

tions, and to the President's science adviser.

The group agreed that individual researchers and editors of technical journals will voluntarily submit papers on cryptography to the NSA for review. If the NSA wants to prevent publication of all or part of a paper, it will consult with an advisory group, most of whose members will come from outside the government, but all of whom will have top security clearance. The advisory group will recommend to the NSA director whether publication should be enjoined. The NSA director, however, is not bound by the advisory group's recommendations.

For 2 years the system will be purely voluntary. But if the voluntary system does not work, the NSA may seek legislative authority to prevent publication of papers and to seize papers that are not voluntarily submitted to it.

Why did the study group members so quickly concede so much to the NSA? One reason may be that they thought the NSA already has the legislative authority it threatens to seek and so actually they were conceding very little. Cochairman Werner Baum, who is dean of the College of Arts and Sciences at Florida State University, says he had this impression. And Todd Furniss of the ACE, who kept the minutes of the meeting, wrote that the group agreed to "the last-resort use of court orders" to enforce restraints on publications.

What does NSA have up its sleeve?

The study group members were aided in their confusion by the paper they received detailing how the prior restraints would work. The paper said, "The government, on behalf of the NSA, would be authorized to seek an order from a court to enjoin publication." It also said, "the NSA would have the authority to obtain for review either through a voluntary request, or, if necessary, through a court-enforceable Civil Investigative Demand, copies of any articles or other publications about which the Agency hears but which have not been submitted voluntarily." Nowhere did the paper say that the NSA does not have the authority to restrain publication and that Civil Investigative Demands apply only to the Justice Department and the Federal Trade Commission in antitrust suits.

Science asked some members of the

study group whether they thought the NSA might have been deliberately deceptive, in light of the confusing paper on prior restraints and in light of the rapid adjournment of the meeting. Baum replied, "In the absence of any evidence to that effect, I would not accuse the NSA of trying to deceive anybody." But one member, who wishes not to be identified, said, "I would have disagreed completely [that NSA was deceptive] until about 3 o'clock that afternoon [of 6 October]. I walked off with a funny feeling that may be completely irrational. I kept thinking, What the hell do they [the NSA] have up their sleeve?"

With one very vocal exception, the study group members expressed little concern about the implications of prior restraints. Most are not directly involved in cryptography research and so would not be personally affected by the restraints. But Martin Hellman of Stanford University, who observed the meeting and who will be one of the researchers affected by the restraints, is willing to go along with them—as long as they are voluntary. "Given the outward signs of reasonableness at the NSA, I'm willing to show I'm reasonable, too. The alternative is to refuse to cooperate on a voluntary basis. That would force the NSA either to back down or to seek legislation," he says.

The group's lone dissenter is George Davida of the Georgia Institute of Technology. Acting like a gadfly, he continuously and vociferously objected to even voluntary restraints, noting that the NSA has never explained in any detail why it is more in the national interest to have restraints than not to have them. Schwartz replies that the NSA cannot fully explain because its reasons are classified. "It is very difficult for me to discuss the NSA's point of view without clearing everyone," Schwartz says.

One observer who has a great deal of experience in dealing with the NSA shares Davida's concerns. Timothy H. Ingram, staff director of the House Subcommittee on Government Information and Individual Rights, is especially interested in the conclusions of the Public Cryptography Study Group because his subcommittee has held hearings on public cryptography and has heard Inman testify in favor of voluntary prior restraints. Ingram is wary of the effects of the restraints the study group is recommending. He says, "The questions are, what is the statutory authority for this censorship and what do these researchers get in exchange for what they are giving up? It's hard to see, other than a cage."—GINA BARI KOLATA

Public Scores Low on Environmental Test

Nuclear power plants can explode, causing a mushroom cloud like the one at Hiroshima. Most chemicals cause cancer in rats when supplied in high enough doses. The United States produces enough oil to supply its own needs. These, at least, are the beliefs of a substantial portion of the American public, according to a recent poll sponsored by the White House Council on Environmental Quality (CEQ).

The polltaker, Resources for the Future, found continuing support for environmental protection, but widespread ignorance of the facts surrounding some important environmental disputes. A majority of the respondents answered six of the nine factual questions incorrectly, expressing the thoughts listed above and displaying great uncertainty about other issues. Apparently only a quarter of the public knows what acid rain is, and a smaller proportion knows what happened last year at Love Canal, New York.

As is wont to happen in an election year, Gus Speth, the chairman of CEQ, took the opportunity of a press conference announcing the poll results to point out that environmental ignorance spread beyond the common man. It spreads, he said pointedly, to the candidate for president of the opposing party, Ronald Reagan.

Reagan waded in hot water recently by announcing that air pollution is substantially controlled. His timing seemed unfortunate, since Los Angeles was then in the midst of a bad episode of smog. He also said, according to press reports, that "I'm not a scientist and I don't know the figures, but I just have a suspicion that the mountain [Mt. St. Helens], in these last several months, has probably released more sulfur dioxide into the atmosphere of the world than has been released in the last 10 years of automobile driving or things of that kind that people are so concerned about." Reagan said he reached this conclusion after flying over the volcano twice. A man who has studied the issue a bit more carefully, Douglas Costle, administrator of the Environmental Protection Agency, was quick to point out

that daily emissions of man-made sulfur dioxide vastly exceed those of Mt. St. Helens.

