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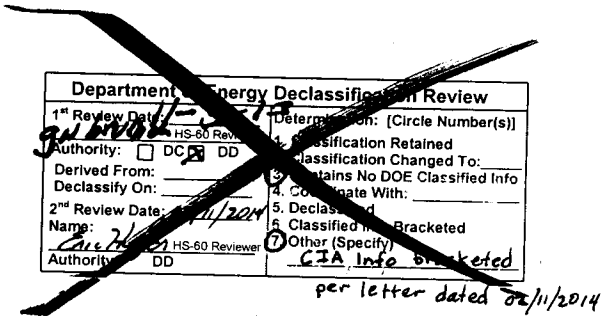


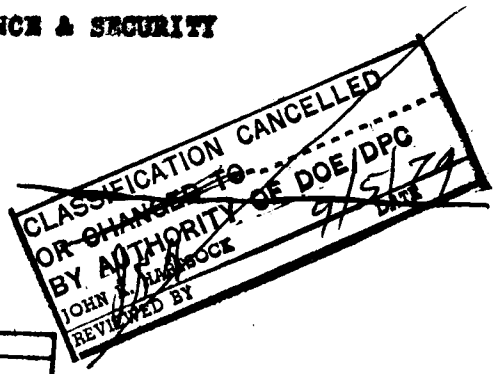
FOREIGN INTELLIGENCE SUPPLEMENT NO.1

TO

MANHATTAN DISTRICT HISTORY

BOOK I — GENERAL

VOLUME 14 - INTELLIGENCE & SECURITY



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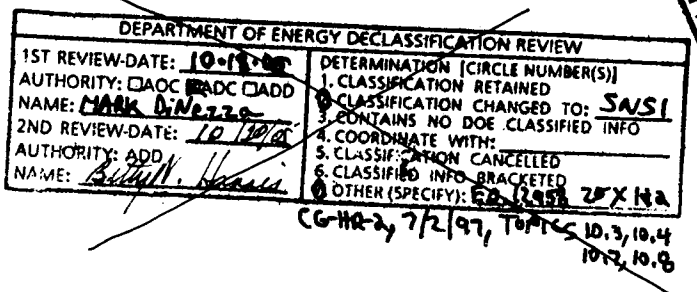

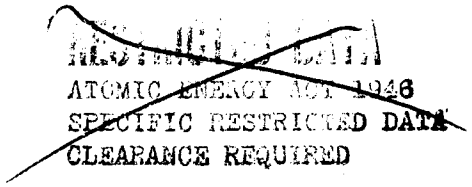

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FOREWORD

This supplement presents an account of the Intelligence and Security Division activities, in cooperation with other participating organizations, for obtaining information of enemy scientific research and development.

The text has been arranged primarily on a chronological basis and covers a period from 1943 to the latter part of 1945.

5 November 1948

[redacted]

[redacted]

FOREIGN INTELLIGENCE SUPPLEMENT NO. 1

TO

MANHATTAN DISTRICT HISTORY

VOLUME 14 - INTELLIGENCE & SECURITY

TABLE OF CONTENTS

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FOREIGN INTELLIGENCE SUPPLEMENT NO. 1

TO

MANHATTAN DISTRICT HISTORY

VOLUME 14 - INTELLIGENCE & SECURITY

SECTION 1 - INTRODUCTION

1-1. Necessity for Intelligence Concerning Enemy Activity.

a. After the American research and success, during the later part of 1942, in producing a self-sustaining nuclear chain reaction, the feasibility of constructing an atomic bomb became more and more evident. As a clear picture of this novel enterprise unfolded, coupled with the fact that pure science has never been a nationalistic monopoly, a very real fear was felt that any Allied success in producing a nuclear weapon was being equaled and probably surpassed by at least one of the enemy nations. It was not forgotten that European scientists had been credited with discovery of the principles of fission. Enemy propaganda stressed their proposed use of revolutionary secret weapons. European born scientists had been at the fore-front in the initial presentation of the possibilities of a nuclear super-explosive to the American Government. "German science", at that time, was held in high universal respect. Such reckoning served to expel any complacency which might have otherwise existed concerning the joint British and American endeavor in nuclear physics.

b. It was believed that positive support of the above reasoning was provided by information, obtained in 1942, that heavy water was being manufactured at Rjukan, Norway, under German direction. That heavy water was, of course, presumed to be for use in a nuclear

pile, and the Allied High Command fully recognized the danger of that manufacturing continuing. The heavy water facilities were at the Norsk-Hydro plant, at Rjukan, and on 27 February 1943 that development was heavily damaged by sabotage (App. A-1). However, the enemy was able to make prompt repairs and to resume heavy water production by the following April. The attention given to this resumption of production resulted in an Allied bombing mission in November, 1943, which forced the abandonment of heavy water activities at that location. (The above sabotage and operation to prevent the Norwegian production of heavy water has been graphically described by a Readers Digest condensation of a news account in the Minneapolis Tribune. See App. B-1.)

1-2. Recommendation for Scientific Investigation. - The foregoing serves to outline briefly the cause for what, during 1943, was believed to be urgent need for obtaining as much information as possible concerning enemy progress in atomic bomb development. Therefore, by memorandum dated 26 September 1943 (App. A-2), it was recommended to the Chief of Staff by the Assistant Chief of Staff, G-2, that scientific investigation be conducted in enemy and enemy-occupied countries as early as circumstances would permit, starting with Allied-occupied Italy. (This recommendation was instigated by Major General (then Brigadier General) L. R. Groves after he had thoroughly discussed the subject with Dr. Vannevar Bush, Director, OSRD.) It proposed that, in order to obtain the most valuable and dependable information, investigations be conducted by qualified scientific personnel assisted by necessary military personnel. The selection of scientific personnel was to be made by General Groves with the approval of Dr. Bush, and the

assignment of military personnel was to be by the Assistant Chief of Staff, G-2. The proposal provided for the scope of inquiry to extend to all principal scientific developments, and that investigations should be conducted in a manner to gain knowledge of enemy progress without disclosing interest in any one particular field. While the latter condition was proposed as a security measure, to prevent divulging information of American progress in nuclear research, nevertheless it was recognized that the prime purpose of the investigation was to obtain intelligence of the enemy development in the nuclear research field above all others.

1-3. Scope of Historical Account. - This history is concerned principally with the interests of the Manhattan Project and, in general, will be confined to accounts of the foreign investigation activities which related to enemy progress in the development of atomic weapons. Such treatment shall not be construed to indicate that the actual investigations of ALSOS (the name by which the mission was ultimately designated) were limited in a like manner. To the contrary, many scientific projects of the enemy, other than those concerning nuclear physics, were investigated and interested Allied agencies were informed of the results obtained. The extent of the overall investigations is further reflected by the following quotation of General Groves' instruction of 27 November 1944 to Major R. R. Furman, who was then in London. "The impression has been created that ALSOS is acting solely as a cover for us. This is injuring both ALSOS and ourselves. ALSOS has a definite mission in many fields, one of which concerns us. Any idea on the part of those in authority that

ALSOS is completely monopolized for our purposes must be corrected. This has been coordinated with the War Department and the Navy Department here, and the pending reorganization of ALSOS will greatly assist you in correcting this erroneous impression."

For more complete information of all phases of ALSOS Mission activities reference should be made to other records such as OSRD and Military Intelligence Division files.

SECTION 2 - ESTABLISHMENT OF ALSOS MISSIONS

2-1. Italian Mission.

a. After deletion of its original item I-4, in which it was proposed that similar investigation should also be carried out in the future in enemy countries other than Italy (see App. A-2), the recommendation instigated by General Groves (referred to in paragraph 1-2) was approved on 29 September 1943, by order of the Secretary of War. That approval thus formally established a mission for investigation of the enemy's secret scientific developments in Italy only.

b. The Navy Department, upon being generally informed of the proposed investigation, requested representation and participation in the contemplated activities. That request was approved by the Secretary of War on 16 November 1943. Thus the ALSOS Mission was organized by the War Department, with the cooperation of the Office of Scientific Research and Development, and the Navy Department, in November, 1943. The organization, to achieve the objects set forth, differed in many respects from any other intelligence unit then in existence within the armed forces of the United States or Great Britian. First, it proposed to include among its personnel individuals capable of extracting, through interrogation and observation, detailed scientific information applicable to the field of nuclear research; second, it was intended to include individuals having a broad background of knowledge of the research programs and interests of the Allied Nations and, where possible, of enemy nations also; third, it was desired that the Mission personnel have a general knowledge of enemy equipment; and, fourth, the Mission must be prepared to seek out

not only military technical personnel and laboratories, but also scientists, research laboratories and other institutions of a civilian status. In this manner it was desired that the ALSOS Mission activities supplement, not overlap or interfer with, those of intelligence units already in the field and that resources of the other intelligence units be used whenever possible. This latter point was not only wise in field investigations but especially productive in use of existing intelligence agencies in preliminary planning and preparation of intelligence targets.

c. It was proposed that the ALSOS Mission conduct field investigations in that portion of Italy then under Allied occupation and that advance be made with, or close behind, the military forces to the city of Rome and other Italian locations where important targets were expected to be found.

2-2. Western and Central European Mission.

a. Information obtained under the Italian phase of the ALSOS Mission was considered to have been highly desirable by the Manhattan Project and other interested agencies (see letter from Dr. Bush, App. A-3). This resulted in a recommendation, on 10 March 1944, by General Groves, to the Assistant Chief of Staff, G-2, that "a similar scientific mission, with the same general objective, should be made ready for use in other European territory as soon as the progress of the war permits." Acting upon the recommendation of General Groves, the Assistant Chief of Staff, G-2, recommended to the Chief of Staff, on 1 April 1944, that scientific investigations be conducted in Western Europe as early as permitted by the Allied advance in that theater (App. A-3). This latter recommendation was approved by order of the Secretary of War, on 4 April

1944, and thus established the second, or Western and Central European, phase of the ALSOS Mission investigations.

b. Because investigations under the second phase of the ALSOS Mission were anticipated to be more extensive than those conducted in Italy, and also because of experience gained during the Italian investigations, it was determined to be highly essential that a preliminary organizational plan be established. Such a plan was prepared, and approved under date of 11 May 1944 (App. A-4), to provide the following:

(1) That the AC of S, G-2, War Department, was to be assisted in the conduct of the Mission by the Office of Scientific Research and Development, and that representatives of the following were to constitute an Advisory Committee:

Director, Naval Intelligence
Director, OSRD
Commanding General, ASF
AC of S, G-2

(2) That the Agencies desiring procurement of special information by the Mission were to be requested to furnish statements of their desires to the AC of S, G-2, through a member of the Advisory Committee.

(3) That the Mission was to proceed to various theaters of operation in accordance with the determination of the AC of S, G-2. That the Mission was to follow the advance of Allied Forces in enemy territory and make necessary contacts to collect intelligence of the enemy's scientific development.

(4) That the Mission was to be headed by a Military Chief, assisted by a Scientific Chief.

(5) That the Military Chief was to represent the AC of S, G-2, War Department, in field contacts; to be responsible for the necessary administrative arrangements; and, insofar as practicable, to direct the execution of the military phase of exploitation plans in accordance with the Scientific Chief's recommendations concerning time, place and purpose of successive steps.

(6) That the Scientific Chief was to determine the assignments of personnel attached to the scientific group; select the places and persons from whom information was to be obtained; and, review and evaluate all scientific intelligence reports.

(7) That, prior to the departure of the Mission to the theater of operation, the Scientific Chief was to submit to the AC of S, G-2, through the Military Chief, the draft of an intelligence plan defining: the information to be sought; objectives to be attained; nature of reports; and any other features which the Scientific Chief wished to include. The Military Chief was directed to add his comment on the practicability of the plan from administrative and operational standpoints.

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SECTION 3 - ITALIAN INVESTIGATION

3-1. General. - From information obtained early in November, 1943, it appeared highly desirable that the scientific investigation be initiated in Italy at the earliest opportunity. While discussion on 5 November, between Rear Admiral S. A. Furer and Vice Admiral Minissini[1], Italian Navy, offered a negative indication of Italian effort for an atomic weapon, nevertheless other evidence was to the effect that all of the desired information on this subject was not reaching the Manhatten Project through channels then established. By November, 1943, the principal field personnel for the Italian phase of the ALSOS Mission had been carefully selected by the interested organizations and consisted of:

Lt.Col. Boris T. Pash, Commanding Officer
Capt. W. B. Stannard, Executive Officer
Dr. John R. Johnson, OSRD, Scientist
Dr. John B. Fisk, OSRD, Scientist
Maj. William P. Allis, ASF, Scientist
Lt.Comdr. Bruce S. Old, USN, Scientist
2nd Lt. J. W. Rochette, Interpreter
2nd Lt. A. Paolino, Interpreter
T/4 D. P. Russi, Interpreter
T/4 Di Benedetto, Interpreter

In view of the preceding, General Groves recommended to the Assistant Chief of Staff, G-2, on 10 November, that necessary action be initiated with the Theater Commander for the Mission to promptly begin its investigation in that portion of Italy then under American occupation

(1) Vice Admiral Minissini had been Director of the Italian Industry Rationalization Board and was President of a torpedo works at Naples. At the time of the subject discussion Admiral Minissini was in the United States, under the name of Freemont, cooperating in the Allied cause.

[redacted]

(App. A-5).

3-2. Arrival of Mission in Field. - Developments, in accordance with General Groves' recommendation, went forward expeditiously, and field personnel of the Mission assembled at Allied Force Headquarters in Algiers on 14 December 1943. The commanding officer of the Mission had been provided with high priority credentials, among which was a personal communication from the Secretary of War to the Commanding General, North African Theater of Operations, indicating the importance of the Mission activities and requesting full cooperation toward early completion of the proposed investigation. Upon presentation of those credentials to the Chief of Staff, and to the Commander-in-Chief, AFHQ, immediate permission was obtained from that Headquarters for the Mission to proceed to the theater of operations. The Mission was properly associated with the Intelligence Section, AFHQ, and prompt instructions were provided, at Algiers, concerning the procedure to be followed in Italy. A base of operation was established by the Mission at Naples, Italy, on 17 December 1943. The Mission was then identified to the Allied Control Commission, at Brindisi, and to the Intelligence Section, 5th Army Headquarters, under whose auspices operations were conducted. Contact was established with the Italian (Badoglio) Civil Government, in order to complete formalities and to gain access to official, as well as unofficial, information available through that source.

3-3. Investigations.

a. Between the dates of 17 December 1943, and early February, 1944, investigations were conducted at Brindisi, Taranto and Naples. The results of these investigations are shown in a joint report

prepared by the commanding officer and scientific members of the Mission, under date of 4 March 1945 (App. 3-2). A summarization of the results, or findings, is shown by the following:

(1) No new positive facts of consequence were disclosed concerning enemy activity and development in the field of nuclear physics. The negative information on this subject, which had formerly been obtained by the Manhattan District, was confirmed to a considerable extent in the Italian Theater.

(2) It was learned that Italian scientists had been barred from cooperation with German scientists in nuclear research, just as they were barred in most other scientific fields.

(3) There was no evidence of portions of any nuclear fission project having been farmed out in Italy by German direction.

(4) Wartime activities of many of the Italian scientists were disclosed.

(5) Miscellaneous facts of interest concerning the activities of German scientists were determined.

(6) Fragmentary information of significance was obtained for various secret weapons other than those of prime interest to the Manhattan Project. (Arrangements were made for distribution of this information to the Allied agencies concerned.)

(7) Reports were obtained which related to the wartime power developments in Germany.

(8) Miscellaneous facts were presented in regard to the relocation of German industries.

(9) The experiment of quickly obtaining scientific

information in the wake of military exploitation was successful and fulfilled the Mission objective.

b. It had originally been contemplated that the outstanding targets for the main objective of the Mission would be located in, or near, the city of Rome. In early 1944 two field plans were made in this respect; first, to attach the ALSOS Mission to the S Force, Fifth Army, and to enter Rome immediately after the city fell; and, second, prior to the occupation of Rome, to secure and bring certain important targets from Rome and Northern Italy to the occupied portion of Italy. As the military situation become somewhat stabilized the execution of the first of these plans appeared to extend into the future for a prohibitive length of time; and, while various measures of expedience were proposed, the second plan seemed to offer very little chance of immediate success. In view of these conditions, and because the services of the civilian scientific members of the Mission were urgently required for other war activities, both plans, as applying to the initial ALSOS Mission, were abandoned to such an extent that Johnson and Fisk departed from Italy respectively on 23 and 31 January 1944. Within a few weeks it became evident that further delay would exist in the execution of either plan for investigation of the Rome targets; therefore, the commanding officer of the Mission together with Major Allis departed for Washington on 22 February. Captain Stannard remained at Naples to pursue the first of the planned operations as early as opportunity permitted.

c. Allied troops did not enter Rome until 4 June 1944, and, by that time, the second phase of the ALSOS Mission (investigations

in Western and Central Europe) had been established. However, for continuity, reference is made to the Rome investigations in this portion of the historical account. Lt. Col. Pash, who by this time had been appointed Military Chief of the second phase of the Mission (see Paragraph 3-2), departed from his post in London on 2 June and rejoined the S-Force in Rome on 5 June. Italian scientific personnel and objectives at the University of Rome were made available for exploitation. Major R. R. Furman, representing General Groves, and Dr. John R. Johnson, one of the scientific members of the original ALSOS Mission, arrived at Rome on 19 June. Investigations were immediately started by them and extended over the next six days with results as here shown (App. B-3).

Drs. Wick, Amaldi and Giordani were thoroughly interrogated concerning their research activities. Their replies confirmed former indications that very few opportunities had existed for Italian scientists to visit Germany before the Italian armistice in July, 1943, and, that practically no cooperation occurred after that armistice. Italian scientific research and development had been disorganized and was almost militant in resisting the Fascist State. Wick had made a trip into Germany during June and July, 1942, and had contacted a number of German nuclear physicists at that time; also, Wick and Amaldi had read correspondence and talked to associates concerning German scientific activity. Thus, they were somewhat informed in regard to German scientists. That information, which was readily imparted by Wick and Amaldi, served as basic data for compiling brief accounts of the activities and locations of German individuals of outstanding interest

to the Manhattan Project. While later investigation in Germany proved some of the information obtained at Rome not to be wholly accurate, nevertheless, in the main, it was dependable and worth-while intelligence. Both Wick and Amaldi had served in the Italian Army, and later had been in hiding at Rome. During the war they had been engaged in theoretical research principally concerning isotope separation, neutron, infra-red and cosmic ray activities. They had no direct information concerning German research in the field of nuclear fission. They had not been asked to do any work with or for the Germans. They claimed not to understand the significance of heavy water in the fission problem, and were not aware of any new wartime activity at the Joachimstahl mines(1).

The above results were considered sufficient to nullify the need for further exploitation of nuclear fission objectives in Italy.

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(1) Joachimstahl:-Pitchblende deposits in Czechoslovakia.

SECTION 4 - WESTERN AND CENTRAL EUROPEAN INVESTIGATION

4-1. General.

a. In connection with the establishment of the second phase of the ALSOS Mission, reference was made in paragraph 2.2 to the preparation of an organizational plan. One of the requirements of that organizational plan concerned an intelligence plan to be submitted in regard to the information sought, objectives for investigation, and outlines of the administrative and operational features. Later developments demonstrated the impractibility of strict adherence to an intelligence plan established at such an early stage of the Mission's operations; nevertheless, outlines of the respective activities of the Mission Chief (who was to be responsible for securing the targets) and the Scientific Chief (who was to determine what targets were to be secured, to establish their priority, and to arrange for their scientific investigation) were prepared on 15 May, 5 June and 7 June, 1944 (App. A-6, 7, 8). Lt. Col. Boris T. Pash and Dr. Samuel A. Goudsmit had respectively been appointed Mission Chief and Scientific Chief. The responsibilities of the Mission Chief and the Scientific Chief were further discussed and are referred to in a memorandum of 10 June from the Deputy Chief, Office Field Service, OSRD, to the Chairman of an overall advisory committee (App. A-9). That advisory committee had been set up in accordance with the proposal to the Chief of Staff on 11 May 1944 (App. A-4). General compliance with a broad interpretation of the requirements outlined by the memorandum of 10 June was maintained throughout the existence of the ALSOS Mission in Western and Central Europe. Conditions which arose in the field made it necessary to

quickly and drastically change some of the administrative, organizational and operating details, but there were no changes in the following: Col. Pash and Dr. Goudsmit retained their original positions and responsibilities; the subject of prime interest to the Manhattan Project held first priority for information to be obtained, and, as a security measure, only a limited number of the Mission personnel were briefed on that objective; a permanent staff nucleus of the Mission was maintained in Europe to which various scientific investigators were attached for such periods as were required for exploitation of targets; and the proposed cooperative effort between military forces in the field and interested agencies and organizations in the United States was maintained.

b. Field operations of the second phase of the ALSOS Mission were initiated by the establishment of an office in London on 2 June 1944. Details of that procedure are provided by Col. Pash's Progress Report No. 1 (App. A-10), which refers to the various organizations contacted and the operational setup established. In addition to the close cooperation established with SHAEF for exploitation of Germany by Combined Intelligence Teams, there was especially close coordination between the American atomic energy team of ALSOS and the British team on this subject. That coordination was an outgrowth of relations in the Manhattan District work in the United States. Based on preliminary lists from the United States, much of the early definition of German intelligence targets was accomplished at the London headquarters with the assistance of British technical and intelligence personnel. Priorities were assigned to locations and personnel, and while later events

proved some of the investigations to be unproductive, no important elements were missed as far as the interest in atomic energy was concerned.

c. Preliminary operations in France consisted of investigations at the University of Rennes and at l'Arcouest during early August 1944. Under the first of these investigations, contacts were made with Professors Conduche and Duffiureux of the University of Rennes and, through their assistance, various items of scientific literature were obtained from the University. This preliminary exploitation was not productive of results of any consequence and served only to provide indirect information of general scientific activity, within the academic field, during German occupation of France (App. B-3). The second of the two investigations produced even less results than the first. The purpose of the l'Arcouest reconnaissance was to contact Professor Frederic Joliot[1] and to secure any of his documents which might be available at that location. While the operation was somewhat spectacular, in a military sense, neither of the objectives was located (App. A-11).

4-2. Paris Operations.

a. Advance personnel of the ALSOS Mission entered Paris on August 1944, with leading elements of the Allied troops, and promptly secured initial targets (App. A-12). Within the atomic energy compartment of the Mission, Joliot and his laboratory had previously been determined as outstanding objectives at Paris, and they formed the initial targets to which reference has been made. The Scientific

(1) Professor Jean Frederic Joliot-Outstanding French nuclear chemist who together with his wife, Irene Curie, a physicist, discovered induced radioactivity, for which they were jointly granted the Nobel Prize in Chemistry in 1935.

Chief and other scientific members of the Mission joined the advance group of ALSOS personnel in Paris on 29 August. Interviews between Joliot and Goudsmit occurred promptly and, also, Joliot was taken to London for discussion with interested British scientists. During these conferences Joliot, who had been actively engaged in the French underground resistance movement, evidenced a willingness to discuss the scientific activities which had taken place at his laboratory. In general, he added very little to the knowledge already possessed by the Manhattan Project; however, the following items were clarified:

(1) The Collège de France (Joliot's laboratory) cyclotron had remained in service at that institution, although, at one time, the enemy had given some consideration to transporting it into Germany

(2) Schumann(1), Diebner(2), Bothe(3), Esau(4),

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(1) Professor Erich Schumann:-Headed German Army research conducted by Ordnance Department. During the war Schumann had served as personal adviser on scientific research to the Chief of Staff, General Keitel. Schumann was credited with initial work on the German uranium problem. The project had been transferred from Schumann to the Reich's Research Council at the end of 1942.

(2) Dr. Kurt Diebner:-Began secret atomic bomb work in 1939 as right hand man of Schumann, and continued nuclear research under Reich's Research Council.

(3) Professor Walther Bothe:-An outstanding German nuclear experimenter in the physics laboratory of the Kaiser-Wilhelm Institute for Medical Research.

(4) Dr. Abraham Esau:-Until early 1944 in charge of physics under the German Ministry of Education and the Reich's Research Council. Esau was president of the Ministry's Bureau of Standards. He was replaced as Plenipotentiary for Nuclear Physics by Gerlach in January 1944.

