REFERRAL RESPONSES
KLAUS FUCHS
ENCLOSURE BEHIND FILE
65-58805-1494x

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February 12, 1951

TOP SECRET

SUMMARY BRIEF

ON

EMIL JULIUS KLAUS FUCHS, was.

Espionage - R

(Bureau File 65-58805)

HARRY GOLD, was.,

Espionage - R

(Bureau File 65-57449)

(NOTE: THIS BRIEF CONTAINS INFORMATION FROM (S) [redacted] WHICH IS RECEIVED UNDER AN AGREEMENT THAT IT WILL NOT BE DISSEMINATED. THERE ALSO APPEARS INFORMATION CLASSIFIED TOP SECRET EITHER BY THE ATOMIC ENERGY COMMISSION OR BY THE [redacted] S

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IX. DISSEMINATION

X. EXHIBITS

A. Exhibit 1
1. [redacted] b7D

B. Exhibit 2
1. [redacted] b1 S

C. Exhibit 3
1. Letter dated October 22, 1947, from L. G. Ralfe to Mr. Carroll L. Wilson, General Manager, U. S. Atomic Energy Commission, requesting clearance of Fuchs to visit Chicago University (Argonne National Laboratory).

D. Exhibit 4
1. Letter dated November 7, 1947, from Carroll L. Wilson, Atomic Energy Commission, to Mr. L. G. Ralfe, British Commonwealth Scientific Office, Washington, D.C., granting clearance for Fuchs to visit Chicago University.

E. Exhibit 5
1. Memorandum dated August 6, 1947, from D. Dean to T. O. Jones, approving clearance for Fuchs to attend Declassification Conference at Washington, D. C. U

F. Exhibit 6
1. Memorandum from C. A. Bolander, Jr., to Admiral Gingrich (dated January 12, 1949,) with attachment concerning the British Mission that participated in the atomic energy program under the Manhattan Engineer District from 1943 to 1946, and the degree of access had by that Mission. U

G. Exhibit 7
1. List of technical meetings attended by Fuchs while at Los Alamos. U

H. Exhibit 8
1. List of Reports prepared by Fuchs. U

I. Exhibit 9
1. Letter from Francis Hammack, Atomic Energy Commission, dated May 19, 1950, transmitting portions of a report evaluating information passed to the Russians by Fuchs. U

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J. Exhibit #10

1. List of some of the reports prepared by Fuchs personally or in collaboration with other scientists while working under the Manhattan Engineer District, on which notes have been placed by Fuchs indicating whether or not the reports were furnished to the Russians.

K. Exhibit #11

1. Signed statement of Fuchs dated May 26, 1950, (does not include technical data).

L. Exhibit #12

1. Signed statement of Fuchs dated May 26, 1950 (includes technical data).

M. Exhibit #13

1. Signed statement of Gold dated July 10, 1950, concerning activities with Fuchs.

[redacted] b1

On May 19, 1950, the Atomic Energy Commission furnished the Bureau with portions of a report evaluating the effect of Fuchs' disclosures on the Atomic Energy Commission declassification policy. This report indicated that it was concluded that some of the information furnished by Fuchs was largely theoretical and has since been declassified. It was concluded, however, that Fuchs turned over to the Russians very important information concerning weapons, and with regard to the Trinity (plutonium implosion) type weapon it was concluded that the essentials of the bomb in adequate detail were turned over either while Fuchs was at Los Alamos or later. It also appeared apparent that considerable information was given to the Russians regarding gun-type weapons.

The report discussed Fuchs' participation in work on thermonuclear weapons at Los Alamos, and a list of meetings attended by Fuchs in this regard was set forth. (This is believed to refer to the hydrogen bomb.) It is also concluded that Fuchs officially had little information concerning other phases of the project in the United States, and that regarding certain developments the Russians did not need information, either because of their own efforts or because they had other sources for information.

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In subsequent interviews with Fuchs by Bureau representatives, Fuchs estimated that the Russian experiments were probably advanced by two years as a result of his information.

Fuchs stated that while in the United States he furnished information to only one person with whom he was in contact in New York in 1944, in Boston in February, 1945, and in Santa Fe in June, 1945 and later in the same year. He admitted being contacted by this American contact at the residence of his sister, Kristel Heineman, in Boston in February, 1945. The description of his American contact furnished by him was very similar to the description given by Kristel and Robert Heineman of the person who came to their residence inquiring for Fuchs, and who later met Fuchs there.

Intensive investigation was conducted in this case, the investigative steps being directed primarily toward the identification of Fuchs' American contact. Various investigative steps were taken, including an effort to identify

It also is to be noted that the Manhattan Engineer District furnished Dr. Fuchs' name to the Bureau on March 28, 1944, after a Bureau inquiry concerning the personnel of the British Mission in the United States working for the Manhattan Engineer District. The Manhattan Engineer District also subsequently furnished on August 11, 1944, the fact that Fuchs was being transferred to Los Alamos. In addition, the Manhattan Engineer District advised on July 2, 1946, that Fuchs departed on June 29, 1946, from Montreal, Canada, for England. The Manhattan Engineer District never requested investigation regarding either Fuchs or other members of the British Mission. According to the records of the Atomic Energy Commission, Fuchs was permitted to be employed on the atomic energy project inasmuch as General Groves had been assured by the British Supply Mission in North America that all members of the British Mission working with the Manhattan Engineer District had been cleared by British Security prior to their trip to the United States.

With respect to the second visit by Fuchs to the United States, when he arrived in New York City on November 11, 1947, the records of the Atomic Energy Commission contained a letter dated October 22, 1947, from L. G. Ralfe of the British Commonwealth Scientific Office, Washington, D. C., to Carroll L. Wilson, General Manager of the Atomic Energy Commission, requesting a clearance for Fuchs. This clearance was given by letter to Mr. Ralfe from Mr. Wilson, dated November 7, 1947. Bureau records failed to reflect that the Atomic Energy Commission submitted Fuchs' name for a name check or investigation in 1947.

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Fuchs was interviewed by Assistant Director H. B. Clegg and Special Agent R. J. Lamphere in London, England, during the period May 20 through June 2, 1950 [redacted] He positively identified photographs of Harry Gold as being identical with his American espionage contact. Two signed statements were obtained from Fuchs, one including therein detailed information relating to the technical data furnished to the Soviets and the other statement eliminating this technical data.

On March 31, 1950, there was forwarded to the Bureau by the Attorney General a letter which he had received from Mr. Llewellyn E. Thompson, Acting Assistant Secretary for European Affairs. This letter referenced the Attorney General's letter of March 16, 1950, and stated that the United States Embassy in London had been apprised of the facts set forth in the Attorney General's letter, and had been asked to inform the Department of the most expeditious and appropriate manner of obtaining an interview with Fuchs. It was set forth that as soon as a reply was received the State Department would advise of the progress made.

On March 31, 1950, a memorandum was directed to the Attorney General, advising him that the Bureau's representative in London had advised that Sir Percy Sillitoe had recommended to the British Home Office on March 24, 1950, that the FBI be granted permission to interview Fuchs. However, on March 30, 1950, information was made available by the Bureau's Legal Attache that Sir Percy Sillitoe had been informed by Sir Frank Aubrey Newsam, Permanent Under Secretary of State for Home Affairs, that it would be unprecedented to grant such a request. Sir Percy Sillitoe indicated that he felt the matter should be presented through the State Department to the British Foreign Office. (65-58805-935)

In accord with this, there was attached for the Attorney General's signature a letter to the Secretary of State setting forth the foregoing facts and requesting that he enter into negotiations with the British in order to arrange for interrogation of Fuchs by the FBI. (65-58805-935)

The American Embassy in London was informed in a telegram from the Secretary of State, dated April 12, 1950, of the facts set forth in the preceding paragraph. The Secretary of State requested the American Embassy in London to advise as to developments in the matter, based on previous correspondence, and to advise as to whether the interview might be expected. (65-58805-1038)

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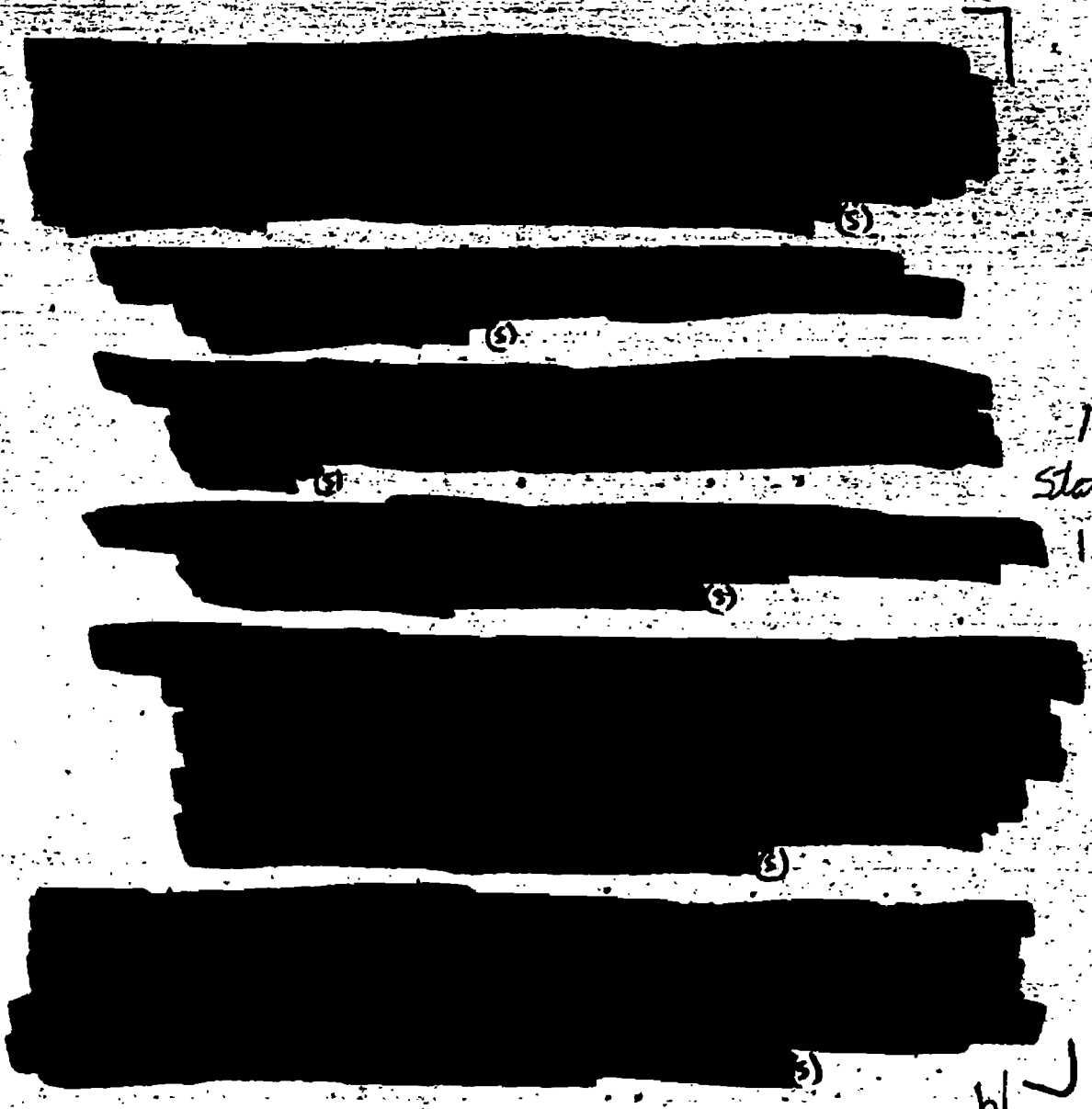
[redacted] facts set forth in this airgram were furnished to the Attorney General by memorandum dated April 21, 1950. (65-58805-1031 and 1032)

[redacted]



With respect to the foregoing, a memorandum was directed to the Attorney General dated May 4, 1950, providing him with a copy of the memorandum, and setting forth the following:

David Lawrence, in an article appearing in the New York Herald Tribune, dated May 4, 1950, discussed the request of the State Department to the British Government for an interview of Fuchs by United States representatives. Lawrence stated that the request had just been complied with by the British Government and forwarded through diplomatic channels. Lawrence also dealt in his article with the clearance of Fuchs to come to the United States to work on atomic research and stated that the British Home Office knew Dr. Fuchs was a Communist for a long time.

On May 5, 1950, Mr. Geoffrey Patterson of MI-5 furnished to Mr. Ladd the contents of a press release to be issued in London by the British Government on the following day, which stated as follows:

> "There has been the fullest possible exchange of information between the United States and British in the Fuchs case. The United States recently asked for facilities to interview Fuchs and in view of the special circumstances of this case, this has been granted. A formal request for facilities to interview Fuchs was earlier received in the last few days."

(65-58805-1111)

On May 9, 1950, Mr. John Cimperman, the Bureau's Legal Attache in London, telephonically advised that the London papers were setting out that the Fuchs case would be discussed in Parliament next Thursday, May 11th, and that the Home Secretary and the Foreign Secretary would be asked questions regarding the proposed interrogation of Fuchs by Bureau agents. Mr. Cimperman said that Labor members would ask as to the precedent governing interrogation of prisoners in England by officials of a foreign government, conditions of such an interview, and, in addition, to what countries such facilities were granted.

(65-58805-1112)

[redacted]

(65-58805-1175)

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Fuchs indicated also that he quite likely furnished biographical information concerning his sister Kristel to the underground Communist movement in England.

Fuchs stated that all of his espionage activities in behalf of the Soviet Union were motivated by his belief in the principles of Communism and by the same desire which prompted his work in Germany in behalf of the Communist Party. At various times he had doubts concerning the position of the Soviet Union in world affairs but was always able to reconcile the Soviet position in his own mind during his period of espionage activities until he finally broke away from this activity in February or March, 1949.

