

Pentagon lowers heat on science secrecy—maybe

The ruckus between the Defense Department and university scientists over proposed new restrictions on publication of unclassified but militarily sensitive research seems to have ended more abruptly than it began. By doing away with the concept of "sensitive" for basic and applied research, the Pentagon's latest policy change, say those who have followed the struggle over more than two years, puts its relations with universities back to "square one." In a worst-case scenario, though, this policy may actually enable the Pentagon to classify more rather than less research at universities and government laboratories in its cold war to prevent scientific ideas and advanced technology with defense implications from falling into hands in the Soviet bloc.

The new policy plan was revealed during otherwise routine House hearings on 24 May dealing with scientific communications and national security when Edith W. Martin, deputy undersecretary of Defense for research and advanced technology, departed from her prepared text to read a short statement, with annotations handwritten in red ink. "It is the policy of this administration," she read, "that the mechanism for control of fundamental research in science and engineering at universities and Federal laboratories is classification. Each Federal government agency is responsible for (a) determining whether classification is appropriate prior to the award of a research grant or contract and, if so, controlling the research results through standard classification procedures [and] (b) periodically reviewing all research grants and contracts for potential classification. No restrictions may be placed upon the conduct of research that has not received national security classification."

Though approved by the White House Office of Science and Technology Policy and some Pentagon officials, the policy statement is still considered a draft as it wends its way through layers of bureaucrats at DOD and other agencies.

It would replace a controversial formula that was proposed to the universi-

ty scientific community as recently as 22 March. That one was drafted as part of a wide-ranging review of DOD's approach to international technology transfer under the aegis of Richard N. Perle, assistant secretary of Defense for international security policy, who is considered a "hard-liner" in the Reagan administration's "us" and "them" view of world affairs. The search for a new form of protection short of classification led to three levels of control over the publication of papers from DOD-supported research. DOD would identify the appropriate level in the fine print of contracts with individual researchers so that universities would know in advance what is expected before the work is undertaken. Accordingly,

► For both basic and applied research not considered militarily sensitive, papers would be sent to DOD at the same time they are submitted to a journal for publication, "so that we can reap the fruits of the labors we paid for," explained the Pentagon's Frank Sobieszcyk. "Sometimes a paper written for a conference or journal contains more information and insight than we get out of a contractual report."

► For basic research deemed sensitive, an investigator would be required to send a paper to DOD 60 days before submitting it for publication. The review of such research (in the DOD budget category known as 6.1) would be purely advisory. "Two months should be enough time to identify any concerns," said Sobieszcyk. "The department considers 6.1 research basically risk-free. But it's better to err on the side of caution when a potential risk has been identified." In this class of research DOD could ask for changes, but could not withhold publication.

► For sensitive applied research (in 6.2 and 6.3 categories) DOD would see a paper 90 days before the scientist or engineer sends it off for publication and have the right to modify or prevent publication.

The Pentagon insists that most problems arise in applied research and that less than 1% of basic research supported by DOD is considered militarily



MARTIN

sensitive. The newly proposed policy seems to make a fuzzy distinction between the types of research by using the word "fundamental" without defining exactly what research is involved.

Foreigners. Another aspect of the DOD's proposed controls is equally contentious among university scientists. The department would like to bar foreign nationals from participating in sensitive projects, particularly those involving exploratory development. "This is a touchy subject for both universities and us," observes Leo Young, DOD's director of research and laboratory management. "It's easy for us to say, keep all foreign graduate students and faculty members away from your laboratory. But it's not so easy to prevent conversations on technical subjects taking place in hallways and dining rooms."

In interviews Young also admits that the original regulations for research relied to a great extent on military contracts or program officials who would need to understand the research well enough to judge its sensitivity level. "That's one of the potential snags in the system," he says. "Program people may not be aware of the subtleties of research or the sensitivities of researchers. They are oriented toward processes and products rather

than basic science." In most circumstances, he adds, the Militarily Critical Technologies List is their "bible."

His boss, Edith Martin, made the same point in explaining the proposed DOD policy at the House hearings. A 700-page list of products and processes with possible military uses, MCTL was assembled by DOD for use by the Commerce Department and is classified secret, though a non-classified abridged version is being prepared for wider distribution. "In its existing form, it is used as a control list, which it was never meant to be," said Martin.

Martin's announcement of the new policy at the 24 May hearings was unexpected. It caught congressmen, witnesses, spectators and even a few Pentagon officials in the red-and-gold carpeted House hearings room by surprise. Only a month earlier, at a meeting of the DOD-University Forum, a twice-yearly get-together involving several university presidents and Pentagon officials, Martin had made a fierce defense of the special "sensitive" category of Pentagon-funded unclassified research. She was challenged at the meeting by her boss, Richard D. DeLauer, undersecretary of Defense for research and engineering. To him the idea of restricting unclassified research, even when deemed "sensitive" by military contracts officers, seemed "crazy." He claimed to be mystified by the meaning of "sensitive" research. It was ambiguous, making it tougher for contracts officers to administer, DeLauer argued, and he feared they might be overzealous in labeling a lot more research "sensitive" in their concern for national security.

