

~~SECRET~~

This document consists of 1 pages  
No. 1 of 3 copies, series A

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D

Metallurgical Laboratory

P.O. BOX 5207  
CHICAGO 80, ILLINOIS

*Misc PA 75-79*

2 January 1945

To: Dr. Leo Szilard  
From: Lt. Col. H. E. Metcalf

*MED  
Jen*

This will acknowledge your handing to Lt. H. W. Johnson executed formal papers dated 2 January 1945 for the filing of British and Canadian patent applications corresponding to your joint case with Dr. Fermi, Serial No. 568,904, filed 19 December 1944.

These papers are being forwarded to the O.S.R.D. Patent Group, Washington, D.C., who will assume responsibility for future handling thereof.

*H. E. Metcalf*

H. E. Metcalf, Lt. Col. C.E.  
Advisor on Patent Matters  
O.S.R.D., Chicago Group

HWJ:VK

cc to Lavender

This document contains information affecting the National defense of the United States within the meaning of the Espionage Act, U.S.C. 18, 793 and 794. Its transmission or revelation of its contents in any manner to an unauthorized person is prohibited by law.

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~~SECRET~~

THIS DOCUMENT CONSISTS OF 1 PAGES *74bs,3*

NO 1 OF 4 COPIES SERIES A

ARMY SERVICE FORCES  
UNITED STATES ENGINEER OFFICE  
MANHATTAN DISTRICT  
CHICAGO AREA OFFICE  
P. O. BOX 6140 A  
CHICAGO 80, ILLINOIS

20 January 1945

*MR D  
John*

IN REPLY REFER TO EIDM CGA-3  
W-7401-eng-156

Dr. Leo Szilard  
Room 330, Eckhart Hall  
The University of Chicago  
Chicago, Illinois

Dear Dr. Szilard:

Pursuant to telephone conversation of 18 January 1945, it is requested that draft copy of supplement to Contract W-7401-eng-156 be forwarded this office for transmittal to District Office.

For the Area Engineer:

Very truly yours,

CLASSIFIED FILE SECTION  
MANHATTAN ENGINEER DISTRICT  
CHICAGO AREA OFFICE  
DISPATCHED

JAN 22 1945

AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

2875

*H. S. Carter*

H. S. CARTER  
Chief Project Auditor

This document contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., and 31 32. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

~~SECRET~~

THIS DOCUMENT HAS BEEN  
CLASSIFIED AS SECRET  
BY THE NATIONAL SECURITY AGENCY  
ON 05-15-80

February 7, 1945

Mr. H. S. Carter *3221*

Area Office

Mr. L. Szilard *unclassified*

MUC-*LS-53*

EIDM CGA-3  
W-7401-eng-156

This document consists of 1  
pages and 1 figures  
No. 1 of 1 copies, Series A

In response to your letter of January 20 I am inclosing the  
draft copies of supplement to Contract W-7401-eng-156.

ls:ls  
incls. (3)

*MSJ*

This document contains information affecting the national  
defense of the United States within the meaning of the  
Espionage Act, 18 U.S.C. 56, 31 and 32. Its transmission  
or the revelation of its contents in any manner to an  
unauthorized person is prohibited by law.

~~SECRET~~

*Tolman*

March 20, 1945

Dr. Richard C. Tolman  
2101 Constitution Avenue  
Washington, D. C.

Dear Dr. Tolman:

Dr. Szilard, who is out of Chicago, has asked me to send the inclosed documents to him in your care and to tell you that he will call you on his arrival in Washington either Thursday or Friday to make an appointment to discuss these documents with you.

Yours sincerely,

Secretary

112 Mercer Street  
Princeton, New Jersey  
March 25, 1945

The Honorable Franklin Delano Roosevelt  
The President of the United States  
The White House  
Washington, D. C.

Sir:

I am writing you to introduce Dr. L. Szilard who proposes to submit to you certain considerations and recommendations. Unusual circumstances which I shall describe further below induce me to take this action in spite of the fact that I do not know the substance of the considerations and recommendations which Dr. Szilard proposes to submit to you.

In the summer of 1939 Dr. Szilard put before me his views concerning the potential importance of uranium for national defense. He was greatly disturbed by the potentialities involved and anxious that the United States Government be advised of them as soon as possible. Dr. Szilard, who is one of the discoverers of the neutron emission of uranium on which all present work on uranium is based, described to me a specific system which he devised and which he thought would make it possible to set up a chain reaction in un-separated uranium in the immediate future. Having known him for over twenty years both from his scientific work and personally, I have much confidence in his judgment and it was on the basis of his judgment as well as my own that I took the liberty to approach you in connection with this subject. You responded to my letter dated August 2, 1939 by the appointment of a committee under the chairmanship of Dr. Briggs and thus started the Government's activity in this field.

The terms of secrecy under which Dr. Szilard is working at present do not permit him to give me information about his work; however, I understand that he now is greatly concerned about the lack of adequate contact between scientists who are doing this work and those members of your Cabinet who are responsible for formulating policy. In the circumstances I consider it my duty to give Dr. Szilard this introduction and I wish to express the hope that you will be able to give his presentation of the case your personal attention.

Very truly yours,

*A. Einstein*

*Final  
before  
copy*

ENCLOSURE TO MR. ARTHUR WEINSTEIN'S LETTER OF  
MARCH 25, 1945 TO THE PRESIDENT OF THE UNITED STATES

by  
L. Szilard

The work on uranium has now reached a stage which will make it possible for the Army to detonate atomic bombs in the immediate future. The "demonstration" of such bombs may be expected rather soon and naturally the War Department is considering the use of such bombs in the war against Japan.

From a purely military point of view this may be a favorable development. However, many of those scientists who are in a position to make allowances for the future development of this field believe that we are at present moving along a road leading to the destruction of the strong position that the United States hitherto occupied in the world. It appears probable that it will take just a few years before this will become manifest.

Perhaps the greatest immediate danger which faces us is the probability that our "demonstration" of atomic bombs will precipitate a race in the production of these devices between the United States and Russia and that if we continue to pursue the present course, our initial advantage may be lost very quickly in such a race.

If a nation were to start now to develop atomic bombs, so to speak from scratch, it could do so without reproducing many of the expensive installations which were built by the War Department during the War.

- 1 -

It is now a well known fact that we could develop methods by means  
of which atomic bombs can be produced from the main component of uranium  
which is more than one hundred times as abundant than the pure component  
from which we are manufacturing atomic bombs at present. We must expect  
that a case of about 3500 million some nations may accumulate, within six  
years, a quantity of atomic bombs that will correspond to ten million tons  
of T.N.T. A single bomb of this type weighing about one ton and containing  
less than 200 pounds of active material may be expected to destroy an  
area of ten square miles. Under the conditions expected to prevail six  
years from now, most of our major cities might be completely destroyed  
in one single sudden attack and their populations might perish.

In the United States, thirty million people live in cities with  
a population of over 250,000 and a consideration of this and other factors  
involved indicates that the United States will be much more vulnerable  
than most other countries.

Thus the Government of the United States is at present faced with  
the necessity of arriving at decisions which will control the course that  
is to be followed from here on. These decisions ought to be based not  
on the present evidence relating to atomic bombs, but rather on the situation  
which can be expected to confront us in this respect a few years from now.  
This situation can be evaluated only by men who have first-hand knowledge  
of the facts involved, that is, by the small group of scientists who are  
actively engaged in this work. This group includes a number of eminent

Scientists who are willing to present their views; there is, however, no mechanism through which direct contact could be maintained between them and those men who are, by virtue of their position, responsible for determining the policy which the United States might pursue.

The points on which decisions appear to be most urgently needed are as follows:

1. Shall we aim at trying to avoid a race in the production of atomic bombs between the United States and certain other nations?

2. Can a system of controls relating to this field be devised which is sufficiently tight to be relied on by the United States and which has some chance of being accepted under otherwise favorable conditions by Russia and Great Britain?

3. Can we materially improve our chances to obtain the cooperation of Russia in setting up such a system of controls by developing in the next two years modern methods of production which would give us an overwhelming superiority in this field at the time when Russia might be approached?

4. What framework could immediately be set up within which the scientific development of such "modern" methods could vigorously be pursued both under present and postwar conditions? Should, for instance, this framework be set up under the Secretary of Commerce or under the Secretary of the Interior, or should the scientific development be under a Government-owned corporation jointly controlled by the Secretary of Commerce, the Secretary of the Interior, and the Secretary of War?



5. Should the scientific development work be based on the assumption that a race in the production of atomic bombs is unavoidable and accordingly be aimed at maximum potential of war, say in six years from now, or should the scientific development be rather aimed at putting us into a favorable position with respect to negotiations with our Allies one or three years from now?

6. Should, in the light of the decisions concerning the above points, our "demonstration" of atomic bombs and their use against Japan be delayed until a certain further stage in the political and technical development has been reached so that the United States shall be in a more favorable position in negotiations aimed at setting up a system of controls?

Other decisions, which are needed but which are perhaps less urgent, would come within the competence of the Department of the Interior.

If there were in existence a small subcommittee of the Cabinet (having as its members, the Secretary of War, either the Secretary of Commerce or the Secretary of the Interior, a representative of the State Department, and a representative of the President, acting as the secretary of the Committee), the scientists could submit to such a committee their recommendations either by appearing from time to time before the committee or through the secretary of the committee.

The latter, if so authorized, by the President, could also act as a liaison to the scientists prior to the designation of such a subcommittee. At his disposal could then be placed a memorandum which has been prepared in an attempt to analyze the consequences of the scientific and

technical development which we have to anticipate. The memorandum was prepared on the basis of consultations with ten scientists from six different institutions in the United States. These and other eminent scientists who were not consulted would undoubtedly avail themselves of the opportunity of presenting their views to a man authorized by the President, assuming that such a man would have the time at his disposal which a study of this kind would require.

bbs (8)

THE UNIVERSITY OF CHICAGO

DATE May 9, 1945

TO Dr. Leo Szilard

DEPARTMENT Patent Office

FROM John A. O'Hearn

DEPARTMENT Finance Director, Metallurgy

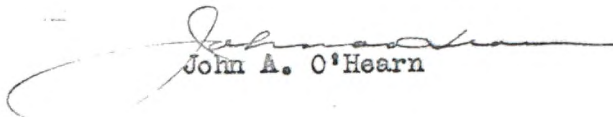
IN RE: OSRD Case No. S-506

You will find enclosed herewith University of Chicago check #14528 in the amount of \$1.00, and drawn in your favor.

This check represents reimbursement for signature charge on Patent Application Case No. S-506, and was requested by Lt. Col. H. E. Metcalf.

Kindly acknowledge receipt of same by signing and returning to this office the enclosed copy of this letter.

es

  
John A. O'Hearn

cc: A. Lincicome  
H. E. Metcalf  
file - 2

THE WHITE HOUSE

WASHINGTON

*Spartanburg*  
*S. Carolina*

*Phone*

*794*

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

*Aug 29, 1956.*  
*Dwight D. Eisenhower*



## WARDMAN PARK HOTEL

Washington 8, D.C.

1300 ROOMS

May 26<sup>th</sup> - 45

Dear Mrs. Byrnes,

The White House advises me that an interview has been arranged with you at Spartenburg for May 28 at 11 a.m. —

Included in this interview will be Dr. W. Barby, acting Dean at the Physiological Sciences Division of the University of Chicago and Dr. H. C. Vrey of Columbia University of whom probably know. —

I am directed by the White House to ~~submit~~ <sup>present</sup> to you the enclosed letter of Mr. Albert Einstein. This letter, which did not reach Mr. Roosevelt, was returned to me yesterday by the White House so that I may present it to you. —

Yours very truly Leo Pastorek

66 s 18  
L...

R E S T R I C T E D

No. 1 A

METALLURGICAL LABORATORY  
P.O.Box 5207  
Chicago 80, Illinois  
14 June 1945

~~XXXXXX~~

Re: Case No. S-506  
Serial No. 596,465  
Filing Date May 29, 1945

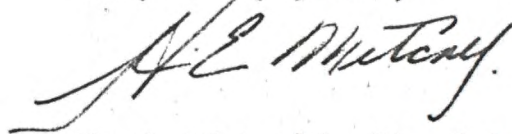
Dear Dr. Szilard:

Your patent application identified above has been filed in the United States Patent Office. You no doubt will receive from the Patent Office a notice of issuance of an order of Secrecy under Public Law 700 together with a request that the application be tendered for the use of the United States Government. You will also receive a receipt to be filled in and returned to the Patent Office in Washington.