3. Activity in the United States

On November 20, 1943, General George V. Strong wrote a letter to Mr. Howard K. Traver, Visa Division, State Department, requesting that the visa of Fuchs and other British scientists be expedited in view of the fact that they were to leave England to come to the United States by November 22, 1943. (65-58805-133) release per DOE

According to a letter from the Norfolk Office dated December 18, 1943, the H.M.T. Andes, a British Naval Transport, arrived at Norfolk on December 5, 1943, with eighty civilian passengers aboard, all of whom were subjected to the regular Bureau panel procedure. According to the letter, no investigations were conducted prior to the arrival of the vessel, and no investigations were necessitated by the interviews of the passengers. Among those arriving was Klaus Emil Julius Fuchs, born December 29, 1911, at Russelsheim, Germany, a British citizen naturalized on July 30, 1942, at England. (100-197474-8)

After his arrival, Fuchs traveled to New York City and reportedly stayed at the Taft Hotel. Subsequently he reportedly stayed at the Barbizon Plaza Hotel for a brief period. The records of these hotels for the pertinent period have been destroyed. [redacted] The records of the Consolidated Edison Company, New York City, reflect that Fuchs occupied Apartment 3-A from February 1 to April 12, 1944. The landlady, Mrs. Frieda

[redacted]

(65-58805-188) S (Memo from

S

The records of the Atomic Energy Commission contain a statement that Fuchs was supposed to leave for Los Alamos on August 11, 1944. (65-58805-13)

According to information received from the Manhattan Engineer District, by letter dated August 11, 1944, Fuchs planned to leave New York City on August 11, 1944 and was scheduled to arrive for duty at Los Alamos on or about August 14, 1944. (100-190625-1053)

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The records of the Atomic Energy Commission at Los Alamos reflect that Fuchs arrived there on August 14, 1944. At Los Alamos he worked in the Theoretical Physics Division of the Laboratory and resided in Room 17, Dormitory T-102. (65-58805-336, 15)

The records at Los Alamos also reflect that on February 11, 1945, Fuchs left there for a vacation with Kristel Heineman at 114 Lakeview Avenue, Cambridge, Massachusetts. Prior to leaving Los Alamos Fuchs advised that he would be at Cambridge from February 13 to 22, 1945. He returned to Los Alamos on February 25, 1945 and stated that there had been no deviation from the itinerary he had furnished. (65-58805-13)

The Los Alamos records further reflect that on November 21, 1945, Fuchs departed for Montreal, Canada via Chicago for a two day conference with representatives of the British organization and that thereafter he was to take a vacation in Mexico. Under itinerary Fuchs showed that he would be in Montreal Canada on November 22 and 23, 1945, Albuquerque on November 24, 1945, and thereafter would go to Mexico City and return on December 8, 1945. There was no indication in the records that Fuchs reported his return to Los Alamos or as to whether he stated there had been any deviation from his itinerary.

On July 2, 1946, a letter was received at the Bureau from the Manhattan Engineer District stating that Fuchs returned to England on June 29, 1946, travelling by bomber from Montreal, Canada. (100-190625-2342)

The Immigration and Naturalization Service records reflect that on November 11, 1947, Fuchs was readmitted into the United States at New York City and departed from the United States on November 30, 1947. At the time of this visit he showed his employment as being with the British Government. (65-58805-30)

The records of the Atomic Energy Commission reflect that Fuchs was in this country during November, 1947 for the purpose of attending a declassification conference in Washington, D. C. and also for the purpose of discussing unclassified and declassified aspects of neutron spectroscopy with Dr. H. L. Anderson at the Argonne National Laboratory, Chicago, Illinois.

According to information received fr[redacted]

The records of the Inspector of United States Naval Materiel at the General Electric Company, Schenectady, New York, reflect that on November 18, 1947, Fuchs visited Dr. Herbert C. Pollock, Research Laboratory, General Electric Company, to discuss cyclotrons, synchrotrons, and betatrons. Pollock is Research Associate in the Physics Division, assigned to the Synchrotron Pro (65-58805-527, 578)

According to the Atomic Energy Commission records, Fuchs was scheduled to attend another declassification conference at the Canadian Atomic Energy Research Establishment at Chalk River, Ontario, Canada from September 26 to September 28, 1947. It appears, however, that Fuchs was not able to attend thi conference because of illness. Following his transfer from the United States i 1946,

[redacted]

A. SUSPECTS

In order to develop logical suspects, the information available concerning Unknown Subject [redacted] from Robert and Kristel Heineman, and from Fuchs himself, was reviewed and analyzed. However, as all of this information together is quite meager and general in nature, and the physical description of [redacted] would apply to many [redacted] persons in the United States, the investigation to identify [redacted] resulted in the development of numerous possible suspects whose photographs were displayed to Fuchs and the Heinemans. The following steps to identify [redacted] were undertaken:

[redacted]

In attempting to locate this paper, the Atomic Energy Commission was contacted and advised that the thermal diffusion research on the atomic energy development was known as the S-50 Project and related to the separation of uranium isotopes by thermal diffusion. P. H. Abelson was conducting research in this regard in 1940, and in September of that year the Naval Research Laboratory became interested and contacted the Carnegie Institution to have Abelson expand the experiments. In October, 1940, the work was moved to the National Bureau of Standards. On June 1, 1941, Abelson entered the employ of the Naval Research Laboratory and in 1944, the Naval Research Laboratory transferred

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its knowledge to the Manhattan Engineer District. Prior to that time, a pilot plant had been built at the Philadelphia Navy Yard. About June, 1944, the H. K. Ferguson Company was selected as the contractor to design, construct and equip a proposed liquid thermal diffusion plant. The actual construction contract was given to the J. A. Jones Construction Company, Inc. To eliminate the possibility of labor troubles, a subsidiary corporation of the H. K. Ferguson Company was established. This was the Fercleve Corporation which was to handle the actual operation of the plant. In September, 1945, the order was given to place the work on this matter in a "standby" status and it was completely terminated in February, 1946. (Summary of the Background and History of the S-50 Project dated February 10, 1950, prepared by the Atomic Energy Commission.)

In an effort to locate a document with the title which [redacted] intended using, the list of documents in the Naval Research Laboratory files was reviewed by the Atomic Energy Commission representatives, with negative results. In addition, the atomic energy records in New York City and at Oak Ridge, Tennessee, were reviewed negatively. The New York Public Library and the Library of Congress were checked with negative results. Checks were made at Columbia University and at the City College of New York to ascertain if a thesis was prepared under that title, with negative results.

[redacted] In an effort to identify this laboratory the records of the License Bureau in New York City were reviewed and it was ascertained that licenses for chemical laboratories are issued by the New York Fire Department and filed by addresses. At the Bureau of Combustibles in New York City it was ascertained that about 75,000 permits were issued in 1945 and it was impossible to locate the permits for chemical laboratories because the permits were filed by address. It also was determined that in 1945 it was necessary for anyone desiring to open a chemical laboratory or to purchase chemicals to obtain a permit from the Bureau of Mines, United States Department of Interior.

him make statements which led Shaw to believe Corson to be in sympathy with Russia during the war. Shaw knew of no subversive elements with which Corson was connected and did not think him disloyal, although he said he had a tendency to be unreliable, and he declined to recommend him for employment.

It was developed during the investigation of Corson that on 12/2/44 he directed a letter to one Pierre Routsky, in care of the Russian Students Fund, Inc., New York City, and enclosed a check for $100.00. Army Intelligence reported that Routsky was known to be a radical and that the Russian Students Fund, Inc., was composed of various un-American groups, some pro-radical and pro-Soviet, others pro-German and White Russian Monarchists and proponents of the Russian National Patriots of the Kerensky type. release pt army

Dr. J. C. Hubbard, emeritus Professor at Johns Hopkins University, advised during the investigation that at Corson's request he had corresponded with the Russian Students Fund, Inc., requesting a loan for Corson for tuition. A loan of about $500.00 was received by Corson. Dr. Hubbard commented that Corson was radical in his views and he is a very outspoken person who says just what he thinks. He also declared he feels Corson is violently opposed to Communism and Socialism and that he believes Corson is loyal to the United States. (116-3455-1,6,8,13)

With further reference to Corson's letter mentioned hereinbefore, which letter consists of approximately ten and one-third double spaced typewritten pages, it appears to represent Corson's analysis of the Fuchs case. Corson asks himself the question why Fuchs betrayed the trust of his friends and of his adopted country, and first speculated that Fuchs might be "a strange complex of confused idealism which somehow superseded an oath...," but later, after Corson learned that Fuchs has long been a fanatical Communist, he attempts to examine the reason for such fanaticism which was so strong that he admits to having given detailed technological atomic information to agents of a foreign power. Corson then observes that Fuchs is clearly a brilliant psychopathic personality, perhaps made so by the torture and murder of members of his family by the Nazis. He comments that it is a small wonder that Fuchs could be deranged, and declares the fantastic element is that Fuchs was not found out on the basis of his actions when he first went to England.

The question is then asked by Corson in his letter if security officials are not the basically guilty ones, and if society is not on trial along with Fuchs for having made it possible that Fuchs might, indirectly and in some measure, be responsible for the millions of persons who will die in the onrushing holocaust. After stating the direct issue of this case to be not that of the "Psychotic Fuchs versus The State," but rather one of "Mankind versus God in the form of truth, beauty, ethics and logic," Corson makes a fervent plea that all scientists stop new theoretical work on perfecting more terrible weapons of destruction. (Enclosure with Whitson's letter 2/25/50

A. CLEARANCE FOR ATOMIC ENERGY EMPLOYMENT IN THE UNITED STATES

As indicated above, Fuchs first arrived in the United States on December 3, 1943. His work in connection with atomic energy development in the United States can be divided into three periods: First, the period from his arrival on December 3, 1943 to August, 1944, during which time he was employed with a group of British scientists in New York working with representatives of the Manhattan Engineer District and Kellex Inc. on the K-25 Project, which related to Gaseous Diffusion; secondly, the period from August, 1944 to June, 1946, when he was working at Los Alamos with a group of British scientists in the fields of theoretical and experimental physics and high explosive development; and third, his visit to the United States during 1947 to attend declassification conferences of representatives of the United States, Great Britain and Canada. During this latter visit he also made a trip to the Argonne National Laboratory in Chicago and the General Electric Company in Schenectady, New York, both of which had been engaged in work for the Atomic Energy Commission.

Inquiries by the Bureau indicate the MED and later the Atomic Energy Commission apparently never made any investigation of Fuchs or other British scientists who came to the U. S. on the atomic energy program but accepted British clearance of such persons in accordance with a reciprocal agreement. Bureau files fail to disclose that any request was made of the Bureau for a check of its files against the name of Fuchs during his presence here from 1943 to 1946 or at the time he attended the declassification conference in 1947. They do disclose, as is set out below that in response to our request MED furnished us, beginning in March 1944, with the names of British Scientists in the U. S. working on the Atomic Energy program. Fuchs' name was included in a list dated March 28, 1944. The Bureau was also advised by MED when Fuchs transferred to Los Alamos in August 1944.

The inquiries have disclosed the following pertinent information relating to clearance for Fuchs for his work in the United States.

According to information furnished by the Atomic Energy Commission, Major General George V. Strong, A.C. of S., G2, directed a letter dated November 20, 1943 to the Chief of the Visa Division, Department of State, soliciting assistance for the issuance of visas for seven persons in London to be brought to the United States for special work on a matter of importance to the War Department. One of the individuals listed was "K. Fuchs, born German and naturalized British." It was requested that visas be issued to them in order that they might leave London on November 22, 1943.

(65-58805-133)

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Information furnished by the Atomic Energy Commission indicated that a letter dated December 11, 1943 from W. L. Webster, of the British Supply Council in North America, to General L. R. Groves, of the War Department, forwarded to General Groves a letter from W. A. Akers, of the British Ministry of Supply Mission, in which it was stated that special clearance is required in England for anyone brought "into this work" even though they had already been cleared for work on ordinary secret war projects. The letter listed individuals on whom this "special clearance" had been carried out. Included on the list was "K. Fuchs." (Ibid.-236 Exhibit)

On February 25, 1944 Bureau supervisors, George C. Burton and Lish Whitson had a conference with General Groves of the Office of the Chief of Engineers, War Department, who was in charge of the atomic bomb project. At that time General Groves was requested to furnish the Bureau with the names of all individuals in the British Mission attached to the project together with background information in his files as well as photographs which were available. (100-190625-845)

By letter dated March 28, 1944, Colonel John Lansdale, Jr. of the Office of the Chief of Engineers, War Department, furnished information concerning British scientists in the U. S. and engaged in work of interest to the Manhattan Engineer District. Included was the name K. Fuchs. It was indicated he arrived in the U.S. December 3, 1943, was in possession of BSM (British Ministry of Supply Mission) pass number 8795, and was located in New York. It was also stated in the letter "Representatives of the British Government in this country have assured this office that all of the individuals who are in this country were cleared by British Security prior to their departure from the United Kingdom." * (100-190625-852)

Correspondence in the Atomic Energy Commission file relating to Fuchs indicates that Dr. K. Fuchs was issued Pass No. 8795 by the British Ministry of Supply Mission while he was employed in New York with the group of British scientists under Dr. R. E. Peierls. A letter to General Groves from W. L. Webster of the British Supply Council in North America, dated March 16, 1944, referred to the movements of British personnel to and from the United States. In this letter it was indicated that Dr. K. Fuchs was still in the United States. The following is quoted from the letter:

> "With regard to the security status of British personnel visiting the USA in connection with our project, I have referred this matter to our London office and have been instructed by the Director of Tube Alloys that I am to give you an assurance that each person visiting the USA as an employee of the British Government, has been subjected to a special clearance by the British Security Organisation in Great Britain." (65-58805-236, Exhibit)

* See Exhibit #2 attached.

