temperature and rain measurements and investigate ice formation in winter; (ii) a pedologist, who should, preferably, be also a soil microbiologist; (iii) a plant ecologist; and (iv) an animal ecologist. The investigation should mainly concentrate on Churchill Falls, but, on the other hand, the present stage of the whole area of the Twin Falls center should be estimated from the point of view of ecology. It is evident that a number of ecologists from different parts of the world could get rid of their everyday duties to gather into a working team, and the financing of the project seems to me a relatively reasonable thing in comparison with the worldwide economic wonder of Labrador.

References and Notes

1. F. K. Hare, *Ann. Ass. Amer. Geogr.* **54**, 459 (1964).
2. V. Frissell, *Geogr. J.* **69**, 332 (1927).
3. I. Hustich, *Commun. Biol. Soc. Sci. Fennica* **28**, 9 (1965).
4. H. G. Watkins, *Geogr. J.* **75**, 97 (1930).
5. E. C. Abbe, *Contrib. Gray Herbarium Harvard Univ.* **176**, 1 (1955).
6. P. Kallio and L. Kärenlampi, *Ann. Univ. Turku. Ser. A* **2**, 85 (1966) (reports from Kevo Subarctic Station No. 3); H. Crum and P. Kallio, *Nat. Mus. Can. Bull.* **216**, 87 (1967).
7. V. Tanner, *Acta Geogr. Helsinki* **8** (1944).
8. G. O. Malme, *Svensk Bot. Tidskr.* **6**, 311 (1912); E. Du Rietz, *ibid.* **8**, 272 (1914); G. Degelius, *Acta Phytogeogr. Suecica* **7**, 1 (1935); S. Ahlner, *Ark. Bot.* **29A**, (1940); ———, *Acta Phytogeogr. Suecica* **22**, 1 (1948).
9. T. Schauer, *Port. Acta Biol. Ser. B Sist. Ecol. Biogeogr. Paleontol.* **8**, 17 (1965).
10. E. A. Moxley, *Bryologist* **30**, 57 (1927); H. Crum and N. G. Miller, *Mich. Bot.* **6**, 54 (1967).
11. W. C. Wilton, *Dept. Forestry Can. Publ. 1066* (1964).
12. I. Hustich, *Acta Geogr.* **18**, 6 (1965); *ibid.*, p. 1.

13. I thank The Acris Canadian Betchel Company and Mr. Tegda, assistant manager of the company, for giving me the opportunity to collect in the Churchill Falls area.

NEWS AND COMMENT

Conservation Law II: Scientists Play a Key Role in Court Suits

If the genius of a well functioning democratic system is to have reasonable compromises emerge from the clash of countervailing forces, one can say that the forces working for environmental quality have been undermanned and outgunned. At the moment, however, anti-pollution and other conservation issues have taken hold politically, and prospects for achieving gains for conservation have seldom been better. Conservationists are seeking to commit to the battle all the branches of government, the legislative, the executive, and—the judicial.

In view of the size and complexity of the environmental crisis, the best hope for coping with it surely lies in action by the legislative and executive branches. Citizens' suits and court rulings alone can never do more than a patchy, limited job of environmental protection. But environmental lawsuits, such as those which will be described here, are likely to play a significant role, especially by making the process of decision-making followed by government administrative and regulatory agencies more responsive to environmental concerns.

For instance, a suit now pending before a U.S. district court in Colorado is being closely watched by conservationists. If it succeeds, the U.S. Forest Service and other federal agencies will know that, in making plans to dispose of resources under their control, they had better be prepared, through careful assessments of the alternative uses for those resources, to justify their decisions publicly—and perhaps in court. The Colorado case boils down to a charge by the Sierra Club, the Colorado Open Space Coordinating Council, and other parties that the Forest Service has, in deciding on a sale of old-growth timber near the Gore Range–Eagle Nest Primitive Area, neglected its statutory obligations by not properly assessing the wilderness and recreation values affected.

In the first of these articles on conservation law (*Science*, 19 January), two somewhat radical theories aimed at making the lawsuit a major weapon of conservationists were discussed. One of these was the theory that the Constitution's Ninth Amendment, which says that the enumeration of certain rights elsewhere in the Constitution does not deny other rights retained by the people, can be invoked against polluters and others who disturb the environment unnecessarily.

