

*Attorney transmitted this to the Chicago people*

STATEMENT BY WAR DEPARTMENT TO MAY COMMITTEE,  
TO BE MADE OCTOBER 22

The War Department has certain amendments to sections 1, 3(a), 11, 13, 17, and 19, which have been formulated as a result of discussions with leading scientists who have been working in this field. The first purpose of these amendments is to make it absolutely clear that private research in this field can be carried on without interference from the Commission, so long as the research does not constitute a national hazard and is not on a scale of military or industrial value. The second purpose of these amendments is to bring out still further the Congressional policy that the Commission should encourage research and development in this field to the maximum extent.

These scientists, (and many others, we have been told), are of the view that the bill, as it now stands, does not adequately cover these two points. It is their conviction that changes embodying the substance of the amendments I am about to present must be incorporated in the bill, if the measure is to have the support of scientists, and if it is to be considered proper legislation from the point of view of science. They believe that, with the incorporation of these changes, the bill can and should be supported by scientists. Specifically, we have been assured that with these amendments, the bill will be acceptable from a scientific standpoint to the bulk of scientists in this field, and the National Academy of Science, the American Institute of Physics, and the American Physical Society. These three leading scientific societies number among their members the outstanding physicists in the country.

The War Department endorses these amendments and believes that they should be incorporated in the bill. We believe that the interests



of national defense are sufficiently protected, and that it is important to the welfare of the country to foster and encourage basic research.

You will understand that we have not sought to discuss with these scientists other features of the bill of a political or non-scientific character. On such matters, scientists have the same right to speak as do other citizens, but all suggestions must be viewed in the light of general considerations, and have no peculiar relevance to scientific work.



Arthur H. Compton, Project Leader

Samuel K. Allison, Experimental Chief

Enrico Fermi, Research Coordinator

Eugene P. Wigner, Theoretical Chief

Gregory Breit, Information Chief

R. L. Doan, Laboratory Director

J. C. Stearns, Personnel Chief

H. W. Byers, Procurement Chief

Norman Hilberry, Administrative Asst.

Haydn Jones, Shop Facilities

L. Szilard

RESEARCH ASSOCIATES:

Herbert L. Anderson

Seymour Bernstein

Lyle B. Borst

Alvin C. Graves

Elizabeth R. Graves

William P. Jesse

W. R. Kanne

Philip G. Koontz

Herbert N. McCoy

J. H. Manley

Alan C. G. Mitchell

Henry W. Newson

Louis A. Slotin

Arthur N. Snell

R. J. Stephenson

Alvin M. Weinberg

John A. Wheeler

Martin D. Whitaker

Ernest O. Wollan

Volney C. Wilson

RESEARCH ASSISTANTS:

Harold Agnew

John E. Brolley

James H. Coon

Francis L. Friedman

Homer W. Ibser

George Miller

Ardis T. Monk

Alexander V. Nedzel

Warren E. Nyer

H. Parsons

John B. Riddle

Roberts med.  
Nobles

RESEARCH ASSISTANTS - Cont:

Leon Sayvetz

Robert H. Schnert

Robert L. Walker

HIGH SCHOOL BOYS:

John Cali

Rowland W. Davis

Edward P. Littleton

Clarence E. Malloy

Melvin A. Miller

Arthur F. Petry

Theodore F. Petry

Glenn Sprankle

STOREROOM:

D. E. Schilling, Chief

Alexander Glon

John Moriarity

Walter L. Peterson

STENOGRAPHERS:

Anne Hultgren

Dorothy Johnson

Pearl Margolis

Opal L. MacDonald

Pauline McGrath

Gertrude Nissenbaum

Lucartha Sullivan

Katherine Tracy

SWITCHBOARD OPERATORS:

Gleste Hand

Lillian Sexton

SHOP:

T. J. O'Donnel, Chief

John Costa

S. W. Dietze

Clyde R. Emery

Joseph Getzholtz

Richard Gluck

John P. Larsen

Casmer Lesniewski

Joseph Novak



February 19, 1942

Compton, Hilberry, Wheeler, Doan.

J. C. Stearns

Outline of chemical work pertaining to our project.

Szilard - Material chief.

I. Analysis and control.

Rodden     )  
              )  
              )(Beverly)  
              )  
Scribner    )

Furman

Bricker

Mack (Spectroscopist)

Hoffman - Bureau of Standards.

II. Princeton Absorption Experiment.

Cowan

Chicago chemist   (Inorganic graduate student)  
                          (See Schlesinger or Warren Johnson)

III. Chemical Development.

Suggest Spedding of Iowa State.

McCoy (UO<sub>2</sub>)

Brown ,   Jura.

Chemical engineer

Pilot plant for separation of rare earths.  
Use of cyclotron at St. Louis.

IV. Chemical Engineering.

Murphree  
Thiele.

V. Consultants.

Metallurgy - Archer, Benbow.  
Chemistry - Schlesinger, Brown.

J. C. Stearns



## ORGANIZATION OF THE METALLURGICAL PROJECT

### Purpose

The Metallurgical Laboratory was organized to develop the war potentialities of certain nuclear phenomena. That the work is worthwhile in the role it plays in shaping the outcome of the war is amply subscribed to by the judgment of a large group of reputable scientists, many of whom number among the foremost in the world; by the generous support in the form of funds and priorities which the government has seen fit to grant it; and by the marked interest which the War Department has shown in its possibilities.

### Difficulties

While it is evident that speed is of primary concern the work has already accumulated a history of delays in the production of essential materials and of slow progress in the planning and construction of plants which clearly records a pace that is too slow. These difficulties are derived from a direction which is rendered incompetent by insufficient power to act directly, interference by outside agencies, shielding through the imposition of secrecy from the best scientific advice. Secrecy has inhibited the healthy criticism and active participation of the scientific men impairing the generation of new ideas and generally injuring the morale to an extent which might well lead to a complete disruption of the work.

### Fundamental Principle

It must be recognized that the project is concerned with a problem which is primarily a matter of scientific research. As such it must be directly under the control of those men who have the requisite knowledge to deal with it. The responsibility for bringing to a successful conclusion the objectives of this project rests with those men who are scientifically competent to make contributions to its progress and actively do so. The weight of responsibility belonging to one man is in proportion to the degree of his ability to cope with the scientific and technical problems which arise.

It is the responsibility of the government to evaluate the general worth of the work and to lend its support in terms of funds and priorities. It is the responsibility of the army to learn how to utilize the product of the work and to plan for its incorporation in the general scheme for the conduct of the war. It must be made abundantly clear that all the details which are involved in carrying out the work must be in hands of the scientific group which bears the responsibility and which alone possesses the knowledge requisite for taking action. Interference in the matter of these details by either the government or the army can only result in a delay in the progress.

