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AND WAS TURNED OVER TO
DR. LEO SZILARD ON

August 19, 1942

1942

John G. Johnson

Dr. A. H. Compton

L. Sillard

The Brush Beryllium Company reports that the uranium metal chunk which they obtained contained only .01% magnesium. This looks very promising and there is a potential possibility of a cheap process capable of a large output. It will be necessary, though, to use a controlled atmosphere, argon or helium, instead of doing the reduction in air. Tomorrow, August 20th, Dr. Creutz and I will go to Cleveland to discuss details of this method with Dr. Sawyer.

LS:NA

- CC E. Fermi
- S. K. Allison
- F. H. Spedding
- E. P. Wigner
- T. V. Moore
- J. A. Wheeler

Technology

Metallurgical Laboratory

A. H. Compton

E. Creutz

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1952

Prof. Dr. E. Creutz
Baron C. Johnson

This is a report of my trip to the Dow Chemical Co. at Midland, Michigan. Because of the promising results obtained at Brush Beryllium Company on the preparation of uranium from the reaction



which Szilard and I saw on Thursday, advantage was taken of my proposed trip to Dow, to survey the magnesium situation insofar as it may interest us as an ally in the rapid production of large quantities of pure uranium metal. Since this question may well be of more immediate interest than the welding methods which I originally intended to study (and whose hopeful applicability is outlined in the second half of this report), I shall discuss it first.

Magnesium

According to Dr. W. Loose, metallurgist at Dow, the large producers of magnesium at present are his company and the Ford Motor Company. Due to technical difficulties with the hydrocarbon reduction method at Permanente in California, Kaiser has switched to the ferro-silicon process which is apparently not yet in large production at that plant. Dow magnesium is now produced electrolytically from purified $MgCl_2$ extracted from brine wells chiefly at Freeport, Texas, and Midland, Michigan. Since this process yields some hundred thousands of tons per year and is being expanded, our demand, if supplied by this source, would be entirely negligible. (One ton of Mg theoretically reduces almost five tons of uranium). The presence of boron in the electrolytic bath is fatal to the Dow process, if its concentration is greater than approximately 10 parts per million. This is about the limit of the routine spectroscopic accuracy at Dow, but is believed to be the maximum amount in their electrolytic product. Although Cd is "not detected" in a typical spectrogram, no data is available on lithium. Because of the sea source of this magnesium, lithium may be expected. Also a definite danger is the fact that the electrolytic magnesium contains up to .1% of Mn (danger coefficient = 8). At least part of this appears to be added to give corrosion resistance, so perhaps could be eliminated on our small order by use of a special electrolytic cell. The total magnesium content runs about 99.9%. In the

Metallurgical Laboratory

-2-

past, Dow has made distilled magnesium of 99.96% metal content. A typical analysis shows

<.001	% Al
.002	Mn
nil	Zn
.0001	Cu
.002	Fe
nil	Ni
<.001	Si
<.001	Ca
nil	Cd
nil	Li
.001	Pb
nil	Sr

Although no figures are available on boron, the low vapor pressure of this element would make its elimination rather probable. Unfortunately this process is not now used by Dow, and their equipment has a capacity of only 70 pounds in 1.5 days. However, a guess by Dr. Loose indicated that on an order for a few tons, production could be increased to several hundred pounds per day at a cost differential over the electrolytic metal of only about 10¢ per pound, making the total cost 40¢ to 50¢ per pound. The greatest difficulty here would probably be the delay in setting up the new equipment (perhaps several months).

Reduction of Mg by ferro-silicon has been discontinued by Dow, but is carried on extensively by the Ford Motor Company. Since the final step in this process is distillation of the magnesium, it is perhaps the most promising of all for our purposes.

Samples of Dow distilled, Dow Freeport cell, Dow Midland cell, and Ford ferro-silicon magnesium were obtained, and have been sent to Furman for boron, cadmium, and lithium analyses. I have stated in my letter to Furman that work on these should await a priority assignment, which, because of the promise of this method for uranium production, would appear to deserve your prompt attention.

A talk with Dr. Stenger, chemist at Dow, brought out the fact that their work would be considerably aided by

- (1) A source of boron free CaCl_2 .
- (2) A method of analysis for B in the presence of fluorides.

Since our project has both these pieces of information, in the interest of general advancement of the war effort, would it not be advisable to release them to Dow? At present they are in secret reports.

Metallurgical Laboratory

-3-

Heliarc Welding

This method developed concurrently by the Northrop Aircraft Co. and Dow Chemical Company consists of welding by the heat of an arc struck from the work to a tungsten rod which is surrounded by a tube from which helium issues. The apparatus is relatively simple and the results on magnesium alloys are very satisfactory. Experiments on Be and U are described below.

Although when welding Mg the DC arc must be run with "reverse polarity", i.e. with the work electrically negative, poor results were obtained on beryllium under this condition. The arc sputtered, and the tungsten electrode dropped off pieces now and then. However, using the work positive with respect to the tungsten, a very good flow of beryllium was obtained to produce a smooth and highly satisfactory appearing weld. Various fluxes were tried, but best results were obtained when the surface was cleaned only by emery cloth. A $\frac{1}{8}$ " tungsten electrode carrying about 80 amperes was found good. After these results were obtained, it was the opinion of Dr. Loose, and Mr. MacPhail, who is considered an expert welder, that this method should be quite satisfactory for Be. A verbal promise of secrecy was given. Two copies of a lengthy discussion of the heliarc method were given me by Dr. Loose.

Under similar conditions as with beryllium, uranium was quite successfully welded. Because of the greater tendency to oxidize, this metal was cooled with water while still in the helium atmosphere. This is standard practice with some magnesium alloys. It is believed that in welding sections of uranium pipe together, water flow through the pipe could be maintained, to serve this purpose. Although good looking shallow welds were obtained merely by flowing the metal together with no addition of uranium, V-welds were made successfully, using $\frac{1}{8}$ " square U wire as a filler rod. Mg alloy wire was tried, but gave rather bad sputtering, presumably due to the excessive heat of combination of the U-Mg complex formed. UF_4 was tried as a flux, but gave less satisfactory results than a clean, unfluxed, U surface.

Dr. Loose is trying to secure for us one of the heliarc torches. He expressed his willingness to carry on further experiments of this type with us. It is believed that his future collaboration may be very helpful in determining the exact procedure for welding the pipe sections.

E. Creutz

EC/o

CC Szilard
Doan
Hilberry

His boy

THE UNIVERSITY OF CHICAGO

DATE September 3, 1942

To A. H. Compton

DEPARTMENT

FROM L. Szilard

DEPARTMENT

not sent

IN RE:

Since there was no opportunity to see you on the occasion of your last visit to Chicago, I am handing Mrs. Tracy various memoranda for your attention which we could discuss upon your return at your convenience.

Concerning the memorandum dealing with secrecy, I had in mind that perhaps Stearns could be entrusted with this task, which is, of course, by no means a full time job. I might also add concerning ~~the~~ memorandum dealing with metal production, that I am not anxious to assume the responsibility for the magnesium reduction, but I am most anxious to have it decided, at an early date, just whose responsibility this task ought to be.

Sincerely yours,

KT

Leo Szilard

THE UNIVERSITY OF CHICAGO

DATE September 3, 1942

To A. H. Compton DEPARTMENT
FROM L. Szilard DEPARTMENT

IN RE: Metal Production

The present unsatisfactory state of the metal production causes concern to all members of our project. The Metallurgical Laboratory cannot be held responsible for this situation since it lacked the necessary authority up to the recent reorganization. The fact, however, remains that the present electrical equipment will not take care of more than 125 lbs/day, and that the calcium hydride reduction, which has a larger capacity, yields impure metal which might be too pyroforic to use unless some previously used methods, like paraffinating the powder, are introduced on an industrial scale.

I slightly over-stepped the limits of my authority, when, acting on a mere hunch, I approached the Brush Beryllium Company with the request of trying to make uranium by the same process which they were using for beryllium. Dr. Creutz and I have repeatedly visited the Brush Laboratories, and Dr. Creutz's group has made a number of experiments in our laboratory. At present we believe that this process might very quickly yield large quantities of fused metal which will be pure and can be easily recast in any shape that is desired.

In order to make progress in this direction it is urgently required that somebody should be clearly authorized to deal with the Brush Company, and also those other companies from which magnesium and uranium tetrafluoride has to be procured in a quality which is suitable for the Brush process.

The task of developing such a process does not come, from a formal point of view, under the responsibility of the technological division, of which I am in charge. It rather cuts across the lines of the technological division and the chemical division, of which Allison is in charge. In an even more formal sense it would come under the authority of Doan who, in a general sort of way, is at present looking after all materials.

I wish, however, to express the willingness to take on this task jointly with Dr. Allison, if this arrangement seems to be appropriate. On the other hand, if you feel that somebody else should take on this responsibility, an early decision would be very desirable, and I would very much appreciate it if you would have it made clear to our research associates that my responsibility in this matter has ended. Another perhaps even simpler method for the production of metal has been worked out by Dr. Spedding's group. This method is also practically ready for being put into production. I understand from Dr. Doan that a supply of 600 lbs/day of distilled calcium might be available soon, and part of this could be used for Dr. Spedding's process.

Whoever take charge of either of these two tasks will have to keep in mind that while none of these tasks may involve full time work on his part; each of them requires the full attention of a man who is familiar with all the aspects of the question. He will have to give, moreover, such a task the right of way over all his other duties. It is my firm conviction that it is not possible for anybody to work on more than one such task and still have a reasonable expectation of success.

During the last few weeks it became clear to me that we need at present a sort of dual organization. On the one hand we must have what we have already got, i.e., a formal division of responsibility represented by the four different divisions to which later might be added a division for materials and a division for small scale factory operations. Apart from these formal skeletons we also need something that might be called task forces, these small groups of people entrusted with a single task which cuts through the boundaries of the different divisions. The various types of metal production represent such single tasks, and no one man should, in my opinion, take the responsibility for any one of them.