In a memorandum from Captain Claude C. Pierce, Jr., to the District Engineer, Manhattan District, Oak Ridge, Tennessee, dated March 28, 1944 it was pointed out that K. Fuchs arrived in this country on December 3, 1943 and had BMSM (British Ministry of Supply Mission) Pass No. 8795. This memorandum stated that General Groves had been assured by the British Supply Council in North America that all the British aliens in the United States engaged in work of interest to the MED had been cleared by the British security prior to their departure for the United States from the United Kingdom. (U) (Ibid.-8,p.1)

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A. L. Baker, Vice President of Kellex, Inc., in New York, advised Bureau Agents on interview (as reflected in New York report February 9, 1950) that Fuchs was a member of a British delegation of scientists who came to the United States in December, 1943 at the invitation of the Manhattan Engineers "Project." Prior to their arrival, employees of Kellex, Inc., prime contractors for the Manhattan Engineers "Project," were informed by General Leslie R. Groves or his representative, that the Kellex officials could discuss anything with the British delegation regarding the progress on the atomic bomb which was then presently known to both groups. He explained that prior to the arrival of the British delegation, Kellex had exchanged views on diffusion and related problems with the British. The Kellex officials were specifically warned not to go beyond the scope of matters which had been discussed and also were specifically told not to discuss anything with the British regarding long range atomic plans. U (Ibid.-253)

Examination of the file on the British Supply Mission maintained in the Retired Records Section of the Atomic Energy Commission files at Oak Ridge disclosed that C. F. Kearton, who was one of the British scientists working with Kellex, Inc., in New York, had on two occasions been granted clearance by MED for visits with representatives of Kellex, Inc. Both of the clearance memoranda indicate that British clearance had been recognized by the Manhattan Engineers District. U (Ibid.-394)

Another letter from W. L. Webster to General Groves on August 9, 1944 referring to movements of British personnel in the United States listed Dr. K. Fuchs, who was referred to as having been transferred officially from New York to "Y" (Los Alamos). He was scheduled to leave New York on August 11, 1944 and was to report at "Y" about August 14, 1944. (U)

The letter contained the following statement: (U)

"All the officers listed above have been subject to the usual U.K. Security clearance for T.A. work." (Ibid.-236 Exhibit) (U)

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By letter dated August 11, 1944, Colonel John Lansdale Jr. of the Office of the Chief of Engineers advised the Bureau of movements of British personnel in the U. S. It was stated "Dr. K. Fuchs has been transferred from New York to Y. (Los Alamos) He plans to leave New York on 11 August and should arrive for duty at Y on or about 14 August." (100-190625-1053)

Mr. Sidney Newburger, Jr., Chief Security Operations Branch, Atomic Energy Commission, Los Alamos, New Mexico, advised Bureau agents that members of the British Mission who were stationed at Los Alamos during the war were cleared by the British Government prior to coming to the United States and that our Government had made no investigation concerning them. (65-58805-13, page 1)

It would appear from the above that it was the recognized procedure for the Manhattan Engineer District to accept British clearance of British scientists employed on the Atomic Energy program in the United States and that no investigation was conducted by the U. S. Government concerning them. This is borne out by the response to the Bureau's question by Mr. Frank Hannack of the AEC referred to above, indicating that the AEC accepts British and Canadian clearances just as they accept ours.

The Atomic Energy Commission has advised that during 1947 considerable attention was given to the problems arising from discrepancies in the declassification of information among the United States, the U. K. and Canada. As a result, it was decided to hold a declassification conference in Washington in order to establish uniformity. The conference was held on November 14, 15 and 16, 1947 and K. Fuchs was one of the five British representatives attending the conference. According to the Atomic Energy Commission, the conference did not involve supplying to the British or Canadians any restricted data not already known to them. In connection with the conference, Mr. Keller, assigned to declassification at Oak Ridge, Tennessee, requested of the Atomic Energy Commission in Washington, a security check of three individuals, including "Dr. K. Fuchs (British)." A memorandum prepared by an Atomic Energy Commission employee, referring to a check of the Washington Records (of the AEC) indicated that Fuchs was a member of the original British Mission that came to the United States in 1943. It was stated, "The members of this Mission were never investigated by the United States Government. Their special investigation as conducted by the British Government was accepted by General Groves as MD clearance."* (Ibid.-285)

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Apparently, the previous clearance was accepted and no further action was taken to clear Fuchs and other British representatives for the declassification conference.

*See Exhibit #5 attached

Atomic Energy Commission files also reflect that while Fuchs was in the United States in connection with the declassification conference, he was given clearance for a visit to the Argonne National Laboratory, Chicago, Illinois, and the General Electric Company in Schenectady, New York. A letter dated October 22, 1947, from L. G. Ralfe, of the British Commonwealth Scientific Office, Washington, D. C., to Mr. Carroll L. Wilson, General Manager of the AEC, indicated that one of the British representatives, Dr. H. W. B. Skinner, desired to visit four establishments, including "Chicago University" to discuss the subject of neutron spectroscopy with Dr. H. L. Anderson. It was stated that he would be accompanied by Dr. K. Fuchs on the visit to "Chicago University." He requested clearance for these visits. By letter dated November 7, 1947, Mr. Wilson advised Mr. Ralfe in part:

> "We have no objection to the visits and discussions proposed for Drs. Skinner, Fuchs and Dunworth on the basis that no Commission restricted data will be involved." *

On November 18, 1947, Wilson by letter advised Ralfe that there was no objection to Drs. Skinner and Fuchs seeing the "chystal spectrometer and mechanical velocity selector during their forthcoming visit with Professor Anderson at Argonne." (Ibid.-155)

The Atomic Energy Commission advised on February 6, 1950, to the effect that on November 18, 1947, Fuchs was authorized to visit the General Electric Company, Schenectady, New York, by Captain W. A. Brook, United States Naval Inspector of Machines at the General Electric Plant. The object of his visit was to see the machine described as "70-MED Synchroton." It was stated that at that time the General Electric Company was doing no work for the Atomic Energy Commission, but was apparently engaged on work for the Navy. (Ibid.-160)

It should be noted that according to the Atomic Energy Commission there were actually three declassification conferences held in connection with the atomic energy program. The first was held in Washington from November 14 through November 16, 1947. Fuchs was in attendance at this conference. The second was held in Harwell, England, on September 6 through 8, 1948. Fuchs also attended this conference. The third was held at Chalk River, Canada, on September 26 through 28, 1949. Fuchs did not participate in this conference because of illness. (Ibid.-155 and 156)

* See Exhibits Nos. 3 & 4 attached

[redacted] b1

[redacted] b1

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In connection with the [redacted] referred to by Fuchs, relating to his work in [redacted] inquiry of the Atomic Energy Commission reflects that in 1943 arrangements were made for a group of British scientists to come to the United States and work with representatives of Kellex, Inc., of New York, prime contractors for the Manhattan Engineer District, and MED representatives on the scientific development of the gaseous diffusion

FSD

release per DOE

project which was also known as K-25. This project related to the gaseous diffusion process for separating the uranium isotopes. Fuchs was one of the members of the British team assigned to work with Keller. The British scientists had offices in room 2401-E at 43 Exchange Place, New York City. (65-58805-236 Encl. and 253)

The British scientists undertook analysis of the following theoretical problems:

(1) Cascade of cascades flow sheets
(2) Exact calculation of equilibrium time
(3) Loss or separation due to surges
(4) Control of main cascade (e.g., frequency of use of automatic control valves).
(5) Control of purge cascades

Reports of these theoretical studies were summarized in a series of reports, referred to as the MSN Series, which were described as having been helpful in anticipating problems of plant design. The MSN Series were prepared by the scientists belonging to the British Mission. The "N" referred to the New York Office of the Manhattan District. (Ibid, 8 and 156)

It should be noted that Fuchs [redacted] TS

In evaluating the importance of this series of reports, it should be noted that Dr. Paul McDaniels, a physicist assigned to the Atomic Energy Commission Building, Washington, D. C., according to reports from the Atomic Energy Commission, has stated that the one report prepared by Dr. Fuchs, entitled "Fluctuations and Efficiency of a Diffusion Plant, Part III, The Effect of Fluctuation in the Flow of N_2," is a skilled, technical, theoretical discussion covering refinement of plant operations. He stated that this document, along with others such as barrier production, operating characteristics, seal development, and pumps, would be helpful in determining over-all plant operating techniques. (Ibid, 156)

It should be noted that the report referred to by McDaniels is MSN-12, referred to by the original informant in this case as having been furnished to the Russians by Fuchs.

release per DOE

Records of the Atomic Energy Commission reflect that as of January 12, 1949, there was made a compilation of the Canadian Staff, scientific and technical, and United Kingdom Staff, scientific and technical, who participated in the atomic energy program under the former Manhattan Engineering District from 1943 to 1946. This compilation included, in so far as possible, a statement as to the installations visited and degree of access afforded to these groups. It is stated that records available in the security files of the Atomic Energy Commission give a general picture as to the fields of activity in which the British Mission participated, but that the available records do not provide detailed information as to their particular specialties, nor do the records clearly indicate what familiarization the British group may have had with other programs in which they did not actually participate, but undoubtedly became acquainted with by reading technical reports available to them. The following statement appears in the records of the Atomic Energy Commission concerning the British group at Los Alamos: (a)

"Inasmuch as it was the policy of the laboratory to make all information available to this group at Los Alamos, and as the British personnel had general access to the Document Room, various local sites, and the organized meetings of the local project, it is believed that the group had substantially complete knowledge of the gun assembly and implosion assembly of fissile material, the actual design of the aerial bombs employing these principles, the possible future developments, including the 'Super' or Thermo Nuclear Reactions, the auxiliary equipment at the various local sites including the Water Boiler. The British Group probably did not obtain detailed information concerning the final chemical work at Los Alamos, however, the general aspects were known to them because they would be discussed in colloquiums or staff meetings. The exact extent of the technical knowledge about sites other than the Los Alamos project by British personnel at Los Alamos cannot readily be determined since work directly relating to Los Alamos activities such as basic physics as well as pile design which members of the Mission would use in their daily work is undoubtedly known to them. Such items as Hanford chemistry would have reached the group by inference only since the laboratory as such did not have detailed access to such information. During their stay at Los Alamos, they also had access to the general physics and chemistry principles involved in the operation of the Chicago and Hanford piles, the physical construction of these piles, but only a minimum of the engineering details. They had, however, complete access to all general theoretical work on pile design. It is assumed that they had rather complete knowledge of the mass spectrometer application used in the Calutron and gaseous diffusion process for separating uranium isotopes."* (a)

* See Exhibit # 6 attached

release per DOE

According to the Atomic Energy Commission, the "Super" refers to the hydrogen bomb, and, therefore, Fuchs had knowledge of that development as indicated in the statements above. (Ibid, 236 Encl)

Inquiry of the Atomic Energy Commission at Los Alamos disclosed that Fuchs had attended numerous technical meetings while at Los Alamos. The dates of the meetings and the subject matters discussed and a brief summary of the discussion were furnished to the Bureau and this material is attached as Exhibit # 7 . It should be noted that Fuchs attended several conferences, beginning April 18, 1946, relating to the "Super." Many of the other meetings obviously referred to highly important scientific matters. (Ibid, 183)

In commenting upon the work of the British Mission at Los Alamos, Dr. J. R. Oppenheimer, in a memorandum dated July 15, 1949, prepared for the Atomic Energy Commission, stated that Dr. Fuchs was associated with Professor Peierls in the Theoretical Division at Los Alamos; that Dr. Peierls was head of a group in the Theoretical Division assuming responsibility for the calculation and design of the explosion components of the implosion weapon. He played a large part in the determination to use lenses for the explosive system and in the theoretical guidance of their experimental development. He was fully informed about the metallurgical peculiarities of plutonium and participated in the decision to use the metal in its delta phase. He stated also that the "UK Mission had complete access to all information and reports."

Dr. Morris E. Bradbury advised the Atomic Energy Commission on July 18, 1949, concerning the participation of the British Mission personnel, as follows: "They contributed to the success of the Los Alamos war effort primarily in the field of theoretical and experimental physics and secondarily in the field of high explosive development. It should be noted that the British Mission supplied the major portion of experience in the field of theoretical hydrodynamics which was of fundamental importance to the development of the Atomic weapon...." He also stated "All developments underway at the time were known to the British personnel, as well as the probable course of future lines of activity."

Dr. Hans Bethe advised the Atomic Energy Commission on July 18, 1949, with regard to Fuchs, in part as follows: "Contributed directly to the success of Peierls' group, especially in the theory of the jets, which in the early times constituted a major difficulty with implosion practice, and to the theory of the initiator."