Gentner[1], Begge[2], and Maurer[3], all enemy personnel of interest to the Manhattan Project, had spent varying lengths of time during the war at the Collège de France laboratory, concerning themselves with the cyclotron operation.

(3) Joliot had acquiesced in the German use of the cyclotron, with the distinct understanding that that use would not provide direct military assistance to the enemy war effort. (There was evidence that this condition had been complied with.)

(4) As an outstanding scientist, Bothe appeared to be more or less in charge of the work direction of the German personnel during their assignment to the laboratory. He was reported to have maintained an attitude of hostility toward Joliot, and the latter was of the opinion that Bothe knew a considerable amount concerning the subject of prime interest to this history.

(5) During the early part of the war Joliot had made a quantity of heavy water available to the British (see paragraph 5.14 of Smyth Report). He had also aided two of his scientific associates, who

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(1) Dr. Wolfgang Gentner:-Able German scientist, who, prior to war, had been associated with Lawrence in the United States. Gentner was outstanding in nuclear research through cyclotron operation.

(2) Dr. Erich Bagge:-Member of Kaiser-Wilhelm Institute for Physics specializing in isotope separation.

(3) Dr. Werner Maurer:-Experimental physicist in nuclear research.

later participated in the Allied studies of nuclear problems, to escape from France(1). In view of such action he requested information concerning the progress of nuclear research in the United States. Joliot's request was not complied with.

The conversations with Joliot strengthened a growing assumption that the enemy had not progressed in the development of an atomic weapon to the extent which had at first been feared. Nevertheless, it was evident that Joliot's contacts in Germany, or with German scientists, were tenuous if not hostile: he, admittedly, had very meager knowledge of the steps taken by German scientists in the field of nuclear fission. Quite definitely the ALSOS investigators were left without positive information about enemy progress in the subject development, and, on the other hand, it was fully appreciated that German direction had found it expedient to use the Collège de France facilities for their nuclear research. The summation of the above served as a caution against any wishful thinking about enemy progress, and prompted continued effort to obtain complete and dependable intelligence at the earliest possible date.

b. Operating out of Paris, the ALSOS Mission reached Brussels, Belgium, on 5 September 1944. A Mr. Gaston André, in charge of

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(1) Drs. Lew Kowarski and H. Halban, former associates of Joliot, became associated with the National Research Council of Canada. Halban had informed his mother, who then resided in Switzerland, that his Canadian work was the same as his prewar activity. That information had been relayed to Joliot and probably formed the basis of Joliot's apparent knowledge of the United States interest in the atomic weapon research.

uranium, at the main office of the Union Miniére du Haut Katanga(1), was contracted. The following information concerning movements of uranium products from Belgium was obtained from André (App. 3-4):

(1) Prior to the war a number of German firms had received uranium products from Belgium for normal peacetime application or retrade. The shipments had, in general, consisted of quantities of less than one ton per month of assorted refined material.

(2) From June, 1940, until August, 1941, the Auer Gesellschaft, a well-known German chemical concern, which had not been a recipient prior to the war, suddenly became an outstanding consumer of uranium products. Auer received about 60 tons of refined material during that period. It was learned that a Dr. Ihve was apparently in charge of purchases for the Auer company.

(3) The next large German shipment of interest was in November, 1941, and consisted of about nine tons of uranium products to the Deutsche Gold und Silber Scheideanstalt-(Degussa)(2). Degussa had been a prewar recipient of small amounts of uranium for use in making ceramic coloring.

(4) During June, 1942, unusually large amounts of uranium products were sent to "Roges, m.b.H". This was a war-created trading

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(1) Prior to the war the Union Miniére du Haut Katanga, a Belgian Company, had been the primary supplier of uranium and radium in the world markets. These products were obtained from the company's Shinkolobwe mine in the Belgian Congo of Africa.

(2) An outstanding German company concerned with metal refinement. Degussa was the parent company of Auer Gesellschaft.

office, which, at that time, was believed to be directly connected with the German Ministry of Trade and Finance (Handels-und-Finanzministerium). The full name of Roges was Rohstoff Handels Gesellschaft, m.b.H. (Raw Materials Trading Company, Ltd.), and its purpose was probably to supervise the German trade of all metallic ores. Within this organization a Dr. Faust was in charge of uranium ores. The amounts of uranium products ordered by Roges consisted of about 115 tons of assorted refined and half refined materials. In addition they obtained 610 tons of crude material, 17 tons of ferro-uranium, and about 110 tons of impure products(rejects). Also, in January and May, 1943, respectively, 50 tons and 80 tons of refined products were delivered to them.

c. During the preceding investigation at Brussels, a preliminary study of uranium stock, by the Union Minière du Haut Katanga, indicated that a quantity of material remained in Belgium. It was reported that part of that material was ready for shipment, but probably had not then been removed (App. B-5). Headquarters of the Manhattan Project were promptly informed of this situation, with the result that Major R. R. Furman was dispatched by air from Washington under instructions from General Groves to locate and secure the material. Major Furman informed Lt. Col. Pash of these instructions on 15 September. The Chief of Staff, Supreme Headquarters, AEF, was conferred with, on the next day, in regard to this material. Through direction by Supreme Headquarters, arrangements were made for assistance by a British tactical force without revealing the name, or purpose, of the material being sought. Under these arrangements a Mission group proceeded to the reported location

of the target which was then in the front line of a British sector, under light sniper fire. Three separate surveys of that area were required, during a period from 19 to 25 September, before the material could be located and secured. The captured material, amounting to 68 tons, was placed under joint American and British control and removed from Belgium.

d. Operations in Belgium led to an investigation, on 9 October 1944, at Antwerp, where it was learned that nine carloads of uranium (approximate total net weight 72 tons) had been shipped, in advance of the German invasion, from Hoboken, Belgium, to le Havre, France, in May, 1940. Reports indicated subsequent German seizure, at le Havre, of two of the nine carloads and the movement of the remainder to Bordeaux. Instructions were received by the ALSOS Mission, on 25 September, to locate this material and to secure as much of it as could be obtained. Supreme Headquarters were contacted again and clearance was received for the operation. An area in the vicinity of Periqueux, France, was exploited between 27 and 30 September, and much of southwestern and southern France was covered between 1 and 5 October, before 30 tons of the reported material was found at the Poudrerie de Toulouse, in Toulouse. This material was secured and shipped from Marseilles to the United States. Investigation continued for the remaining 42 tons, but that particular search was not successful. (App. B-6, B-7 and B-8).

e. An early investigation (November 1944) by ALSOS concerned the abandoned office of a Paris firm - Société des Terres Rares. That firm dealt in rare chemicals and had been taken over, during the German

occupation, by Auer Gesellschaft. It was learned that Dr. Ihwe - previously mentioned - an employee of Auer, was officially in charge at Terres Rares, and that his activities had necessitated long absences from the Paris office. Ihwe's representative, at Paris, was a Dr. Jansen. It was learned also that Jansen had a private secretary by the name of Ilse Hermanns. Among the very few items of intelligence located at the Terres Rares office was a list of registered mail. That list indicated that one of the last outgoing letters was addressed to Miss Hermanns, at Eupen. Eupen was then in American hands, and prompt investigation at that location resulted in the apprehension of both Hermanns and Jansen. Little, or no, information of importance was obtained from Hermanns; however, documents found among Jansen's effects indicated that both he and Hermanns had recently visited Ihwe, at Oranienburg(1), and that Jansen had also recently visited his mother, at Hechingen(2). Through previous intelligence of thorium deliveries at Oranienburg, and the possibility of an experimental pile at Hechingen, both of these locations were of prime interest. Under the circumstances, it was believed initially that the visits of Jansen might prove to be of more significance than they actually turned out to be. Interrogation of Jansen revealed that he possessed very little information of either location. Jansen reported that Ihwe was in charge of the Rare Earths department of Auer, with general headquarters

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(1) The principal works of the Auer Gesellschaft were located at Oranienburg, a town 15 miles north of Berlin.

(2) Hechingen:- A small town south of Stuttgart, pointed to by preliminary investigation as a location of enemy nuclear research activity.

and facilities at Oranienburg. Jansen appeared to have only superficial knowledge of the materials produced by Auer. He stated that Ihwe had visited Paris about every six weeks, and, in the interim had traveled much in southern France. Except for the mention of a search for monazite, Jansen professed complete ignorance of the purpose of Ihse's trips in France. Jansen knew that Hechingen was located within a zone which was restricted for military reasons; but, otherwise, he knew of no unusual activity there (App. B-9). While the information obtained from Jansen, the first ALSOS Mission prisoner, did not prove to be outstanding, yet, it did assist in focusing attention on Ihwe and may have contributed, in a small measure, to Ihwe's apprehension almost a year later (App. B-10).

4-3. Strasbourg Operation.

a. As the Allied advance approached the city of Strasbourg, careful plans were made to exploit targets of interest to the Manhattan Project which were believed to be available at that location. It appeared that the Strasbourg operation would be similar to those anticipated for Germany proper, particularly insofar as it concerned personnel and facilities at the University of Strasbourg. There was evidence that that institution was considered to be entirely German by the Nazi authorities. Evidence was available also that it was staffed by a German faculty throughout, and that the faculty was engaged in part time work on German war projects. In view of the background and importance attached to this operation, the Military Chief of Mission maintained close liaison with the Strasbourg T-Force Command. This liaison was to assure that Mission advance personnel

would enter the area with the T-Force and that the T-Force might be properly oriented in regard to ALSOS targets.

On 25 November 1944, advance military members of the ALSOS Mission joined the T-Force in Strasbourg. The laboratories of the University of Strasbourg and offices and residences of personal targets were contacted. Guards were placed at all locations where it was desired to prevent looting or destruction of facilities, documents and records. The initial effort to locate previously determined personal targets was not successful, and an intensive search for those individuals was instigated. That search resulted in the apprehension, on 29 November, of seven University of Strasbourg physicists or chemists. All of these targets were German citizens, and they were immediately placed in internment under guard.

b. Investigation of the captured objectives by scientific members of the Mission was begun as soon as permitted by the military situation, and various leads and items of information were obtained concerning naval, aircraft, and medical research projects. Concerning the interest of the Manhattan Project, four of the academic personal targets: - Rudolph Fleischmann, Head of the Physics Department; Fritz Weygand, Head of the Chemistry Department; Hugo Neuert, Experimental Physicist; and, Werner Mauer, Experimental Physicist, had such backgrounds and occupations as to warrant their separation from other internees and transfer, at a later date, to the United States (App. A-13). Field interrogation of those individuals failed to confirm that any of them had engaged in direct research on a nuclear weapon, and their replies to repeated questioning actually provided little

worth-while information (App. A-14, B-11, B-12, B-13 and B-14). It had been particularly desired that Professor C. F. von Weizsäcker be contacted during this operation (App. B-15). Preliminary information had pointed to his association with the University and to his residence within Strasbourg. While von Weizsäcker's residence was among those located, nevertheless he had departed from Strasbourg prior to entry by the Allied forces and thus his apprehension was delayed for a considerable length of time. In contrast to the meager information obtained from the personal targets, the written matter located at Strasbourg served as a source of outstanding intelligence. The portions of the captured records which were of particular interest to this history consisted of documents and personal correspondence found in laboratory, office and home files of the enemy personnel. While the information was unclassified, through the mediums of notes of meetings, fragments of computations, protocols of experiments and vague hints in personal correspondence, a revealing picture of the German nuclear research program was presented (App. A-14).

c. The Strasbourg operation, summarized as a whole, was considered to have been the most successful operation of the ALSOS Mission up to that time (App. A-15 and A-16). While information was obtained that Hitler had been apprised in 1942 of the possibilities of a nuclear weapon, nevertheless all evidence at Strasbourg very definitely pointed to the enemy development of such a weapon as being, by the latter part of 1944, in an experimental stage only. That evidence in a great measure modified the fear of enemy competition with the Manhattan Project, but it was still believed to be highly essential that

those encouraging indications be confirmed beyond all possible doubt. Even in that respect the operation was of extreme value. It established that enemy personnel were involved in nuclear energy research and indicated the location in Germany where those research experiments were being conducted. Personnel and locations in connection with the industrial effort toward production of metal were also established. All of the foregoing information, after being subjected to an analysis by both the Manhattan District and the OSRD, resulted in a comprehensive report "TA Targets - German" (App. B-16) which served as a dependable guide for subsequent exploitation.

4-4. Heidelberg Operation.

ALSOS Mission members entered the city of Heidelberg about the middle of March, 1945, and promptly occupied University of Heidelberg laboratories of interest to the Manhattan Project. The principal personal targets contacted were Professor Bothe, Professor Kuhn, Dr. Gentner and Dr. Becker. Brief accounts of the discussion with those individuals are provided by the following subparagraphs.

a. Professor Walther Bothe, Director, Physics Division of KWI for Medical Research, Heidelberg, was interrogated on 30 and 31 March, and information was obtained as here shown (App. B-17).

(1) It was confirmed that Hahn(1) had been evacuated to

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(1) Professor Otto Hahn:- Co-discoverer, with Stassmann in 1938, of uranium fission: the basic process of breaking up the nucleus.

Tailfingen[1], and that Heisenberg[2] and von Laue[3] were at Hechingen.

(2) The installation, including the experimental uranium pile which was at Berlin-Gottow, had been removed to Haigerloch[4].

(3) A German shortage of heavy water was reported, and reference was made to the only production having been that in Norway.

(4) Professor Bothe listed the following as having worked on the nuclear physics phase of the uranium problem.

(a) Himself, with three helpers

(b) Heisenberg, with ten men

(c) Döpel[5], in Leipzig, assisted by his wife only

(d) Kirchner[6], in Garmisch, with possibly two men

(e) Stetter[7], in Vienna, with four or five men

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(1) Tailfingen:-A small town south of Stuttgart, near Hechingen.

(2) Professor Werner Heisenberg:-Foremost German theoretical physicist. Winner, in 1932, of Nobel Prize for development of the quantum mechanics whose application among other things led to the allotropic forms of hydrogen.

(3) Professor Max von Laue:-One of the world's leading theoretical physicists. Nobel Prize winner, in 1914, for his discovery of the defraction of Roentgen rays on passing through crystals.

(4) Haigerloch:-A small town south of Stuttgart, near Hechingen.

(5) Professor Robert Döpel:-Nuclear physicist. Collaborated with Heisenberg in one of major pile experiments. Was on staff of University of Leipzig.

(6) Professor F. F. Kirchner, formerly Professor of Experimental Physics, University of Cologne. Previously full Professor of Leipzig. He worked on nuclear physics in Germany before the war.

(7) Dr. Georg Stetter:-Prominent Austrian nuclear physicist. Director of the II Physikalisches Institute.

Hahn was referred to as being engaged in chemical work and not involved in the physical aspects of the project.

(5) Approval of Gerlach(1) was required for physicists to secure means for scientific work, and if a "DE" (highest) priority was desired the additional approval of Adolf Speer, Minister of War Production, had to be obtained.

(6) Bothe expressed his opinion that the separation of uranium isotopes by the thermal diffusion method was impossible. He indicated that the only work on isotope separation in Germany was being done by the centrifugal method under the direction of Harteck(2). Bothe was not aware of the location of this activity.

(7) Bothe believed that uranium hexafluoride was made by I.G. Farben(3), at Leverkusen.

(8) Bothe stated that no element higher than 93 was definitely known; however, he recognized that, as element 93 was a beta emitter, 94 must exist.

(9) Bothe repeatedly expressed his opinion that the uranium pile, as a source of energy, was decades from realization and

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(1) Professor Walther Gerlach:-A high grade physicist of the University of Munich who, at the beginning of 1944, replaced Esau as chief coordinator of German nuclear research.

(2) Professor P. Harteck:-University of Hamburg physical chemist of prominence. Harteck specialized in the research on production of heavy water as well as the centrifugal method of isotope seperation.

(3) I.G. Farben Industrie:-Possibly the largest dye and chemical firm in existence.

that the use of uranium as an explosive was impracticable. He claimed not to know of any theoretical or experimental work being done in Germany on the military application of nuclear fission; but indicated that such work could be under way without his knowledge.

(10) After repeated questioning concerning the military value of the cyclotron, Bothe said it had been considered as a means of obtaining radioactive material for bombs.

(11) All secret documents in connection with his work were reported by Bothe to have been burned in accordance with government instructions.

The files of Bothe's institute were examined and, later, his home was searched. With the exception of a few personal letters, this examination and search did not reveal anything of interest. The contents of those letters, however, did cast some doubt upon Bothe's assertion that he knew of none of the subject work being done at Bisingen or Sigmaringen(1). Through further investigation it was learned that Bothe had returned 100 kgs. of uranium to Degussa because he had no further use for it. The uranium was referred to as "Spezialmetall". Auer had received the prime contract for production of the metal and had passed it on to Degussa, who produced it at Frankfurt (see paragraph 4.5).

b. During the interview with Professor Bothe, Professor Richard Kuhn, Director, KWI for Medicine, Heidelberg, who was present, called one of the ALSOS Mission representatives aside and provided information concerning the technical and scientific library of the

(1) Bisingen and Simaringen:-Small towns south of Stuttgart, near Hechingen.

[redacted]

Deutche Chemische Gesellschaft. Kuhn was custodian of this library, which was represented by him to be the best in the world on the subjects covered. Kuhn stated that it included Arabian manuscripts as well as an account of most of the chemical activities of the war. It was reported that two years previously, during the heavy bombing of Berlin, the library had been concealed in certain caves, and that later it had been moved to a salt mine known as Kalischemie Salzdethfurt, near Halberstadt, in the town of Hattdorf. The object of this information was that, in view of the likelihood of the capture of the library, it was preferred that it be taken over by the Americans rather than the Russians. Kuhn also provided information that pertinent data used for the compilation of Beilstein's compendium of organic chemistry had been removed to the home of Professor Wienhaus, at Tharandt, by Dr. Frederick Richter, the editor (App. B-18).

c. Dr. Wolfgang Gentner was interrogated on 1 April and, in general, confirmed the information given by Bothe (App. B-19). Gentner had been separated from Bothe since the occupation of Heidelberg and there was no evidence of their remarks having been prepared in advance. It was, therefore, believed that Gentner did not know details of Bothe's testimony. A brief outline of Gentner's statements is provided by the following:

(1) He had worked with Joliot, in Paris, from September, 1940, to July, 1943. Gentner's work at that location was confined largely to pure scientific research without specific military application. He and Joliot were friends and, upon discussing an atomic bomb, they had agreed that its development was not feasible.

[redacted]

(2) After leaving Paris, Gentner joined Bothe at Heidelberg, where much of the work related to the German uranium project. Gentner stated that pure scientific work was also permitted to be done at Heidelberg.

(3) Gentner believed that it would be impossible to develop an atomic bomb because of the difficulty in separating isotopes. He further believed that of all separating methods the centrifuge process offered the best results, but, even under that method, he pointed to the low production which had been obtained. Gentner and Harteck, who was concerned with the centrifuge separation, were quite friendly with each other.

(4) Gentner believed that the uranium pile, as a source of energy, was a future possibility.

(5) He confirmed that the German experimental pile was not self-sustaining and that it was moved from Berlin-Gottow to Haigerloch, where it was under the control of Heisenberg's group in Hechingen.

(6) Gentner had not heard of Bisingen and Sigmaringen, but only of Hechingen and Tailfingen.

(7) He reported that Fleischmann was in the "uranium" circle and that he had occasionally been consulted. Through a report from a female laboratory assistant, who had gone from Strasbourg to Switzerland and then to Germany, Fleischmann was understood to be in an American prison.

(8) Gentner stated that uranium metal was manufactured at Frankfurt, by Degussa, and that hexafluoride was manufactured at

Leverkusen, by I.G. Farben.

The following important points were brought out in a subsequent conversation with Gentner on 5 April (App. B-20).

(1) There were definitely two groups in Germany working on the uranium pile. The first group was under Diebner and the second group under Heisenberg. Diebner had initially been connected with the German Army Ordnance (Heereswaffenamt). When the Reich's Research Council, (see paragraph 4-8) took over the Army Ordnance research, Diebner went along with it. Later, when Gerlach succeeded Esau, Diebner stayed with the project under Gerlach. (The second group, under Heisenberg, had been started in 1939, as the co-operative project of the most important physicists in Germany. Headquarters were set up in the Kaiser-Wilhelm Institute for Physics in Berlin).

(2) Diebner started the work on a pile at Berlin-Gottow and competition developed between his group and the group led by Heisenberg. That competition, and the quarrels, about who would get material, still continued even after all research had been officially consolidated under Gerlach.

(3) According to Gentner, the experimental work, including the pile, started by Diebner, had been evacuated to Stadtilm, in Thuringia. In Gentner's opinion the work under Diebner was not so good as that under Heisenberg. Gentner did not know exactly who had been working with Diebner, but assumed that the personnel originally connected with the Heereswaffenamt were still interested.

d. Dr. August Becker, Director, Philipp-Lenard Institute and Theoretical Physics Institute, Heidelberg, was interrogated on 1 April

and stated that the only war projects conducted at the institutes were in connection with the applications of phosphorescence to increase the sensitivity of oscillographs and infra-red. All secret documents were reported to have been evacuated to Tauberbischofsheim, together with some apparatus and personnel. The institute was thoroughly examined and nothing of interest was found (App. B.21).

4-5. Frankfurt Operation.

a. The Deutsche Gold und Silber Scheideanstalt organization - (Degussa) - had long been prominent in the production and purification of rare, noble and semi-rare metals. Exploitation of metallurgical targets in the Frankfurt area, in conjunction with information obtained during preceding investigations, pointed to the Degussa firm as the manufacturer of uranium metal. On 31 March and 1 April, 1945, several of the Degussa plants were contacted and a number of the employees were interviewed. It was confirmed that Degussa had produced uranium metal under the name of "Spezialmetall"; however, personnel investigated professed indefinite knowledge concerning the use of the metal and the ultimate destinations to which it was shipped. Reference was made to Auer Gesellschaft, as the supplier of the raw material, and to a Dr. Völkel, as a technical man involved in the subject metal manufacture. Dr. Völkel had recently left Frankfurt for Berlin and his whereabouts, at the time of the initial investigation, was unknown (App. B-22).

b. Dr. Kohl, Works Manager, Degussa Plant No. 2, was interrogated on 3 April 1945, concerning the manufacture of "Spezialmetall". According to him the material was required by the Reich's Research Council (RFR) and all administrative matters were handled directly with

RFR by Auer, in Oranienburg. Degussa acted as sub-contractor for Auer and Kohl understood that deliveries of metal were made either to Auer or to the RFR, at Berlin-Dahlem. The use of the metal was secret, but Kohl believed it to be concerned with experiments in atomic physics. He stated that the material was manufactured, to a purity of 98 to 99 percent, from ammonium uranate which was converted to U_3O_8. The ammonium uranate was secured either from Joachimstahl or the Union Minière du Haut Katanga. Kohl referred to an early process where metallic uranium had been mixed with coal dust, with Tragacanth gum as a binding material, and pressed into blocks. The material was later delivered as powdered metallic uranium, production being between one and two tons. Kohl was emphatic that no deliveries of uranium were made to I. G. Farben Industrie. The Degussa plant, at Frankfurt, had been partially destroyed and parts of the equipment were reported to have initially been moved to a location in Mark Brandenburg, and later to the plant of the Chemische Fabrik Grünau at Berlin-Grünau. Approximately three tons of ammonium uranate were shipped with the equipment to Berlin-Grünau. It was reported that, prior to the war, about three tons per month of sodium uranate were used in the ceramic color business but that during the war such use had been prohibited (App. B-23).

c. Dr. Baerwind, director of Degussa in charge of technical matters, was also interrogated at Frankfurt, on 3 April. Subject to the following comments Baerwind's statements in general confirmed those previously made by Kohl.

(1) While Baerwind was then a member of the Supervisory Board of Auer, nevertheless he was not familiar with the dealings between Auer and the nuclear scientists.

(2) Baerwind indicated his unfamiliarity with the technical details, and expressed his opinion that Kohl might also have been uninformed; however, he stated definitely that the uranium powder was not mixed with coal dust.

(3) Reference was made to Degussa production of from five to six tons per year of beryllium metal. Most of this material was reported to have been sent to Heraeus(1), for the manufacture of beryllium copper alloys, but a small amount had been sent to the KWI for experiments with radioactive materials.