Finally, Reagan has asserted that Mother Nature—not mankind—is responsible for most air pollution, or rather, as he later said, most oxides of nitrogen. Some of the oxides, he added, may even be helpful to tubercular patients. Apparently, Reagan confused nitrous oxide (which comes from trees and vegetation) with nitric oxide and nitrogen dioxide, the man-made pollutants.

Speth of CEQ said tartly that these statements "reflect a pervasive misunderstanding of key facts and issues." He said there is bad news and good news in all this. "The bad news is that he [Reagan] believes it. The good news is that he said it." Reagan responded in a fashion by calling reporters who questioned him "nit-picky."

According to CEQ's own survey, the statements only mirror an increasing view that air pollution is no longer a serious problem. Reagan might even be on the cutting edge of a trend, since more and more people apparently agree with the charge that environmental problems are not as serious "as some people would have us believe." Presumably, Speth would be included among "some people."

In any event, Reagan cannot be solely faulted for troubled communications with the electorate on an issue with environmental implications. Less than half of the public knows what synthetic fuels are, according to the poll, despite the fact that they are the centerpiece of Carter's energy program. Perhaps those who gave incorrect answers in the poll will also miss the poll on 4 November.

Scientists' Boycott Grows

The effort by American scientists to boycott relations with the Soviet Union has received significant support from abroad. Groups in Washington, London, Paris, and Geneva recently announced that 1800 scientists and engineers from 43 nations have agreed not to cooperate with the Soviets until dissident Soviet scientists have been released from prison. In addition, the number of U.S. scientists who have

signed the boycott pledge has now swelled to 6000 and includes 32 Nobel laureates.

Morris Pripstein, a physicist from Berkeley and organizer of Scientists for Orlov and Shchransky, said the announcement was timed to coincide with preparations for an upcoming international conference on the 1975 Helsinki Accords. The conference begins on 11 November in Madrid and will last several months. Pripstein was joined at the Washington press conference by Christian Anfinsen, a biochemist at the National Institutes of Health, and Paul Flory, a chemist at Stanford, both Nobel laureates.

Pripstein says he has received indirect word that Yuri Orlov, the Soviet physicist who chaired the unofficial "Moscow Helsinki Watch Group," was recently sentenced to 6 months in solitary confinement for attempting to smuggle out a manuscript. Orlov, apparently in poor health, has also been denied the opportunity to get food packages from his family until next August.

Pripstein says the boycott will probably continue until Orlov and others are released. In recent boycott action, some physicists at CERN refused to cooperate with a visiting Soviet delegation, forcing a cancellation of the trip. Last month, the Soviets abruptly canceled an international meeting on collective accelerators, purportedly because of low Western subscription. And last spring, organizers of an international meeting in France on photon collisions issued "anti-invitations" to prospective Soviet participants.

Members of the boycott are still trying to overcome a Soviet perception that they were pressured by the Carter Administration and Congress, a view that undermines its effectiveness. The Soviets were apparently encouraged in this belief by Senator Robert Dole (R-Kan.), who introduced legislation last year, albeit unsuccessfully, to officially bar cooperation. The Soviets' misunderstanding has probably also been encouraged by the statements of Frank Press, the White House science adviser, linking the curtailment of official science ties with the invasion of Afghanistan. Pripstein says the message that their action is independent of the Administration "is getting through, but very slightly." The new participation by scientists from nations

whose governments have maintained official ties (Switzerland, France, West Germany, Japan, and others) is expected to be of some help.

On another front, the American Psychiatric Association has appealed for the release from prison of Vyacheslav Bakhmin, a member of the unofficial Moscow commission to investigate the use of psychiatry for political purposes.

Love Canal Reviewed

A special New York State panel has released the first postmortem on the state and federal response to Love Canal (*Science*, 13 June), and it is not a pretty sight. The panel included Lewis Thomas of Memorial Sloan-Kettering and Arthur Upton of New York University (formerly director of the National Cancer Institute). They concluded that:

An atmosphere of public hysteria was created by a state report in 1978 that called the site a "public health time bomb" of "great and imminent peril." Strong language was apparently used in order to satisfy legal requirements for special federal and state funds; meanwhile, the description had no basis in fact.

Hysteria was fueled by the congressional testimony in 1979 of Beverly Paigen, a cancer researcher at Roswell Park Memorial Institute and a consultant to the homeowners. Paigen claimed to have uncovered pregnancy disorders, birth defects, and other illnesses. "The Panel finds the Paigen report literally impossible to interpret. It cannot be taken seriously as a piece of sound epidemiological research."

More recently, the Environmental Protection Agency conducted a cytogenetics study of the residents, a study the panel termed "a paradigm of administrative ineptitude . . . that should never have been launched in the first place. The damage done by . . . EPA is perhaps beyond mending."

In sum, the panel found no evidence of acute effects and no good studies of chronic effects. It recommended start-up of a state science advisory board to comment on future Love Canal research.

R. Jeffrey Smith