DeLauer's remarks appeared to perplex Martin as much as it pleased the university representatives, led by Donald Kennedy, president of Stanford University. Kennedy, along with Marvin Goldberger, president of Caltech, and Paul E. Gray, president of MIT, sent letters last April to DeLauer and to George A. Keyworth II, President Reagan's science adviser, warning that "it would be impossible for our institutions—and for the majority of American universities—to accept a contract that... would require government approval of publication." Stanford, MIT and Caltech are among the top 10 university recipients of DOD research funds, though they do not accept military contracts for classified work on campus—a relic of the Vietnam war period, which resonated with student upheavals.

'Hemorrhage.' Tensions between scientists and the military date back to the Vietnam era, though the Pentagon has been suspicious of scientists since the Manhattan Project in World War II. Scientific secrecy was first established during the Manhattan Project,

with the advice and consent of scientists. In January 1982, Admiral Bobby Ray Inman, then deputy director of the Central Intelligence Agency, put bluntly at the annual meeting of the American Association for the Advancement of Science what others in the Federal government were saying privately for some time—that a "hemorrhage of the country's technology" to the Soviet bloc would eventually produce a "tidal wave" of public outrage.

Inman urged scientists to "police" themselves and suggested that they follow the lead of the cryptologists, who had agreed a year earlier, after some prodding by him, to submit their research papers to the National Security Agency for review before publication. The justification for this, said Inman, is that "science and national security have a symbiotic relationship—each benefiting from the interests, concerns and contributions of the other. In light of the long history of that relationship, the suggestion is hollow that science might, or should, somehow be kept apart from national security concerns, or that national security concerns should not have an impact on 'scientific freedom.'" To achieve what he termed "a balance" between national security and scientific freedom, Inman insisted that "cooperation would be a better course for all of us than confrontation," before significant harm does occur that could well prompt the Federal government to overreact.

Reactions. The reactions to Inman's speech were swift—and divergent. Scientists were upset that the government sought to interfere with open exchanges of ideas and information. Military and intelligence officials, along with leading figures in the Administration, called for greater restrictions on scientific communications and commercial exports. The government's efforts are embedded in a bureaucratic maze involving the Commerce Department, which enforces the Export Administration Act, the State Department, which broadly interprets the International Traffic in Arms Regulations to include scientific and technical material, and President Reagan's Executive Order 12356 of 2 April 1982, which expands the range of classifiable material even to the extent of authorizing reclassification of unclassified or declassified material. In addition, the Defense Department prepares the MCTL, which also includes items judged critical by the Department of Energy, but it is Commerce that uses the list to control trade to the Soviet bloc.

IBM's chief scientist, Lewis M. Branscomb, then chairman of the National Science Board, told a group of computer scientists meeting in San

Francisco that month, "We must all take very seriously the debate in Washington about the need for additional government controls to keep our scientific and technical information from flowing to potential adversaries." The academic and military communities, Branscomb continued, "must be willing to sit down together and look for practical policies on technical data exports that are compatible with a national commitment to technical excellence, effective protection for sensitive military information and the tradition of open scholarship in our universities." Attempting to reassure scientists, Keyworth said in a *New York Times* interview: "Nobody is talking about putting a wrench on the nut of academic freedom."

Alarmed by the prospect of military controls on research, the National Academy of Sciences undertook a study of the problem. On 30 September 1982, it issued "Scientific Communication and National Security," also known as the Corson Report, after its chairman, Dale R. Corson, president emeritus of Cornell University. It spoke of "security by accomplishment" in the nation's scientific laboratories as preferable to "security by secrecy." It concluded that open scientific communication contributed very little to the loss of military technology to the Soviet bloc and that restrictions on disseminating scientific and technical information were already too confusing and arbitrary and suggested that most university research should be free of controls. In a few narrowly defined technologies, which the Corson panel called "gray areas," the government might reasonably impose some controls, using contract restrictions in preference to export regulations or security classification (PHYSICS TODAY, November 1982, page 69).

Expectations. The Corson report led to optimistic expectations in the research communities that the troubles with the government could be resolved. Instead, as annotated in an informal followup to the Corson Report by two NAS staffers, Mitchel B. Wallerstein and Lawrence E. McCray, the situation appeared to get worse. The Pentagon forced the withdrawal of technical papers at various meetings (PHYSICS TODAY, June 1983, page 41); DOE proposed reclassifying some old declassified papers on nuclear weapons and facilities (PHYSICS TODAY, October, page 43), and the FBI arrested an East German physicist at an American Vacuum Society conference on charges of espionage, although his activities had nothing to do with the meeting (PHYSICS TODAY, January, page 53). In addition, efforts are underway to include "scientific and educational data," now excluded from the Export Admin-

istration Regulations, in any revision of the Export Administration Act, which is now before Congress. Moreover, the DOD was authorized by Congress last year to deny Freedom of Information requests for scientific and technological data that would be subject to export control.