(4) Baerwind believed that the "Spezialmetall", even under the secret handling, could have nothing to do with military weapons because the quantities involved were so small. He stated definitely that Degussa was the only manufacturer of uranium metal in Germany and that until 1944 the Frankfurt plant production constituted all of the Degussa production (App. B-24).

d. In September, 1945, an account of the production of uranium metal by Degussa was obtained by the ALSOS Mission. This account was prepared by a Degussa employee (Völkel - referred to in the above subparagraph "a") and presented production and shipping details as well as a description of the process employed. It revealed that the Frankfurt Plant No. 2 had handled about 12,800 kg. of the material from 1940 to

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(1) Heraeus - Vacuum Schmelz Company of Hanau (originally part of the W. C. Heraeus m.b.H.) became by purchase a subsidiary of Siemens & Halske Company in 1933 and held all patent control, production, and fabrication ability for beryllium alloys in Germany. Degussa acquired patent rights from Siemens in 1937 and produced beryllium metal

1945, and that, while shipments had been made to various organizations and individuals, nevertheless Heisenberg, either at Leipzig or Berlin, had received more of the finished product than any of the other individual consignees. The description of the process presented various details in the steps of manufacture and indicated that the process, as a whole, had not been definitely developed. It was frankly stated that, even under uniform processing conditions, the product had been uneven in both quality and quantity. The progress of the war had caused manufacture of uranium metal to be transferred from the Degussa, Frankfurt, plant to a factory at Berlin - Grünau. Production at Grünau started at the end of 1944. It was indicated that "Spezialmetall" had only been manufactured in quantities suitable for experimental purposes and that the purity of the product was not impressively high (App. B-25).

e. The ALSOS Mission had learned that 11 tons of crude sodium uranate had been delivered to the Radium Chemie Companie, of Frankfurt, from Wirtschaftliche Forschungsgesellschaft, in July, 1943, and that information prompted a contact with the Frankfurt firm on 25 April, 1945. The Radium Chemie Companie was found to be chiefly concerned with the extraction and refining of radium and mesothorium, and the preparation of luminous compounds for delivery to the Luftwaffe. Because of war damage to the plant buildings, business was being continued on a very restricted scale. Through questioning the Deputy Director of the firm it was learned that a stock of 11 tons of uranium products, ½ ton of Schmiedeberg ore and a few drums of monazite sand were on hand. That material was confiscated. In addition to the

material obtained, this operation proved to be of interest in providing evidence that the Joachimstahl mines were being worked and that the shortage of radium in Germany made it worth while to exploit the Schmiedeberg deposits(1) (App. B-26).

4-6. Stadtilm Operation.

Acting upon the information received from Dr. Wolfgang Gentner, at Heidelberg, and ALSOS team arrived at Stadtilm, Thuringen, on 12 April 1945, directly after fighting in the town had ceased. The laboratory and offices of Dr. Kurt Diebner were located in an old schoolhouse. It was found that the majority of the target personnel, together with their documents, materials and equipment, had been evacuated by the Gestapo, on 8 April, in order that they might carry on their work elsewhere. However, the following individuals, of interest to the ALSOS Mission, had been allowed to remain at Stadtilm: Hartwig, Physicist; Ebeling, Mechanic; Leimert, Librarian; Stuhlinger, Physicist; Pfetscher, Physicist; Berkei, Physicist; Ehlert, Office Manager; Seeger, Engineer; and, Schutzmeister, Physicist. Residences of the uranium project personnel were searched and the above individuals were interrogated. General information, as here shown, was obtained.

(1) Diebner apparently believed that further flight was useless and wished to remain at Stadtilm and keep his group together. He, however, had no choice and was required to leave without knowing his ultimate destination.

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(1) Poor grade pitchblende deposits allied to Joachimstahl but in Silesia.

(2) Heisenberg and Wirtz[1] were occasional visitors and Gerlach was a frequent visitor at Stadtilm.

(3) The physics institute of the KWI and of the THS[2] Berlin had been partially evacuated to Stadtilm about 6 months previously but, for some unknown reason, a number of the personnel had been extremely slow in the relocation.

(4) The reported experiments of interest concerned four types of exponential piles.

(5) The group had been involved with instrument work for the uranium project.

(6) Documents, material and equipment at Stadtilm consisted of: many files; 8 tons of uranium oxide; paraffin; parts of a small low temperature pile; air liquefaction apparatus; heavy water equipment from Norway; counters; miscellaneous equipment; and an extensive physics laboratory.

Desirable intelligence concerning nuclear physics in Germany, as well as the work at Stadtilm, was obtained through the interrogation of Dr. Berkei (App. B-27). For about four years he had worked for the KWI for Physics, at Berlin-Dahlem and Berlin-Gottow, and later served as administrative assistant to Diebner. While, in his administrative capacity, he had not had the opportunity to learn of many of the technical details, nevertheless Berkei appeared to have a good overall picture

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(1) Dr. Karl Wirtz, one of the key members of the Heisenberg group. Theoretical and experimental Physicist. Formerly with Kaiser-Wilhelm Institute for Physics in Berlin-Dahlem.

(2) THS:-Technische Hochschule. The equivalent of a polytechnic institute.

of Diebner's work, and supplied the following information concerning the four types of exponential piles(1).

(1) As a result of experiments by Hahn and Strassmann, German military interest had been aroused, during early 1940, in uranium as a source of energy. Flügge(2) at that time proposed that uranium could be used to form an explosive as well as serve as a source of energy. Work was started in Berlin under the jurisdiction of the WaF department of the Heereswaffenamt and under the direction of Heisenberg. Uranium ore was obtained from Joachimstahl and worked by Auer into U_3O_8, in powder form. The pile consisted of a large well, filled with water, into which was lowered a cylindrical aluminum tank containing alternate layers of U_3O_8 powder and paraffin. A neutron source was introduced into the center of the tank and the neutron density measured at the edge. The results were negative, as no increase of neutron density was observed.

(2) Experiments with the above apparatus were continued until about the end of 1941; first, using the uranium oxide; and then, powdered metallic uranium prepared by Degussa. In these latter experiments the uranium powder was placed in small aluminum cans, but still used in layer form with paraffin. These results also were negative.

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(1) An exponential pile precedes an experimental pile which, in turn, is built according to the calculations derived from the exponential pile. These calculations involve essentially the statistical study of neutron dissemination or, technically speaking, diffusion throughout the pile and neutron concentration at various "levels." From these data, the size of a "going pile" with its "critical mass" can be approximated and an experimental pile built as the next step towards achieving a self-sustaining or "chain-reaction" pile.

(2) Dr. Siegfried Flügge, Nuclear Physicist, formerly with Heisenberg at KWI. Active in Heisenberg group during war.

(3) In spite of the negative results, Heisenberg and von Weizsäcker calculated that, by changing the arrangement and moderator, a self sustaining pile could be built. The work was transferred to Leipzig and a spherical unit was built at that location by Heisenberg and Döpel. The Leipzig exponential pile consisted of 512 kg. of uranium powder arranged in spherical shells of aluminum. Heavy water was used as a moderator, and it was assumed that 500 liters would be needed for the experiments. The heavy water was placed in alternate shells. The neutron source was introduced through a tube extending to the center of the sphere. The tube was immersed in ordinary water for shielding purposes. This pile for the first time gave positive results in 1942, but it was not self-sustaining. It was then decided that by eliminating the aluminum and increasing the size of the unit a going pile could be built. This was the beginning (late in 1942) of the so called "large scale experiments" at Berlin-Gottow.

(4) The Berlin-Gottow pile consisted of a large block of ordinary ice with an inner sphere of frozen D_2O. Uranium metal cubes, 5 cm. on a side, were imbedded in the D_2O sphere with a spacing of about 1 cm. About 160 liters of heavy water and about 500 kg. of uranium were used. An increase in neutron density of 1½ was obtained.

(5) In 1944 larger scale experiments were carried out by Heisenberg, using 1½ tons of heavy water and 4 tons of uranium metal. In these experiments Heisenberg went back to the layer type of apparatus, as in the original experiments, using aluminum as a containing vessel. No attempt was made to cool the uranium metal. Aluminum spacers were used to get the layer effect. The apparatus was operated

at room temperature. Although the results were positive the scale-up was not so good as could have been expected from the experiments with the cubes. It was, therefore, decided to duplicate experiments using cubes instead of layers.

(6) Late in 1944 an exponential pile was constructed in Berlin. It consisted of the usual aluminum tank immersed in water. In this arrangement, however, the metal cubes (5 cm. edge) were hung, on plastic hydrocarbon strips, from a cover over the tank containing heavy water. The spacing, again, was about 1 cm. This apparatus was moved from Berlin, at the end of February, 1945, to Haigerloch, and the pile was located in an underground room. On 1 March 1945, Berkei received a telegram from Heisenberg which stated that a ten-fold increase in neutron density had been obtained. It was intended to increase this further by use of a reflector.

(7) In connection with the work at Stadtilm, Berkei stated that that group was concerned with measuring neutron cross sections; developing circuits, counters and other instruments; and, studying reflectors. The Stadtilm apparatus consisted of a concrete tank, about 10 feet in diameter, which was intended to hold an aluminum tank immersed in water. Work was also in progress on construction of a double wall iron tank to be used for an exponential pile operating at very low temperatures. The jacket was to contain liquid air, which was to be made at Stadtilm.

An item of interest presented by German documents concerned pile construction. There had been considerable difference of opinion between Berkei's idea of a lattice pile and Heisenberg's original notion of

layers. Berkei's idea finally triumphed and an Army High Command decoration was presented to him for his achievement. The citation for that decoration stated that top level scientists had scoffed at the idea of a lattice and that eventually they themselves had come around to use it.

4-7. Göttingen Operation.

The subject of interest to the Manhattan Project was discussed with Professors Kopfermann and Houtermans, at Göttingen, on 17 April 1945. At about this time the Manhattan Project was beginning to approach it's climax (Trinity occurred 16 July 1945). It is, therefore, emphasized that for security reasons extreme care was exercised during then current and subsequent investigations, prior to actual use of the atomic bomb, to avoid the impression of outstanding American interest in the uranium project. Kopfermann and Houtermans had been only on the fringe of the German nuclear fission project and were unable to contribute additional intelligence of any particular consequence. Both Kopfermann and Houtermans confirmed the reported general anti-Nazi attitude of many of the outstanding German nuclear scientists; also Houtermans provided the following items of information.

(1) A man, by the name of Saic, was at Philips, Eindhoven, in charge for the Germans, and from there he had gone to a secret laboratory at Reichenau, in Austria. That laboratory was engaged in high frequency work, and operated under the name of "Ernst Lecher Institute" at a location in the Hotel Talhof. Plendl was believed to be the director of the laboratory. Saic proposed to engage in nuclear physics work and offered Houtermans a position. That

position failed to materialize because of a lack of authority on the part of Saic.

(2) Houtermans had been sent to Russia by the Germans to learn of nuclear research work done there. He did not find anything of importance; however, he did believe that the Russians were very much interested in the project and had heard a rumor that Kapitza[1] was working on it. The Russians were reported to be obtaining ore in Ferghana[2] (App. B-28).

4-6. Lindau Operation.

On 11 April 1945, during the investigation of personal targets at Göttengen, it was learned from Dr. Melchow, Director of the Kaiser-Wilhelm Gesellschaft, that Professor Werner Osenberg was very likely to be found at the nearby village of Lindau. Melchow stated that he had been in contact with Osenberg three days earlier but that contact had been broken by the American advance.

Osenberg was Chief of the Planning Board (Planungsamt) of the Reich's Research Council (Reichsforschungsrat), and documents, obtained by the ALSOS mission during the Strasbourg operation, had indicated that very complete information concerning German war research might be available if he should be apprehended with his files intact.

At the time that Melchow's information was received the area in the vicinity of Lindau was within the combat zone; however, an ALSOS

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(1) Professor P. Kapitza; outstanding Russian scientist

(2) Tyuya-Muyun deposit in Ferghana district, Turkestan, U.S.S.R.

party obtained information, on 12 April, that the tactical situation would permit their entry into the village. The information was promptly acted upon and the target contacted on that date. Osenberg surrendered with some ceremony, making his personnel, files and the general establishment available for investigation. ALSOS scientific members began their examination of the Planning Board on the afternoon of 12 April, and continued with the interrogation of Osenberg, questioning of his personnel and study of his papers during the following three days. This exploitation provided the following information concerning the wartime control of research activity within Germany.

(1) The National Research Council (Reichsforschungsrat - "RFR"), which had been under the Minister of Education, was modified in 1943 to function as a central agency for research work of military importance. According to a circular letter, dated about one year after re-formation of the RFR, it was directly under Reichsmarshall Goering. It assigned research projects to universities and individuals, allotted funds, established priorities and handled personnel and deferments (App. B-29). Drastic changes apparently occurred in the organization of scientific war research in the fall of 1944, when Himmler's Security Service organization (Sicherheitsdienst - "SD") suddenly became interested in the subject, and the War Research Pool (Wehrforschungs-Gemeinschaft - "WFG") was created under Goering to avoid duplication and useless work. A letter from the SD, dated 26 July 1944, claimed that attempts of the RFR had failed to yield the required results. The SD proposed to establish a plan to remove all obstacles and to obtain maximum productive war results from available workers and their research institutes.

(2) The most active part of the RFR appeared to be the Planning Board under Osenberg. On 24 July 1944, the Planning Board distributed a confidential circular requesting data for the draft deferment of indispensable scientists, engineers, technicians, specialists and other key personnel employed on war research at universities and government research institutes. Osenberg had come to an agreement with the High Command for the deferment of war research personnel at government institutes, and he had succeeded in getting drafted specialists released from the armed forces. In October, 1944, Osenberg proposed that the newly organized WFG would provide closer cooperation between research bodies of the government, armed forces and industry. The WFG was considered to be an independent division of the RFR. Its principal aim was to stop research work which did not contribute to the war effort and to promote projects considered by the directorate to contribute to the progress of the war. The directorate consisted of members of the RFR, representatives of vocational groups and representatives of research organizations. Osenberg was the active head of the organization, which, on the date indicated, had fifty-four branches at research institutes of engineering schools, universities, Four Year Plan Institutes (SS-laboratories), KWI and similar institutes of the Army, Navy, Air Force and industrial establishments. The WFG had liaison with the development committee of the Speer Ministry and with the research direction of the Armed Forces. Beginning with the winter semester of 1944 seventy-seven departments at various universities closed, twelve were open for one or more semesters, and fifty-eight were limited to advance courses only.

The purpose was to obtain space and personnel for war work for the Armed Forces (App. B-30).

Osenberg had placed great emphasis upon the preparation of extensive card index systems and upon details of organization. His office contained many personnel files and records of war projects. Among those records were Gestapo files rating various scientists in regard to their political reliability and professional competence. Investigations had been made and reports were available concerning research institutions. From the data observed it was evident that Osenberg had been instrumental in the deferment and release of a considerable number of scientific and technical personnel from the Armed services. Evidence also pointed to the possibility that Osenberg had endeavered to extend his authority to an unaccepted degree in directing research activities.

In general the Lindau Operation was productive of worthwhile intelligence for the ALSOS Mission although the investigation was curtailed by Osenberg, his organization and equipment being taken to Paris through orders from SHAEF. The Planning Board office personnel were later interned at Versailles.

4-9. Celle Operation.

Up to April, 1945, positive knowledge of the German effort to seperate uranium isotopes by the centrifuge method remained obscure. The Strasbourg Operation had shed some light in this direction, but details were definitely lacking. This item became somewhat clarified during the investigation at Stadtilm, where it was confirmed that a centrifuge project had been started at the University of Hamburg, and

that the project had been relocated several times because of Allied bombing activities. The last location of the centrifuge activity appeared to be at Celle. Acting upon this information, instructions were sent, on 16 April, to scientific members of an advance group at Göttingen to proceed to Celle for investigation of the enemy isotope separation. Those Mission members entered Celle on 17 April and readily located the centrifuge laboratory. That laboratory was found to be under British guard. Investigation of the activity extended from 17 to 20 April and revealed the following (App. B-31):

(1) The ultra-centrifuge experiments, evacuated the preceding November from Hannover, were located within a spinning mill at Celle.

(2) The director of the activity, Harteck, was not present and was reported to be at Hamburg. Dr. W. Groth was in charge of the Celle laboratory, together with Dr. Suhr and Dr. Faltings.

(3) The equipment consisted of a small-scale set-up. When working smoothly it was estimated to be capable of a production of 50 grams per day of enriched material. The enrichment was at best about 15 percent.

(4) The separation was done with gaseous UF_6. Groth discovered that it was possible to produce the gas directly from the oxide, without having to make metal first. This method had been patented by him, and the material was produced by I. G. Farben, at Leverkusen, in quantities of about 30 pounds per month.

(5) The oil used in the centrifuge contained powdered sodium fluoride in suspension so as to saturate against the effect of UF_6.

(6) The centrifuge was manufactured by Anschuts Gesellschaft at Kiel.

(7) In general, the net result of the investigation was that it confirmed former investigations in revealing the nuclear energy effort in Germany to be on a relatively small scale.

4-10. Stassfurt Operation.

The ALSOS Mission investigation at Brussels, Belgium, in September 1944, revealed that certain quantities of Belgian uranium products had been removed to Germany (see paragraph 4.2). Based upon that intelligence a considerable portion of the material was believed to have been delivered to a plant of the Wirtschaftliche Forschungsgesellschaft (WIFO), on the outskirts of Leopoldshall, near Stassfurt. That firm had been formed during the war as a storage agency for Roges. In early 1945, as the Allied forces approached this area, plans were made to ascertain whether the material was still there, and, if so, to remove it. It developed that the area would be in the operating zone of the 83rd Infantry Division Sector, XIX Corps, 9th Army, 12th Army Group. On 15 April, when the tactical situation was such as to permit entry of Mission personnel into the above area, Headquarters, (G-2), 12th Army Group, was informed of ALSOS plans. It then appeared that a meeting of the Russian and other Allied armies would soon take place and that the target area was later to be part of the Russian zone of occupation. These conditions necessitated expeditious action.

On 17 April Mission personnel contacted the Command of the 83rd Infantry Division, and G-2 of that organization referred the ALSOS group to the Chief of the Division M.I. Team. That officer had already been to the WIFO plant and two of the officials were known to him. Contact was made with those two officials in order to obtain assistance in locating the subject material. Upon arrival at the plant it was found to have suffered both from bombing and looting, and, in the general disorder, the material could not be readily located. However inventory records, obtained from the above officials, disclosed that the material of interest was stored above ground, in four areas, in the immediate vicinity of the plant.

Removal of 260 truck loads of the material to the Hildesheim Air Strip was accomplished between 20 and 27 April. The material seized consisted of crude sodium uranate, refined products and ferro-uranium. The total weight was in the neighborhood of 1,000 metric tons. It was held at Hildesheim until 30 April, moved to Antwerp and then shipped to a location under Allied control. (App. B-32 and B-33.)

4-11. Osterode and Nordhausen Operations.

Fragmentary information suggested material possibilities at Osterode and Nordhausen and these targets were visited with negative or minor results.

4-12. Haigerloch, Hechingen, Bisingen, and Tailfingen Operations.

On 3 April 1945, the Chief of Staff, SHAEF, was informed of a discussion between the Secretary of War, Chief of Staff and General Groves concerning the desirability of exploiting targets in the Württemberg area. Strasbourg and other ALSOS operations had indicated

that principal German activities in nuclear research were located in that area, concentrated in the towns of Haigerloch, Hechingen, Bisingen and Tailfingen, and that German scientists, most capable of atomic weapon development, were there. The Württemberg area had not yet been occupied by Allied Forces but had been assigned to the French as their zone of operation, and it was yet undecided to whom the area would be assigned for occupation. In discussing the operation at SHAEF, consideration was given to a combined air and ground operation, but on 20 April the tactical situation prompted the decision that the air phase was unnecessary. Supreme Headquarters issued orders to obtain complete intelligence of the enemy project through seizure of persons, documents, buildings and materials. Colonel Pash, Military Chief of ALSOS Mission, was designated to carry out these orders. For the purpose of the operation, Colonel Pash was attached to the Sixth Army Group, and designated Commanding Officer, Special T Force. On 22 April, the Special T Force, consisting of a battalion of combat engineers and an advance unit of the ALSOS Mission, moved across the Horb bridgehead into Württemberg. From then through 25 April, the Special T Force advanced, and secured targets in the towns of Haigerloch, Hechingen, Bisingen, and Tailfingen, overcoming enemy resistance in several sectors.

Scientific members of the ALSOS Mission left Heidelberg on 23 April and proceeded to Haigerloch where it was found that the targets had been secured and placed under guard. These members of the Mission then went directly to Hechingen.

At Hechingen, the branch of the KWI for KWI for Physics was located and secured. Important personnel apprehended consisted of von Weizsäcker,

Wirtz, von Laue, Moliere, Hoecker, Hiby, Sauerwein, Gysae, Bagge, Korsching, Bopp, Fischer and Menzer. Heisenberg was not present. He had left, a short time previously, to join his family at Urfeld-am-Walchensee, Oberbayern. von Weizsäcker and Wirtz were interrogated but were unwilling to discuss the uranium project in any detail. They stated their preference that this discussion be between Heisenberg and top ranking American physicists and they further indicated that Heisenberg was willing and ready to enter such a discussion. The enemy personnel at first stated that all secret documents had been burned in accordance with a government order, but, later following the capture of a complete set of secret reports at Tailfingen, and after demands had been made, von Weizsäcker admitted that certain reports had been concealed in a cesspool. Those reports were recovered. Two new isotope separation experiments of interest were in progress at Hechingen - Bagge's velocity selector, and Korsching's diffusion apparatus. The facilities for both of these experiments were dismantled and evacuated.

While the investigation at Hechingen was still in progress, the exploitation of two Haigerloch targets - the experimental installation of the RFR, and the Institute for Nuclear Physics Measuring Methods - was started under the joint direction of American and British personnel. The experimental pile (referred to under the Stadtilm Operation) had been located in a cave. The pile did not contain metal or heavy water. It was photographed, dismantled and the cave laboratory destroyed by explosives. Approximately one and one-half tons of heavy water and one and one-half tons of uranium metal were subsequently found buried near Haigerloch. This material was evacuated to a more secure location.

On 24 April, Bisingen was taken and a research station (Forschungsstelle D) of the Kaiser-Wilhelm Gesellschaft was secured. Bäßlenbach, the Director, had gone to Switzerland in December 1944 but his assistant, Dr. Karl Weimer, was interrogated. Construction of a small experimental model of a 10,000,000 volt cyclotron had been started, and drawings, technical data and patent specifications were secured.

Tailfingen was captured on 25 April, and, with it, headquarters of the KWI Für Chemie. All members of Hahn's staff including Hahn, Mattauch, Strassmann, Erbacher, Klemm, Flammersfeld, Radoch, Seelman-Eggebert, Waldmann, Wietig and others were located. The three groups of the KWI Für Chemie at Tailfingen were led respectively by Hahn, Mattauch and Erbacher. Each of these groups was interrogated as shown by the following.

Professor Hahn's group had been working on the separation, distribution and energy of the fission products of uranium. According to him the results of that work had all been published, even though it was originally treated as secret. When asked about the purpose of his work, Hahn replied that a knowledge of fission products is necessary to predict their effect on the operation of the pile. High priority had, therefore, been given to this work. Hahn was asked to express his general views on the future of nuclear fission work, as well as its applicability to military uses. He stated that the development of an atomic bomb was not then possible, and had so been considered by the Germans since 1942. Hahn did, however, believe that the pile as a source of energy would be successfully developed in a few years.

The energy pile, he explained, would produce element 93 which must decay to 94 (not yet discovered), and this latter element, as well as a long-lived isotope of element 93, he believed to have the properties necessary for a bomb. Hahn reasoned that a pile to produce these elements must, however, be developed first. Dr. Hahn's attitude during the discussion was cordial and cooperative. An inspection was made of the laboratory, and a file of about 150 secret reports on German nuclear physics work, including the Forschungsberichte of the RFR, was found intact. These reports were later catalogued and removed for reproduction.