The other was the public trust doctrine, an ancient theory, given only limited application by courts in the past, holding that the sovereign (the government) has the responsibility of protecting all lands, public and private, from abuse. Wide acceptance by the courts of either of these doctrines would be a breakthrough for conservation. But, in any event, conservationists are beginning to make effective use of the courts, although the usable precedents are still relatively few.

One such precedent may have been set last July when a federal appeals court, responding to the eleventh-hour petition of some Colorado scientists, prevented the destruction of the 34-million-year-old Florissant Fossil Beds by land developers. The court enjoined the development activity long enough for Congress to complete action on legislation establishing a fossil beds national monument. Estella B. Leopold, a paleobotanist at the University of Colorado (and daughter of the late Aldo Leopold, a noted conservationist), had testified that "the Florissant Fossil Beds are to geology, paleontology, and evolution what the Rosetta Stone was to Egyptology and what the Dead Sea Scrolls are to Christianity."

Citizens have often been denied "standing" to bring suit to block government actions or to have a nuisance abated unless they personally faced or were suffering loss or injury, to a degree not shared by the public generally. However, two Wisconsin conservation groups, with the help of the Environmental Defense Fund, the Long Island–based legal action group (see box), were able to petition—in an exhaustive state administrative hearing—for a ban on the use of DDT. And although the Wisconsin statute (enacted in 1943) allowing such proceedings is unusual, citizens in many states may now go to court and challenge government policies and activities which they deem to be harmful to the environment.

In a paper presented in September at the Conservation Foundation's conference on environmental law, Louis

NEWS IN BRIEF

● **CONGRESS PASSES COAL MINE SAFETY BILL:** The strongest coal mine health and safety bill ever passed by Congress has been sent to the White House, but there have been hints that the President—who originally supported the bill—might veto it. The bill includes a federally operated compensation program for miners disabled by the "black lung" disease; the administration opposes the provision as too inflationary. The administration estimates the bill would cost $385 million a year, but congressional sponsors say it would cost not more than $60 million the first year and less afterward. The administration also opposes the bill because it places the compensation program in federal hands, unlike other workman's compensation programs. The bill also sets permissible limits on coal dust in mines, and imposes other safety standards.

● **PERILS OF CARBON MONOXIDE:** Carbon monoxide contamination of air is a growing menace to the nation's health and should be given special study, according to a report issued by the National Academy of Sciences. The report, "Effects of Chronic Exposures to Low Levels of Carbon Monoxide on Human Health, Behavior, and Performance," is an extensive collection and evaluation of research on carbon monoxide. The report examines, for example, the impairment of mental functions which carbon monoxide seems to cause at certain levels after certain periods of exposure. The report can be obtained free from the Division of Medical Sciences, National Research Council, 2101 Constitution Ave., NW, Washington, D.C.

● **WILSON INTERNATIONAL CENTER:** The new Woodrow Wilson International Center for Scholars in Washington is now seeking applications and nominations, due 15 January, for fellows to be in residence next fall. Fellows will be chosen from both academic and professional fields for varying periods of study. For the opening period of the Center, the trustees have designated two subjects as areas in which applications are "specially invited and encouraged": the development of international law for the oceans; and late 20th-century man in perspective. Information and applications can be obtained from: Woodrow Wilson International Center for Scholars, Smithsonian Institution Building, 1000 Jefferson Drive, NW, Washington, D.C.

● **AIR FORCE ENDS SAUCER HUNT:** The Air Force has ended its investigation of unidentified flying objects after 22 years and 12,618 investigations. Project Blue Book, the program's code name, could not be continued "either on the ground of national security or in the interest of science," said Air Force Secretary Robert C. Seamans, Jr. An Air Force-financed report done earlier this year by the University of Colorado, which was later endorsed by the National Academy of Sciences, recommended that no further official studies of UFO's be made, but scientists who are interested should receive funds.

● **RADCLIFFE VACATIONS:** Prospective Radcliffe freshmen this April will receive, along with a letter of acceptance, an invitation to take a year off without losing their places at college. Dean David K. Smith of the Admissions Office said this option has always been open to freshmen, but not publicized; the intent behind wider publicity is to indicate clearly to parents that Radcliffe approves of the option. "A lot of kids have been on a treadmill, and this will give them time to think," Smith said. Places left vacant will be filled from those on the waiting list.

