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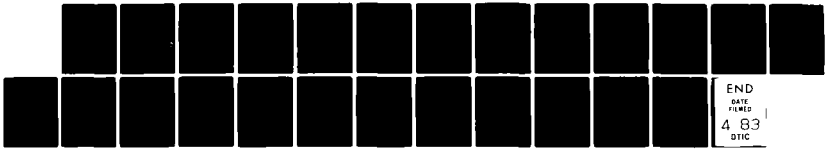

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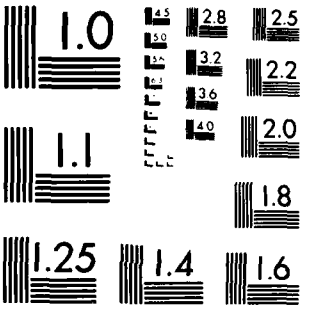

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THE MONITORING OF TECHNOLOGY TRANSFER TO THE USSR

Report to the Office of the Deputy
Under Secretary of Defense for
Research and Engineering
(International Programs and Technology)
Submitted under Contract No. MDA903-81-C-0329

by

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Consultant
Science, Technology and
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McLean, Virginia, August 1982

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This study examines the extent of the monitoring of technology transfer from the United States to the Soviet Union (1) under validated license; (2) under general license; and (3) under intergovernmental cooperative agreements concluded by the United States and the Soviet Union in 1972-74. The study also considers organizational options for improving the present system for monitoring technology transfer.

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At present, reporting on what is transferred under validated license is inadequate. The reporting is required only at the time when the license expires, which may mean a delay for as long as four years after the license was issued. Even when available, the data are not computerized and not readily retrievable.

The U.S. Census Bureau compiles statistics as to what is shipped under both general and validated license (no differentiation between the two is made). These statistics are reasonably timely and computerized for ready retrieval. However, the categorization system (Schedule B) used by the Census Bureau is not detailed enough to meet requirements of a sophisticated technology transfer policy.

Largely because of the curtailment of activities under U.S.-U.S.S.R Cooperative Agreements in Science and Technology in recent years, transfer of technology under these agreements is quite small. However, to the extent that technology is transferred under these agreements, its transfer is not effectively monitored.

Rather than designing a new technology transfer monitoring system, the study recommends a number of measures to strengthen the existing system.

The study contains notes, indicating sources of information. In addition to the use of public documents, it extensively utilized interviews with personnel involved in the monitoring of technology transfer.

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THE MONITORING OF TECHNOLOGY TRANSFER TO THE USSR

Victor Basiuk

Introduction

This study examines the extent of the monitoring of technology transfer from the United States to the Soviet Union in the following three principal areas of transfer:

1. Technology transferred under validated license. This is the only avenue of technology actually controlled, in that in order to transfer technology under validated license, a specific application is required which must be approved. A validated license for export of technology is required for two reasons: (1) national security, and (b) foreign policy. Controls are administered under these two categories. (A validated license is also required for goods declared to be in short supply, but short supply controls apply to the kind of commodities, - e.g., raw materials, petroleum products - which usually do not involve technology transfer.)[1]

2. Technology transferred under general license. This license authorizes a company to export without any specific application for a given commodity. Items which do not require a validated license are exported under general license. These exports are not controlled.[2]

3. Technology transferred under inter-governmental cooperative agreements concluded by the United States and the Soviet Union in 1972-74. This avenue of technology transfer is not completely separate from the two above inasmuch as the requirement for a validated or a general license is applicable to appropriate

forms of technology transferred under the cooperative agreements. However, the agreements warrant an examination in its own right because of their deliberate intent of technology exchange and because they have their own avenues of technology transfer.

Technology Transfer under Validated License.