### Executive Committee

In order to expedite the direction of the work the scientific group should elect an Executive Committee. This committee should consist of some five men who are best equipped scientifically to comprehend and direct action in all the details of the work. Only such a direction can hope to hold the confidence and support of the scientific group who carry out the work. This committee must have the final decision in all matters of actual procedure. As a corollary they must have the power to deal directly with the manufacturers, contractors, and engineers with whom they may have concern so that a decision having been taken, it can be acted upon forthwith.

H. L. Anderson  
September 17, 1942



PROPOSAL FOR  
DECLARATION OF RESPONSIBILITIES  
by  
TECHNICAL COUNCIL

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Following its creation, the Technical Council of the Metallurgical Laboratory has taken a not very active part in the discussion and recommendation of the policy of the laboratory. The growing number of important decisions which have to be made now and in the near future have brought to attention the importance of exercising some foresight about future needs and some over all consideration of the general organization of work in the laboratory. Partly to fulfill its responsibilities, the Technical Council hereby makes the following declaration of responsibilities. It is hoped that this declaration will serve as a starting point for a more active functioning of this Council in the future.

Purpose of the Technical Council

To consider and make recommendations on matters of policy affecting the work of the Metallurgical Project; and insofar as lies in its power, working in association with the project leader, to put these recommendations into effect. Specifically the function of the Technical Committee is to examine proposals for investigations; to make recommendations as to the importance and relative priority of such scientific and technical investigations; to recommend the assignment of individual problems to specific groups; to recommend the formation of new groups or divisions, or the reorganization of existing groups and divisions; to make recommendations as to the policy of the project with manufacturing and commercial concerns, other laboratories, outside organizations and related projects; to pass upon scientific, engineering, technical and organizational questions; to transmit and interpret, ~~for~~ the project leader, the sentiment of the scientific and technical staff upon such questions.

Organization of Technical Council

The Technical Council consists of the project leader, a chairman, a secretary, and other members appointed by the project leader. The Technical Council meets every week at a fixed time unless the meeting is postponed by agreement by the majority of the Technical Council. The Technical Council may invite in one or more persons who are not members of it to present specific problems, or to testify as to questions of fact or opinion. The Technical Council is not obliged to consider any proposals which are not put in the hands of its secretary in writing 24 hours before the time of the meeting. In order that no one shall speak in the name of the Technical Council without authorization, no decision taken by the Council shall be considered as complete until it has been put in the form of writing and entered in the minutes of the Council. Proposals may be put before the Technical Council by any member of the Council, by any division leader, or by any group leader, or other persons concerned with the work of the project. In case of question, Roberts' "Rules of Order" shall govern the conduct of the meeting of the Technical Council. The Council, through its chairman, may appoint committees, not all of them necessarily members of the Council, to draw proposals or recommendations, and report back to the Technical Council.

John A. Wheeler



Monday, September 28, 1942

MOTION

The following motion will be presented by Creutz:

The undersigned participants of Monday's gathering take note of the fact that the Technical Committee has been reorganized since last Monday and that this reorganization was not preceded by consultation with all members of the Technical Committee. They hereby move that Mr. Wigner and Mr. Szilard present to Compton the following recommendation:

The Technical Committee be dissolved and be replaced by a Steering Committee. It is proposed that the members of the Steering Committee be the following: Mr. Allison, Mr. Fermi, Mr. Moore, Mr. Szilard, and Mr. Wigner as division leaders; Mr. Cooper, representing Chemical Engineering; Mr. Wheeler, as secretary; and Mr. Young, as aide to the Committee.

It is proposed that Mr. Fermi be Chairman of the Steering Committee and that he be assisted by other members of the Steering Committee, for instance, in the manner described in the first four pages of the Memorandum to Dr. Stearns from Dr. Szilard dated, September 23, 1942.

The undersigned express the hope that it will be possible to free Mr. Allison from his other duties so that he can devote more and more time to the affairs of the Steering Committee and particularly to the task of following-up the execution of the recommendations adopted by the Steering Committee.

It is further recommended that Oppenheimer should take part in the meetings of the Steering Committee whenever he is at Chicago.

Mr. Wigner and Mr. Szilard are asked to support the creation of such a Steering Committee in place of the Technical Committee if necessary by resigning as members of the Technical Committee.



Chicago, Ill. June 29, 1942

IN CONSIDERATION of my employment by the Metallurgical Laboratory of the University of Chicago, I agree that I will communicate to the Director, or such other individual as the Director may from time to time designate, all inventions in connection with the work on which I am employed and generally any and all inventions relating to physics, chemistry or the mechanical or electrical arts, or their application to industry, which I may make from the time of entering the employment of said Laboratory until I leave said employment, and will, under the direction of said Laboratory, do whatever is necessary to take out patents on these inventions in all or any countries as, and when, requested before or after leaving its employment, and will assign the inventions and all patents and applications relating to them to the University of Chicago, as and when, requested before or after leaving its employment, it being understood that the necessary cost and expense of making such assignments and procuring such Letters Patent shall be paid by others than myself. I recognize that the making of such inventions and transferring them to the University of Chicago is an important part of the work for which I and the other employees of said Division in its laboratory are employed, and I accept my employment with this understanding and agree to perform said duties fully in letter and in spirit.

Witness my hand and seal.

Signature L. Szilard (Seal)

Witness Mildred Thompson



IN CONSIDERATION of my employment by the Metallurgical Laboratory of the University of Chicago, I agree that I will communicate to the Director, or such other individual as the Director may from time to time designate, all inventions in connection with the work on which I am employed and generally any and all inventions relating to physics, chemistry or the mechanical or electrical arts, or their application to industry, which I may make from the time of entering the employment of said Laboratory until I leave said employment, and will, under the direction of said Laboratory, do whatever is necessary to take out patents on these inventions in all or any countries as, and when, requested before or after leaving its employment, and will assign the inventions and all patents and applications relating to them to the University of Chicago, as and when, requested before or after leaving its employment, it being understood that the necessary cost and expense of making such assignments and procuring such Letters Patent shall be paid by others than myself. I recognize that the making of such inventions and transferring them to the University of Chicago is an important part of the work for which I and the other employees of said Division in its laboratory are employed, and I accept my employment with this understanding and agree to perform said duties fully in letter and in spirit.

Witness my hand and seal.