Kindly execute and return the receipt to the Patent Office. Do NOT tender the invention in this application to the Government as requested by the notice, as you have already assigned the invention to the Government as represented by the Director of the Office of Scientific Research and Development.

If you should receive a request for tender from some other Government agency, please send such request to me or to Captain Robert A. Lavender, 1530 P St., N.W., Washington 25, D. C. A tender by you to some other Government agency would only complicate matters in view of the fact that you have already assigned the invention to the Government.

Very truly yours,



H. E. Metcalf, Lt. Col., C.E.  
O.S.R.D., Chicago Group

rs

R E S T R I C T E D

Eckhart

THE QUADRANGLE CLUB  
CHICAGO

1155 East 57th St.


May 25, 1945

The Honorable Harry S. Truman  
The President of the United States  
The White House  
Washington, D. C.

Sir:

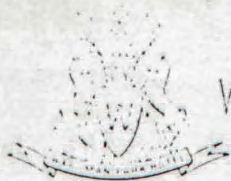
I have the honor to transmit to you a letter of introduction written by Professor Albert Einstein to the late President of the United States to whom--on account of his early death--I was unable to present it. The document to which Mr. Einstein's letter refers is attached as a second inclosure and is respectfully submitted for your consideration.

Very truly yours,



Leo Szilard

Copy of a draft



WARDMAN PARK HOTEL

Washington 8, D.C.

CONNELLY AVENUE & WOODLEY ROAD  
1800 ROOMS

May 26<sup>th</sup> - 45

Dear Mrs. Byrnes,

The White House advises me that an interview has been arranged with you at Spartenburg for May 28 at 11 a.m. —

Included in this interview will be Dr. W. Barby, acting Dean of the Physical Sciences Division of the University of Chicago and Dr. H. C. Urey of Columbia University of whom probably know. —

I am directed by the White House to ~~submit~~ <sup>present</sup> to you the enclosed letter of Mr. Albert Einstein. This letter, which did not reach Mr. Roosevelt, was returned to me yesterday by the White House so that I may present it to you. —

Yours very truly Leo Postol



earlier version than the one  
published in Perspective. v

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Kw.

ENCLOSURE TO MR. ALBERT EINSTEIN'S LETTER OF  
MARCH 25, 1945 TO THE PRESIDENT OF THE UNITED STATES

by

L. Szilard

The work on uranium has now reached a stage which will make it possible for the Army to detonate atomic bombs in the immediate future. The "demonstration" of such bombs may be expected rather soon and naturally the War Department is considering the use of such bombs in the war against Japan.

From a purely military point of view this may be a favorable development. However, most of those scientists who are in a position to make allowances for the future development of this field believe that we are at present moving along a road leading to the destruction of the strong position that the United States hitherto occupied in the world. It appears probable that it will take just a few years before this will become manifest.

Perhaps the greatest immediate danger which faces us is the probability that our "demonstration" of atomic bombs will precipitate a race in the production of these devices between the United States and Russia and that if we continue to pursue the present course our initial advantage may be lost very quickly in such a race.

If a nation were to start now to develop atomic bombs, so to speak from scratch, it could do so without reproducing many of the expensive

installations which were built by the War Department in the United States. For over a year now we have known that we could develop methods by means of which atomic bombs can be produced from the main component of uranium which is more than one hundred times as abundant than the rare component from which we are manufacturing atomic bombs at present. We must expect that a cost of about \$500 million some nations may accumulate, within six years, a quantity of atomic bombs that will correspond to ten million tons of TNT. A single bomb of this type weighing about one ton and containing less than 200 pounds of active material may be expected to destroy an area of ten square miles. Under the conditions expected to prevail six years from now, most of our major cities might be completely destroyed in one single sudden attack and their population may be killed.

Twenty-three percent of the population of the United States live in cities with a population of over 250,000 and a consideration of this and other factors involved indicates that the United States will be much more vulnerable than most other countries.

Thus the Government of the United States is at present faced with the necessity of arriving at decisions which will control the course that is to be followed from here on. These decisions ought to be based not on the present evidence relating to atomic bombs, but rather on the situation which will confront us in this respect a few years from now. This situation can be evaluated only by men who have first-hand knowledge of the facts involved, that is, by the small group of scientists who are actively engaged in this work. This group includes quite a number of eminent scientists who are willing to present their views; there is,

however, no mechanism through which direct contact could be maintained between them and those men who are, by virtue of their position, responsible for formulating the policy which the United States might pursue.

The points on which decisions appear to be most urgently needed are as follows:

1. Shall we aim at trying to avoid a race in the production of atomic bombs between the United States and certain other nations?
2. Can a system of controls relating to this field be devised which is sufficiently tight to be relied on by the United States and which has some chance of being accepted under otherwise favorable conditions by Russia and Great Britain?
3. Can we materially improve our chances to obtain the cooperation of Russia in setting up such a system of controls by developing in the next two years modern methods of production which would give us an overwhelming superiority in this field at the time when Russia might be approached?
4. What framework could immediately be set up within which the scientific development of such "modern" methods could vigorously be pursued both under present and postwar conditions? In particular, should this framework be set up under the Secretary of Commerce or under the Secretary of the Interior, or should the scientific development be under a Government owned corporation jointly controlled by the Secretary of Commerce, the Secretary of the Interior, and the Secretary of War?

5. Should the scientific development work be based on the assumption that a race in the production of atomic bombs is unavoidable and accordingly be aimed at maximum potential of war, say in six years from now, or should the scientific development be rather aimed at putting us into a favorable position with respect to negotiations with our Allies two or three years from now?

6. Should, in the light of the decisions concerning the above points, our "demonstration" of atomic bombs and their use against Japan be delayed until a certain further stage in the political and technical development has been reached with a view to putting the United States in a more favorable position in negotiations aimed at setting up a system of controls?

Decisions of lesser urgency may relate to the following points:

7. Should the Department of the Interior undertake a study in order to determine to what extent the vulnerability of the United States to this new development could be decreased by a fundamental change in future city planning?

8. Should the scientific development be aimed at ~~transforming~~ <sup>transforming</sup> the power economy of the United States in such a way that ten or fifteen years from now power based on uranium will be abundantly available in regions which cannot easily be supplied with coal and oil?

If there were in existence a small subcommittee of the Cabinet (for instance, the Secretary of War, either the Secretary of Commerce or the Secretary of the Interior, a representative of the State Department,

and a representative of the President, preferably acting as the Secretary of the Committee), the scientists could submit to such a committee their recommendations either by appearing from time to time before the committee or through the secretary of the committee. The latter, <sup>if so authorized</sup> designated by the President, could also act as a liaison to the scientists before the sub-committee itself has actually been constituted.

If such a man were authorized by the President ~~to~~ to act as liaison to the scientists, a memorandum could be placed at his disposal which has been prepared in an attempt to analyze the consequences of the scientific and technical development which has to be anticipated. This memorandum was prepared on the basis of consultation with ten scientists belonging to six different scientific institutions in the United States. Other eminent scientists (who could not be consulted before preparing this memorandum) would undoubtedly avail themselves of the opportunity of presenting their views to <sup>a</sup> ~~any~~ man authorized by the President who could devote adequate time to the study of this question preliminary to presenting his recommendations to the President.

Hrs 1-E  
July 3, 1945

Discoveries of which the people of the United States are not aware may affect the welfare of this nation in the near future. The liberation of atomic power which has been achieved places atomic bombs in the hands of the Army. It places in your hands, as Commander-in-Chief, the fateful decision whether or not to sanction the use of such bombs in the present phase of the war against Japan. "Book 1960"

We, the undersigned scientists, have been working in the field of atomic power for a number of years. Until recently we have had to reckon with the possibility that the United States might be attacked by atomic bombs during this war and that her only defense might lie in a counterattack by the same means. Today with this danger averted we feel impelled to say what follows:

The war has to be brought speedily to a successful conclusion and the destruction of Japanese cities by means of atomic bombs may very well be an effective method of warfare. We feel, however, that such an attack on Japan could not be justified in the present circumstances. We believe that the United States ought not to resort to the use of atomic bombs in the present phase of the war, at least not unless the terms which will be imposed upon Japan after the war are publicly announced and subsequently Japan is given an opportunity to surrender.

If such public announcement gave assurance to the Japanese that they could look forward to a life devoted to peaceful pursuits in their homeland and if Japan still refused to surrender, our nation would then be faced with a situation which might require a re-examination of her position with respect to the use of atomic bombs in the war.

Atomic bombs are primarily a means for the ruthless annihilation of cities. Once they were introduced as an instrument of war it would be difficult to resist for long the temptation of putting them to such use.

The last few years show a marked tendency toward increasing ruthlessness. At present our Air Forces, striking at the Japanese cities, are using the same methods of warfare which were condemned by American public opinion only a few years ago when applied by the Germans to the cities of England. Our use of atomic bombs in this war would carry the world a long way further on this path of ruthlessness.

Atomic power will provide the nations with new means of destruction. The atomic bombs at our disposal represent only the first step in this direction and there is almost no limit to the destructive power which will become available in the course of this development. Thus a nation which sets the precedent of using these newly liberated forces of nature for purposes of destruction may have to bear the responsibility of opening the door to an era of devastation on an unimaginable scale.

In view of the foregoing, we, the undersigned, respectfully petition that you exercise your power as Commander-in-Chief to rule that the United States shall not, in the present phase of the war, resort to the use of atomic bombs.

July 3, 1945

A PETITION TO THE PRESIDENT OF THE UNITED STATES

Discoveries of which the people of the United States are not aware may affect the welfare of this nation in the near future. The liberation of atomic power which has been achieved places atomic bombs in the hands of the Army. It places in your hands, as Commander-in-Chief, the fateful decision whether or not to sanction the use of such bombs in the present phase of the war against Japan.

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In view of the foregoing, we, the undersigned, respectfully petition that you exercise your power as Commander-in-Chief to rule that the United States shall not, in the present phase of the war, resort to the use of atomic bombs.

CLASSIFICATION CANCELLED  
OR CHANGED BY AUTHORITY OF C. D. [Signature]  
BY [Signature] DATE 7/23/57

59 signatures  
on original

July 16, 1945

A PETITION TO THE PRESIDENT OF THE UNITED STATES

Discoveries of which the people of the United States are not aware may affect the welfare of this nation in the near future. The liberation of atomic power which has been achieved places atomic bombs in the hands of the Army. It places in your hands, as Commander-in-Chief, the fateful decision whether or not to sanction the use of such bombs in the present phase of the war against Japan.

We, the undersigned scientists, have been working in the field of atomic power. Until recently we have had to fear that the United States might be attacked by atomic bombs during this war and that her only defense might lie in a counterattack by the same means. Today with this danger averted we feel impelled to say what follows:

The war has to be brought speedily to a successful conclusion and the destruction of Japanese cities by means of atomic bombs may very well be an effective method of warfare. We feel, however, that such an attack on Japan could not be justified on moral grounds, at least not unless the terms which will be imposed after the war on Japan were made public in detail and Japan were given an opportunity to surrender.

If such public announcement gave assurance to the Japanese that they could look forward to a life devoted to peaceful pursuits in their homeland and if Japan still refused to surrender our nation might then, in certain circumstances, find itself forced to resort to the use of atomic bombs. Such a step, however, ought not to be made at any time without seriously considering the moral responsibility which is involved.

The development of atomic power will provide the nations with new means of destruction. The atomic bombs at our disposal represent only the first step in this direction and there is almost no limit to the destructive power which will become available in the course of this development. Thus a nation which sets the precedent of using these newly liberated forces of nature for purposes of destruction may have to bear the responsibility of opening the door to an era of devastation on an unimaginable scale.

If after this war a situation is allowed to develop which permits rival powers to be in uncontrolled possession of these new means of destruction, the cities of the United States and other nations will be in continuous danger of sudden annihilation. All the resources of the United States, moral and material, may have to be mobilized to prevent this contingency. Its prevention is at present the solemn responsibility of the United States--singled out by virtue of her lead in the field of atomic power.

The added material strength which this lead gives to the United States brings with it the obligation of restraint and if we were to violate this obligation our moral position would be weakened in the eyes of the world and in our own eyes. It would then be more difficult for us to live up to our responsibility of bringing the unloosened forces of destruction under control.

