the Treaty nations on the subject, for example, that State Department officials have pleaded with journalists not to mention the possibility in print. Explained one official in a typical admonition, "Off the record, Antarctica could blow the conference right out of the water. Antarctic claimant nations would rather not have a sea law treaty than one that impaired their sovereignty in Antarctica."

However, Brewster, in an on-the-record interview with *Science*, was candid. "There is no doubt," he said, "that fear that the Group of 77 will bring this up in some forum at the law of the sea conference is one of the factors which is leading the Antarctic Treaty powers to focus on the issue of living resources."

A second pressure on the Antarctic Treaty nations is the fact that many nations, themselves included, are extending their own coastal fishing zones to 200 miles from shore. Seven of the 12 Treaty powers have territorial claims in Antarctica, which they maintain in principle, although the Treaty itself holds all such claims in abeyance.

When these nations extend their own fishing zones, they have a delicate choice: they can either also declare 200-mile exclusive fishing zones off the coasts of Antarctica, and thereby reassert their claims in violation of the treaty; or they can choose to *not* declare such a zone, implying that they are relinquishing their claims. A new international agreement on Antarctica's living resources will help these countries resolve this dilemma.

While under pressure to act on the resource question, the Treaty nations are anxious to avoid creating an image of themselves as a club that considers the continent its exclusive preserve. Thus,

The open belly of a whale, disgorging a recent meal of Antarctic krill. In season, many whales will eat approximately 1 ton of krill per feeding, and four such feedings daily. [Photo courtesy of the National Science Foundation, Office of Polar Programs]

they want the krill treaty to include Taiwan, West Germany, and other nontreaty nations that plan to fish for krill in Antarctic waters. In addition, the group of 12 is getting ready to admit Poland probably within a year—and bracing itself for the fact that other resource-hungry nations may wish to follow.

The Treaty says a nation qualifies for admission if it "demonstrates its interest in Antarctica by conducting substantial scientific research activity there." Poland is completing a 20-man station in the Antarctic, having an estimated value of $3 million. And, following the pattern set by the other Treaty powers, Poland has a scientific committee set up as part of her national academy of sciences to oversee Antarctic research. "The United States is satisfied that Poland qualifies to join," says Brewster.

Poland's other interest in the region, however, is krill. The chief Polish Antarctic scientist, S. R. Suszczewski, has made clear his country's interest in the "exploratory" catching of krill. And, since Poland has been recently shut out of her traditional fishing grounds in the North Sea and elsewhere by the 200-mile-exclusive fishing zones of other countries, such an interest is logical.

The Treaty powers expect that other nations, perhaps Brazil among them, will try to enter the Antarctic club and many of them, like Poland, will have more than an academic interest in resources. One Western diplomat illustrated the problem this poses for the current Treaty powers in assessing the newcomers' interest. "If General Idi Amin goes down there, and puts a couple of thermometers up, and a rain collector, and says he should have consultative status with the Treaty, should we take kindly to it?"

Zumberge, of the academy's polar research board, hopes that other countries also will want to work through the Treaty, and that the Treaty in turn will accommodate them. Referring to the days of the International Geophysical Year in the 1950's when the concept of Antarctica as a "great beautiful laboratory" gained acceptance, Zumberge says, "We were always afraid that once there was anything of real economic interest found in Antarctica the Treaty would be terribly stressed. Scientists would have liked to maintain the purity of Antarctica for scientific purposes only, but that's no longer realistic."—DEBORAH SHAPLEY

Rupert Cutler: The Environmentalist in the Farmer's Back Yard

There is a strange new face at the U.S. Department of Agriculture, and it's no mouthpiece for the Department's usual utterances.

The new face belongs to Rupert Cutler, Assistant Secretary of Agriculture for Conservation, Research, and Education. A conservationist and former lobbyist for the Wilderness Society, he now occupies a senior position in a department that has traditionally put farmers' and corporate interests above others.

Cutler should be a figure worth watching, because in order to serve the needs of his new clients and remain true to his own beliefs he will have to perform a balancing act of some delicacy.

He has already succeeded in neutralizing, at least for the moment, those who have most reason to be alarmed by his appointment. Both the forest products industry and the deans of agricultural colleges lobbied against him, but they have now acquiesced in his appointment. At his confirmation hearing on 6 April before the Senate agriculture committee Cutler was spared the roasting he might have expected, being required only to repeat each Senator's shibboleths after him. Approved unanimously by the committee, and by a voice vote on the Senate floor with only one dissenter, Cutler now presides over five agencies—Agricultural Research Service, Forest Service, Cooperative State Research Service, Extension Service, and Soil Conservation

Service, together with the National Agricultural Library—which between them have a total budget just short of one and a half billion dollars.

These agencies have their own traditions, clientele, and links to Congress; the title of assistant secretary does not automatically endow the holder with any immediate influence over them unless he also has a will of his own. "Let's just start out with the assumption that I am a pretty strong-willed guy," Cutler remarked in an interview on the day he was sworn in. "I come in here with about 25 years' acquaintance with the forestry and soil conservation programs and I have a very clear idea of where they should be going and how I would like to change them."

