

How will revisions to export regulations affect research?

"Whenever you wrap the corporate kimono too tightly, you keep some secrets in but you also keep some technical advances out," Peter Franken, of the Optical Sciences Center at the University of Arizona, says. Franken expressed the concern of many scientists about the Reagan Administration's efforts to increase control over the flow of technical information.

Recent events that have heightened this concern include

- ▶ a new Executive Order broadening the basis for classifying technical data;
- ▶ a proposed amendment to the Arms Export Control Act that would shift the burden to establishing that classification is not in the national interest, which differs from the existing procedure of allowing classification based on a determination that it is necessary to protect national security;
- ▶ early drafts of revisions to Export Administration Regulations, now in progress, which would permit their application to even wider classes of technical data than at present;
- ▶ proposed revisions to the International Traffic in Arms Regulations that might subject scientific publications, conferences and other communications to increased regulation; and
- ▶ new attempts by the Department of Defense to impose restrictions on publication and access to information derived from federally contracted research.

At a joint meeting on 29 March of the House Subcommittees on Science, Research and Technology and on Investigations and Oversight, Lawrence J. Brady, Assistant Secretary for Trade Administration in the Department of Commerce, testified, "In the past it has not been clearly understood that our technical data regulations apply equally to all segments of society: to industry, to individuals, and to academia.... We have become more aware of the impact on national security of such transfers and have become more vigilant in enforcing the regulations."

This increased vigilance began in 1980 when the Department of Commerce required an export license for the American Vacuum Society's First

International Conference on Bubble Memory Materials and Process Technology, and thus prevailed upon the organizers to disinvite Soviet-bloc scientists (PHYSICS TODAY, April 1980, page 81). At about the same time, the State Department used a similar rationale to refuse visas to Soviet scientists scheduled to attend the Optical Society of America's CLEOS/ICF conference in Santa Barbara. Scientists became increasingly concerned as application of the regulations was extended to restrict publication and university research (PHYSICS TODAY, June 1981, page 55). Recently these regulations have been used to restrict the activities of foreign students and scholars at Stanford University, MIT, the University of Wisconsin, the University of Minnesota and the University of Iowa.

Concern about these problems has led some scientists and government officials to recommend that groups of university scholars and administrators be formed to work out their differences with the Departments of State, Commerce and Defense. The National Academy of Sciences has formed such a

group, under the leadership of Dale Corson (a physicist who was formerly president of Cornell University), which will examine the policy implications of the export control regulations and other restrictions on information transfer and will evaluate the effects these restrictions may have on various scientific communities.

David Wilson (assistant to the president, University of California), who is heading a group in the Association of American Universities that is working with the Pentagon on export controls, told us that "any massive attempt to control information will be inhibiting to the flow of information in the scientific community and inhibiting to the enthusiasm necessary to get talented researchers involved in those technical areas."

The scientists we spoke to recognize the need to employ controls in the interests of national security. A tension exists, however, between the need to prevent the flow of critical data outward and the need to maintain a free flow of information among scientists. Robert Frosch, former head of NASA and now at General Motors, said, "My main worry is whether too much fussing over what seems to be nonclassified classification, through an attempt to control things without saying precisely what you are trying to control, will ultimately hurt national security. We must be careful not shoot ourselves in the foot."

Executive order. On 2 April President Reagan signed a new Executive Order on Classification, reversing a trend that has prevailed since the Eisenhower Administration by making more information subject to classification.

The key changes from the previous order include eliminating the need to "identify" the damage to national security as a criterion for classification; providing that when there is doubt about the level of classification that the highest level, rather than the previously required least restrictive level, be used; eliminating the "balancing test," between the need to protect national security and the public's right to know, when declassifying material; and al-

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lowing information previously unclassified to be classified "at the instant" someone seeks it under the Freedom of Information Act. This order goes into effect on 2 August. A provision exempting basic research from classification, missing from all previous drafts of the Order, was included in the final draft.

Admiral Bobby Inman (deputy director of Central Intelligence), when asked what impact this order might have on science, told us, "It will have no impact. There will be an impact on declassifying what has already been classified, which will not influence scientific research. There should be no influence on basic research and the conduct of science." Edward Gerjuoy, now an administrative law judge on leave from the University of Pittsburgh physics department, thinks otherwise. He told us, "Even though basic research is not going to be classified, it depends on how you construe 'basic research.' A large amount of research that many physicists regard as basic may be construed as applied. It depends on the intent and judgment of the people who will administer the order. There is no doubt that they now have additional power to classify."

The Department of State administers the International Traffic in Arms Regulations, which govern the transfer of classified and unclassified technology that relates to commodities on the Munitions List. The Munitions List is promulgated by the State Department with the concurrence of the Defense Department. Both ITAR and the Munitions List included under it, are undergoing revision.