In view of the foregoing, we, the undersigned, respectfully petition: first, that you exercise your power as Commander-in-Chief, to rule that the United States shall not resort to the use of atomic bombs in this war unless the terms which will be imposed upon Japan have been made public in detail and Japan knowing these terms has refused to surrender; second, that in such an event the use of atomic bombs against Japan be reconsidered by you in the light of our moral responsibilities.

CLASSIFICATION CANCELLED
Date <u>      JUL 23 1957      </u>
For The Atomic Energy Commission
<i>C. L. Marshall / M. B. Wright</i>



~~SECRET~~

21CP 195

LIQUID METAL COOLED FAST NEUTRON BREEDERS: LS-6

L. Szilard  
March 6, 1945

This document consists of 7 pages and 0 figures  
No. 1 of 8 copies, Series A

This is the first of a series of memoranda outlining a research and development program and the part which, given favorable conditions, I might be able to play in it. The aim of this program would be to have 10 tons of plutonium in production within three years at a total cost of less than \$500 million and this memo relates to what will presumably be the later stages of the production process.

NRD  
John

First type

Two different types of plutonium breeders which fall in this category are at present under discussion. To the first type belong breeders that are based on fission neutrons which are not appreciably slowed down. I am fairly confident that breeders of this type could be built which might double the investment of plutonium within about a year and which would produce about one atom of plutonium in excess for one atom of plutonium that is burned in the breeder. I suspect, however, it might prove impossible to have units of this type on a small scale, i.e. containing less than about 200 kg of plutonium which double the investment in one year. In spite of this limitation I would wish to give considerable attention to this first type of breeder and I believe that most of the nuclear information needed for work on such a breeder is available or what is not available could easily and reliably be obtained in the near future. I would like to work out a design and hold it in readiness for use in the later stages of the proposed production process.

METALLURGICAL LABORATORY  
P. O. Box 5207, Chicago 80, Ill.  
OFFICE OF THE DIRECTOR

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MAR 9 1945

A.M. P.M.  
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Second type

I feel that it is also urgent to decide between the relative merits of this type of breeder and a second type of breeder in which the neutrons are slowed down into an energy region between 1, 100, and 1000 volts. Mr. Wigner and his division show at present considerable interest in this second type of breeder.

Such breeders of the second type would indeed have the advantage of requiring a smaller quantity of plutonium per individual breeder which might double the investment within one year. But whether such breeders would in fact rapidly increase the plutonium investment cannot be determined without reliably knowing the ratio of radiative capture to fission in plutonium for energies between 1 and 1000 volts.

Various experiments can be devised for determining this ratio but it is not possible to foresee which of them will actually give a trustworthy value. I myself would therefore wish to attack this problem (if the required facilities can be put at my disposal) by observing the capture  $\gamma$  rays emitted from plutonium per fission in the thermal region, at the .3 volt resonance and between 1 and 1000 volts. In the thermal region and at resonance the ratio of radiative capture to fission can be measured by other comparatively simple methods and this can be used for calibrating the proposed setup so that by observing at various neutron energies simultaneously fission and the response of a counter (or a set of coincidence counters) which are sensitive to the  $\gamma$  rays it will be possible to obtain the pertinent ratios of radiative capture to fission.

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First type:

Pending the outcome of some such experiment I personally would rather prefer to think about breeders of the first type. Experiments carried out at Site Y with fission neutrons appear to confirm the expectation that the ratio of radiative capture to fission ( $\alpha$ ) becomes quite low for fission neutrons so that we may indeed expect that one excess atom of plutonium can be produced for one plutonium atom burned in the breeder. It may be recalled that it appeared a priori likely that from this point of view fast neutrons are far superior to thermal neutrons and it was on this basis that I urged the development of fast neutron breeders cooled by Bi-Pb eutectic or liquid Na in the meetings held on April 26 and April 28, 1944. The estimate which I gave for  $\alpha$  was criticized at that time as being too optimistic; in the light of recent experimental evidence it appears however to have been rather in error on the conservative side. In the following I am recapitulating the views which I put forward in those meetings as reported by Ohlinger in MUC-LAO-17 and MUC-LAO-18. Fermi's views on the same subject are also recorded in the same reports but are not recapitulated here. The text is as follows:

MUC-LAO-17, April 26, 1944

"Mr. Szilard was the second speaker and proposed approaching the problem from a different viewpoint--that of assuming more optimistic values of the constants so as to indicate other potentialities. He pointed out that the fast reaction is preferable to the slow chain reaction for producing  $^{239}\text{Pu}$  from tubealloy and that this is probably more true if we assume more pessimistic values for  $\nu$  or  $\mu$ . Before discussing these values of the constants, sketches of a possible design were distributed and described briefly. These sketches are attached hereto.

"The sketches show two different arrangements. In sketch A, the enriched tubealloy (enriched to where the chain reaction will go) and natural tubealloy would be distributed in the form of rods in a cylindrical pile, in which the enriched material would be in the center portion of the rods lying within a circular area in the center of the pile. Part of the rods, located within three circular areas around the center (as indicated in Fig. 1) would be arranged so the cylindrical bundles could each be rotated about its axis. In each of the rotating bundles, part of the rods would be natural tubealloy and the balance of natural tubealloy with the center section enriched.

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"In the beginning, the enriched material in the three bundles would all face the center of the pile, and lie within a cylinder whose axis would coincide with the axis of the pile and whose cylindrical surface would pass through the three axes of the revolving bundles. By means of this arrangement, as the multiplication factor increased with the continued operation of the pile, the enriched material could be rotated away from the center of the pile and the natural tubealloy brought towards the center where it in turn would be enriched. In the center of the pile would be a single tube for introducing mercury, liquid bismuth, or some other absorbing or slowing material for controlling the pile. The coolant for this type pile would be a bismuth-lead alloy and would flow downward through the pile between the static and rotating rods. The possibility of using liquid sodium in place of bismuth-lead should also be looked into. The volumetric heat capacity of the liquid sodium is about the same as that of the bismuth-lead alloy but its density would be 10 times less, so that the pressure drop would be about 1/10 that for the bismuth-lead alloy or the velocity about 3 times larger for equal pressure drop. In the scheme just described, the following approximate conditions would obtain: (1) the bismuth-lead alloy would occupy about 1/3 of the enriched core and would pass through the pile at a velocity of about 15 meters per sec; (2) with 1/2 cm diameter rods raised to 700° C metal temperature at the center of the central rod and with 150° C temperature increase in the coolant, about 250,000 kw will be removed. The pumping power for the coolant will consume about 5% of the power produced.

"In the alternative scheme B, control of the pile would be obtained by means of a nest of tubes for the mercury or other controlling medium arranged as in Figs. 3A and 3B and 4A and 4B. The metal rods would all be stationary and vertical (nos. 12, 13 and 14 in Fig. 3A) and would be about 1/2 to 1 cm in diameter by about 2 meters long.

"In both designs the enriched core would be about 1/2 to 1 meter in diameter by about the same height. The balance of the material around the core would be ordinary tubealloy of the same rod size. The total diameter and the height of the pile would be about 2 meters.

"The objective of such a pile must be to produce as much extra 49 as invested. It is assumed that the production will be double the original investment. For every atom of 49 disintegrated, two atoms of 49 could be produced. Part of these will be produced in the enriched core and part in the surrounding natural tubealloy. Some of the production in the core will tend to leak out into the natural tubealloy and this leakage must be kept within certain limits. Then  $k$  will increase over a period of time. As the chain reaction goes on, the multiplication factor  $k$  will then increase so that the controls must provide for this as well as the normal operating control of the pile.

"In the slow chain reaction, 49 captures neutrons in radiative not fission capture to produce a new element which we will call super plutonium or 40-10. It is assumed there is a 50% chance that this new element will be fissionable. If it is not fissionable, it is assumed there is 50% chance that it will be formed only in negligible quantity in the capture of fast neutrons. Thus, there is a 75% chance in a fast chain reaction that we may use  $\nu$  and not  $\mu$  in getting the production balance ( $\mu = 2.2$  neutrons per neutron ab-

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sorbed,  $\sqrt{25} = 2.2 \times 1.175 = 2.6$  neutrons produced per neutron absorbed). As the energy of the neutrons increases from thermal to fission energies, it is assumed there is no increase in  $\sqrt{\phantom{x}}$ . The main argument in favor of the fast chain reaction is that if a fission neutron is released in tubealloy, it causes fission in the 28 to produce 12 neutrons (fast effect). If all the neutrons are captured, the overall balance would be that for every atom of 49 destroyed, two atoms of 49 would be produced. One goes back into the chain reaction, the other replaces the 49 destroyed, providing a net gain in 49.

"In experiments in which a Ra-B neutron source was surrounded by 28, measurements indicated a 5.3% increase in the number of neutrons and that 63% of the neutrons remained above the fission threshold. This means that the increase in the number of neutrons for an infinite sphere would be  $\frac{5.3}{1 - 0.63}$  or 19 $\frac{1}{2}$ %. If the fission cross section is taken at 0.35 and the inelastic cross section at 2.7 for a  $\sqrt{28}$  of 2.2 to 2.6  $\epsilon$  will vary from 1.18 to 1.245.

"Referring to the value above of  $\sqrt{25}$  of 2.6, if we were to use the more optimistic results reported by Y (that  $\sqrt{49}$  is 20% larger than  $\sqrt{25}$ ) then  $\sqrt{49}$  equals 3.1 neutrons produced per neutron absorbed. If we are less optimistic and assume  $\sqrt{49}$  effective = 2.5 but use the 19 $\frac{1}{2}$ % increase indicated by the experiment mentioned above, we have three neutrons produced in a mixture of 28 and 49 for one atom of 49 destroyed."

MUC-LAO-18, April 28, 1944

"The second speaker was Mr. Szilard who continued his discussion from the previous meeting. He recapped first the three possibilities as he saw them:

- (1) Unseparated tubealloy  $\rightarrow$  49 production
- (2) Enriched tubealloy  $\rightarrow$  49 production
  - (a) slow chain reaction
  - (b) fast chain reaction
- (3) Enriched tubealloy  $\rightarrow$  no 49 production

"On the basis of Morrison's report, Mr. Szilard felt that the tubealloy should be utilized more efficiently, i.e., using the 28 and not just the 25. However, since the power production indicated in item (3) above is a long term proposition, he did not intend to discuss this phase at great length at this time.

"In item (1) above, heat is only a byproduct and not the primary object. Concerning item (2), Szilard proposed answering the question--if an amount A of 49 were invested, how long would it be until 2A of 49 were obtained. In a fast chain reaction, if two tons of enriched ore containing 10% of 49 were used in the core surrounded by 28 at the rate of 125,000 kw, then 2A of 49 would be produced in 4 $\frac{1}{2}$  years. In order to

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have any practical significance, this time should not be very much larger and the readjustment of the material should be easy during the time of operation.

"Considering first the slow chain reaction: assume a  $\mu_{49}$  (neutrons emitted in fission/neutrons absorbed) equal to 2.0 - 2.2. Szilard struck out the latter figure when Fermi stated that the  $\mu_{49}$  is probably lower than  $\mu_{25}$ . With  $\mu = 2$ , just as much 49 is being produced as is being destroyed. In a slow chain reaction this might be improved by using the fission of 28 mixed with 49 but this is not very effective in a slow chain reaction because even from large lumps embedded for instance, in graphite, many neutrons escape, are slowed down, and do not produce fission. Since the super-plutonium (40-10) formed might be fissionable, there is, say, a fifty-fifty chance that we can improve  $\mu$  to a  $\mu_{\text{eff}} = 2.5$ .

"Considering the fast chain reaction, the situation is more favorable. With a low concentration of 49 in the mixture with 28, experiments have shown that  $\xi$  might be raised to 1.2. In addition, there is a high energy tail producing an (n, 2n) reaction which may give a 2½% increase in  $\mu$  (based on observations of Turkevich).

"(The value  $\mu$  has been defined as the number of neutrons produced/number absorbed in 49. Szilard uses  $\nu_0$  defined as the number of neutrons produced/number of fissionable atoms used up.)

"In a fast chain reaction, even if 40-10 is not fissionable, Szilard felt that it is probably true that the branching ratio for 40-10 moves in a favorable direction, or that  $\nu_0$  may be taken as  $\nu_0 = 2.5$ . He felt strongly that there is a very good chance that Pu<sup>240</sup> is either fissionable in the thermal region or at least that the branching ratio can be counted upon to decrease by a factor of 3 as one goes from thermal energies to, say, 1 Mev. (Fermi pointed out that the branching ratio of 49 is greater than that for 25.)

