transfer of technology or information that is considered critical on export-control or national-security grounds. Among other questions, the letter asked what laboratory equipment would be used as part of the program, what trips were planned and, curiously, asked also for an evaluation of the visitor's abilities compared to those of US students.

According to a State Department spokesman, the Department sends similar letters to many hosts of visitors from Communist countries, and has been doing so for some time. Where the responses indicate there may be a potential conflict with export restrictions the State Department passes the case on to the Commerce Department.

Perhaps the most concern, however, has been generated by a 12 December memorandum from the Defense Department to all contractors in the very high speed integrated circuits (VHSIC) research program. The bulk of the memo discussed the need to review papers being submitted for publication in this field that relate to "process or utilization technology" as distinct from basic research. But the last paragraph of the memorandum, which was signed by Larry Sumney, director of the VHSIC program office, carried an ominous warning: "In the case of basic research supported by the VHSIC program, although such research and its results are not generally controlled, it is the preference of the Program Office that only US citizens participate."

The memo arose as a result of Congressional direction, written into the FY 1980 Defense Department authorization bill, that VHSIC was sufficiently sensitive to be controlled under the ITAR export restrictions.

Many academic scientists are concerned that a precedent has been set for preventing some foreign nationals from learning about or working in nonclassified research fields, and fear the proliferation of such restrictions. The American Institute of Physics manpower statistics division estimates that 33% of this year's first-year graduate students in physics are not US citizens.

Publication. Some university researchers are also concerned that the pre-publication review requirement might apply to some VHSIC research done at universities. But according to Sumney, the memo doesn't really pose a threat to universities, because, to date, all of the VHSIC work being done at universities is considered basic research, and therefore not affected by the publishing restrictions.

But Sumney added that, in his view, university scientists may someday have to accept some restrictions on the publication of work they do for DOD. "It is no difference than dealing with proprietary information, and university scientists seem to have no trouble dealing with proprietary information when they consult for industry," he said.

Another case of restrictions being placed on the publication of nonclassified research results arose with regard to cryptology research. Following a long debate on how to reconcile cryptography researchers' first-amendment rights to publish their ideas with the desire to protect the nation's communications security and intelligence-gathering capabilities, an American Council on Education study group earlier this year recommended that a voluntary system of prior review of cryptology manuscripts be instituted on an experimental basis.

Much of the criticism of the current and the proposed regulations, as they pertain to the export of technical data, is that they are sufficiently vague as to make official export policy more a matter of interpretation than of law. The interpretation in the past has been fairly lenient, but scientists now believe they have reason to fear a more oppressive atmosphere is ahead. The breakdown of detente with the Soviets has already closed many doors of technology exchange between the US and Communist countries. And, while this trend began during the Carter Administration, some scientists feel that the Reagan Administration is especially concerned about preventing leaks of technology to the Soviet Union.

One indication of the way the winds are blowing came with the appointment of Larry Brady to be Assistant Secretary of Commerce for International Trade. Brady, who is considered a hard-liner on export controls, is said to be largely responsible for bringing the need for tighter controls to the attention of Congress two years ago, when he was a Commerce employee.

Another source of anxiety is a proposal for changes in the Commerce Department's regulations on technical data export. The proposal, among other things, would require that universities that accept graduate or postgraduate students or researchers from Communist-bloc countries submit a detailed letter of explanation to the Department when the field of study or research is directly related to any of the categories described in the Commodities Control List or when otherwise requested. The letter would have to include a detailed description of the proposed study or research program, a description of laboratory equipment that will be made available to him, travel plans to conferences or facilities and any ongoing industrial or government contract activities to which the student/researcher could have access. A Commerce Department spokesman stressed to us that this proposal was only one of the many under consideration at the present time. But, to some, such proposals evoke memories of the Cold-War repressiveness of the 1950s, which saw the creation of an Office of Strategic Information, set up specifically to prevent nonclassified information from reaching foreigners. One Commerce Department consultant, for example, remembers a time when technical data did include basic scientific information, and "a scientist who wanted to write someone overseas was supposed to stamp his envelope 'general technical data; scientific export license not required.' I think the scientific community should be very much on its toes to guard against a return to the paranoia of the 1950s."

—MEJ

in brief

The National Resource Center for Computation in Chemistry, which has been operating at the Lawrence Berkeley Laboratory scarcely two years, is being discontinued. The National Science Foundation and the Department of Energy have decided not to continue funding for the center beyond the present fiscal year, which will end 30 September.

Weather prediction, climate, atmospheric chemistry, and, to a lesser extent, weather modifications and the effects of solar variations are all subjects that merit "high-priority national" attention, according to a new report from the National Research Council Committee on Atmospheric Sciences. *The Atmospheric Sciences: National Objectives for the 1980's* is available in limited supply from the Committee at 2101 Constitution Avenue, NW, Washington, D.C. 20418.

Copies of *Federal Funds for Research and Development, Fiscal Years 1978, 1979, and 1980, volume xxviii* (NSF 80-315), are available free of charge from the National Science Foundation, Washington, D.C. 20550.

How Basic Research Reaps Unexpected Rewards, a new National Science Foundation publication, traces a sampling of 26 basic research projects funded by NSF from the early 1950's through the 1970's and shows their unanticipated benefits to society. Copies are available for $2.25 from the US Government Printing Office, Washington, D.C. 20402 (stock number 038-000-00436-6).

National Patterns of Science and Technology Resources 1980, the initial volume of a new NSF series, is being sold through the US Government Printing Office, Washington, D.C. 20402. The price is $3.75 and the stock number is 038-000-00448-4.