Signature \_\_\_\_\_ (Seal)

Witness \_\_\_\_\_



1. I believe that all research groups who deal with problems in nuclear physics whether they are concerned with fast or slow neutron reactions, should be united both from a point of view of organizational framework and from a point of view of geographical location.

I believe this

a. Because this work requires a new laboratory equipped with a great variety of high voltage sources and other instruments which could be used by both the fast and slow neutron research groups.

*b.) exchange of information larger*  
c. Because it is important to have a laboratory group of intelligent men together who can, by repeated discussions, make clear to themselves what the existence of atomic bombs will mean from the point of view of the post-war period. The existence of such a body of men gains importance in view of the total absence of preparation of public opinion, ~~the~~ the man in the street, the House of Representatives ~~and~~ the Senate. This body of men can then put its services at the disposal of the administration, and by writing and talking, can attempt to help prepare the country to realize the necessity of post-war action, *is the right time, interval between the first atomic explosion and the writing of the peace treaties.*

2. I believe that research and as far as possible also development (but not necessarily production), should be in the hands of a corporation, ~~which has executive directors who are full time workers, and a board of directors who determine the budget and general policy.~~ The charter of this corporation should be sufficiently broad to permit the buying and selling of material, and processing and manufacturing on a small scale.

This corporation should be able to enter in the contractual arrangements with the O.S.R.D. and the Army and Navy. It should be preferable that the corporation should be owned by the Government. I understand that this does not necessarily mean that the corporation should be ~~the~~ <sup>a</sup> creation of Congress, and that there are other ways of creating Government owned corporations.

*During a transitional period to perhaps*

*because the corporation of the first US. bombs*



~~The~~ research and development  
could be carried out through  
the Union of Chicago



3. It would be very important to have a clear cut division between executive directors of the research and development laboratory who must of necessity be full time workers, and members of an advisory board would devote only part of their time to our work. The full time directors must be given a free hand in all questions which are involved in the execution of this work, and the board of directors ought to limit its activity to the general policy the recommendation as to budget and the division of the budget between various branches of the work.

It would be desirable to persuade Dr. Rush or Dr. Conant to become a full time executive of the proposed organization. If this is not possible they ~~may~~<sup>ought</sup> to be asked to be members of the board. At a later time perhaps when the first power producing chain reaction gets going, one ought to ask men like the vice-president of the United States, and the defeated presidential candidate of the last election to join the board of directors for the purpose of establishing a direct connection with the political ~~the~~ section of the country.



4. I believe that there is some slight <sup>from</sup> advantage <sup>of convenience</sup> of having the research laboratory near Site X, but I also believe that these advantages are over-<sup>an</sup>compensated by grave disadvantages. Site X is/isolated spot. Contact with manufacturers is more difficult there than at Cambridge, Chicago or Washington, D. C., which may be considered as possible sites for the laboratory for research and development. There are also important psychological factors which cannot be disregarded since they play a very important role in the functioning of an organization which incorporates such a large number of exceptionally gifted persons. The success of our work depends on keeping them happy. ] It is quite true that we have a large number of employees other than the pure research men, and that it would be desirable to have a better supervision of their movements. This problem could be solved by placing the research and development laboratory somewhere at 10 miles distance from one of our big cities, and providing adequate housing facilities for the staff. Rarely only would anybody go into the city, and supervision would become much easier.

4. I believe it would be desirable to have Dr. Bush and Dr. Conant on the Board of Directors of the proposed research organization, and further, that it would be desirable to establish a close link with the political organizations of the country by enlarging the Board of Directors after the power producing chain reaction has been set up. At that time one ought to approach the Vice-president of the United States and the defeated candidate of the last presidential election with a request to join the Board of Directors.



9/18/42

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We are engaged in what is undeniably the most far-reaching and significant project in the history of man. Because of the contemporary world political situation, the outcome of this project may well be the determining factor in the continued existence of civilization itself. Since the responsibility for the success or failure of this venture lies with us, it becomes as much a part of our duty to seek the most reasonable and efficient administrative organization as it is to give our every ounce of training, technical ability, and creative energy to the solution of the scientific problems themselves.

It is not conceivable that we shall become lax in our search for the knowledge that shall make atomic power and its consequences a useful reality. Neither is it conceivable that we shall cease asking for that organization which can act most directly and obtain results in the fastest possible way. Therefore, we do not dare allow our responsibility to end with the mere pursuance of scientific investigation, but must, however unseemly for research workers, fight to obtain a governing plan which we believe to be equal to its task.

The system which we shall demand must excell the present one in the following respects:

1. There shall be a policy-determining committee which:
  - a. shall be as completely familiar as possible with the scientific aspects of the problem; a committee which shall study and advise upon them, to the exclusion of all duties to projects not closely affiliated.



- b. shall be in contact with and guided by the entire scientific personnel of the project by means of some democratic system of representation.
  - c. shall have the right to make and revoke decisions and the sole right to obtain appropriations and spend money as it sees fit.
  - d. shall be entirely independent of the University of Chicago, O.S.R.D. or any other organization whose personnel and service facilities are already overtaxed.
2. Secrecy shall not extend so far as to
- a. foster wasteful duplication of work.
  - b. hinder the progress of any group by strangling existing information.
  - c. make possible the forming of decisions which neglect and disregard the work or potentialities of any group without free discussion of such contemplated decisions with all groups.
  - d. make possible either by increased appropriations or assignment of personnel the advancement of one project over another without the opportunity of consideration of all projects by a truly representative scientific group from each.

*E. C. C. C.*



CONFIDENTIAL

C O P Y  
Metallurgical Laboratory

October 2, 1942

Minutes of Meeting

on Special Pump

September 29, 1942

(Mr. Chubb's Office)

\* \* \* \* \*

A meeting was held to discuss the request from O.S.R.D. to supply a pump of special design to pump liquid metal at the rate of 250 liters per second, against a head of 7 atmospheres. Density of metal approximately 10 -- temperature of metal 300° -- viscosity approximately the same as mercury.

Those present at the meeting were:

Dr. Leo Szilard	-	N. D. R. C.
Dr. E. U. Condon	-	Research Laboratories
Mr. R. A. Bowman	-	Condenser Engrg. Div., S. Phila. Works
Mr. R. C. Bergvall	-	Asst. to Vice President (part-time)
Mr. S. J. Mikina	-	Research Laboratories (part-time)
Mr. M. F. Jones	-	Transportation & Generator Div. (part-time)
Mr. L. W. Chubb	-	Research Laboratories

This problem had been considered by those interested prior to the meeting. Two types of pumps seemed feasible:

- (1) A centrifugal pump, following more or less standard practice and presented by Mr. Bowman of the Steam Division;
- (2) An electromagnetic pump, working on the induction motor principle, suggested by Dr. Szilard.