The scope of control over technology transferred to the Soviet Union varies, depending on the form in which it is transferred. Perhaps the most extensive control exists over proprietory technical data (licenses, company-owned technical information amplifying on patents, etc.): all such data require a validated license. Technical data in public domain (e.g., anything published or stated in a public conference; patents purchased from the U. S. Patent Office), however, can be transferred under general license and are thus not controlled. If technology is being transferred in the form of manufactured products, then the question whether or not its transfer is controlled is determined by the Commodities Control List (CCL); if a particular item appears on the CCL, a validated license is required. Since CCL controls vary from one country to another (or one group of countries to another), a mere appearance of a commodity on the CCL does not necessarily mean that its transfer to the Soviet Union would require a validated license. However, the Country Group Y - which includes the Soviet Union-[3] has the most comprehensive controls from the point of view of national security; therefore, if an item appears on the CCL, the probability that its transfer to the USSR would require a validated license is high.

At present, the monitoring of commodities transferred under

validated license resides in the Operations Division of the Office of Export Administration, Department of Commerce. Whenever a validated license is issued, the items to be shipped under it are entered into a computer. A printout for each month is obtainable five days after the month expires. It should be emphasized, however, that the information thus obtained indicates only what is intended to be shipped under the license, and not what has been actually shipped.

The Operations Division receives reports as to what was actually shipped only at the time when a license expires. If a license is extended, no reporting at the time of the extension is required. A validated license for commodities is normally given for a year, and may be extended for six months two times. Thus, in the case of commodities, reporting as to what was shipped under a validated license could be delayed for as long as two years from the time the license was issued. In the case of technical data, the reporting could be delayed for four years, since a validated license for technical data is issued for 24 months and can be extended for another 24 months.

Insofar as information of what actually was transferred exists (subject to the aforementioned limitations), such information is not readily retrievable; it is burried in the reports submitted at the time of the expiration of the licenses. According to the Operations Division of OEA, this data is expected to be computerized by the end of 1982, at which time it will be readily retrievable in a fashion similar to that of the data authorized for transfer under validated license (i.e. by CCL number or by country).

More demanding regulations with regard to reporting exist in the case of a qualified general license (see note 2 on the origin of this license). In accordance with Paragraph 373.4 of Export Regulations, the exporter is required to report at the end of each month on what was actually shipped during the month and provide a date for each shipment. It should be noted, however, that the extent of use of qualified general license has been quite limited so far. In the first year of its existence (July 1980 - June 1981), only four applications for a qualified general license were submitted, of which two were approved and one was pending. According to Office of Export Administration (OEA) personnel, the reason for the limited use of qualified general license is the reluctance of exporters to apply, apparently feeling that they can do just as well under validated license. A qualified general license is issued for 12 months and can be extended twice, for a total of three years.

Technology Transfer under General License.

As noted earlier, technology transfer under general license is not controlled and is not being monitored by the Department of Commerce. However, records of what is being transferred exist, although such records fall short of what is needed to implement a comprehensive differential technology transfer policy.

At the time of shipment, the exporter is required to deliver to the carrier (a ship, airline, etc.) a Shipper's Export Declaration (DOC Form 7525V). This Declaration lists all commodities in terms of Schedule B, which has a distinct reporting number for each item. The carrier, in turn, is required to file

a manifest with the U. S. Customs Service at the time of departure. The manifest lists all the cargo carried aboard and, in addition, has all individual Shipper's Export Declarations attached to it. The U. S. Customs Service forwards all the manifests to the U. S. Census Bureau which examines them (more on this later) and processes them for statistical purposes. Since no export documents are filed for individual shipments valued at below $500, such shipments are not included into Census Bureau statistics.

The processing for statistical purposes is conducted on a monthly basis and takes the following principal forms:

1. Form FT 410 compiles data on U. S. exports in terms of commodity by country. Thus, a particular commodity is entered by its Schedule B number and a description (e.g., 2481020, Treated Hardwood Railroad and Mine Ties, Except Switch or Bridge Ties, MBF). Then the countries to which this commodity was exported are listed; the quantity and value of exports are given for each for the month and cumulatively from January todate.

