I was glad of the precautions for the candidate's sake. He requested I stop at the Service's command post before going to the congressman's suite at six. In his ear was a small plug like a hearing aid, and it seemed to be attached to a wire running down his sleeve to a tiny microphone in his hand. All that evening, and then several months later on a flight with Senator Kennedy, I had the giddy thought that these men spent their days talking into their thumbnails. But they were serious; I appreciated their dedication.

Around 5:30, having reviewed my notes and tested my tape recorder several times, I went down to the lobby to see if anything was doing. It was. Banners were up, leaflets were on tables, people were starting to arrive for the evening's events—an opening rally as soon as the candidate arrived, then a press conference at seven and dinner at eight. Only one thing was wrong—no candidate; he didn't arrive from Milwaukee until almost seven, too late for our talk! But the congressman's aides were cordial, and we arranged to meet after Anderson had finished his speech. The candidate said to me, "I know you've come a long way. I'll

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see you get your time." Later in the evening we talked for an hour; the results of that interview were published in our May/June issue. Afterwards, Anderson asked if I was hungry, and I said, "Starved!" So we ordered dinner and then sat and talked informally for another hour. I found him thoughtful, reflective and knowledgeable, sincerely eager to hear about the Sierra Club and its positions, concerned about how we were doing.

Ronald Reagan also arrived in Wisconsin that day, and there had been a possibility I might get to see him. But his was a brief trip and the time completely accounted for. His scheduling desk and I agreed to talk again after the Wisconsin primary.

By this time President Carter, now a declared candidate, had finally agreed to talk to *Sierra*, although owing to the Iranian situation, he requested written questions. We were delighted and devised some questions to send to the White House. That interview appears on page 8.

By May, we still had been unable to see Senator Kennedy. In early January, we had been put off until after the New England primaries, and our hopes rose and then faded after a dozen telephone calls during the Illinois and Wisconsin campaigns. Finally, hearing *Sierra* "had" the other candidates, including Jimmy Carter, Kennedy's staff scheduled us for an interview on a plane trip from San Francisco to San Diego.

We then called Governor Reagan's headquarters as planned, and once again requested an interview, but this time the answer was harsh: "Sorry, we can't accommodate all the requests. We just have to say no to some people." And we were it. We replied that since the other candidates had managed to find time for *Sierra*, we could only assume that the governor was not interested in speaking to the environmental community. Disappointed and somewhat angry, we hung up.

The trip with Senator Kennedy was fascinating. Secret Service men herded the press onto a private runway, while an obedient German shepherd nuzzled each piece of luggage. I cracked, somewhat lamely, "Oh, a nice doggie," and I was informed sternly that this dog was highly trained to smell and detect even the most minute amount of explosives. I shut up. On the plane, after a good breakfast, I was taken to the front to talk with the senator. I had been watching him all morning. He was tired, slow, grim. The California primary was a week away; it was his last chance. Kennedy answered my questions, sometimes referring to a notebook on his lap that contained his environmental voting record and positions. His unequivocal statement, "In my energy program there is no role for nuclear power," was straightforward, even touching. Yet, although I had his attention, I felt keenly his distraction, his weariness. I felt I had suddenly become part of the fall of Rome. I came home tired myself, worn out.

Once again we decided to try for Ronald Reagan, and it looked as though we might get through. Calls had been made through some of his congressional friends and advisors, and Reagan's campaign people seemed convinced that it would be a good idea for the candidate to talk with *Sierra*. His scheduling desk was helpful, although a precise date or time couldn't be given. They were for the idea, though, and were pleasant and encouraging. We called back. We called again, asking for a date, but they couldn't say for sure. Finally we were told by an assistant: The answer was "no." And no reason given.

From this last flurry of activity, it seemed clear that the request had gotten, if not to the governor himself, at least to his top people; his staff and congressional contacts had responded positively to the idea. Only at the last minute had the answer been negative. So, in this issue, you'll find an article discussing Ronald Reagan's environmental stands, such as they are, rather than his own explanation of why he does or doesn't support conservation causes.

The congressional elections are equally important this year; some of the most environmentally supportive legislators are experiencing difficulty in their reelection campaigns. It's important to work for and support these people, to ensure a receptive Congress in 1981, one that will have the strength to pass environmental legislation. Marion Edey's article on Page 18 tells who these people are and how you can help. Please do. Help in every way you can. □

If you are concerned about the impact of the upcoming elections on environmental issues and would like to become more actively involved in electoral politics, please let us know, using the form below. We will help you get involved.

Name______________________ Member number__________
8-digit # from *Sierra* label

Address______________________________

______________________________ Zip________

Phones: Home (___)__________ Office (___)__________

I would like to become more involved in environmental electoral politics

I am particularly interested in the campaign(s) of the following candidate(s):

President__________ Governor__________

Senator__________ Other__________

Representative__________ __________

Mail to: Campaign Desk
Sierra Club
530 Bush Street
San Francisco, CA 94108

JIMMY CARTER

Issues and Answers

Q: *As we move into the 1980s, which environmental issues do you see as becoming increasingly important? Which do you think are diminishing in importance?*

A: I think these issues will be increasingly important as we move into the 1980s:

1. Protecting the public from the continuing dangers of toxic chemicals, pollution, and hazardous and radioactive wastes;
2. Preserving America's wilderness areas and particularly Alaska, our last great frontier, for the benefit of all Americans;
3. Putting this nation on a path to a sustainable energy future, based increasingly on renewable resources and on energy conservation and, at the same time, integrating essential energy development with environmental protection;
4. Protecting and wisely managing America's countryside and coast and conserving our farmlands and fisheries;
5. Continuing to redirect the management of the nation's water resources toward water conservation and environmental protection;
6. Perhaps most important, coming to grips with problems of truly global significance, such as destruction of forests, increasing acid rain, carbon dioxide buildup, and nuclear proliferation.

I have proposed several crucial environmental bills now pending in Congress, including major legislation on Alaskan lands, cleanup of hazardous wastes, radioactive waste management, water policy reform, expansion of national rivers and trails, heritage and wilderness proposals and continued federal-state partnership for coastal zone management. Getting these measures enacted into law will help us meet the challenges of the 1980s.

The Executive Branch is also in the midst of several landmark policy studies that will produce results later this year. Our studies on soil erosion, on agricultural lands, on coastal resources, on nationwide trail needs, and on global environmental issues to the year 2000—these are some of the studies through which we will lay the groundwork for important policy reforms in the 1980s. We have made great progress in cleaning up our air and water and preserving parks, natural areas and wildlife, but it would be a mistake to conclude that these areas are therefore diminishing in importance. We cannot afford complacency if we are to protect and extend that progress.

Q: *What do you see as the future of environmentalism in a society that is now beginning to confront the limits of resources?*

A: Environmental concerns are taking on a much broader dimension as humanity begins to recognize the limits of the earth's natural resources. People all over the world are increasingly realizing—and acting on the belief—that conservation is more than just good environmental policy. It is good resource policy. It is good energy policy. It is good economic policy. And it will become increasingly important to global political stability in the 1980s as well.

As I said in inaugurating our nation's Second Environmental Decade: it is time for a society of consumers to become a society of conservers. Conservation offers common ground for both raising the productivity of our resources and protecting our environment. It appeals to both liberal and conservative political philosophies. It corresponds with both prudent economic policy and prudent environmental policy. The congruence of so many points of view and interests provides a unique opportunity for the environmental movement to help chart a broadly acceptable, humane and environmentally sound future for our society and the world.

Q: *You have made the Alaska lands issue your top environmental priority. Recently the House passed a bill that is significantly broader and stronger than the original Administration proposal of 1977. You have endorsed that bill, and to conservationists it represents pretty much our "bottom line." Will you veto a bill falling short of that "bottom line" set by the House-passed bill and your executive withdrawals?*

A: My recommendations for permanent legislative protection of Alaska lands were first developed in 1977 and modified in 1979. Although H.R. 39 is not totally consistent with these recommendations, I continue to support this bill, which the House of Representatives passed overwhelmingly and which provides the necessary protection for many of Alaska's unique natural ecosystems. It would however be premature to speculate on the possibility of a veto now, since we are working closely with the Congress to achieve a mutually acceptable bill that will provide the long-sought and long-needed permanent protection of Alaska's priceless natural resources.

Q: *Your actions in establishing permanent National Monuments and permanent National Wildlife Refuges assure basic land protection until Congress can produce a final bill meeting the "bottom line." Will you complete the executive actions by further withdrawals—specifically the 12 million acres of additional refuges and wild rivers now being worked on by Secretary Andrus; the William O. Douglas Arctic National Wildlife Range; and the rest of the proposed wilderness areas in the existing Tongass and Chugach National Forests?*

A: I will not hesitate to use administrative action, if necessary, to protect the federal lands in Alaska from environmental damage. Most of these areas are currently undergoing further Executive Branch review and analysis in accordance with the National Environmental Policy Act. However, no decision will be made regarding further withdrawals until the NEPA process has been completed. As I have stated before, my preference is for Congress to pass legislation that would put my Administration's proposals into law.

You have my commitment to work toward this goal. I also need your help to do everything you can to overcome obstacles and to have the legislation we want passed

into law. I believe we can succeed.

Q: *Environmentalists opposed the building of the Tellico Dam on environmental grounds; your own cabinet-level committee opposed it on economic grounds. Why did you sign the bill approving construction of the Tellico Dam?*

A: I am well aware of the deficiencies of the Tellico project. Members of my own Administration as well as environmentalists have long been firmly opposed to the project on both economic and environmental grounds. We worked hard to deter Congress from overriding the unanimous decision of the Endangered Species Committee, established by law only a year earlier, which recommended against the project. Regrettably, Congress did not accept the committee's decision.

As I pointed out in my signing statement last September, the congressional mandate to complete this project was the one objectionable provision of an otherwise sound and responsible Energy and Water Development Appropriations Act. This act reflected acceptance by the Congress of my decision not to fund several other undesirable water projects. Had I vetoed the bill, I am convinced that Congress would have repeatedly passed legislation exempting the Tellico Dam from federal laws. I reluctantly concluded that majorities in both houses of Congress favored exempting Tellico from provisions of the Endangered Species Act and other requirements. A divisive veto battle also would have jeopardized several critical elements of my Administration's legislative program, including reauthorization of the Endangered Species Act as well as legislation to carry out my water policy reforms.

In the past two years I have twice strongly supported and signed the reauthorization of the Endangered Species Act and have increased the budget and personnel for the act's implementation. I am proud of my Administration's record in making basic reforms in national water policy. This record reflects the concerns and the active support of the environmental community.

Q: *Coastal activists appreciate your executive orders protecting barrier islands and wetlands from destructive development. Now the Office of Management and Budget wants to cut the funds for states to carry on their own planning; Interior has proposed leases for oil drilling in some of California's and Alaska's most sensitive areas. What are your priorities—coastal protection or coastal development of energy facilities?*

A: I should like to answer that question with a statement I made when I was in Massachusetts last year and was asked about the Georges Bank lease sale. If I had to choose between protecting the fisheries industry or having oil exploration, I would protect the fisheries industry, because it is permanent. That's not the choice we have to make. In most cases, we can have both if it's handled properly.

As for offshore leasing decisions in new and sensitive areas, the Secretary of the Interior's recommended five-year leasing plan is intended to establish schedules for detailed environmental and resources planning prior to specific lease decisions. I can assure you that if these planning studies—which will receive full public review under

NEPA—indicate significant environmental risks, the Secretary will take those concerns into full account when he decides when or where to lease.

Q: *There seems to be some confusion about your policy toward the proposed Energy Mobilization Board. Some months ago you told a meeting of western governors that you opposed granting the EMB the power to waive environmental laws that existed before an energy project was begun, and that you would veto legislation giving the EMB such a power. On February 29, you repeated this to conservationists. But the House-Senate conferees who are working out the final details of the EMB legislation say that in a March 20 meeting with Representative Dingell, you were willing to accept the substantive waivers. What is your real position? Why do you think there is confusion on your stand?*

A: I do not support waivers of substantive environmental standards and I so stated my position to conservationists on February 29. I have consistently opposed bypassing the normal legislative process for substantive law changes. My Administration continues to hold that position. At the February 29 celebration, I did not, however, speculate about the outcome of the Conference Committee, nor did I say I would veto EMB legislation. I believe that the procedures since agreed to by the Conference Committee ensures the power of congressional policy committees to reject proposed changes in substantive laws and comes very close to the normal legislative process. I have concluded that inclusion of this provision, limited to twelve projects in each Congress, should not be a reason for further delay in enacting a bill. I will be very sensitive to environmental concerns as the EMB is implemented.

Q: *Last year, in your July 15 energy speech, you called upon Americans to make sacrifices in order to save energy. The general feeling has been that you did not ask enough. You have refused to ask for immediate rationing, and you have not advocated a gasoline tax heavy enough to reduce driving by 20% to 30%. Why have you been so reluctant to seek a really major short-term reduction in oil imports through one of these means?*

A: The economic distortions and inequities caused by a rationing plan are so serious that we should not incur them except in case of a severe interruption of oil supply. During the past three and one-half years, however, my Administration has undertaken a number of major programs to reduce our vulnerability to imported oil. The phased decontrol of domestic oil prices is already leading to more efficient petroleum use; U.S. petroleum demand declined by 4% in 1979.

In addition to phasing out price controls, which encouraged wasteful consumption of oil, I have proposed a comprehensive program of research and development for solar energy and conservation. My Administra-

tion supports a far-reaching program of economic incentives. These include:

- A low-income weatherization assistance program of $200 million a year.
- Conservation loan subsidies of $2.5 billion through 1984.
- Solar loan subsidies of $500 million through 1985.
- Residential solar tax credits (40% of the first $10,000) of $1.2 billion through 1985.
- Residential conservation tax credits of $2.5 billion through 1985, to encourage about $17 billion worth of investments by consumers.
- Conservation R & D of roughly $300 million annually.
- Business conservation and solar tax credits of $3.9 billion through 1990.
- Industrial Development Bond tax subsidies for solar and conservation: one-half billion dollars through 1990.
- Biomass: (a) alcohol tax credit of $1.6 billion through 1990; (b) a credit program of $1.4 billion in biomass subsidies over the next two years.
- Conservation grants to schools, hospitals and other institutions of $281 million in FY 1981.
- Solar R & D of about $700 million in FY 1981.
- Transportation efficiency program of $16.5 billion through 1990, including funds for public transit, auto-use management program, fuel economy, technology assessment, and R & D.
- Conservation improvements in federal buildings: $1.25 billion through FY 1981.

We estimate that the combined effect of these programs will be to reduce oil imports more than 8 million barrels per day by 1990 below what they otherwise would have been.

Q: *Environmentalists believe that conservation does not mean sacrifice; it means wasting less. In 1963, we used half as much energy as in 1979, yet our standard of living—our level of civilization—certainly has not doubled in this time. Do you really believe that conservation means sacrifice and therefore a lowering of our standard of living?*

A: No. To me, conservation means more than simply "wasting less." Conservation means the wise stewardship of the resources that we have. It means making more productive use of our resources in the short *and* long runs, without degrading our resource base. For some people conservation might involve short-term discomforts—or changes—while we learn to go about our affairs in new or unfamiliar ways. But I believe that resource conservation will give us a higher standard of living than we could have without it, because it protects the earth's ability to produce resources to meet human needs, and it increases the ability of human beings to survive as a species. All 220 million Americans will have to look to the environmental and conservation community to a major degree to make this transition as rapid and as painless as possible.

Q: *In your 1976 campaign you seemed to favor heavy emphasis on those energy choices now termed "the soft path," with only minimal, "last-resort" emphasis on such energy sources as nuclear fission and synthetic fuels. But your DOE appointments—Schlesinger and Duncan—are both hard-path advocates. And in your 1980 budget, you singled out mass transit, solar and conservation to be cut—not nuclear and synfuels. The synfuels program is now much larger than the conservation program. Would you agree tht you have changed the emphasis of your energy program since 1976? If so, why?*

A: I have consistently maintained that America and the world need to explore all feasible alternative energy sources as vigorously as we can while protecting the environment. These sources are needed until we complete a transition to a sustainable energy future based on renewable resources and conservation. True energy security can only come from solar and renewable energy technologies.

As the budget shows, we have significantly increased our commitment to support solar energy and conservation. The solar energy budget I proposed for fiscal year 1981 exceeds, for the first time, the nuclear fission budget and is three times what it was when I assumed office. In addition, I have set a national goal of achieving 20% of our total energy from the sun by the year 2000. As part of my overall solar program I have proposed enactment of a Federal Solar Bank to assist in financing solar energy in homes and I proposed additional solar tax credits as well. Our energy program involves a variety of energy technologies. The important point is that this nation meet its energy needs in a way that harms the environment as little as possible.

My Administration has opposed plutonium recycling and reprocessing and the commercialization of the fast breeder reactor. We have also strengthened and tightened nuclear power plant regulation. In 1976, I strongly favored increased use of coal, but only with the assurance that it could be burned cleanly and safely. I still strongly support this policy.

As I emphasized at our Second Environmental Decade celebration—as I reemphasize here and as I will continue to emphasize—energy conservation is essential. Not just in a crisis, not solely as a transition to renewable resources, but as a way of life. Conservation is the best environmental and economic way to meet our current energy needs. Conservation is and will remain the cornerstone of our energy policy.

Q: *Conservationists and government people alike, including EPA administrator Douglas Costle, have been warning us for months about the seriousness of the acid-rain problem. Yet you chose a version of the proposal for converting power plants from oil to coal that will result in increased emissions of sulfur oxides. The EPA had proposed a version that would avoid such increased emissions while reducing oil imports. Why did you make such a choice?*

A: I agree with Doug Costle that we should take steps to make sure that converting power plants to coal does not aggravate acid rain. I have urged Congress to work with the Administration to design an approach that will ameliorate the acid rain problem. Rather than wait until we developed such a program, I thought it preferable to submit a coal conversion bill and work together with Congress to solve the emissions problem. EPA and DOE are following up on my request to work closely with Congress on this important issue.

Q: *There has been a great sense of urgency about balancing the budget this year. Your Administration's proposals take a much heavier toll on the Land and Water Conservation Fund, solar energy, conservation and mass transit than on such programs as synthetic fuels, highways and water projects. It seems that in cutting the budget, the environment was a low priority. How do you explain these cuts? Why didn't you, for example, cut highways instead of mass transit?*

A: In a year when everyone needs to contribute to fighting inflation, our most serious domestic problem, my Administration has tried to be as sensitive as possible to environmental concerns. We did not substantially reduce environmental spending—and in fact we resisted congressional efforts to reduce it, especially for regulatory programs. When environmental leaders requested our support to add funds to some of the very few environmental programs we had proposed for reduction, we lent our support to Congressman Obey's amendment to do so. The House rejected this amendment. I appreciate the advice offered by the environmental and conservation community on programs to be considered for reduction of federal spending, especially in public works and energy programs. Highways and water projects did not escape our budget revisions, even if the cuts were not as deep as some members of the environmental and conservation community proposed. □

RONALD REAGAN 80

A Case of Misunderstanding?

FRANCES GENDLIN
and DAVID GANCHER

San Francisco Examiner

SHOULD RONALD REAGAN win the 1980 presidential election, the next four years do not bode well for environmental concerns. To win over some moderate and liberal voters, he may tone down aspects of his conservative ideology, but his early statements concerning energy and other environmental issues leave little doubt about the direction of his thought.

Though Reagan pays minimal lip service to the notion of environmental protection, his specific stands are uniformly anti-environmental. Moreover, a careful analysis of his current positions and his record shows that Reagan does not really understand environmental issues—his views are often based on misapprehensions and misinterpretations of current situations.

His basic positions—and much of his campaign—are based on the impulse to turn industry loose, to rely as much as possible on the private sector. He believes basically that the nation would be better off without a lot of federal interference and rules. "To achieve a sound environmental policy," he says in a one-page environmental position paper, "we should re-examine every regulatory requirement with a commitment to simplify and streamline the process. Moreover, we should return to the states the primary responsibility for environmental regulation in order to increase responsiveness to local conditions. In these ways we can most effectively strike the delicate balance between protecting the environment and promoting economic growth."

The currently popular sentiment against regulation is evident in many of Reagan's statements. Regulation, however, is here to stay—and most environmentalists anticipate that the need for more and different types of regulation will inevitably increase in coming years. Increased coal use and the 1981 expiration of the Clean Air Act will make the problem of maintaining clean air and improving pollution controls even more serious. Hazardous wastes, dangerous pesticides and herbicides and unanticipated pollutants—all will require sophisticated technical innovations in regulation. It's a question of necessity—not popularity.

The problem of acid rain, for example, is alarming proof that the traditional methods of regulating air pollution are inadequate; new and innovative forms of regulation may be required if we are to maintain public health standards, agricultural productivity and lakes with fish. Though Reagan favors the increased use of coal and acknowledges that there are environmental problems associated with its use, he has given no indication of how (or even whether) he would handle the problems of acid rain.

Reagan's views on energy also disturb environmentalists. He has become a crusader for nuclear power. "The emotional campaign against nuclear power plants not only exaggerates the hazards of using such power to generate electricity," he said in a 1979 radio spot, "but is equally irrational in its advocacy of solar power as a substitute." In other radio offerings, he states that the country has no choice but to continue building and operating nuclear plants. For Reagan, nuclear is "the cleanest, the most efficient and the most economical" energy source, with "no environmental problems." In his July 17 speech accepting the Republican nomination, Reagan said nuclear energy "must not be thwarted by a tiny minority opposed to economic growth which often finds friendly ears in regulatory agencies for its obstructionist campaigns." This last statement is replete with errors. Recent surveys by Resources for the Future and others have affirmed that a majority of Americans support the goals of the environmental movement, and that far more than a "tiny minority" oppose the deployment of nuclear power. But even worse is Reagan's assertion that environmentalists are "opposed to economic growth." On the contrary, environmentalists believe, as do many economists, that conservation and the protection of natural resources results in more employment and economic prosperity.

Reagan tepidly praises energy conservation as a "worthwhile venture," but says that "sharing in the scarcity of petroleum products in and of itself is not going to solve the problem of fuel supplies." In his July 17 speech, Reagan affirmed that "conservation is desirable, of course, for we must not waste energy. But conservation is not the sole answer to our energy needs. America must get to work producing more energy." In a burst of convoluted logic, Reagan actually attacked conservation: "At best, it means we will run out of energy a little more slowly." His conservation programs would include tax credits and the elimination of "the barriers to conservation, such as unnecessary environmental rules and complex laws which discourage cogeneration of electricity." The magazine *Sun Times* concludes that Reagan "does not seem to recognize any difference between using energy more efficiently and curtailing energy use." Reagan has referred to solar power and other renewable energy sources as "clean and abundant," yet—somewhat paradoxically—as "exotic."

Reagan's positions on public lands mirror those on energy; he would strive to minimize the power of the federal government.

He has praised the Sagebrush Rebellion, a vociferous insistence by private interests that much of the public lands of the West should be returned to the jurisdiction of the individual states. This would allow for the development of currently protected lands. "I happen to be one who cheers and supports the Sagebrush Rebellion . . . count me in as a rebel," he told a Salt Lake City audience. "I think [the federal government is] trying to hang on to this land in a proportion that makes no sense at all."

Reagan's opinion of land-use planning is low. The League of Conservation Voters' (LCV) report on Reagan says, "According to his conservative creed, any form of planning is bad and local development is nearly always good."

Reagan's opposition to environmental protection is not a new development. His record as California governor was, at best, mixed. Joe Fontaine, president of the Sierra Club and a longtime Reagan watcher, says "He was certainly no friend of the environment; most of his actions had a detrimental effect on environmental protection."

Reagan's administrative style was that of a chairman of the board, presiding over decisions rather than taking an active leadership role. He relied heavily on his appointees, many of whom came from private industry and who had little sympathy for environmental interests. His "kitchen cabinet," a group of his wealthy supporters, played a large role in shaping the government's decisions. On the other hand, some of his appointees were given free rein over their agencies, so some environmentally beneficial programs were put through.

The Reagan administration opposed the expansion of Redwood National Park and supported Disney's plans to build a ski resort in what is now Mineral King National Park. The LCV summarized Reagan's record as governor thus: "Reagan's deep antagonism toward any form of planning or restrictions on private development weakened his overall environmental record, especially his policies on land use, coastal protection and air pollution. He did his best to undermine the coastal planning program, and his *laissez-faire* attitude toward oil development precluded a coherent policy on leasing of state land for oil drilling. His positions on nuclear energy seemed tailored to please the utilities, and his air pollution program was rejected by the Environmental Protection Agency."

It should be added that as governor, Reagan fought against funding for mass transit—even when the money was to come from the federal government. He also accused the Forest Service of mismanaging the national forests by not allowing more timber cutting.

Of course, Reagan's record as governor was not entirely negative. He did sign a bill establishing the Tahoe Regional Planning Agency, a joint Nevada-California commission formed to plan for the Lake Tahoe basin. Unfortunately, the commission proved too weak to be of much use, necessitating eventual federal involvement in the protection of the area.

Reagan's record is best on water issues—but it, too, is mixed. During Reagan's terms, California's water protection laws became the nation's strongest. Reagan vetoed several costly and destructive water projects, and his administration's Water Resources Control Board did crack down on some polluters. He blocked construction of the controversial Dos Rios Dam and prevented diversion of the Sacramento River after his water board raised questions about its enviromnental impact. But Reagan supported filling the still-controversial reservoir behind New Melones Dam, and constructing the Auburn Reservoir. He supported the still hotly-debated Peripheral Canal, but only after the water board had managed to impose pollution standards that made the canal less economically attractive to agribusiness.

People who have known Reagan for years report that though he is not opposed to environmental protection as such, he does not understand how environmental issues are inextricably linked to other economic issues. He appears to regard the realms of environmental protection and economic growth as entirely separate, and apparently believes that environmental protection is a sort of quirky aesthetic doctrine adhered to by people with no knowledge of industry or business. He speaks of "balancing" economic growth and environmental protection as if they were countervailing forces rather than inseparable aspects of contemporary phenomena.

This is one of the great differences between Reagan and the other candidates. Carter, for example, understands that nuclear energy involves environmental threats. Reagan appears content to resolve the issue by emphatically denying it—a ploy with considerable rhetorical charm, but little scientific validity. Carter has occasionally relaxed environmental standards, but he does not appear to even consider abolishing them.

In a recent article, historian Henry Steele Commager accused Carter of wanting to be on both sides of an issue—a pragmatic if inconsistent way of approaching an election. But he condemns Reagan further, claiming—as we might—that he just doesn't understand the issues. □

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THE CANDIDATES AND THE ISSUES 80

CARL POPE

Below is a comparison of President Carter's, Governor Reagan's and Representative Anderson's stands on a variety of environmental issues.

WILDERNESS

CARTER supported the Endangered American Wilderness Act and wilderness proposals in the Boundary Waters Canoe Area and opposed proposals for legislative prohibitions against wilderness. But the administration's recommendations for RARE II proposed only 15 million acres for wilderness; environmentalists had sought 26 million.

REAGAN generally appears hostile to the wilderness system, saying that it has made unavailable 6 billion board feet of lumber and thus added $1800 to the price of the average single-family house. (Six billion board feet is half the total yield of the national forest system; actual figures indicate that the economic impact of wilderness on housing prices is only a fraction of that claimed by Reagan.)

ANDERSON supported environmentalists on Boundary Waters but voted against wilderness study areas in Montana. Says that administration RARE II proposals are inadequate and opposes anti-wilderness-type "release" language.

PUBLIC LANDS

CARTER improved management of public rangelands by the Bureau of Land Management, supported reform of outdated mining laws, issued a good executive order on off-road vehicles and opposed congressional efforts to continue overgrazing on public lands. BLM has not adequately enforced the ORV order and has developed weak wilderness proposals for the California Desert Plan. Carter has opposed the Sagebrush Rebellion but favors the MX missile system, which would damage public lands.

REAGAN "cheers and supports the Sagebrush Rebellion," as does running mate George Bush. Favors disposing of much of the public land, arguing that the federal government owns too much. However, Reagan has said little about how the federal government should manage public lands.

ANDERSON supports efforts to reduce overgrazing; he opposes the MX missile.

NUCLEAR ENERGY

CARTER originally campaigned as a skeptic who viewed nuclear power as only a "last resort." But he has since appointed two pro-nuclear secretaries of Energy, and his administration has consistently worked for more light-water reactors. Carter took strong early stands against the breeder reactor and nuclear proliferation, but these positions have weakened in the last year. He accepted a good set of recommendations on nuclear waste disposal but he also supports away-from-reactor storage proposals opposed by environmentalists.

REAGAN says that nuclear power is "the cleanest, most efficient and the most economical" energy source with "no environmental problems." Accuses nuclear opponents of stirring up "national hysteria over nuclear energy." Favors reprocessing nuclear wastes to solve the disposal problem and believes that Carter's concern that reprocessing could encourage proliferation of nuclear weapons is "foolish."

ANDERSON has a record as one of the most steadfast nuclear proponents in Congress, consistently supporting the industry on vote after vote. In his presidential campaign, Anderson has sounded much more cautious on nuclear energy, calling for increased safety and a temporary moratorium on new plant licenses. But it appears that he foresees a resumption of nuclear development once certain changes have been made and waste disposal facilities constructed.

ENERGY MOBILIZATION BOARD (EMB)

CARTER supported EMB with power to override future environmental regulations, but claimed to oppose waiving existing laws. Adminstration spokesmen, however, lobbied in Congress in favor of granting the EMB power to waive existing laws; Carter supported the House-Senate conference report that provided for such waivers.

REAGAN did not take a position during early debates on the EMB. Opposed the House-Senate conference report that provided for a very strong EMB, arguing that it represented a federal usurpation of state and local authority. Reagan helped convince many Republicans to join environmentalists in voting down the bill.

ANDERSON supported the EMB, but opposed the waivers of existing law and the House-Senate conference report.

SOLAR ENERGY AND CONSERVATION

CARTER stressed conservation as the cornerstone of his energy policy and supported deregulation of energy prices to encourage it. Has increased overall government spending on conservation and advocated some regulatory approaches to stimulate conservation. Has supported a gasoline rationing proposal seen by conservationists as fatally flawed. Carter envisions meeting 20% of the nation's energy needs with solar energy by 2000. But his appointees at DOE have not supported solar and have opposed funding to achieve this goal.