L. Szilard

LS:g

Charge to the account of _____

§

CLASS OF SERVICE DESIRED	
DOMESTIC	CABLE
TELEGRAM	ORDINARY
DAY LETTER	URGENT RATE
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OVERNIGHT TELEGRAM	NIGHT LETTER
SPECIAL SERVICE	SHIP RADIOGRAM

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WESTERN UNION

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A. N. WILLIAMS
PRESIDENT

NEWCOMB CARLTON
CHAIRMAN OF THE BOARD

J. C. WILLEVER
FIRST VICE-PRESIDENT

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

Matthias F. Correa
U. S. Attorney
Foley Square
New York City, New York

Chicago, Illinois
September 4, 1942

WANT A REPLY?
 "Answer by WESTERN UNION"
 or similar phrases may be
 included without charge.

WOULD MUCH APPRECIATE YOUR WIRING COLLECT TO METALLURGICAL LABORATORY UNIVERSITY
 OF CHICAGO TRAVEL PERMISSION FOR LEO SZILARD EMPLOYED BY THIS LABORATORY ALIEN
 REGISTRATION NUMBER 4350937 RESIDING AT 420 W. 116th Street NEW YORK. PURPOSE OF
 TRIP TO CONFER WITH WESTINGHOUSE PITTSBURGH PENNSYLVANIA ON SEPTEMBER 8 IN CONNECTION
 WITH OSRD PROJECT HIGHLY RATED BY WAR DEPARTMENT

Day Letter

Arthur H. Compton
Dean Physical Sciences
University of Chicago

Arthur H. Compton

THE UNIVERSITY OF CHICAGO

DATE October 22, 1942

To Mr. Leo Szilard

DEPARTMENT

FROM Arthur H. Compton

DEPARTMENT

IN RE: Design of Production Units

Following my memorandum to you of October 6 and the discussion which we had of the matters involved afterwards, I have re-examined carefully the question as to how the designing of our production units can best be handled. There seems to be only one answer, that the responsibility for the process design shall be in the hands of engineers familiar with the constructional problems involved, who shall have the cooperation of our scientific men but who shall themselves take the responsibility for seeing that the process design is satisfactory.

The validity of the objection to placing this responsibility in the hands of the engineering group appears to me to turn upon the competence of the engineers concerned. In this regard Mr. Moore and I are doing everything possible. Moore first consulted with E. V. Murphree who supported his recommendation that the responsibility for the engineering design be placed in the hands of an industrial engineering group familiar with related problems and already a co-ordinated group. Approaches to Standard Oil of New Jersey, DuPont, Westinghouse and General Electric failed, however, to reveal any such engineering group now in a position to undertake this major responsibility. General Groves also disapproves of bringing additional industries into the picture at this stage. The problem has thus been thrown back upon the Stone & Webster Engineering Corporation and the Metallurgical Laboratory.

The arrangement reached between these two groups is that our laboratory is responsible for developing the process design which will then be turned to Stone & Webster for detailing and construction. Stone & Webster is prepared to give us what consulting help in preparation of the design is available from their organization. Mr. Moore has been entrusted with the responsibility for seeing that the process designs are put in suitable shape and for transmitting these designs to Mr. Steinbach as representing Stone and Webster.

Mr. Moore is now collecting a group of engineers competent to handle this task. In addition to the younger men already secured, several responsible engineers will be supplied through the courtesy of the Standard Oil of New Jersey, the DuPont Company and the General Electric Co. For heading the design work, Mr. Moore and I are making every effort now to secure the services of W. K. Lewis who seems to be ideally fitted for the job. It is probable that he will be with us during the next few critical months. If this cannot be arranged, someone of comparable calibre will be found.

October 22, 1942

The place of the physicist is, however, predominate in the whole undertaking. I am held responsible for the work of the laboratory, including the designs presented by our engineers. Mr. Whitaker acts as my representative on the construction and operation of the pilot and production units at Site X. Each type of unit will have a physicist as a sponsor. This sponsor will bring before the engineers various possible plans with discussion of their relative merits, and will supply the data, calculations, etc., which the engineers require. In the designing stage it is essential that the engineers shall be fully responsible for their own work in order that it may progress; yet this work also must be done in close collaboration with the physicists. My approval of their plans before submission to Stone & Webster for detailing and construction will be based upon the findings of the committee of referees of which Fermi is chairman.

It is my hope that you will sponsor the design of the bismuth cooled plant, in accord with my earlier request. The manner in which your ideas will be made effective in the engineer's designs ^{can} be worked out between yourself ~~and~~ Mr. Moore, ^{Mr. Allison and Mr. Lewis,} I attach a suggestion of procedure adapted from Mr. Allison which may be helpful. A primary requirement, since Mr. Moore is working against a deadline, is that the procedure used must be one that is expeditious.

You will probably wish to use the help of other theoretical physicists and experimental men in working over the designs. If so, this can be arranged with Allison, Wigner and Fermi.

In order that you may concentrate your attention to this important assignment, I hope soon to be able to relieve you of responsibility for the work of the technological division.

I should appreciate your indicating at your early convenience your willingness to go ahead with this task.

Arthur H. Compton

KT

cc: Mr. Moore
Mr. Allison

Leo:

Sorry I couldn't find
you this afternoon to
discuss this with you.

C. H. C.

Oct. 22, 1942.

Dear Leo:

Sorry, but I have strict instructions not to pass this information on to anyone outside of our project, except under direct authorization from Washington.

I am writing to get such authorization in the particular case of Pegram, who if ~~anyone~~, has a human right to know!

12/17/42

Arthur Compton

METALLURGICAL LABORATORY

DATE 1 / 6 / 43

TO L Szilard

FROM A H Compton

Thanks for the memo about visitors. I am asking Hilberry, Doan & Barrowsky to see what can be done.

Thanks also for the comments on scientific men in Europe. These comments have been transcribed.

A. H. C.

Metallurgical Laboratory

October 22, 1942

T. V. Moore and S. K. Allison

A. H. Compton

Coordination of Engineering and Research

It is a major function of all divisions of the laboratory to supply the data required by the Engineering Division. Thus the chairman of the technical council will work especially closely with the chairman of the engineering division to see that the problems of this division receive full attention by the other parts of the laboratory. Direct contacts also between the engineers and the other divisions, especially technology, should be developed.

The details of the procedure for using the ideas and data of the research men in shaping the process design of the plants will be determined jointly by Mr. Moore and the sponsors of the respective plants, with the advice of Mr. Allison.

In principle, the engineers are responsible for drawing up workable designs, and when choices of design are to be made, the decisions rest with the engineers. The process designs thus developed are subject to review by a committee on which the research men are represented, and are subject to my approval on this committee's recommendation.

The attached organization diagrams may suggest a method of coordinating this work.

R. H. C.

KT

cc: Members of Technical Council

X

December 3, 1942

A. H. Compton

L. Szilard

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1956

I understand from Mr. Blair, who is looking after N.D.R.C. patents, that it is desired that we should apply for patents for our inventions relating to the chain reaction.

I have so far not taken out any patents for inventions like the chain reaction in the carbon uranium system, its control by slowly moving absorbers, or its cooling by bismuth. These and practically all of our other major inventions were made and disclosed before we had the benefit of financial support by the government.

A control of this field by means of patents always appeared to me rather incongruous and both Fermi and I could see a number of reasons why it would be preferable for physicists engaged in this work to steer clear of patents.

One argument which weighed with me particularly heavily against taking out a patent was the belief that atomic bombs manufactured by these processes will be used in the present war. I had, as all scientists must have, a rather mixed feeling about creating a new weapon of this type, and I am very much aware of the fact that none of us can know who will ultimately use it and against whom it will be used. If in spite of these considerations I took a rather active part in trying to promote this development, I wanted at least to be sure that considerations of a purely financial nature played no part in determining my attitude.

All this is now radically changed. There is a finite, although I believe rather overestimated, chance that we may win the war by ordinary methods within a couple of years. In the same time our work is still slowed down by the same factors which had slowed it down in the past, and which are due to the diffusion of responsibility by the various organizations, and perhaps to a lesser extent, also to the general attitude towards the creative scientist. If this does not change, and there is little hope that it will, it is more likely than not that this war will probably be over before we are ready. This being at present the outlook I would have no hesitation towards filing the patent application. I would almost prefer to do this now rather than later since my present status within the organization cannot be maintained indefinitely. As you know, I have so far not been really definitely cleared for the work which I am doing. At present I am prevented to discuss such methods as the autocatalytic explosion, which was originally proposed by me with my oldest friends like Wigner and Teller. Conversations with old acquaintances of mine like Simon, Halban and Byers are equally awkward. I hope that the new investigation which you have requested will change the situation, but in the meantime I am rather anxious to create a clear situation with respect to patents.

I would very much appreciate therefore if you could find out what equitable arrangement concerning these inventions would be convenient to the government so that we can decide whether or not, and in what form, we should apply for patents.

If a clear cut arrangement can be made so that we can be sure that the possibility of friction will not arise in the future, both Fermi and I would prefer to file a joint application. I do not think that Fermi would be willing to accept a personal income, but I believe that we would not decline an annual payment to Columbia University for research purposes. We wish however, ^{not} to file a joint application if further investigation should show that by doing so we lose our right to claim the dates of our original separate disclosures.

L. Szilard

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Aug 29 1956.
Warren E. Johnson

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December 4, 1942

A. H. Compton

L. Szilard

1942
Robert S. Johnson

I understand from Mr. Blair, who is looking after N.D.R.C. patents, that it is desired that we should apply for patents for our inventions relating to the chain reaction.

The question now arises how we should deal with inventions which were made and disclosed before we had the benefit of financial support by the government.

I would very much appreciate it if you could find out what equitable arrangement concerning these inventions would be convenient to the government so that we can decide whether or not, and in what form, we should apply for patents.

I have so far not taken out any patents for inventions like the chain reaction in the uranium-carbon system, its control by slowly moving absorbers, or its cooling by bismuth. These and all our other major inventions were disclosed in documents before March 1940, many of them were also mentioned in a detailed paper that was sent to the Physical Review in February 1940. (Unpublished)

If a straightforward and simple arrangement could be made with the government so that we could be sure that no complications can arise in the future, both Fermi and I would be glad to file a joint patent application. I do not think that Fermi would be willing to accept a personal income, but I believe that he would not decline an annual payment to Columbia University for research purposes. However we would not file a joint application if by doing so we would lose our right to claim the dates of our original separate disclosures, and would thus reduce the value of the patent for the government.