The revision of ITAR will include redefinitions of such terms as "technical data" and "export," which are intended to clarify the activities subject to regulation.

In the present language of the regulations, an "export," for example, is defined as the taking or sending outside the US of hardware or technical data included on the Munitions List. About a year and a half ago, increased interest in the dangers of transferring technical data led the Administration to try to apply these regulations increasingly to the transfer of information as well as hardware. Recently, in the case of *US vs Edler Industries*, the US Court of Appeals for the Ninth Circuit decided that such a broad application was unconstitutional. The current revision includes clarifying the definitions of export and technical data, according to a State Department spokesman, to make them easier to use.

He also said that some government agencies have recommended that the proposed revision include tighter controls for publications, conferences, and other communications among re-



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searchers. Exactly what will be included in the revisions has not yet been determined. In addition, there is a proposal to limit applications for export licenses to US citizens or aliens who have applied for citizenship.

The Munitions List, in the process of being revised by the Department of State, will not be changed substantially, according to a Defense Department spokesman. The major effort, we were told, is on updating the list and clarifying what technologies are covered. Included among technologies cited by the Defense Department are cryptography, high-energy particle beams, communications satellites, very-high-speed integrated circuitry and lasers. Exactly how these technologies will be defined has not yet been determined, and thus it is difficult to say how much constraint will be placed on research in these fields.

Greater constraints will be placed on whatever technologies are listed, however, if H.R. 109, a proposed amendment to the Arms Export Control Act (the legislative authority for ITAR), is passed by Congress as written. The proposed language proscribes publication or disclosure of any information concerning technologies covered by ITAR "unless the Secretary of Defense determines that withholding whereof is contrary to the national interest." This amendment shifts the emphasis of the regulation by allowing the Secretary of Defense to prohibit publication unless it can be shown that not publishing is against the national interest. By way of contrast, the present procedure requires that "identifiable damage to national security" be shown to prohibit publication.

The Department of Commerce administers the Export Administration Regulations governing the transfer of technologies included on the Commodities Control List. This list is prepared by Commerce in coordination with the Militarily Critical Technologies List provided by the Department of Defense. Both the MCTL, which undergoes periodic revision, and the technical-data regulations that apply to this

list are in the process of being revised. According to Bohdan Denysyk of the Department of Commerce, "We are attempting to clarify who is covered by the regulations and what types of technical data are covered." He said, "No one says that you can't say something if it is unclassified; we are just trying to prevent it from getting into certain hands."

Denysyk explained that non-defense scientists were being consulted; he cited the Industrial Research Institute, a forum set up by the Association of American Universities, and the National Academy commission headed by Corson. Subsequent to our conversation with Denysyk, the IRI decided not to act as a consultant to the Department of Commerce.

The way these regulations are implemented is of great concern to universities. Denysyk spoke of several mechanisms to prevent foreign students and scholars from acquiring critical information. Among them were requiring foreign scientists to sign assurances of nontransference, and mechanisms other than export-control restrictions, such as restrictions to visas, travel restrictions, and limiting access to selected research. Denysyk said that government administrators were aware "that overcontrol could have a dampening effect on the conduct of research," but when he was questioned about the problems that implementation poses for universities he said, "Universities have to realize we don't live in a non-bureaucratic world."

Inman, however, cited the fear of too much regulation as one of the reasons he urged so strongly, at the American Association for the Advancement of Science meeting in January and before Congress, for voluntary cooperation from the academic community. He told us, "I believe that whenever government regulates they never do it with any subtlety or with the needed exceptions. I would rather gamble with working with ideas that come from the people who work in the fields being regulated than with those from the government regulators."

Scientists we spoke to expressed concern about the reduction in the number of scientific interactions that would result from increased controls, and the difficulty of restricting the activities of particular students or scholars in an open campus setting. Frosch said, "It is inappropriate to close universities and have them monitor students. If you can't convince Congress that it is in the national interest to restrict foreign students, don't try to browbeat the universities into trying to do something they cannot do." Thomas Moss, a physicist and staff director of the House Subcommittee on Science, Research and Technology, told us he felt that the effect of

the regulations on scientific exchanges and progress is unpredictable and that changing the way science is done, in any fundamental way, will have repercussions on all levels of scientific research.

Frank Kapper, assistant to the Secretary of Defense for Research and Engineering, discussed with us the possibility of a permanent involvement of university representatives in decision-making on these issues in Defense, State and Commerce. He said, "I think it is important that universities have spokesmen to represent their input to the government. This is vital and I believe there will be no success without it."

