Acid Rain Report Allegedly Suppressed

Last spring, a House subcommittee voted 10 to 9 to scrap a key proposal to control sulfur dioxide emissions and, by doing so, killed any hope that Congress would pass legislation in this session to regulate acid rain. The outcome of the close vote might have been different, however, if an important report that advocates action opposed to the Administration's current acid rain policy had been released beforehand, says Representative Norman D'Amours (D–N.H.).

D'Amours recently charged that the White House science office suppressed a report that recommended the federal government take immediate steps to reduce emissions of sulfur and nitrogen oxides. The report was submitted to the Administration in early April. The House subcommittee voted on the acid rain regulations in May. The Office of Science and Technology Policy (OSTP), which released the report on 31 August, denies it suppressed the document.

The Reagan Administration has insisted that the acid rain problem needs more study before regulations can be formulated. The report, written by a nine-member scientific panel chaired by William A. Nierenberg, director of Scripps Institute of Oceanography, concludes that a reduction of 25 percent in deposition would significantly improve the acid rain problem and also that current federal research is misdirected. The panel, which was created by presidential science adviser George A. Keyworth, reached these conclusions after reviewing the quality of acid rain papers going into a joint U.S.-Canadian treaty document.

Thomas Pestorius, a senior policy analyst at OSTP in charge of the report, defended the timing of the release, asserting that the report was not actually completed until July. Pestorius said that Nierenberg and another panel member, Columbia University physicist Malvin Ruderman, were changing the report's summary as late as July. When asked who requested the changes, Pestorius said, "We asked [Nierenberg] to expand the executive summary. It took 5 months to negotiate the changes." But despite the changes, the version submitted by the panel is virtually the same in substance as the one recently released by the science office. Kenneth A. Rahn, a panel member and atmospheric chemist at the University of Rhode Island, said in an interview that the facts are the same. He notes, however, that paragraphs were reordered and material added from the body of the report that changed the tone of the original summary. The net effect, he said, is that the new summary weakens the panel's message that the federal government should take action now. The panel as a whole was not consulted before the changes were made, Rahn said.

According to a Boston *Globe* article on 15 August, Nierenberg reportedly said that he thought the report was completed in May. He is quoted as saying that "somebody in the White House ought to print the damn thing. I'm sick and tired of it." Nierenberg, who is on vacation in Europe, could not be reached for comment.

—From *Herblock Through the Looking Glass* (W. W. Norton & Co., New York 1984).

Pestorius also asserted that the panel's principal conclusion—that immediate steps should be taken to reduce acid rain—were disclosed in an interim report that Nierenberg released at a press conference more than a year ago.

But panel members note that the version submitted to the White House in April had the imprimatur of being a final, not a preliminary, report. Furthermore, the findings presented in their final document considerably underscored the need for immediate action. Rahn said that the panel, in its final report, reached an important conclusion in calling for a 25 percent reduction in deposition. Rahn said that the debate over reductions has focused on a target of 50 percent. "We concluded that you don't have to paint this as an all or none debate." A 25 percent reduction, according to the report, would protect almost all aquatic life, such as plants and fish, although the chemistry of lakes and ponds would still change.

The panel was also highly critical of the direction of current federal research. The government has emphasized the development of computer modeling, investigations into the origins of acid rain, and the study of mechanisms through which emissions are converted to sulfuric and nitric acids. The panel says the government should give highest priority to assessing the ecological effects of acid rain and worry about these other areas later. "Ecological consequences are the *raison d'être* of the problem . . . It is critical that *new* funds be made available both to initiate additional studies and to continue and expand present studies." —**Marjorie Sun**

OTA Studies U.S.–Soviet Space Cooperation

Worries about "technology transfer" and a "one-way street" to the contrary, cooperation with the Soviet Union on space science has greatly benefited the United States in the past and could prove even more productive in the future, according to a panel of scientists recently convened by the Office of Technology Assessment (OTA).

In fact, the danger may lie in not cooperating: the panel members pointed out that the Soviets have been improving their capabilities so rapidly—and have been pursuing non–U.S. partners so vigorously—that the Americans might one day find themselves isolated in space science.

The Workshop on Possible Future U.S.–Soviet Space Cooperation, held on 8 May at OTA headquarters, was actually part of a larger OTA study on

U.S.–Soviet space cooperation that is due for completion in late October; the workshop findings were officially released on 13 September in hearings before the Senate Foreign Relations Committee.

