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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
27 January 1967

INTELLIGENCE MEMORANDUM

France-Soviet Scientific and Technical Cooperation

Summary

Scientific and technical cooperation between France and the Soviet Union began in 1960 with a limited agreement, providing mainly for exchange visits of scientists. This activity was expanded three years later in a Protocol for Cultural, Scientific and Technical Exchanges. Since then, substantive cooperative agreements have been concluded in the fields of nuclear research, color television development, telecommunications, and space, although the mechanics of implementing these agreements are still under negotiation.

NOTE: This memorandum was produced solely by CIA. It was prepared jointly by the Office of Current Intelligence and the Office of Scientific Intelligence. Information on this subject has been obtained for the most part from public statements



It is thus possible that cooperation between France and the USSR has already progressed to a greater degree than here reported.

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Attitudes

1. There is general apprehension on the French side that collaboration with the USSR could harm France's friendly and productive relations with the US scientific community, in particular, with the National Aeronautics and Space Administration. It is likely, however, that French technology has developed to a point where the information France needs to advance significantly its technology is classified in the US and not obtainable under any circumstances. In any case, French scientists enjoy close personal ties extending back many years with their American colleagues. Thus it is doubtful that the dialogue between the French and US scientific communities will be cut off by the development of close Franco-Soviet relations.

2. Certainly, the Soviets will be most reluctant to give away worthwhile scientific and technological information to the French. And the French are well aware that the broad scope of their cooperative agreements with the USSR affords the Soviets ample opportunities to acquire important technology both from France and indirectly from other Western countries.

Institutional Framework

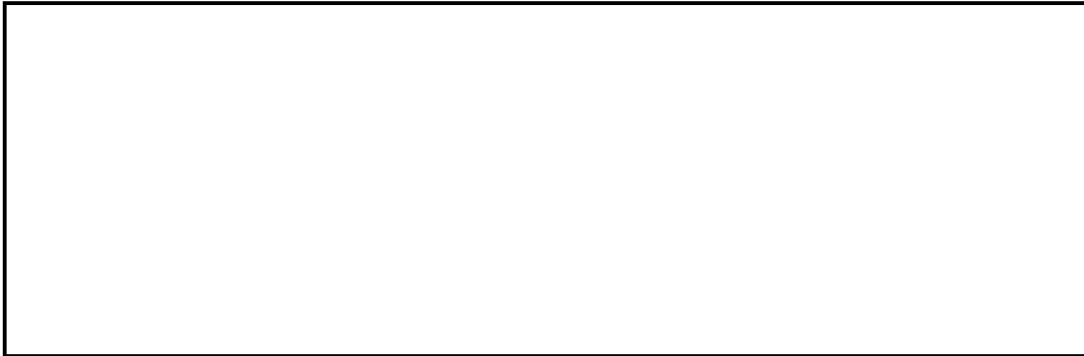
3. De Gaulle, during his visit to Moscow in June 1966, signed a general agreement setting forth broad principles of Franco-Soviet scientific, technical and economic cooperation. This agreement established a bilateral commission composed of a number of joint working groups which, meeting at least once a year, would oversee cooperative agreements already in force and develop new ones in specific fields of mutual interest.

4. There are working groups in biology, oceanography, oil drilling, color television, and on the creation of a joint chamber of commerce. Groups also were set up to deal with space research, meteorology and aeronomy and telecommunications.

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Space

6. The USSR is willing to orbit French scientific satellites with Soviet launch vehicles. Two projects are under study: a highly elliptical orbiting satellite (HEOS) with an apogee of the order of 200,000 kilometers, and a lunar orbiter. A lack of sufficient funds for both projects is forcing the French to choose between them. So far a decision has not been made, but Aubiniere--the director general of the French National Center for Space Studies--recently stated that, because US moon probes will accomplish most of what a French lunar orbiter would do, the HEOS project offers France more interesting possibilities. Because of the shortage of funds, however, neither project will develop rapidly, and launchings probably will not occur before 1971.



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7. A group of French scientists headed by Prof. L. R. Owen Storey--a British citizen working at the Institute of Ionospheric Studies--made the proposal for the HEOS satellite which would investigate radio propagation as an extension of the experiments aboard

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the first French satellite, FR-1, orbited by the US in December 1965. The lunar orbiter is under study by scientists from the Center of Nuclear Studies at Saclay, the Paris Observatory, and the Aerology Service of the National Center for Scientific Research (CNRS).

8. A sticky issue in these negotiations has been Soviet reluctance, for security reasons, to permit French technicians at the Soviet launch site. According to the agreement signed by De Gaulle in June 1966, however, the USSR will allow the French on the launch site, but the degree of access has not yet been spelled out. The French consider free access mandatory, and until this matter is resolved to both parties' satisfaction, any agreement on a joint space launching is unlikely. The USSR permitted De Gaulle in June and a group of foreign Communist leaders in October to witness space and missile launchings at Tyuratam. These visits to the USSR's major launch center--the only ones made by Westerners--indicated that the Soviets may be willing to relax security restrictions for the French.