● **GRANTS TO CHURCH COLLEGES CHALLENGED:** Fifteen Connecticut taxpayers have filed suit against federal and state education officials contending that federal grants to church-related colleges are unconstitutional. The citizens charge that the grants, given under the Higher Education Facilities Act of 1963, violate the First Amendment prohibition against laws "respecting an establishment of religion." Government officials say $1.4 billion has been granted to colleges from 1964 to 1968 under this act; about 10 percent of the total has gone to church-related schools. The grants have partially financed libraries, laboratories, a science building, and a humanities building. The case, known as *Tilton v. Finch*, is being heard by a three-judge panel; it is expected to go eventually to the Supreme Court.

L. Jaffe, a Harvard law professor, said that 29 states allow any citizen to file suit to contest official conduct which is alleged to be illegal and that, in at least 27 states, any taxpayer has this privilege. "I would conclude that the constitutional obstacles to [such citizens'] suits . . . are becoming less and less significant," Jaffe added.

Scenic Hudson is a case, which, although the dispute that gave rise to it is still unresolved, has established two important precedents—federal regulatory bodies have been told to give greater weight to esthetic values and to allow conservation organizations to intervene in cases that raise environmental issues. In 1965, the U.S. Second Circuit Court of Appeals set aside an order of the Federal Power Commission (FPC) granting the Consolidated Edison Company a license to build a pumped-storage hydro-power facility at Storm King Mountain on the Hudson River. The court directed the commission to reopen the matter and to consider the preservation of natural beauty as well as such factors as the economics of power generation. The decision was appealed, but the Supreme Court declined to review the ruling.

In later FPC proceedings, the Scenic Hudson Preservation Conference, the Sierra Club, and other conservation organizations sought to show that Storm King Mountain is not merely pretty but uniquely beautiful. Specialists in cartography, landscape architecture, and art history were called to testify. They pointed out, for example, that although a number of rivers cut through the Appalachian Mountains, only the Hudson cuts through at sea level and achieves the effect of a fjord. Thus, these experts argued, even though the appreciation of natural beauty is subjective, certain objective esthetic standards can be applied. An FPC hearing examiner has since recommended that the Storm King project be approved, and the Commission may yet grant the license. But the precedents established in *Scenic Hudson* already have proved useful to conservationists in other suits.

For example, the Sierra Club, citing *Scenic Hudson* and certain other precedents, gained standing to bring suit against federal agencies to block construction of an expressway along the Hudson River, a segment of which was to be built on filled land in the river itself. The Sierra Club's attorneys dredged up an old statute pertaining to navigable waters which says that no dike or causeway may be built in the

river without the consent of Congress. A U.S. district judge, ruling that this statute applies, has decided the case in the Sierra Club's favor. The defendants have appealed.

In another suit, the Sierra Club is trying to keep the U.S. Forest Service from allowing Walt Disney Productions, Inc., to build a ski resort in Mineral King Valley in the Sierra Nevada. As in the expressway case, the club's attorneys have searched the statutes and come up with provisions which they contend make the proposed development illegal. They also say that pub-

Environmental Defense Fund: Yannacone Out as Ringmaster

The Environmental Defense Fund (EDF), a unique conservation organization that has done much to stimulate interest in environmental law among scientists and others, has been known especially through the activities of its ebulliently aggressive ringmaster and general counsel, Victor J. Yannacone, Jr. Now, however, it appears that Yannacone either will be merely one member of a team of EDF attorneys or will have no role whatever with EDF, which is adopting a broader legal strategy and a quieter demeanor than it has had in the past.

Last winter, Charles F. Wurster, Jr., one of EDF's founders and chairman of its Scientists Advisory Committee, spoke warmly of Yannacone. "Vic really thinks he can save the world," Wurster said. "He's a brilliant guy. If you aim him in the right direction, he'll raise hell." Recently, however, EDF concluded that it could no longer guide Yannacone in the manner desired and decided to replace him as its general counsel, although Yannacone may continue to represent EDF in certain litigation, such as EDF's air pollution suit in Missoula, Montana.

EDF was established in the fall of 1967 as the outgrowth of an anti-DDT suit in a Suffolk County (Long Island) court. The prime movers were Yannacone, a 31-year-old Patchogue, Long Island, attorney, and Wurster, an assistant professor of biology at the State University of New York at Stony Brook (*Science*, 22 December 1967). There were other conservation law groups already in existence, but EDF was something new—a scientific organization dedicated to use of the courts for environmental protection.