2. Form EM 531 compiles statistics in terms of country by commodity. Thus, all commodities shipped to the USSR would be listed by their Schedule B number and a descriptive entry in the section covering the Soviet Union. Their dollar value and weight are stated.

Both FT 410 and EM 531 cover commodities shipped under general and validated license. These two categories are not differentiated in U. S. Census Bureau statistics. U. S. Census statistics on international trade are usually published three months after the shipment, but the data are fed into the computer as they arrive and a printout from the computer for a particular month would be

available on the 27th day of the following month (e.g., the statistics for March could be obtained on April 27).

Although the Census Bureau system appears to be quite comprehensive and fairly efficient, it has a significant limitation for the purpose of monitoring technology transfer: the numerical system of Schedule B, which consists of some 4,300 entries, is not detailed enough, technically, to meet the requirements of a differential technology transfer policy. To be sure, some classifications will be adequate; still others would need refinement.

Quite apart from the need for establishing an effective and timely system of the monitoring of technology transferred under validated license by OEA, a relevant question to ask is: What percentage of manufactured goods is being shipped to the Soviet Union under general license which is outside of the OEA system of controls? Although not all shipments of manufactured goods comprise technology transfer, a quantification of manufactured exports transferred under general license would give us an idea of the magnitude of the monitoring task involved. Since no statistical differentiation between validated and general license exports in manufactured goods is currently available, only a rough estimate through indirect computations is possible.

According to estimates by OEA (Operations Division), only about 50% of the value of the export licenses granted to the USSR have been used. In the years 1976 - 1980, a total of $776.1 million worth of commodities was approved for export to the Soviet Union.[4] Applying our 50% discount, only $388.1 million are assumed to have been exported. This figure comprises 8.2% of manufactured goods

exported to the USSR in the same period ($4,120 million).[5] The above figure suggests that about 92% of manufactured goods are being exported to the Soviet Union under general license.

The Question of Evasion of the System

The above discussion was focused on the extent of the monitoring of technology transfer as it is being channeled through the established avenues. A part of technology transfer evades these avenues and thus altogether escapes the monitoring system, imperfect as it is. Estimates of the extent of illicit tranfer would be very imprecise and possibly misleading; therefore, the following discussion will concentrate on giving an account of present regulations and procedures for enforcement. This approach, in turn, will suggest possible measures for improvement.

Since the introduction of the Export Administration Act of 1979, penalties for export violations have been significantly sharpened. Thus, according to Section 387.1 of current Export Administration Regulations, a willful and knowing violation of the Act where national security or foreign policy is involved carries the penalty of $100,000 or five times the value of the commodities exported, whichever is greater, and/or an imprisonment of not more than 10 years. These are criminal penalties. In addition, there are administrative penalties (e.g., denial of export privileges) and civil penalties, which may not exceed $10,000 and a 100% forfeiture of the commodities exported in violation of the Act (Section 390.2 of Export Administration Regulations).

In addition to the above, the U. S. Customs Service has civil penalties of its own. They, however, are relatively minor: up to

a total of $3,000 for such violations as the failure to list an item in the manifest and the Shipper's Export Declaration.

While the situation in the area of legislation with regard to violations was thus strengthened, the ability to enforce it remained lagging. Early in 1982, the Compliance Division of OEA, which had primary jurisdiction with regard to inspection and enforement of violations under the Export Administration Act of 1979, had a total of 52 people. Only a very limited amount of these were inspectors responsible for physical verification of exported commodities.[6] The available number of inspectors permitted only an occasional spot inspection.

More recently, however, a reorganization of compliance enforcement in the Department of Commerce took place. In May 1982, the Office of the Deputy Assistant Secretary for Export Enforcement was established. This office is still in the process of shaping its activities, but there is a distinct promise that export enforcement in the DOC will be strengthened.

The U. S. Customs Service assists OEA in physical inspection of exports, but its resources for this function are also minimal. OEA reimburses the U. S. Customs Service for a total of 7 man-years of effort annually. According to Customs, many more hours are allocated to physical inspection than what the Service is getting reimbursed for. But this activity has low priority in Customs and no pretense is being made that it is carried out adequately.