Cutler says he is determined to make his presence felt in the policy-making process. He plans to defend his agencies' budgets personally before Congress instead of letting the agency heads do it all themselves. He also intends to use his finance staff to prepare alternative budgets to those his agency heads give him. "The science of policy-making is to be able to choose from among alternative courses of action," Cutler explains.

He has no plans to become "a ceremonial figurehead as some assistant secretaries have ended up being."

Asked what he hopes to accomplish in office, Cutler replies: "I share Secretary Bergland's determination to change the image of the USDA from that of the servant of agribusiness to the servant of all the people, rural and urban, rich and poor, black and white.

"The main difference between this administration and some of its predecessors will be that we will show a sensitivity and concern for the quality of life, in terms of protecting environmental values, as well as being aware of the social and economic impact of our decisions, and having a more long-range planning horizon."

Cutler puts emphasis on establishing a cooperative relationship with the Environmental Protection Agency and the Department of the Interior. In doing so, he says, "We are going to try to change the image of USDA so that it is recognized as pro-environmental quality, within the constraints imposed by the need to protect the rights of farmers and ranchers and loggers to conduct their business in a profitable and logical way."

The new assistant secretary concedes that his weakest point is research, and he has appointed as his deputy James Nielson, former director of agricultural research at Washington State University, Pullman. The appointment of Nielson was a pivotal step in allaying opposition from the agricultural research community, which was alarmed at Cutler's lack of scientific background (*Science*, 4 March, p. 854). "We were really concerned and did a lot of telephoning and looked into him, but were delighted at the outcome," says Dennis Rouse, dean of agriculture at Auburn University, Alabama, and spokesman for state agricultural scientists. Asked if Nielson would have real power or if his appointment might prove just a sop to agricultural researchers, Rouse replies that it looks as if Nielson will have a free hand in research matters.

Cutler comes to the USDA from Michigan State University where he has been assistant professor and extension specialist in resource development since 1973. He taught courses in natural resources law and policy and worked with local groups on land use issues. "I was a kind of environmental ombudsman,"

Bergland to Redirect USDA Research?

Secretary of Agriculture Bob Bergland is troubled about the present state of affairs with respect to soil conservation and agricultural research, and he plans to go to the President's science adviser, Frank Press, for advice.

Referring to the heavy and continuing losses of topsoil from erosion, Bergland—speaking in a recent interview with reporters from *Science* and other publications—remarked, "I'm going to ask the science adviser to round up a panel to tell us what things will be like 25 to 30 years from now if [the situation] doesn't change." Bergland expressed concern at the intensification of pressures on the land which has resulted as much of the agricultural economy has moved swiftly from a condition of surplus to one of relative scarcity. He observed, for instance, that over the past 5 years several million acres have been converted from the growing of cattle fodder to the production of corn and soybeans—a change that can lead to a big increase in the rate of soil erosion in the absence of careful conservation practices.

Bergland also will ask Press to undertake a study of what needs to be done in agricultural research. "I must confess, I'm not very impressed with the research advice that past secretaries of agriculture have been receiving," he said.

"I suspect that a lot of money has been spent on reinventing the wheel," he added. Also, besides this suspicion that there have been far too many essentially duplicative research projects, Bergland thinks that national research needs may have been neglected in favor of needs of a local or regional character. There are two questions in particular which he believes call for a larger research effort: the effect of increasing use of nitrogen fertilizer on the atmosphere's ozone layer and its long-term implications for agriculture; and human nutritional needs. As for the latter, Bergland remarked, "We know more about the nutritional needs of a dairy cow than about the nutritional needs of children."

Asked how he planned to stop further spending for needless research, Bergland said, "I just won't sign the [research] contracts." Bergland, who owns a 600-acre farm in Minnesota, served as a Democratic congressman from 1970 through 1976; during most of the 1960's he was an official of the Department of Agriculture's Agricultural Stabilization and Conservation Service.

On becoming Secretary, Bergland expressed great dissatisfaction at his department's practice of making crop forecasts contingent on an assumption of "average weather." "In 27 years of running a farm in Minnesota, I've had average weather twice," he has told a congressional committee. "For 25 years it's been too wet, or too hot, or too cold, or too dry." Bergland has directed that the department use probability models in arriving at its crop forecasts. "I've seen work done by climatologists at the University of Wisconsin," he said. "It's an exciting, and in some ways a very frightening thing. It's kind of like [being able to] see your own life for the next year ahead." Later, he added: "We'll be the Jimmy the Greek in the agriculture forecasting business. Hopefully we can devise the odds and let people bet against or with them, as they choose."—L.J.C.

Cutler says. His doctoral research was on Forest Service litigation. Before coming to Michigan State he worked with the Wildlife Conservation, the Virginia game commission, the National Wildlife Federation, and the Wilderness Society.