Release per DOE

Mr. R. C. Smith, referred to above, advised the Atomic Energy Commission on July 18, 1949, that Fuchs made efficiency estimates on various implosion designs, [redacted]-one of them corresponding rather closely to X-ray shot at Eniwetok. He stated that Fuchs and Peierls provided two-thirds of the team which handled the hydrodynamics in "T-Division," which made the implosion development possible. They both contributed heavily to all phases of the weapon development, including implosion and Super. (Ibid, 124)

Dr. Paul McDaniels, referred to above, advised the Atomic Energy Commission that some of the reports prepared by Fuchs dealt with detonation and assembly of the atomic bomb. He stated that Dr. Fuchs participated considerably in the design and development of the atomic weapon. (Ibid, 156)

Dr. Hans Bethe, under whom Fuchs was employed at Los Alamos and presently attached to the Nuclear Laboratory, Cornell University, advised Bureau Agents on February 14, 1950, that he was in charge of the Theoretical Division at Los Alamos. This Division performed the calculations ahead of time as to how the bomb was to be made and assembled and how it would work. As a result of the Quebec Agreement, England furnished several top scientists to work in this Division. They were about twelve in number and it was Bethe's belief that the bomb would not have been completed as soon as it was without their assistance. Bethe had personally requested that Dr. Rudolph Peierls, of the University of Birmingham, be assigned to the project. Peierls accepted with the stipulation that he bring with him two of his best collaborators, Drs. Fuchs and Skyrme. They, with American scientists, were assigned to the particular task of determining the best way of bringing together parts of materials so that after assembly there would be more than the "critical mass." The work of this group is still restricted information and was about the most highly confidential work done. As a member of this group, Fuchs was in as vital a position as anyone on the entire project and had access at all times to all parts of the Laboratory and all documents, except perhaps some top secret documents. Dr. Bethe pointed out that this did not mean that he could not examine the top secret documents, which were necessary to his work, upon the proper clearance and permission. (Ibid, 326)

Bethe further stated that in June or July 1946, Fuchs visited him at the General Electric Company in Schenectady, New York. Fuchs was on his way back to England. He did not question Dr. Bethe concerning his work and it was Bethe's recollection that Fuchs' sister from Boston came to Schenectady to meet him. Since that meeting, Bethe has seen Fuchs on two occasions. One was in

England during the Summer of 1948, when Bethe spent a day and a half at Harwell. Fuchs talked with Bethe and "showed him around." He also told him something of the theoretical work being done there. Bethe was under orders from the Atomic Energy Commission not to talk of restricted matters, so the conversation was one-sided. In the Spring of either 1948 or 1949 (this probably actually refers to 1947), Fuchs visited Dr. Bethe at Ithaca, New York. He had come from England to attend Declassification meetings which were held in Washington. His visit was at Bethe's invitation. He stayed one day. Their main topic of conversation was nuclear reactors and declassification. Again, Dr. Bethe was under orders not to speak of restricted information, so the conversation was one-sided. (Ibid, 326)

The Atomic Energy Commission has advised that Roland A. Anderson, Chief of the Patent Branch, advised that the records at Los Alamos indicated that in a memorandum of March 7,1945, it was stated, "Under the present setup the British personnel have been given full access to all documents and data at this Site." (Ibid, 369)

In connection with Fuchs' trip to the United States in 1947 to attend the Declassification Conference, which was held in Washington from November 14 through 16, 1947, the Atomic Energy Commission has advised that the Conference did not involve supplying to the British or Canadians any restricted data which was not already known to them. (Ibid, 285)

It is noted above that while in this country Fuchs made a visit to the Argonne National Laboratory in Chicago on November 28, 1947. Records of the Security Force at the Laboratory indicate that he was there from 2:50 PM to 4:00 PM on that date and at all times was escorted by a member of the Laboratory staff. In accordance with the clearance issued that he was to discuss unclassified and declassified matters, necessary steps were taken to guarantee that he was only concerned with unclassified matters while there. He was shown the crystal spectrometer and the mechanical velocity selector. These instruments, according to the Atomic Energy Commission, were described in Volumes 71 and 72 of the "Physical Review," dated June 1 and October 1, 1947. (Ibid, 369)

release per DOE

Investigation has disclosed that the records of the Inspector of United States Naval Material at the General Electric Company, Schenectady, New York, reflect that on November 17, 1947, Fuchs, as a member of the British Atomic Energy Research Establishment, visited Dr. Herbert C. Pollock, Research

Laboratory of the General Electric Company, for the purpose of discussing cyclotrons, synchrotrons, and betatrons for a two day period. Pollock was described as Research Associate in the Physics Division of General Electric, assigned to the Synchrotron Project. As noted above, the Atomic Energy Commission has advised that the purpose of Fuchs' trip to the General Electric Company was to see a machine described as "70-MED Synchrotron." Also, according to the Atomic Energy Commission, the General Electric Company in Schenectady was not doing work for the Atomic Energy Commission at the time of Fuchs' visit. (Ibid, 426 and 578)

On February 8, 1950, [redacted], who is presently employed by the [redacted] advised the Buffalo Office of the Bureau that he was formerly in charge of the [redacted] Division of the [redacted] During the Spring of 1948, while in this position, he and two associates, who are presently associated with the [redacted], made a trip to England for [redacted] He said that Fuchs participated in these conferences. Upon his return to the United States, he and his associates prepared a top secret report on the conferences. He related that the contents of the report are known to about twelve persons in the United States and are of a highly technical nature [redacted] indicated that the discussions in England related to the British "pile program."
(Ibid, 442)

On March 6, 1950, the Bureau Liaison Agent delivered a letter to Commissioner Pike, Acting Chairman, Atomic Energy Commission which reported information obtained from Fuchs by Dr. Perrin. Mr. Pike was requested to furnish to the Bureau any evaluation the Commission might make.

Mr. Pike advised he intended to immediately instruct the scientific personnel of the Commission to make a detailed study and evaluation of this information and he would furnish the Bureau the results.
(Memo Keay to Belmont 3/8/50) (Serial 730)

Attached as Exhibit # 8 is a list of reports prepared by Fuchs as reflected in the records of the Atomic Energy Commission.

Investigation by the Albuquerque Office in February, 1950, reflected that [patent disclosure papers on file in D Division, Los Alamos Scientific Laboratory, Los Alamos, New Mexico, reflected that Fuchs with John Von Neuman as "co-investor," had a disclosure entitled "Method and Apparatus] (U)

release per DOE

"for Releasing Nuclear Energy" and the proposed application was described as "One proposed design for Super." This disclosure was made in April, 1946.

Another disclosure with Bubby Sherr as co-inventor, is entitled "Timed Neutron Source" and its application is given as "Useful in Implosion type bombs." (65-58805-183 p. 11)

It is to be noted at this point that by letter from the

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(Serial 934)

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By letter dated May 19, 1950, Mr. Francis Hammack, Acting Director, Division of Security of the Atomic Energy Commission, forwarded to the Bureau portions of a report prepared by a committee of Senior Responsible Reviewers who had considered the effect of Fuchs disclosures on the AEC declassification policy. X(u)

This report indicates that it was concluded that the information turned over by Fuchs concerning the diffusion plant was largely theoretical and that probably the bulk of it has since been declassified. The information disclosed by Fuchs concerning barriers also appeared to have dealt essentially with theoretical aspects and did not contain significant information concerning fabrication and performance of barriers. It was indicated that only one document of the MSN series (reports of the British Mission - New York) namely MSN-18, contained production figures for the K-25 plant (Oak Ridge). It was further indicated that there is some uncertainty, however, as to whether MSN-18 was included in the documents passed to the Russians by Fuchs. X(u)

In evaluating the Los Alamos aspects, the report indicates that Fuchs turned over to the Russians very important information concerning weapons. With respect to the Trinity (plutonium implosion) type weapon, it was stated that it was clear that the essentials of the bomb, in adequate detail, were turned over either while Fuchs was at Los Alamos or later. It also appeared apparent that considerable information was turned over regarding gun-type weapons. X(u)

The report discussed participation of Fuchs in the work on thermonuclear weapons at Los Alamos and a list of the meetings on this subject which were attended by Fuchs was set forth. It is believed that this refers to the hydrogen bomb. X(u)

It was indicated also that officially, Fuchs had little information concerning other phases of the United States project; for example, the Hanford project, and it appears that the information in this category which he turned over was relatively "minor." It was further indicated that Fuchs did not pass a great deal of information to the Russians concerning "pile technology" including the British work on this point. X(u)

release per DOE

It was also noted that Fuchs did not admit the transmission of information relative to the "fission process" itself, except for specific information such as the spontaneous fission problem. It was stated that this might possibly be interpreted to mean that fundamental nuclear data were not needed by the Russians because of their own efforts in this field or because the information was being furnished to them from other sources.

A copy of this report furnished by the Atomic Energy Commission is attached as an exhibit. (See exhibit #9)

(Letter from Francis Hammack, Acting Director, Division of Security, AEC, dated May 19, 1950)

During the interview of Fuchs in London, in the period May 20 through June 2, 1950, by representatives of the Bureau, Fuchs furnished a summary of the information which was furnished by him to the Russians. He stated that generally information of a technical type was given to "Raymond" in writing and that "Raymond" would have been unable to understand technical information furnished orally. He did give some information to "Raymond" orally dealing with personalities the identities of scientists, plans for the test explosion at Alamogordo and other things that were within the scope of comprehension by "Raymond." He advised that "Raymond" never took notes at any meeting.

He stated that his best estimate is that the information furnished by him speeded up the production of an A-Bomb by Russia by several years because it permitted them to start on the development of the explosion and have this ready by the time the fissionable material was ready. He concluded that the Russian scientists are as good as scientists in England and the United States but there are fewer good scientists in Russia that the other two countries. He stated that he gave the Russians nothing that would speed up the production of plutonium and estimated that if he had given the same data which he gave the Russians to the United States as of the date of his arrival in the United States, he would have speeded the U.S. production of the A-Bomb only slightly. He did pass on to his Russian espionage contact what he learned concerning the production of plutonium during the final period of his work at Los Alamos. He stated that the information furnished by him alone could have speeded up the production of an A-Bomb by Russia by one year at least. He indicated that if the Russians had information on the plutonium process from any other source, the data furnished by him could have been of material assistance on this plutonium phase.

The Paris address mentioned above was again furnished to Fuchs in 1949, as an address he might consider using in the immediate future, but Fuchs contends he never used that address, although he admittedly visited Paris thereafter.

Review of Bureau files reflect "Mr. Sukhomlin," is undoubtedly identical with Vassili V. Soukhomline, a well known Russian Social Revolutionary journalist. On the basis of information furnished by the Bureau, [redacted] b7

[redacted]

Records of the Immigration and Naturalization Service reflect that Vassili Soukhomline entered the United States on September 12, 1941, at New York City, at which time he indicated his last permanent address as Paris, France, and departed from the United States August 21, 1945, via the S.S. "Argentina" from New York City destined for Paris, France. Such records reflect no other arrivals in or departures from the United States on the part of this individual, and further that he resided in New York City during his stay in this country. (WFO letter dated 3/10/50)

[redacted] b1 b3 per CIA (64-31486-10)

Soukhomline executed an Alien Registration form May 1, 1941, reflecting his proposed United States address as 115 East 86th Street, New York City, and his birthdate as April 26, 1885, Leningrad, USSR. He described himself as a journalist, and the purpose of his visit to the United States as "visiting relatives." Under the section "Relatives in the U. S.," however, he listed "none." Under organizations last 5 years prior to May 1, 1941, Soukhomline listed the Russian Social and Revolutionary Party.

In an application to extend the time of his temporary stay in the United States, dated March 10, 1942, Soukhomline stated "I am a political refugee and have no country in Europe to which I could return." He further stated he was not employed in the United States and was not engaged in business. His source of income was set forth as "free lance writer and lived on proceeds of my articles." He claimed to be a political refugee living in exile since 1913, and declared he was anxious to become an American citizen.

In an application for Exit Permit, dated April 13, 1945, which appears to be in the handwriting and handprinting of Vassili V. Soukhomline, his address was listed as 48 West 89th Street, New York City, and his last U. S. entry as September 12, 1941. It is noted that for the period 1941-45, Soukhomline listed himself as a journalist employed by the Czechoslovakian Information Service and Amerique Weekly Magazine, New York City, and that he had also been known by the name Victor Samaret. (HQ letter dated 3/10/50)

In a report prepared by the Security and Intelligence Division, Headquarters, Second Service Command, dated January 23, 1945, Soukhomline was described as having been born in April or May, 1885, in St. Petersburg, Russia, and as having been arrested and sent to Siberia in 1907 for revolutionary activities. After escaping from Siberia that same year he resided successively in Finland, Stockholm, London, Paris and Rome. After the Russian Revolution he returned to Russia openly and from 1918 until 1941, he resided principally in Paris. He became a prominent member of the Russian Social Revolutionary Party and was described as a leader of the section which thought the new Bolshevik regime would develop in the sense acceptable to all Russian progressive forces.