The Foreign Trade Division of the Bureau of the Census plays a role in the detection of potential violations by subjecting to an examination all single shipments of $750,000 and above. If

technical data are involved, shipments of lower value may be examined. The examination principally consists of a phone call to the exporter, inquiring whether the shipment was reported correctly. If there are doubts or discrepancies, the Census Bureau may contact the Compliance Division of OEA which may investigate the case physically. The Census Bureau itself does not do any physical examination or investigation.[7]

Technology Transfer Under U.S.-USSR Cooperative Agreements in Science and Technology

U.S.-USSR cooperative agreements in science and technology were concluded in 1972-74, at a high point of detente. At present, exchange programs are functioning under eight agreements. These agreements and the lead agency for each are as follows:

1. Agriculture (Department of Agriculture)
2. Environmental Protection (EPA)
3. Atomic Energy (DOE)
4. Housing and Other Construction (HUD)
5. Medical and Science and Public Health (DHHS)
6. Artificial Heart (DHHS)
7. Transportation (DOT)
8. Studies of the World Oceans (NOAA)

One could distinguish between two broad categories of technology transfer: (1) "program-intrinsic" and (2) "program-external." "Program-intrinsic" technology transfer is of the type for which exchange programs were designed and it takes place within the framework of the programs. "Program-external" technology transfer is the transfer which takes place outside of the framework of

exchange programs and usually not intended by the establishment of the programs.

Within the category of "program-intrinsic" technology transfer, we can distinguish between two sub-categories:

(a) "Personal knowledge" transfer. It primarily encompasses transfer of technology in human minds - whatever Soviet scientists and engineers learn through participation in exchange programs.

(b) "Equipment/design" transfer. This sub-category encompasses transfer of technology in some physical form - equipment, blueprints, research papers, etc.

The monitoring of technology transfer in the "personal knowledge" sub-category does not exist and would be very difficult to carry out. The extent of the transfer could be very generally estimated through an indirect approach, which might include an examination of the nature of programs, their number, intensity, etc. Considering the amount of effort required and its limited pay-off, an in-depth examination of this sort would not be warranted. Some comments and figures on this subject, however, might be useful.

Probably a majority of exchange programs deal with science rather than technology. Programs in Artificial Heart, Medical Science and Public Health, and Studies of the World Ocean are primarily scientific, while some others (e.g. Atomic Energy, Agriculture) have a large science component. This in itself limits the extent of technology transfer, although Soviet augmentation of scientific knowledge in these areas will, to a degree, eventually be transferred into technological advance. In any event, whatever technology transfer is taking place in the "personal knowledge" sub-category,

it is rather narrowly circumscribed by the nature of the programs.

In terms of personal exchanges, the programs reached their peak in 1979, in which year a total of 737 Soviet individuals visited the United States. Of the 737, 61 were here on a long-term (more than 60 days) visit. As a result of the curtailment of the exchange activity by the United States in response to Afghanistan, Soviet visits declined to about 35 percent of the preceding year. Thus, in the first half of 1980, a total of 134 Soviet individuals visited the United States under the exchange programs, of which 19 were long-term. In terms of the number of active projects, the decline between 1979 and 1980 was small (from 241 to 236), but many were being kept in a merely skeletal form. It has been estimated that, in over-all terms, the exchange programs activity had declined to 25 percent of pre-Afghanistan level by 1981.[8]

No statistics are available at this point for more recent periods, but largely in response to the imposition of military control in Poland, a further curtailment of the exchange activities followed. In particular, three agreements (in existence in 1981) have not been renewed: Science and Technology, Energy, and the Exploration and Use of Outer Space for Peaceful Purposes. According to unofficial estimates by personnel administering the exchanges, the over-all exchange activity has declined to about 20 percent of its pre-Afghanistan level as a result of the termination of the above programs. The activity in the remaining programs is continuing at about 25 percent of their pre-Afghanistan level.[9]