Its Scientists Advisory Committee, on which Wurster now says more than 200 scientists have accepted membership, was set up in order that EDF might draw on the best talent in the scientific community. EDF soon became widely known, especially for its suits and petitions in the Midwest against use of hard pesticides, and it began receiving numerous appeals from around the nation to intervene in environmental controversies. EDF has received much of its financial support from funds raised by local groups, such as the Citizens Natural Resources Association of Wisconsin, which a year ago petitioned the Wisconsin Department of Natural Resources to ban use of DDT. The Ford Foundation also has supported the Wisconsin action, although it has chosen to do so indirectly, through the National Audubon Society's Rachel Carson Fund.

Yannacone is a bustling, flamboyant lawyer with a brash style ("sue the bastards" has been his slogan), a love of rhetoric and the center stage, a confessed distaste for preparing briefs, a quick grasp of scientific information, and a gift for examining (and cross-examining) scientific witnesses. Over the last 2 years few if any young attorneys have received more publicity than Yannacone. He generally has scorned the usual legal approaches (such as the bringing of conventional nuisance suits against polluters) and has sought to have the courts declare that citizens have a constitutional right to protection from pollution and other environmental insults.

Now, the board of trustees and staff of EDF feel that, while the effort to establish constitutional safeguards should not be abandoned, other available legal strategies also should be pursued. EDF is acting accordingly—for example, with its October petition to the Secretary of Agriculture, stating that the law requires him to ban all use of DDT. Earlier, EDF had rejected as unpromising Yannacone's proposal to bring a $30-billion damage suit against DDT manufacturers as a "class action" on behalf of all citizens of the United States; Yannacone finally filed this action with his wife as plaintiff.

The Long Island *Press* recently quoted Yannacone as attributing his problems with EDF partly to this suit, which he said some trustees regarded as an embarrassment to EDF in its efforts to obtain a grant from the Ford Foundation. However, according to Reginald C. Smith, an attorney EDF hired several months ago to represent it in its dealings with its general counsel, the suit had nothing to do with the "strained relations" between EDF and Yannacone. The trouble, he said, grew out of Yannacone's "evident lack of respect [for] the EDF trustees" and his failure to take direction.

Roderick A. Cameron of Stony Brook, an attorney and executive director of EDF, told *Science* that EDF was getting a "bad deal" and that Yannacone, who, besides representing EDF, has carried on a private law practice of his own, had not been doing enough work for EDF to earn his $5,000-a-month retainer. Yannacone's written agreement with EDF included the provision that any time his work took him more than 100 miles from home for more than 3 days at a time, he was entitled to take his wife and son with him, and that accommodations for travel, meals, and lodging were "to be first class at all times."

EDF's new general counsel is Lee Rogers, a 37-year-old Oregonian who has been a tax attorney for the U.S. Department of Justice. EDF has set up a legal advisory committee and is establishing a network of attorneys around the country which it can call on for advice and courtroom work. For his part, Yannacone, whatever his future relations with EDF, plans to continue his practice of environmental law. He is presently one of the attorneys in a suit in Colorado raising allegations of environmental hazards against the U.S. Atomic Energy Commission and its Project Rulison, in which a 40-kiloton nuclear device was detonated 8000 feet underground in September to allow recovery of natural gas from a rock formation.—L.J.C.

lic hearings are required by law and have not been held. A federal district court has temporarily enjoined the carrying out of plans for the resort, but the case has not yet been decided.

As in the question of whether a party has standing to sue, burden-of-proof rules can be critical to the outcome of a court case. And, in the past, the burden of proof generally has fallen on the conservationists bringing the suit. However, a 1966 ruling of the New Jersey Supreme Court is viewed by some legal scholars as a sign that judicial attitudes on this point are changing. Texas East Transmission Company was condemning a right-of-way for a gas pipeline across a wooded tract owned by Wildlife Preserves, Inc., a private nonprofit organization, which insisted that the project would be less damaging ecologically if the pipeline were routed across a marsh.

The court held that, since Wildlife Preserves, Inc., was devoting its land to conservation objectives often pursued by government itself, it should not be required to carry as heavy a burden of proof as the ordinary property owner who protests that the condemnation of a particular piece of land is arbitrary. It said, in effect, that if Wildlife Preserves, Inc., made out a *prima facie* case, the burden of proof would shift to the company. The case ultimately was decided in the pipeline company's favor, but not until the trial judge was satisfied that the upland route for the pipeline was as acceptable ecologically as the marshland route and that special protective measures would be taken.