Dr. Erbacher assisted in an inspection of his laboratory where work was being done on the chemical separation of isotopes; on the protection of uranium from corrosion; and on the separation of an active element from its inactive isotopes. At that laboratory a method had been developed for coating uranium with a monatomic layer, using copper ammoniate solution. That method provided protection of the metal from corrosion in water up to 150° C.

Dr. Mattauch's laboratory was then inspected. Work was being performed at that location on the mass-spectrographic method of fission-product (or isotope) analysis. One member of Mattauch's group had been working on a method of isotope separation by the electrolysis of a fused salt; however, such a method had not at that time proved feasible.

From the Manhattan Project viewpoint the above operations were the most important of the ALSOS Mission investigations of the German effort in nuclear development. Interrogation of the enemy scientists, study of the documents obtained and inspection of the experimental equipment added further confirmation to previous evidence and definitely revealed

the extremely small-scale activity of the whole German uranium project. In view of the fact that this exploitation involved the main group of laboratories it could be appreciated that the German work was far behind that which had been accomplished in the United States. Documents for which concealment had been attempted and those obtained at the laboratories contained reports on the experimental piles and other valuable technical information. That material was, of course, taken over by the ALSOS Mission for further study. Seven of the laboratory personnel, Professor Hahn, Professor von Laue, Professor von Weizsäcker, Dr. Mattauch, Dr. Wirtz, Dr. Bagge and Dr. Korshing, were taken into custody, removed to Heidelberg and later placed in internment. (See App. B-34.)

4-13. Urfeld and Munich Operations.

After completion of the ALSOS operations in the Wurttemberg area three outstanding members of the enemy scientific personnel still remained to be apprehended: Professor Werner Heisenberg, Professor Walther Gerlach and Dr. Kurt Diebner. Information which had been obtained indicated that those individuals might be located in the vicinities of Urfeld and Munich. As these areas were becoming available for exploitation, two ALSOS operational teams were formed on 30 April 1945, to contact the subject targets at the earliest opportunity.

The first of the teams reached Urfeld on 2 May 1945, but withdrew to a point near Kochel, when the American combat forces encountered delay. The advance to Urfeld was resumed and on 3 May the ALSOS group was successful in contacting Heisenberg. Heisenberg was taken to Heidelberg on the next day.

The second ALSOS team had entered Munich on 1 May 1945, and located

the residence of Gerlach. Gerlach was not at home, but was found at the Physics Laboratory of the University of Munich. Interrogation was started at once and continued the next day. All pertinent documents of the physics department of the university were examined, and those of interest to the Mission were secured for evacuation. From interrogation of Gerlach it was learned that Diebner would probably be found at Schongeising, a town approximately 20 miles southwest of Munich. On 2 May, a portion of the ALSOS group went to Schongeising, located their target and evacuated Diebner, certain of his documents, and a quantity of uranium (previously evacuated by the Gestapo from the laboratory at Stadtilm), to Munich. On 3 May, Gerlach and Diebner together with the captured material were transferred to Heidelberg.

Heisenberg, Gerlach and Diebner were interrogated upon their arrival at Heidelberg. As was expected, the interrogations failed to produce any new positive information of interest to the Manhattan Project. Previous conclusions were strengthened and confirmed. Dr. Goudsmit's report of the interviews (App. B-35) refers to the following:

(1) Gerlach was merely in administrative charge of the nuclear physics project. He had a superficial knowledge of the status of the project but knew little of the technical details.

(2) Diebner was not very cooperative and seemed to be rather antagonistic toward Heisenberg. Gerlach and Heisenberg were on very cordial terms with each other but appeared to consider Diebner an inferior scientist.

(3) Heisenberg was actively anti-Nazi but strongly nationalistic. Gerlach appeared to be fully cooperative.

(4) Little was known to them about the Allied nuclear fission project.

(5) Gerlach referred to German technical intelligence as being poor.

4-14. Hamburg Operation.

After the City of Hamburg had fallen into Allied hands, members of the ALSOS Mission went to that location, on 5 May 1945, to contact Professor P. Harteck. He was readily located and upon interrogation revealed the following information (App. B-36):

(1) He had sent a letter to the Heereswaffenamt calling their attention to the military possibilities of U-research.

(This statement was confirmed by a copy of a document, found later in Harteck's file of correspondence. That document, dated 24 April 1939, presented the views of Harteck and Groth to the War Ministry, and in it they wrote:

"We take the liberty of calling to your attention the newest development in nuclear physics which, in our opinion, will perhaps make it possible to produce an explosive which is many orders of magnitude more effective than the present one".

They then presented a short popular account of the discovery of Hahn and the work of Joliot and mentioned that, in America and in England, great emphasis is placed on research in nuclear physics, whereas the subject had

been neglected in Germany. The document concluded:

"It is obvious that, if the possibility of energy production outlined above can be realized, which certainly is within the realm of possibilities, that country which first makes use of it has an unsurpassable advantage over the others".)

Continuation of Harteck's statement was to the effect that after the initial research it was soon discovered that the development of a weapon was unlikely, if not entirely impossible. Emphasis was then placed on the production of energy from a uranium pile, but, in this connection also, he was of the opinion that there were numerous detailed questions which had to be solved before such a device could be successful. There were problems of corrosion, production of heavy water, separation of isotopes and other problems of a mechanical nature. He considered that progress with the corrosion problem had been made by Auer-gesellschaft.

(2) As has previously been indicated, Harteck had been involved in the production of heavy water, and he and Groth had specialized on centrifuges for isotope separation. Harteck referred to a plan which had been considered to provide ultra-centrifuge machines, each of which was to produce above 180 kgs. of 1 percent enriched material per year. The centrifuges were planned to be located at Kandern, but the progress of the war prevented the work. Harteck stated that he had been informed in the spring of 1944 that isotope

separation was being done photochemically in the United States. An organic chemist, Albers, was reported to have been working on this problem and to have been concerned with the production of liquids with the right properties. Albers was understood to have discovered an organic substance, containing uranium, entirely surrounded by other atoms, which might be used in methods where UF_6 failed.

(3) Harteck had studied the production of heavy water and believed that his improved method would have made it possible to reach a production of almost 10 tons per year, at an appreciable reduction in the pre-war cost. It was stated that the Norsk-Hydro project was under the supervision of I. G. Farben.

4-15. Berlin Operation.

The Berlin location of the Kaiser-Wilhelm Institute for Physics was inspected on 30 July 1945. It was found that practically all of the laboratory equipment had been evacuated by the Russians. The building was used as a headquarters by the Director of Intelligence, U. S. Group CC. The occupants had apparently been unaware of the importance of the targets and had dumped the few remaining intelligence clues into the backyard (App. B-37).

4-16. Vienna Operation.

Dr. C. P. Smyth and other members of the ALSOS Mission visited Vienna during the later part of August, 1945, and obtained information of the research carried out at the Physical Institute and the Radium Institute. Information of uranium materials taken by Russian investigators in

May, 1945, as well as of the transportation to Moscow of Drs. Wombacker and Ortner, was obtained. Little additional useful intelligence of the German uranium project resulted.

4-17. Overall Results and Termination of Western and Central European Investigations.

a. The rapid advance of the Allies in Germany caused difficulty in making thorough and deliberate investigations of many of the detailed items of enemy nuclear research. Nevertheless, all principal locations of that research activity were contacted, and, as of May, 1945, the ALSOS Mission had apprehended the following German scientific personnel of interest to the Manhattan Project:

At Strasbourg.
Fleischmann
Weygand
Neuert
Maurer

At Heidelberg.
Bothe
Kuhn
Gentner

At Hechingen.
von Weizsäcker
Wirtz
von Laue
Moliere
Koecker
Hiby
Sauerwein
Gysae
Bagge
Korsching
Bopp
Fischer
Menzer

At Bisingen.
Weimer

At Stadtilm.
Hartwig
Berkei

At Göttengen.
Houtermans
Kofpermann

At Lindau.
Osenberg

At Celle.
Groth

At Tailfingen.
Hahn
Mattauch
Strassmann
Erbacher
Klemm
Flammersfeld
Radoch
Seelmann-Eggebert
Waldmann
Rietig

At Urfeld.
Heisenberg

At Hamburg.
Harteck

At Munich
Gerlach

At Marburg.
Justi

At Schongeising
Diebner

Investigation at the above sites and interrogation of the above personnel clearly revealed the German progress in developing an atomic weapon. The general plan of conducting the subject research in some respects followed a pattern employed in the United States. Research assignments were farmed out to many small groups, generally of some university or technical school, or to industrial firms specializing in one or more of the related activities. However, the enemy effort was definitely lacking in overall direction, unity of purpose and coordination between participating agencies. Early in the German endeavor the uranium problem had been separately approached by a number of more or less competing groups. There was one group under Army Ordnance, another under the Kaiser-Wilhelm Institute for Physics, and still another under the Postal Department. A certain amount of bickering over the supply of material and a non-cooperative attitude in the exchange of information existed between those groups. The research efforts of the Postal Department amounted to little and did not continue for very long. The first two of the above groups were unified in 1942 under the Reich's Research Council. On the whole, beneficial results, from the German standpoint, were obtained through that unification. But conflicting jurisdiction between the German Government and Service branches still existed. Up until the later stages of the war difficulties were apparent in regard to the deferment of

scientific personnel from military service. Many German scientists worked along their own lines and were not required to work at particular projects. Development of an atomic weapon was not believed to be possible.

As a consequence of the foregoing, atomic energy development in Germany did not pass beyond the laboratory stage; utilization for power production rather than for an explosive was the principal consideration; and, though German science was interested in this new field, other scientific objectives received greater official attention.

b. This historical account, while concerned primarily with atomic energy investigations, has, nevertheless, indicated the overall ALSOS Mission procedure of following the advance of combat units and exploiting intelligence targets seized from a known enemy. After the cessation of hostilities in Europe, and, particularly for the Manhattan Project interest, after the use of the atomic bomb in Japan, it was no longer required that that type of organization, or operation, be continued within the European zone. (Somewhat similar, but far less formal, arrangements were made for exploiting scientific objectives in Japan, as described in the directly following Section.) After various conferences within the War Department, and with the OSRD, concerning a modified procedure for securing future scientific intelligence, General Groves was informed by the Assistant Chief of Staff, G-2, MDGS on 30 September 1945, as follows:-

(1) Disbanding of the ALSOS Mission was proposed to be effective 15 October 1945.

(2) During the period from 5 October 1945 to 15 November

1945 an ALSOS Mission office was proposed to be maintained within MID to prepare final scientific, administrative and historical reports.

(3) The dissolution of the ALSOS Advisory Committee was announced to be effective 15 November 1945.

The actual termination did not quite conform with the above schedule as the Mission was not completely withdrawn from the Theater until November 1945, and was officially deactivated on 13 December 1945.

c. References contained in this historical account would definitely be incomplete without mention of the book "ALSOS" published by the Scientific Chief of the Mission (Appendix B-40).

That publication does not, nor is it intended to, present the complete story of the investigation of German nuclear research. Military security prescribed certain obvious limits; also, various operations have been omitted in their entirety. However, the subject matter is of interest in presenting the civilian scientific viewpoint, and, in addition, serves to amplify a number of the subject items presented herein.

SECTION 5 - INVESTIGATION OF NUCLEAR RESEARCH IN JAPAN

5-1. General.

a. Following the combat use of atomic bombs and the Japanese capitulation, it was to the interest of the Manhattan Project that intelligence of nuclear research activities in Japan be obtained. Because of insufficient time, personnel problems, and other interests which followed the termination of hostilities, the investigation in Japan was not patterned after the highly coordinated organization which had existed for the ALSOS Mission activity in Europe. The Japanese investigation was essentially a Manhattan Project activity only, without participation of other American and British organizations which had contributed to the success in gaining knowledge of German scientific developments. The Japanese investigation differed in another respect in that the information sought was restricted to nuclear development and did not embrace overall scientific research.

b. General Groves, through his deputy, Brigadier General T. F. Farrell, and through Farrell's liaison with the Supreme Allied Command Headquarters, arranged for the investigation to be conducted. Dr. Philip Morrison, Major R. R. Furman and other Manhattan Project personnel were assembled at Tinian and assigned to the command of General Farrell. (General Farrell was later succeeded by Brigadier General James Newman.) Plans for the investigation were established and the necessary interpreters were secured.

c. After some delay, incident to establishing control by the Occupation Forces, the advance section of the Manhattan Project Intelligence group arrived at Tokyo on 7 September 1945. The section was

organized into two teams and proceeded with the principal investigations as here shown.

At Tokyo contact was made with the Tokyo Imperial University, the Institute of Physical and Chemical Research (Rikken) and such government and military agencies as the Board of Technology, the Metals and Minerals Agency, the Ministry of Education, and the Ministry of Munitions. The Kyoto Imperial University and the Osaki Imperial University were contacted. A trip was made to Seoul (Keijo), Korea, for the purpose of interviewing Dr. Iwase of the Seoul Imperial University concerning a report of his alleged discovery of the "world's largest radium mine." That report was found to have been exaggerated. The Korean Bureau of Mines and the Geological Survey yielded some information on Korean mineral resources, as did also the Rikken Korean office.

d. Except for the activity of Major R. A. Fisher, a physicist who had been with ALSOS in European and was later assigned to temporary duty with the Supreme Command Headquarters in Tokyo to advise and assist in setting up control measures, the Manhattan Project initial investigations were completed and all personnel were on their way back to Washington by 7 October 1945. Subsequently medical personnel visited Japan in coordination with SCAP for further investigation of a technical nature.

5-2. Investigation Results.

Results of the Manhattan Project investigation are covered by a report by Major R.R. Furman (App. B-38), and are summarized as follows:

a. The Japanese government and the military gave no priority to research in the field of nuclear physics, and there was no nuclear development program. Graduate teaching in the universities was commendable and sound, but there was no evidence of organized official interest in the subject. As an example, important military research was evacuated to the country to avoid the bombings, whereas some nuclear research continued to be carried on in Osaka and Tokyo. About January 1943, normal research activity was diverted from nuclear research to solving the immediate development-production problems of industry, and consequently the abilities of the principal nuclear physicists were deflected to more immediate fields.

b. Incomplete geological information from university sources indicated that the Japanese had no source for raw uranium materials, either in Japan or in Asia, beyond the minute quantities in Honshu and Korea. It appeared likely that Japanese scientists used only uranium materials acquired from Europe before the war for their experiments, although one incomplete shipment of 3 tons of fergusonite was located. The main interest in rare elements was for vacuum tube development.

c. The Japanese would have been able to organize a group of about twenty first-class scientists capable of initiating a project for the production of atomic energy. They had the theoretical background, but were several years out of date in technique and equipment. However, Dr. Morrison stated they are capable of brilliant and original work; and if the handicap of poor resources are overcome, they could progress rapidly, especially if they were given the results of the American project in any detail.

5-3. Cyclotron Destruction.

Unfortunately, during the early stages of the occupation and the confusion and lack of appreciation of the new elements involved by the atomic bomb, instructions were carried out to destroy a number of cyclotrons previously used by the Japanese for research purposes.

SECTION 6 - ORGANIZATION AND PERSONNEL

6-1. Organization.- This organizational description is, in the main, confined to the Western and Central European phase of the ALSOS Mission. The other investigations, in Italy and in Japan, were limited to such extent that the foregoing text is believed to have provided ample information of their organizational setup. The European Mission, as well as the Italian Mission, was unique as a means of obtaining scientific intelligence in wartime. It was an outstanding example of the ability of military and civilian personnel to work as a team and for their combined efforts to produce such results as would very probably have been unattainable for either working alone. The organization was also outstanding in its ability to act in synchronization with combat forces and to act upon guidance of, and in cooperation with, other technical and military intelligence bodies. In this respect the early aid of the War Department Intelligence Division, the Office of Strategic Services and the British Foreign Intelligence Service were particularly helpful in the initial establishment of ALSOS targets. The overall Mission activity resulted in scientific information being obtained on may subjects of enemy research. Because of the number and variety of such subjects the organizational setup throughout the Mission operations provided a relatively small personnel nucleus, to be supplemented, as the need developed, by additional military and scientific personnel. The investigations directly concerning the Manhattan Project were, of course, included with the overall Mission activities; nevertheless, they were treated in a special manner until success in the development in the United States was divulged and until

military operations in the Pacific were consummated. The scientific exploitation, and in some instances the military activities in contacting enemy targets, required a degree of briefing and a certain amount of knowledge of American progress in nuclear research. For that reason the ALSOS "atomic energy team" was held to a practicable limitation in number and was not subject to the overall Mission variation in personnel. Details of the organizational setup at various stages of the Mission existence are shown by the following:-

(a) History of the Office of Field Services (App. B-39).

(b) Record of MIS-ALSOS Advisory Committee meeting (App. A-17).

(c) Organization Chart and List of Personnel (App. A-18)

(d) Manhattan Project Organization for ALSOS Mission (App. A-19).

6-2. Personnel.- The personnel to be listed herein are only those concerned with investigations which were of interest to the Manhattan Project, and, while it is recognized that a recount of individual activities may lead to injustice through an inadvertent omission, the following should be recorded:

(a) Major R. R. Furman, representing General Groves, was highly instrumental in the formation of both the Italian and Western and Central European Missions. The Washington, London and Paris offices (see App. A.18) were organized under his direction. In addition Major Furman participated in may of the special field operations of the Missions, conducted special liaison with British officials prescribed by General Groves, and later joined the group for investigation of the nuclear research activities in Japan.

(b) Colonel J. Lansdale, Jr., represented General Groves in certain contacts with British officials who were interested in the ALSOS Mission findings.

(c) Colonel B. T. Pash served as Commanding Officer and Military Chief respectively for the Italian Mission and the Western and Central European Mission. Colonel Pash was directly responsible in the command channel to SHAEF and subordinate military commands. His actions contributed in a great measure to the success of the investigations.

(d) Dr. S. A. Goudsmit acted as Scientific Chief of the Western and Central European Mission. Dr. Goudsmit was exceptionally effective and contributed a great deal as technical advisor for ALSOS investigations because of his personal knowledge of laboratories and scientists on the continent.

(e) Drs. J. B. Fisk and J. R. Johnson were outstanding in the investigations conducted by the Italian Mission.

(f) Maj. H. K. Calvert was in charge of the London office of the Manhattan Project and in that capacity coordinated with the British interest in the intelligence activities. He also participated in some of the special ALSOS operations.

(g) Maj. R. A. Fisher, Dr. F. A. C. Wardenburg, Dr. J. A. Lane, Dr. T. R. Hogness, Dr. W. F. Colby, Prof. C. P. Smyth, Maj. Canfield Hadlock, Maj. John Vance and Maj. J. C. Bullock were very prominent in ALSOS investigations which were of interest to the Manhattan Project. Major Fisher also served as a technical adviser for the investigation of nuclear research in Japan.

were of interest to the Manhattan Project. Major Fisher also served as a technical advisor for the investigation of nuclear research in Japan.

(h) Lt.Col. G. R. Eckman and Major R. C. Ham were outstanding in the military administration and operation of the Mission.

(i) Major Francis Smith succeeded Major Furman in direction of the Washington Office (see App. A-19).

(j) A number of junior officers and CIC personnel provided invaluable aid in operational and interpreter functions.

FOREIGN INTELLIGENCE SUPPLEMENT NO. I

TO

MANHATTAN DISTRICT HISTORY

BOOK I - GENERAL

VOLUME 14 - INTELLIGENCE & SECURITY

APPENDIX A - DOCUMENTS

No.	Description
1.	News Item - Translation of Article in Svenska Dagbladet, 14 March 1943.
2.	Memorandum - To Chief of Staff from Assistant Chief of Staff, G-2, 25 September 1943 - Recommends scientific investigation in Italy. (Inc. Tab A)
3.	Memorandum - To Chief of Staff from Assistant Chief of Staff, G-2, 1 April 1944 - Investigation of Enemy's Secret Scientific Developments. (Inc. Tabs B-1, B-2 and C)
4.	Memorandum - To Chief of Staff from Assistant Chief of Staff, G-2, 11 May 1944 - Mission Organized in MID for the Collection of Scientific Intelligence.
5.	Memorandum - To Assistant Chief of Staff, G-2 from Major General L. R. Groves, 10 November 1943 - Recommends action for scientific mission to proceed to field.
6.	Letter - To Col. C. P. Nicholas from Dr. S. A. Goudsmit, 15 May 1944 - Scientific Intelligence.
7.	Proposal - By Dr. S. A. Goudsmit, 5 June 1944 - Proposed Handling of Sources of Information For SIM.
8.	Memorandum - To Dr. S. A. Goudsmit, Lt.Col. Boris T. Pash and Major R. C. Ham, 7 June 1944 - Summary of items discussed on 6 June 1944.
9.	Memorandum - To Col. C. P. Nicholas from Dr. A. T. Waterman, 10 June 1944 - Comments on responsibilities and procedures for SIM.
10.	Memorandum - To Chief, Military Intelligence Service from Lt.Col. Boris T. Pash, 24 July 1944 - Progress Report #1, ALSOS Mission.

No.	Description
11.	Report - To Chief, Military Intelligence Service from Lt.Col. Boris T. Pash, 1 September 1944 - Progress Report - ALSOS Mission - France No. 1.
12.	Report - To Chief, Military Intelligence Service from Lt.Col. Boris T. Pash, 7 September 1944 - Progress Report - ALSOS Mission - France No. 2.
13.	Letter - To Major Frank Smith from Dr. S. A. Goudsmit, 29 January 1945 - Civilian Internees.
14.	Report - By Drs. S. A. Goudsmit and F. A. C. Werdenburg, 16 December 1944 - TA Strassburg Mission (Inc. Exhibits A, C, D, E, F, G, H, I, J, K and L.)
15.	Letter - To Major Frank Smith from Dr. S. A. Goudsmit, 31 January 1945 - TA Status in Germany.
16.	Report - By Drs. S. A. Goudsmit and F. A. C. Werdensburg, 5 December 1944 - TA Strassburg Mission.
17.	Memorandum - To Members of the ALSOS Advisory Committee by Brigadier General R. A. Osman, 27 December 1944 - Minutes of the MIS-ALSOS Advisory Committee Meeting on 16 December 1944. (Inc. copy of Minutes.)
18.	Chart - Mission Operational Chart, 17 March 1945. (Inc. list of Mission personnel.)
19.	Chart - Relationship between Manhattan Project and ALSOS Mission.

Translation of article in SVENSKA DAGBLADET, March 14, 1943:

The sabotage of the Norsk Hydro Plant at Rjukan a couple of weeks ago, according to information now available, was one of the most importan and successful undertaking the Allied saboteurs have carried out as yet during this war.

All the apparatus, machines and foundation for the production of heavy water were blown up by the saboteurs, who were dressed in British uniforms and they managed to escape unscathed and find a safe refuge.

Heavy water has for some years come into extensive use in scientif investigations, especially in attempts to break down the atom. Recently has been used for industrial purposes, and at the outbreak of the war its availability for military purposes was much discussed. Many scientists h pinned their hopes of producing the "secret weapon" upon heavy water, nam an explosive of hitherto unheard-of violence. To what extent the Norwegi scientists, who have busied themselves with the project in Norway and mad the Hydro Works a unique institution in Europe, have pursued their experi in this direction; only time can tell. In any case, they have been fetch to England and it is not impossible that the Norwegians may win the conte which is at present in progress between the scientists of the Axis and th Allies. In any case, the successful attack on the plant at Rjukan is a v hard blow for Germany. The production of heavy water had undergone a man increase during the occupation of Norway. Likewise in the case of the molybdenum mines, which were recently blown up at Knaben, they have slim possibilities of effectively neutralizing the results of the action of th Allied saboteurs.

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25 September 1943

MEMORANDUM TO: CHIEF OF STAFF, WASHINGTON, D. C.

I. DISCUSSION

1. While the major portion of the enemy's secret scientific developments is being conducted in Germany, it is very likely that much valuable information can be obtained thereon by interviewing prominent Italian scientists in Italy.

2. The scope of inquiry should cover all principal scientific military developments and the investigations should be conducted in a manner to gain knowledge of enemy progress without disclosing our interest in any particular field. The personnel who undertake this work must be scientifically qualified in every respect.

3. It is proposed to send at the proper time to allied occupied Italy a small group of civilian scientists assisted by the necessary military personnel to conduct these investigations. Scientific personnel will be selected by Brigadier General L. R. Groves with the approval of Dr. Bush and military personnel will be assigned by the Assistant Chief of Staff, G-2 from personnel available to him. A plan of organization is attached. Tab A.