REAGAN supported, as governor, the public utilities' efforts to encourage massive increases in energy consumption. Refers to solar and other renewable-energy technologies as "exotic" and believes that energy conservation would slow down economic growth. Reagan believes that solar and conservation are "not viable alternatives to coal and nuclear power."

ANDERSON places energy conservation at the center of his

proposed energy policy, favors a 50¢-a-gallon gasoline tax and a tax credit program for solar and conservation. Strongly supported energy price deregulation and opposed energy conservation measures proposed by the Carter Administration that did not include deregulation. Currently favors heavy government support for solar but until 1977 frequently voted against solar energy funding. Does not favor government grants to consumers for conservation.

COAL

CARTER worked hard to enact a strong stripmining bill, issued strong regulations and made good appointments to the Office of Surface Mining. Improved the government's coal leasing program and the enforcement of safety standards for deep mines. But Carter has called for coal production increases far greater than necessary; he favors construction of coal slurry pipelines.

REAGAN favors relaxing federal coal leasing policies and air pollution standards in order to increase coal production. Optimistic about the potential of reclamation to restore stripmined lands.

ANDERSON generally supported the stripmining law and voted to override an earlier veto of such a law by Gerald Ford. Favors the Carter reforms of coal leasing policy and also supports building slurry pipelines. Coal is not prominent in Anderson's discussions of energy policy; he seems to favor further research on coal.

SYNTHETIC FUELS

CARTER campaigned in 1976 against federal subsidies for synthetic fuels. In 1979, reversing his position, he put synthetics at the center of his new energy policy and called for $88 billion in subsidies and a powerful Energy Security Corporation.

REAGAN favors synthetic fuels but is strongly opposed to government involvement or large subsidies for their development. He has opposed the massive infusions of federal money that Carter advocated in 1979 and has not supported an Energy Security Corporation.

ANDERSON favors a limited, $10-billion federal program for synthetic fuels, but he feels that direct combustion of coal using new technologies may be more promising. Expresses concern about the environmental impacts of synthetic fuels and opposes Carter's proposed Energy Security Corporation.

ALASKA

CARTER supported legislation to protect 100 million acres of parks, rivers, wildlife refuges and wilderness areas in Alaska. When Congress adjourned in 1978 without passing such legislation, Carter used his powers under the Monuments Act and other federal statutes to protect 96 million acres. Carter's action was widely hailed by conservationists as one of the boldest and most important executive actions ever taken to protect our environment.

REAGAN has opposed federal control of Alaskan lands; urges that more lands in Alaska be opened to oil development.

ANDERSON took the lead in cosponsoring legislation to protect 128 million acres of public lands in Alaska, using his influence with House Republicans to keep the issue bipartisan. Earlier, Anderson had taken the lead in working with environmentalists to oppose the construction of the trans-Alaska pipeline.

WATER PROJECTS

CARTER started his administration with a major assault on water projects, proposing to cut 19 of the worst boondoggles. He developed major new water project reforms but signed an appropriations bill funding most of the projects. Although the administration has sometimes opposed particularly offensive water projects, Carter's support of water project reform has gradually eroded, culminating in his refusal to veto legislation requiring the filling of the Tellico Dam. But the President has tried to prevent unwarranted new dam projects.

REAGAN stopped the Dos Rios Dam in California, thus preserving the state's north coast rivers. He also opposed the East Side diversion project and imposed filling restrictions that preserved the white-water stretches of the Stanislaus River. He signed good wild and scenic rivers legislation, worked for legislation to end unjustified state subsidies for flood-control projects. But Reagan also supported bad projects, including the Auburn Dam and the New Melones Dam.

ANDERSON has consistently opposed environmentally damaging and economically unsound water projects. He supported Carter on the original hit list of bad projects and has supported proposed water policy reforms; he favors deletion of funding for 10 of 12 water projects selected as vulnerable by the League of Conservation Voters, including Garrison, Dickey-Lincoln, Tennessee-Tombigbee, O'Neill and Auburn.

WILDLIFE

CARTER's Administration failed to meet the Endangered Species Act requirement that species be listed for protection by November 1979. The administration's performance at international wildlife conferences has been mixed, but it has worked hard for a moratorium on commercial whaling and has continued bans on predator poison abuse.

REAGAN has said that enforcing the Endangered Species Act could unnecessarily impede economic growth; he thinks the baby harp seal hunt has been unfairly attacked. While governor he appointed people to the Wildlife Board who generally supported proposals from Reagan's Fish and Game Department, whose chief frequently attacked environmentalists.

ANDERSON has strongly favored protecting the National Wildlife Refuge system but voted against a 200-mile coastal zone to protect fisheries against depletion; he takes weak stands on protection of whales. He supports current policies to prevent abuses of predator poisons.

PARKS AND WILD RIVERS

CARTER supported the expansion of Redwood National Park and the transfer of Mineral King to Sequoia National Park; he has worked for major expansions of the wild and scenic river system. But in 1979 and 1980, park programs received major budget cuts by Carter, culminating in a proposed 75% slash in Land and Water Conservation Fund appropriations for 1981.

REAGAN originally opposed expansion of California's state parks system, but later supported bond issues for new acquisitions. Opposed transfer of Mineral King to Sequoia National Park and opposed Redwood Park expansion.

ANDERSON supported the expansion of Redwood Park and has worked to expand the Indiana Dunes Lakeshore. Also voted to increase funding for the Land and Water Conservation Fund.

COASTS

CARTER supported reforms for offshore oil leasing but then moved ahead with leasing plans for Georges Bank off the Massachusetts coast, and the Beaufort Sea in Alaska. Tried several times to lease controversial offshore areas in California but cancelled a number of sales. Issued strong executive orders to protect barrier islands and wetlands and opposed efforts to weaken the Coastal Zone Management Act, but has not supported legislation to protect barrier islands and has not consistently implemented the executive orders.

REAGAN failed to reform oil drilling practices on state tidelands after the Santa Barbara oil spill. He opposed strong coastal protection legislation for California. He has charged California's Coastal Commission with "assuming dictatorial powers and displaying hostility to private ownership" of ocean frontage and has attacked the state constitution's provision that requires public access to beach areas.

ANDERSON opposed the Georges Bank lease sale but had voted on several occasions with the oil industry to weaken the OCS reforms.

AIR POLLUTION

CARTER worked with environmentalists to draft a strong set of Clean Air Act amendments in 1977; implementation of these amendments has been inconsistent, as they are opposed by powerful administration forces at DOE and at the Office of Management and Budget. Ozone air-quality standards were relaxed, the cleanup of western coal-fired power plants delayed, and auto emission standards waived for many vehicles. The Administration has promised to deal with acid rain but has failed to use its present authority and has supported coal conversion legislation that would worsen the problem.

REAGAN tried, as governor, to prevent California's Air Resources Board from taking action to clean up automobile emissions; he eventually fired two board members for refusing to follow his orders to weaken the program. Reagan has claimed that "approximately 80% of our air pollution stems from hydrocarbons released by vegetation, so let's not go overboard in setting and enforcing tough emission standards from man-made sources." Reagan favors cutting back EPA's powers, saying "We are in the hands of environmental extremists."

ANDERSON consistently voted with environmentalists on amendments to the Clean Air Act, opposing efforts to weaken protection for regions with clean air and to allow the auto industry to avoid complying with emission-control requirements.

PESTICIDES AND TOXIC SUBSTANCES

CARTER's Administration has successfully supported legislation to control toxic substances—except for pesticides; Congress weakened the pesticide laws. Actual implementation, however, has moved very slowly. The administration picked a very strong leader, Eulah Bingham, to head the Occupational Safety and Health Administration, and has worked hard to improve enforcement of OSHA statutes.

REAGAN has attacked EPA for being too aggressive in regulating pesticides and for banning DDT, claiming that such bans have produced "a resurgence of deadly diseases." As governor Reagan also weakened enforcement of occupational health and safety laws by substituting officials from the state highway department for experts from a federal enforcement agency.

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ANDERSON voted twice in 1978 to cut EPA funding for regulation of toxic substances. In the early 1970s he voted against stronger pesticide laws, but he has been more environmentally aware in recent years. He has supported Carter Administration efforts to establish a "superfund" for financing cleanup of abandoned hazardous-waste dumps. Anderson has consistently supported action to prevent occupational health hazards, supporting both OSHA and the federal program to protect the safety of mine workers.

WATER POLLUTION

CARTER appointed good people to deal with water pollution problems, and worked to preserve a strong legislative mandate for cleaning up waterways. But Carter has lagged in implementing standards to protect drinking water and streams from toxic pollutants. A strong executive order was issued to protect wetlands but, again, implementation has been inadequate. The Administration did succeed with major reforms in the Soil Conservation Service, reforms that have already preserved more than 350 miles of streams.

REAGAN supported and signed the Porter-Cologne Water Control Act, the strongest state water pollution law in the country. He appointed strong leaders who carried out the act. Reagan's appointees compelled oil companies, industries and cities to clean up the state's waters before the EPA program began.

ANDERSON was a strong supporter of the Clean Drinking Water Act and has worked to improve funding for water pollution treatment facilities. Until 1975 Anderson often voted against wetlands protection, but since then he has consistently voted for their protection.

TRANSPORTATION

CARTER approved, early on, a number of bad freeway projects, but under new Transportation Secretary Goldschmidt, the administration rejected freeways in Oklahoma and Ohio and advocated dramatically expanded funding of mass transit. Goldschmidt also reversed early administration opposition to Amtrak.

REAGAN refused to cut back on state highway construction in California and fought against state or federal funding for mass transit. Opposes expansion of Amtrak. In 1976 proposed eliminating the entire federal program of support for mass transit as part of his budget cutting strategy.

ANDERSON has supported using the Highway Trust Fund for mass transit but has also voted to make it more difficult for cities to use interstate highway funds for mass transit; he supports use of windfall profits tax revenues for transit. □

Carl Pope is assistant conservation director of the Sierra Club, and executive director of the California League of Conservation Voters.

FRIENDS IN NEED

A Look at Some Crucial Campaigns

MARION EDEY

BACK IN THE honeymoon years of the early 1970s, conservationists won many battles simply by making a good case on its merits and then supporting it with mail from activists. That is no longer enough.

The honeymoon is over: People have not stopped caring about the environment, but those opposed to conservation have become far more organized and politically active. An avalanche of money pours into campaigns from various political action committees [PACs] set up by corporations, trade associations and very conservative political groups. All PACs combined have raised more than $70 million to spend for the 1980 campaigns. The size of this sum—as well as the urgency of today's energy and economic problems—helps explain why it is getting harder to lobby Congress, and why lobbying is not enough. Conservationists must show politicians that they can take environmental stands and still survive politically. The only way for conservationists to do that is to become more active in campaigns.

The thought of Ronald Reagan as President gives many environmentalists pause; should he win, any anti-environmental Reagan policies will have to be opposed in the Congress. In the excitement over the presidential race, there is a danger that environmentalists may neglect equally crucial House and Senate races that also must be won. Here are some of the most important environmentalists running in close elections.

Representative Morris Udall (D-Arizona). As chairman of the House Interior Committee and author of the strongest bill to protect 100 million acres of outstanding natural areas and wildlife habitat in Alaska, Udall has played a key role in many other wilderness and land preservation efforts as well. He led opposition to the move to grant the Energy Mobilization Board arbitrary powers that would have preempted other agencies' decisions and waived environmental laws. He is now single-handedly blocking an attempt to gut the nation's stripmining law.

Udall, in his last election, won only 52.5% of the vote; he faces a stronger opponent this time. Richard Huff plans to spend $450,000 in his campaign and recently released a poll showing himself ahead. Udall has been targeted by the national GOP and various right-wing interests as one of the eight most vulnerable representatives in the nation.

Senator John Culver (D-Iowa). Now that Senator Muskie (D-Maine), Congress's greatest champion of clean air, has left the Senate, Culver will be a key ally in working to keep strong clean air and water laws. He is an influential member of the Environment and Public Works Committee, which handles all pollution legislation in the Senate, and a leading sponsor of the bill to create a "superfund" for cleaning up hazardous dumps and spills. Culver wrote the provisions in the 1977 Clean Water Act to control polluted runoff by helping farmers finance better soil conservation practices. He is chairman of the subcommittee that deals with the National Environmental Policy Act and the Endangered Species Act, and has defended both laws against their many detractors. He was also instrumental in expanding NEPA's scope to include assessing the environmental implications of some U.S. financing of nuclear reactors for foreign countries. Culver scored 97% on the most recent League of Conservation Voters chart, and the league is running a massive door-to-door canvass

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and voter-education campaign in Iowa to help his reelection. But recent polls show Culver trailing his opponent, Representative Charles Grassley. In 1978, Iowa voters rejected Democratic Senator Dick Clark, who had a record similar to Culver's. (No Iowa Democrat has ever been elected to a second Senate term.)

Senator Frank Church (D-Idaho) is probably the Senate's most effective advocate for wilderness; he has taken great political risks to preserve outstanding wilderness in Idaho and elsewhere. As chairman of the Public Lands Subcommittee he led support for the Endangered American Wilderness Act, the National Wild and Scenic Rivers Act, legislation to establish the Sawtooth National Recreation Area, the Hells Canyon National Recreation Area and, most recently, the protection of 2.2 million acres in the River of No Return Wilderness. Church's conservative opponent, Representative Steve Symms, will outspend him by 2 to 1 and will also benefit from more than $120,000 in "independent expenditures" by other conservative PACs.

Representative Jim Weaver (D-Oregon) has stood alone in blocking the Pacific Northwest Power bill, which is intended to make consumers pay in advance for construction of at least five nuclear power plants in the Pacific Northwest. His position on the Water and Power Subcommittee gives him the authority and influence to stop the bill, and he is the only member of Congress in the region opposing it. As chairman of the House Forests Subcommittee, Weaver has also fought for wilderness and for sound management of our national forests, including logging practices to achieve sustained yield. He also opposes the use of 2,4,5-T and other phenoxy herbicides. These are tough stands to take in a district that depends largely on logging, and Weaver has been blamed for a severe economic slump actually caused by a slow housing market. His opponent, Mike Fitzgerald, ran Richard Nixon's presidential campaign in California and plans on spending $400,000 to defeat Weaver.

Representative Bob Eckhardt (D-Texas) sits on the House Interior and Commerce committees, both crucial for environmental legislation. He is author of the Toxic Substances Control Act and is now working for the bill to finance cleanup of hazardous wastes. Eckhardt has held extensive hearings on acid rain, radioactive wastes and the misuse of pesticides and herbicides. Texas conservationists appreciate his strenuous efforts to expand the Big Thicket National Preserve. He joined Udall in trying to curb the excessive powers of the Energy Mobilization Board and was one of the few representatives with the guts to vote against subsidies for commercialization of synthetic fuels.

Eckhardt won his last primary election with only 52% of the vote, but this year his biggest problem will be in the general election. Like Udall, and Edgar and Maguire below, he has been targeted by the GOP as one of the nation's eight most vulnerable House Democrats.

Representative Bob Edgar (D-Pennsylvania) is the only member of the House Public Works Committee with the courage to challenge lavish spending on pork-barrel water projects. He is the most effective dam fighter in Congress and has led countless efforts to stop public projects that destroy wetlands and free-flowing rivers. He has also worked successfully to increase funds for mass transit and votes with environmentalists 90% of the time. Edgar's record will help him in his suburban district, and the League of Conservation Voters is conducting a canvass to distribute rating charts and to register voters. Last time Edgar won with only 51% of the vote, and this race will be a real cliff hanger.

Representative Andy Maguire (D-New Jersey) is a leader on the Health Subcommittee. He has fought repeatedly for a strong Clean Air Act and a Toxic Substances Control Act. His amendments to the National Cancer Act have forced federal agencies to pay more attention to the

disease's prevention as well as its cure. Maguire persuaded the EPA to suspend the pesticide DBCP and has urged the agency to strengthen regulations that deal with toxic substances. Maguire helped initiate an ongoing investigation of the link between non-ionizing radiation and childhood cancers. His LCV rating is 97%.

Maguire's 1978 challenger, Margaret Roukema, got 47% of the vote to his 53%, and she is running against him again this year. One GOP party leader told her at a fund raiser that "we go hunting where the ducks are, and we know from our polls and studies that the ducks are in the 7th District."

Representative Richard Ottinger (D-New York) is the top solar-energy advocate in Congress. He sits on two House committees that are crucial in determining priorities for energy research and development, and he is now working to pass several bills dealing with energy conservation, cogeneration, auto efficiency, solar energy and other renewable energy sources. He exposed the lack of emergency planning for the Indian Point power plant, which is less than 60 miles from New York City, and he supports a moratorium on new nuclear plants. He was the only member of Congress to earn a perfect score on the League of Conservation Voters chart for 1979. Ottinger comes from a marginal district. In 1978 he won easily over an inept and underfunded opponent, but this time he faces a much stronger challenger and a tough race.

Senator Gaylord Nelson (D-Wisconsin) is probably in more trouble than most environmentalists realize. All of his potential Republican opponents have access to great wealth and have already outspent Nelson sevenfold. Polls show that the race will be close, although Nelson is still slightly ahead. Nelson has sponsored many bills to protect parks and wild rivers, and he wrote an amendment to increase the amount of wilderness in the Alaska Lands bill. He succeeded in killing the La Farge Dam, the biggest water project proposed in Wisconsin. He is leading an effort to withdraw authorization for the Tennesse-Tombigbee Waterway, and was also active in the drive to stop Lock and Dam 26 from turning the upper Mississippi River into a superhighway for barges. He sponsored an unsuccessful amendment to the coal conversion bill that would have prevented a net increase in the air pollutants that cause acid rain. He has also worked to reduce phosphate pollution in the Great Lakes and to ban certain dangerous pesticides and herbicides.

Senator Birch Bayh (D-Indiana) has led the effort to expand the Indiana Dunes National Lakeshore, despite heavy opposition from a local utility. Bayh also supported conservationists' efforts to protect national forest wilderness in Indiana and to stop several of the most outrageous dams and canals promoted by the Army Corps of Engineers. He successfully amended the bill authorizing the Nuclear Regulatory Commission to impose criminal penalties on anyone who knowingly violates safety regulations. People concerned about the humane treatment of animals consider him one of their strongest allies in the Senate. So do population activists, who appreciate the key role he has played in blocking a constitutional amendment against abortion.

Bayh's stand has placed him at the top of the hate list of the "Right to Life" groups, and he is also a top target of other extreme conservatives. Bayh has always been reelected by narrow margins; his biggest victory brought him only 52% of the vote. This year he faces his toughest election yet, against the popular and conservative Rep-

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resentative Dan Quayle. Although he is still slightly ahead in the polls, Bayh's margin is shrinking, and he, too, is considered extremely vulnerable.

This doesn't mean environmentalists must always be on the defensive. This year there are some excellent challengers running, including several Republicans, with good chances to win. **John Spellman** (R) and **Jim McDermott** (D), both environmentalists, are challenging Washington's incumbent Governor Dixy Lee Ray. She has said that "radical environmentalists . . . hate people. The only way they like the earth is when there are no people on it." An avid promoter of nuclear power, her actions speak even louder than her words—and include appointing nuclear industry people to all the state environmental agencies.

Claudine Schneider (R) has a good chance to defeat incumbent Representative Ed Beard (D) in Rhode Island; she has taken excellent positions on a wide range of issues—including highway construction, nuclear power and scrubbers on coal-fired plants. She began her 1978 campaign as a virtual unknown but received 48% of the vote. She is much stronger this time. Now that **Norma Bork** (D) has won the primary, California environmentalists are mobilizing to help her defeat incumbent Representative Don Clausen (R), who fought against the expansion of the Redwood National Park and no longer reflects the values of his increasingly conservation-minded district.

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How can environmentalists work most effectively to help these and other candidates? Obviously the candidates need money. The League of Conservation Voters, the largest national environmental PAC, is giving financial support to all the conservationist candidates mentioned above, except Senator Church. (Senator Church doesn't need money as desperately as the others mentioned here, but he does need volunteer support.) It's not possible to outspend the corporations, so it is important for environmentalists to give their time and energy as volunteers. Here, conservationists can offer more than the special economic interests can; it is becoming increasingly clear that to be effective environmentalists must organize and educate people rather than merely make contributions. This is why both the national and the California League of Conservation Voters have begun canvassing operations to expose the candidates' records and broaden the conservationists' base of support.

Already the results are encouraging. The league reports that its Iowa canvass is reaching more than 2000 voters a day and registering more than 100 new voters a day who are concerned about the environment. Conservationist Ron Wyden in Portland, Oregon, relied heavily on canvassing in his successful campaign to defeat incumbent Representative Bob Duncan (D). He told the LCV that "there is no question in my mind that the environmental movement was a key factor in my primary victory." Another environmentalist, Pat Hamilton (D-West Virginia), won his congressional primary partly because of his opposition to the Davis power project and the Stonewall Jackson Dam.

Continued on page 28

BEYOND THE PERSONALITIES

The Importance of Appointments

BROCK EVANS

A FRIEND UNFAMILIAR with Washington was visiting the Sierra Club office the other day. He made a remark about the upcoming presidential election that I've heard often: "Oh, what's the difference? There's not much to choose from between the candidates. Anyway, they're basically all alike . . ."

I used to think like that, too. But seven years in the eye of the storm—Washington, D.C.—have made me realize what an enormous difference there really is—and how important it is that the candidate with the better environmental philosophy be elected. I remembered an event of ten years ago.

It was January 1970, the first month of what would prove to be the "Environmental Decade." A climactic vote was coming up before Congress; it was the first test of strength for the rising environmental movement. The timber industry and its supporters had succeeded in pushing through the House Agriculture Committee a bill called the "National Timber Supply Act"—a craftily worded bill that would have declared that the main purpose of our national forests was to furnish wood for the timber industry. If this bill had been enacted, environmentalists could have kissed goodbye any chance to protect more forested wilderness areas within public forests.

It was a classic confrontation, one of the most important of the 1970s, with environmentalists on one side, the timber industry on the other, and the fate of wilderness hanging in the balance. As is always the case in such contests, the position of the administration in power becomes very important. "I would guess that on most issues, the adminstration's stand on a particular bill before Congress might influence from 80 to 90 votes," said one veteran observer.

These were the years of the first Nixon administration, and no one knew exactly where the President stood on forestry and wilderness issues. In fact, the President, in signing the landmark National Environmental Policy Act, had just proclaimed the opening of the "Environmental Decade."

Environmentalists, therefore, had some reason to hope for President Nixon's support in the first clear environmentalists-versus-developers battle of the decade. A conservation leader phoned the White House and was told that Chuck Colson, one of the President's top domestic advisors, was handling the bill. He called Mr. Colson's office; the receptionist said, "Oh, Mr. Hodges is handling this matter for us. Would you like to talk to him?" The environmentalist declined and shook his head.

"Mr. Hodges" was Ralph Hodges, a chief lobbyist for the timber industry and a formidable figure around Washington. It was plain he was formulating the administration's policy on the National Timber Supply Act. And sure enough, the Nixon administration supported the bill; Colson later attacked the "grumpy environmentalists" who had opposed this "sound legislation." The bill was defeated anyway by a stunning margin; the environmentalists had survived their first test—but it looked like a long, difficult decade lay ahead.

To anyone familiar with government, the complicity of industry with the administration in power comes as no surprise. Broad policy outlines are set by the President, and, to be sure, he has final authority over his administration's decisions. But government is so vast and the decisions required so complex that the President cannot run the government—or even make personally many of the crucial decisions that affect so many lives. Government business is conducted and most decisions made by thousands of top civil servants—the so-called political appointees.

These officials, about 2000 of them, are the essence, the driving force, the brains and the power of any administration. These are the cabinet secretaries, under secretaries, assistant secretaries, deputy assistant secretaries. These are the special assistants to the secretaries, the policy directors at the Office of Management and Budget, the White House staff; the advisors, the special counsels, the special assistants to the President who advise him on consumer affairs, inflation, natural resources, budget and so forth. These appointees carry out the policies of the administration, as set and directed by the President.

But more than that—so much more than that—these people actually make the decisions that affect environmental issues: whether this roadless area will be protected or logged; whether that dam proposal will be funded or shelved; whether this pollution regulation will be strengthened or weakened; whether energy conservation programs or nuclear power will be encouraged. It is the character and predilections of the political appointees even more than the personality of the President that makes the outcome of the election so crucial.

Opponents of environmental laws and regulations know this too. Some of the fiercest attacks on Carter have been mounted by the oil, timber and mining industries because the President appointed so many environmentalists to key policy posts—something that had never happened before. "The whole place is infested with environmentalists; every place you turn around [in the Interior Department] you find them," said one disgruntled industry lobbyist, when the Carter Administration was putting together its position to save Alaska. President Carter's appointments of environmentalists to key policy-making levels in the Interior Department practically guaranteed that the administration's position

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would be far-reaching in scope and importance—and that pro-environmental views would be vigorously defended and supported.

In a recent *Time* interview, Shell Oil's president, John Bookout, said that one of the Carter Administration's major sins was its appointment of environmentalists. Other industry figures feel the same; they remember the good old days of previous Republican administrations, when key decisions about wilderness were made by men sympathetic to the timber industry, when oil leases were negotiated by former oil men and when the coal-mining industry was twice able to persuade President Ford to veto the stripmine control act— despite its passage by overwhelming majorities in Congress.

Of course, Carter has made some bad appointments. Environmentalists were very distressed by the selection of nuclear advocate James Schlesinger to head the Department of Energy. Carter personally assured conservationists that his energy positions, not Schlesinger's, would prevail. However, Schlesinger was able to hijack the administration and to carry it along on his pro-nuclear approach. Budget approval for alternative energy forms was kept low until Schlesinger had convinced the President that only nuclear power could provide an alternative to imported oil. Schlesinger's successor at DOE, John Duncan, has maintained a lower profile, but his proposed budgets for 1981-85 have made it clear that Duncan agrees that nuclear power, coal and synthetic fuels should be the nation's energy priorities. Under Schlesinger and Duncan, a number of former energy industry executives have gone to work for DOE.

A changed appointment in mid-term can make a big difference. Under Brock Adams, the Carter Administration Department of Transportation appeared to oppose mass transit and supported increased highway construction—a tendency encouraged during highway fan Bert Lance's tenure in the Office of Management and Budget. But since Neil Goldschmidt succeeded Adams, transportation activists have generally had good relations with DOT—and support for mass transit has been far stronger.

Opponents of wilderness and environmental regulation are numerous and powerful in Washington. They know that the key to success is the election of a President who will appoint the "right" people to key positions. They frequently criticize Carter's appointment of such leaders as James Moorman, former executive director of the Sierra Club Legal Defense Fund, as Assistant Attorney General for public lands. Moorman's job is to enforce environmental laws on public lands and to defend the government against such lawsuits as the one filed by Anaconda Copper Company in Alaska challenging the validity of the President's landmark designation of 56 million acres of public lands as national monuments. Moorman argued and won the case—but another administration could have chosen not to defend it at all, or to settle it out of court.

The appointment of Robert Herbst, former executive director of the Izaak Walton League, as Assistant Secretary of the Interior for parks and wildlife, also had important consequences for the protection of Alaska's public lands. Herbst, along with Interior Secretary Cecil Andrus, was a prime advocate of a strong administration position on Alaska—a great contrast, for example, with Nixon's first Interior Secretary, Wally Hickel, who has since been one of the leaders of opposition to Alaskan park proposals.

Opponents of wilderness and environmental regulation want the good old days of Nixon and Ford to return. They know that a Carter Administration is not likely to appoint people who represent their point of view. They feel certain that their causes will be better served under a Reagan administration. A few clues have surfaced about the possible shape of a Reagan administration. Many people have urged Reagan to appoint John Connally to a prominent position. One of Connally's main speeches during his brief presidential candidacy consisted of a series of blasts at "radical environmentalists," criticism of the Carter Administration's position on Alaska and calls for expanded oil drilling, stripmining and other energy production with little regard for environmental protection.

In his two terms as the governor of California, Reagan did appoint some moderate and liberal Republicans to key environmental positions—reflecting the mood of the California G.O.P. at the time. But most of his appointees were hostile to environmental protection. Members of the Air Resources Board who had tried to proceed with a cleanup opposed by the automobile industry were fired by Reagan. His chief wildlife appointment came from an oil company; his Board of Forestry was dominated by friends of the timber interests. "We should be cutting more timber in the national forests," Reagan once said on a syndicated radio program, "especially since we have permitted a lot of dead trees to accumulate which are pure waste and harmful to woodland ecology." Reagan's appointments as president would undoubtedly reflect this mistaken view. A possible choice for Secretary of the Interior, for example, is Reagan's close campaign advisor, Nevada Senator Paul Laxalt, one of the strongest congressional advocates of the Sagebrush Rebellion—a proposed giveaway of public lands to private grazing, mining and timber interests.

This year, of course, there is another serious presidential contender—Illinois Representative John Anderson. Anderson, an articulate, moderate Republican running as an independent, has a mixed record on environmental issues—generally strong on land allocation and wilderness (he was a prime cosponsor of the conservationists' Alaska legislation), but somewhat weaker on energy issues. Until recently, for example, he was a strong supporter of nuclear power, and some skeptics believe that he still is. Anderson, as yet, has given little indication of how he would approach such crucial environmental appointments as secretaries of interior, energy and agriculture or administrator of the Environmental Protection Agency, not to mention the dozens of assistant secretaries and under secretaries critical to these departments.

The appointments factor, then, is one that environmentalists and other voters must weigh carefully in the upcoming elections. The government of the United States is much more than tone and rhetoric, style and image. These key 2000-plus political appointments will be filled. But who will fill them? □

Brock Evans is director of the Sierra Club's Washington Office.

KEY ENVIRONMENTAL VOTES IN THE SENATE

To help our readers assess the records of their congressional representatives, a few key votes have been selected—votes that indicated or influenced general environmental stands in Congress. To round out the picture, the League of Conservation Voters' ratings are also presented.

1. WATER PROJECTS: TELLICO

On July 17, 1979, the Senate barely passed Senator John Culver's amendment to the Energy and Water Development Appropriations Bill that will make Tellico Dam subject to federal laws and regulations. In the vote, 53 to 45 (2 not voting), "Yea" was a vote for the environment.

