

Presented at Commission meeting, 9/14/55.

Cont'l. Atomic Energy

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Notes for report to AEC on Geneva ^{safeguards} meeting

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1. BACKGROUND: Geneva meeting developed as a result of exchange of series of notes between US and USSR following the U.S. suggestion of an international pool of fissionable material and later plans for an international agency.

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USSR position was that existence of such pool and widespread development of reactors would increase fissionable material supply and thus increase hazards to peace.

U.S. replied that technical means could be devised to assure that no undetected diversions took place and suggested a meeting to discuss these. USSR agreed in early summer and suggested Geneva following the "Peaceful Uses" conference. Later, the U.K., France, Canada and Czechoslovakia were included.

(total 10 people)

2. U.S. delegation headed by Rabi. State Department representatives were Gerard Smith, William Hall, Francis Stevens, Howard Robinson. Others (AEC) were John Hall, W. H. Zinn, Kenneth Davis, R. W. Dodson, S. C. English. Other delegations headed by Cockroft and Schonland (U.K.), Lewis (Canada), Perrin (France), Skobeltzin (USSR), Simane (Czechoslovakia).

3. There were five meetings of about 2 hours each. Rabi chairman first day. Presented, as a basis for the discussions, a series of assumptions (these had been discussed in private beforehand with the U.K., France and Canada).

Major assumptions and technical suggestions:

(1) Agency will exist which will make fissionable material available. Will do so under conditions of least interference and with

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facilities designed for best inspection. Countries will completely divulge all activities coming under terms of agreement with Agency. Agency will inspect and control to prevent undetected diversion.

(2) Basis of control to be physical security measures and material accountability procedures related to storage of materials, reactor operations, fuel fabrication, chemical operations, transport.

(3) Control and inspection measures will vary with type of installation (e.g. less severe in case of research reactor).

(4) Suggests use of radioactive tracer as an aid in following sensitive material. U-232 suggested for enriched U-235 and U-233 and Co-60 for Pu - spontaneous neutrons from Pu-240 also suggested as useful for Pu.

(5) Suggests limit of 20% enrichment in U-235 for use in research and material testing reactors with power limitation of 30 MW. Suggests limit of 5% enrichment for power reactors with exception of certain "package power" reactors for remote or special application where enrichment of 20% allowed with power limitation of 30 MW.

GENERAL IMPRESSIONS AND COMMENTS:

1) Meeting, as intended, was preliminary and exploratory in nature - as such believe it served a useful purpose. No general agreement was anticipated or sought.

2) Attitude of Russians, while reasonably friendly, was one of assuming they were there to examine U.S. proposals with considerable amount of nit-picking criticism. Although it was pointed out to them

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the meeting was for a joint discussion they had nothing substantive to offer and their comments were largely in the form of questions. I believe they do not like the idea of an Agency but feel they have to become involved in case it is established. Believe their plans involve furnishing material for reactors to their satellites, but retaining control over reprocessing and refabrication of fuel. USSR appeared unprepared for meeting.

3) Discussions somewhat hampered by lack (at this stage) of clear definition of functions of agency. In all discussions, U.S. delegation careful not to prejudge any or all functions of Agency, nor to specify areas of operation.

4) U.K., France, Canada in general agreement with plans put forward by U.S. They also had little substantive material to contribute. Lewis somewhat unhappy about limitations on enrichment proposed - on technical basis.

Rabi submitted final report as chairman. Also Rabi and Davis memorandum recommending:

- (A) Assessment be made of what amounts constitute dangerous diversion;
- (B) Tracer methods be evaluated in laboratory;
- (C) Design studies be carried out by engineering firm on reactor and chemical plant with view to integrating ease of control into concept.

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3. Report on Geneva Technical Discussions (pp. 2-13)

Mr. English reported on the recent international technical discussions at Geneva on means of protecting and accounting for fissionable material which might be allocated to an international atomic energy agency. In summarizing his impressions, he said he believed that although these were preliminary discussions only and no general conclusions had been sought or obtained, the conference had been useful. Discussion had been complicated, however, by the fact that plans for the agency and its functions are indefinite. He added that the Russians had not appeared to be very much interested in the establishment of the agency but had implied that they would wish to join it if it is established.

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Mr. English said that Dr. Rabi had reported to the State Department on the meeting and that both Dr. Rabi and Mr. Davis were interested in establishing what amounts of fissionable material would, if diverted, constitute a threat to the peace. They were interested also in obtaining answers to several technical questions and in particular wished to know what would be involved in the construction of nuclear power plants designed to facilitate inspection. (See AEC 751/34.) Mr. Davis said that he believed that a paper study of the latter question would be sufficient.

With regard to losses in chemical processing of reactor fuel, a matter closely related to the problem of diversion of fissionable material, Mr. English said that the U. K. experience has been that 2% of the material is lost. The U. K. had been informed that this figure is consistent with U. S. experience.

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