9. Other joint space activities have been discussed, such as placement of French scientific experiments on board Soviet satellites and joint development of improved equipment for automatic data gathering from meteorological satellites, but no concrete proposals have been made. Cooperative launchings from the French Guiana space center do not appear to be under consideration.

Meteorology

10. Joint meteorological studies will consist of launchings of sounding rockets. Soviet rockets fired from the Kheys Island, Franz Joseph Land, and from Soviet ships will carry jointly designed and constructed payloads while French Centaure rockets with identical payloads will be launched from France. None of the results will be classified, but data obtained will be the property of the scientists responsible for the experiments. Technicians from both countries will participate in all of the launchings.

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Telecommunications

11. Since November 1965, several experimental transmissions of television, both color and black-and-white, have been relayed between Moscow and Pleumeur-Bodou in France by Soviet Molniya communications satellites. More of these transmissions are scheduled, and beginning in the fall of this year, television programs will be exchanged regularly each week. French press reports say these transmissions will amount to twelve hours per week.

12. The USSR will provide the French receiving antenna at Pleumeur-Bodou with a filter demodulator to separate sound from the picture. In the exchanges conducted to date, the sound has been transmitted over ground lines and the picture via satellite. The Soviets will also supply a Soviet-manufactured final stage klystron to increase the bandwidth of the French transmitter. The French will duplicate a Soviet channel separation filter in order to conduct experimental telephone exchanges via Molniya.

13. France will seek to determine the economic viability of placing telephone and television exchanges on a commercial basis, but [redacted] prospects are unfavorable. [redacted] there are sufficient land lines between the two countries to handle expected increases in telephone traffic, and television exchanges alone probably would not be justified on a cost basis.

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Nuclear Physics

14. The agreement signed in May 1965 for cooperation on peaceful uses of nuclear energy provides for a broad-ranging exchange of information. Specifically, it stipulates joint work on accelerators and nuclear physics and the exchange of visits of specialists in power reactors, research reactors, radioactive waste treatment, isotope production, controlled thermonuclear fusion, and plasma physics. More generally, the agreement calls for the

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exchange of specialists for training, the exchange of scientific and technical documentation, and the convening of seminars on problems of mutual interest. Finally, it provides for an annual meeting to examine the development of cooperation between the two countries.

15. Cooperation in this field may gain momentum in the future, but thus far we have seen little implementation of the agreement. The one likely area involves the Soviet 70 Gev synchrotron under construction at Serpukhov near Moscow. France is building a large hydrogen bubble chamber with a volume of more than 6,000 liters to be installed at the Serpukhov facility, probably in 1969. This undertaking almost certainly will give French scientists access to the synchrotron.

16. Moreover, the agreement reportedly allows 50 French scientists and technicians to move to Serpukhov with their families and work there for three years. If carried out, it would be the first time that the USSR allowed a large group of Western scientists to live and work in the USSR for an extended period, providing them with a unique opportunity for observation.

17. Late last year, French Minister of Science Alain Peyrefitte announced that a joint effort would be made to develop high-speed neutron reactors of the "Phoenix" type.

Color Television

18. In March 1965 the two nations agreed to cooperate in the development and production of the French SECAM-3 (Sequential and Memory) color television system and to work for its adoption as the European standard. In April 1966, East European television experts agreed to support this system, and the Soviets have since allowed France to negotiate directly with the East Europeans on the use of SECAM-3.

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19. When the June 1966 meeting in Oslo, Norway, of the International Radio Consultative Committee failed to reach agreement on a standard system for European television, the Soviets repeated their endorsement of SECAM-3 and announced that production of receivers would begin and sets would be on the market this fall. France will supply a number of critical components for these sets, including glass for the picture tubes. This special glass is now manufactured in the US as a joint product of the Corning Glass Works and the French firm, Saint Gobain. In the near future, however, the French expect to be able to manufacture this glass in France without help from the US firm.

Oceanography

20. The USSR recently proposed an investigation of the Kurile trenches, with both sides sharing equally in the scientific and financial outlay. Details of the proposal are not known, but it probably will involve the French bathyscaph Archimede, launched in 1961 and capable of reaching depths down to 11,000 meters. Madam V. Troitskaya, a leading Soviet geophysicist, made a five-hour dive in the Archimede in early 1966. One probable objective of the Soviet proposal is to learn about the design and operation of French bathyscaphs.

Biocybernetics

21. Several recent reports indicate that the French and Soviets are engaged in cooperative research in biocybernetics.

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Prospects

22. The translation of these agreements into meaningful activity has been slow, no joint project has yet made significant progress, and [REDACTED]

[REDACTED] --from the technical standpoint-- prospects at this stage for fruitful cooperation are not encouraging. The element which cannot be calculated, however, is the extent to which the political will to further the Franco-Russian rapprochement will override the technical and economic obstacles to expanded cooperation. Both Paris and Moscow initiated steps toward such cooperation with an eye to the political advantages which might accrue. From this point of view, the effort may be continued or expanded despite the absence of technical advantages.

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