The monitoring of technology transfer is potentially much more tangible in the "equipment/design" sub-category, but no concerted effort to monitor technology transfer in this area exists. Individual Executive Secretaries of the exchange programs keep correspondence relevant to the transfer of equipment (some of it on loan) and, by sifting through many papers, such a transfer can be tabulated. But there is no central point, at the Soviet desk in the Department of State (EUR/SOV)- which coordinates all exchange programs- or elsewhere in the U. S. government where an account of such transfer exists. If, however, a given item of technology requires a validated license, then it would be subject to the monitoring procedures (inadequate as they are) applicable to technology transfer under validated license, described earlier in this study. It must be pointed out, though, that there are relatively few items transferred to the USSR in the "equipment/design" sub-category under the exchange programs.

"Program-external" technology transfer encompasses contacts of Soviet exchange personnel with industry and other sources of technology (usually outside of the program in which they participate) and technology transfer resulting from such contacts. In most cases, Soviet participants establish industrial contacts through symposia sponsored under the program. With the help of these contacts, they visit industrial plants and laboratories. Instances are known where Soviet participants of a program raised questions about applied technology which was beyond the primarily scientific nature of the program, and U. S. administrators of the program suggested that they should contact industrial sources.

Visits to industry are sometimes sponsored by a particular exchange program. At times, Soviet exchange program participants were instrumental in concluding a commercial contract for technology transfer.[10]

Similarly to the "program-intrinsic" category, "program-external" technology transfer can be subdivided into two sub-categories, "personal knowledge" and "equipment/design" transfer. Apart from general export regulations, no specific monitoring of "program-external" transfer exists.

It should be noted that the extent of "program-external" technology transfer varies from program to program. Largely depending on the attitude of a particular executive secretary, some programs attempt to limit the exposure of Soviet participants to industry while others do not. There does not seem to be a uniform policy in this regard.

Organizational Options for Monitoring Technology Transfer

At present, the monitoring of technology transfer resides in the Department of Commerce. In varied degrees and not exactly as a part of a deliberate comprehensive design, it is conducted by the Office of Export Administration and by the Bureau of the Census, with some assistance from the U. S. Customs Service. This monitoring is not adequate to meet the requirements of present policy of technology transfer and some improvements in the system are being made. However, the on-going and planned improvements, even if successfully carried out, will not be sufficient to meet the needs of a sophisticated differential technology transfer policy. In fact, the currently contemplated improvements in

monitoring would not be adequate to meet the present stage of evolution of U. S. technology transfer policy, let alone a significantly improved future stage.

The range of organizational options for an effective monitoring system of technology transfer basically lies between two principal alternatives: (1) designing a new system, perhaps outside of the Department of Commerce; (2) tightening up the existing system short of a major restructuring.

The first alternative includes such options as (a) the establishment of a technology transfer monitoring system under an independent agency for technology transfer, if and when created;[11] (b) setting up a technology transfer monitoring system within the CIA; (c) restructuring and strengthening the monitoring system within the Department of Commerce. Each of these options has it pluses and minuses. If a separate agency for technology transfer is established, then it would make sense to set up a monitoring system within it, but the outlook for such an agency is uncertain. The principal advantage of designing a new system for monitoring technology transfer is that, being new, it could be coherently structured to meet policy requirements. Its principal disadvantage is that the establishment of such a system must overcome political and legislative obstacles, which can be formidable indeed.

The present monitoring system within the Department of Commerce could be tightened up and could function satisfactorily, if not ideally, without a major reorganization. Considering the likely difficulties of implementing a new system, the alternative

of improving the present system appears to be the preferable one.

The monitoring of technology transfer under validated license needs to be strengthened. The present system of monitoring of technology intended to be transferred under validated license is adequate and requires no improvement. However, there is no timely reporting of what actually has been transferred. To remedy the situation, a requirement similar to that currently applicable to commodities transferred under qualified general license should be introduced: each exporter would be required to report to the Operations Division of OEA at the end of each month all items shipped to the USSR under validated license within that month. This requirement should be made applicable to technical data also, and not just commodities. The requirement to report at the time of the expiration of the license should be abolished. All information thus reported should be computerized in a form suitable for ready retrieval.