The mechanical pump was favored by the Westinghouse representatives as being a better engineering proposition and having much higher efficiency.

Dr. Szilard called attention to the necessity of avoiding pollution of the metal due to contact with lubricants, gases and organic materials. He also pointed out that the pump must be 100% reliable in operation without the necessity of service or inspection. It will be located in an inaccessible location when in operation and operation must continue for long periods.

The necessity of lubricants and gland materials in any mechanical pump were thought to be a hazard. Equally high temperatures have been used for bearings in turbine practice but the presence of other destructive agencies made it seem advisable to consider any means which would avoid these undesirable features. It was felt that the electromagnetic unit, without glands or bearings, should be seriously considered in spite of its low efficiency (about 20%).



## Metallurgical Laboratory

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### Minutes of Meeting on Special Pump

After a full discussion of the subject, it was decided that in view of the destructive effects of a possible failure there should be a stand-by pump and that it would be advisable to make preliminary designs and proposals on both types.

Mr. Bowman was to see Mr. Hague and others interested at the Philadelphia Works in connection with the centrifugal unit and report whether they will be willing to go ahead with the development and on what basis.

Mr. Chubb was to call a meeting on the following day with Mr. Powers, Manager of Engineering, and other members of the T. & G. Division to find whether they would be willing to go ahead with the electromagnetic unit.

The meeting adjourned at five o'clock.

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The supplemental meeting on the electromagnetic unit was held as scheduled on September 30th. Those present were:

Mr. F. B. Powers	-	Manager, T. & G. Engrg.
Mr. A. C. Streamer	-	Vice President
Mr. R. C. Bergvall	-	Asst. to Vice President
Dr. E. U. Condon	-	Research Laboratories
Mr. L. W. Chubb	-	Research Laboratories

A memorandum covering the decisions of the supplemental meeting was written and is quoted in part below:

"Mr. Chubb called this meeting to see whether the Transportation & Generator Division was interested in taking on the design contract to design an electromagnetic pump for liquid metal as described in Research Report R-94278-G, dated August 25, 1942, signed by E. U. Condon. Since it was quite likely that by implication, acceptance of a design contract would also mean that the Westinghouse Company was willing to undertake the building of such a unit, Mr. Streamer's advice was asked in Mr. McCully's absence and because Mr. McCully felt that this project being of such special secret nature would require a decision by Mr. Streamer anyway. It was agreed that the Transportation & Generator Division would undertake the project under the following conditions:

"1. Transportation & Generator Division would accept an O.S.R.D. contract with O.S.R.D. accounting on preliminary design of this pump. It is our understanding that O.S.R.D. accounting means actual money paid to the individual, plus 100% overhead, plus all incidental expense such as traveling, telephone, supplies, etc. No guarantees of efficiency or the effectiveness of the pump design would be made. No guarantee would be made as to the time required for the preliminary design although it was estimated that barring unforeseen difficulties, this could be accomplished in approximately two months.



## Metallurgical Laboratory

Minutes of Meeting on Special Pump

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"Following completion of Item 1 and provided unanimous agreement to proceed is reached by both the responsible government agencies and the Westinghouse Company, Part 2 would be undertaken.

"2. Proceed to make final design including necessary tools, the Westinghouse Company accepting no responsibility for the adequacy of the design beyond our endeavor to provide the best material known and use the best talent available for this work. The accounting procedure for Item 2 will be according to Westinghouse true cost plus 10%. The time limit for completion of Item 2 depends upon the priority rating and shop conditions at that time as far as tool requirements are concerned.

"After the completion of Item 2 and again unanimous agreement by the government agencies and the Westinghouse Company to proceed with Item 3, Item 3 will then follow.

"3. Manufacture one unit and provide the necessary testing equipment. All to be covered by a contract based on Westinghouse accounting methods covering true cost plus 10%. No guarantees are to be made in regard to the adequacy of the pump or its performance since it is recognized at the outset that it involves untried design features and temperatures beyond the known limits of present materials.

"Any additional pumps required over and above the one covered in Item 3 are subject to complete renegotiation after acceptance of the first unit covered in Item 3.

"Mr. Chubb explained a patent situation as follows. All patents would have to be turned over to the government and in addition the government would have the right to say when, what and who should file on any patent applications taken out in connection with the project. Mr. Streamer asked whether we would have "shop rights". ('Shop rights' are defined as permitting the Westinghouse Company to incorporate in its own machines such patents.) Mr. Chubb said that we would have 'shop rights'."

The Westinghouse Company will await word from Chicago as to whether the above general proposal will be acceptable and if it is the Westinghouse Company will submit a more complete proposal through the usual channels.

L. W. Chubb, Director  
Research Laboratories

To: Dr. Leo Szilard  
Mr. R. C. Bergvall  
Dr. E. U. Condon  
Mr. R. A. Bowman  
Mr. S. J. Mikina  
Mr. M. F. Jones

CC: Mr. A. C. Streamer  
Mr. F. E. Powers  
Mr. F. T. Hague



1. Heat conductivity of oxide and carbide.
2. Uranium bismuth alloys  
Bismuth iron alloys  
Alloys of bismuth with coating of uranium metal.

Proposal to the above:

Szilard is going to write Wenzel on Monday and give him a detailed request that experiments on the above points be made at the Bureau, and put in a request for an estimate of time for its completion.

It is proposed that Professor Compton should telephone Dr. Getty on Monday morning, and ask him if the Chicago group could employ his research assistant, Schnettler, to work on problem No. 1, at Columbia.

Alternate proposal:

That Professor Compton should telephone the president of Cooper Union, asking him to release Foot to do the metallurgical work either at Columbia, or at the Bureau, or at some place to be discovered by Professor Compton.

Following the suggestion of Creutz, Szilard proposes to ask Furman to make an experiment and determine whether uranium can be purified from rare earths by single ether extraction. If the result is satisfactory, he proposes to ask firms to submit bids to process uranium in this way.

A decision is requested whether or not he should make arrangements for a reduction of uranium oxide to dioxide provided the cost of reduction does not exceed \$1.00 per lb. I have already asked Mr. Murphree to try to obtain bids, but it will be simplest to place this order direct from Chicago.

It is proposed that Professor Compton should arrange in the course of next week for the Metallurgical Project to have the right to place contracts at once for processing materials such as:

making pure uranium oxide out of crude uranium salts,

making pure calcium chloride out of certain raw materials, etc.

In placing such orders I shall keep Mr. Murphree informed so that there will be no danger of overlapping. The present proposal is not intended to cover the present order for 15 tons of uranium oxide.