As we cannot start drawing up a patent application until we know whether it is to be a joint or separate application, it would be of advantage to learn of the government's reaction to this inquiry.

My present request clearly represents a change of attitude with respect to patents on the uranium work, and I would appreciate an opportunity to explain to you and also to the government agency which may be involved, my reasons for it.

Very truly yours,



L. Szilard

Compton

Patent
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1958
John W. Johnson

December 29, 1942

Professor A. H. Compton

Dr. L. Szilard

I wish to raise the question whether the government desires to acquire at this time rights concerning the basic inventions which underly our work on the chain reaction on unseparated uranium, and which were made before government support for this research was forthcoming. By this letter I put on record my willingness and desire to apply for a patent for these inventions, either alone, or jointly with Fermi, and to assign this patent to the government for such financial compensation as may be deemed fair and equitable.

at this time

Obviously it would not be expedient to determine the value of these patents by soliciting competing offers from industrial corporations or private financiers, but I would be very glad to abide by the decision of some small committee which could be appointed by Dr. Conant or Dr. Bush. I would expect that before a committee of this sort is appointed, its composition will be discussed with me and this committee would then look through a series of documents which have a bearing on the case. After a few days of study the committee could make a definite recommendation.

Of any financial compensation which might be decided upon, I would probably keep a fraction for my own personal use, and would ask the rest to be paid direct to a non-profit corporation of my own choosing.

I wish to take this opportunity to mention that the question of patents was discussed by those who were concerned in 1939 and 1940. At that time it was proposed by the scientists that a government corporation should be formed which would look after the development of this field and at the same time be the recipient of patents. It was assumed that the scientists

would have adequate representation within this government owned corporation, and I proposed that we all take out patents for our inventions and assign them to this government corporation without financial compensation. The last proposal of this sort was made through Urey and Dr. Sachs to Admiral Bowen and Dr. Briggs, in the summer of 1940.

In the absence of such a government owned corporation in which the scientists can exert their influence on the use of funds, I do not now propose to assign to the government without equitable compensation, patents covering the basic inventions.

Experience has shown that it is very difficult to secure funds for pursuits which in their early stages cannot be proved with certainty to be deserving causes. If and when they are later recognized as such, it is difficult to make up for the opportunities lost. This is one of the reasons why I would be very glad if an adequate compensation for past inventions would provide funds which could be put in the hands of a non-profit corporation, and could be administered by scientists.

1956

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L. Szilard

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DR. LEO SZILARD ON

Aug. 29, 1956
Darren C. Johnson

December 29, 1942

Professor A. H. Compton

Dr. L. Szilard

I wonder whether you would think it useful for me to see Greenewalt and to discuss the bismuth cooled power unit and possible certain features of the helium cooled power unit. If so, would you wish to arrange for me to see him?

L. Szilard

copy

January 13, 1948

Professor A. H. Compton
Dr. L. Szilard

THIS DOCUMENT HAS BEEN
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ARGONNE NATIONAL LABORATORY
AND WAS TURNED OVER TO
DR. LEO SZILARD ON
DECEMBER 29, 1942

Prof. A. H. Compton
1950

I wish to raise the question whether the government desires to acquire at this time rights concerning the basic inventions which underly our work on the chain reaction on onseparated uranium, and which were made before government support for this research was forthcoming. By this letter I put on record my willingness and desire to apply for a patent for these inventions, either alone, or jointly with Fermi, and to assign this patent at this time to the government for such financial compensation as may be deemed fair and equitable.

Obviously it would not be expedient to determine the value of these patents by soliciting competing offers from industrial corporations or private financiers, but I would be very glad to abide by the decision of some small committee which could be appointed by Dr. Conant or Dr. Bush. I would expect that before a committee of this sort is appointed, its composition will be discussed with me and this committee would then look through a series of documents which have a bearing on the case. After a few days of study the committee could make a definite recommendation.

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Experience has shown that it is very difficult to secure funds for pursuits which in their early stages cannot be proved with certainty to be deserving causes. If and when they are later recognized as such, it is difficult to make up for the opportunities lost. This is one of the reasons why I would be very glad if an adequate compensation for past inventions would provide funds which could be put in the hands of a non-profit corporation, and could be administered by scientists.

L. Szilard

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TAKEN FROM A FILE OF THE
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DR. GARDNER ON
January 13, 1943
1943

Dear Mr. Compton:

I refer to the memorandum which I gave you December 29th of last year in which I raised the question of whether the government wishes to acquire patent rights to the basic inventions which underlie our work. A copy of this memorandum is inclosed for your convenience.

The situation is now somewhat complicated by the fact that a patent originating with Joliot's group has been published in Australia in November 1941 and it has been overlooked that we should have filed patent applications before November 1942 for those of our earlier inventions which are disclosed in that publication. This is, I am afraid, an irreparable loss.

I have now started to write down my own inventions and hope to file a number of patents in the near future. While I am doing this and until I have actually filed those patents I prefer not to be on the payroll of the University of Chicago, otherwise legal complications might arise. Since my contract which I signed with the University of Chicago expired on December 31, 1942, I would wish to wait with the signing of a new contract until I have completed this patent work. It would not be my intention to interrupt or slow down the work which I am doing in the laboratory at present and it is merely a question of staying off the payroll of the University of Chicago while I am writing up these things and filing them.

In order to safeguard the interests of the government for all eventualities including my death, it would be advisable to draw up in a legally binding form some document which I could sign and which would record my obligation of assigning all these patent applications to the government against ~~some~~ financial compensation as may be deemed fair and equitable, taking into account all the circumstances of my past relationship with the government in connection with the work on uranium. The inclosed memorandum of December 29th contains a proposal in this direction.

Of the patent applications which I am going to file, some are directly related with processes which we actually at present intend to use. I assume that it should be possible to form some sort of an opinion as to whether these applications are of value and I would very much welcome it if a final settlement concerning these applications would be arrived at in the near future. There

will however be other patent applications in the group which probably will not seem to others of great interest or value at the present time. The final settlement concerning these patent applications ought to be deferred until a later time. It is ~~highly~~ necessary to state that such deferment of the final settlement concerning these particular patent applications would not interfere with an actual use of the invention disclosed in ~~them~~ *them* by the Government if the Government should desire to apply them in the near future.

Yours sincerely,

L. Szilard

A. H. Compton

L. Szilard

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April 20, 1943
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DR. LEO SZILARD ON

1952

Prof. Dr. Leo Szilard
March 26, 1943

With respect to your memo of March 26 I wish to state that if it is felt that it is desirable that I should go back on the payroll as from January 1, 1943, I shall be glad to do so.

I shall also be glad to sign with respect to patents, the same agreement as has been signed by me at the time of my appointment by the University of Chicago and as has been signed also by the other members of the Laboratory. I take it, however that this agreement will not be construed to bar me from proceeding as follows: I intend to file patent applications in which I propose to claim inventions for which the conception date lies before my appointment by the University of Chicago. While these claims may be modified later on the basis of specification, I shall not draw up any claims for which the conception date falls in the period of my employment by the University of Chicago. These patent applications would be my private property.

(Should the specification of any of these patent applications also describe inventions for which the conception date lies in the period during which I was employed by the University of Chicago, I would be under obligation to sign, if required, patent applications prepared by the University of Chicago in which such inventions are described and claimed, and I would be under obligation to assign such patent applications without further financial consideration to the University of Chicago or the United States Government. Should, at a later date, the United States Government take over those patent applications which would at first be my private property and which claim only inventions made by me prior to my employment

A. H. Compton

-2-

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April 20, 1943

by the University of Chicago, it would then perhaps be desirable to include
into the same patent applications new claims covering inventions made by me
during my employment at the University of Chicago, and thereby obtain
a stonger patent that would otherwise be possible.)

THE UNIVERSITY OF CHICAGO

DATE April 20, 1943

TO A. H. Compton

DEPARTMENT

FROM L. Szilard

DEPARTMENT

IN RE:

With respect to your memo of March 26 I wish to state that if it is felt that it is desirable that I should go back on the payroll as from January 1, 1943, I shall be glad to do so.

I shall also be glad to sign with respect to patents, the same agreement as has been signed by me at the time of my appointment by the University of Chicago and as has been signed also by the other members of the Laboratory. I take it, however that this agreement will not be construed to bar me from proceeding as follows: I intend to file patent applications in which I propose to claim inventions for which the conception date lies before my appointment by the University of Chicago. While these claims may be modified later on the basis of specification, I shall not draw up any ^{additional} claims for which the conception date falls in the period of my employment by the University of Chicago. These patent applications would be my private property.

(Should the specification of any of these patent applications also describe inventions for which the conception date lies in the period during which I was employed by the University of Chicago, I would be under obligation to sign, if required, patent applications prepared by the University of Chicago in which such inventions are described and claimed, and I would be under obligation to assign such patent applications without further financial consideration to the University of Chicago or the United States Government. Should, at a later date, the United States Government take over those patent applications which would at first be my private property and which claim only inventions made by me prior to my employment

by the University of Chicago, it would then perhaps be desirable to include into the same patent applications new claims covering inventions made by me during my employment at the University of Chicago, and thereby obtain a stonger patent that would otherwise be possible.)

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Aug 29 1956

Warren C. Johnson

THE UNIVERSITY OF CHICAGO

DATE April 26, 1943

TO A. H. Compton

DEPARTMENT

FROM L. Szilard

DEPARTMENT

IN RE:

In your memo dated March 26, you referred to conversations which you had with Dr. Bush on the subject matter of patents. It appears that Dr. Bush is willing to see if some satisfactory procedure can be set up for evaluating an appropriate compensation for inventions relating to the chain reaction. You state, however, that Dr. Bush wants to be satisfied that there are no United States patents or pending patent applications by which I could claim compensation according to the established routine, and that no compensation is sought for inventions which were made subsequent to my employment by the University of Chicago. These are conditions which can be met and I am enclosing a more detailed statement which I believe will satisfy Dr. Bush.