In this report it is stated that a confidential source advised that at the time the report was prepared, Soukhomline was Assistant Editor of "France-Amerique" and was contributing definitely pro-Soviet articles to "Novosselye" and to "Soviet Russia Today," pro-Soviet periodicals published in New York City. Soukhomline was said to be definitely pro-Soviet but not a Communist. (64-31486-X)

A report from the Security and Intelligence Division, Headquarters, Second Service Command, dated May 21, 1945, described Soukhomline as allegedly a GPU Agent and stated that he was writing articles under the name "Victor Samaret." This report states that Soukhomline "made his presence felt" in Paris during the negotations for the Russo-Germanic treaty of non-aggression and relayed reports and confidential information to Moscow where it was said to have been quite helpful. Soukhomline was said to have remained in Paris until 1941 and to have received many courtesies from the Germans and Russians, leaving the country only when Russia was attacked by Germany. He was noted to be in the United States at the time this report was made. (64-31486-2)

This same source advised by report dated July 19, 1945, that Soukhomline had accepted a position as Paris correspondent for Russky Golos, 64 East 7th Street, New York City, a pro-Communist Russian language daily. (64-31486-3)

In memoranda prepared by the Foreign Nationalities Board of OSS on September 13, 1944, and June 16, 1945, mention is made of strongly pro-Soviet articles written by Soukhomline in 1944 and 1945, published in Novosselye, concerning Russian territorial demands and the position taken by Russia at the UNCIO. (100-7826-31; 62-77787-1016)

Inquiry by the New York Division in October, 1945, on the basis of information supplied by the Bureau which had been furnished by Army Intelligence developed that Soukhomline had resided at 48 West 89th Street, New York City, and had reportedly returned to France shortly before such inquiry was made. It was ascertained that he had been employed by an Ukrainian newspaper. No evidence of subversive activities on the part of Soukhomline was developed. (64-31486-4)

A further report from Army Intelligence dated April 25, 1946, reflects that Soukhomline had been in close contact in New York City with the Slav Section of the INO and on his return to Paris in August, 1945, he had been received by the Soviet Ambassador with whom he reportedly had a long visit. He assumed his duties as Paris correspondent for Russky Golos, and in addition contributed articles to other pro-Soviet publications. (64-31486-6)

This same source advised by report dated August 27, 1946, that according to information from Paris, Soukhomline and one Odinetz, both of whom were described as active pro-Soviet propagandists in Paris, were leaving shortly for the Ukraine, USSR. This trip was reported to be preliminary to the appointment of both individuals to official posts representing the Ukraine, probably in France. Soukhomline, in addition to his journalistic activities, was said to be liaison agent in the USSR Embassy with the English-speaking correspondents covering the Paris Peace Conference. (64-31486-7)

release per Army

By Dispatch #759 dated February 23, 1949, the United States Embassy in Paris advised the State Department that Soukhomline, characterized as a Soviet Agent who operated previously in the United States and who was then in Paris, intended in the near future to proceed to Stockholm to establish contact with "left wing" Socialists, fellow travelers, and similar elements for the purpose of accelerating Scandinavian opposition to the Atlantic Pact. Soukhomline was said to be the motivating spirit behind the new "Socialist" group (most of whom are Communists) who edit "Cahiers Internationaux." Soukhomline, under the name Victor Samaret contributed an article to the first issue of this publication, which was reported to be financed by the Soviet Embassy in Paris. (64-31486-8)

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[redacted]-31486-10)

b1 b3 per CIA

At a meeting of the All-Ukrainian Party Conference at the 13th regular Congress of the Russian Communist Party in Moscow on May 23, 1924, one Sukhomlin was elected to the Central Control Commission. (61-16-587)

In a list of members of the Presidium of the All-Ukrainian Central Executive Committee, as of July 1, 1925, one Sukhomlin was listed as an alternate, and the name Sukhomlin appears on a list of the complete membership of the Federal Soviet elected on May 20, 1925. (61-16-852, page 2998)

It is not known whether Vassili V. Soukhomline is identical with the Sukhomlin mentioned in the preceding two paragraphs.

[redacted]

(CIA letter dated 5/2/60)

b1 b3 per CIA

With reference to Soukhomline's above mentioned association with Emil Bure and assistant editorship of "France-Amerique" as of January, 1945, it is highly probable that Soukhomline may have been acquainted with Wrtil Schwartz, a Soviet agent known to [redacted] Schwartz, Emil Bure, Henry Torres, and Joseph Stein were elected to the Board of Directors of "France-Amerique" in April, 1944, and Schwartz was reported to be the financial backer of Torres' paper, "France-Amerique." In addition to being a contact of Bure, Soukhomline is also known to have been a contact of Torres.

(40-52755-6; 100-33197-52 Enclosure)

[redacted]

(64-31486)

b1 b3 per CIA

office of the Deputy Clerk, U. S. District Court of Philadelphia advised that Sam Gold had apparently changed his name himself and it had not been recorded in the court records as a legal change although it had apparently been accepted as such when his naturalization certificate was issued.

(65-57449-185, p. 5, 7)

(b) Immediate Family

Sam Gold, aka, Samson Goldnitzki, Sam Golodnitsky and Samuel Gold, was employed by the R.C.A. Victor, Camden, New Jersey from December 24, 1916 to January 31, 1946 with periodical short-term layoffs as a head sander and a stock handler. R.C.A. records show other employment for Sam Gold by George Weiss, Girard Avenue and Berks Street, Philadelphia, Pennsylvania from March to September 1929, and by the Philco Radio Corporation, Philadelphia, Pennsylvania from January to April 1930. Nothing of a derogatory nature as to work, conduct, attitude, character or loyalty was indicated during his entire periods of employment.

(Report of SA Louis G. Turner dated May 31, 1950 at Newark, entitled "Harry Gold, was, et al, Espionage - R")

Sam Gold has been employed by the Zeyher Manufacturing, Co., Incorporated, Philadelphia, Pennsylvania since June 24, 1946, and was still so employed as of May 26, 1950. A company official has advised that Sam Gold was completely beyond suspicion insofar as his loyalty was concerned.

Joseph Gold, 6823 Kindred Street, Philadelphia, Pennsylvania, according to records of the Naval Aviation Supply Depot, Philadelphia, Pennsylvania, was born February 20, 1917 in Philadelphia, Pennsylvania. He applied for the position of Clerk with the Civil Service Commission on May 9, 1946. He was previously employed, from August 1942 to March 1943, by the Philadelphia Quartermaster Depot, U. S. Army, as a junior tallyman. He left this position to enter the armed forces. He was also employed, from February 1936 to April 1942, by the Merchants Parcel Delivery, Philadelphia, Pennsylvania as a router and clerk. He left this position for an operation. Joseph Gold enlisted in the U. S. Army August 18, 1942, and received an honorable discharge on January 17, 1946. In service he received several decorations. On August 2, 1946, Joseph Gold entered on duty as a clerk in the Veterans Administration. On November 24, 1947, he was transferred to the Naval Aviation Supply Depot, Philadelphia, Pennsylvania, as a purchase clerk. On the same day

release per Navy

he took an oath that he was not a member of any political party or organization advocating the overthrow of the United States. He received permanent Civil Service status on August 10, 1949. His duties during the entire period at the Naval Aviation Supply Depot have been in the purchasing department and he has not had access to classified material.

(65-57449-185, p. 9, 12) release to Navy

(c) Relatives

Harry Gold has advised that he has the following relatives:

Mother's Brother	Shama Umin
Cousins	Albert Umin (son of Shama) Bronx, New York
	R. Richard Umin (son of Shama) New York City
	Frank Umin (son of Shama) Philadelphia, Pennsylvania
	Jack Umin (son of Shuma) Philadelphia, Pennsylvania

He has also advised that there are no living relatives of his family in Europe. (65-57449-185, p. 8)

Albert Umin and R. Richard Umin were interviewed on May 29, 1950 and they could furnish no pertinent information. Frank Umin was interviewed with like result on May 31, 1950. (Rept SA John R. Murphy, NY, 6-3-50 and 65-57449-520)

Other relatives of Gold have been determined to be:

Esther Tomar - Cousin
3904 Camden Avenue, Pennsauken Township, New Jersey
Mrs. Samuel Ominsky - wife of Samuel Ominsky - Gold's uncle
4723 North Camac Street, Philadelphia, Pennsylvania
Jacob and Celia Ominsky - definite relationship not indicated
4723 North Camac Street, Philadelphia, Pennsylvania
Kate Ominsky - definite relationship not indicated
4723 North Camac Street, Philadelphia, Pennsylvania
Harry Geller - definite relationship not indicated
6658 North Uber Street, Philadelphia, Pennsylvania
Joseph Umin - Cousin
3507 Belle Ave., Baltimore, Maryland
Sarah Gould - Cousin
180 8th Street, Troy, New York

The relatives listed immediately above were interviewed but could provide no pertinent information concerning Harry Gold.

(65-57449-366, 492, 520, 485)

Records of the Massachusetts Institute of Technology reflect Semen Marck Semionov enrolled in that institution on September 19, 1938, and was graduated in June, 1940. His application reflects that he was born on March 1, 1911, in Odessa, Russia, was a citizen of the USSR, and was then employed by the Amtorg Trading Corporation, New York City. His application reflected further that he was graduated from the Moscow Textile Institute in 1936 with a degree in engineering and also had graduate studies there in 1936 and 1937. (Boston teletype 6-7-50)

Investigation of the activities of Semenov was instituted by this Bureau in 1941 after he arrived in the United States as an official representative of the Amtorg Trading Corporation. He was notified to the United States Department of State as a foreign official on February 24, 1941. On the notification form, his birth date was shown as March 1, 1911, in Odessa, Russia, and it was reflected that he had previously entered the United States on January 19, 1938, under an American visa, issued by the American Embassy in Moscow. He listed his home address as 805 St. Mark's Avenue, Brooklyn, New York. (61-5381-331, part 3; 100-47083-1)

release per state

[redacted] b1

(100-2-1623)

An anonymous letter addressed to this Bureau under date of August 7, 1943, advised that Semen Semenov was one of the close associates of Vassili M. Zubilin, former Second Secretary of the Soviet Embassy in Washington, D. C., and reportedly the head of the NKVD in the United States. (100-47083-5; 100-203581-532)

It was reported in 1941 that Semenov had replaced B. M. Chubin as a Vice President of Amtorg in July, 1941.
(61-5381-116- page 104)

for his employer, Pridonoff related that he received a telephone call from Semenov, who said he understood Pridonoff was an engineer and that he was of Russian descent. Pridonoff professed to be unable to explain how Semenov knew he was in New York or how Semenov even knew his identity. Pridonoff met with Semenov and after a discussion of engineering matters, Semenov asked Pridonoff several days later to act as a "consulting engineer" for him and asked him to do some research work on the type of fuel to be used in jet propulsion engines. According to Pridonoff, he was offered $5,000 by Semenov to undertake this assignment. According to Pridonoff, this proposition was obviously an attempt to secure information from him since no research work would be involved and he told Semenov he could not undertake the task because the information was secret. On his suggestion to Semenov that the latter might secure the desired information through the usual liaison channels with the Army and Navy, Semenov replied that there was too much red tape involved. (100-47083-24)

Records of the Immigration and Naturalization Service reflect that Semenov departed from the United States on September 26, 1944, at Kalama, Washington. There is no indication that he has re-entered this country since that time. (New York teletype 6-2-50)

[redacted] b1

S (WFO letter 4-19-49, captioned [redacted] et al NY teletype 6-8-50) (Espionage (F);)

The State Department advised that in July, 1948, Semen M. Semenov was attached to the USSR Diplomatic Mission, Paris, France. The State Department had no further recent information. (100-47083-36) release per state

A stop notice on Semenov has been placed with the Central Office of the Immigration and Naturalization Service in order that the Bureau may be advised of any re-entry of Semenov into the United States. (100-47083-69)

By letter dated July 27, 1950, the Atomic Energy Commission advised that Smilg had been granted a "Q" clearance on February 16, 1950, but that on the basis of the information in the Bureau letter of July 20, 1950, mentioned above, Smilg's "Q" clearance was suspended July 24, 1950, pending clarification of the information. The Atomic Energy Commission letter further stated that appropriate military authorities were being contacted with the request that Smilg not be permitted to have any further access to restricted data or other classified information pertaining to the atomic energy program until this matter is resolved.

release per DOE

By Bureau letter dated July 31, 1950, a full field loyalty investigation of Benjamin Smilg was instituted.

On August 24, 1950, Harry Gold was interviewed further concerning his dealings with Benjamin Smilg. Gold stated that his first meeting with Smilg was as he had previously described. He added, however, that on this occasion he gave Smilg a leather wallet. He recalled that Smilg's father praised the quality of the leather in this wallet. A second meeting with Smilg was attempted in early February 1939, but Smilg was not home. Gold said he telephoned the Smilg residence while in Dayton and was advised that Benjamin Smilg was not home. The third meeting happened in March 1939, and Gold believes on this occasion he met a "beefy," Jewish male, who was an amateur ham radio operator. This occurred at the Smilg home. He stated that he, Smilg and this other individual attended a lecturer given by Ludwig Lewisohn, a prominent Zionist. After this lecturer they went to the outskirts of Dayton, Ohio, and had hamburgers and "malteds."

Gold believed that he had one meeting with Smilg in the summer of 1939, and was also of the opinion that he saw Smilg shortly prior Christmas vacation in 1939. He said that at that time Smilg spoke of a planned trip to the East, either Boston or New York City. Gold was of the opinion that a short, fat Jewish aeronautical engineer, with a degree from New York University and who was also employed at Wright Field, was at the Smilg home this time. Gold said he made definite overtures to Smilg but was rebuffed.

Gold stated that he had a sixth meeting with Smilg in the spring of 1940, possibly March. This time Smilg told Gold of an automobile accident that Smilg had when he made his trip East. Gold was of the

Bruin is identical with John Jack Bruin, was., Joseph Brotsky, Joseph Brodsky, Security Matter - C, Bureau file 100-177884.

The records of the Bureau of Vital Statistics, Department of Health, Detroit, Michigan, reflect that Bruin was born as Joseph Brodsky at Detroit, Michigan, on May 12, 1912.

His father, Nathan Brodsky, and his mother, Anne Aarumski, were both born in Russia, according to these records.

As of September, 1949, Bruin was residing at 5313 Oxford Street, Philadelphia, and was self-employed as a venetian blind distributor, having a business association with the Croydon Venetian Blind Company, 1313 Vine Street, Philadelphia.

Bruin was inducted into the United States Army March 31, 1942, and given a medical discharge on September 15, 1943, according to Selective Service records. A Military Intelligence report dated December 5, 1942, reflects that Bruin who at that time was a private first class, QM Company, Henry Barracks, San Juan, Puerto Rico, was made the subject of investigation because he had been observed taking pictures of the Signal Station and of the men during an alert on a Sunday afternoon. release per army

The main file on Bruin reflects that both he and his wife have been active in Communist Party affairs in Philadelphia.

Bruin is described, according to the Identification Division records, as age, 38; born May 12, 1912; height, 5' 4"; weight, 140 pounds; hair, brown; eyes, brown; complexion, ruddy; build, medium; scars and marks, ½" scar running from corner of left eye.