MEMORANDUM FOR EXECUTIVE BOARD MEETING OF

FEBRUARY 23, 1942.

It has become evident that we are held up in making plans for an industrial plant by lack of information on the following points:

1. The outcome of the exponential experiment for oxide, dioxide and metal.
2. Information on heat conductivity of oxide and carbide chemical behavior of metal and oxide in the presence of carbon at high temperatures.
3. The gamma ray activity of long-lived fission products.
4. The relative abundance of the strong absorbing fission products.

I would like to have authority in connection with the above points, as follows:

1. To make arrangements for procuring uranium dioxide, provided the transformation into dioxide does not cost more than \$1.00 per lb.

In order to make sure that there will be no hitch in fusing uranium in an argon atmosphere, I would like to have the authority to try to borrow Kerst from Illinois for two months and have him help Alexander with this task. If I cannot persuade Loomis to lend us Kerst, I would like to have the authority to make an arrangement with Alvarez, or somebody else at M.I.T. or at Harvard, for a period of four months.

2. I would like to have sanction<sup>ad</sup> for the arrangement method<sup>made</sup> with Spedding, which is described in the enclosed memorandum. I would also like to have the authority for a <sup>designing</sup> ~~a~~ duplication ~~to a~~ similar work with a certain amount of desirable over-

lapping to the Bureau of Standards to be approached through Wenzel. If necessary to assign some such work to Schnettler, who is the research assistant of Jetty, at the Department of Metallurgy of Columbia University; to J. Dorn, or to Foot of Cooper Union, New York.

3. I would like to have authority to arrange with Manley to work on an experiment of the following type: the cyclotron in St. Louis, Mo., to irradiate a sample of uranium oxide for one month under controlled conditions, and the gamma activity of the sample to be followed at Chicago for a period of one month. As far as Manley is concerned, this would not be a full time job, but it would have to have precedence over other tasks that might be assigned to him. Fermi said that he will be prepared to supervise this experiment of Manley's.
4. Fermi is looking into the possibility of getting information concerning this point by a comparatively simple experiment. If he should arrive at the conclusion that this can be done I would like to have authority to arrange for the work to be done under the supervision of Fermi; the physics part being taken care of by Manley, and the chemistry part by Spedding. I shall depart within two weeks whether there is a chance of deciding this point in the near future.



## MEMORANDUM ON CONVERSATION WITH DR. SPEDDING

An attempt will be made by Dr. Spedding to find out something about the following questions:

1. Can uranium dioxide be reduced by carbon in a graphite crucible in an induction furnace. This experiment will be carried out in hydrogen atmosphere.
2. At what temperature is carbide formed from uranium dioxide. This experiment will be carried out in a graphite crucible in an induction furnace. An intimate mixture of carbon and uranium dioxide will be used in a hydrogen atmosphere.
3. An attempt will be made to fuse uranium dioxide in an induction furnace.
4. At what temperature does uranium metal form carbide. At what rate does the carbide diffuse it into the metal.
5. Does liquid bismuth take up uranium if a chunk of uranium is molten in bismuth.
6. An attempt will be made to determine the heat conductivity of granulated uranium carbide and granulated uranium oxide by the following method: the uranium compound will be heated up to about  $800^{\circ}\text{C}$ . by passing hot hydrogen through it. When an equilibrium is reached a cold hydrogen stream will be passed through the granulated structure and the temperature will be measured of the out-going hydrogen stream. It will be observed how the temperature of this hydrogen falls off with time.
7. An experiment will be made about the penetration of the poles of a graphite brick using mercury and later perhaps, bismuth.

It appears doubtful whether the Missouri cyclotron will be able to furnish 94-235 for Dr. Spedding, and it does not seem possible to study the chemistry of 94 with 239-94. Dr. Breit promised to see to it that some 235-94 be procured from Berkeley. I have arrived at the conclusion that it will be necessary for Dr. Spedding to have a conference with Segre and Seaberg.

I should like to be authorized to arrange such a conference after March 15, if such a conference has not taken place until then. The main purpose of this conference would be to decide which methods of detection Dr. Spedding should best use.

October 21, 1943

There will be a meeting of the personnel working full or part time on problems connected with P-9 in room 251, Ryerson at 10:00 A.M., Friday, October 22. Affairs of general interest to the P-9 program will be discussed, and the directive with respect to the scope and purpose of the work will be communicated to the group.

dj

SAMUEL K. ALLISON

153-10590



*Hiskey*

November 1, 1943

S. K. Allison  
J. Chapin  
E. Creutz  
J. Huffman  
L. A. Ohlinger  
G. T. Seaborg  
Gale Young

M. Burton  
C. Hiskey  
T. R. Hogness  
N. Sugarman  
H. C. Vernon  
E. H. Zinn

*L. Szilard*

There will be a P-9 Information Meeting Wednesday, November 3,  
at 2:00 P.M. in room 209 Eckhart.

E. P. Wigner

November 13, 1943

S. K. Allison  
J. Chapin  
E. Creutz  
J. Huffman  
L. A. Ohlinger  
G. T. Seaborg  
Gale Young

M. Burton  
C. Hiskey  
T. R. Hogness  
N. Sugarman  
H. C. Vernon  
E. O. Wollan  
W. H. Zinn  
✓ L. Szilard

A tentative schedule of the meetings of the P-9 Information Committee is presented herewith.

November 18	Chemistry
December 1	Engineering
December 9	General Physics
December 15	Physics
December 19	Chemistry
December 23	Engineering

The above dates are tentative and serve only as orientation.

The exact time and place will be given later.

E. P. Wigner



GROUP LEADERS  
Please spread  
word of this  
meeting to all  
group members

*H. H. H. H.*

MEETING OF SCIENTIFIC PERSONNEL

Room 133 - Eckhart Hall - 7:45 P.M.

Thursday, November 19, 1943

\* \* \*

"Past and Future of Particle Physics"

E. FERMI

\* \*

All members of the scientific and technical staff are invited.

METALLURGICAL LABORATORY

Patent Agreement

Dec. 7<sup>th</sup>, 1943

In consideration of and as an inducement to the Metallurgical Laboratory of The University of Chicago to employ me, and in recognition of the fact that the Metallurgical Laboratory is engaged exclusively in the performance of a contract with the Government of the United States, I hereby agree:

1. That the services for which I am employed and paid include the improvement of the processes, apparatus, machines, and appliances which the Metallurgical Laboratory is utilizing in the course of its work and all researches related thereto.