I further wish to state that the state of our knowledge prior to our employment by the Chicago Project can be ascertained with reasonable certainty on the bases of earlier disclosures by a member of the Metallurgical Laboratory who is familiar with our work.

It would certainly be very desirable if a method of evaluation other than the established routine could be followed, particularly since it does not appear likely that patents filed in this field can be led through the established routine without some danger of undesirable leaks. In order to have claims allowed in the patent office, an interference will be necessary ^{for} ~~in order to~~ determine ^{ing} priority and this cannot be done without giving some information to other inventors who are putting forward similar claims.

April 26, 1943

Nevertheless, I would very well understand if Dr. Bush were reluctant to give any time or attention to questions connected with patents at this stage of the war. ^{did} ~~I myself was quite reluctant to concern myself with patents when I had an opportunity to do work which I felt had a possible bearing on the outcome of the war.~~

I understand that it is considered undesirable that I should stay off the payroll and I appreciate the point of view which leads to this attitude. ^{Moreover I understand that the War Department} I wish therefore, to express my willingness to be put on the payroll as ^{in these circumstances} from January 1 of this year. I do not feel that I ought to make any conditions as to salary and whatever salary you consider equitable under the circumstances ^{which is within your} and with the power to grant will be acceptable to me. I should also be pleased to sign concerning patents the same agreement which I had signed at the time when I joined the Chicago Project and which has also been signed by all other members of the staff.

I am preparing various patent applications which I propose to file ^{in my name} in order to ^{meet in the best possible way} ~~safeguard all~~ requirements of secrecy through Captain Lavendar ~~in my name~~ pending ^{I would} at a later arrangement concerning a possible compensation for patents ~~as~~ for the time being, restrict the claims of some of these patent applications to inventions which I made before I joined the Chicago Project. If, later on, a satisfactory arrangement concerning the compensation can be found, additional claims might be put into the case which would then ^{also} cover inventions made by me after I joined the Project. If no satisfactory arrangement concerning compensation is found, I would then leave the claims restricted to those of my inventions which I made prior to joining the Chicago Project and would then consider the patent application as my private property.

Claims covering inventions made by me after I joined the Chicago project would then have to be listed as

may not be used for anything but a long time for the war in the war but have in applying that income

I hope that this arrangement appears satisfactory to you.

I wish to add that ~~in view of~~ ^{cannot} ~~the present uncertainty with regard to~~ ^{for the time being} ~~compensation for inventions made prior to our work for the Government,~~ I propose to follow the following procedure.

I shall prepare a number of patent applications which I would propose to file in my name through Captain Lavendar ^{with the U.S. Patent Office} in order to meet, in the best possible way, all requirements of secrecy. These patent applications would fall into two categories. Into the first category would belong patent applications in which the claims will be restricted to inventions made by me at a time when I was not employed by the University of Chicago; and if no satisfactory procedure concerning compensation for these inventions can be devised, I would reserve the right to consider ^{some or all of} these patent applications as my private property. In the second category fall patent applications in which are claimed inventions made by me after we joined the Chicago Project, and these applications I shall assign, if requested to do so, to the University of Chicago or the United States Government.

Should it turn out that the specification of patent applications, which I consider to belong to the first category and which claim only inventions made by me at a time when I was not employed by the University of Chicago, describe in the specifications inventions made by me while I was employed by the University of Chicago, I would then consider myself to be under obligation to file further patent applications in which these inventions are described and claimed and these patent applications would then belong in the second category. Should, at a later date, the Government acquire rights to the patent applications of the first category, we could then consider the advisability of putting into those applications also claims covering inventions which were made by me during my employment at the University of Chicago;

and of withdrawing the corresponding patent applications belonging in the second category. ^{internal} I would ~~propose~~ to follow a similar procedure with respect to Columbia University, where I was employed for a certain period of time before I was employed by the University of Chicago, and where I had similar obligations concerning patents as at Chicago.

April 26, 1943

A. H. Compton

L. Szilard

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DR. LEO SZILARD ON
1956

Handwritten signature

In your memo dated March 26, you referred to conversations which you had with Dr. Bush on the subject matter of patents. It appears that Dr. Bush is willing to see if some satisfactory procedure can be set up for evaluating an appropriate compensation for inventions relating to the chain reaction. You state, however, that Dr. Bush wants to be satisfied that there are no United States patents or pending patent applications by which I could claim compensation according to the established routine, and that no compensation is sought for inventions which were made subsequent to my employment by the University of Chicago. These are conditions which can be met and I am enclosing a more detailed statement which I believe will satisfy Dr. Bush.

I further wish to state that the state of our knowledge prior to our employment by the Chicago Project can be ascertained with reasonable certainty on the bases of earlier disclosures by a member of the Metallurgical Laboratory who is familiar with our work.

It would certainly be very desirable if a method of evaluation other than the established routine could be followed, particularly since it does not appear likely that patents filed in this field can be led through the established routine without some danger of undesirable leaks. In order to have claims allowed in the patent office, an interference will be necessary in order to determine priority and this cannot be done without giving some information to other inventors who are putting forward similar claims.

A. H. Compton

April 26, 1943

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1-2-44

Nevertheless, I would very well understand if Dr. Bush were reluctant to give any time or attention to questions connected with patents at this stage of the war. I myself was quite reluctant to concern myself with patents when I had an opportunity to do work which I felt has a possible bearing on the outcome of the war.

I understand that it is considered undesirable that I should stay off the payroll and I appreciate the point of view which leads to this attitude. I wish therefore, to express my willingness to be put on the payroll as from January 1 of this year. I do not feel that I ought to make any conditions as to salary and whatever salary you consider equitable under the circumstances and with the newer power to grant will be acceptable to me. I should also be pleased to sign concerning patents the same agreement which I had signed at the time when I joined the Chicago Project and which has also been signed by all other members of the staff.

I am preparing various patent applications which I propose to file in order to safeguard all requirements of secrecy through Captain Lavendar in my name pending at a later arrangement concerning a possible compensation for patents as for the time being, restrict the claims of some of these patent applications to inventions which I made before I joined the Chicago Project. If, later on, a satisfactory arrangement concerning the compensation can be found, additional claims might be put into the case which would then cover inventions made by me after I joined the Project. If not satisfactory arrangement concerning compensation is found, I would then leave the claims restricted to those of my inventions which I made prior to joining the Chicago Project and would then consider the patent application as my private property.

A. H. Compton

April 26, 1943

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APR 26 1943

Dr. L. Szilard
It would seem that this is the best procedure in view of the possible uncertainty with regard to compensation for inventions made prior to our work for the Government, and I hope that you will find this a satisfactory solution.

April 27, 1943

A. H. Compton

L. Szilard

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1956

In your memo dated March 26, you referred to conversations which you had with Dr. Bush on the subject matter of patents. It appears that Dr. Bush is willing to see if some satisfactory procedure can be set up for evaluating an appropriate compensation for inventions relating to the chain reaction. You state, however, that Dr. Bush wants to be satisfied that there are no United States patents or pending patent applications by which I could claim compensation according to the established routine, and that no compensation is sought for inventions which were made subsequent to my employment by the University of Chicago. These are conditions which can be met and I am enclosing a more detailed statement which I believe will satisfy Dr. Bush.

I further wish to state that the state of our knowledge prior to our employment by the Chicago Project can be ascertained with reasonable certainty on the basis of earlier disclosures by a member of the Metallurgical Laboratory who is familiar with our work.

It would certainly be very desirable if a method of evaluation other than the established routine could be followed, particularly since it does not appear likely that patents filed in this field can be led through the established routine without some danger of undesirable leaks. In order to have claims allowed in the patent office, an interference will be necessary for determining priority and this cannot be done without giving some information to other inventors who are putting forward similar claims.

A. H. Compton

April 27, 1943

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Nevertheless, I would very well understand if Dr. Bush were reluctant to give any time or attention to questions connected with patents at this stage of the war.

I understand that it is considered undesirable that I should stay off the payroll and I appreciate the point of view which leads to this attitude. Moreover I understand that the War Department may put forward, in the near future, a proposal for settling the issue of patent compensation. In these circumstances, I wish, therefore, to express my willingness to be put on the payroll as from January 1 of this year. I do not feel that I ought to make any conditions as to salary and whatever salary you consider equitable under the circumstances and which is within your power to grant will be acceptable to me. I should also be pleased to sign concerning patents the same agreement which I had signed at the time when I joined the Chicago Project and which has also been signed by all other members of the staff. I hope that this arrangement appears satisfactory to you.

I wish to add that for the time being, I propose to follow the following procedure.

I shall prepare a number of patent applications which I would propose to file in my name through Captain Lavendar with the U.S. Patent Office in order to meet, in the best possible way, all requirements of secrecy. These patent applications would fall into two categories. Into the first category would belong patent applications in which the claims will be restricted to inventions made by me at a time when I was not employed by the University of Chicago; and if no satisfactory procedure concerning compensation for these inventions can be devised, I would reserve the right to consider some or all of these patent applications as my private property. In the

A. H. Compton

-3-

April 27, 1943

second category fall patent applications in which are claimed inventions made by me after we joined the Chicago Project, and these applications I shall assign, if requested to do so, to the University of Chicago or the United States Government.

I intend to follow a similar procedure with respect to Columbia University, where I was employed for a certain period of time before I was employed by the University of Chicago, and where I had similar obligations concerning patents as at Chicago.

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Aug. 29, 1956.

Warren C. Johnson

LLC

April 28, 1943

A. H. Compton

L. Szilard

General Groves' inquiry about British patents and patent applications

I have looked further into this matter and can confirm the following: No British patent applications in the field of nuclear physics were filed by ^{me} after December 31, 1935. The applications which were filed before that date led to two British patents, one of these dealing with the chain reaction is a secret British patent, the other covering the generation of radioactive elements by neutrons and related matters, but not mentioning explicitly chain reactions, has been issued under the number 440023

L.S.