2. ENERGY: THE MUSKIE-RIBICOFF SUBSTITUTE FOR THE EMB

On October 3, 1979, the Senate rejected an amendment by Senators Edmund Muskie and Abraham Ribicoff to the Energy Mobilization Board legislation that would have strengthened its environmental protection. This amendment was defeated, 58 to 39 (3 not voting), on a motion to table—so a "Nay" was a vote for the environment.

3. WILDERNESS: THE McCLURE AMENDMENT TO IDAHO WILDERNESS

On November 20, 1979, the Senate rejected Senator James McClure's effort to add language to the Central Idaho Wilderness Act that would prevent wilderness consideration for other lands in Idaho. The amendment was defeated 67 to 21 (11 not voting); "Nay" was a vote for the environment.

4. AIR POLLUTION: THE OIL BACK-OUT BILL

On June 24, 1980, the Senate considered legislation to expedite converting power plants from oil to coal. Senators Paul Tsongas and Robert Stafford offered an amendment to limit the pollution created by this conversion; it was defeated 63 to 31 (6 not voting) on a motion to table, so a "Nay" vote was a vote for the environment.

5. WATER PROJECTS: TEN-TOM

On June 28, 1980, the Senate defeated an amendment by Senator John Chafee to eliminate funds for the environmentally damaging Tennessee-Tombigbee Waterway from Supplemental Appropriations legislation. The amendment was defeated 47 to 36 (17 not voting); "Yea" is a vote for the environment.

6. ALASKA: WILDLIFE REFUGES

At this writing, the Senate has cast only a few votes on the Alaska National Interest Lands legislation. On July 22, 1980, the Senate rejected a proposal to table a motion by Senator Gary Hart and others to improve the legislation's treatment of wildlife refuges and to add lands to the refuges. The motion to table, offered by Senator Henry Jackson, was defeated 64 to 33 (3 not voting). "Nay" was a vote for the environment.

	1	2	3	4	5	6	77-78 LCV% rating
ALABAMA							
D Heflin, Howell	f	y	N	y	n	y	new
D Stewart, Donald W.	f	y	N	y	n	N	new
ALASKA							
D Gravel, Mike	N	N	a	y	n	y	43
R Stevens, Ted	y	y	y	y	n	y	15
ARIZONA							
D DeConcini, Dennis	N	y	N	y	n	N	43
R Goldwater, Barry	y	a	y	a	a	y	08
ARKANSAS							
D Bumpers, Dale	N	y	N	N	n	N	79
D Pryor, David	f	y	N	y	n	N	new
CALIFORNIA							
D Cranston, Alan	N	N	N	y	n	N	85
R Hayakawa, S. I.	y	y	y	N	Y	y	12
COLORADO							
R Armstrong, William L.	f	N	y	y	Y	y	new
D Hart, Gary	N	N	N	N	Y	N	93
CONNECTICUT							
D Ribicoff, Abraham	a	N	a	N	a	N	78
R Weicker, Jr., Lowell P.	N	N	N	N	Y	N	72
DELAWARE							
D Biden, Jr., Joseph R.	N	N	N	N	Y	N	92
R Roth, Jr., William V.	N	N	N	y	Y	N	44
FLORIDA							
D Chiles, Lawton	N	y	a	y	n	N	51
D Stone, Richard	N	y	N	y	n	N	39
GEORGIA							
D Nunn, Sam	y	y	N	y	n	N	36
D Talmadge, Herman E.	y	y	a	y	a	N	30
HAWAII							
D Inouye, Daniel K.	N	y	N	y	n	N	54
D Matsunaga, Spark M.	y	y	a	y	n	N	67
IDAHO							
D Church, Frank	N	y	N	y	Y	N	64
R McClure, James A.	y	y	y	y	n	y	16
ILLINOIS							
R Percy, Charles H.	N	N	N	N	Y	N	62
D Stevenson, Adlai E.	N	y	N	N	Y	N	81
INDIANA							
D Bayh, Birch	N	N	N	a	Y	N	75
R Lugar, Richard G.	y	y	y	y	Y	N	24
IOWA							
D Culver, John C.	N	N	a	N	a	N	96
R Jepsen, Roger W.	f	y	a	y	Y	N	new
KANSAS							
R Dole, Robert	y	N	N	y	n	N	20
R Kassebaum, Nancy L.	f	N	y	y	Y	N	new
KENTUCKY							
D Ford, Wendell H.	N	y	N	y	n	N	30
D Huddleston, Walter D.	N	y	N	y	n	N	41
LOUISIANA							
D Johnston, J. Bennett	y	y	N	y	n	y	26
D Long, Russell B.	a	y	N	y	n	y	12
MAINE							
R Cohen, William S.	f	N	N	N	Y	N	new
D Mitchell, George J.	f	f	f	N	n	N	new
MARYLAND							
R Mathias, Jr., Charles	N	N	N	y	Y	N	68
D Sarbanes, Paul S.	N	N	N	N	Y	N	86
MASSACHUSETTS							
D Kennedy, Edward M.	N	N	N	a	a	a	96
D Tsongas, Paul E.	f	y	N	N	Y	N	new
MICHIGAN							
D Levin, Carl M.	f	N	N	N	n	N	new
D Riegle, Jr., Donald W.	y	N	N	N	n	N	71
MINNESOTA							
R Boschwitz, Rudy	f	y	N	N	Y	y	new
R Durenberger, David	f	N	N	N	Y	N	new
MISSISSIPPI							
R Cochran, Thad	f	y	y	y	n	y	new
D Stennis, John C.	N	y	a	y	n	y	23
MISSOURI							
R Danforth, John C.	N	y	N	y	Y	N	32
D Eagleton, Thomas F.	y	y	N	y	Y	a	62
MONTANA							
D Baucus, Max	f	N	N	N	a	N	new
D Melcher, John	N	y	N	N	a	y	51
NEBRASKA							
D Exon, J. James	f	y	N	y	Y	N	new
D Zorinsky, Edward	N	y	N	y	Y	N	51

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	1	2	3	4	5	6	77-78 LCV% rating
NEVADA							
D Cannon, Howard W.	N	y	N	y	a	y	36
R Laxalt, Paul	y	y	y	y	n	y	16
NEW HAMPSHIRE							
D Durkin, John A.	N	y	N	N	n	N	78
R Humphrey, Gordon J.	f	N	y	y	n	y	new
NEW JERSEY							
D Bradley, Bill	f	y	N	N	a	N	new
D Williams, Jr., Harrison A.	N	N	N	y	Y	N	72
NEW MEXICO							
R Domenici, Pete V.	N	y	y	N	Y	y	16
R Schmitt, Harrison "Jack"	y	N	y	a	a	y	18
NEW YORK							
R Javits, Jacob K.	N	N	N	a	a	N	76
D Moynihan, Daniel Patrick	N	a	N	y	Y	N	65
NORTH CAROLINA							
R Helms, Jesse	y	N	y	y	n	y	18
D Morgan, Robert	y	y	N	y	n	y	41
NORTH DAKOTA							
D Burdick, Quentin N.	N	y	N	y	a	y	45
R Young, Milton R.	y	y	y	y	n	y	11
OHIO							
D Glenn, John	y	N	N	y	a	N	76
D Metzenbaum, Howard M.	N	y	N	y	Y	N	78
OKLAHOMA							
R Bellmon, Henry	y	y	a	y	n	y	16
D Boren, David L.	f	y	N	y	n	y	new
OREGON							
R Hatfield, Mark O.	a	y	a	N	n	y	61
R Packwood, Bob	N	N	N	y	n	N	41
PENNSYLVANIA							
R Heinz, III, H. John	N	a	N	y	Y	N	66
R Schweiker, Richard S.	N	y	N	y	n	N	35
RHODE ISLAND							
R Chafee, John H.	N	N	N	N	Y	N	62
D Pell, Claiborne	N	y	N	N	Y	N	90
SOUTH CAROLINA							
D Hollings, Ernest F.	y	y	N	y	n	N	57
R Thurmond, Strom	y	y	y	y	n	N	11
SOUTH DAKOTA							
D McGovern, George	N	N	N	y	a	a	83
R Pressler, Larry	f	N	N	a	a	N	new
TENNESSEE							
R Baker, Jr., Howard H.	N	N	a	N	n	y	32
D Sasser, Jim	N	y	N	y	n	N	47
TEXAS							
D Bentsen, Lloyd	N	y	N	y	n	N	41
R Tower, John	y	y	y	y	n	y	00
UTAH							
R Garn, Jake	y	N	y	y	a	y	11
R Hatch, Orrin G.	y	N	y	y	a	y	07
VIRGINIA							
I Byrd, Jr., Harry F.	y	y	a	y	n	y	35
R Warner, John W.	f	y	y	y	n	N	new
VERMONT							
D Leahy, Patrick J.	N	N	N	N	Y	N	94
R Stafford, Robert T.	N	N	N	N	Y	N	74
WASHINGTON							
D Jackson, Henry M.	N	y	N	y	n	y	71
D Magnuson, Warren G.	N	y	N	y	n	y	65
WISCONSIN							
D Nelson, Gaylord	N	N	N	N	Y	N	84
D Proxmire, William	N	N	N	N	Y	N	91
WEST VIRGINIA							
D Byrd, Robert C.	y	y	N	y	n	y	56
D Randolph, Jennings	y	y	N	y	n	N	51
WYOMING							
R Simpson, Alan K.	f	y	y	y	Y	N	new
R Wallop, Malcolm	N	y	y	N	Y	N	21

KEY	
N—"Nay," a correct vote	Y—"Yea," a correct vote
n—"nay," an incorrect vote	y—"yea," incorrect vote
	a—absent

KEY ENVIRONMENTAL VOTES IN THE HOUSE

1. ALASKA: THE UDALL-ANDERSON SUBSTITUTE

On May 16, 1979, the House passed 268 to 157 (10 not voting) the Udall-Anderson Substitute to the Alaska National Interest Lands Conservation Act. "Yea" was a vote for the environment.

2. ENERGY: THE UDALL-CLAUSEN-WIRTH SUBSTITUTE FOR THE EMB

On November 1, 1979, the House narrowly defeated 215 to 192 (28 not voting) the Udall-Clausen-Wirth Substitute that would have prevented the proposed Energy Mobilization Board from being able to waive many environmental laws. "Yea" was a vote for the environment.

3. NUCLEAR: THE MARKEY AMENDMENT

On November 29, 1979, the House rejected an amendment by Representative Edward Markey that would have suspended temporarily the power of the Nuclear Regulatory Commission to issue construction licenses for nuclear power plants. The measure was defeated 254 to 136 (45 not voting). "Yea" was a vote for the environment.

4. WATER PROJECTS: THE EDGAR AMENDMENT

On January 28, 1980, Representative Bob Edgar offered an amendment to the Omnibus Water Resources Development Act to delete eight expensive and unnecessary water projects. The amendment was soundly defeated 265 to 117 (53 not voting). "Yea" was a vote for the environment.

5. WILDERNESS: THE SYMMS SUBSTITUTE FOR IDAHO WILDERNESS

On April 16, 1980, the House rejected an amendment offered by Representative Steve Symms to reduce the size of the proposed River of No Return Wilderness and to prevent other areas in Idaho from being considered for wilderness status in the future. The amendment was rejected 214 to 179 (42 not voting). "Nay" was a vote for the environment. ▶

	1	2	3	4	5	1979 LCV% rating
ALABAMA						
D Bevill, Tom	Y	n	n	n	y	31
R Buchanan, Jr., John H.	Y	n	n	n	y	41
R Dickinson, William L.	n	a	a	n	y	03
R Edwards, Jack	n	n	n	n	y	09
D Flippo, Ronnie G.	Y	n	n	n	y	28
D Nichols, Bill	n	n	n	a	y	14
D Shelby, Richard C.	n	n	n	n	y	24
ALASKA						
R Young, Don	n	n	n	n	y	16
ARIZONA						
R Rhodes, John J.	n	a	n	n	y	07
R Rudd, Eldon D.	n	n	n	n	y	05
D Stump, Bob	n	n	n	n	y	03
D Udall, Morris K.	Y	Y	Y	n	N	85
ARKANSAS						
D Alexander, Bill	Y	n	n	n	N	28
D Anthony, Jr., Beryl F.	n	n	a	n	y	24
R Bethune, Jr., Edwin R.	Y	Y	a	n	y	33
R Hammerschmidt, John Paul	Y	Y	Y	n	y	38
CALIFORNIA						
D Anderson, Glenn M.	n	Y	n	n	N	59
R Badham, Robert E.	n	n	n	n	a	06
D Beilenson, Anthony C.	Y	Y	Y	Y	N	89
D Brown, Jr., George E.	Y	Y	Y	Y	N	87
R Burgener, Clair W.	Y	n	n	n	y	20
D Burton, John L.	Y	Y	Y	n	N	88
D Burton, Phillip	Y	Y	Y	Y	a	95
R Clausen, Don H.	n	Y	n	n	y	24
D Coelho, Tony L.	Y	Y	a	n	N	50
D Corman, James C.	Y	Y	Y	n	a	78
D Danielson, George E.	Y	Y	n	n	N	78
R Dannemeyer, William E.	n	n	n	Y	y	10
D Dellums, Ronald V.	Y	Y	Y	Y	N	94
D Dixon, Julian C.	Y	Y	Y	n	N	82
R Dornan, Robert K.	Y	Y	n	n	y	38
D Edwards, Don	Y	Y	Y	a	N	87
D Fazio, Vic	Y	Y	Y	n	N	76
R Goldwater, Jr., Barry M.	Y	Y	n	n	y	26
R Grisham, Wayne	n	Y	n	Y	y	17
D Hawkins, Augustus F.	Y	Y	a	n	N	84
D Johnson, Harold T.	n	Y	n	n	y	50
R Lagomarsino, Robert J.	Y	Y	Y	n	y	45
R Lewis, Jerry	n	n	n	a	y	13
D Lloyd, James F.	Y	Y	n	n	N	59
R Lungren, Daniel E.	n	n	n	Y	a	14
D Matsui, Robert T.	Y	Y	Y	n	N	88
R McCloskey, Jr., Paul N.	Y	Y	n	Y	N	63
D Miller, George	Y	Y	Y	a	N	93
D Mineta, Norman Y.	Y	Y	n	n	N	72
R Moorhead, Carlos J.	Y	n	n	n	y	20
D Panetta, Leon E.	Y	Y	Y	n	N	69
R Pashayan, Jr., Charles	n	n	n	n	a	16
D Patterson, Jerry M.	Y	Y	Y	n	N	70
R Rousselot, John H.	n	n	n	n	y	05
D Roybal, Edward R.	Y	Y	Y	n	N	79
R Royer, William	n	n	n	n	y	14
R Shumway, Norman D.	Y	a	n	n	y	13
D Stark, Fortney H.	Y	Y	Y	a	N	88
R Thomas, William	n	n	n	a	y	13
D Van Deerlin, Lionel	Y	Y	Y	n	a	85
D Waxman, Henry A.	Y	Y	Y	Y	N	89
R Wilson, Bob	n	a	n	n	a	04
D Wilson, Charles H.	n	a	n	n	a	30
COLORADO						
R Johnson, James P.	n	Y	n	n	y	16
D Kogovsek, Ray	Y	Y	n	n	N	69
R Kramer, Ken	n	Y	n	Y	y	09
D Schroeder, Patricia	Y	Y	Y	a	N	74
D Wirth, Timothy E.	Y	Y	Y	n	N	68
CONNECTICUT						
D Cotter, William R.	Y	Y	Y	n	N	63
D Dodd, Christopher J.	Y	Y	Y	a	N	87
D Giaimo, Robert N.	Y	n	n	Y	N	43
R McKinney, Stewart B.	Y	Y	n	Y	N	65
D Moffett, Toby	Y	Y	Y	Y	N	89
D Ratchford, William R.	Y	Y	Y	Y	N	83
DELAWARE						
R Evans, Jr., Thomas B.	Y	Y	Y	Y	y	50
FLORIDA						
R Bafalis, L. A.	n	n	n	n	y	10
D Bennett, Charles E.	Y	n	n	n	N	38
D Chappell, Jr., Bill	n	n	n	n	y	16
D Fascell, Dante B.	Y	n	a	a	n	57
D Fuqua, Don	Y	Y	n	n	N	54
D Gibbons, Sam M.	Y	n	a	n	N	51
D Hutto, Earl D.	n	n	n	n	N	24
D Ireland, Andrew P.	Y	Y	n	n	N	42
R Kelly, Richard	n	n	n	a	y	05
D Lehman, William	Y	Y	n	Y	N	63
D Mica, Dan	Y	Y	n	n	N	53
D Nelson, Bill	Y	n	n	Y	N	35
D Pepper, Claude	Y	n	n	a	y	58
D Stack, Edward J.	Y	Y	Y	Y	N	70
R Young, C. W. Bill	Y	n	n	Y	y	10
GEORGIA						
D Barnard, Jr., D. Douglas	Y	n	n	n	N	24
D Brinkley, Jack	Y	n	n	n	y	24
D Evans, Billy Lee	Y	n	n	n	y	13
D Fowler, Jr., Wyche	Y	Y	Y	Y	N	70
R Gingrich, Newt	Y	Y	n	n	N	39
D Ginn, Bo	Y	n	n	n	N	41
D Jenkins, Edgar L.	Y	n	n	a	y	24
D Levitas, Elliott H.	Y	n	n	n	N	52
D Mathis, Dawson	n	n	n	a	a	00
D McDonald, Lawrence P.	n	Y	n	a	y	17
HAWAII						
D Akaka, Daniel K.	Y	Y	Y	n	N	56
D Heftel, Cecil	Y	n	a	n	N	44
IDAHO						
R Hansen, George V.	n	n	n	n	y	05
R Symms, Steven D.	n	Y	a	a	y	12
ILLINOIS						
R Anderson, John B.	Y	a	a	a	N	36
D Annunzio, Frank	Y	n	n	n	y	48
D Collins, Cardiss	Y	a	Y	n	N	71
R Corcoran, Thomas J.	Y	Y	a	Y	y	33
R Crane, Daniel B.	n	n	n	a	y	05
R Crane, Philip M.	n	a	a	a	y	00
R Derwinski, Edward J.	n	Y	n	Y	y	41
R Erlenborn, John N.	n	n	n	Y	y	21
D Fary, John G.	Y	n	n	n	y	50
R Findley, Paul	Y	Y	n	a	y	53
R Hyde, Henry J.	n	n	n	a	y	18
R Madigan, Edward R.	Y	a	n	n	y	35
R McClory, Robert	Y	n	n	n	y	20
R Michel, Robert H.	n	n	n	n	y	05
D Murphy, Morgan F.	Y	n	a	a	a	37
R O'Brien, George M.	Y	n	a	Y	y	24
R Porter, John Edward	f	f	f	Y	N	new
D Price, Melvin	Y	n	n	n	y	48
R Railsback, Thomas F.	n	n	n	a	y	28
D Rostenkowski, Dan	Y	a	a	n	N	41
D Russo, Martin A.	Y	n	n	n	N	51
D Simon, Paul M.	Y	Y	Y	n	N	84
D Stewart, Bennett M.	Y	Y	Y	a	N	68
D Yates, Sidney R.	Y	Y	Y	a	N	90
INDIANA						
D Benjamin, Jr., Adam	Y	n	n	n	y	41
D Brademas, John	Y	n	Y	n	N	79
R Deckard, H. Joel	Y	Y	Y	n	N	56
D Evans, David W.	Y	Y	n	Y	N	60
D Fithian, Floyd J.	Y	n	n	Y	N	66
D Hamilton, Lee H.	Y	n	n	Y	N	55
R Hillis, Elwood H.	Y	n	n	n	y	32
D Jacobs, Jr., Andrew	Y	Y	Y	Y	y	60
R Myers, John T.	n	n	n	n	y	05
R Quayle, J. Danforth	n	Y	n	n	y	28
D Sharp, Philip R.	Y	n	n	Y	N	62
IOWA						
D Bedell, Berkley W.	Y	Y	Y	Y	N	82
R Grassley, Charles E.	Y	n	n	Y	y	20
D Harkin, Thomas R.	Y	Y	Y	a	N	83
R Leach, James A. S.	Y	Y	a	n	y	51
D Smith, Neal	Y	n	n	n	N	39
R Tauke, Tom	Y	Y	n	Y	N	41
KANSAS						
D Glickman, Daniel R.	Y	n	a	n	N	47
R Jeffries, James	n	n	n	n	y	01
R Sebelius, Keith G.	n	n	n	n	y	13
R Whittaker, Robert	n	n	n	n	y	21
R Winn, Jr., Larry	n	a	a	n	y	12
KENTUCKY						
R Carter, Tim Lee	n	n	n	n	y	31
R Hopkins, Larry J.	n	n	Y	n	y	17
D Hubbard, Jr., Carroll	A	n	n	n	N	10
D Mazzoli, Romano L.	n	n	n	n	y	28
D Natcher, William H.	Y	n	n	n	N	34
D Perkins, Carl D.	Y	n	n	n	N	43
R Snyder, M. Gene	n	n	n	n	y	10
LOUISIANA						
D Boggs, Lindy	a	n	n	n	N	40
D Breaux, John B.	n	n	a	n	y	07
D Huckaby, Jerry	n	n	n	n	N	13
D Leach, Claude	n	a	n	n	y	17
R Livingston, Robert L.	n	Y	n	n	y	17
D Long, Gillis W.	a	n	n	a	N	37
R Moore, W. Henson	n	Y	n	a	y	17
D Tauzin, Wilbert J. "Billy"	f	f	f	f	f	new
MAINE						
R Emery, David F.	Y	Y	Y	Y	N	59
R Snowe, Olympia J.	Y	n	n	Y	y	48
MARYLAND						
D Barnes, Michael D.	Y	Y	Y	a	N	95
R Bauman, Robert E.	n	Y	n	n	y	14
D Byron, Beverly	Y	n	n	n	N	41
R Holt, Marjorie S.	n	n	n	Y	a	07
D Long, Clarence D.	Y	Y	Y	n	N	70
D Mikulski, Barbara A.	Y	Y	Y	Y	N	81
D Mitchell, Parren J.	Y	Y	Y	Y	N	97
D Spellman, Gladys Noon	Y	Y	Y	n	N	81
MASSACHUSETTS						
D Boland, Edward P.	Y	Y	Y	Y	N	70
R Conte, Silvio O.	Y	Y	Y	Y	N	79
D Donnelly, Brian J.	Y	Y	n	n	N	69
D Drinan, Robert F.	Y	Y	Y	Y	N	91
D Early, Joseph D.	Y	Y	Y	Y	N	79
R Heckler, Margaret M.	Y	Y	n	Y	N	72
D Markey, Edward J.	Y	Y	Y	Y	N	97
D Mavroules, Nicholas	Y	Y	Y	Y	N	85
D Moakley, J. Joseph	Y	Y	Y	n	N	83
D O'Neill, Thomas	x	x	x	x	x	xxx
D Shannon, James M.	Y	Y	Y	Y	N	87
D Studds, Gerry E.	Y	Y	Y	Y	N	93
MICHIGAN						
D Albosta, Donald J.	Y	n	n	n	y	55
D Blanchard, James J.	Y	n	a	n	N	76
D Bonior, David E.	Y	Y	Y	Y	N	98
D Brodhead, William M.	Y	Y	Y	Y	N	93
R Broomfield, William S.	Y	n	n	Y	y	31
D Carr, Bob	Y	Y	Y	Y	N	82
D Conyers, Jr., John	Y	Y	Y	a	N	81
R Davis, Robert W.	n	n	n	n	y	24
D Diggs, Charles C. (vacant)	n	n	Y	a	N	56
D Dingell, John D.	n	n	Y	Y	N	51
D Ford, William D.	n	n	n	n	N	51
D Kildee, Dale E.	Y	Y	Y	Y	N	93
D Nedzi, Lucien N.	Y	n	n	n	N	66
R Pursell, Carl D.	Y	Y	Y	n	N	76
R Sawyer, Harold S.	Y	n	n	Y	y	28
R Stockman, David A.	n	n	n	Y	y	20
D Traxler, Bob	n	n	n	n	N	52
R Vander Jagt, Guy	n	Y	n	n	y	20
D Wolpe, Howard	Y	Y	Y	Y	N	93
MINNESOTA						
R Erdahl, Arlen	Y	Y	n	n	N	46
R Frenzel, Bill	n	n	a	a	y	16
R Hagedorn, Thomas M.	n	n	a	n	a	05
D Nolan, Richard M.	Y	Y	Y	a	N	85
D Oberstar, James L.	n	Y	Y	n	y	76
D Sabo, Martin Olav	Y	Y	Y	Y	N	86
R Stangeland, Arlan	n	n	n	n	y	17
D Vento, Bruce G.	Y	Y	Y	Y	N	92
MISSISSIPPI						
D Bowen, David R.	n	a	n	n	y	13
R Hinson, Jon C.	n	n	n	a	y	20
R Lott, Trent	n	n	n	n	y	14
D Montgomery, G. V.	n	a	n	n	y	06
D Whitten, Jamie L.	n	n	n	n	y	21
MISSOURI						
D Bolling, Richard	Y	Y	n	Y	N	77
D Burlison, Bill D.	Y	n	a	n	y	36
D Clay, William	Y	Y	Y	Y	a	91
R Coleman, E. Thomas	Y	n	n	n	y	28
D Gephardt, Richard A.	Y	Y	a	n	N	62
D Ichord, Richard H.	n	n	n	n	y	02
D Skelton, Ike	Y	n	n	n	y	42
R Taylor, Gene	n	n	n	n	y	03
D Volkmer, Harold L.	n	n	n	n	N	28
D Young, Robert A.	n	Y	n	n	y	42
MONTANA						
R Marlenee, Ron	n	Y	Y	n	y	36
D Williams, Pat	Y	Y	Y	n	N	65