2. That every invention or improvement developed by me during the course of such employment or resulting from or suggested by any work which I may do in the course of such employment, pertaining to the work now or hereafter carried on by the Metallurgical Laboratory, shall become the property of the Government of the United States.

3. To disclose promptly and fully all information concerning all such inventions or improvements to the Director of the Laboratory or such employee of the Laboratory as he may designate, and to assist the Metallurgical Laboratory and its officers and agents designated for that purpose in every possible way to obtain for the Government of the United States patents on any and all such inventions or improvements in the United States and in any and all foreign countries.

4. To assign by effective written instruments in such forms as may be determined by the Metallurgical Laboratory of The University of Chicago my entire right, title, and interest in and to each, every, and all such inventions and improvements to become the property of the Government of the United States and to be and remain its property whether patented or not.

5. To grant the Government of the United States full and exclusive power and right to prosecute at its expense by its attorney or attorneys any and all such applications for patents made by me pursuant to this agreement, and any and all proceedings in connection therewith, and to give such assistance and information and to execute all such applications for letters patent and other papers necessary or desirable to carry this agreement into effect.

Subscribed and sworn to  
before me, this 7<sup>th</sup>  
day of December, 1943.

Eleanor Robinson  
Notary Public

MY COMMISSION EXPIRES NOV. 10, 1947



*Test prepared  
referred to*

METALLURGICAL LABORATORY

Patent Agreement

*Dec. 7<sup>th</sup>*, 19*43*

In consideration of and as an inducement to the Metallurgical Laboratory of The University of Chicago to employ me, and, in recognition of the fact that the Metallurgical Laboratory is engaged exclusively in the performance of a contract with the Government of the United States, I hereby agree:

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4. To assign by effective written instruments in such forms as may be determined by the Metallurgical Laboratory of The University of Chicago my entire right, title, and interest in and to each, every, and all such inventions and improvements to become the property of the Government of the United States and to be and remain its property whether patented or not.

5. To grant the Government of the United States full and exclusive power and right to prosecute at its expense by its attorney or attorneys any and all such applications for patents made by me pursuant to this agreement, and any and all proceedings in connection therewith, and to give such assistance and information and to execute all such applications for letters patent and other papers necessary or desirable to carry this agreement into effect.

Subscribed and sworn to  
before me, this \_\_\_\_\_  
day of \_\_\_\_\_, 19\_\_\_\_.

*[Signature]* (SEAL)

\_\_\_\_\_  
Notary Public

*Woodson*  
*MARRISON*  
*6080*

Voter

Test  
O'Neil



Chicago, Ill. December 8, 1943

IN CONSIDERATION of my employment by the Metallurgical Laboratory of the University of Chicago, I agree that I will communicate to the Director, or such other individual as the Director may from time to time designate, all inventions in connection with the work on which I am employed and generally any and all inventions relating to physics, chemistry or the mechanical or electrical arts, or their application to industry, which I may make from the time of entering the employment of said Laboratory until I leave said employment, and will, under the direction of said Laboratory, do whatever is necessary to take out patents on these inventions in all or any countries as, and when, requested before or after leaving its employment, and will assign the inventions and all patents and applications relating to them to the University of Chicago, as and when, requested before or after leaving its employment, it being understood that the necessary cost and expense of making such assignments and procuring such Letters Patent shall be paid by others than myself. I recognize that the making of such inventions and transferring them to the University of Chicago is an important part of the work for which I and the other employees of said Division in its laboratory are employed, and I accept my employment with this understanding and agree to perform said duties fully in letter and in spirit.

Witness my hand and seal.

Signature Lh (Seal)

Subscribed and sworn to before  
me this 8th day of December 1943

---

Notary Public



Metallurgical Laboratory

*The Szilard*

THIS DOCUMENT HAS BEEN  
TAKEN FROM A FILE OF THE  
ARGONNE NATIONAL LABORATORY  
AND WAS TURNED OVER TO  
DR. LEO SZILARD ON  
NOV 18 1956

December 13, 1943

Foreign Broadcast Intelligence Service  
Chief of the Analysis Division  
1424 K Street, N. W.  
Washington, D. C.

Dear Sir:

We would greatly appreciate it if you could let us have from now on all material taken from the foreign press or from foreign broadcasts which contain references to new German weapons or to some secret German weapon. Whenever the German text is available to you we would be grateful if you could let us have the German text also.

Assuming that you have a special file of foreign material that refers to a new German weapon or to some secret German weapon that covers the last six months or so, we would greatly appreciate obtaining a copy of that collection also.

Yours very truly,

H. H. Goldsmith  
Information Department

HHG:meh



R E S T R I C T E D

EMPLOYMENT CONTRACT

THE UNIVERSITY OF CHICAGO

Metallurgical Laboratory

December 22, 1943.

Dear Mr. LEO SZILARD:

This letter will serve to record our mutual understandings with respect to the basis upon which you have agreed to become an employee of the Metallurgical Laboratory of the University of Chicago (hereinafter called the "Laboratory").

1. The term of your employment will be retroactive to the first day of January, 1943, and unless terminated earlier by mutual consent or pursuant to the rights and privileges hereinafter reserved to the Laboratory will continue until the 30th day of June, 1944.

2. The general duties of your employment will be those of

Chief Physicist

You will agree to devote your entire time, attention and energy to the performance of the duties so assigned to you, subject to the direction of the Director of the Laboratory and to your immediate superiors and in conformity with all the general rules and regulations applicable to employees of the Laboratory now in effect or from time to time adopted during the term of your employment.

3. Your compensation will be nine hundred and fifty

(\$950.00) Dollars per month payable monthly.

4. In addition to such compensation, you will be reimbursed for the cost of transportation for yourself, your family, and your household effects (including automobile, if any) by means of the most direct route, from Chicago to New York, New York at the end of such employment. Instructions covering travel and moving are attached hereto.

5. In addition to reimbursement described in numbered paragraph 4. hereof, you will be reimbursed for the actual cost of living expenses incurred by you during the time you are obtaining a permanent place of residence at the new location (up to a maximum of three (3) days for a single man or fifteen (15) days for a man accompanied by dependents).

R E S T R I C T E D

6. It is understood that the Laboratory is engaged exclusively in the performance of a contract with the United States Government. In the event said contract shall be terminated for any cause, the Laboratory reserves the right and privilege to terminate your employment with it upon written notice to you of its desire and intention to do so, specifying the effective date of such termination subject to the condition that such notice shall be served upon you personally or by deposit in the United States Mail, postage prepaid and registered, addressed to you at your last known address, at least one ( 1 ) months prior to the effective date of such termination.