4. This group would form the nucleus for similar activity in other enemy and enemy occupied countries when circumstances permit.

5. The plan has the concurrence of Dr. Bush.

II. ACTION RECOMMENDED

1. That the plan as outlined herein be approved.

2. That the Assistant Chief of Staff, G-2 and Brigadier General Groves be directed to take the necessary steps to put the foregoing plan into effect as soon as the necessary arrangements can be made with the theatre commander.

G. V. STRONG,
Major General, Ass't Chief of Staf

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TAB A

1. The detachment will consist initially of:

a. 1 Commanding Officer - Colonel or Lt. Colonel

b. Not more than 6 Interpreters of various grades

c. Not more than 6 Counter Intelligence Corps Special Agents as investigators, of various grades.

d. Not more than 6 scientists - civilian or military of various grades.

2. The civilian scientific personnel will be made available by the OSRD. All scientific personnel will be instructed by OSRD and Brigadier General Groves.

3. The Commanding Officer will be responsible directly to the Assistant Chief of Staff, G-2. Personnel of this group will be sent to the theatre on temporary duty and attached to the Theatre Commander for administrative purposes. All scientific information will be forwarded direct to Washington to Major General G. V. Strong, Assistant Chief of Staff, G-2.

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App. A-1
Sh 2 of 2

By authority A. C. of S., G-2

Date 4/1/44 (CPM)

In Reply Refer to:
[redacted]904 (4-1-44)

1 April 1944.

A-3

MEMORANDUM FOR THE CHIEF OF STAFF:

Subject: Investigation of the Enemy's Secret Scientific Developments.

I. Discussion.

1. The high value of the recent scientific intelligence mission to Italy (Tab A) is attested in the inclosed letter from Dr. Vannever Bush to General Groves (Tab B-2).

2. a. Scientific intelligence available in other theaters should be collected in a similar manner. The Director, New Developments Division, so recommends (Tab C) and General Groves (Tab B-1) and Dr. Bush concur. Such intelligence will hasten the improvement of our weapons during the war, and will place the enemy's latest developments at our disposal for prompt use after the war. The personnel who collect this information must be highly qualified to inquire into all the principal fields of science.

b. Knowledge of the enemy's research can be obtained as our troops advance into Western Europe. Since opportunities for gathering scientific intelligence diminish rapidly after occupation, the work must proceed promptly after each tactical advance. Hence the mission must be organized in advance and held in readiness.

3. a. It is proposed that a scientific intelligence mission be organized in the Military Intelligence Division, with the assistance of General Groves and Dr. Bush, and that it be sent into various portions of active theaters at suitable times. The military and civilian scientific personnel will be selected by General Groves and Dr. Bush and the intelligence and administrative personnel by Assistant Chief of Staff, G-2.

b. The proposed mission will not work efficiently if borrowing of personnel and reorganizing are necessary before every trip. Since MIS has no surplus personnel, a temporary increase in personnel allotted to the Chief, MIS is proposed as part of the plan.

[redacted]

App. A-2
Sht 1 of 7 Shts
COPY

c. The plan is outlined in more detail in Tab D.

4. The plan has the concurrence of Dr. Bush, General Groves, and General Henry.

II. Action recommended:

1. That the plan herein be approved.

2. That the Assistant Chief of Staff, G-_, and Major General L. R. Groves be directed to take the necessary action to put the plan into effect.

CLAYTON BISSELL
Major General
A. C. of S., G-2.

Incls.:
Tabs A, B-1, B-2, C, D.

This memo was approved 4 April 1944 (Stamp approval - by order Sec. War.; Joseph T. McNarney, Deputy C/S. Signed by Brig Gen O L Nelson, Asst Dep. C/S)

GPM

[redacted]

THIS DOCUMENT CONSISTS OF 2 PAGES
NO. 1 OF 5 COPIES, SERIES A.

Address reply to:
Chief of Engineers, U. S. Army
Washington, D. C.

WAR DEPARTMENT
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON

Tab B-1

SECURITY INFORMATION

10 March 1944

MEMORANDUM FOR THE ASSISTANT CHIEF OF STAFF, G-2.

Subject: Report of Alsos Mission.

1. I am enclosing a copy of the final report of the Alsos Mission for your information. Other copies are being distributed as shown in the report.

2. The Mission was organized by the A. C. of S., G-2, War Department with the cooperation of the Navy Department, the Office of Scientific Research and Development, and myself. The Mission included five Army Officers, one Navy Officer, and two civilian scientists from the O.S.R.D.

3. The objective of the Mission was to procure and distribute promptly to the interested agencies information regarding scientific research and development by the enemy.

4. The Commanding Officer of the Mission, Lt. Colonel Boris T. Pash, reported to the Chief of Staff, AFHQ, on 14 December 1943, from which time the Mission operated under the administrative supervision of the A. C. of S., G-2, AFHQ. A base of operations was established in Naples, Italy on 17 December 1943, and abandoned on 4 March 1944 when the Mission withdrew from the Mediterranean Theater after completing its objective insofar as the situation in the Theater permitted.

5. In all instances existing intelligence agencies were utilized; in no case was an independent intelligence network set up, nor was the work of any existing agency duplicated. All operations in the field were conducted under the general direction of the G-2 of the local Commander. The presence of specially trained and unusually qualified specialists proved to be of positive assistance to the regular G-2 agencies, who took advantage of the ability of the technical personnel to make a proper scientific evaluation of available information. Members of the Mission visited forward combat areas at the request of the local Commanders to procure information of particular interest to them.

[redacted]

COPY

Subject: Report of Alsos Mission. 10 March 1944

6. Specific items of scientific intelligence in a number of fields was obtained, among them the following:

Rockets	Radar
Guided Missiles	Infra-red Optics
Explosives	Metallurgy
Communications	Gas Turbines

Detailed reports on these are contained in the attached final report.

7. Attention is invited to the inclosed copy of a letter from the Director of the O.S.R.D. which expresses his views as to the value of the Mission.

8. The following action is recommended:

a. The Alsos Mission should continue its present plan of operations in Italy, including:

(1) Securing of certain scientists from enemy-occupied Italy.

(2) Prompt entry into Rome when it falls under Allied control to secure individuals and documents.

b. A similar scientific mission with the same general objectives should be made ready for use in other European territory as soon as the progress of the war permits.

/s/ L. R. Groves
L. R. GROVES,
Major General, C. E.

2 Incls.:
Alsos Mission Report 3/4/44
Cpy of Ltr 2/29/44
(fr Director OSRD)

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OFFICE FOR EMERGENCY MANAGEMENT
OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT
1530 P STREET NW.
WASHINGTON, D. C.

VANNEVAR BUSH
Director

February 29, 1944

Brigadier General L. R. Groves
Room 5120, New War Department
Washington 25, D. C.

Re: Alsos Mission

Dear General Groves:

Lieutenant Colonel Pash and Major Allis have called on me during the past two days and I gather that presently the remaining members of the Mission will return to this country. I feel that this has been a decidely interesting experiment, and although the specific results of interest to your project have been few, some of the information obtained by the Mission which relates to work of the NDRC has been most significant and one or two items have, in my opinion, justified the whole enterprise.

In addition to the information obtained, the idea of sending such a Mission for the purpose of seeking scientific intelligence, largely through leaning for assistance on existing intelligence agencies in the field, is to my knowledge a new one. The observations, conclusions, and recommendations of the group will be of decided interest.

I understand that upon the return of Drs. Fisk and Johnson an interim report was submitted to you, and I assume that with the return of the entire Mission a final report with conclusions and recommendations will be placed in your hands. The scientific and technical information thus presented will be of very direct value to the various research groups in Army, Navy, and OSRD whose activities are concerned, and already, as you know, the summary of intelligence information contained in the notes brought back by Drs. Fisk and Johnson, which concern areas other than your own, has been forwarded to the appropriate research groups.

The auspices and arrangements under which the Mission operated were well arranged since every facility was provided to the Mission to carry out its assignment.

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Apparently the group was well received in the field, and this may be due to several reasons. First, there was no other group similarly staffed or operating in the same manner in that area. Second, the Mission made itself useful to other agencies and assisted them in various ways. In addition, the method of operation, that is, through leaning on existing operating groups in the field rather than setting up a competing organization, brought excellent cooperation from the groups already operating and dispelled any fears of a new competitive organization being created.

I have been interested in the experiment which this Mission represents, first, as a member of the Policy Committee, second, as a contributor of part of the scientific personnel, and third, as the recipient of some of the valuable scientific intelligence which the group have discovered. I am writing you now to give you my present impressions. I shall, of course, be glad to confer with you in regard to any aspect of the further extension of this idea which may be recommended.

Very sincerely yours,

/s/ V. Bush
V. Bush
Director

[redacted] IZED BY
Inspector, [redacted]

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WAR DEPARTMENT
NEW DEVELOPMENTS DIVISION
WASHINGTON 25, D. C.

25 March 1944 — DATE
C.M. — INITIALS

[redacted]N

Tab C

25 March 1944

MEMORANDUM FOR THE ASSISTANT CHIEF OF STAFF, G-2:

Subject: Scientific Intelligence Missions.

1. I have read the Alsos Mission report furnished by your office, and have read Dr. Vannevar Bush's comments concerning the value of the mission. I concur in his estimate of the value of the mission.

2. In my opinion, the War Department has a continuing need for the collection of scientific intelligence. It is recommended that facilities similar to that of the Alsos Mission be set up as a standard procedure, and that the collecting party be held in readiness, with authority to move promptly into each theater as soon as the situation is favorable for this type of intelligence gathering.

/s/ S. C. Henry
S. C. HENRY
Major General, U.S. Army
Director, New Developments Division

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In reply refer to:
MID 904 (5-11-44)

COPY

By authority A. C. of S., G-2
Date 11 May 1944 /s/ CPN

WDGBI
CPN/72536

11 May 1944

MEMORANDUM FOR THE CHIEF OF STAFF:

Subject: Mission Organized in MID for the Collection of Scientific Intelligence.

1. a. The Chief of Staff has approved the organization of a mission in the Military Intelligence Division for the purpose of collecting intelligence of the enemy's secret scientific developments.

b. This memorandum announces procedure which has been established to govern the mission.

2. Advisory Committee. In the conduct of this mission, A. C. of S., G-2, War Department, is assisted by the Office of Scientific Research and Development, by the Army Service Forces, and by the Director of Naval Intelligence. Representatives of the following constitute an informal advisory committee:

Director, Naval Intelligence
Director, OSRD
Commanding General, ASF
A. C. of S., G-2.

3. a. More detailed objectives of the mission will be assigned in an intelligence plan furnished the mission by A. C. of S., G-2, after conferring with the Advisory Committee.

b. Agencies desiring that the mission procure special information should furnish a statement of desired information to A. C. of S., G-2, through any member of the Advisory Committee.

4. The mission will proceed to various theaters at times to be determined by A. C. of S., G-2, with the advice and assistance of the Advisory Committee. The mission will follow the advance of Allied forces into occupied territory, remaining the necessary time after the enemy's

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Sh. 1 of 4

defeat and making necessary visits and contacts in order to collect intelligence of the enemy's scientific developments.

5. Organization. The mission will be headed by a military and administrative chief, assisted by a scientific chief.

It will consist of two groups:

a. A military and administrative group, consisting of the Chief of Mission (Lt. Colonel), one administrative assistant (Major), and three interpreters (two Captains and one Lieutenant).

b. A scientific group, consisting of the scientific chief (civilian scientist), plus such additional military and civilian scientists as are attached to the mission with G-2 concurrence by the Director, OSRD, the Commanding General, Army Service Forces, and the Director of Naval Intelligence. It is contemplated that the scientific chief will serve continuously with the mission. Every other scientist is to be attached for a specified duration and purpose (whether for general duty in a theater or for more specific assignment). The attachment of scientists may be proposed by the scientific chief or by any of the three agencies who attach the scientists.

6. Responsibilities.

a. Chief of Mission.

(1) The chief of mission will represent A. C. of S., G-2, War Department, in dealing with theater commanders and their agencies on business of the mission. He will transmit to A. C. of S., G-2, the plans and recommendations of the scientific chief, adding his own comments and recommendations. He will be responsible to make the necessary administrative and operational arrangements to execute the approved intelligence plan (see b, below) as far as is practicable. Subject to restrictions imposed by the military situation, limitation of facilities, and wishes of the theater commanders, his arrangements for execution of the plan will be in accordance with the scientific chief's recommendations as to time, place and purpose of successive steps. He will arrange for communications facilities so that the scientific chief may secure reports from members of the scientific group. He will not be responsible for determining the type of information sought, the selection of places and persons from whom information should be obtained, the designation of scientific members to perform tasks, or other similar matters. He will be responsible that provisions of Army Regulation 380-5 are complied with, and will determine the classification of reports forwarded to A. C. of S., G-2.

(2) With the help of the scientific chief, the chief of mission will give theater commanders and their agencies any desired

assistance within the capabilities of the mission. For this purpose, members of the scientific group will be encouraged to deal directly with various agencies in the theater, on request, with the knowledge of the scientific chief and chief of mission.

b. Scientific Chief.

(1) Before the mission proceeds to a theater, the scientific chief will submit to A. C. of S., G-2, through the mission chief, the draft of an intelligence plan, including the following features: general definition of information to be sought, regional outline of most important objectives for investigation or interview (laboratories, institutions, individuals, with statement of principal types of information expected, etc.), nature of reports desired, and other features he may wish to include. The mission chief will add administrative and operational features, and comment on the practicability of the plan from the administrative and operational standpoint. A. C. of S., G-2, will refer the plan to the Advisory Committee for recommendation.

(2) When necessary, minor changes in the intelligence plan may be made by the chief of the mission to meet unforeseen situations or upon the recommendation of the chief of the scientific group. Any proposal for major departure from the plan will be cleared with A. C. of S., G-2, War Department.

(3) The scientific chief will determine the assignments of personnel attached to the scientific group, and will be responsible for their indoctrination. He will approve and sign all scientific intelligence reports of the mission, giving his evaluation, and will turn them over to the military chief for transmission to A. C. of S., G-2, by indorsement or covering letter.

7. Personnel. The personnel of the military and administrative group will be furnished by A. C. of S., G-2. The scientific chief will be furnished by the Director, OSRD. Civilian scientists will be furnished by the Director, OSRD, military scientists from military agencies as arranged by the Commanding General, Army Service Forces, and naval scientists from naval agencies as arranged by the Director of Naval Intelligence (see 6 b, above). Special agents, investigators, clerical personnel, etc., will be secured temporarily in each theater as needed.

8. Dissemination of Reports.

a. In forwarding reports to A. C. of S., G-2, the chief of mission will make the following arrangements:

(1) In case the scientific chief has secured the information for purposes of one office under conditions requiring special security,

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the outer envelope will be addressed to A. C. of S., G-2, by personal name as well as by title, and the inner envelope will bear the designation of the office for which the information is intended.

(2) In case the information is of general intelligence interest, it will be forwarded in usual report form (suitable for reproduction) to A. C. of S., G-2, War Department.

(3) Copies of all reports will be kept in the file of the mission.

b. In the general situation, a(2) above, G-2 will distribute the reports (plus extra copies on request) to at least the following:

Director of Intelligence, ASF
OSRD
ONI.

Additional distribution will be made to other agencies in accordance with their interests in the subject matter.

9. Subject to restrictions imposed by the theater commander, the chief of mission will arrange so that any member of the scientific group may forward official communications to his home office.

10. The headquarters of the mission will be at or near the headquarters of the theater, or of some subordinate unit within the theater. The chief of mission will keep A. C. of S., G-2, informed of location of mission headquarters.

Concurrences:
ONI (R.E.S.)
OSRD (V.B.)
ASF (R.R.P.)

/s/ Clayton Bissell

CLAYTON BISSELL
Major General
A. C. of S., G-2.

CG - 11 May 1944
OPD CONCURS

Distribution:
G-2 Member, Advisory Committee
Chief, Theater Group, MIS
Collection Unit, MIS
OPD
ONI
OSRD
CG, ASF
Dir. of Intelligence, ASF
A-2
G-2, Army Ground Forces.
New Developments Division

Approved
By order of the Secretary of War
JOSEPH T. McNARNEY
Deputy Chief of Staff, U.S. Army

/s/ O. L. Nelson

By O. L. NELSON
Brig. Gen., G.S.C., Asst. Deputy Chief of Staff

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App. A-3
Sh. 4 of 4

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ADDRESS REPLY TO
CHIEF OF ENGINEERS, U S ARMY
WASHINGTON, D. C.

REFER TO FILE NO.

WAR DEPARTMENT

OFFICE OF THE CHIEF OF ENGINEERS

WASHINGTON

RRF:mk

10 November 1943

MEMORANDUM to Major General C. V. Strong, Assistant Chief of Staff, G-2

1. In our previous discussions we had felt that the mission to Italy to secure scientific information could not accomplish much until the Allied lines had passed Rome. Reports have now reached me which indicate otherwise. Information gained from officers who have been in Brindisi indicate that a large volume of material is already available and is being secured by the British but is not reaching us in Washington.

2. It is recommended that you initiate the necessary action with the Theater Commander so that the scientific mission can proceed promptly via Algiers to Brindisi where the Allied Coordinating Commission has headquarters with the new Italian Civil Government.

L. R. GROVES,
Brigadier General, C. E.

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ALSOS FILE

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file

Office of Field Service
May 15, 1944

TO: Col. C. P. Nicholas, G-2
Room 2E316 Pentagon Building

FROM: S. A. Goudsmit

SUBJECT: Scientific Intelligence

The purpose of Scientific Intelligence is to obtain knowledge about scientific war research in enemy and enemy occupied territory. Its interest is limited to war equipment and methods in early stages of research and development. It does not include information about enemy equipment which is already in use.

In order to achieve this purpose, it is necessary to gather information about the location of research workers in enemy territory. Their geographic distribution may indicate whether they are engaged in war research and how intensily this work is being pursued. The investigation of their whereabouts may also yield some preliminary information concerning the kind of research in which they are engaged.

Scientific Intelligence must also include gathering information about the research laboratories of large industries as well as

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educational institutions. However, the industries and their products as a whole fall outside the scope of Scientific Intelligence.

Valuable information can also be revealed by observing certain small industries which specialize in the manufacture of instruments for use in research laboratories. In this way, one learns something about the types of research being followed.

Initial information has to be gathered in the U.S.A. and in neutral countries and supplemented by what is known already in the U.K. Such ground work will lead to an intelligence plan to be followed after our forces occupy enemy held territory and after the enemy's total surrender.

Preliminary Work in the U.S.A.

1. The Office of Scientific Research and Development must, as soon as possible, furnish a description of the principal subjects on which intelligence is required.

2. Research workers and industrialists now in the U.S.A. who formerly had close connections with research in enemy territory must be interrogated with regard to information on the following points:

Prewar location of scientists and research programs.
Possible changes since the beginning of the war.
Reliability and loyalty of scientists in occupied territory.
Possible channels for intelligence through colleagues in neutral countries and other suggestions.
Names of colleagues who may possess useful information.

Key foreign scientists now in the U.S.A. who must possess valuable knowledge for Scientific Intelligence are:

Niels Bohr, Dane, left Copenhagen late in 1943. Now in New York.

Peter Debye, Dutch, worked in Germany until early 1940, held high positions in German scientific organizations in close contact with the Educational Department of the Nazi Government. Now at Cornell University.

Leon Brillouin, French, Held an official government position in charge of radio. Served for a short period with the Vichy Government. Now in Providence, R. I.

Other physists who may give some useful information are:

Debye's son	-	Cornell University
Iskrant	-	C.C.N.Y., left Leipsig July 1942.
O. Oldenberg	-	Harvard University
F. Ladenburg	-	Princeton University
W. Pauli	-	Princeton University
C. Fajans	-	University of Michigan
V. H. Regener	-	University of Chicago

and several others.

Industries to be contacted must include:

Philips Lamp Works (Dutch)
I.T.T.
Dutch Shell, etc.

A complete list for the various sciences can be furnished by the O.S.R.D.

3. Routine investigation of enemy scientific publications will supplement the information obtained from research workers and scientists. In addition, it will give information on what types of research are not considered secret; what scientists are not or are only partially engaged in war research; what kind of university courses and research investigations receive special

emphasis in enemy territory. A list of such publications must be furnished by the O.S.R.D.

4. The "Harvard Defense Group" is at present engaged in gathering detailed information about scientists in enemy territory. Their data may be of value to Scientific Intelligence.

5. Membership lists of enemy and neutral scientific societies will tell which foreign scientist still have connections with enemy organizations. Such lists can be obtained from libraries and various scientists in the U.S.A. or through neutral countries. Important confirmation or correction of intelligence learned in other ways can be given through these lists. O.S.R.D. must indicate which scientific societies are worth investigating.

6. Government officials of neutral or enemy occupied territories may also possess knowledge of importance to Scientific Intelligence and should be approached.

Preliminary Work in Neutral Countries

In these countries the Scientific Intelligence must establish contact with research workers and organizations in universities and industries which still maintain connections in enemy and enemy occupied territory.

The preliminary investigations in the U.S.A. will indicate just who should be approached in neutral countries. There will be neutral scientists

sympathetic to the Allies as well as German refugees who still communicate with colleagues in enemy territory.

The following is a tentative list of physicists:

Brazil

Dr. Guido Beck, Refugee. Paris around 1938, later in unoccupied France, next Portugal, now somewhere in Brazil.

Argentina

Prof. E. Gaviola, Buenos Aires, probably leftist.
Prof. Josef Furschmidt, Tucuman. This name appears on membership list of German Phys. Soc. 1935. Who and what is he?

Turkey

Prof. H. Zahn, Ankara
Prof. F. Dessauer, Istanbul

Eire

Prof. E. Schrodinger, Dublin

Spain

M. Catalan - whereabouts unknown
Cabrera

Portugal

Prof. X -(already in contact with S.A.C.)

Also officials of exiled governments and industries in enemy occupied territory should be approached in neutral countries.

Preliminary Work in U.K.

This work is similar to that in the U.S.A. supplemented by cooperation with British Intelligence sources.

App. A-5
Sh. 5 of 6

In the U.K. more precise information may be available from exiled governments and contacts with underground movements in occupied countries.

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PROPOSED HANDLING OF SOURCES OF INFORMATION FOR SIM

Section 1. Targets

The Scientific Chief is responsible for furnishing pertinent data.

G-2 must assist in the planning by opening up all channels of information wh will put the pertinent data on a sound and reliable basis.

G-2 must help remove all obstacles, administrative or otherwise which may interfere with the speedy and efficient operation of SIM here and abroad and which may hamper the collection of information.

Section 2. Security

The purpose of the mission must be covered up as much as possible in order that the enemy shall not destroy valuable evidence.

It is suggested that SIM perform several sham investigations of non-scientif professionals and intellectuals such as historians, artists, writers, so as hide its purely scientific character.

In theaters where enemy agents may be active the mission should avoid being recognized as a whole, outside contacts should be made by individual members

The Military Chief is responsible for reasonable security measures. As total security is impossible, if one wishes to obtain information some compromise has to be reached between the Military and Scientific Chief of the mission i order to determine in each case that a point of security will be the det ri factor in handling the case.

Section 3. [illegible]

Scientific [illegible] of the mission must be kept fully informed of all intelli and counter-intelligence reports concerning enemy scientific activity. G-2 must see to i that such reports are promptly available to the members of the mission witho the necessary delays.

Reports of interest may originate in the following agencies: -

MID
ONI
OSS
British Intelligence Sources
Intelligence services of assigned governments and underground movements.

G-2 must make the initial contact with such outside agencies after which the members of the mission can deal directly with them.

Requests for reports from outside agencies must originate in the Scientific Intelligence Section of G-2.

The comprehensive file of reports, abstracts and references must be kept in

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PROPOSED HANDLING OF SOURCES OF INFORMATION FOR SIM

Section 4. Sources in Enemy Territory

Requests for information to be obtained in enemy territory by outside agencies having contacts there should be transmitted exclusively by the Military Chief of SIM.

Such requests must be made with extreme caution and only in case of definite necessity when the requested information is highly essential and not obtainable in other ways. The Scientific Chief must origin te these requests.

Section 5. Sources in Newly Liberated Territories.