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	1	2	3	4	5	1979 LCV% rating
NEBRASKA						
R Bereuter, Douglas K.	Y	Y	Y	n	y	50
D Cavanaugh, John J.	Y	Y	Y	n	N	67
R Smith, Virginia	N	Y	n	n	y	24
NEVADA						
D Santini, James D.	n	n	n	n	N	28
NEW HAMPSHIRE						
R Cleveland, James C.	N	n	n	n	y	12
D D'Amours, Norman E.	Y	Y	n	Y	N	76
NEW JERSEY						
R Courter, James A.	Y	n	n	Y	y	24
R Fenwick, Millicent H.	Y	Y	n	Y	N	69
D Florio, James J.	Y	Y	Y	Y	N	91
R Forsythe, Edwin B.	a	n	n	Y	y	30
D Guarini, Frank J.	Y	Y	Y	n	N	81
R Hollenbeck, Harold C.	Y	Y	Y	Y	N	79
D Howard, James J.	Y	Y	Y	n	N	82
D Hughes, William J.	Y	Y	Y	n	N	72
D Maguire, Andrew	Y	Y	Y	Y	N	94
D Minish, Joseph G.	Y	n	Y	Y	N	78
D Patten, Edward J.	Y	n	n	n	N	48
R Rinaldo, Matthew J.	Y	Y	n	Y	N	69
D Rodino, Jr., Peter W.	a	a	Y	a	a	85
D Roe, Robert A.	Y	n	n	a	N	59
D Thompson, Jr., Frank	Y	Y	Y	n	N	75
NEW MEXICO						
R Lujan, Jr., Manuel	Y	n	n	Y	y	20
D Runnels, Harold	n	a	a	n	y	00
NEW YORK						
D Addabbo, Joseph P.	Y	n	a	a	N	63
D Ambro, Jerome A.	Y	Y	Y	n	N	79
D Biaggi, Mario	Y	n	Y	n	N	62
D Bingham, Jonathan B.	Y	Y	Y	Y	a	95
R Carney, William	n	n	a	n	y	17
D Chisholm, Shirley	Y	Y	Y	n	a	87
R Conable, Jr., Barber B.	n	Y	n	Y	y	20
D Downey, Thomas J.	Y	Y	Y	Y	N	89
D Ferraro, Geraldine A.	Y	n	Y	n	N	74
R Fish, Jr., Hamilton	Y	Y	Y	Y	a	72
D Garcia, Robert	Y	Y	Y	Y	N	90
R Gilman, Benjamin A.	Y	Y	Y	n	y	74
R Green, S. William	Y	Y	n	Y	N	72
D Hanley, James M.	Y	n	n	n	N	39
D Holtzman, Elizabeth	Y	Y	Y	Y	N	92
R Horton, Frank	Y	n	n	n	N	39
R Kemp, Jack	n	Y	n	n	y	31
D LaFalce, John J.	Y	Y	n	n	N	79
R Lee, Gary A.	n	n	n	Y	y	20
R Lent, Norman F.	n	n	n	n	y	28
D Lundine, Stanley	Y	n	n	n	N	62
R McEwen, Robert C.	n	n	n	a	y	16
D McHugh, Matthew F.	Y	Y	Y	Y	N	79
R Mitchell, Donald J.	Y	Y	Y	Y	y	53
D Murphy, John M.	n	n	a	n	N	38
D Nowak, Henry	Y	Y	n	n	N	70
D Ottinger, Richard L.	Y	Y	Y	n	N	100
D Peyser, Peter A.	Y	n	Y	n	N	74
D Rangel, Charles B.	Y	Y	Y	n	N	84
D Richmond, Frederick W.	Y	Y	Y	Y	N	91
D Rosenthal, Benjamin S.	Y	a	a	Y	N	86
D Scheuer, James H.	a	Y	Y	a	N	92
D Solarz, Stephen J.	Y	Y	a	Y	a	87
R Solomon, Gerald B.	n	n	n	n	y	17
D Stratton, Samuel S.	n	n	n	n	y	45
D Weiss, Ted	Y	Y	Y	Y	N	95
D Wolff, Lester L.	Y	a	Y	a	N	85
R Wydler, John W.	n	n	a	a	y	24
D Zeferetti, Leo C.	n	n	n	a	N	35
NORTH CAROLINA						
D Andrews, Ike F.	Y	n	n	n	N	38
R Broyhill, James T.	a	n	n	n	y	17
D Fountain, L. H.	n	n	n	n	y	17
D Gudger, Lamar	Y	Y	n	n	N	32
D Hefner, W. G.	Y	n	n	n	N	31
D Jones, Walter B.	n	a	n	n	y	09
R Martin, James G.	n	n	n	a	y	17
D Neal, Stephen L.	Y	Y	n	Y	N	49
D Preyer, Richardson	Y	Y	n	n	N	45
D Rose, Charles	Y	Y	n	n	N	47
D Whitley, Sr., Charles O.	Y	n	n	n	y	28
NORTH DAKOTA						
R Andrews, Mark	n	n	n	n	y	14
OHIO						
D Applegate, Douglas	n	n	n	Y	y	39
R Ashbrook, John M.	n	Y	n	n	y	13
D Ashley, Thomas L.	Y	n	a	n	N	58
R Brown, Clarence J.	a	n	n	n	y	19
R Devine, Samuel L.	n	n	n	Y	y	03
R Gradison, Jr., Willis D.	Y	Y	n	Y	y	59
R Guyer, Tennyson	Y	n	n	n	y	24
D Hall, Tony P.	Y	Y	Y	Y	N	88
R Harsha, William H.	n	Y	Y	n	y	20
R Kindness, Thomas N.	n	Y	n	Y	y	20
R Latta, Delbert L.	n	n	n	n	y	07
D Luken, Thomas A.	Y	n	n	n	y	42
R Miller, Clarence E.	n	n	n	n	y	07
D Mottl, Ronald M.	Y	n	Y	Y	N	59
D Oakar, Mary Rose	Y	Y	a	n	N	78
D Pease, Donald J.	Y	Y	n	Y	N	85
R Regula, Ralph S.	Y	Y	n	n	y	34
D Seiberling, John F.	Y	Y	Y	Y	N	97
R Stanton, J. William	Y	n	Y	n	y	38
D Stokes, Louis	Y	Y	a	n	a	91
D Vanik, Charles A.	Y	Y	Y	n	N	97
R Williams, Lyle	Y	n	n	a	y	29
R Wylie, Chalmers P.	Y	n	n	n	y	24
OKLAHOMA						
R Edwards, Mickey	n	a	Y	n	y	25
D English, Glenn	n	n	n	n	y	24
D Jones, James R.	n	n	n	n	N	24
D Steed, Tom	n	n	n	n	N	24
D Synar, Mike	Y	Y	Y	Y	N	66
D Watkins, Wesley W.	n	n	n	n	y	24
OREGON						
D AuCoin, Les	Y	Y	Y	n	N	70
D Duncan, Robert B.	a	n	n	n	N	22
D Ullman, Al	Y	n	a	n	a	37
D Weaver, James H.	Y	Y	a	n	N	94
PENNSYLVANIA						
D Atkinson, Eugene V.	Y	n	n	n	y	52
D Bailey, Don	n	n	n	n	N	48
R Clinger, Jr., William F.	n	n	n	n	y	33
R Coughlin, Lawrence	Y	Y	Y	Y	a	63
R Dougherty, Charles F.	n	n	n	Y	a	45
D Edgar, Robert W.	Y	Y	Y	Y	N	87
D Ertel, Allen E.	Y	n	Y	n	N	60
D Gaydos, Joseph M.	Y	n	n	n	y	45
R Goodling, William F.	Y	Y	Y	Y	a	42
D Gray, III, William H.	Y	Y	Y	Y	a	88
D Kostmayer, Peter H.	Y	Y	Y	Y	N	92
D Lederer, Raymond F.	n	n	Y	n	a	49
R Marks, Marc L.	n	n	n	Y	N	51
R McDade, Joseph M.	Y	n	n	Y	y	54
D Moorhead, William S.	Y	a	n	n	N	52
D Murphy, Austin J.	n	Y	n	n	N	55
D Murtha, Jr., John P.	n	n	n	n	N	28
D Musto, Raphael	f	f	f	f	N	new
D Myers, Michael O.	n	n	a	n	a	43
R Ritter, Donald L.	Y	n	n	Y	y	24
R Schulze, Richard T.	n	n	Y	n	y	13
R Shuster, Bud	n	n	n	n	y	12
D Walgren, Doug	Y	Y	Y	n	N	89
R Walker, Robert S.	n	Y	Y	Y	y	31
D Yatron, Gus	n	n	a	n	y	47
RHODE ISLAND						
D Beard, Edward P.	Y	Y	Y	Y	N	66
D St. Germain, Fernand J.	Y	Y	Y	Y	N	74
SOUTH CAROLINA						
R Campbell, Jr., Carroll A.	Y	n	n	n	y	20
D Davis, Mendel J.	Y	n	a	n	N	41
D Derrick, Butler C.	Y	n	n	a	N	43
D Holland, Kenneth L.	Y	n	n	a	y	37
D Jenrette, Jr., John W.	Y	n	a	a	a	42
R Spence, Floyd D.	Y	n	n	n	y	24
R Abdnor, James	n	Y	n	n	y	14
D Daschle, Thomas A.	Y	Y	Y	n	N	78
TENNESSEE						
R Beard, Robin	Y	n	n	n	y	20
D Boner, William H.	Y	n	n	n	y	59
D Bouquard, Marilyn Lloyd	Y	n	n	n	y	28
R Duncan, John J.	Y	n	n	n	y	21
D Ford, Harold E.	Y	Y	n	Y	N	88
D Gore, Jr., Albert A.	Y	Y	Y	n	y	79
D Jones, Ed	Y	n	n	n	y	31
R Quillen, James H.	Y	n	n	n	y	21
TEXAS						
R Archer, Bill	n	n	n	n	a	03
D Brooks, Jack	Y	n	n	n	a	38
R Collins, James M.	n	n	n	Y	y	10
D de la Garza, E.	n	n	n	n	y	29
D Eckhardt, Bob	Y	Y	Y	Y	N	96
D Frost, Martin	Y	n	n	n	N	49
D Gonzalez, Henry B.	Y	n	Y	n	N	70
D Gramm, Phil	n	n	n	n	y	14
D Hall, Jr., Sam B.	n	n	n	n	y	07
D Hance, Kent	n	n	n	a	y	06
D Hightower, Jack E.	n	n	n	n	y	17
D Kazen, Jr., Abraham	n	n	n	n	a	24
D Leath, Marvin	n	n	n	n	y	07
D Leland, Mickey	Y	n	n	a	N	79
R Loeffler, Thomas G.	n	n	n	n	y	10
D Mattox, James A.	Y	n	n	n	N	60
R Paul, Ron	n	Y	n	Y	y	31
D Pickle, J. J.	Y	n	n	n	N	35
D Roberts, Ray	n	n	n	n	a	09
D Stenholm, Charles W.	n	n	n	n	y	10
D White, Richard C.	n	n	n	n	a	21
D Wilson, Charles	n	n	n	n	a	24
D Wright, Jr., James C.	n	n	n	n	N	24
D Wyatt, Jr., Joe	n	n	n	a	a	20
UTAH						
R Marriott, Dan	n	a	n	n	y	12
D McKay, Gunn	n	n	n	n	a	16
VIRGINIA						
R Butler, M. Caldwell	n	n	n	n	a	14
D Daniel, Dan	n	n	n	n	y	03
R Daniel, Jr., Robert W.	n	n	n	n	a	03
D Fisher, Joseph L.	Y	Y	n	Y	N	86
D Harris, Herbert E.	Y	Y	Y	Y	N	79
R Robinson, J. Kenneth	n	n	n	n	y	07
D Satterfield, III, David E.	n	n	n	n	y	06
R Trible, Jr., Paul S.	Y	n	n	n	a	13
R Wampler, William C.	n	n	n	n	y	13
R Whitehurst, G. William	Y	Y	n	a	y	21
VERMONT						
R Jeffords, James M.	Y	Y	Y	a	N	89
WASHINGTON						
D Bonker, Don L.	Y	Y	Y	n	N	78
D Dicks, Norman D.	n	Y	n	n	N	42
D Foley, Thomas S.	n	n	n	n	N	43
D Lowry, Mike	Y	Y	n	Y	N	79
D McCormack, Mike	n	n	n	n	y	24
R Pritchard, Joel	n	a	n	n	N	44
D Swift, Al	n	Y	Y	n	N	67
WISCONSIN						
D Aspin, Les	Y	Y	a	Y	N	80
D Baldus, Alvin J.	Y	Y	n	n	N	67
D Kastenmeier, Robert W.	Y	Y	Y	Y	N	97
D Obey, David R.	Y	Y	Y	Y	N	79
R Petri, Thomas	Y	Y	Y	Y	N	77
D Reuss, Henry S.	Y	Y	Y	n	N	83
R Roth, Toby	Y	Y	n	a	N	28
R Sensenbrenner, Jr., James	Y	Y	a	n	N	54
D Zablocki, Clement J.	Y	a	n	n	N	40
WEST VIRGINIA						
D Hutchinson, John G.	f	f	f	f	f	new
D Mollohan, Robert H.	Y	n	n	n	N	42
D Rahall, II, Nick J.	n	n	Y	n	N	48
D Staggers, Harley O.	n	n	n	n	a	47
WYOMING						
R Cheney, Richard B.	n	Y	n	n	y	28

KEY
N—"Nay," a correct vote
n—"nay," an incorrect vote
Y—"Yea," a correct vote
y—"yea," an incorrect vote
a—absent
f—freshman, not yet in office
x—Speaker of the House does not vote

FRIENDS IN NEED

Continued from page 21

Another vehicle for involvement is the Sierra Club Committee on Political Education (SCCOPE). SCCOPE will be working hard this summer and fall with local conservationists in many states to mobilize volunteers, organize the environmental movement and make sure the general public is fully informed about the critical environmental issues in these races.

In some states individual conservationists are already organizing new environmental political-action committees. Efforts have already started in Wisconsin, Georgia, Massachusetts and Oregon; more are on the way. For information about any SCCOPE activities planned in your state, or for information about local environmental political-action committees, write SCCOPE, 530 Bush Street, San Francisco, CA 94108.

To maximize your impact on issues and on candidates, here are a few important principles to remember:

- Make contributions early. Candidates need to buy and hold media time in advance and to plan their campaigns. Early contributions will also give courage to other environmentalists and increase lobbying clout.
- Candidates usually don't remember why they received help from any particular individual. Environmentalists seeking to volunteer should present themselves as a group. By channeling your time and money through an environmental group, you can make sure the candidates know they received help because of their work on environmental issues.
- Don't expect candidates to be perfect, especially in an election year. A lot of people are trying to make scapegoats of environmentalists, and frightened candidates are becoming more conservative. The best way to nip this in the bud is to give early and vigorous support to those who deserve it. Let the candidate decide when to publicize an issue or an event, when to quietly offer help, when to say nothing.

Anyone wishing to know more about these candidates or elections should contact the League of Conservation Voters, 317 Pennsylvania Ave. S.E., Washington, D.C. 20003. The league also publishes charts showing how all members of the House and Senate have voted on environmental issues, and in-depth reports on the records of the major presidential candidates. □

Marion Edey is executive director of the League of Conservation Voters.

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Kalpakian Knitting Mills Inc. of 605 West 8th Ave., Vancouver, B.C., Canada, has won world-wide respect and acclaim for its products and performance. When you buy a Kalpakian product you are buying the best. Marketed under the brand name of *"Brown Bison"* our products have earned an international reputation for their uniqueness in styling, warmth and quality. Until recently *"Brown Bison"* products have only been available through major stores. However for your convenience you can now purchase *directly* from us . . . the manufacturer. It is our guarantee of quality and true value. All garments are knitted in Canada and are individually packaged and mailed with our *guarantee* of satisfaction or money refunded.

About Our Products . . .

Our ***toques*** have been knitted from fine and soft pure virgin wools and are available in one size (fits all adults). Av. wt. of a toque — 5 ozs.

Our ***socks*** will keep you warm right up over the knee, or alternatively may be used up to knee-high (turn over top). Pure virgin wools with nylon have been used to produce these heavy and unique socks in order to provide strength, shape and stretchability. All our socks are 24" high and are available in two sizes: 9"/11" (ladies) or 10"/13" (mens). Av. wt. of one pair of socks — 6 ozs.

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STERMER

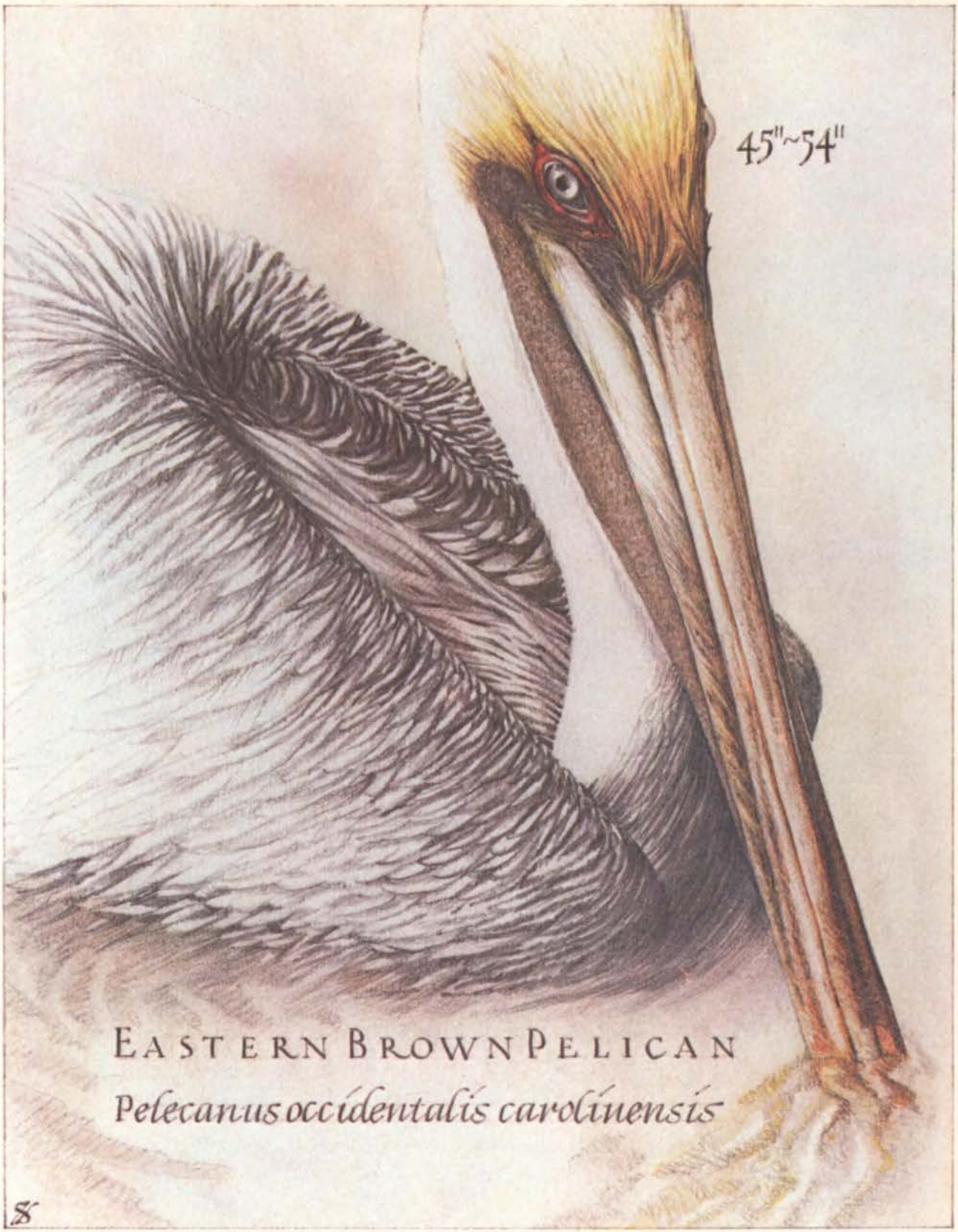
DUGALD STERMER is a highly respected designer and artist on the West Coast—and a long-time environmental and social activist. As a combination of these interests, he has produced a remarkable portfolio of wildlife portraits, only a few of which can be published here. These and others in the series, however, will soon appear elsewhere in a variety of formats. A book, *Vanishing Creatures*, will be published in November by Lancaster-Miller Publishers. Eight prints will be published as notecards by Portal Publications, and a Bo-Tree 1981 Engagement Calendar will also be available.

Stermer wrote of his feelings about endangered species in the March/April 1980 issue of *Communication Arts*: "No food, no clothing, no shelter, no land and certainly no luxury or technology is worth the irreplaceable loss of any species; nor has that loss ever been proven to be necessary to man's survival in the past. . . . Whales, otters, seals and dolphins have their legions of saviors primarily because we find them to be smart, cute, affectionate or all three. Yet the best evidence suggests that the true foundation for species conservation is the fact that ecology makes no value judgments based on how other mammals, birds, reptiles, fishes, insects and plants can or cannot relate to *Homo sapiens*."

The small fish above is threatened by the same factors that have endangered many—if not most—of the small fresh-water fishes indigenous to the western United States: human encroachment and its resulting development, landfill, introduced predators, industrial pollution, wetlands drainage, deforestation, dam building; in short, many of the same elements that have influenced all threatened, endangered or extinct species.

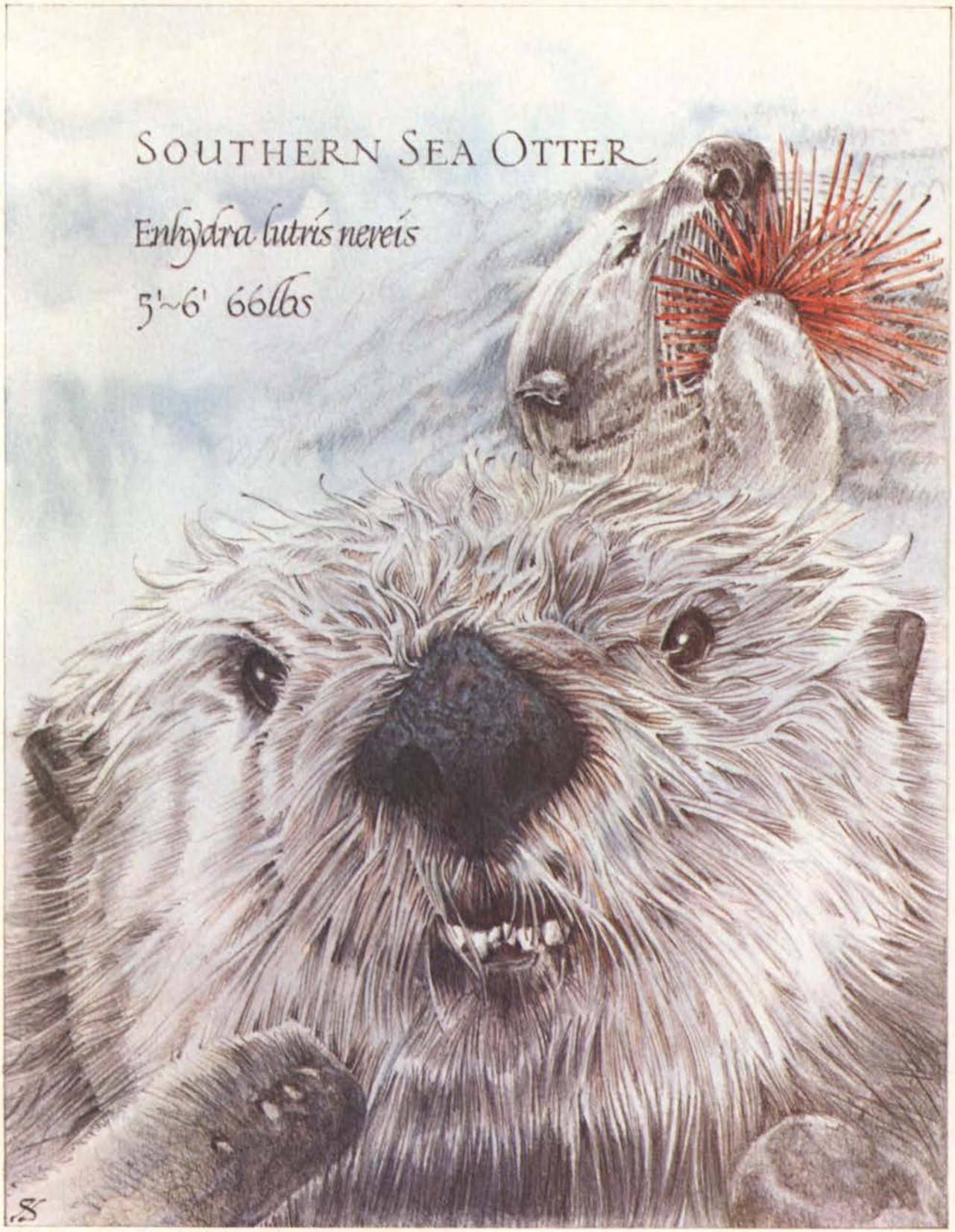
Right: Dugald Stermer

Jim Marshall



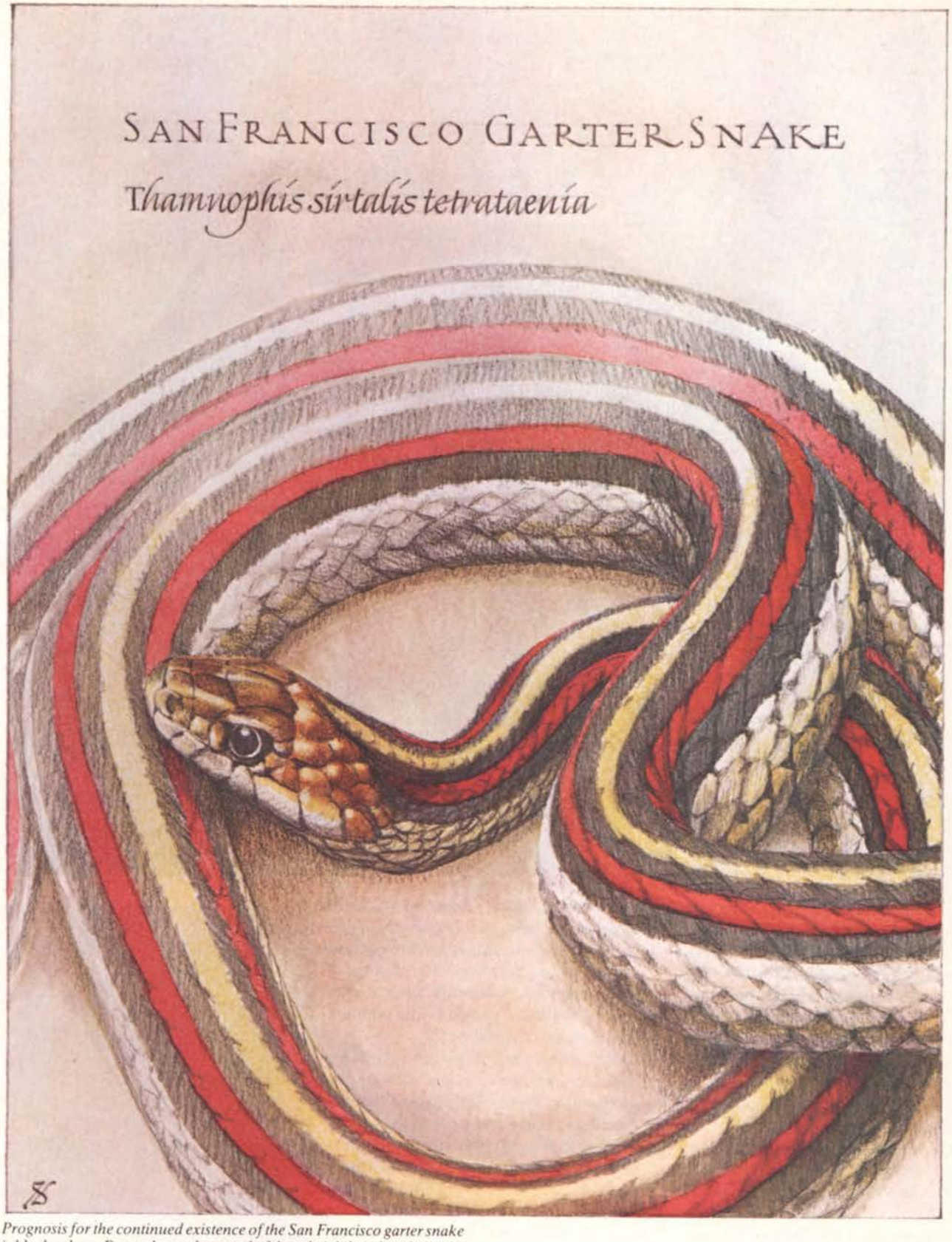
The brown pelican has suffered from pesticide poisoning throughout its range, the southeastern coastline of North America. Significant breeding populations are now limited to Florida and South Carolina.

The mission blue is now restricted to two small areas in and around San Francisco (eight colonies on San Bruno Mountain and one small one on Twin Peaks). This lovely little butterfly has nearly been deprived of its only food source, the lupine leaf, which has been bulldozed from its habitat by developers. It is literally on the brink of extinction.



Public outcry resulted in strict legal protection for the southern sea otter, whose population has grown from a handful to nearly 2000. It is still vulnerable to oil pollution, is considered a threat by the abalone fishing industry, and its pelt is still valuable, so the federal government has decided to retain its endangered status, an unusually wise decision.

Although laws protect alligators from hunters, poachers still deplete the alligator population. While becoming rarer in their natural habitat—the swamps, rivers and lakes of the southeastern United States—alligators turn up with alarming frequency in sewers, plumbing and backyard swimming pools.



Prognosis for the continued existence of the San Francisco garter snake is bleak at best. Fewer than a thousand of these brightly colored marsh dwellers are left, and sightings are exceedingly rare. Much of its habitat has been drained, filled and developed.

Alaska Lands Bill in the Senate

Slowdowns and Showdowns

EDGAR WAYBURN

On July 22, 1980, the U.S. Senate voted on the first of the five amendments offered by Senator Paul Tsongas (D-Massachusetts) to strengthen the Senate Energy and Natural Resources Committee version of the Alaska lands bill. This precipitated a bitter and intense political battle waged by parliamentary maneuver. In three separate votes on a Wildlife Refuge amendment, the Senate clearly indicated, by 2-to-1 margins, its support for a strong Alaska lands bill. The anti-environmental forces were surprised; led by Senator Ted Stevens of Alaska, they quickly changed tactics, hoping to prevent a conservation victory. Stevens launched a strategy of delay. He threatened to introduce eighteen secondary amendments, each of which would be allocated a half hour for debate; these amendments were not really intended for serious consideration, but only to halt the legislative process in its tracks.

At this juncture, the Senate Majority Leader, Robert Byrd (D-West Virginia) took the bill off the floor and set in motion a long series of meetings behind closed doors among principal senators and their staffs. The strategy was clear enough: Perhaps the Alaska legislation could be compromised in backroom negotiations.

The opponents of strong Alaska legislation had good reason to fear defeat. The House had twice passed good Alaska lands bills. And now it appeared the Senate might follow suit. The vested and exploitative interests in Alaska had thrown tremendous financial resources into the fray; the state legislature had voted to spend $7.5 million lobbying against the environmentalist-backed legislation. An expensive advertising campaign, borrowing the rhetoric of conservationists, speciously advocated "a balanced bill with opportunity for both conservation and development."

But at the same time, conservationists were spreading their message across the entire country. Grassroots pressure began to mount; more and more people became interested in Alaska. Volunteers from more than 34 states converged on Capitol Hill for the Senate battle. And their efforts paid off. The early votes revealed extraordinary strength against the well-heeled develop-

Alaska's scenery changes dramatically with the seasons. The photographs opposite and on page 38 were all taken at the same spot, on the Nenana River, which forms the eastern boundary of Mount McKinley National Park. ***Opposite, top:*** *The aspen are spectacular against white spruce in September.* ***Below:*** *By January, the river is still and ice-white.*

Photographs by Johnny Johnson

ment interests. The Senate appeared willing to turn towards strong Alaska legislation. But the story wasn't over yet.

The environmentalists' champion in the Senate had been Paul Tsongas. Though only a freshman senator, he had demonstrated considerable courage, daring to oppose such Senate powers as Henry Jackson (D-Washington), chairman of the Energy and Natural Resources Committee which had brought the earlier weak bill to the Senate floor. After having won on three initial Senate votes, Tsongas entered into the backroom negotiations as the advocate of stronger Alaska legislation.

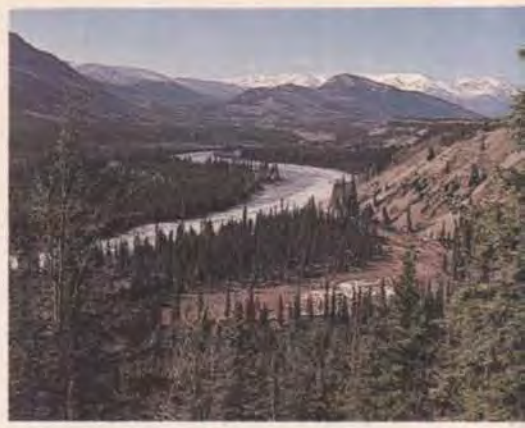
Environmentalists chewed their fingernails for the next ten days, kept in suspense by the secret negotiations and by some of the features of the various compromises that did come out.

On August 4 the Senate resumed consideration of the Alaska bill to clear away some of the procedural underbrush necessary for presentation of a substitute bill. At Senator Tsongas's request the Senate quickly disposed of the five amendments he and his allies had introduced to strengthen the Energy Committee bill (including the amendment to improve the wildlife refuge section that had succeeded dramatically two weeks before.) Nevertheless, Senator Gravel (D-Alaska) slowed progress at every opportunity by insisting on quorum calls, roll-call votes and a variety of other parliamentary delays.

On August 6 the Senate recessed for the Democratic National Convention, having created a new substitute Alaska National Interest Lands Bill, the "Tsongas-Roth-Jackson-Hatfield Substitute," named for its principal designers. After effectively passing a cloture petition (to limit delay) the Senate accepted the compromise on August 18 by a vote of 72 to 16 and the next day passed it by an overwhelming 78 to 14 margin.

The Senate-passed version of the Alaska bill, while encompassing enough to make the opposition demand no bill at all, is still far from ideal in numerous respects. Its many deficiencies need strengthening:

- It yields to the state of Alaska many areas that belong in conservation units, particularly in regions that are superior wildlife habitat.
- It establishes insufficient wilderness in both Interior Alaska and Southeast Alaska.
- Its interim protection for wilderness study areas during the time of decision-making is not strong enough.
- It allows an unprecedented statutory right of access to all public lands.
- It limits protection for wild-river corridors to one mile instead of four miles.