7. It is understood that you will be bound by and observe all laws, rules and regulations of the United States Government applicable to contracts with respect to the work being carried on and to the disclosure of information with respect thereto. It is also understood that the Laboratory reserves the right to terminate this contract and your employment hereunder upon ten (10) days' notice, for good and sufficient cause, including but not limited to incompetency, neglect of duty, violation of the applicable rules and regulations of the Laboratory or of the United States Government, or conduct inimical to the interests of the United States Government.

8. It is understood that you will be required to and that you agree to execute an agreement transferring to the United States Government, all rights to inventions or improvements conceived or developed by you during the course of your employment or to patents based thereon.

9. As a condition of your employment you agree to furnish a birth certificate or other adequate evidence of citizenship.

Very truly yours,

METALLURGICAL LABORATORY  
OF THE UNIVERSITY OF CHICAGO

BY J. C. Stearns

J. C. Stearns  
Director of Personnel

W. C. Munnecke

W. C. Munnecke  
Associate Project Director for Administration

Accepted:

December 22, 1943

Lee Liland  
Employee

Approved:

W. C. Munnecke, 17/12/43

W. C. Munnecke, Capt C.E.  
Contracting Officer  
12/30/43



PATENT AGREEMENT

Dec 22, 1945

In consideration of and as an inducement to the Metallurgical Laboratory of the University of Chicago to employ me, and in recognition of the fact that the Metallurgical Laboratory is engaged exclusively in the performance of a contract with the Government of the United States, I hereby agree:

1. That the services for which I am employed and paid include the improvement of the processes, apparatus, machines, and appliances which the Metallurgical Laboratory is utilizing in the course of its work and all researches related thereto.
2. That every invention or improvement developed by me during the course of such employment pertaining to the work now or hereafter carried on by the Metallurgical Laboratory, shall become the property of the Government of the United States.
3. To disclose promptly and fully all information concerning all such inventions or improvements to the Director of the Laboratory or such employee of the Laboratory as he may designate, and to assist the Metallurgical Laboratory and its officers and agents designated for that purpose in every possible way to obtain for the Government of the United States patents on any and all such inventions or improvements in the United States and in any and all foreign countries.
4. To assign by effective written instruments in such forms as may be determined by the Metallurgical Laboratory of The University of Chicago my entire right, title, and interest in and to each, every, and all such inventions and improvements to become the property of the Government of the United States and to be and remain its property whether patented or not.
5. To grant the Government of the United States full and exclusive power and right to prosecute at its expense by its attorney or attorneys any and all such applications for patents made by me pursuant to this agreement, and any and all proceedings in connection therewith, and to give such assistance and information and to execute all such applications for letters patent and other papers necessary or desirable to carry this agreement into effect.

Subscribed and sworn to  
before me, this \_\_\_\_\_  
day of \_\_\_\_\_, 19\_\_\_\_.

L. R.  
\_\_\_\_\_(SEAL)

\_\_\_\_\_  
Notary Public



To: Dr. Leo SzilardDelivered  
(Postal registry number or classified mail number)

## RECEIPT OF CLASSIFIED MATERIALS

ORIGINAL —To be signed personally by the recipient or his authorized delegate and returned to sender.

DUPLICATE —To be retained by recipient.

TRIPLICATE —To be retained by sender for suspense file and destroyed when signed original is returned.

Lt. Col. H. E. Metcalf, C. E.

I have personally received from (sender).....

Box 5207, Chicago, Illinois, the material as identified below. I assume full responsibility for the safe handling, storage, and transmittal elsewhere of this material in accordance with existing regulations.

The material, including enclosures and attachments, is identified as follows: (In identifying material, avoid any reference which might cause the receipt form to become CLASSIFIED)

Description	Date of Document	From	Reference or File No.	Addressed to	Date Mailed
SOL in re Copies of applications forwarded by RAL for delivery.	2/12/45	Lavender	1A of 5	Dr. Szilard	2/15/45

SO: signed original; CC: carbon copy; PC: photostatic copy; TC: typed copy; DM: ditto master; DC: ditto copy

L. Szilard

(Signature of Recipient)

Febr 15 1945

(Date)

RECIPIENT'S COPY



Minutes of Conference with Dr. Szilard on 1 November 1945.  
Present: Captain Robert A. Lavender, Dr. Leo Szilard, and  
Lt. Comdr. Roland A. Anderson

Dr. Szilard was informed that he will be furnished as his own personal property a copy of the applications that have been signed by him and applications that are signed by him in the future.

It is contemplated that the documents shall initially be placed in safe keeping by Dr. Szilard with the Metallurgical Laboratory of the University of Chicago but these documents may be moved by Dr. Szilard with the approval of Dr. Arthur Compton to a storage space as provided for the safe keeping of top secret documents, such approval being based on Dr. Compton's own personal judgment of the security problems involved, to any other place where top secret documents are stored by the Army or Navy or are stored by a Government agency which may be set up for the purpose of taking over the guidance of the Atomic Energy Project from the Manhattan District.

All limitations as to conditions of storage of these documents will be removed upon formal release of such information.

The foregoing proposal is acceptable to me.

Dated 16<sup>th</sup> day of November, 1945

L. S.



Agreement

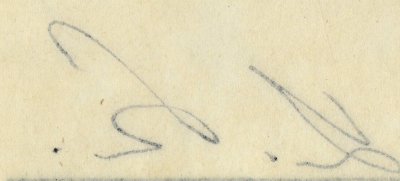
Minutes of Conference with Dr. Sallard on 1 November 1945.  
Present: Captain Robert A. Javender, Dr. Leo Sallard, and  
Lt. Comdr. Roland A. Anderson

Dr. Sallard was informed that he will be furnished as his own  
personal property a copy of the applications that have been signed by him  
and applications that are signed by him in the future.  
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University of Chicago but these documents may be moved by Dr. Sallard with  
the approval of Dr. Arthur Compton to a storage space as provided for the  
safe keeping of top secret documents, such approval being based on  
Dr. Compton's own personal judgment of the security problems involved, to  
any other place where top secret documents are stored by the Army or Navy  
or are stored by a Government agency which may be set up for the purpose  
of taking over the guidance of the Atomic Energy Project from the Manhattan  
District.

All limitations as to conditions of storage of these documents  
will be removed upon formal release of such information.

The foregoing proposal is acceptable to me.

Dated 12 day of November, 1945





January 12, 1945

Mr. R. S. Mulliken

The undersigned

We understand that you may have difficulty in getting any movers to rearrange the distribution of workers in the Information Office for tomorrow or Monday. We are therefore writing to you to let you know that we shall be at your disposal either tomorrow or Monday to move the furniture of the Information Office as directed by you.