The Military Chief of the mission is responsible for e collection of material, the occupation of buildings and the apprehension of individuals as requested by the Scientific Chief. The ever possible skeleton plans should be made by the scientific members of the mission in advance of deliberation of new territory.

Section 6. Contacts in Neutral Countries

At the request of the Scientific Chief the Military Chief of the mission shall obtain information from such agencies which have contacts in neutral countries.

If essential the scientific member of the mission may be delegated to make personal contacts in neutral territory. The assignment of such a special assignment must be done with [illegible] and with the support of the Military Chief.

Section 7. Contacts in Friendly Territory

The Scientific Chief decides which persons in friendly territory should be approached for information.

The following method of approach may be necessary for security reasons -

A. Contact with one or two scientific members of the mission only.

B. A scientific member assisted by military personnel of the mission or of G-2.

C. A scientific member assisted by OSRD officials.

D. Contact through military personnel only.

The Scientific Chief decides in each case which approach has to be followed. The Military Chief has to aid in the execution of these operations.

Samuel A. Goudsmit
Scientific Chief, SIM

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App. A-6
Sh. 2 of 2

3 4 2 A

7 June 1944

MEMORANDUM to Dr. S. A. Goudsmit, Lt. Col. Boris T. Pash, Major R. C. Ham.

The following is a summary of the points brought out in the general discussion on 6 June 1944 with Dr. Goudsmit, Major Ham and myself present:

Evaluation Job. The scientific section of the mission has for its present major objective the evaluation of incoming intelligence data to the invasion headquarters. The scientific chief is an advisor to and consultant of the existing agencies in the field who should understand that this service is not a competing agency. It is also the function of the mission to make an estimate of the situation and advise the field agencies what can be done to get further important research information.

Mechanics. The administrative chief makes a study of what agencies are operating in the field and introduces the scientific chief around. The job is then simply reviewing incoming information, evaluating it, recommending to the agencies action which will increase their usefulness and in short, getting agencies advised as to what information is important and what is not.

If information of unusual importance is uncovered it is assumed that this will be reported directly to the OSRD or the War-Navy branch of service concerned.

Freedom of access to all files and reports will probably not be a difficulty, but the success in seeing the most secret records will depend almost entirely on the manner in which the mission conducts its business.

Security. Security is of prime importance but must not hinder the operations. Conversations, contacts and meetings proposed by the scientific section should be discussed with the administrative chief who is responsible for security. The administrative chief will recognize that unusual delays are incurred in obtaining records on

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App. A-9

Sh. 1 of 2

individuals and should expedite these checks, if necessary walk them through. The scientific chief should not expect to see security files on individuals but can expect to get an answer in the minimum time. No difficulties are anticipated in the Theater which cannot be solved without delay. However, investigations in the United States may mean that a thorough check is necessary.and more time should be allowed.

Scientific Intelligence Section, G-2. The scientific mission has a counterpart in the War Department, G-2. The new scientific intelligence section now being organized should meet the demands for review and evaluation of incoming information. It should also be prepared to conduct such investigations within the United States including interviews with prominent scientists as may be necessary. The scientific chief of the mission should submit these suggestions to this section, recommending definite action.

Cooperation. The success of the mission is entirely dependent upon the team work developed between the scientific chief and the administrative chief of the mission. There is no Commanding Officer. Each will tell the other what he is doing, accept suggestions and work things out together.

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OFFICE OF FIELD SERVICE
1530 P Street, N. W.
Washington 25, D.C.

June 10, 1944

MEMO TO: Colonel C. P. Nicholas, Chairman of Advisory Board

F R O M: Dr. Alan T. Waterman, Deputy Chief, Office of Field Service

SUBJECT: SIM

At this stage in the planning of the mission, by way of implementing the plan for SIM as stated in memorandum from A.C. of S.G.2 to Chief of Staff, dated April 1, 1944, it seems desirable to summarize the understanding of the Office of Field Service, OSRD, with regard to responsibilities and procedures.

On the basis of discussions and conferences to date, it is our understanding that the following points are agreed upon:

1. It will be the responsibility of the Scientific Chief,

   a. to outline the general plan in all its scientific aspects both with regard to objectives and personnel, in consultation with the Advisory Committee, the Office of Field Service, the military Chief, and other members of the military mission;

   b. to plan such objectives in approximate order of priority with the assistance of OSRD. For this purpose full consultation with members of the former ALSOS Mission is very desirable as is the advice of Army and Navy representatives of the present mission;

   c. to ascertain sources of information and evaluate their reliability and importance;

   d. to determine the most effective approach to sources, calling upon the assistance of the Army, Navy, or OSRD in reaching these sources where desirable.

In general, it is understood that the military members of the mission will look to the Scientific Chief with the advice of OSRD for primary leadership in these matters.

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2. The Military Chief will have complete responsibility for the carrying out of plans in an area of operations, and the civilian scientists in such an area will cooperate with him in the working-out of steps to be taken.

In addition, it will be the responsibility of the Military Chief:

a. to make in advance the necessary preparations and arrangements particularly Abroad;

b. to insure that the mission is recognized and its purpose understood, by military authorities and others with whom it must deal;

c. to see that it has the proper military backing;

d. to arrange that, when action is indicated, plans be carried forward smoothly and effectively.

3. The Chief of the Scientific Research Branch, MIS, will cooperate in determining objectives and in evaluating their military importance. His office will keep complete records of the activities of the mission and file of all relevant data and information. It is important that all such material collected by the mission and other sources be available at all times to the scientific members of the mission. It is understood, also, that this office will be responsible for arranging for utility of information secured, by suitable parties in the military services, in OSRD or elsewhere.

It is expected that the Office of the Scientific Research Branch will provide for study and evaluation of reports, information and data received.

4. The Supervisor of Source Control, G-2, will be kept informed of plans and progress of the work and will advise as to the feasibility of objectives from the standpoint of military arrangements. Upon approving a recommended procedure, the Office of Source Control will stand ready to put plans into effect, and in general exercise supervision over operations. This office will also work in cooperation with the Office of Field Service, OSRD, in sending Field Service Consultants on out-of-country assignments.

After sources of information have been specified by the Scientific Chief, in the case of follow-up of these and other contacts for scientific information in this country and friendly territory, it is agreed that:

1. Contact with another organization for the purpose of requesting data or interviewing personnel will be arranged through the Office of the Chief, MIS. Such arrangements may be made on recommendation of the Scientific Chief of the mission. When contact has been established, direct communication is thereafter permissible, MIS being kept fully informed.

2. As to methods of approach to individuals for information, the Scientific Chief, in consultation with the Military Chief and MIS, will decide upon the most effective manner in which this should be done. In case a formal and official approach is indicated, it is understood that MIS or OSRD or representatives of both stand ready to provide the official and formal request and setting for such approach and interview.

It is the judgment of the Scientific Chief and OSRD, after having given the matter careful consideration, that progress may best be accomplished by as direct and rapid a survey of sources as is feasible, subject to reasonable security safeguards, the most important consideration being the securing of the most accurate information available with a minimum of delay.

ALAN T. WATERMAN.

cc: Lt. Col. W. M. Adams
Lt. Col. M. Moses
Maj. Robert R. Furman
Mr. C. L. Wilson
Dr. R. C. Tolman
Dr. S. A. Goudsmit

24 July 1944

MEMORANDUM FOR THE CHIEF, MILITARY INTELLIGENCE SERVICE:

Subject: Progress Report #1, ALSOS Mission.

1. Pursuant to directive received, Lt. Colonel Boris T. Pash established an office of the ALSOS Mission in London, reporting to the A. C. of S., G-2, ETOUSA, on 2 June 1944. Preliminary contacts and plans for the establishment of the Mission were arranged during the initial trip on 14-20 May, at which time Lt. Colonel Pash reported to Lt. General Beddel Smith, C/S SHAEF-ETOUSA and to Brig. General Royal B. Lord, Deputy C/S SHAEF-ETOUSA.

2. Office facilities and administrative needs were furnished by the Office of the A. C. of S., G-2. Colonel G. Bryan Conrad, A. C of S., G-2, SHAEF-ETOUSA, was extremely helpful in arranging for the proper contact and liaison with other Government and military officials. Every request submitted to him was promptly taken care of. His able and willing assistance was instrumental in the accomplishment of the initial phase of the Mission's activity.

3. Major General Edwin L. Seibert, A. C. of S., G-2, First Army Group, USA, was contacted relative to the operation of the Mission in territories to be occupied by American Troops. General Seibert gave assurance that every effort will be made by his office to insure successful accomplishment, within the American sector, of any assignment undertaken by the Mission.

4. Brigadier General T. J. Betts, G-2, SHAEF, upon being contacted, explained that SHAEF was getting up an advisory committee to be known as the Combined Intelligence Priorities Committee (CIPC) and consisting of members of the Joint Intelligence Priorities Committee (British), and an equal number of American representatives. The CIPC is to receive requests from all agencies desiring to go into territor occupied by Allied troops to gather technical and scientific intelli information. The CIPC is to evaluate these requests and submit them to G-2, SHAEF, indicating the priorities assigned to these requests.

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Colonel Conrad, G-2 TUSA, was asked by SHAEF to designate two Army representatives to the CIPC. He designated Lt. Colonel Pash and Major Calvert. The other American members of the committee are: Captain Schade, USN, and Captain Ingram, USN, Mr. Archambault from O.S.R.D., Colonel Bunker, A. C., and Lt. Colonel O'Mara, A. C., and S. A. Goudsmit.

When it was evident that the CIPC intended to channel to SHAEF all requests received from various interested agencies, it was deemed necessary to recontact Lt. General Smith, C/S, SHAEF, for the purpose of establishing the status of the ALSOS Mission in connection with any requests which may not be of particular interest to the CIPC. General Smith instructed Lt. Colonel Pash to contact General Betts on any matters pertaining to the activities of the ALSOS Mission in the European Theater. General Betts was contacted and given as detailed a picture of the ALSOS assignments as was considered necessary. It was explained to General Betts that some targets of interest to ALSOS may not be of any interest to any other groups and may not be brought up at the CIPC meetings. It was the intention of the Mission not to bring these targets up for consideration of CIPC and, therefore, it was requested that approval be granted to ALSOS to submit such requests direct to SHAEF for consideration and necessary action. General Betts agreed to this procedure.

5. General Betts was also informed that a considerable number of targets of interest to the ALSOS Mission will be found in liberated countries which, upon liberation, will be turned over to their respective governments; the areas involved are France, Holland, Belgium, Norway, Denmark, Czechoslovakia and possibly others. General Betts suggested that contact be established with the military representatives of these governments and authority secured for the Mission to make the necessary contacts in the liberated countries with persons and installations of interest to the Mission. General Betts directed Lt. Colonel Pash to Colonel A. Drexel Biddle of the EACS, SHAEF, and to Colonel Dunn, Military Attache to Governments in exile. Through the cooperation of these officers, contacts are being established with scientists and military authorities of the various governments in exile. At present, complete arrangements have been made with the Government of the Netherlands through contact with Colonel Kruls, Chief of the Military Authorities in the Netherlands, and Major De Boer, one of the leading scientists of Holland, now in the service. Colonel Kruls has stated that freedom of action will be given to the Mission members to contact their objectives when in Netherlands. For the purpose of facilitating the movement of the members of the Mission in the Netherlands, Colonel Kruls has designated two officers of the Military Authorities office of the Netherland Government who will act as liaison officers for the Mission while in Netherlands. Contacts with other governments in exile are now being established.

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6. In order to insure the proper coordination in the activities of the Mission with those of the Technical Intelligence Teams in the field, the Chiefs of the Services in FTOUSA and the Heads of the Technical Intelligence Teams were contacted and the presence of the Mission made known to them.

A clear understanding of the functions of each group exists and close harmony and coordination of effort should result. It is certain that each group will supplement the activities of the other rather than overlap, and it is my opinion that the present status of the Technical Intelligence Teams and the ALSOS Mission will round out a well organized Technical and Scientific intelligence program of the A.E.F.

The Services contacted were:

Air Technical Intelligence Unit,
Ordnance Technical Intelligence Unit,
Chemical Warfare Technical Intelligence Unit,
Signal Corps Technical Intelligence Unit,
Medical Corps Technical Intelligence Unit,
Engineer Technical Intelligence Unit,

7. SHAEF is presently organizing the Special Force section. This section is to have the responsibility of planning all operations which result from requests for the securing of targets.

Major Cave (Br.), formerly with S Force in Italy, is the executive officer. Inasmuch as Lt. Colonel Pash worked very closely with Major Cave on the planning of the S Force in Italy, he was asked by Cave to assist in an informal capacity in the planning work of the present Special Force. This arrangement will assist the ALSOS Mission in establishing an additional channel through which the interests of the Mission can be maintained.

8. At present the status of the ALSOS Mission is such that action on securing and exploiting a target can be taken:

a. Through CIPC,
b. Directly through SHAEF,
c. In conjunction with the operation of the American forces in the field,
d. Through contacts made and liaison established with the military representatives of the Governments in exile.

9. At the present time, Major Richard Haas, Executive Officer of the Mission, has been dispatched to the Mediterranean theater where he has assumed charge of the Mediterranean Section of the ALSOS Mission with Headquarters in Rome. All indications point to the need for continued

activity in the Mediterranean Section, not only to exploit available targets in Rome and vicinity, but also to be prepared in event of any further military development in that area. It is contemplated to keep a skeleton administrative force active in the Mediterranean Theater to plan future operations and to be ready to expand in event the situation so requires. The personnel required for such an operation includes: Deputy Chief of the Mission, one interpreter and 2 CIC agents. The recommendation that the Mission continue its activities in the Mediterranean Area was also made by Dr. J. M. Johnson, OSRD, who was in Rome in connection with the ALSOS activities, and concurred in by the Scientific Chief of the Mission.

10. The experience in the European Theater indicates that the activities in connection with the administrative phase of the Mission will require that the Commanding Officer of the Mission devote considerable time, if not most of his time, to the establishment and the maintenance of contacts with various Government officers and responsible commanders. It is also evident that with the shifting to the continent of the Headquarters of the Field Armies, together with the continued interest the Mission will have in London, it will be necessary to maintain an office in London and establish the Headquarters. The London office will be responsible for liaison with the U.S. and British military and government officials and with the proper representatives of the foreign governments in exile. This will require in addition to the Chief of the Mission, an officer stationed in London who can represent the Mission in all contacts with SHAEF, the CCPIC and the various British and other allied agencies with whom contact must be maintained. It is also necessary to have an officer permanently stationed in France who will be responsible for coordinating the operational plans of the Mission with the field units of the special forces and will arrange for the movement in the field of scientists attached to the Mission for specific investigations.

11. The scope of the activities of the Mission also indicates that the selection of an officer to act as an ALSOS Mission officer in Washington will be of considerable assistance to both the administrative and scientific groups of the Mission. The designation of an officer for this purpose is considered important. The duties of this officer will require that he receive all reports and requests from the field sections of the Mission and follow through on an action required. He will also keep the Chief of MIS and other Departments, such as G-2, A.S.F., Air Corps, Navy Department, advised of the status of progress of the Mission and will maintain liaison with the Office of Field Service of the O.S.R.D.

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12. At the specific request of the Scientific Chief, concurred in by Chief of the Mission, it is recommended that an officer with scientific and military background be assigned to the Mission. It will be the responsibility of this officer to represent the Mission in areas coming within the control of Allied Force in which it is not practicable to establish a permanent office of the Mission. At present it is contemplated to assign this officer to Italy where he will work with the Mediterranean section of the Mission and then to withdraw him to France where the need for such an officer is becoming evident.

13. The assignment of a small detachment of CIC agents to the Mission is highly recommended. For administrative purposes, the agents will be attached to the Detachment of the area or post in which the Mission is operating at the time. This also will permit the shifting of agents to active areas where their services will be most efficiently utilized and will eliminate the need for keeping agents in an inactive area until such time as renewed activity would justify their presence in that area. This recommendation has the concurrence of responsible CIC officers in both theaters. The detachment should include the following CIC personnel: 1 1st Lt., 2 2nd Lts., 3 S/S.

14. A request for equipment had been submitted by G-2, SHAEF, and approved by G-4. This equipment was requested on the basis of contemplated organization of the Mission in the field and is believed sufficient to cover all anticipated activities. However, it is understood that in the event an emergency should arise, a readjustment of the approved T/E is possible.

15. It is considered appropriate at this time to state that the activities of the Mission members are greatly facilitated by the extremely cooperative attitude and the willing assistance of Brigadier General Thomas B. Roderick, G-2, AFHQ, and Colonel G. Bryan Conrad, G-2, SHAEF.

16. It is recommended that the following additions be made to the personnel presently assigned to the Mission in order to bring it to the strength indicated above.

a. 4 field grade officers (1 Lt. Col. and 3 majors)
b. A detachment of CIC consisting of: 1 1st Lt., 2 2nd Lts., 4 M/Sgts.
c. Civilian stenographers, CAF 5, one for Washington liaison office and one for London Headquarters.

BORIS T. PASH
Lt. Colonel, GI,
Chief of Mission.

Distribution:
A. C. of S., G-2 (2)
Colonel Nicholas
Dr. Waterman (OSRD)
Dir of Intel., ASF
Commander Old (Navy)
Maj. R. A. Tuttle

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EUROPEAN THEATER OF OPERATIONS
UNITED STATES ARMY
ALSOS Mission

1 September 1944

SUBJECT: Progress Report - Alsos Mission - France No. 1

TO : Chief, Military Intelligence Service, War Department, Room 2E715, The Pentagon, Washington, D.C.

1. Pursuant to instructions from Assistant Chief of Staff, G-2, 6th Army Corps, Lt. Col. Boris T. Pash and Agent Beetson reported to the headquarters of the 6th Army Corps on 8 August 1944 for the purpose of carrying out the instructions of the War Department to enter L'Arcouest and secure Professor Joliot if he were found there, or, in his absence, any documents which may be found in his house.

2. The Assistant Chief of Staff, G-2, 6th Army Corps, attached the above party to General Ernest's Task Force "A", which had the assignment of reducing German resistance at Fougeres and vicinity, which included L'Arcouest. The headquarters of Task Force "A" was reached on the morning of 10 August, and the Mission made known to the commanding General. General Ernest gave all possible assistance and when the operation was sufficiently advanced to permit the leading element of the Task Force to operate in the vicinity of L'Arcouest, Colonel Pash and Agent Beetson joined that unit. L'Arcouest was entered in the middle of the morning of 11 August, and through questioning of local inhabitants, the houses of Professors Joliot, Auger and Perrin were spotted. Maps secured from German sources and reports of local inhabitants all led to the conclusion that the area around these houses were heavily mined. In view of the time element involved, it was considered advisable to try to go through to one of the houses to determine its condition. Professor Perrin's house was selected for this purpose. Previous attempts by French patriots to gain access to this area resulted in the death of seven of their force.

3. In view of the inavailability of engineer units, Agent Beetson proceeded the party through the reportedly mined area. The house of Professor Perrin was reached in safety and found to be totally cleared of all furniture and personal effects and the structure itself left in a very poor and dirty condition. Upon departing from the house, the party came under fire and any further attempts to enter the house of Professor Joliot, which was closer to the German positions, was abandoned.

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4. At 1630 hours the German unit finally surrendered and the fort entered by a group of officers, to which Colonel Pash and Agent Beatson were attached. Examination was made of the fort to determine if any papers could have been taken from the houses of subjects and kept at the fort. However, it was found that if any papers which might have been at the fort were destroyed previously by the Germans.

5. In view of the lateness of the hour and the danger of mines, Professor Joliot's house was not entered that evening. The next morning an attempt was made to secure engineers to clear the way to Professor Joliot's house. Again failing to do so, the party went to the house without the aid of engineers and successfully entered the place. The same conditions were found here as at the home of Perrin. Upon completing this operation, a verbal report was sent to Assistant Chief of Staff, G-2, 8th Army Corps, through an officer, with the request that General Ernest be informed of the results of the operation.

6. While the results obtained were negative, the highly successful manner in which the operation was performed was due to the extremely fine cooperation and assistance of General Sibert, Assistant Chief of Staff, 12th Army Group, Colonel Reeves, Assistant Chief of Staff, G-2, 8th Army Corps, and particularly General Ernest, Commanding General, Task Force "T", who put at the disposal of the Mission any facilities which were requested.

7. Upon completion of the above operation, it was decided to proceed to Rennes in order to make arrangements for the scientific group to base there pending the fall of Paris. Colonel Perry, Assistant Chief of Staff, G-2, Base Section One at Rennes, was contacted and the general purpose of the Mission explained to him. It was determined that the operating route of the Mission consisting of Lt. Col. Boris T. Pash and CIC Agents, should join the "T" Force while the scientific groups would remain at Rennes and upon the fall of Paris the group would move forward. After making the arrangements for billetting and rationing of the Group, Col. Pash and Agent Beatson returned to Communication Zone at Valognes.

/s/ Boris T. Pash

BORIS T. PASH
Lt Col, AI
Chief of Mission

Distribution:
A. C. OF S., G-2
Chief, FIS
Colonel Nicholas
Dr. Waterman
Dir. of Intel., ASF
Commander Old (Navy)

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EUROPEAN THEATER OF OPERATIONS
UNITED STATES ARMY
ALSOS Mission

7 September 1944

SUBJECT: Progress Report - Alsos Mission - France No. 2

TO : Chief, Military Intelligence Service, War Department, Room 2C715, The Pentagon, Washington, D. C.

1. On Saturday, 19 August 1944, Lt. Col. Boris T. Pash flew to London to discuss with the technical group future plans of operation. Upon arrival at London, it was found that the entire group with the exception of Colonel Eckman, had proceeded to the marshalling area and were ready for embarkation to France. After conference with Col. Eckman on future plans, Col. Pash returned to Valognes to the Communication Zone headquarters in France, where arrangements were made to procure one jeep in addition to one already furnished by Col. S. A. Daniels, Ordnance Section, SOS. The cooperation of Col. Daniels in making available these vehicles was responsible for the future success of the Mission inasmuch as without these vehicles it would have been impossible to act.

2. An advance party of the Mission, consisting of Colonel Pash, Major H. K. Calvert, Agent Gerald Beatson and Pfc Nathaniel Leonard, proceeded to Rennes and then on to Advance Section, Com Z. At Valognes and Rennes instructions were left for the entire group. At this point, the best available information from G-2 indicated that Paris was expected to fall during the first week of September and not before. In view of lack of communications with the main group, plans were made accordingly. After remaining in Rennes about two hours, the party departed for Le Mans. A stop was made at Laval where the G-2 Forward Echelon, 12th Army Group, was contacted. From him it was learned that Paris would probably be entered on the 24th August and that the "T" Force was in the field, bivouaced at Chateau Neuf. It was decided to proceed as far as possible that night and the party left Laval at 2030 hours. At 0100 hours 24 August Le Mans was reached and the group slept in the motor park until 0400 hours, at which time the entire party left for Chateau Neuf to contact "T" Force. After locating "T" Force in the vicinity of Chateau Neuf. Colonel Pash reported to the commanding officer of the Force at Rambuoillet. After a conference with Colonel Tompkins, the commanding officer of "T" Force, it was determined that the best

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plan for the advance party of the Alsos Mission was to proceed from Rambouillet to Orsay on Highway 188 and attach itself to the 38th Cavalry Troop, which had the assignment to break through Malaiseau and proceed on to Paris. After spending an afternoon with the leading elements of the 38th Cavalry it was obvious that they would not reach Paris before the next day. The advance group then proceeded from Highway 188 to Highway 20 in the vicinity of Longjumeau where the 2nd French Armored Division was encountered. At 0855 hours, 25 August, the advance party of the Alsos Mission entered Paris with the leading elements of the 2nd French Armored Division and remained with that Division until well into the city. No attempt was made at this time to proceed to the target because the entire column was pinned down by heavy sniper fire. However, in view of the fact that information received from Antony indicated that the primary target of the Mission was probably located at the College de France. Two attempts were made to get through to the College. Both attempts failed because of heavy sniper fire and the activities of the Germans still remaining in the Jardin du Luxembourg. The party then returned to the headquarters of the forces in Paris established at Pont Foranes railroad station, where an attempt was made to secure two army vehicles. Failure to secure these vehicles resulted in a decision for the advance party to get through to the objective. This was accomplished at 1645 hours on 25 August 1944.

