New Pressure on Scientific Exchanges

President Reagan orders a cutback, officials push controls on technology transfer

U.S.-Soviet exchange agreements coming up for renewal in the near future, including the agreements on energy and science and technology, will not be renewed. There will be a complete review of all other U.S.-Soviet exchange agreements.—President Reagan in his 29 December announcement of economic and political sanctions against the Soviet Union.

The President's action on exchanges signals a further decline in U.S.-Soviet cooperation in science and technology that peaked after the nations embarked on a policy of détente in 1972. The decline reflects the deterioration of political relations between the superpowers, traceable notably to events in Afghanistan and Poland. But special factors have also been operating in respect to science and technology.

- Objections by U.S. scientists and scientific organizations to harsh treatment in the Soviet Union of dissident scientists and of Jewish scientists refused permission to emigrate have put a damper on the exchanges.
- Demands are growing more insistent for tighter controls on U.S. export of technology of potential military or economic value to the Soviet Union. Since the Reagan Administration took office, a concerted campaign for closer restrictions on transfer of such technology has been mounted by top national security officials.

Government efforts to control the flow of technology and technical information are making increasing inroads on international scientific cooperation, and spokesmen for the U.S. scientific community have been raising the issue of scientific freedom and asking whether the restrictions are actually advantageous to this country.

At this point, with agency officials still in the process of implementing the President's order, the Administration's intentions on exchanges are not completely clear. It appears that the President's strictures apply to the 11 bilateral intergovernmental agreements that were a product of the Nixon-Brezhnev summit meeting of 1972, but not to private scholarly exchanges. In the case of science and technology, these private exchanges are administered by the U.S. National Academy of Sciences (NAS) and the Soviet academy on the basis of an interacademy agreement.

The fullest interpretation available of the President's statement came in a subsequent briefing by an unnamed "high State Department official," who said that the bilateral agreement on space cooperation as well as agreements on energy and science will be allowed to lapse this summer.

In respect to the remaining eight intergovernmental agreements, a complicating factor is that four were recently extended. Typically, the agreements have 5-year terms and provide for automatic extension unless either side demurs. Those extended late in 1981 were the agreements on environment, health, artificial heart development, and oceans research. It is the understanding of officials in the agencies affected that the Administration wishes to pursue a "graduated approach" in the sanctions it is imposing. Therefore, no significant changes in the level of activities now scheduled is expected for the time being in the extended agreements.

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The practical effect of the sanctions on scientific cooperation is expected to be relatively modest, since activity under the intergovernmental exchanges has been substantially reduced as a result both of the U.S. reaction to the Soviet occupation of Afghanistan and of general budget cuts. Activity in some of the bilaterals is estimated to be running at 25 percent of peak levels.

Much the same is true of the exchange program administered by NAS. Early in 1980 an NAS governing council voted to suspend scientific meetings and seminars under the agreement in the wake of the entry of Soviet troops into Afghanistan and the banishing of Soviet physicist Andrei Sakharov to the city of Gorki. The council continued the program for individual exchanges on grounds that it was proper for individual American scientists to decide for themselves whether they wished to participate.

The numbers of both Soviet and American scientists involved in the exchanges have dropped steadily from the peak year of 1977. In that year 66 Soviet and 38 American scientists took part in the program. In 1980 the numbers were 19 Soviets and 20 Americans and in 1981, 12 Soviets and 18 Americans.

Especially since the Afghanistan occupation, applications from Soviet scientists for exchange berths here have received much closer scrutiny from U.S. officials than was the case earlier. Under the science and technology agreement, officials of the National Science Foundation (NSF), which administers the intergovernmental exchange agreement, say that only activities of direct and substantial benefit to the United States or with clear humanitarian purpose have been allowed to proceed.

Clearance for the exchanges is formally granted by the State Department, but it is widely understood that applications are screened by national security agencies. Increasingly, applicants from the Soviet Union or Eastern Europe who are interested in what is regarded as sensitive technology are being rejected.

The same pattern applies to the interacademy exchanges. NAS staff sources say that government screening has grown tougher for applicants from socialist countries. The number of outright rejections of individual applicants for the exchanges rose from 0 in 1978–1979 to 12 in 1980 and 14 in 1981. The time required for decisions on applications has also grown longer.

Behind this closer scrutiny is the de-

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Stanford Protests Restrictions

Stanford University has taken a strong stance against a routine request by the Department of State that a Soviet scientist be restricted in his activities if he visits Stanford.