The question arises as to what monitoring procedures should be established with regard to the additional categories of technology - such as those differentiated in Phase I of this study - which may not presently require a validated license but which would be useful to monitor for policy purposes. Two options are available:

(1) As soon as the afore-mentioned technologies are identified and categorized, a validated license would be required for their transfer. This would automatically ensure their effective monitoring.

(2) A new category of licensing be established, say a

qualified validated license. An application for a qualified validated license would not be subject to the standard review by OEA staff. It would be routinely approved in a manner similar to that applicable to a general license, except that, for monitoring purposes, the procedures of a validated license would apply.

Of the two options, the second appears to be distinctly preferable. It would avoid the likely complications and administrative burdens of adding a number of additional items to the validated license category at a time when utility of applying controls to them may not as yet be fully determined or when the imposition of controls would be premature. It would, however, create a quite adequate monitoring system which would open up opportunities for intelligence assessments of the impact of these technologies on the Soviet Union. The aforementioned assessments would determine which technologies would warrant controls and under what circumstances; by the same token, they would determine which technologies would justify the fostering of their transfer. In response to the development of events, and, as appropriate, to agreement on policy with U. S. allies (1) certain technologies may be transfer from the "qualified validated license" to the "validated license" category; (2) measures for facilitating or promoting transfer of certain technologies may be introduced.

The establishment of a qualified validated license would, by and large, satisfy policy requirements for monitoring technology transfer. However, to provide a more comprehensive picture of what is being transferred to the Soviet Union, improvements in the monitoring of commodities under a general license could be

made. The present system of monitoring in this area, administered by the U. S. Census Bureau, provides a timely and readily retrievable information. Its principal weakness is that it has been designed mainly for statistical, and not policy, purposes. Thus, Schedule B, which is being used by the U. S. Census Bureau to report trade, does not provide sufficiently detailed entries in all cases to meet requirements of policy-oriented intelligence assessments and technology transfer policy. Accordingly, the classification system of Schedule B could be reviewed and made more detailed in selected areas not covered by qualified validated or validated licenses. If, however, the category of qualified validated license is not introduced, then a considerably larger number of items in Schedule B would have to be re-classified in a more detailed form so as to satisfy policy-oriented requirements of the monitoring of technology transfer.

The monitoring of technology transfer will not be complete unless an effective system exists to preclude clandestine transfer of technology. As we have seen earlier, the present legislation for the enforcement of illicit transfer of technology is adequate, but the means to enforce it have been lagging. There is a distinct need for augmenting the number of inspectors in what is now the Office of the Deputy Assistant Secretary of Commerce for Export Enforcement (formerly the Compliance Division of OEA).

The above improvements in monitoring technology transfer by the Department of Commerce would be applicable to the "Equipment/ Design" sub-category of technology transfer under the U. S.-USSR cooperative agreements and should provide an adequate monitoring

of this category. However, these improvements would not affect the monitoring of the "personal knowledge" sub-category. The monitoring of this sub-category and, as appropriate, control of technology transfer under it, can only be carried out within the programs themselves. In particular, the following two measures are recommended:

1. All Executive Secretaries of the Agreements and their staffs should be thoroughly familar with the theory and objectives of U. S. technology transfer policy and should systematically enforce these objectives in designing the various working groups and in the kind of exposure to technology to which the Soviet participants are subjected. At present, there is a considerable amount of uneveness in this regard among the various programs. Some Executive Secretaries and U. S. personnel administering the programs are familar with their objectives, have a good background in Soviet affairs, and are dedicated to their work, while others do not possess these attributes to the same degree. As a differential technology transfer policy is introduced, all programs under U. S. - USSR cooperative agreements should be reviewed to ensure that they conform to the objectives of this policy.