/s/ R. C. Blake, Capt.

for BORIS T. PASH
Lt. Col., MI
Chief of Mission

WAR DEPARTMENT
Military Intelligence Mission
Washington, D. C.

January [illegible], 1945

To: Major Erwin Smith

From: S. A. Goudsmit

Subject: Civilian Internees

1. On the advice of the Scientific Chief of the Alsos Mission four German scientists were segregated from the group of Germans interned at Strasbourg. They are:

(a) Rudolph Fleischmann, high-grade experimental physicist, specialist in nuclear physics and methods of isotope separation, formerly with Professor Bothe at the Kaiser Wilhelm Institute at Heidelberg, since 1941 at Strasbourg.

(b) Fritz Eyrand, biochemist, co-worker of Fleischmann on biological problems, also formerly at the K. W. I. in Heidelberg.

(c) Hugo Neuert, experimental physicist, assistant to Fleischmann, formerly assistant to Professor Kirchner, nuclear experimental physicist at Colonne.

(d) Werner Maurer, experimental physicist, guest at Fleischmann's institute, worked with the cyclotron in Joliot's laboratory in Paris during the greater part of the occupation.

All four were connected with the Institute for applied nuclear physics of the University Medical School at Strasbourg.

Fritz Eyrand was selected because of his cooperative attitude, his thorough knowledge of English and in the hope that he might influence his colleagues toward more cooperation. He has only a superficial knowledge of nuclear physics. The other three internees were selected because of their connections with nuclear physics.

2. On the advice of the scientific chief these internees are being transferred to the United States, three of them have arrived already. M. Fleischmann is delayed by illness and is still in Paris.

3. It is the opinion of the scientific chief that scientific intelligence can succeed only if enemy scientists are confronted by American scientists on their own level; this principle being the basis for the organization and activities of the Alsos Mission.

4. The above-mentioned scientists were segregated and are transferred to the United States in order to make investigation by American scientists possible.

5. The scientific chief advises that Professor L. F. Fieser of Harvard University be given an opportunity to meet Fritz Weygand, before leaving the United States to join the Alsos Mission. Professor Fieser is a world-famous expert in organic chemistry, especially in the field of the researches of Weygand.

6. The scientific chief advises that the interned physicists be confronted with American nuclear physicists. Especially recommended for this is Dr. J. B. Fisk of the Bell Telephone Laboratories. Dr. Fisk is a former member of the Alsos Mission, working for some time at the Heidelberg Laboratory with Pleischmann and Maurer, and published on articles with the latter.

7. It is understood that proper treatment may render the internees more cooperative. The scientific chief advises that for these men proper treatment consists to a large extent upon satisfying their desire for scientific activities. Their meeting with scientists on their own level must be supplemented by making available to them recent American books and periodicals in their own field of research.

S. A. Goudsmit

C O P Y

HEADQUARTERS
EUROPEAN THEATER OF OPERATIONS
UNITED STATES ARMY
ALSOS Mission

SECRET

1[illegible] December 1944

SUBJECT: TA Strassburg Mission.

Copies of reports on interrogations of [illegible] Hans Haas, Dr. Harald Fleischmann, Dr. Hoekert and Dr. Werner Maurer are attached (Exhibit "A"). [illegible] is believed to be a reliable informant, but the others are not, and their statements are to be accepted with considerable reserve.

Photostatic copies are attached of three tables, and some supporting calculations, entitled "Summary of Data for the Theory of the Uranium Machine". The handwriting is believed to be Höcker's. (Exhibit "B").

Official German interest as early as [illegible] 1941 in American [illegible] activities is evidenced by two letters (Exhibits "C" and "D") written by von Weizsäcker to the Army High Command and [illegible] respectively. The first [illegible] on a [illegible] press report concerning an atomic bomb being developed in the U. S. A. The second concerns information [illegible] at a conference in July 1941 concerning American advances over Germany in the field of nuclear physics.

Exhibit "E" is a certificate to the effect that the Strassburg Theoretical Physics Institute urgently requires [illegible] for work on an important war order No. [illegible] 4150/42 F.

The date of the establishment of the Hechingen branch of the KWI für Physics is fixed as approximately mid-September 1943 by letter from von Weizsäcker to [illegible] (Exhibit "F") dated 22 September 1943 in which he says that he [illegible] that [illegible] to Hechingen and not in Berlin, and [illegible] he should [illegible] to live there.

Exhibit "G" gives the [illegible] of the Institute's [illegible] 4801-0174 ([illegible])-11/43.

A letter from von Weizsäcker to Heisenberg (Exhibit "H") dated 18 January 1944 [illegible] KWI for Physics in Berlin, thus indicating the continuation of activities there and at least Heisenberg's occasional absence from Hechingen. Von Weizsäcker asks Heisenberg to use his influence to squelch a plan to put him in charge of Bohr's Institute in Copenhagen.

Exhibits "I" and "J", letters regarding possible transfer of physicists to von Weizsäcker, are of general interest in connection with the employment of physicists on war projects.

Exhibit "K", a letter from Houtermans to von Weizsäcker written from Königsberg on 29 July 1944, refers to old experiments on thermal neutrons at low temperatures which may have interesting consequences for the "U-Frage".

SECRET

TA Strassburg Mission cont'd. 16 Dec. 44.

In letter dated 7 August 1944 to Sonnberg (Exhibit "L") von Weizsäcker explains that this part of the project has only "C" priority since its expenses consist only of salaries. Such projects are not assigned "A" priority.

J. A. SCHMIT
Scientific Chief

E. C. [illegible]
Expert Consultant

C O P Y

Exhibit "A"
ALSOS
STRASSBURG
MISSION
15 Dec. '44

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Interrogation of Mrs. Anna Haas, 3 December 1944, Strassburg.

Mrs. Haas is Alsatian. She makes a very sympathetic impression -- is not Nazi. In 1939 and 1940 she worked as secretary in the Poudre--rie de Toulouse with Nicolai and Colonel Colas, and later Lt. Fouchier. The department in which she worked was known as "Ateliers et Machines". Her position in France was not agreeable and after the occupation she returned to Strassburg where she first worked for Mannesmann Stahlblech Werke. She was required to work considerable overtime and was thus unable to give adequate attention to her home and two children. She heard that Professor Finkelnburg of the university needed a secretary. She applied for and secured the position and started work at the university on 15 March 1943. She did secretarial work for both, Professor Finkelnburg and von Weizsäcker. She describes von Weizsäcker as a man of very agreeable personality. She stressed that he was not a party member. She only did secretarial work for him and had nothing to do with scientific work. She was sure that the scientific work was of importance to the war but had not the faintest idea of what it was all about. She thinks he was very discreet and never mentioned it. She did state that Finkelnburg's war work was in connection with searchlights.

Von Weizsäcker is a close personal friend of Heisenberg and he wrote to Heisenberg in Berlin. Heisenberg visited Strassburg in the summer of '44. Mrs. Haas describes him also as being a man of character and since he is a good friend of von Weizsäcker, she thinks that he must have similar political views. Both of them, although not Nazis, are good Germans and will work for the welfare of their country.

Von Weizsäcker made frequent trips to Hechingen. She did not know how often he went there. She frequently did not know of his departure. She believes von Weizsäcker together with Hocker, his assistant, left Strassburg permanently in September 1944. She is quite sure that they went to Hechingen where there is a branch of the KWI. She does not believe that there is any apparatus at Hechingen and is of the opinion that the work done there is entirely theoretical. She knows that Heisenberg is there too. When asked whether they were located in some special building like the castle, she answered that she did not believe so. The officers were probably in a hotel and she had the impression that von Weizsäcker was living somewhere with a private family. She would certainly have known, she feels, if they had been located in the famous castle. She indicated that there was only official relation between Finkelnburg and von Weizsäcker and that it was certain that Finkelnburg knew nothing about von Weizsäcker's work. She also stated that Fleischman and von Weizsäcker did not work together.

She could recall that Professor Jordan, Dr. Wirtz and Professor Kamsauer visited the university while she was employed there.

SECRET

Exhibit "A"
Continued.

Interrogation of Dr. K. Fleischmann - Strassburg - 4 December 1944.

F. is an extreme Nazi. He has taken part in the activities since a very early date. He is not cooperative. He claims that anybody who wants to do research work must have at least an SS priority. Fortunately, the German government considers some fundamental research sufficiently important to permit its continuance. He claims that his work is of a fundamental nature and covers exclusively application of induced radio-activity to Biological research. His work is in the medical department. He claims not to know anything about what other physicists are doing, except rumors, which he refuses to discuss. He claims that the KWI of Berlin has been evacuated to somewhere south of Stuttgart, but he will not tell the location. He claims that Heisenberg, the present director of the physics branch of KWI is only a temporary replacement for Debye. He believes that Debye has still a right to the position which he can take up when he returns. Asking him why there were so many high tension machines being built, he replied "There were many more in the U.S.A." The high tension machine at Strassburg is new and was built by Mueller of Hamburg. Other machines are in Leipzig (Hoffman); Cologne (Kirchner); Heidelberg (Gentner) and Berlin-Dahlem (Ramm). He stated that Kirchner's laboratory at Cologne was bombed out and that he was going out to Garmisch-Partenkirchen. He repeated that there was only one cyclotron in Germany. The one in Heidelberg was designed by Bothe and Gentner. There are Van der Graaf machines in Heidelberg, Danzig (Kassel), and Berlin (von Ardenne). The von Ardenne machine was financed by the Reichspost, and Fleischmann cannot explain this association, except on the grounds that von Ardenne is a very good business man. He gives only a vague picture of the RFR. He says that Gerlach is in charge of all physics. More recently he has also been in charge of Nuclear physics. Before him, Esau was in charge of that branch. The entire RFR normally reports to Reichsmarshall Goering. When asked why they did not use a nuclear physicist in that important position, he replied that he believed personally that Bothe should be in charge, but that he does not possess the right personality. Although he is listed in the Strassburg university catalog as giving a course on the separation of isotopes, he claims that it was not given during the last semester because nobody showed up for it. He mentioned having done work on the seperation of the isotopes of carbon of nitrogen.

6 Dec. 44

F. reported that he had done research work for the Air Forces because they used to have better means and priorities than the Ministry of Education. However, this is different now. About 1½ years ago the Fuehrer ordered the establishment of a research council (RFR) directly under Marshal Goering. The order included the statement that the existing research council which was then under the Education Minister, Rust, should be included in the new council. So now everything is under Goering, who according to F. has the facilities for getting things going. This RFR has branches for the different sciences. It is also supposed to support strongly fundamental scientific researches in order to make sure that Germany shall not be behind as compared to the Allied countries.

F. does not claim to know anything about the personnel on the RFR. He knows vaguely that Gerlach is in charge of all physics and more precisely that he is now in charge of a branch on nuclear physics as we know already from documentary evidence.

Exhibit "A"
ALSOS
STRASBURG
MISSION
15 Dec. 44

SECRET

Interrogation of Dr. Hugo Haubert - 4 December 1944.

Haubert worked with Hahn in Berlin beginning in 1931. After the start of the war he was in the Luftwaffe as a meteorologist until 1943 when he returned to Cologne to work with Hahn, particularly in the installation of a new high tension apparatus. Since coming to Strasbourg he has worked exclusively with Fleischmann on uranium problems.

Hahn and Meitner are working at the Kaiser Wilhelm Institute which has been evacuated to Hechingen, Germany, Christian is in Munich. Fleckman is at Munich - Gauting engaged in radio research.

Two years ago there was more interest in Germany in nuclear physics than there is now.

Interrogation of Dr. Berner-Kramer - 7 Dec. 1944 - Strasbourg

Kramer spent three years working in Joliot's laboratory. No war work was done for Germany. All the work had practical applications as for example separation of the isotopes of bismuth. Bothe and Starke were also there. There was excellent cooperation from the French and no difficulties were experienced.

Kramer thinks that the best nuclear physics institute in Germany is the one at Heidelberg. Bothe has worked on the separation of the isotopes of copper, silver and chlorine. von Droste has a cyclotron. Houtermans has worked with him. Heyn (of Philips) was also at Joliot.

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[Translation of Exhibit "C", Alsos Strasbourg Mission, 15 Dec. '45]

4 September 1941

To the

High Command of the Army

W.F I

Berlin N 25
72-76 Tirpitz-Ufer Street

The following announcement came to my attention through the Press Division of the Foreign Office:

Stockholm, as reported by "Transozean-Innendienst" [Translator's note: A German news agency]:

In the United States scientific experiments are being made on a new bomb, according to a report from London appearing in the Stockholms Tidningen [Translator's note: A Stockholm newspaper]. The material used in the bomb is Uranium, and if the energy contained in this element were released, explosions of heretofore-undreamed-of power could be achieved. Thus a five-kilogram bomb could create a crater 1 kilometer deep and 40 kilometers in radius. All structures within a range of 150 kilometers would be demolished.

Dr. C. F. v. Weizsäcker

SECRET

[Translation of Exhibit "D", Alsos Strasburg Mission, 15 Dec. '44]

Registered 5 September 1941

(from) Dr. C. F. von Weizsäcker

(to) Reichsminister Rust
National Department for Science, Instruction, and Popular Education

Berlin W 8
69 Unter den Linden Street

Honorable Reichsminister:

In an attached paper I am sending you the report of America's advantage over Germany in nuclear physics, which report you asked me for during the course of the interview you granted me in the latter part of July. It is unfortunate that such long delays in completing the report have been introduced by the investigations which I set up for that purpose and by duties of military importance.

I again express my respect, and my thanks for the support which you, Mr. Reichsminister, have given to the advancement of science.

Heil Hitler

Yours very truly

(signed) C. F. v. W.

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[Translation of Anlage "A", Alsos Strasbourg Mission, Dec. '44]

Strasbourg, 12 December 1944

2 Tieckstein Street

Certificate of Urgency

The Institute for Theoretical Physics at the National University of Strasbourg needs two slide-rules for carrying out a project (FS 07.0150/42 H) of military importance. The Institute is organized for the winter semester of 1942-43, and could not take over supplies at an earlier time; thus the purchase of two slide-rules is of circumstantial necessity for carrying out the war project and for the Institute's activities.

[Signature]

(Prof. v. Weizsäcker)

SECRET

[redacted]

[Translation of Exhibit "1", Alsos Strasbourg Mission, 15 Dec. '44]

(from) Prof. C. F. v. Weizsäcker

(to)

Dr. Karl Wirtz
Hechingen (Hohenzollern)
Hotel zum Löwen

[Translator's note: Date of this letter indicated in covering Alsos memo as 23 September 1943]

Dear Karl:

I assume that it is correct to write you in Hechingen rather than in Berlin. Regarding Bagge's comment: The Lorentz condition is an arbitrary requirement and, as I see it, can therefore be regarded as a convention. I recall that this notation is used in the English literature; however, if Bagge has feelings against it he is at liberty to change it.

In view of your move to Hechingen, will we get a chance to see each other? Has Heisenberg found a place to stay in Hechingen?

Best Wishes,

[Signed] C. F.

[redacted]

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[Translation of Exhibit "C", Alsos Strassburg Mission, 15 Dec., '45]

Institute for Theoretical Physics
National University of Strassburg

Strassburg, Alsace
14 October 1943
2 Wimpfeling Street

Miss Hanne Hamm has performed war duties in the Institute for theoretical Physics at the National University of Strassburg from 15 August to 15 October 1943. (Work on war project SS Number 4891 - 0194 (1642/11) - 11/43)

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[Translation of Exhibit "H", Alsos Strasburg Mission, 15 Dec. '44]

(from) Prof. C. F. v. Weizsäcker

[Translator's note: Date of this letter indicated in Alsos covering memo as 18 January 1944.]

(to)
Prof. W. Heisenberg
Berlin-Dahlem
Kaiser Wilhelm Institute for Physics
20 Boltzmann Street

Dear Werner:

Many thanks for your letter of the 9th and for the book on the atomic nucleus, which has just arrived. Even though the book on high altitude radiations [Translator's note: Cosmic rays] would have been still more important, nevertheless I find it gratifying that at least the nuclear book has now appeared. I hope you have by now received the report which I sent you at Hechingen. If you are going to Copenhagen, then I would like to say this: Wirtz wrote me quite confidentially that he had heard from Diebner that the German representation in Copenhagen is thinking of giving me the job of directing the Bohr Institute. He has undoubtedly told you about it already. However, if I am the first to tell you about it, please don't mention it to Diebner. Although it practically goes without saying, I wish to give you definite assurance that I would be decidedly unhappy to take on that kind of a post. If this plan is still intended, I would be very grateful to you if you could use your influence to change it. I am intending to be in Berlin from the 15th or 16th of February until the 18th, and on the 18th to lecture in Laue's colloquium on planets — on verbal communications from my friend Hoffman.

Best Wishes,

Your

(signed) C. F.

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[Translation of Exhibit "I", Alsos Strassburg Mission, 15 Dec. '44]

(from) Prof. C. F. v. Weizsäcker [Translator's note: Date of letter not indicated.]

(to)
Dr. Karl Steinbuch
Research Institute of the AEG [Translator's note: AEG stands for "Allgemeine Elektrizitätsgesellschaft" or "General Electric Company," a large German manufacturer of electrical equipment.]

Dear Mr. Steinbuch:

I am much obliged to you for your letter of March 19 and for the filled-out questionnaire. If the possibility in question materializes and you are willing, I will gladly take you on at once for my war project at my Institute. You will then have the opportunity to go ahead in science in the university sense. I am also prepared to take you on as of a later date. To be sure, I have no regular position for you now, but would probably be able to finance a modest payment out of my war project funds. Under the present circumstances I certainly can certify you as being indispensable. [Translator's note: German word is "uk-stellen" which is supposed to be an abbreviation of "unabkömmlichstellen" and apparently implies exemption from military service.] Anyway, in accordance with my every intention, I would have had you brought back from the front, if only AEG had not gotten ahead of me. On the other hand, I am unable to foresee whether I could win through in a struggle over you with the AEG. My project has the priority SS. [Translator's note: A higher priority is DE.] I would like to ask you to write me, if you get a chance, whether you would consider such a move favorably and, if so, whether the outcome would likely be successful. The way things look now, I will be going to Berlin again in the course of the next 6 weeks; perhaps we can discuss the matter orally at that time.

In the meantime, Best Wishes,

Your

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/Translation of Exhibit "J", Alsos Strassburg Mission, 15 Dec. '44/

(from)
Dr. Th. Schmidt
Physics Institute of the University

/Translator's note: Date of this letter not indicated./

Dear Mr. v. Weizsäcker:

Many thanks for your letter. It arrived exactly on the day on which I was released from the Army and transferred to the Institute. I was one of 5000 persons certified by the National Research Council as being indispensable. /Translator's note: German word is "uk-gestellt" which is supposed to be an abbreviation of "unabkömmlichgestellt and apparently implies exemption from military service./ As far as I know now, I am to help out in Mr. Seeliger's war work. It is so wonderful to be back home again after all this time that this prospect is less pleasing to me. It is a matter of not very interesting and not really important research on electrical discharges in gases. I would much rather work on other things, but I haven't any idea what might be done immediately in regard to such war work, or what should be done.

If you know of war work in which I could participate, please write me about it. Naturally I would be very glad to remain in Greifswald, if that were possible.

In regard to experimental equipment, I have available at the moment only the apparatus with which I did my earlier research work on the hyperfine structure, and that is hardly suitable now for starting anything.

Is there still any interest in the ultra-centrifuge as a means of separating gases? Two years ago Mr. Bomke and I, working together in the Research Establishment of the National Postal Department, started to build such a centrifuge. After we left the Postal Department, the work was not continued.

With Best Wishes,

Your

SECRET

[Translation of Exhibit "K", Alsos Strassburg Mission, 15 Dec. 1944]

National Institute of Physics and Technology
[Physikalische-Technische Reichsanstalt]

29 July 1944

Ronneburg

Dear Mr. v. Weizsäcker:

As I telegraphed you yesterday, it has now become possible for me to lecture at your place on the 9th. On the 3rd I have to go to Frankfur and from there to Heidelberg; from there I might come to Strassburg on the evening of the 8th or the morning of the 9th (preferably the forme if you succeed in getting me into a hotel. I would like to ask you in this connection to send word to Bothe's Institute in Heidelberg, since I fear that your message would no longer be able to reach me here. As regards the topic, it will consist in part of some very old experiment on the properties of thermal neutrons at low temperatures — a lecture which, actually, I have already given at Heisenberg's place. It deals with old experiments, carried out for the most part in Charkow [Transl note: Probably Kharkov, Russia] which however might have some interes consequences in regard to the U-question, and which as far as I rememb I have already spoken to you about, and which has now become ripe for discussion because the thought was taken up from another direction. 2. Concerning negative absorption coefficients. This relates to a to that is more optical in nature, a still unpublished work by Rompe and myself, which will perhaps be of interest to Mr. Finkelnburg; I once t him briefly the ideas about this. 3. A short remark on the radioactiv determination of the age of the earth. 4. On a semi-empirical relatio between the maximum density of thermal neutrons and the dimensions of neutron source in a slowing-down medium. [Translator's note: This "slowing-down medium" is presumably what we call a "moderator."] 5. On the (n,2n) process in beryllium. The last two researches shoul appear shortly in the Physikalische Zeitschrift [Translator's note: A German physics journal.]. Please select what interest you most and settle on a program and write me what I should lecture on. Unfortunat I have no lantern slides anyway and will bring along the materials for topics selected. The topic on the age of the earth is not a whole lec but only a short remark and perhaps the basis for a discussion, which can carry on just as well in private. I am glad that something will c

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of the trip and ask your pardon that I could give you no definite answer for so long, because of the cumbersome bureaucracy of P.T.R. [Translator's note: P.T.R. stands for "Physikalische-Technische Reichsanstalt" or "National Institute of Physics and Technology."]

With Best Wishes to you and all my friends,

Your

/s/ F. G. Houtermans

/Translation of Exhibit "L", Alsos Strassburg Mission, 15 Dec. '44/

(from) Prof. C. F. v. Weizsäcker

/Translator's note: Date of this letter indicated in covering Alsos memo as 7 August 1944/

(to)
Prof. W. Osenberg
Kartheim (Hannover)
Post Office Box 145

Dear colleague:

May I turn to you with the following question? I am seeking an assured position for an unusually talented student, an Alsatian born in 1924. He possesses a workman's passport and for about a year has carried out, as an assistant, calculations of military importance in the Mathematics Institute of the University of Strassburg; at the same time he has been sitting in on some courses and has been enrolled in others. His deferment from military service expires on August 12. He has not yet received an induction order. If he were not called up, he would now go over to my Institute to carry out calculations on the basis of my project SS 4891-0659 (2363/11)-II/44. My project is part of a plan that is conducted under the Reichsmarschall's Deputy for Nuclear Physics and for that the project number DZ 311-RFR-III/44-12/44 is authoritative. My own project does not bear the DZ number because the special expenses of my Institute consist only of salaries, which may not be counted in this category. My question is this: Is there a possibility of assigning this assistant to my Institute perhaps as a helper without student rights? His services are urgently needed by me.

With thanks and

Heil Hitler!

Yours very sincerely

SECRET

WAR DEPARTMENT

Military Intelligence Service

Washington, D.C.

January 31, 1945

TO: Major Frank Smith

FROM: S. A. Goudsmit

SUBJECT: T.A. Status in Germany
Reference T.A.-Report of 17 December 1944.

The following statements are based almost exclusively on document evidence found at Strasbourg.

1. There is positive evidence that T.A. is under development in Germa The effort is not on a large scale, only a comparatively small group of phy is engaged in this work. Some high grade physicists connected with it spen a small portion of their time on the project at least up until the summer o The effort was originally uncoordinated but was combined under a single dir responsible to Göring, at the beginning of 1943. This coordinated effort in not only T.A. but also applications of nuclear physics to biology, to metal etc. Evidence indicates that at least in the early stages (late 1942) thes applications were considered of more immediate importance to the German war than the T.A. problem. The present German effort is merely in an experimen stage as is indicated by the type of computations engaged in by the key the as late as August 1944. A greater emphasis seems to be placed on technical on theoretical problems, however. There are also indications that energy p tion rather than an explosive is the principal German goal, though the latt not been overlooked. Hitler has been informed of the T.A. possibilities as back as 1942, his reaction is unknown.