April 28, 1943

A. H. Compton

L. Szilard

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1939

In your memo dated March 26, you mentioned that Dr. Bush would like to be satisfied with regard to the following questions:

1. Whether I have, in connection with the chain reaction, any United States patents or any United States patent applications pending which might be allowed later by which I could claim compensation according to the established routine. The answer to this is the following. There were no such patents or pending patent applications at the time when I entered the employment of the University of Chicago, and I have not filed any patent applications since that time.

For the sake of completeness, I may add the following: I have not applied for any such patents either in the United States or abroad after April 1, 1939.

Prior to that date, I had not applied for patents in this field anywhere except in the United States and Great Britain.

In so far as patent applications are concerned which were connected with the problem of the chain reaction and which were filed in the United States prior to April 1939, these were either withdrawn or, in the case of one application which was allowed, all references to the chain reaction were deleted from the specifications and claims before the patent issued. Consequently, there is, at present, no pending patent application in the United States which contains references or claims with respect to the chain reaction and which might be allowed at a later date.

A. H. Compton

April 28, 1943

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Of the patent applications filed in Great Britain prior to April 1939, none is pending. There is, however, one patent which has been granted and that patent is a secret British patent which was assigned by me to the British Admiralty in 1936.

2. Whether the inventions for which compensation is sought are only those which were made previous to my employment by the University of Chicago.

The answer is yes.

3. In this point, you raise the question of the desirability of having a complete statement of inventions made by me prior to my employment by the University of Chicago.

An incomplete list of such inventions was submitted by me to Mr. Blair at his request in a letter dated September 4, 1942. While it is difficult to give a complete list of all the inventions made, it is possible to ascertain with reasonable certainty in any specific case whether or not a given invention was made by me prior to my employment by the University of Chicago or during my employment by the University of Chicago.

Professor Dempster and I in the last few days, have been going through my files, and Professor Dempster is preparing a list of disclosures which appear to us to be of significance in this respect.

X

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April 28, 1943

A. H. Compton

L. Szilard

Aug 29, 1943
L. Szilard

You mentioned to me that it would not be desirable for me to make use of the services of a patent attorney in connection with my inventions unless that patent attorney had been cleared previously through the usual channels, and you asked me whether I had discussed my inventions with any patent attorneys outside our Project. In answer to this question, I wish to state that I had not consulted any patent attorney in connection with this matter at any time since the beginning of my employment at Columbia University in November 1940, to date.

In order to prepare patent applications, I do not think it is necessary for me to consult with any patent attorneys, but I might, in the near future, be in need of legal advice in order to obtain an independent opinion concerning my rights and obligations with respect to the Project in connection with patents. For this reason, I might ask, in the near future, that some patent lawyer in whom I have confidence be cleared.

Lh.

X

April 28, 1943

A. H. Compton

L. Szilard

This is to confirm our conversations which you and I had yesterday in which I agreed to go on the payroll of the Metallurgical Laboratory as from January 1, 1943. My obligations concerning patents which I previously signed, would, I presume, go automatically into effect with my acceptance of the salary check.

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Aug. 29, 1956.

Warren E. Johnson

L. Szilard

THE UNIVERSITY OF CHICAGO

DATE April 30, 1943

TO A. H. Compton

DEPARTMENT

FROM L. Szilard

DEPARTMENT

IN RE:

*not sent
but in
filed*

After our last talk I had further conversations with Mr. Dempster and Mr. York, and I understand that these conversations are now closed and that Mr. York is preparing a report on the patent situation concerning the basic chain reaction ideas.

On the basis of the last conversation with Mr. York, I became again doubtful whether the term "invention" as used in the text which the members of our Project have to sign on accepting employment with the Project is not so vague and ambiguous as to cause trouble in my case if the War Department intends to acquire these patents. Apparently, neither the University of Chicago nor the Government can relinquish any rights acquired, and so a situation might arise in which the War Department is unable to make an agreement with me concerning patents for which I ~~have~~ ^{leg} applied during my employment with the University of Chicago even though I consider them as my property.

In the absence of legal advice I am somewhat groping in the dark, but it seems to me that perhaps the following solutions might be a way out of our difficulty. If the War Department intends to take over the patent application which I am now preparing, I could now give the War Department for a fee of one dollar an option for acquiring these patents within a specified time and for a specified financial compensation. After I gave such an option, I could go on the payroll of the University of Chicago and sign the usual obligation concerning patents with the proviso

A. H. Compton

-2-

April 30, 1943

that the patent application which is covered by my agreement with the War Department is exempt from my agreement with the University of Chicago.

We could clear up these questions rather rapidly if General Groves could appoint somebody with whom I could discuss these questions.

Pending the clarification of questions of this type, it might perhaps be wise not to set the machinery yet into motion for putting me back on the payroll. If I accepted the checks of the University of Chicago now, I might then later have to go off the payroll for a second time during the months in which the patent in question is actually going to be filed. This might be undesirable, and I wonder what, in these circumstances, you consider the best course to take.

Metallurgical Laboratory

May 1, 1943

A. H. Compton

L. Szilard

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DR. LEO SZILARD ON

1952

Please do not set the machinery into motion for actually putting me on the payroll until I have an opportunity to see you.

L. Szilard

LS:cw

COPY

MY COMMISSION EXPIRES JULY 15, 1952



May 7, 1945

A. H. Compton

L. Szilard

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DR. LEO SZILARD ON

You have repeatedly mentioned to me that the War Department wished to acquire rights to all inventions which relate to the problem of the chain reaction including those inventions which were made by me before I was employed by the University of Chicago. I have repeatedly expressed my willingness to let the Government have all my inventions in this field against such financial compensation as may be deemed fair and equitable.

I shall now file, in the near future, one or more patent applications in this field and I am anxious to enter, concerning these patent applications, into an agreement with the ~~with the~~ War Department which would give the War Department, against a consideration of one dollar, an option to these patent applications. The War Department could then take up or reject this option within the next few months. The agreement would have to specify the rights which the War Department would acquire and the compensation which it would pay in case it decides to take up the option.

In order to be able to draw up such an agreement, it would be necessary to know just what type of agreements the War Department is free to make concerning such patent rights. If General Groves could appoint somebody who is authorized to speak in the name of the War Department and who is aware of the legal limitations which are imposed upon the War Department in a matter of this kind, I should be very glad to enter into a discussion on this matter at once so that an agreement giving

A. H. Compton

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DR. LEO SZILARD ON
-2-

May 7, 1943

an option to the War Department ~~may be signed~~, if possible, at the same time when I file the patent applications above referred to.

In signing an agreement with the University of Chicago concerning inventions made after January 1, 1943, it might be advisable explicitly to exempt patent applications for which there is a direct agreement between the War Department and myself. I believe this might be necessary in order to avoid legal complications. However, since I am without legal advice I wish to ask whether it would be possible for General Groves to designate somebody who could act as my legal advisor in connection with this matter.

June 20, 1943

Dear Professor Compton:

Captain Lavender was here last week and told me that he thinks that he will be in a position to offer me on behalf of the government a lump sum payment, which he specified, for inventions made by me before November, 1940.

As another alternative he suggested that I file patents for inventions made by me before November 1940 and tender these inventions to the government. This is a process which is specified by law. However, Captain Lavender told me that if I choose this course he might be compelled to suggest that my connection with the Metallurgical Laboratory be severed.

I wish to take this opportunity to state that in the circumstances I would hesitate to take this course since I would not wish to diminish my potential usefulness for the work with which our project is connected.

I feel that before I can decide whether or not to accept Captain Lavender's offer I need the advice of a counsel of my own choice and I am writing to you to ask that Mr. James P. Hume of the firm Wilkinson, Huxley, Byron and Knight, First National Bank Building Chicago, be cleared for this purpose. His private address is 1350 North State Street, Chicago, Illinois. I suppose that his typist will also require clearance. Her name is Ellen L. Kelly, 1133 Home Avenue, Oak Park, Illinois.

Sincerely yours,

L. Szilard

L. Szilard

Professor A. H. Compton
Metallurgical Laboratory

THE UNIVERSITY OF CHICAGO

DATE July 31, 1942

TO A. H. Compton

DEPARTMENT

FROM L. Szilard

DEPARTMENT

IN RE: Visit to Brush Beryllium Co.
Re: Production of uranium metal.

Dr. Creutz and I visited, yesterday, Dr. C. B. Sawyer of the Brush Beryllium Co., and had conversations also with Mr. Kjellgren, of Brush Beryllium, and with W. R. Burwell, Chairman of the Board of Directors of the Brush Development Co.

According to Dr. Sawyer, there is a sporting chance that uranium metal can be produced by the method which is at present being used for the production of beryllium metal. This method, which we were asked to keep secret, consists in the following:

Beryllium fluoride is thrown into molten magnesium and the magnesium is removed from the reduced beryllium by allowing it to remain in contact with an excess of beryllium fluoride.

Mr. Sawyer and Mr. Burwell proposed that the Brush Beryllium Co. will try at their own expense, the same process for uranium, and that we provide them for this purpose with about 50 lbs. of uranium tetrafluoride.

L. S.
L. Szilard

LS:g

Copies to: Doan
Hilberry
Allison
Fermi
Spedding

original sent

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NATIONAL LABORATORY
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DR. LEO SZILARD ON
August 4, 1943
1950

Dear Doctor Compton:

I understand from your communication dated August 4th that it would be necessary for me now to stop work on the project unless I gave an undertaking not to file any patent applications for my inventions made prior to November 1940. The possibility that this situation might arise was indicated earlier by Captain Lavender and I gave you a memorandum on this subject dated July 20th. In that memorandum I stated that if this situation should arise I would prefer to refrain from taking out patents rather than diminish my potential usefulness for the work with which our project is connected.

As you know I have not filed any patent applications for inventions which relate to our work and have thus no patent applications pending which might come into interference with patents arising out of work on this project. Therefore if I ~~give~~ give an undertaking not to file any patent applications concerning my inventions made prior to November 1940 there is no possibility of any interference between me and patent applications filed by the government. I am, in the circumstances, willing to give such an undertaking ~~now~~ in a legally binding form in accordance with my intention indicated in my memorandum of July 20th.

if I do not accept Capt. Lavenders offer of a lump sum payment of \$25000.
I take it that if an agreement should be reached between me and the government concerning my inventions made prior to November 1940 I shall be released from this undertaking so as to be able to fulfill my obligations under the agreement with the government which might be concluded.