"The arguments for this belief is in part based on the rule of thumb  $(\Delta M/M) - (2\Delta Z/Z)$  (see also Morrison in Project Handbook, Chapter IV Bl.1) which gives a rough indication of the fission threshold and is partly based on the belief that, with increasing neutron energy, the time required for fission decreases whereas the time required for radiative capture remains constant. Szilard therefore assumes that, in a mixture of 238 and Plutonium,  $\xi \nu_0 = 1.2 \times 2.5 = 3.0$  neutrons emitted per thermally fissionable atom destroyed and this would mean that there is a net gain of one thermally fissionable atom per similar atom destroyed.

"Referring to item (3), Szilard emphasized one possibility, i.e., the burning of Plutonium in a slow reaction and absorbing the neutrons by bismuth to give Polonium. Of the heat dissipated when Plutonium is destroyed to give Polonium, only about 3% would be stored in the Polonium. However, this energy will be available for use free of  $\gamma$  radiation and could be used for diving airplanes, etc.

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"In the discussion following, Fermi questioned the estimated value of  $\nu_0 = 2.5$  on the ground that it might be too optimistic and pointed out that there is a long range future in developing the full utilization of 28 and thorium.

"Wigner questioned the feasibility of the rotating disc arrangement described at the previous meeting on the ground of poisoning and questioned the  $4\frac{1}{2}$  year investment return. He felt this would probably be more nearly 10 to 20 years by which time, as Mr. Morrison suggested, we may be burning water."

This ends the text taken out of the report on the meeting of April 28, 1944.

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Hist-B (665-2)

at Compton 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.

Corrected Nov 12<sup>th</sup> - 45 L. Gilard  
L.H.

6-15-3  
Hillyer  
G

I have to apologize for not having prepared a speech for this occasion, but only after my colleagues and I met today in Washington were we able to discuss what aspect of the subject each one of us might cover. We all are interested in the May-Johnson Bill, but it is not possible to discuss this Bill or any other Bill until it is made clear what the purpose is for which the proposed legislation is intended. Let me, therefore, say what I believe to be the real problem for which a solution must be found and you will see that that problem cannot be solved by an Act of Congress alone.

It seems to me that the existence of the atomic bomb will profoundly affect the military position of the United States and that it will affect her position not favorably but adversely. You can easily judge this for yourselves if you will consider the following. As long as the chief weapons of aggression ~~have been~~ <sup>were</sup> tanks, guns, and airplanes the United States could easily out-produce any other nation or combination of nations. If the United States produced ten times as many tanks, guns, and airplanes as another country, ~~its~~ <sup>her</sup> military position could be considered strong. When it comes to atomic bombs the United States has again an advantage at the outset. At first, if she has more atomic bombs this means that she could destroy more cities of another country. But if we get into an armament race, very soon we will have enough bombs to be able to destroy all the cities of a potential enemy. Additional bombs would then have very little value to us. There are no more worthy targets for them after we have enough bombs to cover all the cities of the "enemy". Therefore, if we have plenty of bombs and our "enemy" has plenty of bombs ~~it will not be~~ ~~we will~~ ~~derive~~ ~~no~~ ~~great~~ ~~advantage~~ ~~of~~ ~~having~~ ~~ten~~ ~~times~~ ~~as~~ ~~many~~ ~~bombs~~ ~~as~~ ~~they~~ ~~have~~. When this stage is reached, (and it can be reached very fast, in the course of an armament race,) when two countries have as many bombs as

Warrior's meetings

they can use their relative strengths will no longer be determined by the number of bombs they have but rather by the number of cities which they have exposed to destruction. In the United States 30 million people live in cities of over 250,000. Altogether 70 million people live in metropolitan areas. When the armament race reaches the stage where ~~through~~ this country and other countries have plenty of bombs ours will be one of the more vulnerable nations. In the long run it is not possible for us to win an armament race. We can do something in order to avoid losing the armament race, *but* the main thing that we can do in this respect is to relocate 30 to 70 million people. If we should do this, *our position* ~~opposition~~ may not be weaker but it still will not be stronger than the position of other large countries which have plenty of bombs. I ~~do not~~ believe that it is ~~impossible~~ to relocate 30 to 70 million people. If we are willing to spend 15 billion dollars a year for ten years we might very considerably decrease our vulnerability by decentralizing our cities. If we do that we may avoid losing the armament race, but that does not mean that we can win such an armament race.

From this remark it would seem that the problem which faces us cannot be solved on the domestic scale; it has to be solved on an international or world scale. I am not saying that it can be solved on a world scale either, but we have to try it. If we have tried it and failed we may be faced with a new situation. Up to now we have not tried it.

Now if you are willing to adopt this point of view that we ~~really~~ have to make an attempt to solve this problem on an international scale then it is quite clear that sooner or later we will have to establish collaboration in this field of atomic energy with other nations. With this in view, I am *disturbed* ~~worried~~ about the independence) *from the Government* of the Commission from the Government which the May-Johnson Bill proposes to set up than I am about any of the other provisions of the Bill.

The greatest danger that we as a nation face is a War which may arise more or less automatically from an armament race - a war which no nation really wants. Even if we feel that the <sup>general</sup> problem of war cannot be solved in the next two or three years at least we <sup>will</sup> want to avoid the additional danger of war which arises out of the existence of atomic bombs. It is not possible to discuss here the various <sup>methods</sup> ~~matters~~ by which this could be attempted, but most of these attempts would involve collaboration with other nations in the field of atomic energy as well as other fields. If the <sup>government of the</sup> United States should decide in favor of such a collaboration, under the May-Johnson Bill the President would presumably issue a Directive to this effect to the Commission, and it would be for the Commission to give effect to this directive by issuing appropriate rules and regulations. Now this Commission is practically independent from the Government. It has nine members who will meet at least four times a year and who are supposed to "run the show." The members of the Commission cannot be removed by the President except for cause. If the President wants a majority on the Commission he may have to serve two terms before by means of new appointments he can secure such a majority. ~~The President cannot remove a member~~ Even if the President saw his way to remove some of the members in an emergency he <sup>might</sup> ~~may~~ not know which member to remove on account of the secrecy under which this Commission would operate. In the circumstances our relations with other nations might suffer because the members of the Commission have a different idea about what our foreign policy ought to be than the President. If this were the case, the danger would be great that the rules and regulations issued by the Commission would create the impression that we as a nation do not want to collaborate with other nations in the field of atomic energy. I am not inventing something that might <sup>happen</sup> ~~be~~ in the future so much as I am thinking of similar events that have happened in the past.

During this war we have received directives which I believe originated with President Roosevelt instructing us to collaborate with <sup>a</sup> ~~the~~ joint British-Canadian project set up in Canada. Rules and regulations issued by the Manhattan District rendered this collaboration ineffective. I do not believe that we should create in the future a Commission which is so independent from the Administration that it can easily counteract, by means of rules and regulations, the directives of the Administration.

You may raise ~~XXXXXXXXXX~~ the question, "What shall we do if in spite of sincere efforts or attempts to avoid an armament race should fail?" There will be those who will then begin to think about the possibility of waging a war within the next three or four years before other nations have bombs that will threaten our security. ~~Which~~ While I personally find it difficult to get enthusiastic about this "solution", I recognize that from the purely logical point of view this possibility will have to be considered if all other methods fail. But however that may be right now this possibility can hardly take first place in our <sup>attention</sup> ~~attempt~~. The May-Johnson Bill attempts to solve the difficult problem of setting up machinery which can be used for both purposes, i.e., making preparations <sup>for a preventive</sup> ~~to prevent a~~ war and establishing cooperation with other nations in order to avoid an armament race. If you wish to have machinery which can serve both of <sup>these</sup> ~~the~~ purposes, you make it very difficult for anyone to provide you with a design for ~~such a~~ your machinery. I am not saying that it is impossible to design machinery which could serve well either of these two purposes but ~~it~~ in my opinion the May-Johnson Bill as it is before us cannot serve either purpose well.

In discussing the Bill further let me limit my remarks to one single point, i.e., the question of secrecy. The question is what kind of information do you want to have kept secret? No doubt we might have to keep secret, even thought we may not like to do so, technical information relating to <sup>the</sup> ~~the~~ process

of manufacture of fissionable materials and the construction of bombs. There is, however, another kind of information which you may or may not wish to keep secret and that is information which has neither scientific nor engineering character but has political implications. Let me give you an example. The greatest secret during the war was the fact that atomic bombs could be made. Under war conditions it was perhaps legitimate to keep this information secret. But I remember that at the approach of the San Francisco Conference, many of my friends became exceedingly uneasy because they felt that the people and the delegates of the United States to San Francisco could not live up to their obligations unless they knew that atomic bombs would exist. How could they take a stand on the question of the Charter if they did not know ~~with~~ <sup>with</sup> what the situation will be/which with the world will have to cope? As a result of representations made by a number of scientists which reached President Roosevelt, the President asked that ~~Stettinius~~ Stettinius be informed of the existence of the Bomb, and I wouldn't be astonished to hear that our delegation to San Francisco also knew of the bomb. If we go on after the war keeping information of such general type secret from the American people we prevent the American people from discussing intelligently questions of our foreign policy on the basis of facts. For instance if we succeeded in making bombs which could destroy 400 square miles in place of the 4 square miles, destroyed by the bomb//detonated over Hiroshima, would you wish to keep such a fact secret from the American people, or would you want them to know about it? ~~The fact that such a bomb exists is one kind of information which could be disclosed while the methods for making this bomb and its construction could be kept secret if the Administration desired to do so.~~ I think Congress will have to, <sup>in peace time</sup> decide whether it wants to give the Administration the right to withhold information of a non-technical nature which <sup>has</sup> ~~is~~ far reaching from political implications. In my opinion, if bombs <sup>could</sup> ~~can~~ be made which can destroy hundreds of square miles this would be a fact which people would have to know in order to

know how to vote. *There would be no need for them to know how such bills are constructed.*

Perhaps there will be an opportunity later on during the discussion to mention other points connected with the Bill which will have to be discussed if we want to understand what this Bill means - what it means to scientists ~~and~~ and more important what it means to the country as a whole.

THE SENATE OF THE UNITED STATES  
SPECIAL COMMITTEE ON ATOMIC ENERGY

Dec. 10, 1945  
(Date)

THE CITY OF WASHINGTON,  
THE DISTRICT OF COLUMBIA

To Leo Szilard, GREENWICH;

You are hereby commanded to appear before the Senate Special Committee on Atomic Energy, laying all other matters aside and notwithstanding any excuse, at the offices of the Committee in the West Terrace of the Capitol, Room 4-B, on the 11<sup>th</sup> day of Dec., 1945, at 2:00 o'clock A.M., to testify with respect to problems relating to the development, use, and control of atomic energy, before the said committee, and to be available in the City of Washington at the call of the Chairman and/or a duly authorized Staff Officer of the Committee, pending further notice.

Under authority of Senate Resolution 179, 79th Congress, First Session, October 22, 1945, given under my hand this 10<sup>th</sup> day of Dec., 1945

THE CITY OF WASHINGTON,  
THE DISTRICT OF COLUMBIA

Brien McMahon  
Brien McMahon, Chairman

I, \_\_\_\_\_, being first duly sworn, depose and say that on the \_\_\_\_\_ day of \_\_\_\_\_, 194\_\_\_\_, I served the above subpoena upon \_\_\_\_\_ by delivering to him personally a true copy thereof and leaving the same with him.  
Sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, 194\_\_\_\_.  
My commission expires the \_\_\_\_\_ day of \_\_\_\_\_, 194\_\_\_\_.



# ATOMIC ENERGY

## HEARINGS

BEFORE THE

SPECIAL COMMITTEE ON ATOMIC ENERGY

UNITED STATES SENATE

SEVENTY-NINTH CONGRESS

FIRST SESSION

PURSUANT TO

**S. Res. 179**

A RESOLUTION CREATING A SPECIAL COMMITTEE  
TO INVESTIGATE PROBLEMS RELATING TO  
THE DEVELOPMENT, USE, AND CON-  
TROL OF ATOMIC ENERGY

PART 2

DECEMBER 5, 6, (10), AND 12, 1945

Printed for the use of the Special Committee on Atomic Energy

*Szilard's  
testimony  
pp. 267-300*



*p. 280  
p. 283*

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## ATOMIC ENERGY

MONDAY, DECEMBER 10, 1945

UNITED STATES SENATE,  
SPECIAL COMMITTEE ON ATOMIC ENERGY,  
*Washington, D. C.*

The special committee met, pursuant to adjournment, at 10 a. m., in room 312, Senate Office Building, Senator Brien McMahon (chairman) presiding.