2. There appear to be three centers of activity on the T.A. problem i

a. The theoretical effort is controlled by the theorists of the K Wilhelm Institute for Physics, originally in Berlin. The theorist Heisenberg, are now at Hechingen in Southern Germany. The princip experiments are probably performed by the experimental physicists K.W.I at Berlin-Dahlem and at Gottow, south of Berlin. Research is pursued at the Physics Laboratory of the K.W.I. for Medical Resear Heidelberg, under Bothe.

b. The industrial effort, namely the large scale production of ma is performed by the Deutsche Gold und Silber Scheideanstalt (Degus and controlled by the experts of its subsidiary; the Auer Gesellsc at Oranienburg, north of Berlin.

SECRET

c. The research department of the German Post Office (Reichspost) independently originated intensive research on the T.A. problem in 1942. This was instigated by Minister Ohnesorge of the Post, Telephone and Telegraph Department, who himself presented the problem to Hitler's panel. Their personnel is not considered very competent. Their research laboratory is at Miersdorf near Zeuthen, southeast of Berlin.

Besides these centers there are some other places where work is done connected closely or remotely with the T.A. problem, in addition to nuclear physics not related to T.A. The principal places are:

a. Freiburg in Baden, where Harteck and Groth, formerly at Hamburg, work on isotope separation by centrifuge methods.

b. The K.W.I. in Heidelberg, mentioned above the director of the Physics Laboratory, W. Bothe must have a complete detailed picture of the total effort.

c. Von Ardenne in Berlin, a private experimenter who cooperates with the effort of the Reichspost.

d. The Institute of Nuclear Measurements, formerly a section of the Physikalisch Technische Reichsanstalt, Director Kurt Philipp, now at Posthalde in the Black Forest.

e. The nuclear research section of the Physikalisch Technische Reichsanstalt (Bureau of Standards) originally in Berlin, evacuated to Ronneburg, (Thüringen). The key man there was Houtermans, who is now probably somewhere in Austria.

3. Sources of Evidence

The above given conclusions are derived from two sources:

a. Files of correspondence of Von Weizsäcker at Strasbourg. This material was not classified but is nevertheless very revealing to those thoroughly familiar with German research in physics.

b. Files of correspondence of Fleischmann at Strasbourg. Also very revealing informal notes made by Fleischmann regarding conversations he had with various officials and colleagues.

Since early 1942 Fleischmann attempted to obtain a cyclotron for his laboratory in the Medical School at the University of Strasbourg. His strenuous efforts brought him in contact with most nuclear physicists and with the authorities governing research in this field. Notes and correspondence about the progress of his effort in this direction give a rather complete picture of German nuclear physics for 1942 to the

[redacted]

S. A. Goudsmit
Scientific Chief
Alsos Mission

cc: Dr. R. C. Tolman

SECRET

SECRET

SECRET

Subject: TA - Strassburg Mission - Cont'd.   8 December 1944

They are:

"SS" - [illegible] (highest priority)
"S" - [illegible]
"S"

Requirement [illegible] at least "SS" priority can be [illegible].

No evidence was uncovered of any uranium work on a production scale. One reference mentions "Gottow Versuche", large scale experiments. Another the "Gottow" experiment by Diebner (July 1944) computations for which were made by Weizsäcker. Gottow is a village 50 miles south of Berlin.

In a secret document dated July 1940 Fleischmann proposes to separate the uranium isotopes by a method originated by Urey (Journ. Chem. Phys. 7, 34, 1939) using liquids that [illegible], namely a layer of uranyl nitrate dissolved in water moving against a layer of an ether solution.

A letter from Dr. [illegible] at Hamburg (January 1942) states that Harteck requested him to furnish Fleischmann with all details of the nickel valve membrane mounting. Dr. [illegible] also mentions to have heard that F. has had the same disappointments with UF_6 as [illegible] because of its nasty properties.

In May 1941 Fleischmann received a letter from [illegible] about Nier's apparatus (Rev. Sc. Inst. 11, 212, 1940) for U-isotope separation with UF_6. The KWI for chemistry was too busy to construct parts for Fleischmann. Clusius was building a similar apparatus. [illegible] was planning to construct such apparatus later on a commercial scale.

Since 1939 the KWI for chemistry was offered melted uranium metal, practically oxygen free, at about 350 marks per kilogram, by the firm of Carl [illegible] and Co., [illegible], P.O.Box 21.

The Forschungsanstalt [illegible] of the Reichspost early in 1942 started the construction of an ultra-centrifuge for isotope separation under the direction of Bomke and Schmidt.

Copies of some of the more important documents found are inclosed. After further study of all the numerous documents brought from Strassburg, copies of additional documents will be forwarded together with supplementary reports.

S. A. Goudsmit
DR. S. A. GOUDSMIT
Scientific Chief

[signature]
DR. F. A. C. WARDENBURG
Expert Consultant

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27 December 1944

MEMORANDUM FOR [illegible] MIS-X3 ALSOS ADVISORY COMMITTEE:

Colonel C. P. Nicholas (G-2)
Colonel E. S. Grum (A-2)
Captain M. A. Eberle (Navy)
Dr. A. T. Waterman (ALSOS)

Subject: Minutes of the MIS - ALSOS Advisory Committee Meeting on 16 December 1944.

1. The attached copy of the minutes of the MIS - ALSOS Advisory Committee Meeting held on 16 December 1944 is forwarded for your approval.

2. Subject to the approval of all member agencies, the decisions reached at this meeting will be incorporated in a letter of instruction to the Chief of the Mission, and will constitute a basis for future operations of the Mission in Germany.

3. Your participation in this meeting and the spirit of cooperation evidenced throughout the entire discussion is greatly appreciated by this Service.

[redacted]

E. A. [illegible],
Brigadier General,
Chief, Military Intelligence Service.

1 Incl:
Minutes of Meeting 12-16-44.

Copies to: Captain M. A. Eberle
Lt. Comdr. E. S. Old
Major Furman

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MEETING OF MIS - ALSOS ADVISORY COMMITTEE
10:00 - 16 December 1944

REPRESENTATIVES

ADVISORY COMMITTEE

Col. C. P. Nicholas - Policy Staff, G-2
Col. L. W. Lyman - Int. Div., ASF
Lt. Comdr. D. S. Old - Navy
Dr. A. F. Waterman - OSRD

MIS

Brig. Gen. R. A. Ormond - Chief, MIS
Col. W. E. Cox - Dir. of Int.
Col. C. W. Bromham - S/S
Col. K. E. Doty - MDIGPC
Col. W. M. Adams - For. Br.
Lt. Col. B. T. Pash - Mission Chief
Capt. M. J. Osborn - For. Br.

NAVY DEPARTMENT

Capt. W. A. Heard, Dep. Dir. ONI
Capt. M. A. Bonadio - ONI/ALSOS
Capt. J. W. Gregory, Asst. Dir. ONI
Lt. Comdr. Cox

OSRD

Dr. H. P. Robertson
Dr. L. A. Thiesmeyer
Dr. W. F. Colby

ASF

Col. J. M. Spaeth - Dir. of Int.
Lt. Col. J. Lansdale, Jr.
Lt. Col. C. J. Baldwin
Major M. M. Furman

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1. The purpose of the meeting was explained briefly by Brig. General Ormond, Chief, MIS. He stated that it was desirable and appropriate at this time to review the past operations of the Mission and to consider the necessity for revision of the initial directive in order to demonstrate the increased interests of all member agencies in the exploitation of scientific objectives in Germany.

2. Tentative operational plans of the Mission were outlined by Lt. Colonel Pash, Mission Chief. He proposed that the Mission establish three separate headquarters, with a central headquarters located in the western portion of Germany. The geographic location of these headquarters will approximately conform to the concentration of German scientific and industrial centers.

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3. Captain K. A. Schade, Senior Naval Member of the Mission, and Cap
W. A. Heard, Deputy Director of NIL, informed those present of the organiza
and objectives of the U.S. Naval Technical Intelligence Mission which will
shortly initiate operations in the European Theater. This Mission is charg
with the responsibility for the procurement of all intelligence of a techni
and industrial nature of interest to the U.S. Navy, and will include repres
tation in CIOS, TIIC and ALSOS activities. A pool of Naval scientists and
technical personnel will be formed, and personnel will be dispatched to ALS
and CIOS teams as needed. It was emphasized that the Navy Department desir
to continue active participation in ALSOS Mission activities and indicated
Captain K. A. Schade would probably remain as the Senior Naval Member of th
Mission in addition to his duties as Chief, U.S. Naval Technical Intelligen
Mission.

4. The plans of the Army Service Forces regarding the procurement, pl
technical intelligence in Germany were outlined by Colonel J. M. Hanner, Di
of Intelligence, ASF. The Army Service Forces have obtained approval to es
lish a pool of technical experts in the European Theater. These technicians
to be attached to the various Theater technical intelligence teams and will
available when required for attachment to CIOS or ALSOS Mission. A coordi
office will be established in the Office of the A. C. of S., G-2, ETOUSA, w
an additional representative in London and with the T Forces at the front.
was informally agreed that the ALSOS Mission would maintain close liaison w
this coordinating office in Paris as a means of facilitating ASF represent
on the Mission.

5. Discussion of the Mission's past operations revealed that its ef
iveness was considerably hampered by the fact that the Chief of the Mission
the Scientific Chief were of a necessity actively engaged in conducting the
Mission's operations in the field. It was pointed out that their absence
the Mission headquarters in Paris left no one to effectively coordinate the
vities of the newly arrived scientific personnel. The Advisory Committee
ed that this was properly a matter to be handled by the Chief, NIS, and the
of Scientific Research and Development. They further recommended that CNO
NID take the necessary action to appoint two (2) deputies to act in the ab
of the Mission Chief and the Scientific Chief.

6. The matter of the form and manner of submission of the scientifi
ports of the ALSOS Mission was fully discussed, and it was generally agree
the procedure contained in the basic directive would continue to apply. I
view of the wide distribution that has been accorded the ALSOS Mission sci
reports, the previous tendency to classify the nature of the ALSOS Mission
secret was not considered advisable or necessary. It was decided that in
the ALSOS Mission reports would be classified on the basis of the scientif
information which they contained and that the responsibility for maintaini
security of the Mission in accordance with the provisions of AR 380-5 would
charged to the Chief of the Mission as provided for in the basic directive
May 1944.

7. The matter of Army Air Forces representation on [illegible] and ALSOS teams was discussed by Colonel R. P. Doty, Secretary MDIPC, who briefly outlined the manner in which the AAF is presently represented in CIOS activities. Colonel C. P. Nicholas, Ord Member of the Advisory Committee, pointed out that Army Air Forces representation on the ALSOS Mission was authorized and invited provided the Air Forces objectives were in each case properly within the purview of the ALSOS Mission.

8. General agreement was reached on the following points as a result of discussion conducted throughout the entire meeting:

a. That the basic directive governing the operations of the ALSOS Mission (Memorandum for the Chief of Staff dated 11 May 1944) was considered sufficiently broad to cover future operations of the Mission in Germany and need not be revised.

b. That active participation in Mission activities by the Navy, [illegible], and ASF was desired and should continue. The recently established technical Missions of the Navy and ASF will not interfere with the operations of the Mission, but will in fact facilitate continued Navy and ASF representation.

c. That scientific reports prepared by individual members will be clearly identified as being ALSOS Mission reports. Each member is authorized to send his reports directly to his home agency provided they have been cleared, as prescribed in the basic directive, through the Scientific Chief and the Mission Chief or through deputies authorized by them. Reports on subjects not within the purview of the ALSOS Mission will be separately handled by each agency, but will not be identified as being of ALSOS origin. Any scientific report forwarded by a Mission member to his own agency before clearance through the ALSOS will not be marked as an ALSOS report.

d. In order that effective administrative control over the Mission's operations may be maintained, NDRC and MED will take immediate action to appoint a Deputy Mission Chief and Deputy Scientific Chief to staff the Mission headquarters at all times.

e. That the nature of the intelligence information desired from ALSOS Mission should normally be determined in Washington by the various member agencies, but that this should not prevent the Mission from exploiting targets of opportunity if such targets are considered within ALSOS scope.

f. That the present number of military administrative personnel and equipment as supplemented by the Navy and Major General Groves, would be sufficient for future operations provided a sudden collapse of Germany did not occur. In this event, it was decided that the Mission Chief would call upon the Theater for temporary assistance pending War Department action.

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MISSION OPERATIONAL CHART - 17 Mar

CHIEF OF MISSION
Lcol E.T. Pash

DEPUTY CHIEF
Lt. Col. G.K. Dickson

SCIENTIFIC BRANCH
T. A. Goudsmit - Sci. Ch
C. C. Kemble - Deputy
W. F. Colby - Assistant
Norman Kelly - Aide

MILITARY

Personnel Mo Branch
Col E T Pash-Mission Chief
Lt Col T K Dickson - Deputy

ARMY SEA. FORCES
Lt Col [redacted] Forma
AC
Capt [redacted] Cromartie
AC
Capt Carlo Emmo
AC

O & R D
General Problems
C. A. Baumann
C. P. Smyth
Special Problems
L.J.A.C. Hardenburg
T. R. Bogneas
J. A. Lamb
R.H.J.H. Reid
R. D. Robinson
S.A. A. Bates
Lt. F. Pieper
Part Time ALSOS
W. R. Brode
R. O. Sabaugh
C. P. [redacted]

N A V Y
Commodore Schuld
Gen Serv Member
W. R. Brode
Liaison

OPERATIONS & PLANNING
Major [redacted]
Maj. J.C. Pullock,
Assistant

ADMINISTRATIVE
Lt Col Dickson
1st Lt W W Syms
Assistant

SPECIAL OPERATIONS
A.Maj R A Fisher
Capt R C Augustine,
Assistant
B.Maj J C Pullock

GENERAL OPERATIONS
1st Lt Robt. Bell

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ALSOS MISSION PERSONNEL

21 March 1945

ADVISORY COMMITTEE	TITLE	REPRESENTS
Colonel C. P. Nicholas	Chief, Group I, Policy Staff	G-2, WDGS
Colonel E. W. Gruhn	Deputy Dir. of Intel, ASF	Dir. of Int., ASF
Captain W. A. Heard, USN	Deputy Dir. of Naval Intel.	DNI
Dr. A. T. Waterman	Dep. Chf., Office Field Service	OSRD
Colonel W. M. Adams	Chief, Foreign Branch	MIS

ADMINISTRATIVE PERSONNEL	TITLE	PLACE OF DUTY
Officers Assigned:		
Col. B. T. Pash	Mission Chief	Paris
Lt. Col. G. R. Eckman	Dep. Mission Chief	Paris
Major J. C. Bullock	Operational Officer	Paris
Major R. C. Ham	ALSOS Liaison, London	London
Major R. A. Fisher	Operational Officer	Paris
Major H. J. Osborn	ALSOS Office	Washington
Capt. R. C. Augustine	Operational Officer	Strasbourg
Capt. R. W. Blake	" "	Aachen
1st Lt. J. Ditesheim	" "	Paris
1st Lt. W. R. Rosenberger	" "	Aachen
1st Lt. W. W. Ryan	" "	Paris
1st Lt. C. W. Kunisch	" "	Paris
2nd Lt. M. G. Toepel	" "	Paris
2nd Lt. W. L. Warner	" "	Paris
2nd Lt. D. E. Weimer	" "	Aachen
2nd Lt. H. Hormel	" "	Paris
2nd Lt. L. S. Brown	" "	Paris
Officers Attached:		
Major R. R. Furman	Liaison "Tarcyton Project"	Paris
1st Lt. W. J. Carr	CIC Officer	Aachen
2nd Lt. C. F. Fiebig	CIC Officer	Aachen
2nd Lt. R. T. Cerame	CIC Officer	Strasbourg

SCIENTIFIC PERSONNEL	TITLE	PLACE OF DUTY
Army Service Forces:		
Lt. Col. E. V. Foran	QMC Specialist	Paris
Capt. W. J. Cromartie	BW Specialist	Paris
Capt. C. Henze	BW Specialist	Paris

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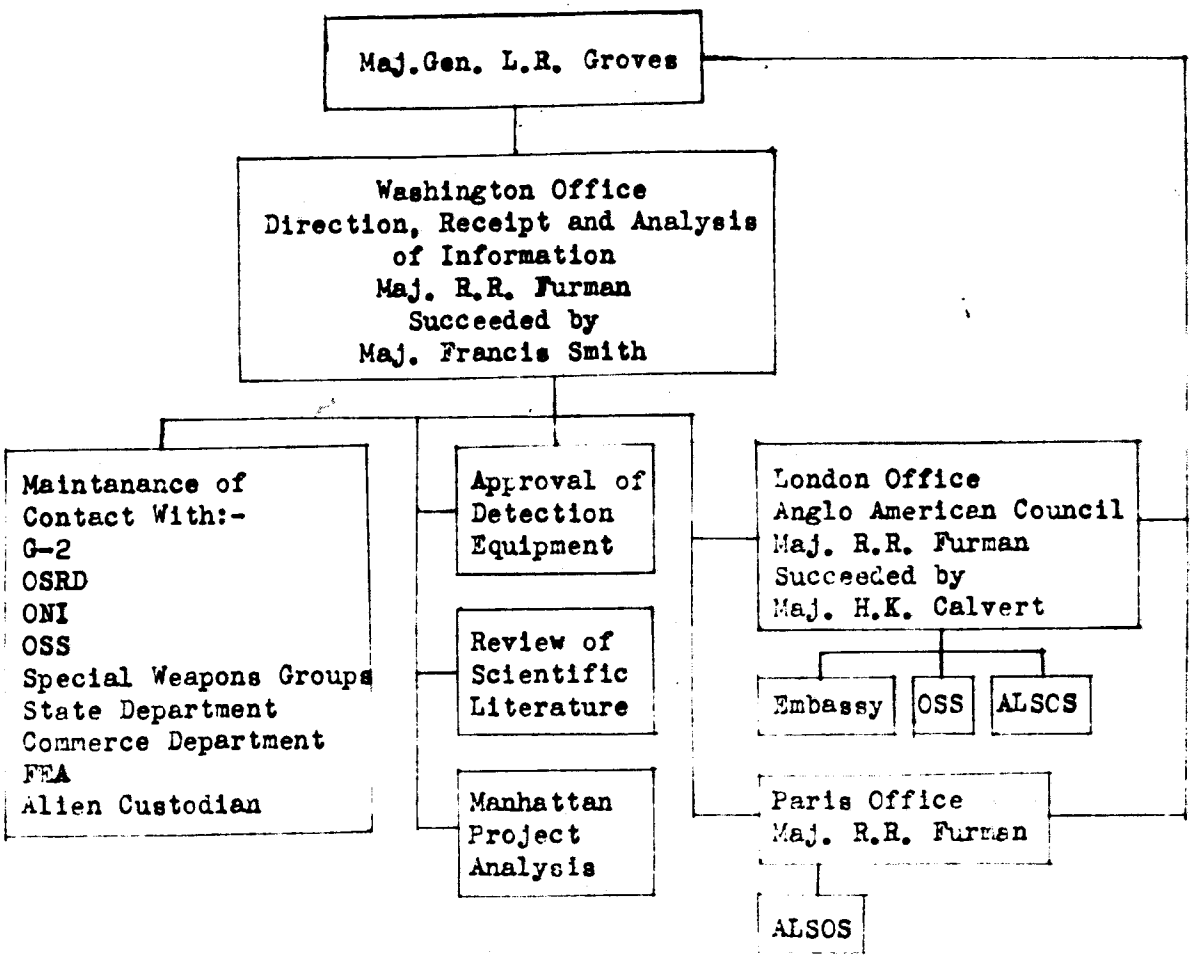
Office of Scientific Research and Development:

Dr. S. A. Goudsmit	Scientific Chief of Mission	Paris
Dr. E. C. Kemble	Deputy Scientific Chief	Paris
Mr. Burnham Kelly	Administrative Asst.	Paris
Dr. A. A. Bates	Metallurgist	Paris
Dr. C. A. Baumann	Bio-chemist	Paris
Dr. L. F. Fieser	Bio-chemist	Paris
Dr. T. Hogeness	Tareyton Project	Paris
Dr. J. A. Lane	Tareyton Project	Aachen
Mr. H. J. E. Reid	Aeronautical Engineer	Aachen
Dr. Russell G. Robinson	Aeronautical Engineer	London
Dr. C. P. Smyth	Physical Chemist	Paris
Mr. F. A. C. Wardenburg	Tareyton Project	Strasbourg
Dr. Walter F. Colby	Physicist	Paris
Dr. W. R. Brode	Chemist	Paris
Dr. G. P. Kuiper	Physicist	London
Dr. E. O. Salant	Physicist	Paris

Navy Department:

Commodore H. A. Schade, USN	Naval Specialist	Paris
Capt. W. T. Roop, USN	Naval Specialist	Paris
Cmdr. J. T. DenHartog, USN	Naval Specialist	Paris
Cmdr. A. G. Mumma, USN	Naval Specialist	Paris

ENLISTED PERSONNEL	PLACE OF DUTY
Assigned:	
T/3 Louis S. Lolli	Paris
T/4 Theodore F. Biss	Paris
T/4 Nicholas Dolida	Aachen
T/4 Joseph Lusnia	Paris
Cpl Elwood M. Brake, Jr.	Paris
Cpl Harry M. Kossewski	Aachen
Cpl Kenneth S. Pfunder	Paris
Cpl William D. Young	Paris
T/5 Walter J. Judkins	Paris
T/5 William O. Uhlig	Paris
Pfc Paul R. Bryan	Strasbourg
Pfc Jerry S. John, Jr.	Aachen
Attached:	
M/Sgt Edyth M. Connerton (WAC)	Paris
T/Sgt Gerald L. Beatson (CIC)	Strasbourg
Sgt Archie J. Bray (CIC)	Aachen
Sgt Joseph T. Crotty	Aachen
T/4 Peter P. Oates (CIC)	Aachen


Maj.Gen. L.R. Groves
Washington Office
Direction, Receipt and Analysis
of Information
Maj. R.R. Furman
Succeeded by
Maj. Francis Smith
Maintanance of
Contact With:-
G-2
OSRD
ONI
OSS
Special Weapons Groups
State Department
Commerce Department
FEA
Alien Custodian
Approval of
Detection
Equipment
Review of
Scientific
Literature
Manhattan
Project
Analysis
London Office
Anglo American Council
Maj. R.R. Furman
Succeeded by
Maj. H.K. Calvert
Embassy
OSS
ALSOS
Paris Office
Maj. R.R. Furman
ALSOS

FOREIGN INTELLIGENCE SUPPLEMENT NO. I

TO

MANHATTAN DISTRICT HISTORY

BOOK I - GENERAL

VOLUME 14 - INTELLIGENCE & SECURITY

APPENDIX B - REFERENCES

No.	Description	File Location
1.	Condensation: "Eleven Against The Nazi A-Bomb", November 1946 Issue, Readers Digest.	General Publication
2.	ALSOS Mission Report, 4 March 1944, by:- Maj. W. P. Allis, Dr. J. B. Fisk, Dr. J. R. Johnson, Lt. Comdr. B. S. Old and Lt.Col. B. T. Pash.	A.F.S.W.P.

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SECURITY INFORMATION

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No.	Description	File Location

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39.	OSRD History - "Combat Scientists", by:- Lincoln R. Thiesmeyer and John E. Burchard.	General Publication
40.	Book "ALSOS", by:- Samuel A. Goudsmit, published 1945 by Henry Schuman, Inc., New York.	General Publication

FOREIGN INTELLIGENCE SUPPLEMENT NO. 1

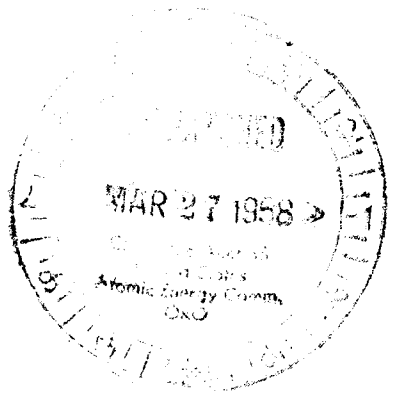
TO

MANHATTAN DISTRICT HISTORY

BOOK I - GENERAL

VOLUME 14 - INTELLIGENCE & SECURITY

INDEX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