Let's see,

Dr. A. H. Compton

August 4, 1943
-2-
MEMORANDUM HAS BEEN
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DR. LEO SZILARD ON
1943

I wish now to make the request to be put back on the payroll of the Metallurgical Laboratory, if possible from January 1, 1943, or otherwise from such date on as you should decide upon.

You will remember that I asked to be taken off the payroll in January because, in the absence of legal advice, I was not informed whether my obligations concerning inventions under the terms of my employment by the University of Chicago would interfere with my filing patent applications for inventions made by me before November 1940. In view of your communication of August 4th and my reply given in the present memorandum this point has become irrelevant. At that time it was Dr. Bush's intention and also yours and mine that I should go back on the payroll as from January 1, 1943. I am inclosing a copy of a memorandum dated March 26, 1943 which you had sent me in this connection.

I take it that until I hear from you my present status remains unchanged and that you will let me know as from what date on you want me to go back on the payroll.

In expressing my willingness to give the undertaking which I mentioned above I am merely taking a possible financial loss and I am certain that you realize that I have no alternative left since I am sure you would not expect me to sacrifice my potential usefulness for our work, however small it may be, for the sake of financial gain.

Sincerely yours,

L. Szilard

Dr. A. H. Compton
Metallurgical Laboratory
University of Chicago

METALLURGICAL LABORATORY

DATE Aug. 4, 1943

TO Mr. Szilard

FROM Arthur Compton

Dear Leo:

I tried to find you to hand this memo to you personally. I know however that you will understand the situation that has made this step necessary, and the hope of my colleagues and myself that with altered situation we can renew our scientific ~~and~~ collaboration.

Cordially,
Arthur Compton

THE UNIVERSITY OF CHICAGO

DATE August 4, 1943

To Leo Szilard

DEPARTMENT

FROM Arthur H. Compton

DEPARTMENT

IN RE: Temporary disconnection from the Metallurgical Project

Until such time as the patent negotiations between yourself and the government have been completed, I regret that it will not be possible to use your services further as a consultant or otherwise in connection with the Metallurgical Project. Until such time as you may be officially appointed again on the project I must accordingly request that you refrain from discussing the progress of the project or other matters of a secret character with its members and keep from access to secret material associated with the project. I am calling attention to the members of the project the fact that we are no longer authorized to discuss our work and other secret matters with you.

While this change in status is to be effective at once, your pass to the Metallurgical Laboratory will remain valid through August 5, in order that during that time you can return to our Information Office all of the secret reports, notebooks and other secret papers. Your passes and keys should be turned over to Mr. Stearns in the personnel office.

I am informed that the patent attorneys Wilkinson, Huxley, Bryon, and Knight are being considered for clearance in order that they may represent you in your patent discussions with the government. Until their clearance has become effective you are requested not to discuss any secret matters with them. After the clearance you will be free to discuss with them all questions associated with your work as based upon information that was available before November 1940. They are not authorized to receive information that has become available since that time.

May I take this opportunity to thank you for the valuable work which you have done for the Metallurgical Laboratory and my personal pleasure at being associated with you in this connection. Your colleagues on the project join me in expressing to you our best wishes.

KT

cc: S. K. Allison
E. Fermi
H. D. Smyth
R. S. Mulliken
J. C. Stearns
B. T. Feld
A. V. Peterson

Reading File

A. J. Dempster

Arthur H. Compton

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DR. LEO SZILARD ON

August 5, 1943

A. H. Compton

L. Szilard

1943

Handwritten signature: Leo Szilard

In your memorandum of August 4th you mention that the patent attorney firm Wilkinson, Huxley, Bryon, and Knight are being considered for clearance but that their clearance will not authorize them to receive information that has become available since November 1940. As you can infer from my memorandum of July 20, 1943 my desire to have Mr. Hume of that firm cleared arises out of my need to have competent advice in connection with the evaluation of my inventions and my negotiations with the Government. In accordance with my memorandum of August 4, 1943 I would not need the help of this firm for the purpose of filing patent applications.

It seems to me that the undertaking referred to in my memorandum dated August 4th would leave me two alternatives: either to reach an agreement with ~~with~~ ^{this} Government and then file patent applications through Captain Lavender, or refrain altogether from filing patent applications for inventions made by me before November 1940. In the circumstances I need the aid of a patent counsellor in whom I have confidence. The evaluation of my inventions have to be made in the light of our present knowledge and I feel that if I cannot discuss with M all pertinent information, he will not be willing or able to act as my counsellor.

A. H. Compton

-2-

August 5, 1943

May I accordingly request that Mr. Hume's clearance be made unlimited so that I shall be permitted to communicate to him such information ^{as} ~~that~~ I consider to be pertinent; alternatively I should appreciate a communication stating whether such general clearance is being refused in principle for any counsellor of my choice. If that were the case, I would wish to withdraw my request for clearing Mr. Hume.

Sincerely yours,

L. Szilard

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Aug. 29, 1956.
Darius C. Johnson

To give such an assurance
by committing myself to the
extent that

F6 X

August 6, 1943

A. H. Compton

L. Szilard

With respect to your memorandum dated August 4, 1943 and my reply of the same date, I wish to reiterate for your convenience and for transmittal to Captain Lavender the following:

A few weeks ago, Captain Lavender made me an offer for inventions which I made prior to November 1940 and which relate to our work. I have not taken out any patents for these inventions but they are disclosed in report A-55 and some other documents. Captain Lavender offered me a lump sum of \$25,000 for these inventions and added that if I did not wish to accept this offer, I could file patent applications on my own behalf and submit them to the Government as prescribed by law. He said, however, that if I should take that course, he may be compelled to suggest that my connection with the Metallurgical Laboratory be severed. The reason which he gave was the following: If I should have patents pending which relate to our work and which are not owned by the Government, these patents would come into interference in the Patent Office with patents owned by the Government. The knowledge which I am acquiring through my present association with the Metallurgical Laboratory would, so he said, give me a more favorable position in the interference proceedings than I would otherwise have.

I now understand from your memorandum of August 4, 1943 that I would have to quit working in the Laboratory unless I gave an assurance that the situation which Captain Lavender wants to avoid will not arise. In the circumstances, I am willing to ~~give an undertaking~~ ^{do so} that if I should not accept Captain Lavender's offer to which I referred above, I ~~shall~~ ^{will} refrain forever

~~give a binding assurance~~
~~statement to the effect~~

August 6, 1943

from filing patent applications on inventions made by me before November 1940. Since I am sure you would not expect me to sacrifice, for the sake of financial gain, my potential usefulness for our work, however small it may be, you will realize that I have really no choice but to give such an ~~undertaking~~^{assurance}. I have indicated to you that I would take this course earlier in a memorandum dated July 20, 1943.

~~assurance~~ *commitment*
Should the ~~undertaking~~ given above not be sufficient and should Captain Lavender want me to sign a different ~~undertaking~~^{assurance} as a condition for my remaining at my work, I shall be pleased to receive the text of the statement which Captain Lavender would consider sufficient.

Compton

August 6, 1943

A. H. Compton

L. Szilard

With respect to your memorandum dated August 4, 1943 and my reply of the same date, I wish to reiterate for your convenience and for transmittal to Captain Lavender the following:

A few weeks ago, Captain Lavender made me an offer for inventions which I made prior to November 1940 and which relate to our work. I have not taken out any patents for these inventions but they are disclosed in report A-55 and some other documents. Captain Lavender offered me a lump sum of \$25,000 for these inventions and added that if I did not wish to accept this offer, I could file patent applications on my own behalf and submit them to the Government as prescribed by law. He said, however, that if I should take that course, he may be compelled to suggest that my connection with the Metallurgical Laboratory be severed. The reason which he gave was the following: If I should have patents pending which relate to our work and which are not owned by the Government, these patents would come into interference in the Patent Office with patents owned by the Government. The knowledge which I am acquiring through my present association with the Metallurgical Laboratory would, so he said, give me a more favorable position in the interference proceedings than I would otherwise have.

I now understand from your memorandum of August 4, 1943 that I would have to quit working in the Laboratory unless I gave an assurance that the situation which Captain Lavender wants to avoid will not arise. In the circumstances, I am willing to give an undertaking that if I should not accept Captain Lavender's offer to which I referred above, I shall refrain forever

August 6, 1943

from filing patent applications on inventions made by me before November 1940. Since I am sure you would not expect me to sacrifice, for the sake of financial gain, my potential usefulness for our work, however small it may be, you will realize that I have really no choice but to give such an undertaking. I have indicated to you that I would take this course earlier in a memorandum dated July 20, 1943.

Should the undertaking given above not be sufficient and should Captain Lavender want me to sign a different undertaking as a condition for my remaining at my work, I shall be pleased to receive the text of the statement which Captain Lavender would consider sufficient.

A. H. Compton

L. Szilard

*Allison
Petersen
Feld*

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ARGONNE NATIONAL LABORATORY
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DR. LEO SZILARD ON
August 6, 1943

*1943
John G. Johnson*

With respect to your memorandum dated August 4, 1943 and my reply of the same date, I wish to reiterate for your convenience and for transmittal to Captain Lavender the following:

A few weeks ago, Captain Lavender made me an offer for inventions which I made prior to November 1940 and which relate to our work. I have not taken out any patents for these inventions but they are disclosed in report A-55 and some other documents. Captain Lavender offered me a lump sum of \$25,000 for these inventions and added that if I did not wish to accept this offer, I could file patent applications on my own behalf and submit them to the Government as prescribed by law. He said, however, that if I should take that course, he may be compelled to suggest that my connection with the Metallurgical Laboratory be severed. The reason which he gave was the following: If I should have patents pending which relate to our work and which are not owned by the Government, these patents would come into interference in the Patent Office with patents owned by the Government. The knowledge which I am acquiring through my present association with the Metallurgical Laboratory would, so he said, ^{give} ~~put~~ me ~~in~~ a more favorable position in the interference proceedings than I would otherwise have.