***Top:** The ice doesn't break up on the Nenana until mid-May. **Middle:** The forest is at its most lush in July. **Bottom:** In mid-winter the days are short and dim; this photo was taken during the brightest time of day.*

• It would open the William O. Douglas Arctic Wildlife Range to seismic exploration by private companies after two years. A coastal-plain study of caribou ecology would be scheduled to last only three years, instead of the eight that are necessary.

• In Southeast Alaska, the Shee-Attica urban native corporation would be allowed to log 19,000 acres in the middle of the Admiralty Island wilderness monument.

• The U.S. Borax mining company would be given unprecedented privileges in the Misty Fjords wilderness monument.

• Some areas previously recognized as wilderness, including the eastern portion of West Chichagof, Karta, Rocky Pass and Yakutat would be designated as general forests.

• An annual cut of 450 million board-feet in the Tongass National Forest would be mandated, with an appropriation of $40 million annually to the U.S. Forest Service to speed up logging. And part of the National Forest Management Act of 1976 would be invalidated.

Conservationists feel that all these provisions must be changed to give sufficient protection to the land.

Where do we go from here? The House of Representatives has passed a much stronger bill than the Senate substitute. There are several options. Key House leaders such as Representatives Morris K. Udall and John Seiberling are working to develop a compromise between the House and Senate versions, using the House bill as a base of the legislation, one which could be sent back to the Senate for approval. The House alternatively could modify the Senate substitute. For either of these options the principals in the two Houses of Congress would need to reach some agreements. If all else fails, a formal conference between the two houses could be held. But this last procedure would open wide the door for a filibuster that could prevent any legislation from passing.

The Alaska National Interest Lands Bill is a very complex one. Yet, despite all the rhetoric, the opponents of environmental protection know what the issues are and are trying every maneuver to achieve their ends—even calling for "no bill in this Congress." Over the past four years, environmental forces, backed by the strongest grassroots campaign in conservation history, have won a series of notable victories in Congress. By the time this article is read, the action may be over—and it may not be. The message is, having won all these battles, we mustn't lose the war. We know that all the politicians are eager to finish the Alaska legislation. How high is the price? □

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During these years we have seen some rather disturbing changes in the complexion of the backpacking industry. Prices have skyrocketed while the functional, practical essence of outdoor gear has been lost in a deluge of cosmetic frills and advertising hype.

The progression seems to have been something along these lines:

The trappers, scouts, mail carriers (like Snowshoe Thompson) and early naturalists (like John Muir) showed us that—with a good deal of discomfort—all-weather wilderness travel was possible.

These first hardy folk inspired a few very inventive outdoor people in the 1950's. They hit upon combinations of "space age" materials like nylon parachute cloth and age-old insulations like down. This took much of the discomfort (and peril) out of wilderness travel. The designs they spawned were an appropriate and extremely effective marriage of the best of contemporary technology with the best tried and true materials.

By the 1960's and 1970's the word was out. Wilderness travel was not only beautiful and inspiring but it could be warm and comfortable. Given the right equipment people went into the wilderness in unprecedented numbers.

It did not take long for these new multitudes of wilderness enthusiasts to discover that their parkas worked just as well in 20° weather in their home towns as they did in 20° weather in the wilds. The parkas were far more sensible than overcoats anyhow. So, without one change in design, specialized outdoor gear became everyday apparel. Outdoor gear, until then, had been governed by a strong form-follows-function ethic. That was a very large part of its original appeal to both the wilderness and not-so-wilderness user. When it became everyday apparel that ethic began to give way to fashion. A parallel example of this is blue jeans. Today's designer blue jeans are rather a far cry from their almost-bulletproof-workpants origins aren't they? Since we began manufacturing parkas and sleeping bags, we have noticed the same trend in our industry. Prices rise as quality and function are subordinated to fashion.

For this reason we would like to offer a modest proposal: *BACK-TO-BASICS*.

What is Back to Basics? It is gear made to be effective while simple and at fair prices. It is made with cloth and hardware as good as or better than that found in comparable outdoor gear. It is sold directly to you to save the added cost of supporting a retail outlet.

It is a limited line of equipment which we have designed to serve the needs of the backpacker or casual user. The number of models and color choices is kept small, to keep our inventory costs down—which means you'll pay less. In short, it is a return to the "form-follows-function" ethic.

It is four years of experience producing gear for other people. From manufacturing for others we have developed a keen sense of how we'd call the shots ourselves. This is the result. *A sensible basic approach yielding basic sensible gear.*

Back to Basics is an intelligent approach to down fill. For several years "goose down" has been the prestige label inscription. The fact of the matter is that a cubic foot of duck down will insulate every bit as well as a cubic foot of goose down. Their insulation per volume ratios are identical. The only difference is that the goose—a larger bird—produces larger down barbules (plumes) than the duck. That is to say that duck down is a little heavier per cubic foot.

Either goose or duck down is sold to the outdoor gear industry by any of a few suppliers. We can choose anything from a very good grade of goose down or duck down to a very bad grade of either. We can also order any mixture we desire. Consider this: the Federal Trade Commission state that in order for the fill to be labeled "Goose" 90% of it must be derived from that bird, and to be labeled "Down" it must be at least 80% down (as opposed to feathers). So the prestige inscription "Goose Down" doesn't really tell you anything about the *grade* of the

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The Sunken Ships of Isle Royale

JOHN MOREHEAD

Frederick Stonehouse

Above: *The* George M. Cox, *half-submerged on Rock of Ages reef. This elegant 259-foot passenger steamer sank in 1933.* ***Left:*** *A diver inspects the wheel and the binnacle of the* Kamloops, *a freighter that sank in 1927 but remained undiscovered until 1977.*

Photograph by Ken Hafner

ISLE ROYALE, an island in Lake Superior, was officially established as a national park in 1940, for reasons that strongly appeal to traditional park supporters. The island's remoteness, unspoiled character, flora, fauna, recreational boating and fishing opportunities all contributed to its suitability as a national park. Wildlife biologists came to Isle Royale to study the wolves that migrated from the mainland over Lake Superior's frozen waters, and since 1958 a research project has been studying the wolf's interaction with moose and beaver. This example of a relatively unmanipulated predator/prey relationship has attracted worldwide attention.

In the past few years, awareness has grown of yet another resource, a unique and unfamiliar one, within the Isle Royale area—shipwrecks. There are currently twenty wrecked ships or sunken boats within the park's boundary, constituting the most varied collection of intact, well-preserved shipwrecks and shipwreck artifacts anywhere in North America.

Why so many wrecks at Isle Royale? The answer lies in the island's topography, location and the area's notoriously bad weather—Lake Superior storms can generate waves up to 30 feet high. In addition to the main island (45 x 9 miles), the park contains approximately 200 smaller islands and many submerged or partially submerged rock reefs. The entire archipelago is located slightly north of the center of Lake Superior and, unfortunately for mariners, is situated in the middle of one of the lake's major commercial shipping lanes. The island and its reefs present a particular hazard to ships navigating between the Sault St. Marie locks and Thunder Bay, Ontario (formerly Fort William and Port Arthur). Depending on wind and weather conditions, they can also be a danger to ships navigating from Duluth or the Iron Range of Minnesota and the Sault St. Marie locks. Especially before radar was in use, many ships ran aground or were blown onto the island's reefs in foggy or stormy conditions.

Many of the ships that struck the reefs or smaller islands were salvaged, towed away or repaired and refloated. However, at least twenty remain, ten of which are considered "major" shipwrecks (more than 180 feet in length). The earliest known wreck is the *Cumberland*, a 294-foot wooden side-wheeler built in 1871, which sank in 1877. The most recent major wreck is that of the Canadian ore freighter *Emperor*, 520 feet long, which struck a reef and sank in 1947. The most disastrous wreck that occurred within what is now the park was the *Algoma*, a 262-foot combination steam- and sail-powered vessel, which was forced onto submerged reefs on the south side of the island by a severe storm in November 1885. The

R. A. Duchrow

Algoma grounded and broke in half only 200 feet from Mott Island, but because of the intense cold, towering waves and icy waters, 45 persons died in the accident. The Isle Royale shipwrecks include a fascinating variety of passenger vessels, ore freighters, fishing tugs, both wooden– and steel-hulled vessels, ships built in both North America and Scotland, motor/sailers, steam–powered vessels and others.

Some of the wrecks have broken apart and their sections scattered by ice action, but others, in more protected sites or in deeper water, have been preserved intact, or nearly so. The extremely cold and pure waters of Lake Superior have literally frozen these wrecks in time. The lake contains no coral organisms or other flora and fauna that so rapidly consume shipwrecks in salt water. Ceramics, wood, paint and leather are all still preserved; even metal corrodes at a much slower rate in Lake Superior than it would in salt water.

The waters around Isle Royale are extremely cold because of Lake Superior's large size, great depth and northern location. While surface water temperatures may occasionally reach 55° in August, divers going deeper than 66 feet encounter average water temperatures of between 34° and 37°. The water is also exceptionally clear; normal visibility is 25 feet, and visibility of more than 100 feet is possible in the spring.

Because of Isle Royale's poor weather and limited island facilities, most diving parties must be completely self-contained, including boat, diving gear, air compressor, food and camping equipment. The nearest recompression chamber is 40 miles away, in Canada. Despite these obstacles, diving is increasing at a rapid rate. In the summer of 1979, 564 registered divers made a total of 2153 dives. Almost all of the divers visited shipwrecks. The locations of many of the wrecks were of course known to fishermen, commercial boat operators and other residents of the island. A few ships have been damaged by earlier salvage attempts, and most of them have been vandalized by scavengers since the late 1950s.

In the 1970s, the National Park Service realized that this unusual submerged cultural resource should be protected. Preservation of the shipwrecks is now a major concern at Isle Royale National Park. Several steps have been taken recently to protect yet still allow use of the sunken ships. The question of ownership of the wrecks and artifacts was submitted to the Department of the Interior's regional solicitor for review. When the park was established, the state of Michigan ceded exclusive jurisdiction to the National Park Service. The jurisdiction included the waters and the submerged bottomlands (except for mineral rights and control of fishing) to a distance of 4½ miles off the island into Lake Superior. Accordingly, the solicitor holds that the shipwrecks and the artifacts are the legal property of the National Park Service, and salvage and artifact removal may be prohibited. Recent requests for salvage have been denied on the basis of this opinion.

Park officials are currently requesting funds for a research project that would accurately locate, identify, photograph and inventory all shipwrecks within the park. Using the inventory, park managers could determine the best future use of the vessels. Recreational diving in most shipwreck areas could be promoted and enhanced by marking the wrecks, providing permanent boat moorings, establishing fixed "trails" through the wrecks, providing waterproof maps and reserving certain areas for chartered diving groups. Other, more fragile wreck areas could be protected by limiting

Ken Hafner

Ken Hafner

Above left: *A diver with underwater camera approaches the impressive propeller of the* Henry Chisholm, *a 265-foot wooden freighter.* ***Above right:*** *A diver explores the wreck of the* America, *a small passenger ship that sank in 1928.* ***Above:*** *A gauge panel, steam pipes and valves, festooned with aquatic weeds, aboard the* America.

access to them. Artifact reclamation, preservation and display would continue to be an important part of the Isle Royale program.

One exciting segment of the proposal recommends a search of park waters for undiscovered shipwrecks. In the past five years, two previously "unfound" shipwrecks, such as the *Kamloops*—sunk in 1927, located in 1977—have been encountered by divers. By using side-scan sonar and magnetometer search techniques in potential wreck areas, it is likely that additional wrecks will be located.

Starting in 1980 commercial operators have been granted National Park Service concession permits for diving. Park officials, including several trained scuba divers, are making a concerted effort to work with professional divers to increase awareness of the benefits to all in protecting the shipwrecks. Divers who have in the past removed artifacts from the park are being asked to voluntarily return their collections to the Park Service for preservation and possible display. Several important artifacts have been returned in the past two years, and officials expect that more will arrive in the future.

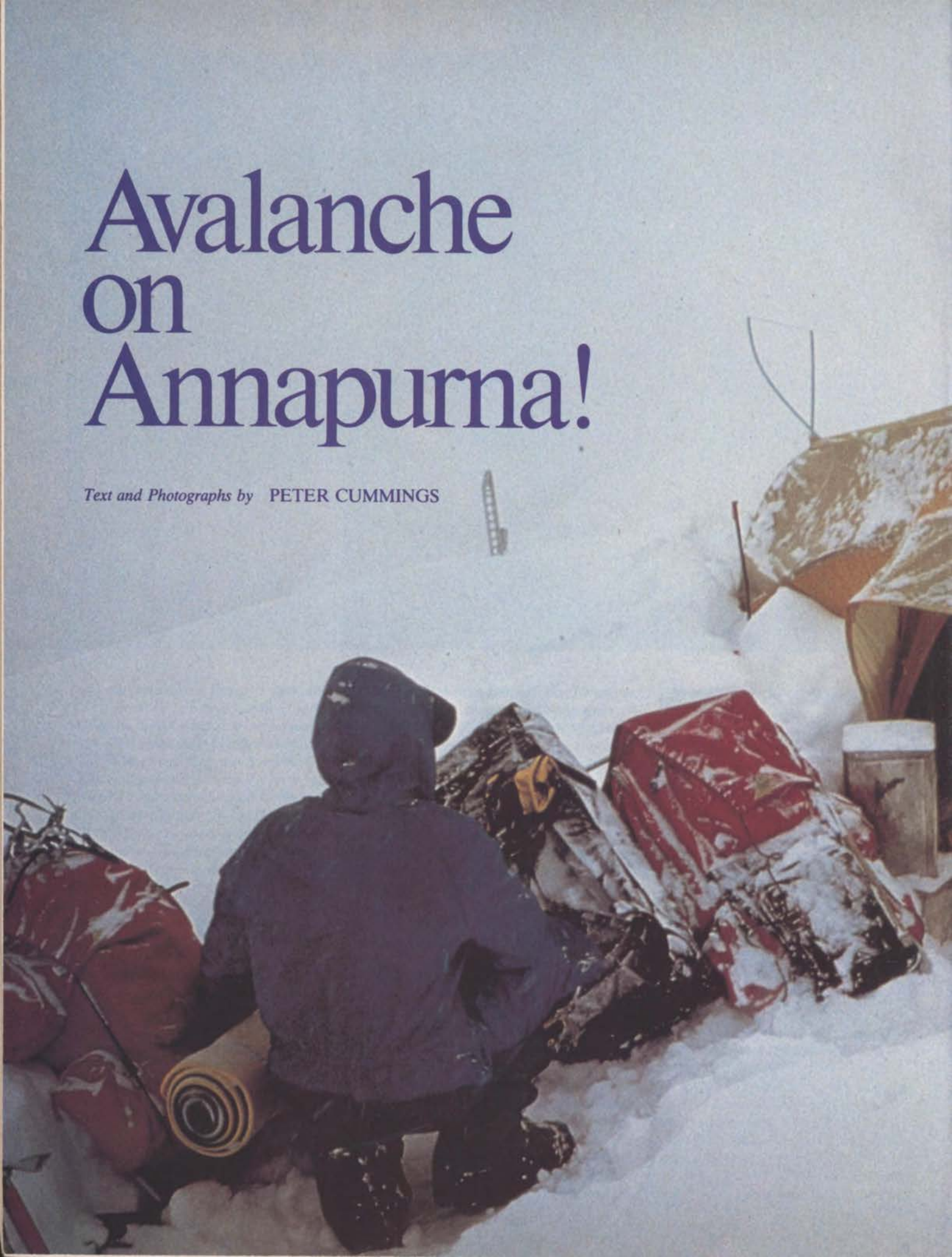
The Park Service has been actively restoring the Rock Harbor Lighthouse, an 1855 structure listed on the National Register of Historic Places. The interior of the lighthouse will be used as a maritime museum to present the Isle Royale shipwreck story and to display appropriate artifacts. Photographs and slides of the wrecks have been donated by or purchased from several of the commercial operators and private divers.

It is interesting to reflect on the future of the Isle Royale shipwrecks. Wrecks and artifacts in water that is warmer, saltier or more polluted than Lake Superior's are deteriorating at an extremely rapid rate and will soon be unrecognizable or nonexistent. Thanks to modern navigational techniques, very few ships are wrecked these days; because of the slow rate of deterioration, the Isle Royale shipwrecks are becoming more and more significant every year. It is obviously important that the resource be managed with a great deal of forethought and sensitivity. □

John Morehead, formerly at Isle Royale, is now superintendent of Everglades National Park, Florida.

Avalanche on Annapurna!

Text and Photographs by PETER CUMMINGS



Grim survivors descended to Camp III and found it almost obliterated by the avalanche. They spent the next few days digging supplies and tents out of the continuing heavy snowfall.

DIARY ENTRY SEPTEMBER 19: Retreat! It continued to snow all day yesterday. Had to keep shoveling snow off the tent. Awoke at midnight feeling I couldn't breathe. By 1 o'clock I turned on my headlamp and read for an hour. Craig awoke also, feeling bad. We beat snow off the tent and opened the door and soon both felt better; we were just suffocating in the tent! Awoke this morning with headache and lethargy. Tent again close to getting buried.

Craig, Pat, Simo and I decided to go down to Camp III; food there is unlimited, the tents are large, and the area is safe for ordinary walking around. Eric Roberts came up late yesterday, and he and Gil and Maynard decided to stay at IV.

Left Camp IV in heavy snowfall at 9:45. Left a lot of stuff up there: down gear, camera, altimeter, etc. Rappel difficult in blowing snow; our feet kept setting off slough avalanches.

At the bottom of the last rappel I had just started to unclip when an avalanche hit us. It came down the "Bobsled Run," a gulley that starts near Camp IV. Huge seracs break off here, and avalanches from the east peak also come down. According to the angle that snow enters the gulley, it can shoot from side to side like a bobsled. The one that came down today must have been especially large and may have had a side-to-side movement aimed at us. First I heard the roar. The wind blast hit me next, then the snow. I was soon buried to my waist, and the spindrift made it impossible to breathe. For an instant I thought I was a goner. Craig was clipped into an anchor

above me and was knocked down and briefly buried. It was over in seconds, but the force was incredible even though we were actually above the avalanche and received only the blast and snow on its fringe. We entered Camp III to find the place a shambles. Snow all over everything; the tent was half caved in, with broken poles piercing the fly.

At noon and at 6 p.m. we tried to make radio contact with Camp IV but got no answer. We are all thinking the worst.

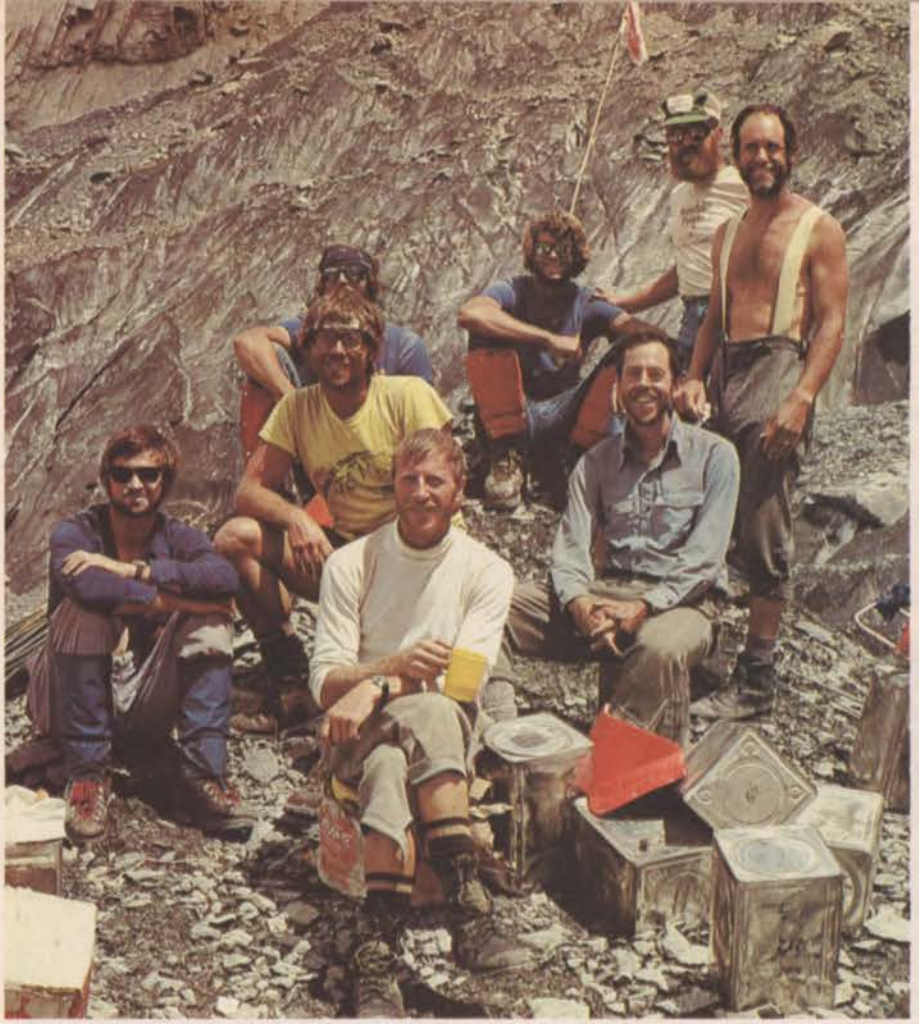
In the fall of 1978 I met Arlene Blum, the leader of the successful women's Annapurna expedition, and pumped her for information. To my surprise she told me that, had she realized beforehand how dangerous the route was because of avalanches, she would not have gone. The women did not lose anyone in an avalanche (though two died in a fall), and I suspected her of exaggerating the danger. I was wrong.

Bob Wilson, our leader, began putting the expedition together in 1977. By the time we were ready to go, the peak had seen four more ascents, making seven in all; and we began to feel like also-rans. We consoled ourselves with the fact that ours was the smallest and lightest expedition to attempt the peak; eight climbers, 3500 pounds of food, fuel and equipment, a budget of roughly $35,000, and only 84 regular porters. We had six special porters to help us carry loads to Camps I and II; we would do all the carrying higher up. We brought no oxygen at all. We agreed that, if we ever wrote a book, we would title it *Annapurna, The Cheap Way*.

In late July the thousands of tedious hours of fund raising, equipment begging, food packing and training came to an end. We felt optimistic, largely because our group had extensive high-altitude experience. All of us had made multiple ascents higher than 18,000 feet, and five of us had climbed summits in the Himalayas higher than 20,000 feet. The group was varied. Bob, age 39, was a physics teacher from Gresham, Oregon. Gil Harder, deputy leader, age 34, was an Air Force pilot from Abilene. A Missouri lawyer, Maynard Cohick, was the oldest at 41. The youngest were Eric ("Simo") Simonson, 24, a geology grad student and Craig Reininger, 25, a builder, both from Washington. Pat O'Donnell, age 40, ran a Colorado ski resort. Eric Roberts, age 33 ran a camera shop and writes guidebooks at his home in North Wales. I was a 35-year-old California cardiologist who was glad to go climbing, and reluctantly willing to play doctor if needed.

We reached Katmandu on August 2. For a while we were excited by the monkeys in the temples, the water buffalo in the streets and the crowded bazaars; but we were eager to climb, and the city became tiresome after a few days of buying rice and repacking gear. The officials finally issued the necessary permits and we started walking the 80 miles to base camp on August 12.

The trek consisted of rain, 100% humidity, 100° temperature, leeches and a trail

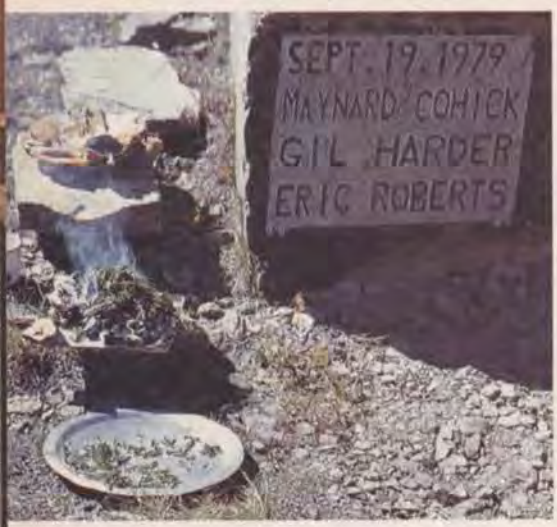


Above, left: *Annapurna looms, a golden rampart, above base camp.* ***Above, right:*** *A cheerful expedition relaxes at Camp I.* ***Right:*** *A weary climber pauses in deep snow.*

covered with mud, water and buffalo dung. Being clever Americans, we spent hours assigning a number to each porter, a *different* number to each load, and checking all these numbers daily. After a few days of this lunatic behavior it dawned on us that the porters and our sirdar (overseer), Lopsang Sherpa, were perfectly capable of sorting themselves out; after we stopped fretting about the loads, everything went smoothly.

By the time we reached the last village we were a sorry lot. Bob and I had sprained ankles, Simo had an infected foot, Gil had diarrhea, Eric R. had blisters and Pat's shoulder hurt. From here on, the route got even worse, a wretched, muddy track on steep, rain-swept slopes. On a Japanese expedition, one porter had been killed on this section of trail in the spring. One of our porters fell more than 100 feet down a

slope. How he avoided serious injury is beyond me. On August 23 we crossed the Miristi Khola River, and that afternoon the rain clouds cleared, giving us views of Fang and the Great Barrier Peaks. Our spirits improved, and we reached base camp the next day in sunshine. The weather now fell into a predictable pattern. The mornings were crisp and clear. Between 1 and 3 p.m. clouds came up the valley bringing light rain or snow for a few hours. By 6 p.m. it was clear again. This pattern allowed us to carry provisions every day from August 25 to



Three new names on the memorial stone at Annapurna's base, and an offering of incense and food.

September 17. To supply the lower camps we usually carried 49 pounds of group gear or food plus personal equipment; above Camp II loads were 33 pounds or more. Using two altimeters we measured the elevation differences between camps. If base camp is 14,300 feet, as the women's expedition judged it to be, then our camps were established and occupied as follows:

August 24	Base Camp	14,300 ft
August 29	Camp I	16,511 ft
September 3	Camp II	18,241 ft
September 9	Camp III	19,974 ft
September 15	Camp IV	20,946 ft

Until we reached Camp II there was no significant climbing. The carries were primarily dull, back-breaking walks. The absurd scale of the scenery was fascinating, as though someone had set out to construct a mountain and ordered everything too large. The icefalls, the ridges, the faces were all three times larger than they had any right to be. The best time of each day was evening, when the lofty ridges were bathed in golden light.

Above Camp II we had to cross avalanche-swept areas of the North Annapurna Glacier in order to approach the Dutch rib. Simo, seconded by Craig, chose to climb the rib south of the route the women used. This led across 700 feet of 55° ice directly into Camp III. Simo then installed a large pulley near the camp, and we spent several afternoons working like stevedores hauling equipment up the slope. This method resulted in sore arms and destroyed several pairs of gloves, but by September 9 we had more than a month's supply of food and fuel for everyone at Camp III. More than 2200 pounds of gear were on the rib.

The risk of avalanche was very obvious on this section of the climb. Whoever did the hauling at the bottom of the rib had to remain alert. On two separate days we dodged baseball-sized rocks that whizzed by. One day while climbing the slope to the pulley I saw a huge slide start above, with blocks of ice the size of refrigerators flying down the slopes. I screamed my head off to Gil and Bob below at the bottom of the fixed ropes. They started to run but were quickly hidden by a great cloud of snow. Finally the spindrift cleared, and I could see them moving; they had lost a few items of clothing but were unhurt.

Simo and Craig quickly strung the fixed line to Camp IV, and on September 16 they fixed the 300-foot cliff above, which had a few short vertical sections. On September 16 and 17, Simo, Craig, Maynard, Pat, Gil and I carried an 18-day supply of food to 22,166 feet, the site of Camp V, in a moat sheltered by a large ice cliff. We left tents, stoves and fuel there as well and planned to move up there on September 18. We were all feeling fit and hoped that we could move up to a sixth camp at 23,500 feet by September 20, then climb in one day to about 24,500 feet and reach the summit on the 22nd. It seemed as if all the hard work was going to pay off soon.

DIARY ENTRY, SEPTEMBER 18: "Was so excited last night I found it hard to go to sleep. . . . This morning, awoke to falling snow and white-out. Looks like my first forced rest day is here."

Eric Roberts joined us that afternoon, leaving only Bob below in Camp III. After another night at IV, Simo, Craig, Pat and I decided to descend to the relative comfort of Camp III. Gil, Maynard and Eric R. planned to stick it out one more day at IV to see if the storm would clear. At 10:35 a.m., Camp IV was blasted off the Dutch rib.

Heavy snowfall continued, and over the next couple of days we repeatedly dug out our tents and food supplies at Camp III. Invisible avalanches rumbled down along both sides of the Dutch rib, but none had the force of the blow that struck us September 19. Three days later the storm cleared, and we could watch the giant slides coming down the north face.

On September 23 we climbed back to Camp IV. We found what we expected: nothing. I had shed many tears already during the storm. Now we stood in the sun and dug away the fresh snow down to the ice platforms where the three tents had stood. Nothing. Three previous expeditions had used this same tent site for weeks (we had found their debris frozen in the ice) without problems. Wands in line with the rib on the cliffs above were untouched, confirming our theory that the avalanche came down over cliffs about 300 feet east of the camp. The resulting blast of air was so great that the fixed line that had run through the camp was gone. The 2700-pound test line was ripped apart at both ends. In the gulley to the west we could see one small piece of down gear on the rocks, and we later found an empty, mangled food can on top of avalanche debris below the Dutch rib, more than a mile away. Standing in bright sunshine I couldn't cry anymore. Three friends were gone, and we were alive because of a casual decision and a matter of timing.

Pat and Craig decided that the climb was over for them. Bob wanted to stay at Camp III, but we convinced him that one man alone at III could not help those above. On the 24th they went down to base camp, missing by ten minutes a huge avalanche that swept the base of the rib. Simo and I continued on up from III to Camp V. We ate a big supper and went to bed early.