What's more, say Wallerstein and McCray, the Federal government has not developed a reliable means "for a net assessment of the damage to US national security from losses occurring through open scientific communication. . . . But the fact remains that major changes in US technology policy are being considered and decided on the basis of incomplete—and possibly erroneous—information on the extent and seriousness of the loss of scientific and technological information." In effect, Wallerstein and McCray contend, instead of raising "tall fences around narrow areas" to restrain the outflow of US science and technology to the Soviet bloc, as the Corson panel advocated, the government is throwing up walls compulsively around much of the scientific terrain.

Corson described the situation in his House testimony on 24 May. "My panel believed that the number of gray research areas where some form of restriction could be justified is very small," he said. "Now, there appears to be growing interest by government agencies in extending the concept of grayness to ever more areas—areas designated as 'critical' or 'sensitive' or 'emerging' It appears to me that at a time when our scientific enterprise needs maximum vigor, it is being impeded by a growing set of over-restrictive controls. If present trends continue, it may well be that administration of the gray-area concept is unworkable. In that case, only a black and white solution is possible: completely open research and classified research." In a black and white system, with the gray areas remaining completely open, said Corson, science and technology should prosper, but government concerns about leakage of technology would most likely persist, so that export regulations would be imposed, "with unfortunate consequences."

Dangers. Among the consequences Corson foresees: "The major research universities are likely to abandon research fields where classification is imposed, both because classification would impede progress and because classification is inconsistent with the academic environment; the case has not been made to the universities that there is a clear and present danger that demands classification of research on their campuses." The use of export regulations is most likely to result in excluding foreign nationals from taking part in research at universities and

industrial laboratories, he said. Regulations developed to control the export of goods, "things that can be seen and felt and counted," said Corson, are not readily adaptable to seminar discussions, where foreign nationals may be present, or research projects that may or may not produce critical technical data, or classrooms with foreign nationals in attendance or table-talk among faculty or grad students, with foreign nationals there. On the subject of foreign nationals in US science and engineering, Corson told the congressmen the number of foreign citizens was increasing in PhD programs and junior faculty jobs: "As long as the flow of such people is assured, we need not worry about the quality . . . of our research institutions," he stated at the House session.

Under questioning by Representatives Doug Walgren of Pennsylvania, chairman of the House Subcommittee on Science, Research and Technology, and Dan Glickman of Kansas, a member of the Subcommittee on Investigations and Oversight, Martin asserted that the proposed policy would apply to all research funded by DOD at universities and in industry. "In those settings, MCTL and the Militarily Emerging Technologies List have no standing for

classification purposes—and were never meant to have. The issue is now resolved. Classification will be determined on a project-by-project basis. Dr. DeLauer and I are 100% in synch on these matters." They ought to be, because it was Jay Keyworth at OSTP who was the prime mover in the DOD policy decision, having decided that it was time for DOD to "fish or cut bait" on the sticky subject.

At MIT, Gray says about the new policy: "The Pentagon was either unwilling or unable to accept the recommendations of the Corson panel, which we considered to be a workable middle ground." DOD's Leo Young argued that the Corson criteria for gray areas were "excellent conceptually but impractical for use in developing operating procedures at the working level," because they left too much discretion to military contracts officers.

"It's clearly too early to say that the proposed policy will result in more classification of research—a situation that could lead to a serious loss of science and technology at many leading universities and a serious loss of talent of foreign graduate students in that research," Gray says. "I want to believe we will operate under the rule of reason in these matters." —IG

Knapp resigns, Bloch named NSF head

President Reagan nominated Erich Bloch, vice president for technical personnel development at IBM, on 6 June to succeed Edward A. Knapp as director of the National Science Foundation. Homesick for Los Alamos, where he will return to his research and family, Knapp submitted his resignation in May—only 13 months after he was confirmed by the Senate amid acrimonious charges that he had sought to "politicize" the NSF by firing two top executives at the agency (PHYSICS TODAY, July 1983, page 60). In a rare *mea culpa* on Capitol Hill, Knapp admitted he had indeed asked for the resignations to assemble his "own team."

It turns out that Bloch was in the process of being appointed to one of the jobs that Knapp left vacant all those months—the post of deputy director. Born in Germany and educated in Switzerland, Bloch earned a bachelor's degree in electrical engineering from the University of Buffalo in 1952 and spent his entire career with IBM. He managed the Stretch computer project at Los Alamos in the late 1950s and early 1960s, then headed the solid-state technology program for the System-360 computer. He serves as chairman of the Semiconductor Research Cooperative, a group of leading computer and electronics firms that supports advanced research in universities and



BLOCH

shares results. He is a member of the National Academy of Engineering and a fellow of the Institute of Electrical and Electronics Engineers.

Neither a scientist nor an academic, he is bound to raise eyebrows—and possibly hackles—before his confirmation hearings. Though NSF was conceived by an engineer, Vannevar Bush, it is considered the bastion of basic science at universities. This year, however, the agency's organic act was amended to place engineering on an equal footing with science—though attempts to add engineering to the foundation's name were foiled in Congress. —IG □