I now understand from your memorandum of August 4, 1943 that I would have to quit working in the Laboratory unless I gave an assurance that the situation which Captain Lavender wants to avoid will not arise. In the circumstances, I am willing to give an undertaking that if I should not accept Captain Lavender's offer to which I referred above, I shall refrain

A. H. Compton

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-2-
ARGONNE NATIONAL LABORATORY
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August 6, 1943

forever from filing patent applications on inventions made by me before November 1940. Since I am sure you would not expect me to sacrifice, for the sake of financial gain, my potential usefulness for our work, however small it may be, you will realize that I have really no choice but to give such an undertaking. I have indicated to you that I would take this course earlier in a memorandum dated July 20, 1943.

Should the undertaking given above not be sufficient and should Captain Lavender want me to sign a different undertaking as a condition for my remaining at my work, I shall be pleased to receive the text of the statement which Captain Lavender would consider sufficient.

A. H. Compton

L. Szilard

4401 DOCUMENT HAS BEEN
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DR. LEO SZILARD ON
August 6, 1945

1945
Prof. Szilard
L. Szilard

With respect to your memorandum dated August 4, 1945 and my reply of the same date, I wish to reiterate for your convenience and for transmittal to Captain Lavender the following:

A few weeks ago, Captain Lavender made me an offer for inventions which I made prior to November 1940 and which relate to our work. I have not taken out any patents for these inventions but they are disclosed in report A-55 and some other documents. Captain Lavender offered me a lump sum of \$25,000 for these inventions and added that if I did not wish to accept this offer, I could file patent applications on my own behalf and submit them to the Government as prescribed by law. He said, however, that if I should take that course, he may be compelled to suggest that my connection with the Metallurgical Laboratory be severed. The reason which he gave was the following: If I should have patents pending which relate to our work and which are not owned by the Government, these patents would come into interference in the Patent Office with patents owned by the Government. The knowledge which I am acquiring through my present association with the Metallurgical Laboratory would, so he said, give me a more favorable position in the interference proceedings than I would otherwise have.

I now understand from your memorandum of August 4, 1945 that I would have to quit working in the Laboratory unless I gave an assurance that the situation which Captain Lavender wants to avoid will not arise. In the circumstances, I am willing to give an undertaking that if I should not accept Captain Lavender's offer to which I referred above, I shall refrain forever

A. H. Compton

-2-

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DR. LEO SZILARD ON
August 6, 1943

from filing patent applications on inventions made by me before November 1940. Since I am sure you would not expect me to sacrifice, for the sake of financial gain, my potential usefulness for our work, however small it may be, you will realize that I have really no choice but to give such an undertaking. I have indicated to you that I would take this course earlier in a memorandum dated July 20, 1943.

Should the undertaking given above not be sufficient and should Captain Lavender want me to sign a different undertaking as a condition for my remaining at my work, I shall be pleased to receive the text of the statement which Captain Lavender would consider sufficient.

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DR. LEO SZILARD ON
1952

August 6, 1943

A. H. Compton

L. Szilard

John C. Johnson
1952

With respect to your memorandum dated August 4, 1943 and my reply of the same date, I wish to reiterate for your convenience and for transmittal to Captain Lavender the following:

A few weeks ago, Captain Lavender made me an offer for inventions which I made prior to November 1940 and which relate to our work. I have not taken out any patents for these inventions but they are disclosed in report A-55 and some other documents. Captain Lavender offered me a lump sum of \$25,000 for these inventions and added that if I did not wish to accept this offer, I could file patent applications on my own behalf and submit them to the Government as prescribed by law. He said, however, that if I should take that course, he may be compelled to suggest that my connection with the Metallurgical Laboratory be severed. The reason which he gave was the following: If I should have patents pending which relate to our work and which are not owned by the Government, these patents would come into interference in the Patent Office with patents owned by the Government. The knowledge which I am acquiring through my present association with the Metallurgical Laboratory would, so he said, give me a more favorable position in the interference proceedings than I would otherwise have.

I now understand from your memorandum of August 4, 1943 that I would have to quit working in the Laboratory unless I gave an assurance that the situation which Captain Lavender wants to avoid will not arise. In the circumstances, I am willing to give an undertaking that if I should not accept Captain Lavender's offer to which I referred above, I shall refrain forever

A. H. Compton

-2-

August 6, 1943

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DR. LEO SZILARD ON
1952

from filing patent applications on inventions made by me before November 1940. Since I am sure you would not expect me to sacrifice, for the sake of financial gain, my potential usefulness for our work, however small it may be, you will realize that I have really no choice but to give such an undertaking. I have indicated to you that I would take this course earlier in a memorandum dated July 20, 1943.

Should the undertaking given above not be sufficient and should Captain Lavender want me to sign a different undertaking as a condition for my remaining at my work, I shall be pleased to receive the text of the statement which Captain Lavender would consider sufficient.

A. H. Compton

L. Szilard

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DR. LEO SZILARD ON
August 6, 1943

Handwritten signature: Leo Szilard
1952

If you find that my memorandum of August 6th is O.K. and if you think it is proper to do this, I should like to have added to this memorandum before you forward it to any third person, the following sentence:

I take it that I am retaining the right to appeal to Dr. Bush in connection with any commitment into which I am now entering as an alternative to discontinuing my work at the Metallurgical Laboratory, and that Dr. Bush shall have the right to free me from any such commitment if he sees fit.

Handwritten initials: LH

Metallurgical Laboratory

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DR. LEO SZILARD ON

August 7, 1943

1943

A. H. Compton

L. Szilard

I refer to the attached memorandum of today's date and wish to ask you, in view of the circumstances, to regularize my position with respect to the payroll. As indicated before, I shall be pleased to be put on the payroll as from January 1, 1943, but it is left to your discretion to set any other later date. Similarly the rate of salary is left to your discretion. Simultaneously with going on the payroll, I shall naturally sign the usual commitment concerning inventions made during my employment by the University of Chicago.

The attached memorandum deals with my entering into other commitments concerning patents which go beyond the commitments to which other members of the Laboratory are subject, and I understand that if I enter into such further commitments, the Director of the O.S.R.D. shall have the right to free me from these commitments at his discretion.

L. SZILARD

Original

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DR. LEO SZILARD ON

August 7, 1943

A. H. Compton

L. Szilard

1943
Aug 29
Dr. Leo Szilard

I refer to the attached memorandum of today's date and wish to ask you, in view of the circumstances, to regularize my position with respect to the payroll. As indicated before, I shall be pleased to be put on the payroll as from January 1, 1943, but it is left to your discretion to ~~determine~~ ^{set} any other later date, Similarly the rate of salary is left to your discretion. Simultaneously with going on the payroll, I shall naturally sign the usual commitment concerning inventions made during my employment by the University of Chicago.

The attached memorandum ~~discusses the possibility~~ ^{deals with} of my entering into other commitments concerning patents which go beyond the commitments to which other members of the Laboratory are subject, and I understand that if I enter into such further commitments, the Director of the O.S.R.D. shall have the right to free me from these commitments at his discretion.

L.S.

X

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DR. LEO SZILARD ON
August 7, 1943

1943
John C. Johnson

A. H. Compton
L. Szilard

With respect to your memorandum dated August 4, 1943 and my reply of the same date, I wish to reiterate for your convenience and for transmittal to Captain Lavender the following:

A few weeks ago, Captain Lavender made me an offer for inventions which I made prior to November 1940 and which relate to our work. I have not taken out any patents for these inventions but they are disclosed in report A-55 and some other documents. Captain Lavender offered me a lump sum of \$25,000 for these inventions and added that if I did not wish to accept this offer, I could file patent applications on my own behalf and submit them to the Government as prescribed by law. He said, however, that if I should take that course, he may be compelled to suggest that my connection with the Metallurgical Laboratory be severed. The reason which he gave was the following: If I should have patents pending which relate to our work and which are not owned by the Government, these patents would come into interference in the Patent Office with patents owned by the Government. The knowledge which I am acquiring through my present association with the Metallurgical Laboratory would, so he said, give me a more favorable position in the interference proceedings than I would otherwise have.

I now understand from your memorandum of August 4, 1943 that I would have to quit working in the Laboratory unless I gave an assurance that the situation which Captain Lavender wants to avoid will not arise. In the circumstances, I am willing to give such an assurance by committing myself to the ~~effect~~ ^{effect} that if I do not accept Captain Lavender's offer to which I

August 7, 1943

referred above, I shall refrain forever from filing patent applications on inventions made by me before November 1940. Since I am sure you would not expect me to sacrifice, for the sake of financial gain, my potential usefulness for our work, however small it may be, you will realize that I really have no choice but to give such an assurance. I have indicated to you that I would take this course earlier in a memorandum dated July 20, 1943.

Should the commitment given above not be sufficient and should Captain Lavender want me to sign a different commitment as a condition for my remaining at my work, I shall be pleased to receive the text of the statement which Captain Lavender would consider sufficient.

I understand, however, that the commitment given above or any other commitment which I may give now as an alternative to quitting work at the Metallurgical Laboratory leaves the way open to an appeal on my part to the Director of the O. S. R. D. and that it will be at the discretion of the Director of the O. S. R. D. to free me from such a commitment.

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DR. LEO SZILARD ON

Aug. 29, 1956.
Daren C. Johnson

Leo Szilard

A. H. Compton

L. Szilard

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DR. LEO SZILARD ON
August 9, 1943

1952

Leo Szilard

I understand from Colonel Metcalf who has been talking over the telephone with Captain Lavender that any commitment along the lines stated in my memorandum to you dated August 7th would be considered insufficient. Colonel Metcalf tells me that I have to choose between two alternatives: either accept the Government's offer made by Captain Lavender, or leave my work which is connected with the Metallurgical Laboratory. Since I do not wish to give up my work, I herewith commit myself to acceptance of Captain Lavender's offer.

According to this offer, the Government would pay \$25,000 for the assignment ^{by me} to the Government of any and all inventions, discoveries, methods and ideas relating to nuclear fission which are not covered by issued patents or abandoned patent applications. I will agree to assign any patent application that might be prepared by the Government concerning my inventions, and agree to abide by the judgment of the Government as to character and scope of the applications presented to me for signature.