Present: Senators McMahon (chairman), Russell, Johnson, Tydings, Austin, Millikin, Hickenlooper, and Hart.

Also present: Edward U. Condon, scientific adviser; and James R. Newman, special assistant to the special committee.

The CHAIRMAN. Dr. Szilard.

We have prepared a short biographical sketch on Dr. Szilard and what he has done. He is one of the most eminent of the pioneers in the science of uranium fission.

Doctor, would you proceed, please?

### STATEMENT OF DR. LEO SZILARD, STAFF MEMBER, METALLURGICAL LABORATORY, UNIVERSITY OF CHICAGO

Dr. SZILARD. I have a prepared statement in various sections. It may be too long to read all of it, and I will skip a number of paragraphs. I will skip some sections, but I will submit for the record those sections which I skip.

With your permission, I should like to begin by quoting some facts and figures and by presenting some simple considerations which may serve as a starting point. In this way it will be easier to draw a picture of the role which peacetime application of atomic energy might play in the next 10 or 15 years in our power economy.

We are at present producing in factories that were built during the war two substances which are in many respects rather similar. One of them is Uranium-235, or light uranium. This substance is not so much manufactured as it is merely extracted, by means of a rather laborious process, from natural uranium. Light uranium accounts for less than 1 percent of natural uranium and accordingly its quantity is essentially limited by the quantity of natural uranium which can be made available.

In one of the prewar years we imported, for instance, 400 tons of uranium. If we worked every year such a quantity of uranium, and if we managed to extract all the light uranium contained in it, we would obtain every year 3 tons of light uranium. We would do pretty well, however, in extracting two-thirds of this quantity and obtaining 2 tons of light uranium every year.

56515

April 24, 1946

Professor John T. Tate  
University of Minnesota  
Minneapolis, Minnesota

Dear Professor Tate:

Please excuse me for the delay in answering your letter relating to the manuscripts which I sent for publication to the Physical Review in February, 1940.

I, too, am anxious to publish the paper and think that probably the corresponding "letter to the Editor" might then be dropped. While I am quite certain the paper contains nothing that ought to be considered secret in view of the Smyth Report, I feel it should not be the author's responsibility to decide, from the point of view of national defense, whether or not a paper should be printed. I wonder whether you wouldn't think it advisable for you to submit the paper to some authority, for instance, the Tolman Committee or Mr. Tolman, for a decision in order to protect yourself against any possible charges. I might try to clear up the matter from this end but I am not sure it is a feasible idea since the paper was written and withheld before the government took an interest in this field of knowledge.

In 1940 you suggested that the paper be shortened and I shall immediately try to do that. I will only cut portions of the paper without adding anything and possibly make changes in the phraseology for the sake of greater clarity. I might also add a footnote pointing out the limitations of the paper arising out of the ignorance of certain factors which we now know to be relevant.

I would appreciate it if you would let me know just how you propose to handle the matter of "clearance".

Very sincerely yours,

Leo Szilard

LS:jjp

*out*  
*Committee on Military Affairs* **AT-161**  
**449**  
**1945**

# ATOMIC ENERGY

## HEARINGS BEFORE THE COMMITTEE ON MILITARY AFFAIRS HOUSE OF REPRESENTATIVES

SEVENTY-NINTH CONGRESS

FIRST SESSION

ON

### H. R. 4280

AN ACT FOR THE DEVELOPMENT AND CONTROL  
OF ATOMIC ENERGY

OCTOBER 9 AND 18, 1945

Printed for the use of the Committee on Military Affairs



*Szilard testimony*  
*pp 71-96*

UNITED STATES  
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*Pif*  
*Dr. Szilard*

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## ATOMIC ENERGY

THURSDAY, OCTOBER 18, 1945

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON MILITARY AFFAIRS,  
Washington, D. C.

The committee met at 10 a. m., Hon. Andrew J. May (chairman) presiding.

The CHAIRMAN. The committee will be in order.

We have met this morning for further hearings and consideration of H. R. 4280, a bill to provide for development and control of atomic energy. These hearings have been continued for the purpose of permitting a group of interested people, known as scientists, to present their views on the questions involved in this proposed legislation. We have five witnesses, and they have been selected at the request of the committee so as to give the viewpoints of four different groups of those interested in the subject.

I would like to add to my statement that there has been some criticism of the action of the committee in closing the hearings when they were closed, and that has been carried in the press and editorially commented upon. There was apparently an effort to make it appear that this committee was trying to rush things and unnecessarily doing so. I can say that up to this moment nobody has requested of me, as chairman of this committee, a hearing on behalf of the scientists except what came to me through the War Department by General Royall, who, while he did not request it, simply did not object, but rather encouraged further hearings on the matter. It is the purpose of the committee now to give patient consideration and hearing to those representing scientific work in the United States.

We have as our first witness Dr. Leo Szilard. Will you come around, please, Doctor? Let me say to you what I have already stated, that we are considering the bill H. R. 4280 which has for its purpose the development and control of atomic energy.

Please give us your name and your experience and tell us about your qualifications to appear here as a witness, and then you may make any statement that you wish to make with respect to this proposed legislation.

### STATEMENT OF DR. LEO SZILARD, UNIVERSITY OF CHICAGO

Dr. SZILARD. My name is Leo Szilard. I was born in Hungary and am a naturalized citizen of this country. I was naturalized in 1943. I worked for a time, from 1925 to 1931, on the teaching staff of the University of Berlin. In 1931, when the German Reichstag began to pass legislation giving the German Government sweeping powers, I came as an immigrant to this country.

good, he cannot live for self alone, he must live for mankind. Justice, not power, will secure the well-being and prosperity of the Nation and of the race. Justice is a matter of the will.

One might find in history epochs wherein men have trusted to intellect rather than to will and inversely, cultivating one capacity to the detriment of the other and to the peril of both.

The golden age of Athenian philosophy stressed both human capacities—intellect and will. The unmatched Aristotle taught men to be moderate—"measure in everything is always best," he said. Intellect and will, he teaches, must be equally developed. There must be no imbalance, no disproportion among the powers and faculties of men's minds. Man must be able for high thinking and grand virtue. This philosophy of life you will know at Seton Hill. It is our tradition. It is humanism. Alone it is not enough. The physical environment and man in its midst are not the whole universe. The Christian tradition declares there is another aspect of the universe—God and His revelation. This is integral humanism. We hope you will know it and fashion your behavior by it. As a system it is tested and revered, with power to guide you and to support you in the confusion and anxiety that plague our people. It liberates a man, it does not fetter him. It will help you to keep your soul, to remain your imperishable and sacred self; holding to it you will not fall victims to sensualism or sophistry. We invite you to it as best equipping you to live in the modern world and to deal with it. May you prosper!

### Atomic Energy

#### EXTENSION OF REMARKS

OF

HON. FRANCK R. HAVENNER

OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

Wednesday, November 14, 1945

Mr. HAVENNER. Mr. Speaker, I think that all Members of Congress who were unable to attend the recent conference held in the caucus room of the Old House Office Building on the subject of atomic energy will be interested in reading the text of the speech made on that occasion by Dr. Leo Szilard.

Dr. Szilard's speech is as follows:

I have to apologize for not having prepared a speech for this occasion, but only after my colleagues and I met today in Washington were we able to discuss what aspect of the subject each one of us might cover. We all are interested in the May-Johnson bill, but it is not possible to discuss this bill or any other bill until it is made clear what the purpose is for which the proposed legislation is intended. Let me, therefore, say what I believe to be the real problem for which a solution must be found and you will see that that problem cannot be solved by an act of Congress alone.

It seems to me that the existence of the atomic bomb will profoundly affect the military position of the United States and that it will affect her position not favorably but adversely. You can easily judge this for yourselves if you will consider the following. As long as the chief weapons of aggression were tanks, guns, and airplanes the United States could easily out-produce any other nation or combinations of nations. If the United States produced 10 times as many tanks, guns, and airplanes as another country, her military position could be considered strong. When it comes to atomic bombs the United

States has again an advantage at the outset. At first, if she has more atomic bombs this means that she could destroy more cities of another country. But if we get into an armament race, very soon we will have enough bombs to be able to destroy all the cities of a potential enemy. Additional bombs would then have very little value to us. There are no more worthy targets for them after we have enough bombs to cover all the cities of the "enemy." Therefore, if we have plenty of bombs and our "enemy" has plenty of bombs we will derive no great advantage of having 10 times as many bombs as they have. When this stage is reached (and it can be reached very fast, in the course of an armament race), when two countries have as many bombs as they can use, their relative strengths will no longer be determined by the number of bombs they have but rather by the number of cities which they have exposed to destruction. In the United States 30,000,000 people live in cities of over 250,000. Altogether 70,000,000 people live in metropolitan areas. When the armament race reaches the stage where this country and other countries have plenty of bombs ours will be one of the more vulnerable nations. In the long run it is not possible for us to win an armament race. We can do something in order to avoid losing the armament race, but the main thing that we can do in this respect is to relocate 30 to 70 million people. If we should do this, our position may not be weaker but it still will not be stronger than the position of other large countries which have plenty of bombs. I believe that it is possible to relocate 30 to 70 million people. If we are willing to spend \$15,000,000,000 a year for 10 years we might very considerably decrease our vulnerability by decentralizing our cities. If we do that we may avoid losing the armament race, but that does not mean that we can win such an armament race.

From this remark it would seem that the problem which faces us cannot be solved on the domestic scale; it has to be solved on an international or world scale. I am not saying that it can be solved on a world scale either, but we have to try it. If we have tried it and failed we may be faced with a new situation. Up to now we have not tried it.

Now if you are willing to adopt this point of view that we have to make an attempt to solve this problem on an international scale then it is quite clear that sooner or later we will have to establish collaboration in this field of atomic energy with other nations. With this in view, I am more disturbed about the independence from the government of the commission, which the May-Johnson bill proposes to set up, than I am about any of the other provisions of the bill.

The greatest danger that we as a Nation face is a war which may arise more or less automatically from an armament race—a war which no nation really wants. Even if we feel that the general problem of war cannot be solved in the next 2 or 3 years at least we will want to avoid the additional danger of war which arises out of the existence of atomic bombs. It is not possible to discuss here the various methods by which this could be attempted, but most of these attempts would involve collaboration with other nations in the field of atomic energy as well as other fields. If the Government of the United States should decide in favor of such a collaboration, under the May-Johnson bill the President would presumably issue a directive to this effect to the commission, and it would be for the commission to give effect to this directive by issuing appropriate rules and regulations. Now this commission is practically independent from the Government. It has nine members who will meet at least four times a year and who are supposed to run the show. The members of the commission cannot be removed by the President except for cause. If the President

wants a majority on the commission he may have to serve two terms before, by means of new appointments, he can secure such a majority.

Even if the President saw his way to remove some of the members in an emergency, he might not know which member to remove on account of the secrecy under which this Commission would operate. In the circumstances our relations with other nations might suffer because the members of the Commission have a different idea about what our foreign policy ought to be than the President. If this were the case, the danger would be great that the rules and regulations issued by the Commission would create the impression that we as a nation do not want to collaborate with other nations in the field of atomic energy. I am not inventing something that might happen in the future so much as I am thinking of similar events that have happened in the past.

During this war we have received directives which I believe originated with President Roosevelt instructing us to collaborate with a joint British-Canadian project set up in Canada. Rules and regulations issued by the Manhattan district rendered this collaboration ineffective. I do not believe that we should create in the future a Commission which is so independent from the administration that it can easily counteract, by means of rules and regulations, the directives of the administration.

You may raise the question, "What shall we do in spite of sincere efforts our attempts to avoid an armament race should fail?" There will be those who will then begin to think about the possibility of waging a war within the next 3 or 4 years before other nations have bombs that will threaten our security. While I personally find it difficult to get enthusiastic about this solution, I recognize that from the purely logical point of view this possibility will have to be considered if all other methods fail. But however that may be right now this possibility can hardly take first place in our attention. The May-Johnson bill attempts to solve the difficult problem of setting up machinery which can be used for both purposes, that is, making preparations for a preventive war and establishing cooperation with other nations in order to avoid an armament race. If you wish to have machinery which can serve both of these purposes, you make it very difficult for anyone to provide you with a design for your machinery. I am not saying that it is impossible to design machinery which could serve well either of these two purposes but in my opinion the May-Johnson bill as it is before us cannot serve either purpose well.