2. There should be a consistent and uniform policy with regard to "program-external" contacts of Soviet participants which might involve, or lead to, technology transfer. Such "program-external" contacts should be minimized and monitored.

NOTES

1. For details, see U. S. Department of Commerce, International Trade Administration, Office of Export Administration, Export Administration Annual Report, FY 1980 (Washington, D. C.: U. S. Government Printing Office, 1981), pp. 19-64.

2. In July, 1980, in response to the provision of Section 4(a) of the Export Administration Act of 1979 (P.L. 96-72), a qualified general license was introduced. It is somewhat of a misnomer in that, just like a validated license, it requires an application and the items transferred under it are subject to controls of a validated license, with some minor modifications. The purpose of the qualified general license is to facilitate trade for a narrow range of commodities which are less sensitive than those requiring a validated license. A qualified general license permits an indefinite number of shipments of a given commodity within the time frame of the license. The monitoring of technology transferred under qualified general license will be discussed later within the framework of controls applicable to validated licenses.

3. In addition to the USSR, other countries in Country Group Y are Albania, Bulgaria, Czechoslovakia, Estonia, German Democratic Republic (including East Berlin), Hungary, Laos, Latvia, Litvania, and Mongolian People's Republic. In 1981, PRC was taken out from Country Group Y and placed into a country group of its own, P. Poland is also in a separate Country Group W. North Korea, Vietnam, Cambodia, and Cuba are in Country Group Z. Department of Commerce, Export Administration Regulations, Supplement No. 1 to Part 370, p.1, January 25, 1980.

4. Source: Operations Division, OEA. This figure excludes $1.3 billion worth of agricultural commodities, the license for which was granted in 1980.

5. Computed from U. S. Department of Commerce, Office of East-West Trade Policy and Planning, Selected Trade and Economic Data of the Centrally Planned Economies (Washington, D.C., June 1979), p. 8, and Robert C. Teal, "U.S.-USSR Trade Trends, Jan.-Dec. 1980," Staff Paper, Office of East-West Trade Policy and Planning, International Trade Administration, U.S. Department of Commerce, March 1981, p.2.

6. The Compliance Division kept the total number of its inspectors confidential, inasmuch as the activity of potential violators would be facilitated if the whereabouts of all the inspectors were accounted for.

7. The above information was obtained from interviews of personnel in the Office of Export Administration, the U. S. Customs Service, and the U. S. Census Bureau.

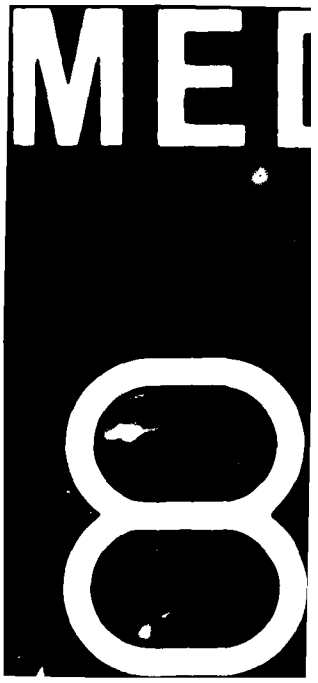
8. Source: Department of State (EUR/SOV, Exchanges) and Executive Secretaries of the various exchange programs.

9. Ibid.

10. Source: Interviews with U.S. staff members administering the programs. See also Congressional Research Service, Library of

Congress, Technology Transfer and Scientific Cooperation Between the United States and the Soviet Union: A Review. Prepared for the Subcommittee on International Security and Scientific Affairs of the Committee on International Relations, U.S. House of Representatives (Washington, D.C.: U. S. Government Printing Office, 1977), p. 84.

11. E.g., Senator Jake Garn proposed the establishment of an independent Office of Strategic Trade. See his bill, S.2837 ("Office of Strategic Trade Act of 1982"), in Congressional Record (Senate), August 13, 1982, pp. S10516 - S10529.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