Environmental lawsuits are often supported on a shoestring by the fund-raising efforts of local conservation groups, whereas the defendants are generally well financed industries or government agencies. The struggle is not so unequal as it might seem, however, for the conservationists frequently can call as expert witnesses environmental scientists who are leading men in their fields. These scientists usually receive no more for their services than expense money and the satisfaction of striking a blow in a holy war.

In the hearings on DDT in Wisconsin last winter, for example, the Environmental Defense Fund (EDF) produced witnesses from fields such as fishery and wildlife biology, botany, entomology, chemistry, and pharmacology. These witnesses were all unpaid volunteers, some from the University of Wisconsin, while others were from universities and laboratories in California, New York, and other distant places. The attack in Wisconsin on DDT, which was well publicized nationally and undoubtedly helped to create the present climate of concern about this pesticide, was undertaken on the initiative of the Citizens Natural Resources Association, a small but ecologically sophisticated Wisconsin group in which scientists are prominent.

Clearly, if conservationists should find the courts increasingly willing to help protect the environment, a heavy debt will be owed ecologists and other environmental scientists. In fact, the conservation movement probably would be doomed to deepening frustration and failure if it were not taking on a scientific rationale. In a crowded world, with increasing competition for resources, the most persuasive appeals for conservation are likely to be those supported by hard evidence of impending environmental upsets, large or small.

In hopes of forestalling one such upset, the Florida Defenders of the En-

AMA Research Institute To Close

The American Medical Association (AMA) has decided to close its 4-year-old Institute for Biomedical Research in Chicago.

A spokesman for the AMA said the institute was being closed "reluctantly" for financial reasons: the AMA estimates that a new tax provision passed by Congress, calling for taxation on advertising revenue in the publications of nonprofit organizations, will cost it about $6 million next year. The AMA had budgeted $1.4 million for the institute, which houses its 35 staff members in the AMA headquarters building in Chicago.

Money, however, is not the full explanation for the closing. The director of the institute, George Beadle, told *Science*: "When I came to the institute in 1967, the financial problem was indicated as not a problem. The tax was known about then as a probability." Beadle added that he doesn't think "the AMA House of Delegates was ever firmly committed to the institute."

Since its inception, the institute has not quite lived up to its expectations, partly because of very high expectations and partly because of internal difficulties. (See *Science*, 29 December 1967.) "The beginning of a dream come true," exclaimed Roy Ritts, Jr., the first director, when the institute was dedicated in 1965. The idea was to have a research center where staff members could work free from the requirements of teaching, grantsmanship, and, in the words of the president of the AMA's Education and Research Foundation, "the far too many unnamed compulsions and even irritations that have confronted research in America." By 1967, however, it was apparent that not all the scientists considered the institute irritation-free. Director Ritts left for a position at the Mayo Clinic and Nobel laureate Sir John Eccles resigned too. Beadle, a Nobel laureate who was retiring as president of the University of Chicago, became director of the troubled institute, but he would take the job only on the understanding that the institute would move to a university while remaining under AMA auspices. Relevant AMA officials accepted this condition, although Ritts predicted it meant "the demise of the institute." For two years, the AMA negotiated with the University of Chicago about the move, but then the AMA House of Delegates voted to drop the institute altogether at its most recent meeting on 2 December.

One source, who wished to remain anonymous, suggested that the AMA probably could have continued to support the institute at its present budget but that the move to the university, which he said was insisted upon by Beadle, was turning out to be something like twice as expensive as the original estimate of about $5 million.

In making its decision to close the institute, the AMA authorized necessary transitional funds while the scientists there find other positions. Beadle told *Science* that he is still hoping to move the whole institute to a new home, but this, he admits, is "a long shot."—JOEL R. KRAMER

The Nineteen-Sixties: A Not So Fond Farewell

Research in the late decade
Has had an ending retrograde;
In retrospect the budgets show
An early surge, a late plateau.
The balance sheet, though, does provide
Strong entries on the credit side.
Opus maximus, feat outstanding
Was, of course, the lunar landing.
A politico-technical display of ability
From Bay of Pigs to Sea of Tranquillity.
By grace of Hill, Fogarty and Shannon,
NIH prospered with science and mammon,
Though praises it garnered did not always count in
The books of the Hon. L. H. Fountain.