In discussing the bill further let me limit my remarks to one single point, that is the question of secrecy. The question is what kind of information do you want to have kept secret? No doubt we might have to keep secret, even though we may not like to do so, technical information relating to the process of manufacture of fissionable materials and the construction of bombs. There is, however, another kind of information which you may or may not wish to keep secret and that is information which has neither scientific nor engineering character but has political implications.

Let me give you an example. The greatest secret during the war was the fact that atomic bombs could be made. Under war conditions it was perhaps legitimate to keep this information secret. But I remember that at the approach of the San Francisco Conference, many of my friends became exceedingly uneasy because they felt that the people and the delegates of the United States to San Francisco could not live up to their obligations unless they knew that atomic bombs would exist. How could they take a stand on the question of the Charter if they did not know what the situation will be with which the world will have to cope?

As a result of representations made by a number of scientists which reached President Roosevelt, the President asked that Stettinius be informed of the existence of the bomb, and I wouldn't be astonished to hear that our delegation to San Francisco also knew of the bomb.

If we go on after the war keeping information of such general type secret from the American people we prevent the American people from discussing intelligently questions of our foreign policy on the basis of facts. For instance, if we succeeded in making bombs which could destroy 400 square miles in place of the 4 square miles, destroyed by the bomb detonated over Hiroshima, would you wish to keep such a fact secret from the American people, or would you want them to know about it?

I think Congress will have to decide whether it wants to give the administration the right to withhold in peacetime information of a nontechnical nature which has far-reaching political implications. In my opinion, if bombs could be made which can destroy hundreds of square miles this would be a fact which people would have to know in order to know how to vote. There would be no need for them to know how such bombs are constructed.

Perhaps there will be an opportunity later on, during the discussion, to mention other points connected with the bill which will have to be discussed if we want to understand what this bill means—what it means to scientists and more important what it means to the country as a whole.

### Army Demobilization

#### EXTENSION OF REMARKS OF

### HON. CLARE BOOTHE LUCE

OF CONNECTICUT

IN THE HOUSE OF REPRESENTATIVES

Wednesday, November 14, 1945

Mrs. LUCE. Mr. Speaker, today every Congressman is under extreme pressure from our men with sufficient points in the armed forces overseas, to urge upon the War Department that they be rapidly shipped home.

The following letter is only one of literally hundreds which have come to my office demanding more efficient demobilization.

All these letters are instantly referred to the War Department with an urgent request that the Department act as fast as possible to cut all red tape, and release shipping for high-point men who are awaiting embarkation.

HEADQUARTERS BATTERY, SEVEN  
HUNDRED AND SEVENTY-SIXTH AAA  
AUTOMATIC WEAPONS BATTALION,  
APO 638, CARE OF POSTMASTER,  
New York, N. Y., October 29, 1945.

We, the undersigned, respectfully petition you to cause an investigation of the War Department's apparent deviation from its system of discharge of personnel by points.

According to today's radio announcements, 80,000 sixty-point service personnel are on the high seas homeward bound, whereas this category IV battalion, whose personnel have an average of over 80 points, is still stationed in Germany, with no assurance as to when we may expect to proceed to a port of embarkation.

Twenty months ago the War Department speedily landed this battalion in the United Kingdom, after transporting us through enemy-submarine-infested waters with fewer ships than are available today.

Our foremost desire is to be returned home to our loved ones as soon as possible. Now that the moot point system is supposed to be in effect, do you think service personnel with 60 points should be returned to the States before service personnel with higher points?

This battalion is assigned to the Ninth Air Defense Command, under the Ninth Air Force. Personnel of this battalion are not considered to be Air Force personnel, and neither are we part of any army; therefore our priority for return to the States is zero.

We shall appreciate any action you may institute in our behalf which will return us home in the very near future. We desire immediate action by the War Department, and not promises.

Respectfully,

Tech. Sgt. FRANK H. DURAND,  
Milford, Conn.

T4 RICHARD E. FLANDERS,  
Lincoln, Maine.

Pfc ANTHONY A. GUISTO,  
Waterbury, Conn.

T5 THOMAS F. DRISCOLL,  
Waterbury, Conn.

Sgt. ROBERT G. BOUCHER,  
Waterbury, Conn.

Signatures continued on petition to cause an investigation of the War Department's apparent deviation from its system of discharge of personnel by points:

Master Sgt. Fenton S. Rcskelley, Challis, Idaho, 84 points.

T4 Mark I. Jurras, Jr., Montpelier, Vt., 79 points.

Tech. Sgt. William J. Kopla, Wlerton, W. Va., 97 points.

Staff Sgt. Robert P. Borzakian, Cambridge, Mass., 79 points.

Staff Sgt. Lester D. Benno, Santa Ana, Calif., 90 points.

T5 Armand Friedland, Pittsfield, Mass., 79 points.

Corp. William A. Richardson, Detroit, Mich., 76 points.

T3 Earl M. Crawford, Nashville, Tenn., 84 points.

Corp. Rudolph C. Fischer, Chicago, Ill., 82 points.

Pfc Donald D. Fowler, Hinsdale, N. H., 79 points.

Pfc John P. Tumulty, Cleveland, Ohio, 76 points.

T5 Walter F. Day, Dedham, Mass., 79 points.

T4 Norman C. Matlack, Butler, Pa., 71 points.

T5 Benjamin J. Soep, Roxbury, Mass., 79 points.

Tech. Sgt. Clifford H. Enderle, New York City, N. Y., 88 points.

Tech. Sgt. Alfred K. Scharlemann, St. Paul, Minn., 81 points.

Pfc Robert W. Long, Millersville, Pa., 81 points.

First Sgt. John Kosowicz, Jr., Irvington, N. J., 87 points.

5 Paul R. Willard, Hershey, Pa., 80 points.

WO (Jg) Eugene A. Souders, Bourbon, Mo., 88 points.

T4 Robert E. Adelson, Boston, Mass., 79 points.

Pfc George Feddock, Nesquehoning, Pa., 79 points.

T4 John H. Otten, Chicago, Ill., 83 points; age 25.

Corp. John L. Clark, East St. Louis, Ill., 98 points.

Pfc Robert G. Seidman, Baltimore, Md., 77 points.

Tech. Sgt. David J. McGuire, Jr., Hyattsville, Md., 88 points.

T5 Reginald Bouthot, Fort Kent, Maine, 79 points.

Pfc Kenneth J. Rapose, Fort Devens, Mass., 79 points.

T5 Gustaf O. Nelson, Worcester, Mass., 79 points.

Pfc Walter Zukowski, Chicopee, Mass., 75 points.

Staff Sgt. Gustave Blumenthal, New York City, N. Y., 74 points.

Tech. Sgt. Leonard A. Coffey, South Natick, Mass., 73 points.

T5 Howard A. Sanders, Canaan, Maine, 79 points.

T4 Francis J. Baranauskas, Aberdeen, S. Dak., 82 points.

T5 Harold G. Manning, Boston, Mass., 79 points.

Pfc Edward J. Florczyk, Pittsfield, Mass., 79 points.

Pfc Melvin H. Williams, Barre, Vt., 79 points.

Pfc Truman H. Jones, Roanoke, Va., 75 points.

Tech. Sgt. Frank W. Long, South Braintree, Mass., 83 points.

Pfc Gerald Legault, New Bedford, Mass., 79 points.

T5 John J. Doris, Jr., Valley Falls, R. I., 79 points.

T4 Andrew Lohr, Huntington Station, N. Y., 62 points.

Pfc Angelo C. Minotte, 1022 West Second Street, Duluth, Minn., 89 points.

Pfc Louis M. Tiso, 145 Transit Street, Waterbury, Conn.

Pfc Marvin E. Carter, Oregon City, Oreg., 82 points.

T5 Earl G. Wicks, Cambridge, Mass., 79 points.

T5 Lucian M. Santora, Milford, Conn., 79 points.

T5 Harry J. Dunbar, Jr., Dedham, Mass., 79 points.

Pfc Dale Burdick, Foxboro, Wis., 86 points.

Pfc Ralph A. Wernholm, Holden, Mass., 79 points.

Corp. Edmund J. Kenney, Dorchester, Mass., 79 points.

Pfc John J. Flamma, Waterbury, Conn., 79 points.

Sgt. Richard O'Donnell, Cambridge, Mass., 79 points.

T4 Theodore Pullit, New Haven, Conn., 79 points.

Alfred L. Rigall, 41 Essex Street, Charleston, Mass., 83 points.

Adam S. Herman, 53 Andrew Avenue, Milford, Conn., 79 points.

### When the Ordinary Is Extraordinary

#### EXTENSION OF REMARKS OF

### HON. BARTEL J. JONKMAN

OF MICHIGAN

IN THE HOUSE OF REPRESENTATIVES

Wednesday, November 14, 1945

Mr. JONKMAN. Mr. Speaker, under leave to extend my remarks in the Record, I include the following editorial from the Daily Tribune, Grand Haven, Mich., for November 6, 1945:

WHEN THE ORDINARY IS EXTRAORDINARY

Sometimes the average or typical behavior of a community attracts more interest than unusual achievements. This seems to be the case lately for Grand Haven was selected both by the Western Newspaper Union and the American Broadcasting Co. as a representative American small city facing the problems of reconversion and transition to peace.

Some weeks ago a writer of syndicate articles for the Western Newspaper Union which supplies feature material for hundred of weeklies and small dailies throughout the country, contacted the local Committee for Economic Development with the purpose of writing up Grand Haven. He paid a visit here and interviewed a number of people

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# WESTERN UNION

1201

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A. N. WILLIAMS  
PRESIDENT

(78)

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CAQ28 22 GOVT=THE WHITE HOUSE WASHINGTON DC 25 1100A  
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 DR LEO SZILLARD=  
 UNIVERSITY OF CHICAGO=

REFERENCE YOUR TELEPHONE CALL THE PRESIDENT HAS YOUR LETTER  
 UNDER ADVISEMENT. I WILL BE GLAD LET YOU KNOW HIS DECISION LATER.  
 REGARDS=

MATTHEW J CONNELLY SECRETARY TO THE PRESIDENT.

SZILLARD.



August 25, 1945

Editors of Science  
1215 Fifth Avenue  
New York 29, New York

RE MY LETTER OF AUGUST 18. SORRY UNABLE TO RELEASE FOR PUBLICATION  
TEXT OF PETITION TO PRESIDENT. KINDLY ADVISE WHETHER YOU WOULD CARE  
TO PUBLISH IF AND WHEN RELEASE BECOMES POSSIBLE.

LEO SZILARD  
1155 East 57th Street  
Chicago 37, Illinois

History Salk file

~~SECRET~~

This document consists of 3 pages  
No. 1-6 copies, series A

ARMY SERVICE FORCES  
MANHATTAN ENGINEER DISTRICT  
INTELLIGENCE AND SECURITY DIVISION  
CHICAGO BRANCH OFFICE  
P. O. Box 6770-A  
CHICAGO 80, ILLINOIS

IN REPLY  
REFER TO

REGISTERED MAIL

EIDM CIC

/js  
27 August 1945

Dear Dr. Szilard:

Pursuant to our telephone conversation on 25 August 1945, I am submitting this letter to you to set forth, in writing, the reasons for my oral request that you reclassify the petition to the President of the United States dated 17 July 1945, of which you are the author.

Primarily, for purposes of review, I want to outline briefly certain discussions which have occurred between the Military Intelligence Division and yourself in connection with the petition and its military classification:

- a. It is understood that when this petition was originally drawn you did not assign a military classification to it.
- b. Sometime subsequent to the date of your petition you were informed by Major C. C. Pierce of the Washington Liaison Office of the Manhattan District that the petition should bear a military classification of "Secret". You agreed as to the justification for such a classification and it was so classified.
- c. On 11 August 1945, you directed a letter to Captain J. H. McKinley stating that the petition "will no longer be treated as a classified document." You informed me on 16 August 1945 of this letter to Captain McKinley and I told you that the petition could now be declassified. My authority to so advise you was based on permission which I had received from my superiors in this division.
- d. Subsequently, on 25 August, I was telephonically advised by my superiors that the question of a military classification for your petition had been reviewed by Major General L. R. Groves and that he, in the light of certain statements in the petition, as well as the very nature of the petition itself when coupled with certain world developments having military significance, had determined in the exercise of his best judgment to request that the petition be again classified secret by you with its attendant limitations. You were given this information telephonically 25 August. You then requested a written statement officially placing request for reclassification before you.

definition, the military classification of "Secret" includes:

"Information, or features contained therein, the disclosure of which might endanger national security, cause serious injury to the interest or prestige of the nation or any governmental activity, or would be of great advantage to a foreign nation...." Army Regulations 380-5, dated 15 May 1944; see also, Intelligence

This material contains information affecting the national defense of the United States within the meaning of the espionage laws, Title 18, U.S.C., Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

CLASSIFICATION CANCELLED  
Date 5/13/60  
For The Atomic Energy Commission  
Director, Division of Classification

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Bulletin Number Five, Manhattan Engineer District, revised  
1 Sept. 1944.