(100-177884-2;6;8;19;20)

[redacted]

62
670

[redacted]

Disseminated To	Date of Letter	File Reference
Mr. Peyton Ford, The Assistant to the Attorney General	May 15, 1950	65-58805-1138

S State b1 per State

34. Memorandum advising that Harry Gold has identified Semen Semenov as his Soviet espionage superior in the United States between 1941 and 1944. [redacted] b1 63 plus CIA

[redacted] S

Disseminated To	Date of Letter	File Reference
Central Intelligence Agency (Col. Robert A. Schow)	June 15, 1950	65-57449-354

No. 61. Letter furnishing information concerning the activities of one Semen Semenov, [redacted] believed to be identical with Golik's superior, Semen Semenov. 61

Disseminated to	Date of letter	File Reference
Assistant Attorney General James M. McInerney	September 26, 1950	65-57449-680

b1

b1 per CIA

b1 per CIA

Pierce released per DOE

b1

b2

#6 release per DOE

b1

[redacted] b1 per CIA

#4 release per DOE

C
O
P
Y

November 7, 1947 FTHobbs/agm

Mr. L. G. Ralfe
British Commonwealth Scientific Office
United Kingdom Scientific Mission
1785 Massachusetts Avenue, N. W.
Washington 6, D. C.

Dear Mr. Ralfe:

With reference to your letter of October 22, we have no objection to the visits and discussions proposed for Doctors Skinner, Fuchs, and Dunworth on the basic that no Commission restricted data will be involved. We have notified the various organizations of this concurrence, with the understanding that you will arrange direct the firm dates for each visit.

Sincerely yours,

Carroll L. Wilson
General Manager

cc: C. L. Wilson
cc: W. A. Burke - Attached
copy of letter from
L. G. Ralfe to Carroll L. Wilson
Dated October 22, 1947

Exhibit #4
Release per DOE

(Stamped) READING FILE

T. O. JONES

August 6, 1947

W. D. DEAN

On this date, Mr. Keller (presently in Dr. Fidler's Office - assigned to Declassification, Oak Ridge, Tennessee.) requested a security check of the following individuals:

Dr. W. B. Lewis (Dir. of Research, Chalk River)
Dr. R. E. Peierls (British)
Dr. K. Fuchs (British)

Mr. Keller explained that they want to invite the above individuals for a conference on declassification: Dr. Lewis to come down from Canada and Dr. Peierls and Dr. Fuchs to come over from Britain. The meeting will probably be held here in Washington, and undoubtedly in AEC Headquarters. The purpose of the meeting is to coordinate the British and Canadian declassification with our own.

Mr. Keller stated that Mr. Derry and Mr. Wilson approve of the meeting, and that Mr. Wilson is signing the letter of invitation.

A check of the Washington Records indicates:

Dr. R. E. Peierls & Dr. K. Fuchs - were both members of the original British Mission that came over in 1943. Both are German born but became British citizens. The members of this Mission were never investigated by the U. S. government, their special investigation as conducted by the British government was accepted by General Groves as MD clearance.

Dr. W. B. Lewis - No Record in either CPCO or MD Files.

A check will be made at Oak Ridge, Tennessee to see if any record exists there of the clearance of Dr. Lewis.

(Handwritten) Distribution
1. Jones
2. Reading
3. Record Section

(Handwritten) Check at O. Ridge revealed No Record on W. B. Lewis (per phone conversation - Fowler/Dean)

W. D. Dean

SECRET

Admiral Gingrich

C. A. Rolander, Jr.

BRITISH MISSION

Symbol: RS-PS:7AB

Attached herewith is a compilation of the Canadian staff, scientific and technical, and UK staff, scientific and technical, who participated in the atomic energy program under the former Manhattan Engineer District from 1943 to early 1946. Included, insofar as possible, is a statement as to the installations visited and degree of access afforded to this group. General Leslie R. Groves was assured by the British Supply Council in North America that all the participating members of the British Mission in the U. S., engaged on work of interest to the MED, had been cleared by British Security prior to their departure for the United States. This assurance was accepted by General Groves as sufficient clearance for participation in the Manhattan Project.

The information included in the attachments was prepared from records available in the Security Files. Although these records give a general picture as to the fields of activity in which the British Mission participated, they do not provide detailed information as to their particular specialties, nor do the records clearly indicate what familiarization the British Group may have had with other programs in which they did not actually participate but undoubtedly became acquainted by reading technical reports available to them. An example would be the familiarization with the HEW activities through technical reports made available to the Los Alamos Laboratory. A more detailed study should be made through the examination of the Los Alamos history, technical series, work notebooks and other reports, most of which are a part of the field records.

The attachments were discussed with John A. Derry who checked them for accuracy. The statements concerning the access to classified information provided the British Group were discussed with Ralph C. Smith regarding Los Alamos; A. F. Peterson regarding Oak Ridge; and Harold Fidler concerning Berkeley.

With reference to the members of the British Mission, Attachment #2, it is noted that George Placzek has become a naturalized U. S. citizen and is presently at Princeton University, and J. Carson Mark has received his first papers and is employed at Los Alamos. Lew Kowarski and Bertrand Goldschmidt have returned to France and are presently staff members of the French Atomic Energy Program.

Attachments - #2

SECRET

See report from L. C. Smith to T. O. Jones, 18 Sept. 1945 Subject British Mission Personnel

DISTRIBUTION:
Cpy 1 - Adm Gingrich
Cpy 2 - Record Section
Cpy 3 - Reading File
Cpy 4 & VAVCB file
Cpys 5,6,& 7 - retained in VAVCB file

Exhibit #

BERKELEY

Records reflect that there were no prohibitions on the access of the British Group on the work being done by the Radiation Laboratory in connection with the Y-12 Program. However, while no limitation did exist, it was felt that the British Group had more information concerning the overcoming of space charge, use of magnetic shims, the physics of the source unit and ionizations, and much less information on the collectors, on the chemistry, the regulators and controlling units. The British Group, especially Massey and Burcman, practically directed the work of the theoretical group which studied the fundamental physics of the electro-magnetic method of separation of isotopes. There is no question that Dr. Oliphant and Dr. Massey, who succeeded Oliphant as head of the British Group at Berkeley, discussed high matters of policy with E. O. Lawrence. They took an important part in such decisions as the degrees of enrichment desired and the correlation of the alpha and beta enrichment with K-25. It is believed, however, that no member of the British Group had access or any knowledge of Latimer's work on X-10 chemistry. It is believed that the British Group generally had little knowledge concerning the work performed by J. O. Hamilton with the 60" cyclotron, either on health problems or on special bombardments for the Chemistry Divisions at Los Alamos and the Metallurgical Laboratory. James Moore of the British Group spent about two months with Hamilton learning the operation of the 60" cyclotron, and when he returned to England he took with him a set of blueprints for the cyclotron. He had no access to the specific work being performed for the MED Project with the cyclotron.

OAK RIDGE

It is difficult to ascertain the amount of information obtained by the British Group who visited or remained at Oak Ridge or to determine the amount of classified information made available to them. It is believed, however, that as a group they had access to all information at Y-12 with only a very limited familiarization with K-25, X-10 and S-50. It is to be noted that some of the British Group only made a tour of the area, while others spent varying lengths of time working in the area.

LOS ALAMOS

Inasmuch as it was the policy of the laboratory to make all information available to this group at Los Alamos, and as the British personnel had general access to the Document Room, various local sites, and the organized meetings of the local project, it is believed that the group had substantially complete knowledge of the gun assembly and implosion assembly of fissile material, the actual design of the aerial bombs employing these principles, the possible future developments, including the "Super" or Thermo Nuclear Reactions, the auxiliary equipment at the various local sites including the Water Boiler. The British Group probably did not obtain detailed information concerning the final chemical work at Los Alamos, however, the general aspects were known to them because they would be discussed in colloquiums or staff meetings. The exact extent of the technical knowledge about sites other than the Los Alamos project by British personnel at Los Alamos cannot readily be determined since work directly

relating to Los Alamos activities such as basic physics as well as pile design which members of the Mission would use in their daily work is undoubtedly known to them. Such items as Hanford chemistry would have reached the group by inference only since the laboratory as such did not have detailed access to such information. During their stay at Los Alamos, they also had access to the general physics and chemistry principles involved in the operation of the Chicago and Hanford piles, the physical construction of these piles, but only a minimum of the engineering details. They had, however, complete access to all general theoretical work on pile design. It is assumed that they had rather complete knowledge of the mass spectrometer application used in the calutron and gaseous diffusion process for separating uranium isotopes.

There is included below examples of certain fields of weapon research in which the Britishers listed were particularly outstanding:

O. R. Frisch — Critical mass work on weapons.

J. L. Tuck — Experimental work on explosives, relating to weapon assemblies, jet work for super assembly.

R. E. Peierls — Theoretical work on implosion and was a top theoretical adviser on most phases of Los Alamos research activity.

W. G. Penney — Bomb after effects work and under water explosion.

E. H. Titterton — Complete charge of electronics group, designed experimental detonation circuits and numerous circuits relating to weapon and weapon components testing.

W. G. Marley — One of those responsible for design and field testing of explosive lens components used in the weapon.

SECRET

October 24, 1944. Colloquium. Captain Ackerman, A.U.S., spoke on preparing shapes masses of high explosives for implosion spheres.

November 21, 1944. Colloquium. Dr. Manley spoke on integral studies particularly on tamper measurements.

November 28, 1944. Colloquium. Dr. Nicholas Baker discussed nuclear reactions of heavy elements and particularly the various results obtained when a neutron comes in contact with heavy nuclei, such as Uranium 238.

December 12, 1944. Colloquium. Dr. Oppenheimer mentioned the three alternative methods for implosion. These include: (1) Christy compression of a solid sphere; (2) Neddermeyer low velocity implosion to avoid jets; (3) The shaped change assembly or rearrangement of fissile material. The speaker was Critchfield who discussed initiator for the neutron reaction. He mentioned the Alvarez gamma-Neutron source, the deuterium - deuterium reaction as an initiator, as well as the developed procedures of Ayers and Robinson.

December 19, 1944. Colloquium, addressed by Dodson. Subjects discussed were (1) Radio lanthanum experiments on the Christy compression procedure; (2) Foils of active material for neutron measurements; (3) Sensitive neutron detectors; (4) polonium chemistry, and (5) procedure for separation of radio lanthanum from source material.

December 26, 1944. Colloquium. McDaniels spoke on measurement of the fission and neutron capture of Uranium 235 and Plutonium 239. Considerable discussion was given to the attempted coordination of the experimental results with the theoretical predictions.

[redacted]

b3 per DOE T42 USC 2011 et seq

January 16, 1945. Colloquium. Bethe spoke on jet theories in the implosion gadget. Experimental analysis by Tuck of the British Mission and

Declassified per DOE letter 8-8-89

Exhibit #7

[redacted]

January 22, 1945. Coordinating Council addressed by Teller on the subject of autocatalytic methods of explosively releasing energy from fissile material.

February 5, 1945. Griesen talked on the X-ray technique of implosion examination, particularly as to its limitations and shortcomings.

February 26, 1945. Colloquium. Seybolt addressed group on shaping of uranium by casting, rolling, and pressing and by Balke on powder metallurgy.

March 5, 1945. Coordinating Council. Dr. J. R. Oppenheimer outlined the future program of gadget study, emphasizing the freezing of designs in guns and implosion assemblies.

March 6, 1945. Colloquium. Mr. Penny talked on the subject of damage by the blast effect of a gadget.

[redacted]

March 19, 1945. Colloquium. Mr. Marley spoke on the subject of explosive lens design and results for producing spherical implosion wave.

March 26, 1945. Coordinating Council. Dr. Weisskopf spoke on the subject of the proposed study of the explosive fission reaction efficiencies by observation of the blast wave, neutron emission, X-ray (particularly the delayed), and the fission products. Latest critical mass values were announced.

April 2, 1945. Coordinating Council. Seybolt spoke on the shaping of Uranium 235, specifically casting, and Jette on the processing of plutonium metal and the allotropic forms of the material, mentioning the toxic dust hazards in the processing.

April 9, 1945. Coordinating Council. Peierls spoke on results of implosion theoretical study.

April 10, 1945. Colloquium. Teller spoke on autocatalysis of fission chain reactions.

b3 per DOE
T42 USC 2011 et seq

April 16, 1945. Coordinating Council. Rossi spoke on the radio-lanthanum experiments for examination of the implosion.

April 17, 1945. Colloquium. Commander Birch spoke on the subject of gun assembly of fissile material with illustrative slides. Serber discussed theoretical predictions of the performance of the gun.

April 19, 1945. The Theoretical Division meeting was addressed by Bethe on design of neutron sources or fission reaction initiators, discussing specifically the Bethe-Tuck developments.

April 23, 1945. Coordinating Council. Koske spoke on the argon flash examination of imploding hemispheres and cylinders with and without lenses.

April 24, 1945. Colloquium. Frisch discussed the activities of Group 1 of the Gadget Division, specifically covering the critical assembly of Uranium 235 and the "tickling of the dragon's tail" experiments by dropping a cylinder of fissile material through a tamper material to produce a very slightly super-critical assembly.

April 30, 1945. Coordinating Council. Robert Wilson spoke on experiments for determining the multiplication constant in neutron density calculations. Serber commented on the check of the experiments with theoretical considerations.

May 7, 1945. Coordinating Council. Critchfield talked about the three potential neutron fission reaction initiators for the implosion gadget. These included the Tuck-Bethe jet "Urchin," the Serduke beryllium plug "Melon-Seed," and the N. Baker granular "Nichodemus." Johns discussed the chemistry of polonium and procedures for handling this material.

May 14, 1945. Coordinating Council. Bainbridge spoke on the results of the trial shot of 100 tons of high explosive at Trinity. Comments were made on the effectiveness of various measuring devices.

May 21, 1945. Coordinating Council. Ramsey spoke on the more recent work on the ultimate delivery of the gadget, including assembly of the parts, dropping of the gadget from a plane, and means for observing the functioning of the various parts.