The 13 workshop participants, chaired by radio astronomer Bernard Burke of the Massachusetts Institute of Technology, were chosen for their experience in scientific collaboration with the Soviets. They agreed that past exchanges have been quite fruitful, especially in such areas as space medicine, where the Soviets have shared data on bone loss and cardiovascular deconditioning in long-term manned spaceflight; and lunar and planetary studies, where one nation's data has helped the other to plan its subsequent spacecraft missions.

In May 1982, however, the Reagan Administration retaliated for the declaration of martial law in Poland by refusing to renew the 10-year-old agreement on U.S.–Soviet space cooperation. Since then, according to the workshop participants, the interchanges have declined steadily as previous arrangements are concluded. Although some important interchanges have continued—a prime example being the synthetic aperture radar imagery of the surface of Venus from the Soviet Venera 15/16 mission—and although Soviet scientists consistently express a desire to cooperate further, little can be done without a formal framework.

At the same time, the consensus of the workshop was that Soviet prowess in space science has been improving rapidly. Venera 15/16 was planned and launched in 18 months, far faster than the U.S. missions are mounted. The Soviets have also taken the lead in the exploration of Halley's comet in 1986 with their Vega spacecraft. The United States will not even be sending a spacecraft.

The workshop participants also noted that with the Soviets' increased capabilities in space science, there has come an increased openness and self-confidence. Numerous joint missions and hosted experiments have been flown with France and West Germany, and there is talk of international missions to both Mars and Venus.

The biggest stumbling block to renewed U.S.–Soviet cooperation appears to be the concern over technology transfer. While the workshop participants felt that the concerns were exaggerated in the case of space science, they agreed that so long as suspicions remain high, the most workable exchanges will continue to be joint discussions, data analysis, and planning of separate missions—without an exchange of hardware.

—M. MITCHELL WALDROP

Research Council Backs Competition for Shuttle

A controversial proposal by the Air Force to build a new fleet of expendable rockets received a boost from the National Research Council on 4 September. In a 28-page report drafted by a committee of outside experts, the council said that the development of such rockets—to be used primarily for launching important military satellites—would add "flexibility and security" to the nation's space program.

The idea, which would essentially resurrect 20-year-old technology as competition for the space shuttle, has been fiercely opposed by officials of the National Aeronautics and Space Administration (NASA). They had hoped that by 1988, when the rockets are to be constructed, only the shuttle would be available to ferry military satellites, and they resent the unanticipated rivalry, which threatens to sharply increase shuttle costs (*Science*, 29 June, p. 1407).

The committee, which included several former Pentagon officials or contractors and only one former NASA official, cited several arguments in favor of developing a second, rocket-based launch system, including the need for additional government secrecy. "It may be necessary to launch a sensitive and militarily important security satellite without the public exposure that has become the norm in NASA flight operations," the report stated. The committee also noted that it is unclear "from the data currently available" whether the shuttle "can ever be more economical than [expendable rockets] for launching unmanned [military] payloads."

The committee, acting on a request from the House and Senate appropriations committees, technically was not supposed to address the merits of building the new rockets. Its mandate was instead to compare three different rocket designs—two proposed by aerospace corporations and one proposed by NASA, using space shuttle components. But it largely ducked this question, claiming that the designs were roughly equivalent, and that a meaningful comparison of costs was impossible in the 5-month study period. Congressional staff aides have expressed disappointment that a more detailed assessment of the alternatives was not provided.

According to Robert Fossum, a former director of the Defense Advanced Research Projects Agency who served as the panel's chairman, the reason this was not done is that the Air Force had already begun a formal design competition by the time the committee was formed, which prevented the committee from gaining access to detailed information about the proposals.—R. JEFFREY SMITH

Antibiotics and Animal Feed: A Smoking Gun

For years, researchers have strongly suspected that subtherapeutic use of antibiotics in animals can lead to human disease but have never been able to find direct evidence. Now they have it, according to a paper published in the *New England Journal of Medicine* on 6 September.

After a painstaking study, Centers for Disease Control scientist Scott Holmberg and colleagues traced the illnesses of 18 people to hamburger made from cattle that were fed low doses of antibiotic as a growth promoter. In effect, the cattle became factories of drug-resistant *Salmonella newport*. Twelve of the patients may have been particularly vulnerable to infection because they were taking antibiotics before becoming sick. Researchers were able to pinpoint causality in part by matching the bacteria's biological fingerprint in samples taken from the cattle to those from the patients. Analyses revealed that plasmids from the various bacterial samples were all the same.

The findings are likely to rekindle the debate over the use of antibiotics as growth promoters in animals. Lawmakers have persistently rejected calls to end their use.—MARJORIE SUN