We have limited the signatures of this document to those who work on the fourth floor of Eckhart Hall since we believe that this number should be sufficient to carry out this work.

A. V. Martin  
J. E. Wilkins, Jr.  
Harry Soodak  
Mildred Ginsburg  
Albert Cahn, Jr.  
Hilda Castle Uchiyamada  
K. Way  
Harold Schweinler  
W. Karush  
M. L. Goldberger  
Jeanette J. Plotkin  
A. M. Weinberg



ACADEMIC CHECK OUT PROCEDURE

(FILL OUT IN DUPLICATE)

1. PERSONNEL FILE
2. EMPLOYEE'S COPY

NAME SZILARD LEO TITLE Chief physicist  
(LAST) (FIRST) (MIDDLE INITIAL) (GROUP LEADER, SECTION CHIEF, ETC.)

WHERE EMPLOYED General Administration TERMINATION DATE 6/1/46  
(DIVISION AND SECTION)

NAME OF SUPERVISOR F. Daniels TITLE OF SUPERVISOR Division Director

INSTRUCTIONS: BEFORE ISSUANCE OF FINAL PAY-CHECK IT WILL BE NECESSARY FOR EACH ACADEMIC EMPLOYEE TO SECURE CLEARANCE FROM THE OFFICES SHOWN BELOW. THIS CLEARANCE WILL BE INDICATED BY THE SIGNATURE OF A RESPONSIBLE INDIVIDUAL AT EACH OFFICE. WHEN TERMINATION NOTICE IS RECEIVED YOU SHOULD START AT ONCE TO SECURE THE NECESSARY SIGNATURES ON ITEMS 1,2,3,4. ITEM 5 APPLIES TO ONLY THOSE INDIVIDUALS HAVING INCOMING MOVING AGREEMENTS OR OPEN ITEMS ON TRAVEL ACCOUNTS. ITEM 6 NEED NOT BE COMPLETED UNTIL DATE OF TERMINATION. ITEMS 7 AND 8 WILL NEED TO BE COMPLETED BY ONLY THOSE PERSONS AT THE LEVEL OF SECTION CHIEF OR HIGHER. BOTH OF THESE COPIES SHOULD BE BROUGHT TO THE PERSONNEL DEPARTMENT ON DATE OF TERMINATION.

1. PATENT OFFICE [Signature]  
ARMORY 351 (SIGNATURE INDICATING CLEARANCE)

2. HEALTH OFFICE (FINAL PHYSICAL) [Signature]  
DREXEL HOUSE (SIGNATURE INDICATING CLEARANCE)

3. LIBRARY H. S. Young per L. McKenzie  
RYERSON 251 (SIGNATURE INDICATING CLEARANCE)

4. CLASSIFIED REPORTS AND NOTEBOOKS I. Savant C. Cohen 8/14/46  
ARMORY 109 (SIGNATURE INDICATING CLEARANCE)

5. TRAVEL AND AUDITS [Signature]  
NEW CHEM 122 (SIGNATURE INDICATING CLEARANCE)

6. SECURITY OFFICE [Signature] 8/17/46  
ARMORY 101 (SIGNATURE INDICATING CLEARANCE)

- (A) KEYS ☒ (C) SECURITY MANUAL ☒  
(B) PERSONNEL HANDBOOK ☒ (D) BADGE ☒  
(E) SAFETY GLASSES ☒

7. SPECIAL MATERIALS [Signature]  
CHIEF ADMINISTRATIVE OFFICER (SIGNATURE INDICATING CLEARANCE)  
RYERSON 255

8. PRECIOUS METALS [Signature]  
CHIEF ADMINISTRATIVE OFFICER (SIGNATURE INDICATING CLEARANCE)  
RYERSON 255

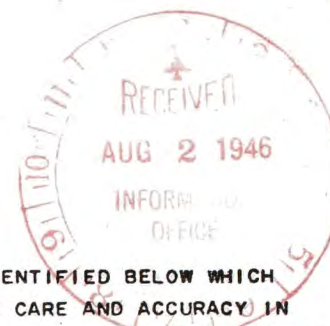


METALLURGICAL LABORATORY PROJECT FORM MP-176A  
THE UNIVERSITY OF CHICAGO

TRANSFER OF SECRET AND CONFIDENTIAL DOCUMENTS  
TO CENTRAL FILE

TO: CENTRAL FILE

FROM: L. Szilard. ENCLOSED HERewith ARE SECRET AND CONFIDENTIAL DOCUMENTS AS IDENTIFIED BELOW WHICH I AM TRANSFERRING FROM MY CUSTODY TO CENTRAL FILE. (INSTRUCTIONS: AS THIS WILL CONSTITUTE A PERMANENT RECORD, USE CARE AND ACCURACY IN LISTING AND DESCRIBING THE DOCUMENTS. MAKE OUT IN QUADRUPLICATE. CUT THE CARBON PAPER USED FOR THE 3RD AND 4TH COPIES SO THAT THE SECTION GIVING THE DESCRIPTION OF THE DOCUMENTS, MAKING THE COMPLETED FORM ITSELF CLASSIFIED, WILL BE OMITTED FROM THESE COPIES. DO NOT ATTEMPT TO CROWD TOO MANY ITEMS ONTO ONE FORM. FOR RESTRICTED AND UNCLASSIFIED DOCUMENTS USE MP-176B).



LOG BK. & PG. NO. ON WHICH ORIG. LISTED	MUC OR OTHER DOC. REF. NO.	COPY & SERIES	CLSFD. S OR C	DATE OF DOCUMENT	AUTHOR AND SOURCE, IF DIFFERENT	ADDRESSEE	TITLE, DESCRIPTION OR CONTENTS	LEAVE THIS COLUMN BLANK
--	EIDM WL-11b	1A 2A	S	8/31/45	C. C. Pierce, Jr.	L. Szilard	Returning report A-55	

MATERIAL LISTED ON THIS RECEIPT (2) RECEIVED AND CHECKED FOR CENTRAL FILE

BY H. L. Cotton, DATE 8-7-46.

COPY 1 (INCLUDING DESCRIPTION) - CENTRAL FILE RECORD  
COPY 2 (INCLUDING DESCRIPTION) - CENTRAL FILE RECORD

✓ COPY 3 (OMITTING DESCRIPTION) - CENTRAL FILE; TO BE RETURNED AS RECEIPT TO SENDER

COPY 4 (OMITTING DESCRIPTION) - SENDER HOLDS AS SUSPENSE COPY UNTIL CC 3 RECEIVED; THEN DESTROY.