May 28, 1945. Coordinating Council. Commander Bradbury spoke on the assembly of the implosion gadget as to the high explosive and alignment of parts. Allison briefly mentioned that the stabliziation of the delta phase of plutonium looked good.

release per DOE

June 4, 1945. Coordinating Council. Fermi spoke on planned experiments for observing the approaching implosion fission reaction experiment at Trinity, emphasizing the problems involved.

June 12, 1945. Colloquium. S. K. Allison spoke on the implosion schedule, tracing it from the invention to the expected test shot at Trinity.

June 18, 1945. Coordinating Council. Bethe spoke on the correlation of theoretical calculations from the assumed equation of state with the observed shock velocity, material velocity, and density increase using the electrical magnetic, X-ray and radio lanthanum methods of observation. The various factors already calculated and those not calculated were considered in estimating the efficiency of the gadget.

June 25, 1945. Coordinating Council. Dr. Oppenheimer mentioned the proposed dimensions of the plutonium sphere for the implosion gadget and the boron modification of the high explosive charge. Greisen spoke on the electric detonators to be used with the high explosive for the implosion gadget.

July 2, 1945. Coordinating Council. Dr. Oppenheimer mentioned the changes in the high explosive detonator. Jette spoke on the pressing of the plutonium hemispheres which would be used in the Trinity test. Dodson described the manufacture of the "Urchin" modulated neutron source, which would be used at the Trinity shot.

July 3, 1945. Colloquium. Bethe discussed the various factors and corrections to be considered in predicting the results of the proposed Trinity test.

July 9, 1945. Coordinating Council. Slotin, O. R. Frisch, Holloway, Kistiakowsky, Serber, and Oppenheimer spoke on tests and predictions relating to, and construction details of, the Trinity test.

July 16, 1945. Coordinating Council attended the Trinity test of the implosion gadget at 0530 M.W.T.

July 23, 1945. Coordinating Council. Oppenheimer mentioned some elements of the future program of this project. Bethe spoke on some observations of the Trinity test.

August 13, 1945. Coordinating Council. Herbert Anderson addressed the Council on the chemical methods for determining the efficiency of the Trinity test shot, specifically on the determination of the relation of fission products to the original plutonium metal.

August 20, 1945. Oppenheimer spoke to the Coordinating Council on the future of the Project.

September 10, 1945. Coordinating Council. Oppenheimer talked on the future of atomic power and legislation relevant thereto. Norman F. Ramsey addressed the group on the development of the combat bombs, including such items as buildings, gadget design, delivery overseas, assembly, and the like.

September 17, 1945. Coordinating Council. Mr. Waldman discussed the efficiency at Hiroshima and Nagasaki on the basis of blast measurements. Reports indicate that the efficiency of the bomb drop on Nagasaki was greater than the Trinity test. There was a showing of technicolor films of the combat drops.

September 24, 1945. Coordinating Council. Dr. Christy discussed some of the non-specific problems arising from the development and use of the atomic bomb.

September 25, 1945. Colloquium. Dr. Edward Teller discussed the "Super," describing generally the thermo-nuclear reaction and the obstacles which must be overcome to initiate such a reaction. He exhibited to the group an embodiment of the "Super" gadget which he thought might be operative.

October 1, 1945. Coordinating Council. Dr. Bradbury discussed the future of the Project until the Commission takes over.

October 8, 1945. Coordinating Council. Robert Henderson discussed the redesign of the implosion gadgets with respect to engineering improvements.

October 15, 1945. Coordinating Council. Placzek discussed the gadget using a composite of plutonium and Uranium 235. L. F. Slotin discussed measurements on a composit gadget.

October 19, 1945. Research Division Meeting. Penney spoke on observations of damage in Japan.

November 5, 1945. Coordinating Council. Serber spoke on observations of damage caused by atomic bombs in Japan. Captain Nolan spoke on the medical aspects of this situation.

December 17, 1945. Coordinating Council. Philip Morrison spoke on power piles, in particular the details of a fast neutron plutonium system using rods and a liquid coolant such as a low melting alloy.

release per DOE

January 21, 1946. Coordinating Council. Colonel Warren, M.C., spoke on his observations of damage and injury at Hiroshima and Nagasaki.

February 4, 1946. The first meeting of the new Interim Council was addressed by Dr. Bradbury on the future of the Project. Among items discussed were the Navy Test; the fast neutron power reactor; the "Super;" stock piling; weapon development; Physics Division work, and the potential conference this summer.

February 11, 1946. Interim Council. Louis Slotin spoke on the high temperature, fast neutron, mercury-cooled plutonium reactor. Mark spoke on the critical mass value for such a reactor.

February 25, 1946. Interim Council. Max Roy spoke on the work of "X" Division, particularly on developments involving slow explosives for lens improvement.

February 28, 1946. Dr. Richtmyer addressed the Theoretical Division Seminar on resonance autocatalytic systems for bomb design.

March 11, 1946. Interim Council. Darrol Froman spoke on the experimental data developed on the levitated implosion gadget and elements of design of that device, including the composite gadget of plutonium and uranium.

March 12, 1946. Theoretical Seminar. Addressed by Teller on the possibility of Thermonuclear reactions in water and air.

March 18, 1946. Interim Council. Discussion of new declassification procedure.

March 25, 1946. Interim Council. Morrison spoke on "Breeders," "Converters," "Power Piles," and the like. This time Morrison did not go into details of operation, as he did several years ago.

April 1, 1946. Interim Council. Mr. M. Kolodney addressed the group on the operation of DP Site with particular reference to the processing of plutonium from the nitrate to the metal component for an atomic bomb.

April 8, 1946. Interim Council. P. Morrison spoke on dilution of fissionable materials to permit only peaceful employment thereof. He mentioned the addition of U-238 to various materials such as thorium, plutonium, and the like.

April 18, 1946. (1000) First meeting of the "Super" conference. Mr. Edward Teller gave a brief summary of the subject matter described in LA Report No. 551. He restated the physical considerations and the design factors of the proposed embodiment intended to effect these considerations.

[redacted]

April 19, 1946. (1400) Fourth meeting of the "Super" conference. Mr. Lansdorf continued his discussion on the compression of the various materials. Edward Teller then discussed the experimental program which was believed necessary in the preparation of a "Super."

He mentioned a program for the study of a 14 Mev neutrons released in the nuclear reaction and the cross-sections for various processes concerning these neutrons and the materials employed in the "Super." Furthermore, the various reactions involved in the "Super," such as tritium plus tritium, helium

b3 per DoE
T42 USC 2011 et seq

plus deuterium, hydrogen plus deuterium, and the like, as well as the nitrogen plus nitrogen reaction should be studied. Cryogenic experiments should be studied. Cryogenic experiments should be carried out for all the materials employed in the proposed device. These experiments should include considerations of the thermal equations of state; the ortho to par conversion; pressure equations of state; heat production in tritium at low temperatures by beta ray emission and so forth. An engineering program was also suggested to cover all engineering and essign phases connected with the device. The test program should cover the operation of the assembly device for fission reaction; the fission reaction plus the "primer;" and full scale tests. A further program should be instituted to investigate other suggestions on the initiation of a deuterium plus deuterium reaction such as the jet method proposed by Ulam, etc.

April 20, 1946. (1000) Fifth meeting of the "Super" conference. Mr. Edward Teller presided. The meeting was a general discussion period concerning the possibility of peaceful applications of the deuterium plus deuterium reaction. General schemes were proposed all of which were very far-fetched and presented numerous practical difficulties.

April 29, 1946. Interium Council. Mr. McDibben spoke on the new 8 million volt electrostatic generator proposed for construction at this site. He mentioned new design features and the manner of incorporation of old features into the device.

May 20, 1946. Interim Council. Colonel Seeman spoke on the organization of the U. S. Army and our place therein.

May 27, 1946. Interim Council. Bradbury spoke briefly on the radiation accident occurring on May 21, 1946, indicating that no critical assembly experiments were to be continued until safer methods were developed, and that the involved plutonium sphere was so "hot" that it will not be handled for some time. J. W. Stout spoke on the developments in slow explosives, particularly barium nitrate-plastic compostions, for use in explosive lenses.

June 3, 1946. Interim Council. Milo Sampson spoke on the material and shock velocities in the proposed levitated sphere assembly. Velocities of 4.18 mm per microsecond for the material, and 4.59 mm per microsecond for the shock were measured employing the pin method for velocity determination.

release per DOE

LIST OF REPORTS PREPARED BY FUCHS

Atomic Energy Commission records indicate that Fuchs had prepared the following list of reports. (This list was not intended to be complete but to illustrate contributions of British in the atomic bomb project.)

Name	Title of Report	Rpt. No.	Classification	Date
Fuchs, K.	Shock Attenuation in Rods	LAMS-402	Secret	7-26-46
	Efficiency for Very Slow Assembly	LA-596	Secret	8-2-46
	Effect of Evaporation of Free-Surface Velocities	LA-441	Secret	10-30-45
	Initiator Theory, III. Jet Formation by the Collision of Two Surfaces	LA-325	Secret	7-11-45
	Penetration by Jets Produced by Cavity Charges	LA-328	Secret	7-14-45
	Theory of Initiators II, Melon Seed	LA-300	Secret	6-1-45
	Rarefaction Wave from a Plan Free Surface in an Explosive	LA-227	Secret	2-16-45
	Jet Formation in Cylindrical Implodion with 16 Detonation Points	LA-216	Secret	2-6-45
	Formation of Jets in Plane Slabs	LA-195	Secret	12-27-44

(65-58805-8)

Declass per DOE letter 8-8-89

release per DOE

The files of AEC Retired Records, Oak Ridge, Tennessee, contain copies of numerous reports authored by members of the British Mission which were furnished to the U. S. group. Those authored by Fuchs are listed below:

"The Optimum Pressure and Back Pressure in a Diffusion Plant" by K. Fuchs (undated, British file MS-92.)

"Cascade of Cascades in the DS Scheme" by K. Fuchs and R. Peierls (undated, British file MS-83.)

"Cascade of Cascades in the DS Scheme, Part 3, Non-Orthodox Connections Between Sub Cascades" by Fuchs (undated British file MS-96.)

"The Rabbit Machine" by K. Fuchs and R. Peierls (undated, British file MS-81.)

"Simplified Formulae for the Membrane Pair with Supports" by K. Fuchs and P. D. Preston (undated, British file MS-51A.)

"Note on the Control of the Branching Ratio in the 'Rabbit' and Back Feeding" by K. Fuchs (undated, British file MS-93.)

"Fluctuations in a Diffusion Separation Plant" by K. Fuchs (undated, British file MS-64.)

"Losses in the Rate of Production due to Withdrawal of Cells for Maintenance" by K. Fuchs (undated, British file MS-17.)

"Fluctuations and the Efficiency of a Diffusion Plant, Part 3, the Effect of Fluctuation in the Flow of N-2" by K. Fuchs (dated June 6, 1944, British file MSN-12.)

"Fluctuations and the Efficiency of a Diffusion Plant, Part 4, the Effect of Density Fluctuation" by K. Fuchs (undated, British file MSN-15.)

"On the Effect of a Time Lag in the Controller of Plant Stability" by K. Fuchs (undated, British file MSN-3.)

"Note on the Effect of Fluctuations on the Efficiency of a Diffusion Plant" by K. Fuchs (undated, British file MSN-5.)

"Effect of Fluctuations on Plant Efficiency, Part 2, Fluctuations in the Rate of Production" by Fuchs (undated, British file MSN-10.)

It is indicated in this file that manuscripts with British file numbers 15, 16 and 17 had been forwarded to M. Benedict of Kellex by Fuchs. (65-58805-394, pg. 9 and 10)

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Investigation by the Albuquerque Office in February, 1950, at Los Alamos disclosed that index cards in the document room of D Division give the following title of papers written by Fuchs in some cases in conjunction with others. The dates of these papers are set out when given and the co-worker on the paper, if any, is indicated below: (U)

The Stability of the Rabbitt Machine; 4/10/42, B 106
Shock Hydrodynamics; 10/28/44, LA 165
Shock Attenuation in rods; 7/26/44, LAMS 402
Separation of Isotopes; 4/10/42; B 49
Rarefaction Wave from a Plane Free Surface in an Explosion; 3/16/45
Perturbation Theory in One Group Neutron Problems; 1/3/49, BM 1482
Penetration by Jets Produced by Cavity Charges; 7/14/45, LA 328
Oblique Detonation Waves; LAMD 87
Notes on the Expansion of U Sphere Inclosed in a Container; BM 145
Measurement of Nuclear Bomb Efficiency by Observation of the Ball of Fire at early stage; 2/20/46, LA 516
Los Alamos Tech Series Vol. 7, Part III, Chaps. 11-14 Blast Wave; 8/15/47, LA 1022
Los Alamos Tech Series Vol. 7, Part I, Blast Wave; LA 1020
Los Alamos Tech Series Vol. 7, Part IV, Blast Wave; LA 1025
Los Alamos Tech Series Vol. 7, Part II, Blast Wave; LA 1021
Jet Formation in Cylindrical Implosion with 16 Detonation Points; 2/6/45, LA 216
Isotope Separation with Complex Molecules; 4/10/42, B 39
Initiator Theory III Jet Formation by the Collision of Two Surfaces; 7/11/45, LA 325
Gland Problems; 6/29/42, B 75
Formation of Jets in Plane Slabs; 12/27/44, LA 195
Fluctuations in a Diffusion Separation Plant; 11/20/42, B 105
Finite Width of Single Membrane; 4/10/42, B 45
Equilibrium Time in a Separation Plant; 4/42, MA 47 A
The Equation of State of Air at High Temperatures; 9/18/43, BM 85
Efficiency for Very Slow Assembly; 8/2/46, LA 596
Effect of Separation of Isotopes of Compound Molecules; MS 44 A
Effect of Packing on Critical Radius of the Sphere; 4/10/42, B 48
Effect of Evaporation on Free Surface Velocities; 10/30/45 LA 441
Effect of Boundary Layer for Swept Membranes; B-51
Effect of a Scattering Container on the Critical Radius and Time Constant; BM 70
The Critical Radius and the Time Constant of a Sphere Imbedded in a Spherical Scattering Container; BM 144
Critical Radiation and Time Constants for Finite Reflector 7/24/42 B 81
Comparison of the Variation Theory and End Point Results for the Tempered Spheres; 1/18/45, LA 205

(U)

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The "T" Division progress reports for 1944, LAMS 177, 11-44, contain articles apparently by Fuchs, Podger, and Stark entitled "Two Dimensional Problem" the first sentence of which reads - "....Pressure exerted by the detonation in Comp. B on a steel liner has been calculated for various angles of incidence of the detonation wave." (65-58805-183, pg 11-12)

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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

IN REPLY REFER TO:

SV:CAR

I 3 M

Honorable J. Edgar Hoover, Director
Federal Bureau of Investigation
U. S. Department of Justice
Washington 25, D. C.