The restrictions were to be applied to a proposed 1-week visit to Stanford by Nicholay V. Umnov, a Soviet expert in robotics. Umnov had asked to visit several universities in this country as part of an exchange program administered by the National Academy of Sciences (NAS). James Jatras, a State Department foreign service officer, explains, "We review the programs of all exchangees coming to the United States with concerns of technology transfer in mind, specifically." If the department feels that the proposed visitor will be acquiring technology with direct military applications, it does not approve the exchange. If it feels that the specific course of study proposed by the visitor is acceptable but that the visitor may pick up critical technology on the side, the department insists on restrictions.

In Umnov's case, the State Department felt there was a chance he would learn about important computer technology. At the State Department's request, the Academy sent a letter to Umnov's sponsor at Stanford, Bernard Roth, outlining restrictions on Umnov's visit. These restrictions included requirements that Umnov study only the mechanics of robot locomotion, not control units or programming techniques for robots, that Umnov not visit industries, and that he not be allowed access to any research funded by the Department of Defense.

In response to the letter from NAS, Stanford vice provost Gerald Lieberman replied that Stanford could not comply with the proposed restriction. "Even if we have the means to monitor or police the activities of visitors, such actions would drastically disrupt the academic environment which is essential to fostering creative research endeavors," he wrote. In addition, he said, "We, as well as many other major research universities in the United States, have been vigorously resisting recent attempts by the federal government to impose export restrictions on our teaching and research programs." (In the case of Umnov, however, there was no attempt to apply export restrictions. The State Department handles only the question of where he may visit.)

Stanford faculty members also question the role of NAS in transmitting the State Department's restrictions. Donald Kennedy, president of Stanford, plans to discuss the issue with NAS president Frank Press when Press visits California on 3 February.

In response to the concern about NAS's role in notifying universities of State Department restrictions, NAS will refrain from doing so until its governing board and council decide the matter at the end of February. However, according to NAS spokesman Howard Lewis, the NAS doesn't send out many such letters because the Soviet exchange program is a small one and it most likely would not have sent out any before the end of February anyway.

A State Department spokesman says that letters such as the one regarding Umnov are nothing new. The agency has been sending them out for years. "I'm surprised there has been so much fuss. Generally in these cases another school takes the scholar but sometimes no school will take the scholar. If no one accepts the restrictions on a scholar's activities, the proposed exchange does not take place."

Asked whether the State Department is applying harsher restrictions in the wake of recent concerns over technology transfer, Jatras says, "There is more concern now about technology transfer as a problem. Those doing the reviews [of proposed visits] may have a more suspicious eye and may apply restrictions in more cases than in the past." But the restrictions themselves, he says, are no harsher than they have ever been.

What if NAS decides at its February meeting to stop cooperating with the State Department? A State Department spokesman says he does not even want to speculate about the possibility. "We have been talking with the Academy all along. I consider it rather improbable that the Academy will tell us to get lost," he remarks.—GINA KOLATA

mand by government officials for tighter restrictions on technology transfer and the flow of technical information to socialist countries. Stronger efforts at control began during the Carter Administration, particularly after the occupation of Afghanistan. These efforts accelerated after the Reagan Administration took office. And in recent weeks top officials of the Pentagon and Central Intelligence Agency have gone public with variations on the theme (see story on p. 635).

Concern has been building among U.S. academic scientists about government designs on regulating scientific exchanges, particularly in cases where foreign visitors are denied access to American laboratories or scientific meetings. What appears to be emerging is a tendency for American advocates of the exchanges to make a clear distinction between basic research and work on technology.

At a AAAS meeting press conference last month, for example, AAAS president D. Allan Bromley expressed the view that restrictions on technology exchanges might be advisable, but added that "I simply do not believe it makes sense to hide knowledge in basic research."

A version of this view was also expressed in an interview with *Science* by Herbert F. York of the University of California, San Diego, chairman of the academy committee on exchanges with the U.S.S.R. and Eastern Europe.

Noting that he was speaking of the academy program with which he is most familiar, York said he saw direct value in the exchange program because of the "knowledge and information that goes with it." He said that "In the basic sciences I think that there is a fair exchange. I am not talking about the special cases involving technology."

York also said he feels there is indirect gain for the United States in "exposing people to ideas and values outside science that they might not otherwise encounter." He said that especially in the case of East European scientists "we should be doing everything possible to maintain contact."

York observed that "Some of the technology exchanges may have been wrong-headed in retrospect. As far as I know, [the Academy] has always been open to advice from national security authorities in individual cases. Because [the program] deals with basic science, it involved us less."

As for the general trend, York said he thinks "It's moving the wrong way, both in size and support. That is, it's shrinking."—JOHN WALSH

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