The top jobs went in many cases
To familiar names from familiar places,
Wartime alumni still were picked
From old Rad Lab and Manhattan District.
Kistiakowsky gave White House tutelage
Followed by Wiesner, Hornig, and DuBridge.
NSF's theme was "funds denied,"
While Waterman, Haworth, and McElroy tried.
At the Academy, designs grew grander,
As Bronk was succeeded by Seitz then Handler.

And as the Sixties went their way
They yielded harvests of cliché:
"Spinoff," "tradeoff," "paradigm,"
"Brain drain," and, perhaps supreme,
The phrase from friends across the sea
For gaps in their technology.

Engendered on the New Frontier,
Change was in the atmosphere;
With Berkeley, Watts, and Vietnam
Turbulence succeeded calm.
On the campus things grew hotter:
Up against the wall, O Alma Mater!
Teach-ins, sit-ins, power grabs
Penetrate the ivory labs.

Used to praise, scientists find instead
Their image now stood on its head.
No longer a priesthood or fifth estate,
They're regarded as pawns, not masters of fate,
And begetters of whatever may trouble you,
The Bomb, pollution, or CBW.

To sum up, as the decade ends
The future's dim but present trends
Which Congress seems intent upon
Mean less pure research for Pentagon,
A larger stake in work on genes,
A smaller one for big machines,
More slowdowns then, but no demise
For scientific enterprise.

And looking back, as on a graph,
The Sixties rate this epitaph:
For science, big and little both,
An end to exponential growth.

—JOHN WALSH

* * * * * * *

vironment, a group made up largely of scientists from the University of Florida and other institutions, has had EDF sue the U.S. Army Corps of Engineers to stop construction of the $160-million Cross Florida Barge Canal, a project which already is far advanced and which will be hard to turn off. The Florida Defenders say that the project is a "crime against nature" that will destroy the Oklawaha River Valley as a wilderness area, turn much of the river into weed-choked or algae-laden impoundments, and alter drastically the flow of nearby Silver Springs (a major tourist attraction). If the case comes to trial, the Florida Defenders will provide a string of expert witnesses from fields such as limnology, plant ecology, and hydrology.

Ecology is not yet a mature science, and ecologists sometimes cannot predict with certainty the consequences of human intervention in an ecosystem. However, as the predictive capabilities of ecology are improved, this rapidly developing glamour science will become increasingly important to the resolution of environmental issues, in the courtroom as well as elsewhere.

David Gates, director of the Missouri Botanical Garden and leader of a new discipline dubbed "biophysical ecology" (wherein the relationship between an organism and its environment is analyzed as a function of energy, gas, and nutrient exchange), believes that eventually predictive models will be developed that will allow scientists to forecast the effect on the environment of various kinds of human activities, such as the clearing of forests from wide areas and the polluting of the atmosphere.

Of course, a court confronted with a lawsuit involving highly complicated environmental questions may doubt its competence to handle the matter. But courts can and sometimes do appoint technically trained special masters to hear cases believed to be beyond the ken of trial judges. The Wisconsin DDT hearings, a quasi-judicial proceeding, were conducted by an experienced examiner who had some background in chemistry and biology; no one doubted his grasp of the scientific issues raised.

Yet it is not uncommon for an ordinary trial judge to sort out and decide the issues successfully in an environmental law case. The judge in the New Jersey wildlife preserves case has confessed that, early in the proceedings, he went to the dictionary to look up "ecology," a word at that time unfamiliar to him. But, according to Joseph Sax of the University of Michigan Law School, who has made a study of the New Jersey case, the judge did a masterful job and rendered an opinion with which it is difficult to quarrel.

As Sax points out, there was never a question of the judge's substituting his judgment for that of the pipeline engineers on any matter in which these engineers were the acknowledged experts. Rather, his task was to hear the

environmental experts who testified—some representing the plaintiffs and others representing the defendants—and to decide whether, from the standpoint of protecting the wildlife preserve from needless damage, the utility's administrators and engineers had planned wisely. Neither judges nor the administrators who run utilities and public works agencies are experts on environmental issues. But judges, who ordinarily are not ax grinders, should be better than the administrators at listening impartially to those who are experts on these issues.