The next day was an anticlimax. We had hoped to climb another 2000 feet, but deep snow, up to our waists, made progress seem like a bad dream in which one struggles to run and cannot move. Lenticular clouds covered Dhaulagiri, Tilicho and the other peaks. If it snowed, our retreat route would become an avalanche path. We had lost our down gear in the disaster, and the cold was biting. I could not feel my toes. At noon we stopped to rest, having climbed only about 600 exhausting feet. We ate lunch and agonized for nearly an hour. Perhaps the mental drive to succeed had also been swept away on the 19th. We went down.

September 27 we stood at base camp before the memorial stone that bears the names of those who died on this side of Annapurna. There were ten names when we first came; now we chiseled three more in the rock. Our porters burned incense and offered food while Bob recited the words of Robert Louis Stevenson:

"Here he lies where he longed to be;
Home is the sailor, home from sea,
And the hunter home from the hill." □

Peter Cummings has thirteen years of mountaineering experience, and practices medicine in Visalia, California.

The Two Johns - Burroughs and Muir

PAUL BROOKS

John Muir, at left, and John Burroughs in Yosemite.

"There is nothing of age in America but the woods. . . . That is well worth monuments and ancestors."

—Châteaubriand,
Voyage en Amérique, 1836

VERNAL EQUINOX, 1911. Theodore Roosevelt, two years out of the White House, is in California delivering a lecture under the auspices of a scientific institute. Before reaching his main theme—his recent African adventures—he brings up a subject that has remained close to his heart throughout all the turmoil of politics and the presidency. What the world needs, he says, is more men with scientific imaginations—men who can take the facts of science and write of them with fidelity, yet with such an interpretative and poetic spirit as to make them into literature: "I mean such men and such writers as John Muir and John Burroughs."

Both men were in the audience that evening. Burroughs on one of his rare trips away from his beloved Catskills, Muir on his home ground. Aged 74 and 73, with temperaments as different as the tame Catskills and the wild Sierra Nevada, they had introduced thousands of Americans to the joys of outdoor nature. They had developed and popularized the "nature essay": a literary form hitherto cultivated by only a few writers of talent and one of genius, Henry David Thoreau. In one way or another, they had been associated with virtually every American nature writer of their time. Looking back, they could see tangible evidence of what they had accomplished. Burroughs could see it in the hordes of children who crowded around the rear platform of his train, singing and throwing flowers, as he left for home; Muir in the silent wilderness of Yosemite, the Grand Canyon, the national parks that he had worked so hard to create. But looking ahead, they could hardly have anticipated the threats that would arise to everything they held sacred. In 1911 they were standing midway in the century between the death of Thoreau in 1862 and the publication, 100 years later, of Rachel Carson's *Silent Spring*. The frontier was officially dead, its obsequies performed by historian Frederick Jackson Turner, but the frontier philosophy persisted, growing more lethal with each advance in technology. On a continent of supposedly limitless resources, conservation was still a novel concept, promoted by naturalists, by fashionable sportsmen who had noted with alarm the dwindling of the wild game and, fortunately, by a few men of power in government. It was barely recognized by the public at large. Whatever hope there might be for the future would depend on men like themselves, able to build on the foundation they had laid. Specifically it would depend on the efforts of articulate naturalists who, as Theodore Roosevelt had said, could take the facts of science and transmute them into literature. Americans must be made to recognize the natural world as part of their culture. Preaching, however impassioned, would never do it. Poetry would—that is, in the broad sense of any writing that seizes on the reader's imagination and reveals the poetic truth that lies beneath the scientific fact.

Born in 1837, Burroughs was 25 when Thoreau died. Nothing in his life so far had foreshadowed the national celebrity to whom singing schoolchildren tossed spring flowers. His forebears were dirt farmers, of no cultural pretensions. His father (Burroughs recalled), though a good husband and a worthy citizen, had "no aesthetic sensibility and no manners. The primrose by the river's brim would not have been seen by him at all." A religious bigot, he read nothing but the weekly newspaper and church publications. "Mother, I think, never read a page of anything." However, in the rare moments of escape from running a household of ten children, she would take

her son berrying in the hills surrounding the Burroughs homestead in upstate New York, with their flowering meadows and their view of the long sweep of the western Catskills. It was from her that he first derived his feeling for nature, and it was she who defended his right to more schooling, which his father thought would just spoil him as a farmer.

In reconstructing the life of a famous man, biographers like to find some youthful experience that, however trivial it seemed at the time, became the "turning point" of their subject's career. In her *Life and Letters of John Burroughs*, Clara Barrus, the close companion of his later years, tells of his childhood excitement over the songs and bright colors of birds. "When, at age seven or eight, his attention was arrested by a strange bird in the Deacon woods, the experience proved of signal importance: only a small bluish warbler with a white spot on its wing [a black-throated blue warbler], but it challenged him as had no other bird before. Through it he got a glimpse which so fired his imagination that he half-resolved to know more about the birds some day." Nor could he ever forget the cloud of passenger pigeons that poured down, one spring morning, into the beechwoods till "the air and woods and earth were blue with them . . . and the whole world seemed turned to pigeons." (They would become extinct during his lifetime.) These childhood enthusiasms were fortified when, as a young man, he chanced upon Audubon's monumental *Birds of America* in—of all places—the library of the Military Academy at West Point.

The charm and beauty of birds has, I suspect, lured more men and women into the field of natural history than any other aspect of nature. For Burroughs they remained an abiding passion. Yet he was a writer before he was a naturalist. Here the part of the black-throated blue warbler was played by Ralph Waldo Emerson. At the age of nineteen, Burroughs was teaching school to earn enough money to continue his education, and writing essays in ponderous Johnsonian style. Then he discovered Emerson. "I read him in a sort of ecstasy. I got him in my blood, and he colored my whole intellectual outlook. He appealed to my spiritual side; his boldness and unconventionality took a deep hold upon me." (One recalls Thoreau's similar reaction on reading Emerson's *Nature*, 22 years before.) So great was the impact that Burroughs' first, unsigned article in the *Atlantic Monthly*, published four years later, was attributed by many readers to Emerson—though surely it resembled Emerson at a very low ebb. Clearly the master's hold on

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Attn: Kim Martin-Carroll

him was too strong. He soon realized that he had better find his own style and his own subject matter—less high-flown philosophy, more about country life and the outdoor world that he knew at first hand—in short, the nature essay.

Meanwhile his personal life had taken a turn that boded no good for either his birding or his writing. He married a girl who despised both but nonetheless wanted John. Ursula North, according to her sister, was "endowed with a strong will power." John, who was not, harbored doubts till the last minute; on the way to the wedding he sat down to think it over and almost turned back. Proud and aggressive, this nineteenth-century Delilah had already asserted herself by making him cut his hair—aesthetically an error, to judge from the handsome daguerreotype taken a short time before. Once married, she apparently continued to live with her family until he could make enough money to set up housekeeping. Only a week after the wedding he wrote her: "I sometimes think I will not make the kind of husband that will always suit you. If I live, I shall be an author." Ursula thought otherwise: he should go to New York City and enter the business world. Her replies to his protestations of love and loneliness were "short and business like." He attempted again and again to obey her command but always had to fall back on school teaching. For a short time he sought to combine writing with the study of medicine, but that failed also. Finally, in 1862, lured by the excitement of the Civil War, he decided to try his luck in Washington. "I believe it is good for us to be apart, don't you?" he wrote to his wife. "I think love increases as does the distance between us."

(This marriage, if such it can be called, somehow endured, perhaps because Burroughs soon began to make money from his writing—enough eventually to satisfy even her. On that happy day in 1911 when—by now a venerable and successful author—he received the accolade from Theodore Roosevelt and the tribute of flowers from the California schoolchildren, she was properly impressed and thereafter looked upon his work with respect. "My books couldn't do it," he said, "but—well—the fine houses and servants are good for something, after all.")

With the help of Washington friends, Burroughs landed (and then lost) various menial government jobs, till finally he wound up as a clerk in the Currency Bureau of the Treasury Department. For the next ten years he sat at a high desk guarding a steel vault filled with bank notes. "How I reacted against the door of that old safe!" he recalled later. "But the rebound sent me back to the fields and woods of my boyhood." Here in the bowels of the Treasury he wrote the essays that constitute the first two of his long series of nature books, *Wake-Robin* and *Winter Sunshine*, and here he wrote his *Notes on Walt Whitman*.

Burroughs' meeting with Whitman was another of those turning points, a sudden source of warmth and companionship for a man who desperately needed both. They met in the fall of 1863, when Whitman was working in Army hospitals. Burroughs had read *Leaves of Grass*, which Emerson had termed "the most extraordinary piece of wit and wisdom that America has yet contributed." He also recalled Emerson's description of the poet as "half song thrush and half alligator," and was astonished to find him "a new type of man, a new type of gentleman, a new type of philosopher . . . the greatest, sweetest soul I have yet met in this world." They took to each other instantly. Thereafter Burroughs regularly accompanied Whitman on his rambles through the streets of Washington and on long walks about the surrounding countryside. The observer of nature and the poet complemented each other. "He thinks natural history, to be true to life, must be inspired, as well as poetry," notes Burroughs after one such expedition. "The true poet and the true scientist are close akin. They go forth into nature like friends. . . . The interests of the two in nature are widely different, yet in no true sense are they hostile." His association with Whitman undoubtedly broadened and deepened Burroughs' attitude toward nature; in fact, Walt's influence during those formative years can scarcely be exaggerated. "I loved him as I never loved any man," Burroughs recalled much later. ". . . I owe more to him than to any man in the world. . . . He was a tremendous force in my life."

Notes on Walt Whitman was both Burroughs' first published book and the first book written about the poet. He saw Whitman as "a return to Nature" and *Leaves of Grass* as "an utterance from Nature, and opposite to modern literature, which is an utterance from Art." Personally, Whitman was not only a source of literary inspiration to the younger man but a balm to his loneliness. "The more I see of Walt, the more I like him," he writes to a friend. He goes on to say—with perhaps a touch of naiveté—"Walt loves everything and everybody. . . . He kisses me as if I were a girl." Their warm friendship must have done much to make bearable those long hours outside the cold steel safe. And Whitman, who had collaborated in the little book about himself, also showed a real interest in Burroughs' nature writing. It was he who insisted on naming that first collection of essays *Wake-Robin*. "I took a number of titles to him, and he held me to that one." In doing so, Whitman sowed the seeds of confusion for generations of readers unaware that "wake-robin" does not refer to a bird being roused from sleep but rather to "the white trillium, which blooms in all our woods, and which marks the arrival of all the birds." (Burroughs is referring to the painted trillium, *Trillium undulatum*. Today the name "wakerobin" is generally applied to the red or purple trillium, *T. erectum*.)

Published in 1871 by the Boston firm of Hurd and Houghton (later Houghton Mifflin), *Wake-Robin* made an immediate hit. Burroughs' name was already known. Most of these essays had appeared as magazine articles, principally in the *Atlantic Monthly*, which had printed the first chapter, "The Return of the Birds," as a lead article six years earlier. *Atlantic* editor William Dean Howells was prepared to like *Wake-Robin*, and he did. "The dusk and cool and quiet of the forest seem to wrap the reader of his book, and it is a sort of summer vacation to turn its pages. . . . Perhaps it would be difficult not to be natural and simple in writing of such things as our author treats of . . . but Mr. Burroughs adds a strain of genuine poetry, which makes his papers unusually delightful, while he has more humor than generally falls to the ornithological tribe." Other reviewers drew comparisons with Thoreau's essays and with Gilbert White's *Natural History of Selborne*. And though it may be true, as Bliss Perry once remarked, that Burroughs did not find his own voice till some years later, the essential elements were all here, enhanced by the freshness and the undercurrent of enthusiasm which so often color an author's first book.

John Burroughs strolling in New England woods in the 1890s.

The opening chapter, "The Return of the

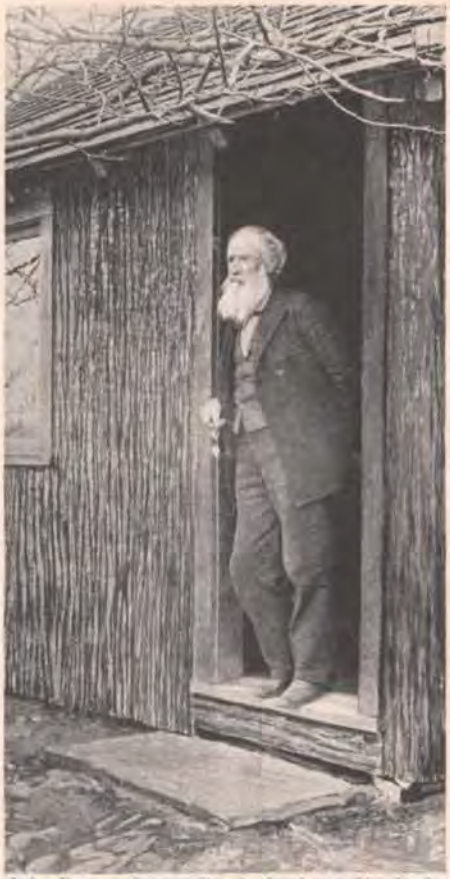
Birds," is followed by "In the Hemlocks," which contains the well-known passage on one of America's finest songbirds, beginning: "Ever since I entered the woods, even while listening to the lesser songsters, or contemplating the silent forms about me, a strain has reached my ears from out the depths of the forest that to me is the finest sound in nature—the song of the hermit thrush. I often hear him thus a long way off, sometimes over a quarter of a mile away, when only the stronger and more perfect parts of his music reach me; and through the general chorus of wrens and warblers I detect this sound rising pure and serene, as if a spirit from some remote height were slowly chanting a divine accompaniment. This song appeals to the sentiment of the beautiful in men, and suggests a serene religious beatitude as no other sound in nature does." (No doubt the symbolism of the hermit thrush in Whitman's "When Lilacs Last in the Dooryard Bloom'd" was inspired by his country walks with Burroughs.) This gentle essay was followed by a rather uncharacteristic account of an Adirondack deer hunt—with a cold-blooded description of revolver practice on a rabbit—and by essays on the spring bird migration in Washington, on trout fishing in the Catskills, on the bluebird and on the joys of ornithology. Not counting the subjects of his literary and philosophical essays, *Wake-Robin* touches on most of the subjects that, in the next 50 years, would provide material for innumerable magazine pieces and 27 volumes. These would reach a vast audience and make their author one of the best-loved of all American writers. More important, they would open a window on the natural world for thousands of young readers who would, when they grew up, have the fate of this world in their hands. In his old age Burroughs remarked, "Whenever I see young men walking through the country like that [with camping equipment on their backs] I sometimes flatter myself that maybe my books have had a share in sending them forth." In the words of a friend, he created "an army of nature-students." They and their successors have been fighting our conservation battles ever since.

Not that Burroughs was a born fighter, as was John Muir. He was a man of peace who assiduously cultivated the contemplative life. With the publication of *Wake-Robin* he had found his métier. "As a youth I was a philosopher; as a young man I was an Emersonian; as a middle-aged man I am a literary naturalist, but always I have been an essayist." He was only 39 when the distinguished editor of *Scribners' Monthly*, Richard Watson Gilder, went out on a critical limb: "John Burroughs is one of the half-dozen or less prose writers who are adding anything vital by means of books to the thought and life of the country."

Burroughs was mildly annoyed with the inevitable comparisons between his writing and Thoreau's. "That Thoreau business, I think, will play out pretty soon," he wrote to his comrade, Myron Benton. "There is really little or no resemblance between us. . . . Thoreau's aim is mainly ethical . . . my own aim, so far as I have any, is entirely artistic. . . . I will not preach one word. . . . I paint the bird, or the trout, or the scene, for its own sake, truthfully anyhow, and picturesquely if I can." In his essay on Thoreau, whose work he vastly admired, Burroughs remarks that "his mood was subjective rather than objective. He was more intent on the natural history of his own thought than on that of the bird." But late in life, when his own name was a household word, Burroughs commented with amazing objectivity as well as humility, "I think it probable that my books send people to nature more than Thoreau's do. . . . I do not take readers to nature to give them a lesson, but to have a good time. . . . I am more than his equal in powers of observation. . . . But Thoreau's *morale* is much superior to mine. . . . I wish I had a little more of [his] quality—that high moral and stoical tone . . . that makes his books nearer the classical standards." For all his success, Burroughs felt that he had erred in not heeding Thoreau's example: "I try to say things in too pretty a way—aim to have the page too smooth. I am too afraid to give the mind a jolt, which is a mistake." Yet one cannot help feeling that, no matter how hard he might have tried to model himself on Thoreau, it would not have worked. Thoreau was tough-minded and prickly; Burroughs, in his own words, was "a soft man, easily bruised, easily hurt, but getting at Nature through those very qualities of sympathy and tenderness." When, in his seventies, he first saw the Grand Canyon, the scenes that most appealed to him were those that reminded him of places back home. Whereas Thoreau sought wildness in the familiar, Burroughs clung to the familiar in the wild.

The Boston essayist and nature writer Dallas Lore Sharp made an amusing comparison between Burroughs and Thoreau:

"If Mr. Burroughs were to start from my door for a tramp over these small Hingham hills he would cross the trout-brook by my neighbor's stone bridge, and nibbling a spear of peppermint on the way, would follow the lane and the cowpaths across the pasture. Thoreau would pick out the deepest hole in the brook and try to swim across; he would leap the stone walls of the lane, cut a bee-line through the pasture, and



John Burroughs standing in the door of his bark-covered study at his estate, "Riverby."

drop, for his first look at the landscape, to the bottom of the pit in the seam-face granite quarry. Here he would pull out his notebook and a gnarly wild apple from his pocket, and intensely, critically, chemically, devouring said apple, make note in the book that the apples of Eden were flat, the apples of Sodom bitter, but this wild, tough, wretched, impossible apple of the Hingham hills united all ambrosial essences in its striking odor of squash-bugs.

"Mr. Burroughs takes us along with him. Thoreau comes upon us in the woods—jumps out at us from behind some bush, with a *'Scat!'* Burroughs brings us home in time for tea; Thoreau leaves us tangled in the briars.

"It won't hurt us to be jumped at now and then and told to *'scat!'* It won't hurt us to be digged by the briars. It is good for us, otherwise we might forget that *we* are beneath our clothes. It is good for us and highly diverting, but highly irritating too.

"For my part, when I take up an outdoor book I am glad if there is quiet in it, and fragrance, and something of the saneness and sweetness of the sky. . .

"Thoreau is a succession of showers—'tempests'; his pages are sheet-lightning, electrifying, purifying, illuminating, but not altogether conducive to peace."

In contrast to other "nature writers"—Audubon, Muir, even Thoreau—writing came easily to Burroughs. With each successive volume his reputation mounted, and so did his royalties. "Every new book brought him in more money," wrote a friend rather caustically, "and it was therefore impossible for him to resist publishing everything he wrote." Perhaps he wrote *too* easily, and too much, but his loyal readers could never get enough. For, as Howells had said, he wrapped them in the cool and quiet of the forests, and it was like a summer vacation to turn his pages. For today's readers, particularly the young, this is not enough. Once so popular, Burroughs' books gather dust on library shelves, while Thoreau gains in stature year by year.

During his long life Burroughs got around a good deal more than did the Concord philosopher. But on the whole, travel was an interruption, accepted with reluctance. Like the queen bee, he was superlatively productive but very much a homebody. After a decade in Washington, he bade farewell to city life and built himself a gloomy stone house, which he named Riverby, 80 miles north of New York on the Hudson. Here he planted orchards and vineyards, sallying forth regularly during the early years to supplement his writing and fruit-growing income with the incongruous job of part-time bank examiner. Here his wife gave birth to a son, Julian. Apparently she also contributed indirectly to his literary production. "The very conditions of incompatibility which made a happy life impossible for either, and which sent him persistently out of doors," writes Clara Barrus, "resulted both in his own peace and contentment and in the books born of his intimate and sympathetic intercourse with Nature." The rustic study he added apart from the main house was still, alas, within range of Mrs. Burroughs' dinner bell, summoning him in midpassage to perform some household chore. After 22 years of this, he finally built a cabin back in the hills. Here he found "peace and contentment" both indoors and out, living alone at first, later with his brother Hiram. As his fame grew and devotees, including Theodore Roosevelt, made their way to his doorstep, "Slabsides" became a nationwide symbol of a way of life.

No hermit, Burroughs discovered to his surprise that he enjoyed lecturing, and soon found himself more and more in demand. He was invited to literary clubs in New York; he visited old friends in Washington—where he attended the inauguration of Grover Cleveland and dined with a new friend, Theodore Roosevelt. He went to Cambridge for Harvard Commencement and to Concord, where he met Bronson

Alcott and visited Thoreau's grave. He even took a trip to the British Isles. But by all odds his most adventurous journey—during which he made an unsuccessful attempt to jump ship—was the Harriman expedition to Alaska in the summer of 1899, on which he served as historian. He was then 62 years old. Included in the large company of explorers, big-game hunters, botanists, mining experts, artists and eminent scientists was the man who thwarted his escape, John Muir.

Muir and Burroughs had long admired each other from a distance. Their first meeting, however, six years earlier in New York City, had not been a notable success. Burroughs had attended a Walt Whitman memorial celebration the night before and was apparently suffering from a hangover. "He had made a speech, eaten a big dinner, and had a headache," Muir recalled. "So he seemed tired, and gave no sign of his fine qualities. . . . I tried to make him go to Europe with me . . . but he answered today by letter that circumstances would not allow it. The 'circumstances' are his wife." Burroughs noted briefly in his journal: Muir was "an interesting man with the Western look upon him. Not quite enough penetration in his eyes." (An odd comment, judging from photographs of Muir.) Things went better when Muir visited Slabsides three years later. "He is a poet and almost a Seer," wrote Burroughs. "Something ancient and far-away in the look of his eyes. He could not sit down in the corner of the landscape, as Thoreau did; he must have a continent for his playground. . . . Probably the truest lover of Nature . . . we have yet had." But he was "a little prolix. . . . Ask him to tell you his famous dog story [this was "Stickeen," to appear shortly in *Century Magazine*] and you get the whole theory of glaciation thrown in."

In Muir's experience, only one other place on the continent could match the sublime grandeur of the Sierra, and that was Alaska. When in the spring of 1899 he was invited to join the Harriman Alaska expedition, he hesitated—or, at any rate, so he told his editor, Walter Hines Page. He said—somewhat unconvincingly—that he was at work on a national parks book and hated to leave it. "I would not have gone, however tempting, were it not to visit the only part of the coast I have not seen and one of the scenes I would have to visit sometime anyhow." To Page, as to editors since his time, the words must have had a familiar ring.

Burroughs had hesitated for different reasons. He was content at Slabsides. Why should he leave its serenity and peace just as the sun was gathering warmth and his vineyards bursting with new green? "Have I made a mistake," he wonders, "in joining this crowd for so long a trip? Can I see Nature under such conditions? But I am in for it."

Now for the first time "the two Johns," as they came to be known, would be together day after day. The two-month voyage would at once nourish their friendship and point up the contrast between them. As they steamed up the Inside Passage, Burroughs was overawed by the spectacular scenery; when they reached what is now Muir Glacier at the head of Glacier Bay, his companion gave him a non-stop lecture on glaciers which fired his imagination. Yet what apparently moved him most among all this grandeur were the songs of birds like the golden-crowned sparrow and the Lapland longspur, the memory of which inspired some of his best known poems. "The strange and grand scenery warms my spirit," he wrote to a young friend at Vassar, "but the air is the air of March. . . . At last we have a touch of summer; flowers everywhere. . . . This little forget-me-not covers the hillsides—it is bluer than your eyes." When they stopped at the Aleutian Islands before crossing the rough Bering Sea to Siberia, Burroughs planned to quietly disembark and await the ship's return, meanwhile studying and enjoying these new surroundings on his own. But Muir caught him at the gangplank, and shamed him into staying aboard.

Ten years after the Harriman expedition, when both men were past 70, the two Johns visited the Grand Canyon and Yosemite Valley. Again Burroughs was the greenhorn, Muir the guide. Too much of this could be irksome. Clara Barrus, who accompanied Burroughs on this trip, recalled remarking to a companion: "To think of our having the Grand Canyon, and John Burroughs and John Muir thrown in!" Burroughs overheard her. "I wish Muir *was* thrown in sometimes," he muttered, "when he gets between me and the Canyon." Muir was forever bantering, and sometimes scolding. "I puttered around here for ten years," he complained on the visit to Yosemite, "but you expect to see and do everything in four days! You come here, then excuse yourself to God, who has kept these glories waiting for you, by saying, 'I've got to get back to Slabslides' or 'We want to go to Honolulu.'" Conversation with Muir, Burroughs later wrote in his journal, was not an exchange of ideas but "a sparring match with gads. He likes to get in the first cut and follow it up. It delights him to see you wince. . . . See how tender Muir assumes to be toward the animals! Yet he likes to walk over the flesh of his fellow men

with spurs in his soles. . . . Muir had too much of the rough, bruising experience in his life, and I had too little. It made him callous, and it made me a tenderfoot."

But they maintained a warm friendship for the remainder of their lives. The summer following the Grand Canyon trip, Burroughs invited Muir to Slabsides. "It would all be pure pleasure, my dear Johnnie," Muir replied, "but work seems to be piling on thicker than ever." He was completing *My First Summer in the Sierra* from notes written in his youth. (When Ellery Sedgwick, the new editor of the *Atlantic*, read the manuscript, he was ecstatic: "I felt almost as if I had found religion!") In the same letter to Burroughs Muir went on to compliment him on a recent *Atlantic* article in terms which, unconsciously perhaps, seem a trifle patronizing: "It was splendidly written, and no doubt will be enjoyed by a wide circle of readers who are compelled to take their geology at second or third hand." Muir urged his friend—fruitlessly as it turned out—to join him on a trip to the Amazon. A year later, he wrote Burroughs again: "I have never worked harder in my life, although I have not very much to show for it. I have got a volume of my autobiography finished. . . . I have been working for the last month or more on the Yosemite book, trying to finish it before leaving for the Amazon. . . . I do not know what has got into me, making so many books all at once. It is not natural."

One detects a note of desperation. Muir, so indifferent to publication in his youth, now in his seventies put out a final effort driven by awareness of his power to change public opinion before it was too late. Ellery Sedgwick was right; Muir's love of nature had the force of a religion. In contrast to the early settlers who saw themselves doing God's work in subduing the wilderness and converting the heathen, Muir was a missionary *from* the wilderness, bringing light to the benighted victims of civilization. The natural world he saw as an expression of God's power "inseparably companioned by love. Civilized man chokes his soul as the heathen Chinese their feet." During his last years he carried a double burden. Work on his books was interrupted by political battles—above all by the prolonged and bitter fight to save Hetch Hetchy. This was the beautiful valley adjacent to Yosemite that obviously belonged in the park but that San Francisco politicians wanted to dam up, as the cheapest site for a new reservoir. "Dam Hetch Hetchy!" cried Muir. "As well dam for waterworks the people's cathedrals and churches, for no holier temple has ever been consecrated by the heart of man." But this time the people lost. "Anyhow I've

done my best," he wrote to his daughter at the end of a twelve-year fight, "and am now free to go on with my pen work. The book now in hand is Alaska."

Travels in Alaska was to be published posthumously. The manuscript, on which he was still working, was at his bedside when he died on Christmas Eve, 1914. As a penniless young man he had once camped in a graveyard in Savannah, Georgia, on his thousand-mile walk to the Gulf. Gazing at the venerable live oaks, watching the flocks of butterflies, listening to the songs of hidden warblers, he felt that "on no subject are our ideas more warped and pitiable than on death. Instead of the sympathy, the friendly union of life and death so apparent in Nature, we are taught that death is an accident, a deplorable punishment for the oldest sin, the arch-enemy of life. . . . But let children walk with Nature, let them see the beautiful blendings and communions of life and death, their joyous inseparable unity, as taught in woods and meadows, plains and mountains and streams of our blessed star, and they will learn that death is stingless indeed, and as beautiful as life, and that the grave has no victory, for it never fights. All is divine harmony."

Burroughs was stricken by the news. "An event that I have been expecting and dreading for more than a year," he wrote in his journal. There follows a comment that shows what an overwhelming impression Muir must have made on those who met him face to face—enough, in this case, to obscure the power of his writing. "A unique character—greater as a talker than as a writer—he loved personal combat and shone in it. He hated writing and composed with difficulty, though his books have charm of style; but his talk came easily and showed him at his best. I shall greatly miss him. . . ."

Burroughs outlived Muir by more than six years. Toward the end of his life, he made some new—and unlikely—friends. He was 75 when, to his surprise, he received a letter from Henry Ford, expressing gratitude for his books and offering to give him a Ford car as a token of esteem. The gift was not a complete success. "In driving the car in the old barn," Burroughs notes in his journal, "I get rattled and let it run wild; it bursts through the side of the barn like an explosion." However, it initiated a warm relationship that would include Ford's friends Thomas Edison and Harvey Firestone. They went on luxurious auto-camping trips together, to Florida, to the Great Smoky Mountains, during the course of which Burroughs gave these industrial tycoons a personal introduction to the delights of nature, and so instilled in them some sympathy for the growing conservation movement.

Meanwhile he kept on writing for the magazines, which would take anything he submitted, be it science or philosophy or literary criticism, the song of birds or the soul of man. He had already become a "contemporary classic." Schoolbooks included his essays, and his publishers brought out a limited autograph edition of his works, in which he kept company with James Russell Lowell, Bret Harte and Sarah Orne Jewett. He continued to produce a new book every year or two: *Time and Change*, 1912; *The Summit of the Years*, 1913; *The Breath of Life*, 1915; *Under the Apple Trees*, 1916; *Field and Study*, 1919; *Accepting the Universe*, 1920; *Under the Maples*, 1921 (the year of his death). There had even been a book *about* him, by his companion and authorized biographer, Clara Barrus, entitled *Our Friend John Burroughs*. He and his wife were on a trip with the Edisons and the Fords when he received an advance copy. He was pleased, in a quiet way, but Mrs. Burroughs reacted true to form. "She said your book made her nervous," he reported to Dr. Barrus. "It irritates her to hear me praised or made much of. She said last night, 'Do you think you deserve all that praise? If people only knew you as well as I do. . . .'" Perhaps they knew him better. They had read his books, which had given them a new awareness of the world around them. In his gentle way he had enriched their lives, and they loved him for it.