It seems that Cutler's name first came to the attention of the White House talent spotters through Conservationists for Carter, one of the first groups to back Carter's campaign. The conservationists submitted candidates for a number of government posts, one of them the USDA assistant secretaryship, in which they wanted someone who would be sympathetic to their point of view in dealing with the Forest Service.

According to Cutler, the forest products industry is also pleased to have a forester in the job. "I don't have any extreme position on clear cutting or use of pest control programs. I hope I can discover a middle ground on things like wilderness proposals which won't be anathema to everybody."

As to agricultural research, it seems to be Bergland rather than Cutler who is full of ideas for change (see box). Asked what particular initiatives were contemplated, Cutler named three research areas which Bergland plans to emphasize—reducing the oil dependence of agriculture, human nutrition, and appropriate technology for small farmers. "The World Bank spends billions of dollars to help small farmers in other countries, we should spend more in this country," Cutler says. In the past "we have benefited the large producer to the disadvantage of the small producer." He intends to make better use of the extension service so as to bring to small farmers the research results the more well-to-do and corporate farmers have been getting all along.—NICHOLAS WADE

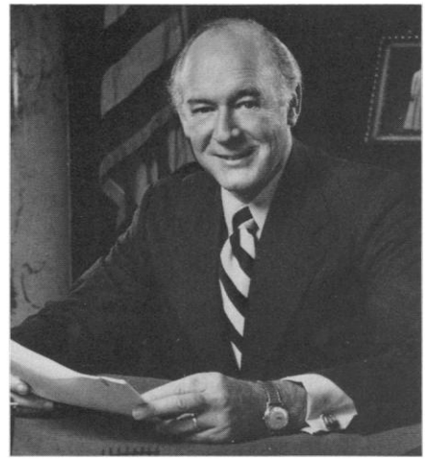
Interior Department: Andrus Promises "Sweeping Changes"

The Secretary of the Interior has always had the difficult job of establishing a balance of sorts between resource conservation and development, but how and where that balance is struck tends to vary from one administration to the next. To judge from his early actions and statements, Secretary Cecil D. Andrus will definitely put the greater emphasis on conservation and environmental protection. And, if the circumstances surrounding the bold strip-mining bill amendment that he has just submitted to Congress on behalf of the Carter Administration are a fair indication, he is receiving a surprising amount of encouragement and support from other Administration officials, including James R. Schlesinger and others responsible for energy policy.

Andrus, who has come to Interior after serving 6 years as governor of Idaho, seems to have issued his personal manifesto on matters of conservation and development several weeks ago in addressing the National Wildlife Federation. Speaking of the Bureau of Land Management's responsibility for the federal public domain lands, he observed, "The initials BLM no longer stand for 'Bureau of Livestock and Mining.' The days when economic interests exercised control over decisions on the public domain are past. The public's lands will be managed in the interest of all the people because they belong to all the people."

Then he added:

> Our President has a deep personal commitment to end the waste and misuse of America's natural resources. He is canceling the blank check which once went to those who would exploit resources and pollute the environment in the name of progress. . . . At Interior, we have begun to make sweeping institutional and policy changes to end what I see as the domination of the department by mining, oil, and other special interests. . . . We intend and have begun to break up the little fiefdoms which have divided Interior for years. For too long each of the interests—grazing, mining, timber, and so forth—has had its own domain. The place was like a centipede with each little pair of feet scuttling off in its own direction. That is going to change.
>
> Policy-making will be centralized and it will be responsive to my philosophy and the philosophy of President Carter.



Cecil D. Andrus

If the various agencies inside the Department of the Interior have had nothing resembling a common philosophy in the past, certainly it has been all the more true that Interior and some of the outside agencies with which it has had to deal have often lacked a common understanding of key conservation and development issues. For example, this was plainly evident in late 1974, when Rogers Morton, who was then Interior Secretary, wanted President Ford to sign the strip-mining control bill that had emerged from Congress after a tortuous House-Senate conference had finally produced a compromise. Nevertheless, Ford vetoed the bill, doing so at the urging of Frank Zarb, then head of the Federal Energy Administration (FEA). Along about this same time, Zarb also won out over Morton on another important issue by persuading the President to endorse a narrowly drawn energy-facility siting bill instead of a much broader land-use measure.

In sharp contrast to the situation that prevailed when Morton was being rebuffed, Secretary Andrus appears to be getting a green light from everybody inside the Carter Administration. Not only has he been authorized to express strong Administration support for the strip-mining legislation now pending in the House and Senate committees, but he has been able to propose an amendment—in which all other concerned agencies have concurred—calling for a 5-year moratorium on new strip-mining ventures on prime agricultural land.

The proposed moratorium has the coal industry up in arms. Much of the strippable coal in Illinois, Indiana, and western Kentucky is overlain by prime farmland, and the same is true of some of the strippable coal in the Great Plains region. Moreover, if Congress establishes the moratorium, it would call sharply in-