Dear Mr. Hoover:

Reference is made to your letter of March 2, 1950 addressed to the Acting Chairman of the Atomic Energy Commission reporting the substance of a statement made by Emil Julius Klaus Fuchs to Dr. Michael W. Perrin.

This statement, as well as Fuchs' statement as reported in your letter of March 2, 1950, was reviewed recently by a Committee of Senior Responsible Reviewers to consider the effect on the AEC declassification policy. This Committee has prepared a report containing in part an evaluation of the extent of information passed over by Fuchs and an abstract diary of those conferences and meetings on thermonuclear weapons attended by Fuchs while at Los Alamos.

There is attached for your information the pertinent portions of this report believed to be of interest to your Bureau.

Sincerely yours,

Francis Hammack

Francis Hammack
Acting Director
Division of Security

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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

SV:CAR

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Sincerely yours,

Francis Bemmack
Acting Director
Division of Security

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EVALUATION OF FUCHS CASE BY COMMITTEE OF SENIOR RESPONSIBLE REVIEWERS

1. The Committee of Senior Responsible Reviewers has examined Info Memo 273/9 (Perrin Report) as well as Info Memo 273/10 (Fuchs statement) and discussed the technical evidence in these documents. An evaluation of the evidence is presented in the following sections:

A. Diffusion Plant

2. Fuchs stated that he had turned over during the first period (1942 to Dec. 1943) those documents in the "MS" series which represented his own work at Birmingham. There appear to be 21 documents in this category, of which 9 have been declassified to date. Four of these 21 "MS" reports (MS 7A, 63, 85, and 97) deal with early work on neutron diffusion theory and either have been declassified or have remained classified because of relatively unimportant numerical constants therein assumed. The remainder of the reports from the Birmingham period deal largely with early theoretical work on diffusion processes.

3. It seems that Fuchs turned over all the diffusion plant information known to him at the time he left the New York British office. Fuchs stated his activities during the second period (December 1943 - August 1944) included passing over copies of all the reports prepared in the New York office of the British Diffusion Mission, namely the reports in the "MSN" series. This series contains 18 reports. All of these reports are concerned principally with the gaseous diffusion process and deal largely with theoretical design considerations relevant to the utilization of that process. Most of this material was developed independently by Fuchs and collaborators in Britain, and by Cohen and by Benedict in this country.

The bulk of this material was declassified about two years ago for the Cohen volume in the NNES, which has not yet appeared in print. It is pertinent to note that three independent studies gave essentially the same results, thus suggesting that the calculations could probably have been performed independently and successfully in Russia.

4. As far as barriers are concerned, the documents which Fuchs turned over in the "MS" and "MSN series deal essentially with theoretical aspects and do not contain significant information regarding their fabrication or actual performance. It should be emphasized that while

5. After considering the foregoing the Committee does not feel that we should release any further material about barriers

6. The last report in the "MSN" series (MSN-18 "Adaptation of K-25 Plant for Partial Operation on the Cascade of Cascades Principle--Flowsheets VIII a, b, and c") is the only one which contains production figures for the K-25 plant. These are used for illustrative purposes in the report without specifically stating that they are production figures. However, it would be reasonable to expect that a reader of the report would conclude that the flowsheets in the report represent actual plant performance. From the evidence available to the Committee there appeared to be some uncertainty whether MSN-18 was actually one of the reports Fuchs turned over. The Committee feels that this matter might well receive further investigation.

B. Los Alamos

7. For the evaluation of the Los Alamos aspects the Committee had the advice of Drs. Bradbury, Manley, Smith and Teller of the Los Alamos Laboratory. It is apparent that the information regarding weapons which Fuchs turned over to the Russians was very complete.

8. With respect to the Trinity (plutonium implosion) type weapon, it is clear that the essentials of the bomb in adequate detail were turned over either while Fuchs was at Los Alamos or later. It is also apparent that considerable information was turned over regarding gun-type weapons.

9. As far as more recent implosion type weapon developments are concerned, Fuchs did not know at the time of his departure what the actual design of the Sandstone bombs would be.

However, he was familiar with the ideas and early operating designs

It should be recalled that Fuchs' status in the laboratory was that of a highly esteemed scientist and that he participated in all major conferences of the theoretical division while at Los Alamos. It is not clear from the Perrin statement whether Fuchs turned over

bomb at all or whether he gave more than an indication of the composite bomb and its economic features.

10. In regard to thermonuclear weapons, the extent of Fuchs participation in the work at Los Alamos Laboratory is indicated by the excerpts quoted in the Tab to this report. Fuchs apparently transmitted essentially the ideas contained in the report on the April 1946 "super" conference at Los Alamos (documents LA 551 and LA 575); he was present and a principal participant in this conference.

was not known to Fuchs when he left Los Alamos (June 1946), nor was it well known to any other member of the British Mission.

C. Other Projects

11. Officially Fuchs had little information concerning other phases of the U. S. Project, e.g., the Hanford project. (This is true of all the members of the British mission as far as Hanford is concerned.) It would be pertinent to know what Fuchs gave away of such additional information as he may have learned. From the Perrin report of his confession it would appear that the information in this category which he turned over was relatively minor. The possibility that Fuchs might have made additional disclosures to the Russians should, however, be borne in mind. In addition the extent of information concerning the U. S. project made available to Fuchs as a result of the Technical Cooperation Program should be considered. Although the Perrin report does not indicate these other sources of information to be involved, it would be valuable to have further information on this point.

12. The statements to Perrin indicate that as far as pile technology is concerned, including British work, Fuchs did not pass a great deal of information to the Russians.

D. Fundamental Nuclear Information

13. It was noted that Fuchs had not transmitted any information relative to the fission process itself, except for such specific information as the spontaneous fission problem (Pu 240). This may possibly be interpreted to mean that fundamental nuclear data were not needed by the Russians because of their own efforts in this field, or because the information was being furnished to them through other sources.

E. General

14. Detailed examination of the Perrin report and the documents mentioned on the information transmitted by Fuchs has proved very illuminating and has given in general terms a most valuable summary of the situation. Naturally additional questions come to mind. It would be very helpful in evaluating fully our present position if more detailed technical information on transmittals by Fuchs could be obtained. Particular areas in which more detailed information would be useful include thermonuclear weapons, reactors and such diffusion plant problems as barriers, conditioning, etc.

FUCHS PARTICIPATION IN THE THERMONUCLEAR WEAPON PROGRAM AT LOS ALAMOS

(The following abstract was prepared by Dr. R. G. Smith, of Los Alamos Laboratory, from his files. Dr. Smith was present at the meetings described in this abstract)

1. In a report dated April 3, 1946, from Colonel Seeman to Major General Groves, on the subject of participation of British Mission Personnel in the Los Alamos program, the following technical meetings are reported at which Mr. Fuchs was in attendance:

> "a. 4 March 1946 The Interim Council was addressed by Fuchs of the British Mission on the theory of the gadget. Mr. Titterton also attended the meeting.

> "c. 12 March 1946 The Theoretical Seminar was addressed by Teller on the possibility of Thermonuclear reactions in water and air. Attending were Messrs. Bretscher, Fuchs, Mark, and Skyrme.

> "d. 25 March 1946 Dr. Bradbury presided at the Interim Council and discussed briefly the postponement of Operation Crossroads. Morrison spoke on "Breeders," "Converters," "Power Piles," and the like. This time Morrison did not go into details of operation as he did several years ago. Present were Messrs. Fuchs and Tuck."

2. In the report of May 3, 1946 on the British Mission, Colonel Seeman listed several meetings at which Mr. Fuchs was in attendance. Among these are:

"a. 1 April 1946 Mr. M. Kolodney addressed the Interim Council on the operation of DP Site with particular reference to the processing of plutonium from the nitrate to the metal component for an atomic bomb. Messrs. Fuchs and Mark attended.

"b. 18 April 1946 (1000) First meeting of the "Super" conference. The meeting was held at Mr. Bradbury's office. Mr. Edward Teller addressed the meeting and gave a brief summary of the subject matter described in LA Report No. 551. He restated the physical considerations and the design factors of the proposed embodiment intended to effect these considerations. In attendance were Messrs. Tuck, Fuchs, and Bretscher.

"d. 19 April 1946 (1000) Third meeting of the "Super" conference. Messrs. Metropolis and Turkevich discussed numerical calculations on various phases of the "Super" carried out on the "Eniac" calculator at Philadelphia. These solutions

"e. 19 April 1946 (1400) Fourth meeting of the "Super" conference. Mr. Lansdorf continued his discussion on the compression of the various materials. Mr. Edward Teller then addressed the meeting on the experimental program which was believed necessary in the preparation of a "Super." He mentioned a program for the study of the 14 Mev neutrons released in the nuclear reaction and the cross sections for various processes concerning these neutrons and the materials employed in the "Super." Furthermore, the various reactions involved in the "Super," such as tritium plus tritium, helium plus deuterium, hydrogen plus deuterium, and the like, as well as the nitrogen plus nitrogen reaction should be studied. Cryogenic experiments should be carried out for all the materials employed in the proposed device. These experiments should include considerations of the thermal equations of state; the ortho to para conversion; pressure equations of state; heat production in tritium at low temperatures by beta ray emission and so forth. An engineering program was also suggested to cover all engineering and design phases connected with the device. The test program should cover the operation of the assembly device for the fission reaction; the fission reaction plus the "primer"; and the full-scale tests. A further program should be instituted to investigate other suggestions on the initiation of a deuterium plus deuterium reaction such as the jet method proposed by Ulam, etc. In attendance were Messrs. Tuck, Bretscher and Fuchs.

"f. 20 April 1946 (1000) Fifth meeting of the "Super" conference. Mr. Edward Teller presided. The meeting was a general discussion period concerning the possibility of peaceful applications of the deuterium plus deuterium reaction. General schemes were proposed all of which were very far-fetched and presented numerous practical difficulties. In attendance were Messrs. Fuchs, Bretscher, and Tuck."

3. On June 1, 1946, Colonel Seeman listed in his monthly British Mission report a meeting of May 27, 1946, as follows:

"At the Interim Council Dr. Bradbury spoke briefly on the radiation accident occuring on 21 May 1946, indicating that no critical assembly experiments were to be continued until safer methods were developed, and that the involved plutonium sphere was so "hot" that it will not be handled for some time. The main speaker was J. W. Stout on the developments in slow explosives, particularly barium nitrate-plastic compositions, for use in explosive lenses. Mr. Fuchs was present."

4. Again on July 2, 1946, Colonel Seeman's report on the British Mission includes a meeting involving considerable weapon data at which Mr. Fuchs was in attendance:

"3 June 1946 Darol Froman presided over the meeting of the Interim Council. Milo Sampson spoke on the material and shock velocities
Velocities of 4.18 mm per microsecond for the material, and 4.59 mm per microsecond for the shock were measured employing the pin method for velocity determination. Messrs. Fuchs and Mark attended."

According to that report, Mr. Fuchs permanently departed from Los Alamos on 15 June 1946.

5. On March 6, 1947, Colonel Gee reported a meeting of February 3, 1947, which was attended by Dr. Titterton of the British Mission. The report is as follows:

6. In connection with the "booster" proposal, it should be noted that as early as April 12, 1944, in a patent memorandum an implosion type device containing deuterium and tritium was suggested, with the

statement that the efficiency of a neutron-induced chain reaction is greatly increased by the action of neutrons produced in a thermonuclear reaction ignited by said fission chain reaction. At another point in the same patent memorandum there is a statement that the neutrons released in the thermonuclear reaction can be utilized for producing fissions in the mass of fissile material used for igniting the thermonuclear reaction and thereby greatly increasing the efficiency of the fission chain reaction. Statements and examples of such devices appeared in many drafts of the proposed patent application on this subject which application was executed by the inventors in August 1946. Figure 6 of that Application Serial No. 699,096 discloses such a device with the statement that the efficiency of an implosion type explosive device may be increased by the employment of relatively small quantities of a readily obtained material such as deuterium. Mixtures of deuterium and tritium are also disclosed for this purpose in the patent application.

7. Furthermore in November, 1943, Dr. Teller conceived the idea in an implosion gadget. A patent application was filed in the U. S. Patent Office under application Serial No. 634,826 on 13 December 1945 showing an arrangement generally similar to the booster type weapon. In the application it is stated as follows:

"As a final example mixture of deuterium and tritium gas may be considered. In addition to high compressibility and reasonably high neutron-scattering cross sections this mixture releases at high temperatures and densities neutrons produced in the thermonuclear reaction between deuterium and tritium nuclei. Some of these neutrons will react with the fissile material causing additional fission and increasing the efficiency."

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