In his later years, when he was a national celebrity, Burroughs displayed an almost excessive humility about his stature as a literary figure. "I always feel a little sheepish," he wrote to a friend, "when I am much praised. I know how poor the books are." He resented being compared favorably to Henry Thoreau: "I am not worthy to tie Thoreau's shoes. . . . It is more painful to me to be unjustly praised than unjustly blamed." He suffered from an almost Puritanical sense of guilt, as if success had come with too little pain. "Mine has been a selfish life—mainly because it has been hard for me to do things I do not enjoy doing." Theodore Roosevelt, however, had the last word. Dedicating one of his own outdoor books to John Burroughs, he wrote, "It is a good thing for our people that you have lived." □

Paul Brooks, a former editor, distinguished naturalist and winner of the John Burroughs Medal, has been active in many environmental causes. This article is excerpted from the book Speaking For Nature: How Literary Naturalists from Henry Thoreau to Rachel Carson Have Shaped America, *published by Houghton Mifflin Company, Boston. Copyright © 1980 by Paul Brooks.*

Why Nuclear Power Will Not Help

JOHN ABBOTTS

"It is my considered judgment that nuclear power is dead . . ."
—Amory Lovins, September 1977

"Atomic power is a doomed and expiring technology, unless Congress bails it out with massive federal subsidies."
—Ralph Nader, September 1977

"In about two years, you are going to see this [nuclear] business disintegrate. We have yet to show a profit.
—Howard M. Winterson, Vice President Combustion Engineering, Inc., September 1977

"Nuclear power is finished as a short-run proposition in this country."
—John O'Leary, U.S. Deputy Energy Secretary, June 1979

IN DECEMBER 1979, even as he was replacing the chairman of the Nuclear Regulatory Commission (NRC)—a largely symbolic gesture designed to convince the public of presidential concern about nuclear safety—Jimmy Carter claimed, "We do not have the luxury of abandoning nuclear power." He urged the NRC to end its self-imposed moratorium on licensing new nuclear plants by May 1980, in order to reduce dependence on foreign oil. This was only another in a series of presidential statements defending atomic power since the Three Mile Island accident, echoing Carter's contention in July 1979 that "Nuclear power must play an important role in the United States to insure our energy future." But the President should know better, and such claims needlessly exacerbated the growing tension between himself and the environmental activists who supported his 1976 election. The truth is that nuclear power would not do much to help this country's energy situation, even if public opposition were to disappear overnight. Atomic energy will not save oil, is not needed and is collapsing from its own economic weight.

The nation suffers from a shortage of oil, not electricity—which is the only form of energy nuclear power can supply. And while atomic-fueled plants supply 13% of the country's electricity, this represents only 4% of our total energy use. At the same time, the generation of electricity accounts for only 10% of the nation's oil consumption, and much of that goes to peak-load plants that must be started and shut down quickly—an operating requirement the nuclear plants cannot fulfill. Even maximum development of our nuclear capabilities would replace only a few drops in the barrel of OPEC oil. Serious oil-saving plans should focus on the transportation sector, which accounts for 54% of the nation's oil use.

In 1979 the electric utilities' nationwide generating capability was 38% higher than the industry's maximum load—far more than the prudent reserve margin necessary to compensate for unanticipated demands or for maintenance outages. Utility rate payers ultimately pay construction costs and interest on money borrowed for expansion, whether the power plants produce electricity or sit idle. The utility industry argues that too much capacity is preferable to too little, but this line of reasoning is irrelevant; the present situation is a case of too much vs. entirely too much. Long before Three Mile Island, utility companies were cancelling orders for new nuclear power plants because the electricity they would have produced was not needed.

The electrical industry's growth has been seriously affected by the simple fact that saving energy is cheaper than buying it; conservation is cost-effective. Higher utility rates and a growing awareness of the need to conserve have stimulated business, industrial and residential customers to increase their energy efficiency. Electricity consumption growth averaged 7% or more per year before 1974, and fell to an average of less than 3% per year over the past six years. During 1979, electricity demand increased less than 1%. Electric utility executives, slow to overcome their nostalgia for the earlier growth and unwilling to adjust demand forecasts, have been forced to cancel or defer unnecessary units. Because of their enormous initial cost ($2 billion or more per plant) and less-than-satisfactory performance, sales of nuclear plants have plummeted. Thirty-five new reactors were ordered in the peak year of 1973, but only thirteen have been sold since then.

Faced with dwindling markets at home, the atomic industry was already dying a slow economic death *before* Three Mile Island. All the Harrisburg accident did was to damage nuclear power politically. Contrary to the Carter administration's claim that the nation cannot afford to shut down nuclear plants, researchers at Washington University at St. Louis concluded that because of the nation's capability to generate excess electricity, 64 of America's 72 licensed nuclear plants could be shut down immediately, "with no loss in electricity output or reliability."

The Kemeny commission report, the venting of radioactive gas and a federal grand jury investigation into allegations of falsified reactor tests have generated continuing adverse publicity connected with the Three Mile Island (TMI) breakdown. But as far as the nuclear industry is is con-

cerned, the most important after-effect of the accident will be economic. General Public Utilities (GPU), the owner of TMI, holds property damage insurance of $300 million, the maximum available. Estimated costs of decontaminating and repairing the damaged plant, set at $140 million two weeks after the accident, soon rose to $400 million. This June, after a jammed door prevented access to the reactor building to assess damage, GPU announced that even the $400 million estimate is too low.

Shortly after the accident, the Pennsylvania Utility Commission removed the crippled Three Mile Island Unit 2 from its rate base (the sum of investment in transmission and generating equipment on which a utility is allowed a guaranteed rate of return). Unit 2 is not expected to be capable of operation for at least six years, so GPU's return on investment will be depressed for some time. TMI Unit 1, the undamaged station, will not resume operation until a lengthy investigation by the Nuclear Regulatory Commission has been completed. Pennsylvania utility commissioners removed Unit 1 from the rate base in May 1980, further reducing GPU's cash flow.

The New Jersey Board of Public Utilities has also removed TMI units 1 and 2 from the rate base of Jersey Central Power & Light, a GPU subsidiary with part interest in TMI plants. Furthermore, when General Public Utilities warned that it faced bankruptcy as a result of the accident, the New Jersey board asked Jersey Central to evaluate the effects of bankruptcy on power costs and supply. To complete GPU's problems, the Pennsylvania utility commission ordered Metropolitan Edison, the GPU subsidiary operating TMI, to show cause why its license to generate electricity should not be revoked. While the utility commission eventually allowed Met Ed to continue operation, the proceedings provided little comfort to GPU investors.

It must be remembered that all these difficulties stem from an accident that represents only a small portion of the catastrophe potential of a nuclear power plant. Faced with the reality that a "minor" accident can cause damages exceeding available property insurance and can threaten a company with bankruptcy, any utility executive is bound to have second thoughts about nuclear power investments.

If President Carter is fully aware that the atomic industry is sinking from its own economic burdens, why does he defend nuclear power? First, the President wants to convince the business community that he has its interests at heart. Carter's latest comments can be viewed as another attempt to reassure the atomic industry that his promise to

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make nuclear power an energy source of "last resort" was merely campaign rhetoric.

As early as May 1978, the Natural Resources Defense Council characterized the President's legislative proposal to streamline nuclear licensing as the "final corruption" of Carter's campaign promise. This proposal was founded on the mistaken premise that public participation significantly impedes the construction of nuclear plants. The predominant causes of delay in nuclear schedules are actually outside the public hearing process: equipment and construction problems, financial difficulties, unrealistic load-growth projections and, finally, the need to backfit and reinstall additional safety devices. Designed as a rhetorical lift for the nuclear industry, the Administration's licensing bill would have done little to relieve the industry's doldrums. When Carter, at the instigation of James Schlesinger, resubmitted these nuclear licensing proposals *after* TMI, incredulous congressional leaders could only view the legislation as a waste of time.

With Ronald Reagan as his Republican opponent, Jimmy Carter's turn to the right on atomic power will probably not affect his chances for reelection. But whether or not nuclear power is a major issue in this year's presidential elections, it will not make a difference in solving the nation's energy problem. The bottom line on energy is that it is much more cost-effective to save energy through improved efficiency than to produce it by any means—and conservation can be implemented quickly, creating new jobs.

Were nuclear power not so frightfully dangerous, linked to proliferation of nuclear weapons and fraught with burdens for future generations, the proper response to this troubled technology would be simply to ignore it, allowing its natural economic demise. The nuclear industry and federal officials have tried to prop up nuclear power with rhetoric, with legislation and with massive subsidies. They have succeeded only in distracting us from the country's real energy problem—gluttonous overconsumption of oil, which leaves the economy at the mercy of foreign and multinational domestic suppliers, whose loyalties lie with increasing their profits by adjusting domestic energy prices to OPEC prices. It is long past time to recognize that nuclear power is an energy source with no future. This thought—obvious to many—may become far more widespread as nuclear power's economic flaws take their place next to its known hazards to health and safety. □

John Abbotts is coauthor (with Ralph Nader) of The Menace of Atomic Energy *(New York: W. W. Norton, 1977).*

Letter From Your Congressman

VERONICA GENG

DEAR CONSTITUENT:
As 1980 is evidently under way, I am completing nearly a decade of striving-packed years as your full-time Representative in Washington, D.C. I want you to know how firmly I have urged you to support me, and how deeply I appreciate the opportunity to exceed the authority you have vested in me. As your Representative, I played a cameo role in last year's Legislative Session, during which a substantial number of new laws were enacted under or near my sponsorship or with my vigorous opposition. Here are some highlights:

- toughened penalties against juveniles who escape from Mitchell-Lama housing
- outlawed lethal incentives
- streamlined "Saturday Night Special" judicial-selection procedures
- mandated pending evaluation
- simulated energy

As your full-time Representative, I have been fully concerned with expanding my priority concerns. Here are some focal points:

- teen-age grand juries
- costly and inefficient urban coalitions
- "head shops" at consulates and missions to U.N.
- subhuman conditions in Off-Track Betting parlors
- no-fault gang warfare
- abuse addiction
- fiasco control
- clearinghouse habitability
- ombudsman repatriation
- transportation bootlegging
- turnstile preservation
- addiction abuse

UGLY PROBLEM
Until recent years, the ugly problem of absentee housing has been virtually ignored. Now a full-page report prepared by my staff shows that "ugly problem" is merely one of those pretty sociological euphemisms.

TRIGGER LEVELS OF UNEMPLOYMENT: ALBATROSS OR SAFETY NET?
Amid some unemployment, from men to women, such problems are offset by a situation that is serious but not critical, yet nonetheless stops short of complete success. Not only have unemployment figures belied employment but also employment has not prevented unemployment. It is imperative that we note that the battle seems to go on without end. Recent events would indicate that it does.

On December 3, 1979, I telephoned the Bureau des Élections in Paris to ask whether the French government intended to hold full, free and democratic elections in the near future, as promised. Seated next to me are full-time executives of the Bell Telephone Company, which placed the long-distance call.

A SENSATIONAL PLACE
Individual efforts directed against the spectre of federal takeover of private businesses *can* succeed. On December 15th, district resident John Occupant tasted victory when John's Restaurant opened to the public after a series of meetings with accountants and wholesalers from the area. On a full-time study of the location, I saw the fine comments which informed and articulate local spokespersons inscribed on photographs decorating the walls of this community project:

- Dear Johnny, You've been fabulous. Thank you for your hospitality.
- John's has the BEST Italian food!
- To Johnny, with love and appreciation.
- To John, Mucho aloha!
- John: And to think I weighed 90 pounds when I met you!
- To John: What a fun dinner. Kindest regards always.

TV APPEARANCE
On Sunday, December 23rd, I gave an interview on the NBC program "NewsNewsNews." Following is a brief excerpt from the transcript ("A" is the voice of your Congressman):

Q: A lot of people are against it.

A: Well, I must say, Bill, particularly as a Congressman, people can be for or against a lot of things—

Q: Are you for or are you saying you're against it?

A: —and some of their reasons, you know, some of them have some merit.

Q: Now, what is your position?

A: Yeah, I mean, not only that but I want to emphasize repeatedly, Bill, that we frankly just don't have the answer, though, to that, as yet. And we wouldn't in Red China be able to have this full, free and open discussion, by the way. And Bill, I want to congratulate you for asking me. The questions have been just brilliant.

Q: Well, it is certainly no secret that you have been a guest in our studio today. Thank you.

In a spontaneous gesture of concern, I visited my personal family in the hospital.

EFFORT PAYS OFF
I am pleased to announce that U.S. Customs officials at J.F.K. International Airport recently confiscated a quantity of Genoese bobbin lace found concealed between the pages of a copy of "Childe Harold's Pilgrimage," by George Gordon, Lord Byron.

QUESTIONNAIRE

This month's question related to rumor dispelment. Which of the following strategies would you support?

□ fire into the air
□ fire over the heads of the crowd
□ fire in the neighborhood of the core group
□ bomb only those using provocative extemporaneous remarks
□ pump five bullets into the rumor itself

LATIN AMERICA

Earlier this month I visited the southern cone of Latin America, where I enjoyed touring the Avalanche of Smut. I also renewed contact with the many fine full-time Latin-American contacts I maintain through an unofficial instrumentality in corporate form. While we cannot expect to find a complete solution at the federal level, I

My full-time family has been a source of great strength to me during my eleven years in the House. L. to r.: My family.

was heartened by the response from a Chilean general. Under my questioning, he admitted, "You see, there are no guns here. We are throwing them all into the desert."

THE 1980 ELECTION

Whoever my opponents will be, their records as legislators and as persons who were active during the Nixon Administration will raise questions. There is already a growing and, I believe, dangerous tendency. A lack of leadership is no substitute for inaction. That's why I challenged all of my opponents *last* year—in head-to-head debate, single-handedly.

WHAT KINDS of things worry you? Probably the same things that worry me. Hopes. Dreams. Major thrusts. The night after I first took the oath of office, in 1971, I dreamed that someone suggested I go somewhere or buy some tickets to something. By 1979, I had learned how to meet tough positions head on. That's why I want full-time to continue to serve you in the House of Representatives. There is much more to be said. Please vote for me so that I can say it.

RECYCLED ON PRINTED PAPER □

The Wood as the Refuge of the Unconscious

BARRY LOPEZ

The Tree, by John Fowles. Photographs by Frank Horvat. Boston: Little, Brown & Co., 1979. Unpaged, 56 color plates. $24.95.

SEVERAL TIMES while reading this book-length essay on human perceptions of nature, I had to get up and walk away from it. Its thought was as stimulating as I could stand. As a reviewer, I distrust this feeling. What if the material fits the mind of the reviewer too well, and the necessary order, clarity, wit, entertainment—the bridges that bring the contents to other readers—are seen to exist where they do not? The reader is recommended a book which he may, without the same predilection, find dull or impenetrable.

Fowles' graceful language, his ability to render anecdote to illustrate abstraction—in short, his ability to tell an entertaining story—makes these concerns moot. I feel no qualm in saying Fowles has set his teeth neatly in one of the central issues of our time—our real and imagined distance from the natural world—and that Frank Horvat's empathetic photographs of trees are not the only stunning illumination here.

Fowles' elevated and precise prose, his almost surgical skill at teasing out the internal structure of a complex emotion or idea, and the ease with which he carries his considerable erudition may be familiar to readers of his other work—*The French Lieutenant's Woman, The Magus, Daniel Martin. The French Lieutenant's Woman*, among other things, is a kind of meditation on choice, on the interior of Darwin's theory of evolution. Indeed, Darwin and a wild wood called Ware Commons (which this book considers in passing) are protagonists of a sort in the *The French Lieutenant's Woman*. Fowles has written—here, in fact—that the key to his fiction lies in his relationship with the natural world. I have an idea this connection is subtle enough to almost defy conversation—which is fine. Gray, fundamental relationships are part of what Fowles pursues in this essay.

Who defines the natural world for us? Who decides the names of things, countenances and rank-orders our experience with mountains and rivers, and defines the "right" type of relationship to have with nature? Are we to make some (often desperate) effort to be what we are not—Zen monks, Navajos, esteemed naturalists—to understand nature only in these ways? That we are handed others' impressions of the natural world against which to judge our own is another of Fowles' concerns here.

And how do we conceive of the natural world? As having a purpose? Being "therapeutic" or "beautiful and enriching" and therefore useful? Do we value systematized understanding, any of the hundred different lexicons applied to its elements (recalling Abbey's dictum: "What is that, madam? What it *is*, no one knows; but men call it creosote bush. *Larrea tridentata.*")? Do we feel that unless we create evidence—photographs, journal entries, picked and pressed flowers, tape recordings, pocketed stones—we haven't actually been intimate with nature?

I think every one of us has had these doubts, and tried privately to thread an intelligent way through them, if for no other reason than being innately suspicious of all the ballyhooing of nature that goes on, as politically necessary as it may be. In order to protect nature we've turned it into a consumer item, and we are repelled by the thought.

The validity of an individual's unarticulated experience—which Fowles is trying to underscore here—is challenged today by the technical processes of television production, film making and book publishing, and compromised by various authorities on (or critics of) human experience. We live in a world in which it is hard to get away to a wild area, and in which the enrichment and the encouragement of a relationship with nature made possible through a variety of secondary sources—Bashō's *haibun* travel sketches, Pissarro's *Poplars*, *Eragny*, Alan Root's film, "The Year of the Wildebeest," Paul Winter's *Common Ground*—is one we ourselves have called into question. We know, too, the silent among us, that a way of knowing which, in Fowles' words, "leaves very little public trace," is apt to not only go unhonored but to be the object of someone else's (uninvited) consolation.

Fowles is a man of considerable and deft intellect, and one of his sharpest tools of illumination is paradox. It is just like him to both abjure, say, a film about the Arctic as "distancing" one from the actual experience of being there and to say how enriching the film is. The key to this paradox, as far as it can go, is the issue of authority, and, for Fowles, a distinction between art and science. There is not the space here to elucidate, which I realize is the coward's way out, but so are some paradoxes unresolvable and therefore, like *koans*, stimulating and valuable. The best books about nature, like this one, so stimulate you as to drive you back out there, to the inchoate, the chaotic, the unresolvable.

Fowles picks "the wood" as a focus for his thought for several reasons: what he calls its "explorability;" the social nature of trees (a subtle symbiosis) as well as the way they "warp time, or rather create a variety of times;" for its enclosedness; and for its "uncapturability"—here Fowles is again with his genial sense of paradox. "Nowhere [but in the woods]," he writes, "are the two great contemporary modes of reproducing reality, the word and the camera, more at a loss . . . [the woods] defeat view-finder, drawing paper, canvas, they cannot be framed; and words are as futile, hopelessly too laborious and used to capture reality." But he gives us words and reveals the woods: if some intelligence looks back at us, it may decide it was not tool making that set us apart or even our sense of irony, which allows us to live with paradox, but our capacity for metaphor, the way Fowles—any good writer—can seem to communicate the ineffable, to reveal the uncapturable.

One is thankful for a gifted writer in the midst of thoughts so easily mangled. Like good philosophy, Fowles is in search of good argument, but because he is a storyteller we do not labor to follow him. He writes engagingly, as if he were conversing—but without hesitations or false beginnings. And his own engagement (really a lifelong process of re-engagement) with the

wild, "the refuge of the unconscious," he makes ours. In the very ease and felicity of his language there is structure, direction and tension, as there is in any good novel. The principal tension, the major chord struck again and again, is a connection between real and imagined landscapes, between actual and metaphorical forests. We are residents of both, of course, searching for a finer resonance than we have heretofore been able to manage.

Fowles opens this long, orderly essay by asking what separates the figurative gardeners among us from those who hardly interfere in nature. He casts his father as a gardener, an inveterate pruner of limbs and puller of weeds, a man who ascribed value to nature only insofar as it yielded fruit (and behaved). Fowles presents himself as the owner of an overgrown 30-acre farm he has for the most part let go to seed. This personal dichotomy takes on a broader, historical dimension when Fowles introduces a certain *hortus conclusus*—Linneaus's own walled, formal gardens at Uppsala. The Linnean mentality, which fussed endlessly to make nature neat, serves in turn to introduce the differing approaches of science and "the kind of experience or knowledge we loosely define as art." Science pounces on chaos—"unphilosophical, irrational, uncontrollable and incalculable" nature. Art perceives no threat, no great evil in unlimited chaos; the engagement with nature is personal, often intimate and without objective.

Toward the end of this section, Fowles sets down what he believes is the most dangerous of all our contemporary forms of alienation—"our growing emotional and intellectual detachment from nature—and I do not think the remedy lies solely in the success or failure of the conservation movement. It lies as much in our admitting the debit side of the scientific revolution and especially in the changes it has effected in our modes of perceiving and of experiencing the world as individuals.

"Science is centrally, almost metaphysically, obsessed by general truths . . . But all nature, like all humanity, is made of minor exceptions, of entities that some way, however scientifically disregardable, do not conform to the general rule. A belief in this kind of exception is as central to art as a belief in the utility of generalization is to science . . . "

But there is no true religion, not even the love of nature, says Fowles. "To see woods and forests merely scientifically," he warns several pages later, "economically, topographically or aesthetically—not to under-

stand that their greatest utility lies not in the facts derivable from them, or in their timber and fruit, or their landscape charm, or their utility as subject matter for the artist—proves the gathering speed with which we are retreating into outer space from all other life on this planet."

At the end of his essay, Fowles turns to direct experience, to what the poet Conger Beasley calls "the unimpeachable sources." He enters a wild area of southwestern England called Wistman's Wood, where he concludes his thoughts among trees—"the best, most revealing messengers to us from all nature, the nearest its heart." I would rather leave unsaid what he is able to evoke here; after pages of calm and agreeable prose his ideas, far from being polite abstractions, are seen to be rooted in the earth, abiding, preternatural and inexplicable.

Complementing the essay throughout are Frank Horvat's contemplative, occasionally erotic photographs. The painter Louis Agassiz Fuertes is supposed to have been able to realize birds as individuals and the same might be said of Horvat and his trees. He also does something unusual—by searching out domestic and feral as well as wild trees to photograph, he is able to obscure the borders of the wild in nature and to suggest both the affecting presence of man and his primordial ties to these landscapes. Fowles' ideas reverberate in a subtle and wonderful way with them; they seem to have been placed with considerable forethought, one to a page opposite each page of prose.

This book is neither a directive nor a call to action. It is the engaging explication of an idea before which the reader, like all readers, is alone. Toward the end of the book Fowles writes, "We still have this to learn: the inalienable otherness of each [other], human and non-human, which may seem the prison of each, but is at heart, in the deepest of the countless million metaphorical trees for which we cannot see the wood, both the justification and the redemption."

The belief that we have the power, let alone the perception, to put anything and everything into words (or on film) has taught us bad habits. Fowles' entry into Wistman's Wood at the end of the book is perhaps the humblest and finest point he makes. It is also a bitter reminder that many in the environmental movement today are charged by builders of dams and cutters of trees, by strippers of shale and spreaders of poison, with explaining what neither requires explanation nor is in fact explainable. And there is no way out of this obligation.

The fact that it must be explained to people who have lost their capacity for metaphor is, I think, a sign of a kind of war. □

Barry Lopez is a writer living in Finn Rock, Oregon. He is author of Of Wolves and Men *(New York: Scribners, 1979).*

The Story of Love Canal

BRUCE COLMAN

Laying Waste: The Poisoning of America by Toxic Chemicals, by Michael Brown; Pantheon, New York, 1980. Cloth, $11.95.

THE DUMPING of toxic wastes is becoming *the* issue of the 1980s.

Item: One dark midnight in North Carolina, a tank truck dribbled oil along the streets of a small town. For a month the townspeople suffered headaches and burning eyes; the stuff smelled like rotten eggs, ammonia and vinegar. It was laced with PCBs (polychlorinated biphenyls).

Item: Near Riverside, California, heavy rains caused officials to dump almost 900,000 gallons of a "liquid resembling root beer" into fields where children and animals play. The fluid contained DDT, chromium, nickel, cadmium, lead, chloroform, trichloroethylene and other carcinogens, and it would end up in the Santa Ana River.

Item: In New Jersey, all sorts of chlorinated organic compounds, as well as copper and chromium, have made their way into the groundwater, and then into wells supplying drinking water.

Item: Bloody Run Creek, near Niagara Falls, has "assumed hues of orange and red at intervals." Bloody Run is poisoned by seepages from a Hooker Chemical Company waste dump.

The Hooker Chemical Company is the principal villain in an alarming and important new book, *Laying Waste*, by journalist Michael Brown. Hooker has stored a stunning amount of poison in leaking drums, and in inadequately prepared dumps all over the Northeast. Though Hooker is the leading contributor to the Love Canal's notoriety, Brown also points a finger at the dump-and-run Burns family in the Carolinas, the Galaxy Chemical Company of Maryland, Petro Processors in Louisiana and a seemingly endless list of fellow offenders. An impressive army of victim/heroes—angry, common citizens—leads the fights, vanguard or rearguard, against corporate silence and intransigence, and against government's reluctance to expose

the facts about toxic dumping, or to compensate and protect the citizens who are affected. They remind us what conscience means in a democracy; Brown portrays a dozen of them very well.

The troubles at Love Canal started to become known, in a small way, in 1959. They became a scandal in the mid–1970s, and in 1980, the residents of Love Canal are still making headlines, demanding that the state government help them move away from homes and property in an area that now has a high incidence of cancer and birth defects.

Hooker had used an uncompleted canal through a residential neighborhood in Niagara, New York, as a dump for various chemicals. The canal was filled with rubble and 20,000 tons of waste products from the manufacture of pesticides, plasticizers and caustic soda. The stuff was of a "truly remarkable toxicity," says Brown, and included PCBs, a substance called C-56, benzene, fourteen compounds that attack the brain and nervous system, at least ten carcinogens and maybe even nuclear wastes.

At some point, the contents of the barrels began to leak into the ground and the poisons started to mingle with each other to form horrific new compounds. As early as 1958, children were burned by residues on the canal's surface. In 1959, a neighbor of the canal noticed black sludge bleeding from her basement walls. Love Canal took on a horror-movie quality: a greenish luminescence could be seen over the canal on some nights; gardens and shrubs died as if burned. Among all the toxic waste incidents to date, attention dwells on the Canal because it's so lurid. And the damned thing started to affect the people around it. A child was born in 1968 with a hole in her heart and a double row of bottom teeth; her mental retardation became obvious by the time she reached kindergarten age. Women near the canal suffered high rates of miscarriage (around 40%), and an abnormally large number of children had birth defects. Once the facts started to come out, it was particularly galling that Hooker had donated the canal land to the city and a school had been erected over it.

People suffered ear infections, nerve disorders, rashes, headaches, asthma, epilepsy-like seizures, divorce, despair. Eventually, in 1978, the state recommended evacuation of pregnant women and young children from the homes closest to the canal. That move came in response to Brown's newspaper coverage of the canal, and to the

citizens' demands for investigation and help. A second evacuation came after locals nearly lynched the governor's representatives at a public meeting. The state then started to buy the houses near the canal, allowing many people to move to safety. Many more who were in danger lived outside the official danger zone and did not receive government help. One afternoon, the residents literally took hostages at another public hearing, while the state sued Hooker for damages.

Other regions have problems that could be as bad as the Love Canal—if not, perhaps, so ironically named. Brown reports that in the United States there are some 32,000 waste dumps; 840 of these, according to the Environmental Protection Agency, could present "significant imminent hazards" to public health. In 1979, there were 161 EPA employees responsible for hazardous waste management. In the past few years, the agency has promulgated the most complex regulations in its history, in an attempt to control the waste problem—Brown refers to the process of writing these laws as "Garbagegate."

There is little incentive for chemical manufacturers such as Hooker or Galaxy to dispose of garbage responsibly. They won't get paid for that. So over the next few years, we may legitimately fear that more and more of these dumps will send their contents creeping through groundwater, or leaching through soils or boiling into the air to attack our lungs, skin, internal organs and even our genes and fetuses.

It need not be so. And it certainly should not be so.

Laying Waste would be little more than alarming if Brown hadn't included a chapter on possible ways to neutralize toxic wastes. There are safe depositories, away from homes and drinking water, with solid clay bases, synthetic liners and trenches and plastic caps. Brown suggests that such storage sites should be closely monitored and that the manufacturers post security bonds. The toxicity of some wastes can be reduced by oxidation or by allowing certain microorganisms to feed on them, by turning wastes into activated charcoal or solidifying small amounts into ersatz rocks, by incineration at higher than 1000°, or even by bombarding the wastes with radiation to break up their molecular structure.

All this will cost money—but what is the health of a whole society worth, by comparison? □

Bruce Colman is a book publisher who works for Friends of the Earth. He lives in Berkeley, California.