As the cases discussed here suggest, conservationists look to the courts for help in making industry, public utilities, and administrative and regulatory agencies give substantial weight to natural values and environmental protection. Such considerations often have been treated as matters of secondary concern by industry and by these agencies, as well as by the stockholders, special "clientele," and political interests which influence their policies. Sax points out the irony of the situation: "To make the democratic system respond properly to the environmental crisis, conservationists are going to the judiciary, the least democratic branch of government."—LUTHER J. CARTER

State Technical Services: Congress Swings the Axe

In the ordinary cliff-hanger, the heroine is rescued in the nick of time. But last week a modest Commerce Department program to help small industries apply new technology succumbed to a change in the script. The Congressional express finally ran over Pauline. The State Technical Services (STS) program, born in 1965 with a glowing prospectus, was cut off without a cent of grant money on 20 December by a Senate-House conference committee on supplemental appropriations.

Despite proud beginnings, STS in its short life never gained much popularity or financial support on Capitol Hill, although it seemed to have the goodwill of most state governments. After initial doubts, the Nixon Administration decided to give the Great Society orphan another chance last month and asked $5 million to continue grants to states at about the same rate as last year. A major factor in the decision was a report by Arthur D. Little, Inc., on economic benefits produced by the program.* But because of the hostility of a powerful House subcommittee chairman and the rush of last-minute business, the request was rejected.

It is hard to predict what will happen now to the STS attempt to establish an industrial extension service modeled on the Agricultural Extension Service for farmers. Enough funds remain to pay the Washington staff for 6 months. But the last of the 1969 federal grants to states is being spent, and therefore many of the state programs may have to be disbanded in the next few weeks.

In 1965 President Johnson hailed the State Technical Services Act as the "sleeper" of the year and declared, "If we had had this legislation 25 or 30 years ago, we might have prevented the economic depression that today exists in Appalachia" (*Science*, 24 September 1965). The authorizing legislation contemplated a rapid expansion over 3 years, from a funding level of $10 million to a level of $30 million. But, as with many another Great Society scheme, the scope of the State Technical Services program fell far short of the architects' intentions. (The Johnson Administration originally proposed a 5-year, $140-million program.)

Congress appropriated $3.5 million for the first year of operation and $5.3 million for fiscal 1969, the last full year of operation, a slight decline from the level of the previous year. (By contrast, the current federal budget for the Agricultural Extension Service is over $100 million.) The bulk of federal STS funds are made available to states, on a one-for-one matching basis, to support services designed to disseminate technological information to industries through person-to-person contact by field service representatives, and by means of conferences, demonstrations, and special courses. To qualify for federal aid, the states must draw up 5-year plans for developing technical services programs. Typically, the states contract with universities and technical schools to provide most of the services. In 1969, 47 states drew on such federal aid (all but Florida, Maryland, and North Dakota). Obviously $5 million does not go a long way when spread over that number of states; the largest federal grant to a single state (New York) was $355,000 in fiscal 1968.

In part the Office of State Technical Services suffered from the common, Vietnam-induced scarcity of federal funds. But another reason for its neglect by Congress was the low regard in which it is held by the House Appropriations Subcommittee for the State, Justice, and Commerce departments, headed by Representative John J. Rooney (D–N.Y.).

Rooney's dislike of the program came through clearly in hearings on 25 November on the Administration's request and in the decision of his subcommittee on 10 December to deny any new funds for the program. Rooney dismissed the Little report, outlined below, as "a lot of bosh and nonsense" and ridiculed Assistant Secretary of Commerce for Science and Technology Myron Tribus for defending STS activities, which he contended should be handled by other programs of the Department of Commerce, including the Economic Development Administration (EDA) and the Office of Field Services. Some observers trace Rooney's skepticism to past friction between the subcommittee and former Assistant Secretary of Commerce for Science and Technology J. Herbert Hollomon, who was the enthusiastic sponsor of the State Technical Services Act (and probable source of President Johnson's 1965 remarks). Hollomon departed Commerce in 1967 to become president of the University of Oklahoma, leaving the STS program something of a bureaucratic stepchild.

Whatever the reason, for supporters of the program Rooney appeared in the role of the mustachioed villain on 20 December, insisting successfully on

* *Program Evaluation of the Office of State Technical Services* (Department of Commerce Clearinghouse for Federal Scientific and Technical Information, Springfield, Va., 1969); $3.00, paper; $0.65, microfiche.