The Department of Defense has created a forum in which the presidents from eight universities (Stanford University, Rutgers University, University of Minnesota, University of California, Columbia University, University of Rochester, Caltech and Georgia Institute of Technology) will exchange ideas with Defense Department administrators in an attempt to enhance cooperation. According to a recent report prepared by the Defense Science Board (entitled "University Responsiveness to National Security Requirements"), this cooperation is an important part of a program to increase the contributions of universities to defense-related research. The report calls for

restrictions to be imposed on publication and other forms of disclosure as part of the contract negotiation for Defense Department contract research. If this procedure works well for the Defense Department, the report suggests expanding the negotiations, with slight variations, to all federally contracted research and then to all federally funded research.

Gerjuoy, commenting on the ever-widening net of restrictions on research and scientific communication, wondered how it will affect graduate-student training and the university's already diminishing ability to lure top scholars from industry due to budget problems. He said, "Do we want to emulate the Russians by becoming a closed society, as opposed to an open society?" In this connection, Herman Feshbach (MIT), testifying about the rights of Soviet scientists that were being denied by their government, told a Congressional committee, "Points of particular concern are unreasonable restrictions on the freedom to attend scientific conferences, on the freedom to publish in scientific journals, on the freedom to have access to scientific literature, and unreasonable restrictions on the freedom to pursue their scientific interests and to communicate with other scientists via normal channels, including international travel."

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and military considerations, and thus can be used to establish a government program to implement the no-first-use policy.

The UCS recommends that:

- ▶ The NATO alliance announce its intention to adopt a policy of no-first-use in Europe, while beginning a program to strengthen the conventional weapons and strategy needed to repel a non-nuclear attack;
- ▶ The US should announce its intention to adopt the no-first-use policy elsewhere in the world, a policy also contingent upon having an adequate conventional defense;
- ▶ The US and USSR begin immediate negotiations on strategic and intermediate-range nuclear-weapons reductions, with the goal of a greatly reduced arsenal in the next decade;
- ▶ The US encourage these negotiations by announcing its readiness to comply with a bilateral freeze on both strategic weapons and flight-testing missiles, and to renew negotiations for a Comprehensive Test Ban Treaty;
- ▶ The US and USSR start a joint program to curb the spread of nuclear weapons.

The physicists and defense experts responsible for the recommendations are Robert F. Bacher, professor emeritus at Caltech; Hans A. Bethe, professor emeritus at Cornell University; Adrian Fisher, who was the principal negotiator for the Non-proliferation Treaty; Admiral Noel Gayler, former director of the National Security Agency and now retired from the Navy; Henry Kendall, MIT and chairman of UCS; Vice Admiral John M. Lee, former assistant director of the US Arms Control and Disarmament Agency and now retired from the Navy; Norman Ramsey, Harvard University; Herbert Scoville Jr, former assistant director of the US Arms Control and Disarmament Agency; Paul C. Warnke, who served as the Chief US SALT negotiator and is currently chairman of the Committee on National Security; Victor Weisskopf, professor emeritus at MIT; Jerome Wiesner, former Presidential Science Adviser to Presidents Kennedy and Johnson, and now at MIT; Robert R. Wilson, professor emeritus at Cornell University and former director of Fermilab; and Herbert F. York, the first Director of Research and Engineering for the Department of Defense and now at the University of California, San Diego.

In a related development, the National Academy of Sciences recently passed a resolution—by an overwhelming majority of the more than 200 members attending the annual meeting—that supports the continued observance of all arms-control agreements, including SALT II, which has not yet been ratified by Congress. It

UCS urges no first use of nuclear arms

The Union of Concerned Scientists recently released a statement advocating that the US move toward a "no-first-use" policy for nuclear weapons, and recommending practical steps to enhance our non-nuclear defenses to allow implementation of this policy.

The statement was released simultaneously with an article that appeared in the Spring issue of *Foreign Affairs*, written by four former national security officials—McGeorge Bundy, who was national security adviser to Presidents

Kennedy and Johnson; Robert S. McNamara, who was the Secretary of Defense in the same administrations; Gerard C. Smith, who led the arms limitations talks with the Soviet Union for the Nixon Administration, and George S. Kennan, former Ambassador to the Soviet Union. The article advocated that the US study the possibility of a no-first-use policy in a program in which the US assumes world leadership in reducing nuclear arms stockpiles and in curbing nuclear proliferation.

The UCS, known in the past primarily for criticism of nuclear power, began about a year ago to inform the public about nuclear arms via on-campus teach-ins, culminating in two nationwide teach-ins, one on 11 November involving 150 campuses and one on 22 April involving 350 campuses. A spokesman for UCS told us that the statement complements the nuclear-freeze movement, the joint resolution for a bilateral nuclear freeze sponsored by Senators Edward Kennedy (D-MA) and Mark Hatfield (R-OR), and the McNamara-Bundy no-first-use statement. The spokesman said the UCS statement presents a practical position, which takes into account the technical

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