FOR YOUNGER READERS

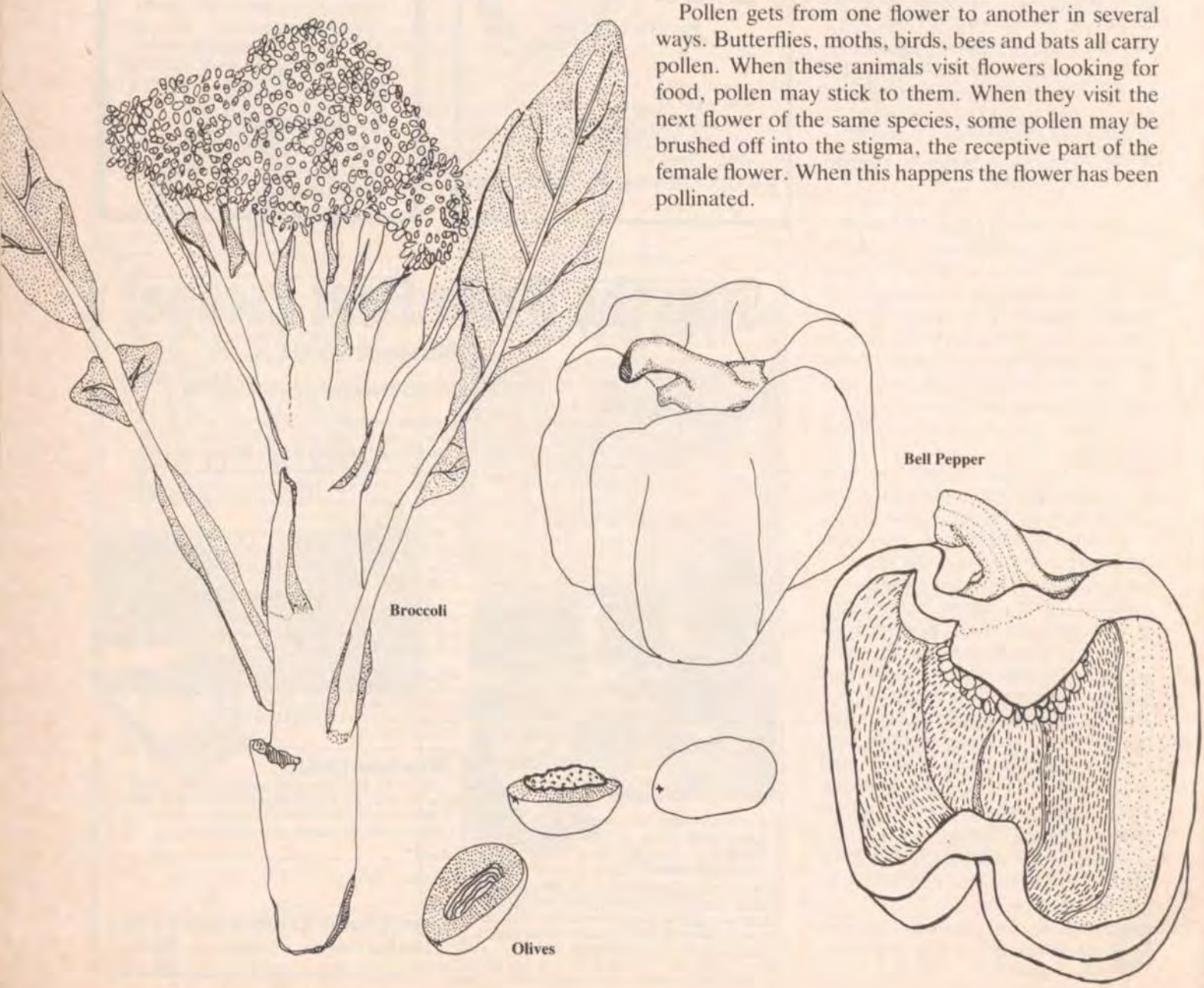
Fruits and Vegetables

Text and Illustrations by
JUDITH GENDLIN

WHY ARE SOME FOODS called fruits and others called vegetables? Most of us call a watermelon a fruit because it is sweet and juicy. Though cucumbers are members of the melon family, we call cucumbers vegetables because they are eaten with salt or vinegar and are not sweet. Botanists—the scientists who study plants—define "fruit" and "vegetable" differently, in terms that have nothing to do with taste, because there are many fruits that cannot be eaten.

Fruits are formed after a plant has flowers. The female part of the flower—the ovary—must be fertilized by pollen from the male part of a flower before the fruit can grow. This is just a little like what happens in animals. Fruits are the result of sexual union in plants, just as babies come from animals.

Pollen gets from one flower to another in several ways. Butterflies, moths, birds, bees and bats all carry pollen. When these animals visit flowers looking for food, pollen may stick to them. When they visit the next flower of the same species, some pollen may be brushed off into the stigma, the receptive part of the female flower. When this happens the flower has been pollinated.



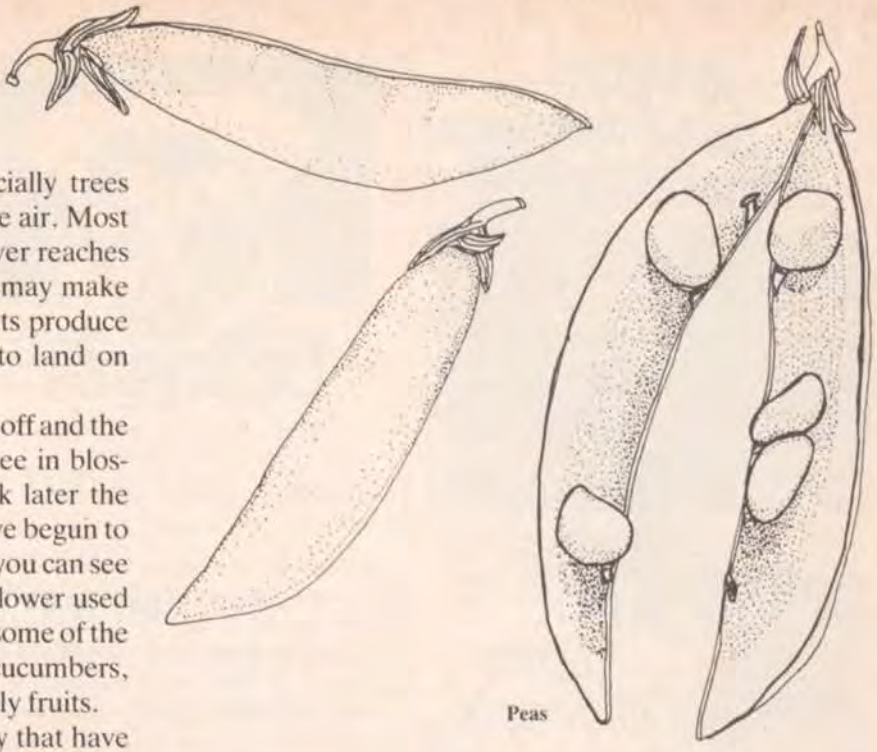
The wind pollinates some plants, especially trees and grasses, by blowing pollen around in the air. Most of the pollen blown around by the wind never reaches other flowers. It just goes to waste, and it may make you sneeze. But most wind-pollinated plants produce so much pollen that some of it manages to land on target.

After a flower is pollinated, the petals fall off and the ovary begins to grow. Imagine an apple tree in blossom, surrounded by buzzing bees. A week later the petals have fallen, and tiny green apples have begun to grow. If you look at the bottom of an apple you can see a star-shaped hole where the petals of the flower used to be. You can see a flat or indented scar on some of the fruits we eat. Look for it on tomatoes, cucumbers, squash and eggplant, all of which are actually fruits.

Vegetables are the parts of a plant's body that have nothing to do with having flowers. A few examples are spinach (leaves), asparagus (stem and buds of young leaves), and carrots (roots). Another clue to telling fruits from vegetables is that all fruits contain seeds and vegetables do not. A plant makes fruit to protect and help scatter its seeds. An avocado has one big seed, a green pepper has many small seeds. Both are fruits.

All plants that flower will eventually form fruits, but not all of these will be juicy and edible. The dry pods of a milkweed plant split open, and the hairy seeds inside are blown by the wind to new places. The twirling pairs of maple wings are the dry fruits of the maple tree. The seeds will grow into new plants, which will flower and start the process all over again. □

Judith Gendlin, a recent graduate of the University of Michigan, is interested in botany.

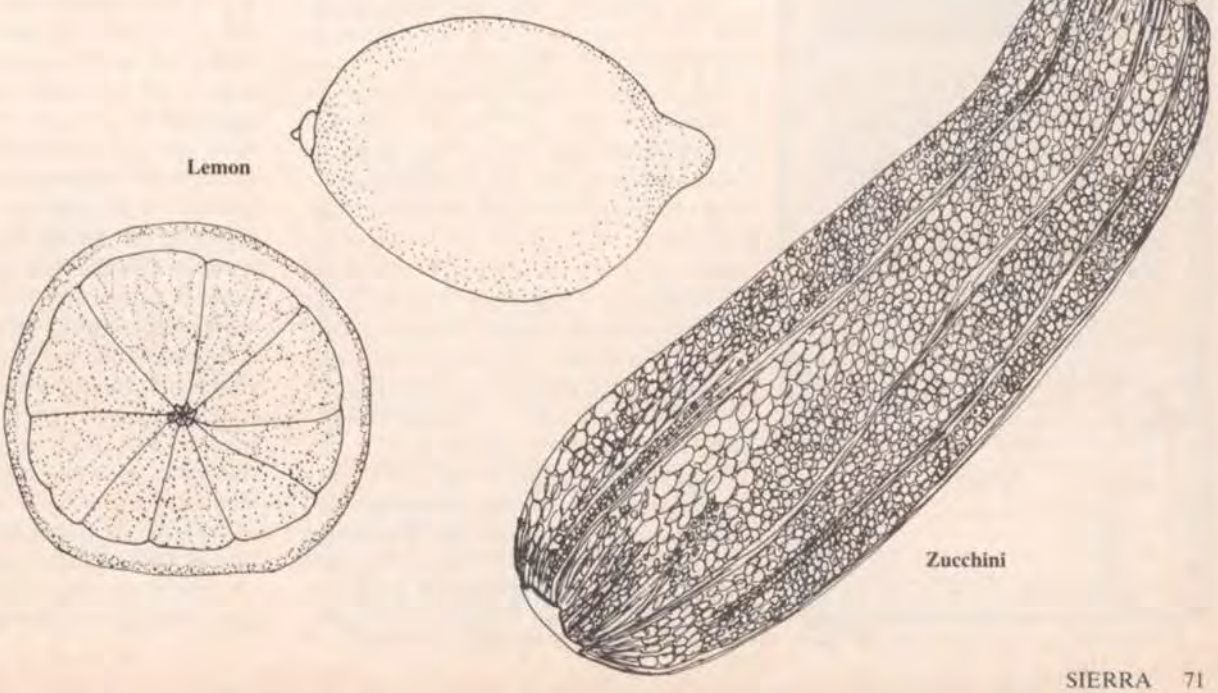


Peas

Can you tell if these are fruits or vegetables?
Lemon Bean Lettuce Turnip Olive Zucchini

Answers:

Lemon—Sour but has seeds. Fruit
Bean—A pod that contains seeds. Fruit
Lettuce—All leaves. Vegetable
Turnip—A root, contains no seeds. Vegetable.
Olive—One big seed in the middle. Fruit
Zucchini—Many small seeds, a scar from the flower on one end. Fruit



Lemon

Zucchini

Grassroots Digging into Uranium Mining

ROBERT IRWIN

SEVERAL REPORTS have come in recently on three grassroots activists, from two Sierra Club regional groups, who have been digging into uranium activities in their areas. Any one of them would be ideally experienced to respond to other grassroots activists wondering what to do about a sudden outbreak of uranium fever in their communities. One of the three activists, Katy Madsen, who chairs the Okanagan Group of the Western Canada Chapter, deserves a great share of the credit for the seven-year moratorium on uranium mining in British Columbia.

Madsen's campaign began late in 1979 at a hearing in her hometown of Summerland, in south-central British Columbia. Earlier in the year a commission had been formed to determine under what conditions uranium mining would be allowed in the province. In the fall, two mining companies made tentative agreements to sell uranium to Korea. At the commission's hearing in Summerland (an area with significant uranium deposits), Madsen heard Premier William Bennett deny that any claims had been established. Dubious, Madsen telephoned government offices in Vancouver and Ottawa. She found that mining claims had, in fact, been documented—and she spent more than $1000 to have the data photocopied and sent to her. Later, at another hearing, she presented maps showing where the claims were: on orchard land, residential land, school land and in downtown Summerland. She added that the claimants were not required to notify the property owners, and had the right to dig at will on their claims. The Okanagan people were incensed. An editorial in the local paper—titled "Outrage!"—sums up their feelings. The moratorium followed.

Meanwhile, in South Dakota (also a prime area for uranium exploration and mining), two leaders of the Black Hills Group of the Dakotah Chapter spent much of 1979 poring over courthouse records in the six westernmost counties of the state. Last spring, at a Rapid City press conference, Norm Nelson and Jim MacInnes released their report, the *Black Hills Area Uranium Activities Fact Sheet*. Maps of the six counties show 2435 square miles under exploration, the locations of uranium leases covering 355 square miles and the boundaries of a total of 5748 claims. The fact sheet and maps have been published by the Black Hills Group (P. O. Box 1642, Rapid City, SD 57709) and are available on request. The group wishes to inform the public of the extent of uranium activity in the entire Black Hills region. "Most people just think of a couple of little mines near Edgemont," Nelson points out, but both he and MacInnes were surprised to find how extensive the search and claims for uranium are. Among the gems MacInnes found in his courthouse research is that the Kerr-McGee leases provide that any tailings left for more than a year on the land become the property of the lessor!

New Programs and Projects

Fall is here, and it's time to plan for new programs and projects for the months ahead. Here are three possibilities you might want to promote or take part in with your group or chapter.

• For the past several years, the Cherokee Group of the Tennessee Chapter has been a sponsor of the regional science and engineering fair for schoolchildren held annually in Chattanooga. A panel of judges from the group looks at all the exhibits and selects those showing the most sensitivity to and understanding of ecology and the environment. Three or four Sierra Club student memberships are given to the senior winners, and letters of commendation or certificates go to the outstanding junior exhibitors. Barbara Kelly, group chairwoman, says the group is not officially linked to the fair. Publicity comes when the prizes are awarded at the group's next meeting. Kelly says, "We like to think that maybe we're

starting one of the world's future scientists or naturalists on his or her way. Whether they become famous or not, they are tomorrow's voters, and we hope they will carry on their (and our) concern for the environment." For more details, write Barbara Kelly, 3524 Pinellas Lane, Chattanooga, Tennessee 37412.

• "Events—1980," a three-part illustrated lecture series, is an annual fundraiser of the San Francisco Bay Chapter. Last year's Events series netted more than $3,500 to help support conservation activities of the chapter and its campus group at the University of California, Berkeley. Dewitt Jones' award-winning film, *John Muir's High Sierra*, will be presented October 7 on the Berkeley campus. On October 28, Galen Rowell offers his new lecture slide-show, "Journey Through the Wild Karakoram." Two screens and Himalayan music accompany his narration, which describes Rowell's 200-mile ski trek across the world's highest mountain range. On December 2, marine biologist Sylvia Earle will show a slide and movie presentation, "Exploring Ocean Wilderness," depicting the highlights of her 4000 hours underwater—an eloquent contribution to the Year of the Coast. For more information on this successful fundraising series, write to Ed Bennett, Bay Chapter Treasurer, Sierra Club, 6014 College Avenue, Oakland, CA 94618.

• "Shopping cart" fundraisers have been bringing $400 to $500 a year into the treasury of the Chicago Group of the Great Lakes Chapter, according to Tim Sherck, who has directed a number of these affairs for the group. Any charitable or nonprofit organization can arrange with certain supermarket chains to receive, on one or more days, a percentage (usually 5%) of the gross sales made to members or friends of the organization. Harriet Klinger, Chicago Group chair woman, says the success of such a fundraiser depends on timely publicity and the wide distribution of identification certificates (so that sales will be credited to the group). The most sophisticated and organized program, called Shop and Share, is offered by Jewel Food Stores. A detailed leaflet on its program is available from the Shop and Share Coordinator, 1955 West North Avenue, Melrose Park, Illinois 60160.

Outings Notes

Last summer, the Angeles Chapter's outings committee began a Hikerbus transportation service between the Los Angeles area and major Sierra trailheads, for a number of

its regularly scheduled trips. Round trip fares average $30 to $35. . . . A commercial minibus service to the southern Sierra parks and to eastern Sierra trailheads is now in service. High Sierra Stage operates out of Visalia, 35 miles west of Sequoia National Park. Hikers can take Amtrak or a Greyhound bus to Visalia. . . . The Great Lakes Chapter calls its September 14th outing to Indiana Dunes State Park a "Train Hike." Participants *must* catch the South Shore electric interurban train in Chicago—no cars allowed!

Service Trip Roundup

One of the Club's most active service trip programs is conducted by the Hawaii Chapter. Since 1971 its enthusiastic crews of trail builders, weed choppers, trash pickers and fence stretchers have been acclaimed by their communities. The National Park Service and the state's forestry division support the volunteers logistically and financially. One of the ongoing projects is to construct trails into the forests around Honolulu, with trailheads to be served by city buses.

In July and August, the Zirkel Group of the Rocky Mountain Chapter ran three trail-maintenance and cleanup trips in subalpine wilderness areas north of Steamboat Springs, Colorado. . . . Volunteers from the John Muir Chapter lent their muscle last summer to realize an old dream of Muir's—restoring an oak grove similar to the one Muir knew around his boyhood Wisconsin home. The members pitched in with the work—selective cutting, prescribed burning and reintroduction of prairie species—on a site near Baraboo, owned by the International Crane Foundation. . . . The Beach Beautification and Restoration Project of the Northcoast Environmental Center of Arcata, California (see "Observer," November/December 1979) has come to a glorious end. More than eighteen tons of litter were removed from the beaches of Humboldt County. Though the CETA funding has ended, a new all-volunteer program called Adopt-a-Beach is off to a strong start. A dozen organizations have pledged to continue the cleanup once or twice a year.

Note to Climbers

If you bought 1979 model Jumars (they're yellow), don't use them! They may be defective. Return them to the store where you bought them for inspection, correction, replacement parts or refund. Some Jumar ascenders may have defective safety-level springs.

Clean Air Battles

Two important clean air campaigns are gaining momentum in the Sierra Club. The Club's Air Quality Committee needs help in every state and congressional district. Acid rain, as we know, is damaging lakes, forests and agriculture, and poses a threat to human and economic well-being. Acidic haze, produced mostly by power plants, results in lowered visibility and mars the scenic beauty of natural areas. The Sierra Club's acid rain campaign is confronting this problem.

Major corporate interests have begun an effort to relax the pollution standards that protect public health. The automobile companies, for example, have urged the President to waive many auto emissions standards. Many utility companies, too, remain in constant violation of state or federal environmental laws, which are unenforced in many areas.

National clean air laws face organized attack. Secretary Edmund Muskie will no longer be in the Senate to champion the Clean Air Act when the battle for its reauthorization begins in March 1981. Our clean air campaign is preparing for a major fight to improve air quality. Your help will make a difference! To join the battle, contact:

C. Freeman Allen
National Air Quality Committee
394 Baisdell Drive
Claremont, California 91711
(714) 624-5823

David Kennedy
Acid Rain Campaign
2 Thursfield Crescent
Toronto, Canada M46 2N5
(416) 429-4225

Run for the Board?

The Sierra Club's nominating committee is already seeking candidates for the Board of Directors on next year's ballot. In recognition of their leadership ability, a number of Club members have already been sent a questionnaire eliciting background, qualifications and opinion about Sierra Club operation and goals. Is there someone *you* would like to nominate? The nominating committee welcomes suggestions for potential candidates. Chapters, groups or individuals should write to:

Ellen Knox
Nominating Committee Chair
1900 E. 30th Street #506
Cleveland, Ohio 44114 □

GUEST OPINION

On Billboards

NELSON PRICE

Nelson Price is a reporter with the Journal-Gazette *in Fort Wayne, Indiana. He is also a free-lance magazine writer with an interest in environmental issues.*

THEY LOOM LARGE and tall along American roads, yelling their messages in capital letters: MUFFLERS FIXED, SEE INJUN JOE WRESTLE THE ALLIGATOR, HAPPINESS HOTEL—2 EXITS AWAY, SMITH DESERVES YOUR VOTE, TRY OUR HOT AND JUICY BAR-B-Q. With just as much force and fervor, the owners of the nation's billboards have been, for more than 20 years, fighting government efforts to clean up roadways.

Outdoor advertisers encountered their biggest setback so far in 1965 with the passage of the Highway Beautification Act. But now that act, which has periodically been amended and diluted since its adoption, may be toppled completely before even half the signs it finds nonconforming have been removed.

The U.S. Department of Transportation is conducting a study to determine whether the program is worth maintaining. The investigation, which has included a series of public hearings throughout the country and the establishment by then-Transportation Secretary Brock Adams of a 25-member "blue chip" committee, probably won't be completed until next spring—"and even that's a very, very optimistic prediction," according to Richard Moeller, the Federal Highway Administration's overseer of the act.

In the meantime, enforcement of the Highway Beautification Act's provisions varies widely from state to state, and back-up federal funding has dipped while "Lady Bird's bill"—as it is commonly called because Mrs. Lyndon Johnson considered it her special project—sits in limbo.

The Transportation Department investigation will recommend that the federal government select one of three options: strengthen the Highway Beautification Program; scuttle it altogether; or, as Moeller put it, proceed "with the status quo."

Because post-1965 amendments so twist the intent of the act, some supporters of the original legislation now favor abandoning it. Senator Robert F. Stafford (R-Vermont), whose state has been one of the six best in terms of sign removal, has introduced a bill (S 344) that would make state compliance with the program voluntary. His aim is to let states and local government units enforce their own beautification policies instead of having to comply with some of the recent amendments of the national act, which he considers to have failed.

The amendment that most enrages opponents of neon jungles and billboard alleys is a 1978 addition regarding the payment of "just compensation" to outdoor advertisers whose signs are removed, even under local ordinances. The amendment specifies that the federal government will fund 75% of the compensation, with the state or city government being forced to foot the remainder of the bill. The net result, as many see it, is a financial windfall for the sign owners. The amendment is expected to inhibit many cities from clamping down on their sign-infested downtowns, which, as a New York industrial designer once said, resemble "cocktail parties in low-ceilinged rooms."

For instance, this was pre-sign-ordinance Denver of 1970: A two-mile stretch of South Colorado Boulevard was marred by the flashing neon exhibited by go-go palaces, discount furniture stores and pancake houses. Some signs were six stories tall, and one billboard stretched the length of a football field. The city was quickly losing its Rocky Mountain splendor. Colorado State Bank even promoted an "Endorse Denver's Beauty" campaign by sticking its message on billboards that obscured the view of that very city.

Then, through the efforts of housewives, environmentalists and some businesses, Denver passed a sign ordinance and improved its appearance. Other cities in the state also have enacted restrictive legislation; Boulder's law, which bans billboards and places strict limits on wall and pole signs, serves as a model.

In some municipalities, where progress has been slower or nonexistent, frustrated residents have taken upon themselves the burden of removing signs that pollute visually. In the Colorado mountain community of Allenspark, 56-year-old Maggie Walter, soon known as "Chain Saw Maggie," became a local heroine after she took her two chain saws and downed a 15-foot-high billboard advertising a condominium project. She has been charged with a misdemeanor felony, and the sheriff's department confiscated her saws, but that didn't stop admirers from selling T-shirts bearing her nickname.

In 1972, a group of Ann Arbor, Michigan, high-school boys with chain saws felled more illegal billboards in a single night than years of federal administration had done. The boys were appropriately charged with a felony. Often, the penalties set for states that have allowed nonconforming billboards to remain have not been dished out.

The states that have complied most fully with the act's intent are Alaska, Oregon, Vermont, Washington and Hawaii; the latter became a forerunner in the battle against city and roadside blight by adopting strict controls, including bans on billboards, in 1927 when the islands were still a U.S. territory.

According to the Transportation Department study, which classified the country according to regions, the Northwest (Alaska, Idaho, Oregon and Washington) has by far the best compliance record—an average of 83%—with the beautification act. In distant second place is the Rocky Mountain and Western Plains region, consisting of Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming, with an average 49% compliance. The region of the country worst at sign removal has been the Southeast. The states of Alabama, Florida, Georgia, Kentucky, Mississippi, North and South Carolina and Tennessee together average only a 14% compliance rating.

The performance of individual American cities has been similarly erratic. The Highway Beautification Act was intended to serve as an example for the drafting of local ordinances. Some municipalities, however, seem to pretend that it doesn't exist. An example is Seaside, Oregon, which has no local sign regulation at all, despite its presence in a state that, overall, has done well in billboard removal.

Ironically, the cities with the best track records for sign legislation often are resorts, too—but of a different sort. Subdued and well-planned, these communities emphasize the wonders of nature from which their fame originates: the mountains, forests and beaches that color the landscape. Carmel, California, has effectively limited all signs to small simple ones made of wood.

In 1970, Aspen, Colorado, ordered all billboards razed on approaches to the town and designated a "sign mall" area where businesses could advertise—if their signs

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met specific size regulations. The same year, Montgomery County in Maryland banned banners, moving signs and certain billboards; and the city of Medina, Ohio, hurt by criticism from a design consultant who called it Uglyville, began refurbishing its downtown business district.

The roots of national sign legislation extend back to a 1954 U.S. Supreme Court opinion by William O. Douglas. "It is within the power of the legislature," he wrote, "to determine that the community should be beautiful." Included in the Federal Aid Highway Act of 1958, which came out of Congress when Lyndon Johnson was Senate Majority Leader, were provisions allowing states to receive bonus funds if they initiated sign removal. Yet little was accomplished. In 1965, as president, Johnson announced the need for a national beautification act, saying, "It is in the best interests of neither the advertising industry nor the nation to permit a further decrease of our national beauty."

The Highway Beautification Act, which prohibited billboards within 660 feet of highways outside of commercial areas, was passed by congressional representatives with the words of Lady Bird Johnson ringing in their ears: "Ugliness is bitterness, an eroding force on the people of our land."

However, outdoor advertisers quickly found a way to circumvent the act. They began erecting jumbo-sized signs just 661 feet away from highways. The giant signs proliferated to such an extent that the act was amended in 1974 to extend the zone of control to "the limits of visibility" of motorists outside urban areas.

The amendment, however, contained wording that set the precedent for sign owners to receive public money as a result of compliance with the program. The amendment provided payment for the removal of any sign lawfully erected—for example, those put up next to a highway before 1965.

Then, four years later, came the more sweeping amendment that effectively prohibits cities or states from forcing removal through police power *unless* compensation is involved. As a result, state and city governments are increasingly reluctant to adopt or enforce sign laws—large outlays of taxpayer money could be involved.

What is the solution? Should the Highway Beautification Act be injected with new strength?

The Federal Highway Administration now is accepting public comment on the matter. Letters can be sent to the FHA at 400 Seventh Street S.W., Washington, D.C. 20590. □

Condor's Death Changes Plans
The captive-breeding plan for the California condor has been shelved—for the time being at least—following the death of a condor chick June 30 in the San Rafael Wilderness nest site. The chick died of heart failure and shock while being handled by an inexperienced field worker, as biologists watched from a nearby hill. Ornithologists concur, from viewing films of the incident, that the young bird exhibited considerable stress from struggling with the handler before it died.

Public reaction to the death was described by one person close to the program as a "fire storm." The California Department of Fish and Game and the California Resources Agency immediately revoked all permits involving capture or examination of condors. The fish and game commission is considering a resolution in support of the creation of a Sespe-Frazier Wilderness Area to protect condor habitat. Sespe-Frazier is the largest RARE II parcel in California and incorporates the Sespe Condor Sanctuary and surrounding lands.

Opponents of captive breeding argue that with only 20 to 30 condors remaining, another such accident in handling and observation cannot be risked. The Sierra Club approved revocation of the permits and has asked for a reevaluation of the captive-breeding program. Supporters of captive breeding, such as the Audubon Society, are expected to request a new permit in a few months. They pointed out that the other chick was handled without mishap and argue that the condor's chances for existence are still bleak unless a captive-breeding program begins soon.

Wyoming, Andrus Move to Preserve Air Quality
The Wyoming Environmental Quality Council has decided not to allow any Class III air in that state. Under the Clean Air Act's provisions that prevent significant deterioration of air quality, most parts of the country are designated Class II. States have the authority to redesignate areas Class I, which would allow only a slight amount of additional pollution above present levels. (Class I is the greatest protection afforded by the act.) Or they can designate areas Class III to allow substantial additional pollution. Wyoming is the first state to ban Class III air altogether. This move amounts to a statewide ban on permitting any deterioration of air quality.

Interior Secretary Cecil Andrus has recommended a change in air quality classification from Class II to Class I for 44 federal areas. Authority to change the designations lies with the state or Indian tribal governments involved. Some areas were previously placed in Class I by the Clean Air Act Amendments in 1977, including wilderness areas larger than 5000 acres and national parks larger than 6000 acres. The areas now proposed for nondeterioration are in Alaska, Arizona, California, Colorado, Florida, Idaho, Montana, Nevada, New Mexico and Utah. They include such well-known national monuments as Dinosaur, White Sands and Death Valley.

Supreme Court Backs Zoning Restrictions
A zoning ordinance that limits development in order to preserve open space does not necessarily violate the constitutional rights of property owners, the U.S. Supreme Court has ruled. The court rejected the argument of a California couple that the zoning restrictions placed on their five acres of vacant land overlooking San Francisco Bay constituted a "taking" of property without compensation. The high court thus agreed with the California Supreme Court that no unconstitutional "taking" had occurred when the city of Tiburon enacted an open-space zoning ordinance.

Several environmental groups, including the Sierra Club, argued as "friends of the court" that a ruling in favor of the property owners would jeopardize land-use regulation throughout the country. The federal government also entered the case on behalf of the city.

Deep-Sea Mining Law Enacted
President Carter has signed into law legislation allowing U.S. mining companies to explore the mineral resources of the deep sea. Bills on this subject have been considered by Congress for several years. Environmental groups were, at first, hesitant about such legislation because of the potentially significant environmental impact of deep-sea mining. They also feared that unilateral U.S. legislation would make it more difficult to achieve international agreements on such mining in the Law of the Sea negotiations. However, environmental review and protection provisions were built into the legislation adopted by Congress, and the law was designed to defer to any future international agreement.

Forest Planning on Fast Track
The chief of the U.S. Forest Service has directed that management plans for all nine national forest regions and for their 154 national forests be completed by the end of 1983. This will be the first round of plans prepared under the National Forest Management Act. Under regulations published in September 1979 to implement the act, decisions governing a wide variety of forestry issues will be made at the regional or forest level, including management of wilderness and roadless lands, streamside protection, plant and wildlife diversity, restrictions on timber harvest practices and departures from sustained yield.

This round of forest plans represents an unprecedented opportunity for the conservation community to help determine the uses and character of our national forests for years to come. But successful public participation will require review of each regional and each forest plan by citizen environmentalists. You can help by contacting the Forest Service office nearest you. Also, let us know if you want to become actively involved: Campaign Desk (Forestry), Sierra Club, 530 Bush St., San Francisco, CA 94108.

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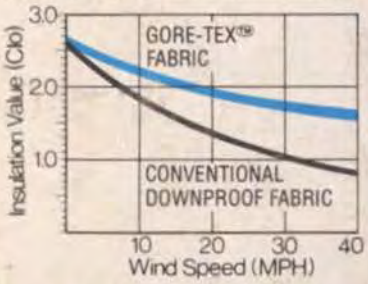

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