The authority to place a military classification of secret on documents is rather severely limited by the War Department. Civilians, normally, do not possess this authority. However, in the Manhattan District, such authority has upon occasion been delegated by the military authorities to the heads of organizations working for the Manhattan District and to certain other civilians designated by these heads. It is assumed that you have been one of those designated by Dr. Compton.

The authority to classify implies the authority to refrain from classifying, that is, to decide whether or not a certain document should bear any classification. Granted that you have the authority to classify or not to classify certain documents, any such authority which you possess is a delegated authority stemming from General Groves himself, through Dr. A. H. Compton, to you. It is, like all delegated authority in our government, subject to review by the delegator. General Groves has so reviewed your petition and your decision to declassify it and has determined, in the light of what must be conceded is a wider knowledge of the scope and present ramifications of the atomic bomb program, that the petition should be classified secret and hence its dissemination must be appropriately limited.

The knowledge which you have acquired by virtue of your position as an employee of the Metallurgical Project of the University of Chicago which, in turn, is supervised by the Manhattan District, has been, it must be assumed, the basis upon which you wrote your petition. The petition predicates a knowledge of the scope, objectives and potentialities of the Manhattan District Project, information concerning which you acquired by virtue of your official position with the Project.

You will recall that on 25 February 1942 you solemnly swore to "not by any means divulge or disclose any secret or confidential information" that you might obtain or acquire by reason of your connection with the N.D.R.C. unless authorized to do so. Since that N.D.R.C. work meshed into the O.S.R.D. and it, in turn, into the Manhattan District, I believe that any lawyer would advise you that secret and confidential information you acquired from your connection with the Manhattan District would come within the purview of this promise by you.

You have, from time to time, signed certain other secrecy agreements, Espionage Act declarations, and patent agreements with the United States as well as commitments in your present contract of employment and its supplement, all of which preclude the disclosure by you of any information considered secret by the head of the Manhattan District, Major General L. R. Groves.

It appears unnecessary to point out to you that any information considered "secret" by the highest authority which you divulge to persons unauthorized to receive it will be in violation of the above agreements and of the Espionage Act (Title I, Sec. 1, 40 Stat. 217 as amended by Pub. Act No. 443, Laws of 1940) and for which you may be held strictly accountable.

~~SECRET~~

~~SECRET~~

Every effort is being made by General Groves and those above him to authorize the release of all information concerning the project which can be released without jeopardizing the safety or welfare of the people of the United States. It was the considered opinion of General Groves and those above him that your petition did not fall within the purview of such information which could be released without jeopardy.

You asked me to point out certain passages in your petition which might be considered as justification for General Groves belief that it should be classified secret. The opinions which I give you are my own and the ones I would use in determining whether or not the petition should be classified. In my opinion, then, every paragraph of the petition either contains some information or implies "inside" information, i.e.—information gained through employment, which, when linked with the purpose of the petition, implies that internal dissention and fundamental differences in point of view disrupted the development and fruition of the District's work—an implication which you as well as I know is not founded on sober fact and which, if released at this time, might well cause "injury to the interest or prestige of the nation or governmental activity." Therefore, it follows that, in my opinion, the entire petition should be classified secret with no exception for any one paragraph.

As you already know, the War Department has set up a proper channel through which information can be released to the press or classified information can be brought to the attention of those government officials charged with determining the future of the Project. The first channel is through Lt. Col. W. A. Consodine, P. O. Box 2610, Washington, 25, D. C., and the second, in your case, is through Dr. A. H. Compton.

Sincerely,

*James S. Murray*  
JAMES S. MURRAY  
Captain, Corps of Engineers  
Intelligence Officer

cc: Lt. Col. W. B. Parsons, P. O. Box "E", Oak Ridge, Tenn.  
Major Claude C. Pierce, Jr. P. O. Box 2610, Washington, D. C.  
Capt. J. H. McKinley, P. O. Box 6140-A, Chicago 80, Ill.



~~SECRET~~

~~SECRET~~

This document consists of 7 pages  
No. 1 of 6 copies, series A.

HistC

ARMY SERVICE FORCES  
MANHATTAN ENGINEER DISTRICT  
INTELLIGENCE AND SECURITY DIVISION  
CHICAGO BRANCH OFFICE  
P. O. Box 6770-A  
CHICAGO 80, ILLINOIS

/js  
28 August 1945

IN REPLY  
REFER TO

EIDM CIC

REGISTERED MAIL

Dear Dr. Szilard:

Since writing to you yesterday my attention has been called to the contract of employment between the Metallurgical Laboratory, The University of Chicago, and yourself. It is my understanding that you signed this contract on 28 June 1944 and that since that time it has been twice extended, the first extension covering the period 1 July 1944 to 30 June 1945, and the second extension covering the period 1 July 1945 to 30 June 1946.

Your attention is directed to Paragraph 7 of this contract which reads as follows:

"7. It is further 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 and privilege to terminate this contract of employment immediately, 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."

In my opinion the portion of the contract quoted above not only outlines certain contractual relations between you and the University, but specifically puts you on knowledge of the necessity for compliance with the regulations of the United States Government concerning disclosures of classified military information. May I repeat what I wrote you in my letter of 27 August, that such commitments as the above preclude the disclosure by you of any information considered secret by the head of the Manhattan District, Major General L. R. Groves.

~~This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act, 50 U.S.C., 81 and 32. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.~~

Sincerely,

*James S. Murray*  
JAMES S. MURRAY  
Captain, Corps of Engineers  
Intelligence Officer

cc: Lt. Col. W. B. Parsons  
Major Claude C. Pierce, Jr.  
Capt. J. H. McKinley

E 3939

~~SECRET~~

*5/13/60*

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Hist D  
(66 s 2)

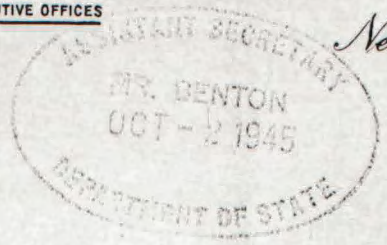
*Cable Address*  
VASCOBINI, NEW YORK

EXECUTIVE OFFICES OF

*R. H. Macy & Co.*  
*Inc.*

PLEASE ADDRESS REPLY TO EXECUTIVE OFFICES

*New York 1, New York*  
September 27, 1945



Hon. William Benton  
Department of State  
Washington, D.C.

Dear Bill:

Thanks a lot for sending me the minutes of the press conference which were extremely interesting. I think the newspaper accounts fell way short of doing you justice.

I was in Chicago last week for the bomb conference which, in my opinion, was a huge success. As far as I am concerned from now on the bomb comes first. When can I see you about it? When are you coming to New York?

Very sincerely yours,

Beardsley Rumel

*The Crown of  
World  
Politics*

Hist-D

(652)

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A. N. WILLIAMS  
PRESIDENT

(75)

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CAU14 NL PD 27 EXTRA=OAKRIDGE TENN OCT 8

LEO SZILARD=DLR QUADRANGLE CLUB

1945 OCT 9 AM 8 21

1155 EAST 57=

THE ASSOCIATION OF OAK RIDGE SCIENTISTS AT CLINTON LABORATORIES. REPRESENTING 90% OF THE SCIENTISTS WHO WORKED ON THE ATOMIC BOMB AT CLINTON LABORATORIES. RECOGNIZE THE URGENT PRESSURE FOR DISCUSSION OF BILLS RELATING TO ATOMIC ENERGY. HOWEVER IT IS BELIEVED THAT NO HEARINGS SHOULD BE HELD ON ANY SUCH BILL UNTIL THERE HAS BEEN AMPLE OPPORTUNITY TO DISCUSS ALL ASPECTS OF THE PROBLEM BEFORE A BIPARTISAN COMMITTEE WHICH MAY BE SET UP FOR THIS PURPOSE BY CONGRESS=

EXECUTIVE COMMITTEE OF THE ASSOCIATION OF OAK

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING THE SERVICE

# WESTERN UNION

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PRESIDENT

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RIDGE SCIENTISTS AT CLINTON LABORATORIES EDWARD BOHLMANN  
 LYLE BORST HARRISON BROWN WALDO COHN SPOFFORD ENGLISH PAUL  
 HENSHAW RICHARD LYON RICHARD METCALF KARL MORGAN MERLIN  
 PETERSON JOSEPH RUSH JAMES STANGBY.

90%

Gentlemen:

I am indebted to you for giving my staff an expression of your views on future problems related to atomic energy, especially domestic research and development and international relations. As you indicated in your conversations with Mr. Newman, you and certain of your colleagues, representing a large number of the scientists who have been engaged in work on nuclear fission during the war, are desirous of setting forth in some detail conclusions which you have arrived at as to the methods for developing atomic energy in the future so as to contribute most effectively to the national interest and to world peace. We shall be very glad to receive and have the staff carefully study any written plans and recommendations with which you and your colleagues may wish to furnish us.

It would be advantageous if you would place this matter in our hands at the earliest possible date. I hope that in doing so you will find it convenient to indicate specifically which of the atomic scientists associate themselves with the views expressed in your recommendations.

Sincerely yours,

Director

Dr. L. Szilard and  
Dr. Edward U. Condon  
1155 East 57th Street  
Chicago, Illinois

JRN/rl  
10/10/45



(Hist-D) (6652)

For Thursday dated papers, October 11, 1945, others thereafter:

ATOMIC SCIENTISTS OPPOSE HASTY LEGISLATION ON  
ATOMIC BOMBS

The Atomic Scientists of Chicago, an organization whose membership includes more than 90% of the scientists who are at present working on the atomic energy project at the University of Chicago, view with concern the possibility of hasty legislation concerning the control of future work in the field of atomic energy. We believe that before any hearings are held on any specific bills, members of Congress ought first to have ample opportunity to acquaint themselves with all the relevant facts and considerations. [An opportunity to explore all aspects of the problem could be provided by the setting up of a non-partisan committee for this purpose. Such a committee could be set up by the Senate, by the House, or possibly jointly by both Houses.]

The War Department, by releasing the Smyth Report, has made available a wealth of technical data on methods for making atomic bombs. On the other hand, information is not generally available which is needed to enable the citizens to think intelligently about the situation which now confronts the United States. Up to now the scientists who are able to furnish this information have not felt free to do so. Hearings held both in open and executive session before some newly set up committee in the Senate or in the House would afford an opportunity to make available the pertinent information to members of Congress.

These views appear to be shared by the Association of Oak Ridge Scientists, representing 90% of the scientists who worked on the atomic bomb at Clinton Laboratories. The text of a telegram which their executive committee sent yesterday to Senator Barkley says that they "recognize the urgent pressure for discussing bills relating to atomic energy. However, it is believed that no hearings should be held on any such bill until there has been ample opportunity to discuss all aspects of the problem before a bipartisan committee which may be set up for this purpose by Congress."

The development and use of the atomic bomb has created a situation filled with uncertainty for our nation and the world. Only a full understanding of the new situation will enable the members of Congress and the citizens of this country to solve intelligently the problems which now face us. If a wrong course is taken it could mean the destruction of our cities, death for millions of our people, and the possible end of our nation. We doubt that our country can steer a steady course in this situation unless Congress and the citizens of this country take time to familiarize themselves with all the facts and considerations that are involved.

Pending a thorough examination by Congress of all aspects of the atomic energy problem, Congress could provide for continuity of the work by authorizing the Manhattan Project to carry on its current activities until, for instance, June 30th of next year.

For the Executive Committee,  
H. H. Goldsmith, Secretary

Please do not use my name.

Metallurgical Laboratory

October 11, 1945

Mr. William Higganbotham  
P. O. Box 1663  
Santa Fe, New Mexico

Dear Willie:

Have you read the Johnson Bill? This is the bill we had been awaiting so anxiously all these weeks, the bill which, it had been assured us, was a "good" bill whose early passage would assure rapid progress in the field of atomic power. We had been asked, by our representatives in Washington to withhold comment lest this cause undue controversy and delay the acceptance of the measure.

The bill provides for the largest measure of power in the hands of a commission appointed by the President and administered by an Administrator and Deputy Administrator. That the commission should have wide powers is in itself not necessarily an evil thing - and we have been ready to accept this. But the wording of the bill is such that its author evidently had in mind that the Administrator should be an Army man (General Groves) and the Deputy Administrator, a Navy man, for it demands " - - - the Deputy Administrator shall at all times be kept fully informed by the Administrator" and who ever would consider that this would not be the case unless an Army and a Navy man were being considered for the two posts? Special sections of the bill assure that no discrimination against the military for these posts be made and that they do not lose their military status. Furthermore, the salary of the Administrator is low, \$15,000 a year, as would fit a man of Groves' calibre and would eliminate a man of greater worth.

Moreover, the author of the bill had certain others in mind when he wrote the bill. The bill establishes a Commission which holds real control but which is made up of men who serve only part time - they receive no compensation other than traveling expenses and a \$50 per diem when in session. Could it be that James B. Conant of ~~Harvard~~ would be loathe to yield his presidency of Harvard in order to serve so vital a position as Commissioner of Atomic Energy in the United States? If the Atom Bomb is the world shaking force we believe it to be - if it is to give us everlasting peace or worldwide devastation, we cannot permit it to rest in the hands of a body so flippantly conceived. Rather, it should be in the hands of our most worthy statesmen - it must be closely coordinated through representation on the Commission with the most vital of the government activities - the State Department, the Department of Commerce and the Departments of War, Navy and the Interior. Moreover, it

October 11, 1945

demands the full time of men competent enough to understand its implications and to maintain the respect and cooperation of scientists as well as statesmen.

The security provision of this bill are frightening. They place every scientist in jeopardy of a jail sentence or a large fine. I don't believe for a moment that this will result in an imprisonment of even a few scientists but at the same time you know and I know that we will exchange information among ourselves in the national interest if not in the interest of science. If this becomes a punishable offense, it will inhibit the free scientific discussion. It will always be a difficult burden to remember what the Commission will punish and what it will not. No matter how liberal the interpretation of ~~the~~ powers may be, the mere existence of the power will tend to drive scientists from the field of atomic transformation. Moreover, why should we who have self-imposed secrecy upon ourselves long before the government and the army were even aware of the dangers, and who through the long years of war so tenaciously kept the faith, have further restrictions to our liberties as citizens and freedom of thought as scientists imposed upon us than already exists in the shape of the Espionage Act?

I must confess my confidence in our own leaders Oppenheimer, Lawrence, Compton and Fermi, all members of the Scientific Panel advising the Interim Committee and who enjoined us to have faith in them and not influence this legislation, is shaken. I believe that these worthy men were duped - that they never had a chance to see this bill. Let us beware of any breach of our rights as men and citizens. The war is won. Let us be free again!

Yours very truly,

Herb Anderson

HA:K

(Hist-D) (b.b.s.2)

1201

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PRESIDENT

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WF24 DL PD=WUX SANTAFE NMEX 24 1100A

HERB ANDERSON=

CARE OF LEO SZILLARD WARDMAN PARK HOTEL WASHDC=

VIEWS YOU EXPRESS NOT SHARED BY THIS ORGANIZATION. BECAUSE YOU APPEAR TO REPRESENT US WE INSIST YOU KEEP QUIET UNTIL YOU DISCUSSED THE BILL WITH US=

=W A HIGHINBOTHAM=

=SZILLARD=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

#1st D (665 2)

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DD

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CA879 767 53 EXTRA 1/147=H CHICAGO ILL 17 923P

15 OCT 18 AM 12 25

DR LEO SZILARD=

CARE WARDMAN PARK HOTEL DLR IMMEDIATELY REGARDLESS OF

TIME WASHDC=

I UNDERSTAND THAT YOU AGREE TO PRESENT ORALLY THE GROUP STATEMENT ON THE MAY- JOHNSON BILL. PLEASE FEEL FREE TO ADD YOUR SIGNATURE IF YOU DESIRE AND HAVE NIXON SIGN IF HE WILL DO SO. THE STATEMENT READS AS FOLLOWS: WE, THE MEMBERS OF THE ATOMIC SCIENTISTS OF CHICAGO AND THE ASSOCIATION OF OAK RIDGE SCIENTISTS AT CLINTON LABORATORIES, HAVE CAREFULLY CONSIDERED THE PROVISIONS OF THE BILL NOW PENDING IN CONGRESS KNOWN AS THE "ATOMIC ENERGY ACT OF 1945" WE ARE STRONGLY OPPOSED TO PASSAGE OF THE BILL.

IT DELEGATES TO A COMMISSION AND AN ADMINISTRATOR, NOT RESPONSIVE TO THE ELECTORATE, THE AUTHORITY AND DUTY OF DETERMINING AND FORMULATING, IN ADDITION TO ENFORCING, ALL NATIONAL POLICY IN REGARD TO ATOMIC ENERGY. NEITHER THE COMMISSION NOR THE ADMINISTRATOR ARE RESPONSIBLE IN THE ASKING OR ENFORCEMENT OF POLICY TO THE PRESIDENT OR ANY OTHER AUTHORITY. FURTHER THEY ARE VIRTUALLY=

(END SHEET ONE).

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# UNION

A. N. WILLIAMS  
PRESIDENT

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CA879/2/166

1945 OCT 18 AM 12 25

IMMUNE FROM OUTSIDE CRITICISM OR REVIEW BECAUSE THEIR SECURITY REGULATIONS MAY PREVENT THE DISCLOSURE OF THE ACTIONS OR POLICIES SUBJECT TO CRITICISM.

¶ SOME OF THE SPECIFIC FEATURES WHICH MAKE THE PROPOSED BILL OBJECTIONABLE ARE POINTED OUT BELOW.

¶ (1) COMPLETE AND ARBITRARY AUTHORITY AND POWER OVER ALL ASPECTS OF ATOMIC ENERGY, WHOSE RELEASE HAS USHERED IN A NEW ERA OF OUR CIVILIZATION, IS PLACED BY THE BILL IN THE HANDS OF NINE COMMISSIONERS WHO, ONCE APPOINTED, ARE PRACTICALLY SPEAKING IMMUNE FROM REMOVAL.

¶ (2) UNDER THE BROAD POWERS CONTAINED IN THE BILL, THE PROPOSED COMMISSION AND THE ADMINISTRATOR SELECTED BY IT MAY RESTRICT ALL SCIENTIFIC AND INDUSTRIAL RESEARCH IN THIS REVOLUTIONARY FIELD TO GOVERNMENT AGENCIES, MAY PLACE NO RESTRICTIONS WHATEVER ON SUCH RESEARCH, OR MAY TAKE ANY INTERMEDIATE POLICY.

¶ (3) IN THE NEW FIELDS, WHOSE IMPORTANCE TO OUR ECONOMIC LIFE CAN NOT YET BE FORESEEN, THE PROPOSED COMMISSION AND THE ADMINISTRATOR MAY COMPLETELY BAN PRIVATE ENTERPRISE, OR MAY COMPLETELY TURN OVER DEVELOPMENT, EXPLOITATION, AND PATENTS TO PRIVATE INTERESTS.

(END SHEET TWO)

indicated by a suitable symbol above or preceding the address.

UNION

A. N. WILLIAMS  
PRESIDENT

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CA879/3/195=

195 JUN 18 AM 12 25

¶ (4) THE PROPOSED COMMISSION MAY ALLOW FULL AND COMPLETE REVELATION OF ALL PRESENT AND FUTURE KNOWLEDGE IN THE FIELD OF ATOMIC ENERGY, OR MAY PROMULGATE SECURITY REGULATIONS SO STRINGENT AS TO PREVENT DISCUSSION AND INTERCHANGE OF INFORMATION, THE LIFE-BLOOD OF SCIENTIFIC PROGRESS, EVEN BETWEEN CO-WORKERS IN THE SAME LABORATORY, PUBLIC OR PRIVATE. THE SCOPE OF SUCH REGULATIONS IS NOT LIMITED TO THOSE NECESSARY FOR MILITARY SECURITY.

¶ (5) UNDER THE PROPOSED BILL, THE COMMISSION HAS THE ABSOLUTE POWER TO MAKE GRANTS TO ANY PERSON ON SUCH TERMS OR CONDITIONS AS THE COMMISSION OR ADMINISTRATOR DEEMS APPROPRIATE TO ITS PURPOSE.

¶ (6) THE DIRECTIVES CONTAINED IN THE BILL ADMONISHING THE COMMISSION AND THE ADMINISTRATOR TO USE THEIR BROAD AND UNDEFINED POWERS FOR THE PROMOTION OF GENERAL WELFARE AND THE ADVANCEMENT OF SCIENCE ARE UNIMPLEMENTED. NO METHOD IS PROVIDED FOR THEIR ENFORCEMENT.

¶ (7) ACCORDING TO THE BILL, THE ADMINISTRATOR AND DEPUTY ADMINISTRATOR, WHO ARE RESPONSIBLE FOR THE ADMINISTRATION OF BOTH MILITARY AND NON-MILITARY ASPECTS OF ATOMIC ENERGY, MAY BE COMMISSIONED OFFICERS OF THE ARMED FORCES ON ACTIVE DUTY.

¶ WE BELIEVE THAT THERE IS A GREAT DANGER UNDER THE PROPOSED BILL OF RETARDING THE RESEARCH AND DEVELOPMENT OF ATOMIC ENERGY.

(END SHEET THREE)

TE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

TE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

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# UNION

A. N. WILLIAMS  
PRESIDENT

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CA879/4/182

1945 OCT 18 AM 12 25

AS CITIZENS AND AS SCIENTISTS WHO HAVE WORKED TO BRING TO FRUITION THE PROMISE OF ATOMIC ENERGY, WE BELIEVE THAT CONTROLS SHOULD AND MUST BE EXERCISED BY AN ADMINISTRATIVE AGENCY OF OUR GOVERNMENT. THE CONTROLS MUST BE EXERCISED FOR THE MILITARY SECURITY AND GENERAL WELFARE OF OUR PEOPLE, SUBJECT TO INTER-NATIONAL AGREEMENT FOR THE PRESERVATION OF WORLD PEACE. WE BELIEVE, HOWEVER, THAT THE LIMITS AND OBJECTIVES OF THESE CONTROLS MUST BE DEFINED BY THE PEOPLE THROUGH THEIR ELECTED CONGRESS. THIS MAY BE ACCOMPLISHED ONLY BY A LAW DRAFTED AFTER THE FULLEST DISCUSSION, IN CONGRESS AND OUT, OF THE MEANING AND POSSIBILITIES OF ATOMIC ENERGY AND ATOMIC BOMBS. IT REQUIRES FULL PRESENTATION OF THE VIEWS OF THE ARMED FORCES, SCIENTISTS, INDUSTRY, COMMERCE, LABOR, AGRICULTURE AND OTHERS WHOSE LIVES AND INTERESTS WILL BE AFFECTED.

WE PROPOSE THAT THE PRESENT BILL BE ABANDONED AND THAT STEPS BE TAKEN TO PREPARE A NEW BILL BASED ON EXTENDED HEARINGS AND INVESTIGATION. IT SHOULD EMBODY ENFORCEABLE OBJECTIVES AND LIMITATIONS ON THE CONTROLS TO BE EXERCISED. IF THE DEMANDS FOR CONTINUITY OF THE WORK AND MILITARY SECURITY REQUIRE IMMEDIATE-

:(END SHEET FOUR)



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A. N. WILLIAMS  
PRESIDENT

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CA 879/577=

ACTION, WE PROPOSE THAT CONGRESS PASS INTERIM LEGISLATION  
ENABLING WORK AND SECURITY TO BE CARRIED ON FOR SIX MONTHS  
IN THE PRESENT WARTIME MANNER=

:ASSOCIATION OF OAK RIDGE SCIENTISTS AT CLINTON  
LABORATORIES P S HENSHAW CHAIRMAN W E COHN E G  
BOHLMANN S G ENGLISH H S BROWN R P METCALF J G STANGBY  
L B BORST J H RUSH K Z MORGAN M D PETERSON R N LYON  
ATOMIC SCIENTISTS OF CHICAGO: J A SIMPSON CHAIRMAN D L  
HILL E RABINOWITCH A M BRUES. *W. G. Hill*