It is my understanding that it will be at the discretion of the Director of the O.S.R.D. to free me from this commitment if he sees fit to do so.

LS

THE UNIVERSITY OF CHICAGO

DATE August 9, 1943

TO A. H. Compton

DEPARTMENT

FROM L. Szilard

DEPARTMENT

IN RE:

I herewith commit myself to let the Government have free of financial consideration the right to any inventions in the field of nuclear fission which may be disclosed in any abandoned patent application of mine.



L. SZILARD

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DR. LEO SZILARD ON

Aug 29, 1956.

Warren C. Johnson

LS:VK

A. H. Compton

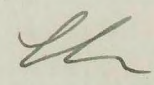
L. Szilard

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DR. LEO SZILARD ON
August 19, 1945

Aug 22 1945
Robert C. Johnson

As stated before, I do not wish to take any action in connection with patents which might interfere with my potential usefulness for our work. Therefore, if you made a ruling to the effect that it is incompatible with my present work for me to file patent applications for inventions made by me before the Government was supporting our work, the issue raised by Captain Lavender would be considered by me as settled.

I understand, however, from our last conversation that you do not wish to make such a ruling, that it is recognized that I am entitled to a ruling on this issue, and that you would pass this matter on for a ruling to Dr. Bush. In accordance with this, I am enclosing a letter addressed to Dr. Bush which you may forward at your convenience with such comments as you see fit to make.



L. Szilard

Enc. 1

August 28, 1943

A. H. Compton

L. Szilard

Could I talk to you before you go on vacation about that letter which I thought of sending to Dr. Bush? I have so far not mailed it. I, myself, intend to be away on vacation starting Tuesday.

KT

L. H.

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Aug. 29, 1956.
Warren C. Johnson

THE UNIVERSITY OF CHICAGO

DATE August 30, 1943

TO Dr. A. H. Compton

DEPARTMENT

FROM L. Szilard

DEPARTMENT

IN RE:

I shall have to make up my mind in the near future whether I should accept a payment from the government for my inventions or whether I should let the government have these inventions free of financial consideration. There are various factors which have an influence on this decision and I wish to ask you in this connection whether in case I chose not to accept anything in excess of one dollar you would feel fairly certain that you are able to put me on the payroll at the salary which you offered me in your communication dated March 26, 1943 and also as from what past date on, if any, you think you could put me on the payroll.

Lh.

L. Szilard

November 13, 1943

A. H. Compton

L. Szilard

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DR. LEO SZILARD ON

1952

May I put on record the following facts for your information.

After seeing you, Mr. Hume wrote on October 22, that is, three weeks ago, to Captain Lavender advising him that the 1936 agreement has been cancelled. Mr. Hume enclosed with his letter photostatic copies of all the documents which he considered pertinent. A few days later, Mr. Metcalf asked that an additional document should be submitted to him and this was done on the same day as the request was received. Mr. Metcalf tells me that he looked over all the documents and sent them on with his opinion Monday, November 1st, that is, about two weeks ago, and he has not received any further communication in this matter from Lavender. Mr. Hume tells me that he did not have a reply to the letter which he sent three weeks ago.

In view of this situation, I shall try to see you today, or if that is not convenient, then on Monday.



L. Szilard

LS/o

November 19, 1943

A. H. Compton

L. Szilard

THIS DOCUMENT HAS BEEN
TAKEN FROM A FILE OF THE
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AND IS NOT TO BE
REPRODUCED

I am writing to say that it is not my intention to accept a financial consideration from the Government for inventions made by me before November 1940 on the basis of a lump sum payment recommended by Captain Lavender and representing Captain Lavender's evaluation of my inventions.

Should I enter into any agreement concerning those inventions with the Government, I would want that agreement to be on a non-profit basis. I have tentatively discussed with Captain Lavender the possibility of having refunded to me that part of my expenses which represent obligations that I have entered into with respect to third persons and which are as yet not discharged. They aggregate to a sum between \$8000 and \$9000. Most other items will be included unless Captain Lavender and you feel that the inclusion of such other items will not affect the non-profit character of the patent agreement.

L. Szilard

L. Szilard

Metallurgical Laboratory

November 20, 1943

A. H. Compton

L. Szilard

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DR. LEO SZILARD ON

1958

In connection with the memorandum sent to you yesterday, I wonder whether you could now find out from Captain Lavender whether the inclusion of an item representing compensation for my time covering the period from March 1, 1939 to November 1, 1940 would be considered as appropriate in view of my desire to leave the non-profit character of the proposed agreement intact. If the inclusion of such a item were in order, I would need to know what salary rate would be considered as fair and appropriate for the period which this work covered back in 1939 and 1940. (I started to do experimental work beginning March 1939 at Columbia and have been working full time without any financial compensation until November 1, 1940.)

I would appreciate it if this issue were decided so that I could arrive at a definite figure by adding up all the items which enter into the picture.



L. Szilard

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Aug 29,

Warren C. Johnson

Norme Mann

MY COMMISSION EXPIRES JULY 15, 1958

THE UNIVERSITY OF CHICAGO

DATE December 11, 1943

TO Mr. A. H. Compton

DEPARTMENT

FROM Mr. L. Szilard

DEPARTMENT

IN RE: Report about conversation with General Groves, Friday, December 3rd.

I explained to General Groves how the present situation arose and told him particularly that I had from the beginning stated that I did not wish to enter into any agreement that specified a lump sum payment, though I would have been very glad to enter into an agreement under which the Government would have paid me annually a certain sum in lieu of and about equal to my salary, the payments to go on as long as the Government wished to retain the title to the patent applications which were to be filed. Captain Lavender explained to me that such an agreement could not be entered into by the Government and I made my position clear that the agreement proposed by Captain Lavender is considered by me as undesirable from my own personal point of view.

I told General Groves that as far as I could see there are three alternative positions which he could take:

1. He could authorize the University of Chicago to put me back on the payroll irrespective of whether or not I sign an agreement concerning my early inventions.
2. He could openly state that he will continue to object to my employment unless I sign over my early inventions to the Government under the terms of the contract proposed by Captain Lavender.
3. He could refuse to make any sort of statement.

General Groves told me that he was unwilling to decide in favor of alternative (1), that he could not decide in favor of alternative (2) because if he did so it might be considered duress and the agreement concluded under duress might not be legally valid. Therefore he explained to me he had to choose alternative (3).

I told General Groves that in the circumstances I shall sign the agreement proposed by Captain Lavender (changing only the sum involved from \$25,000 to a lesser sum corresponding to certain expenses and compensation for a certain amount of time which I spent in 1939 and 1940 on this work), but that I am doing it only because I am, rightly or wrongly, convinced that the Germans have caught up with us in this work and that in this situation I do not wish to leave the project even though I can at present contribute very little to its success.

I have subsequently signed the agreement proposed by Captain Lavender and I gave the signed copy to Captain Lavender in escrow so that the execution of the agreement will be held up until my employment at the University of Chicago dating back to January 1, 1943 goes into effect and I acknowledge receipt of the corresponding salary check.

L. Szilard

Metallurgical Laboratory

December 15, 1943

Mr. A. H. Compton

Mr. L. Szilard

I tried to see you on Friday of last week but you were gone by the time I got in touch with Mrs. Tracy.

Earlier in the week I had heard from Wigner that Dr. Lowen, who formerly was a member of this laboratory, became alarmed through newspaper reports concerning some German secret weapon and went to Washington where he had a number of conversations with rather influential persons. Later on I obtained more precise information concerning the nature of these conversations. While I am fully convinced of the sincerity of Lowen's motives and appreciate his point of view, nevertheless what I heard increased rather than decreased my apprehension for the future of our project and some of the related projects. The situation as I see it is such that it might be helpful for Dr. Bush to be acquainted with the point of view of those who find it difficult to believe that the uranium projects are going as well as they can go and that it is impossible to do better. For this reason I am asking Dr. Bush for an interview and I am inclosing a copy of the letter which I wrote to him. I assume that I shall have an opportunity to see you before I see Dr. Bush.

L. Szilard

January 1, 1944

Mr. A. H. Compton

Mr. L. Szilard

I have now heard from Dr. Bush, who suggests that I see Dr. Conant and says that Dr. Conant could see me either in January in Chicago or earlier in Washington. However, I feel that I have gone far enough in writing to Dr. Bush and at present I do not wish to go further and ask Dr. Conant for an interview.

L. S.

March 1, 1944

Dr. A. H. Compton
P. O. Box 1991
Knoxville 11, Tennessee

Dear Dr. Compton:

Following my conversation with you I wrote to Dr. Bush according to the inclosed copy of letter. I am also inclosing a copy of Dr. Bush's reply. I am leaving today by way of New York for Washington where your office can reach me if required at the Wardman-Park Hotel.

Yours sincerely,

L. Szilard

LS:s
incls.

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.

Warren C. Johnson

Harold Mann

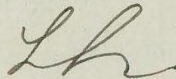
MY COMMISSION EXPIRES JULY 18, 1958

July 8, 1944

TO: Mr. A. H. Compton

FROM: Mr. L. Szilard

Some time ago I talked to you about the desirability of constructing composite units which have a heavy water seed. The inclosed copy of a letter addressed to Mr. W. W. Watson summarizes the points of view which appear to me to be relevant.



ls/ls
inc.

August 24, 1944

A. H. Compton

L. Szilard

I have received today the following telegram from
Dr. Bush.

"No objection to your sending personal letter
as indicated in yours of Twenty-second."

This is in answer to my letter of which a copy
was sent to your office.

dj

L. Szilard

March 12, 1945

Mr. A. H. Compton

Mr. L. Szilard

I am inclosing two memoranda written with the intent to clarify in my mind, first, what kind of a program we ought to advocate, and secondly, what part I myself might play within the framework of such a program. The memo dated March 12th is a rough draft and I would appreciate it if you would return it to me after you have read it. However, there would be no objection to your showing this memo to Dr. Bush if you wished to do so. I myself may or may not send a copy to Dr. Bush during the coming week.

I thought that perhaps during your train trips you might have time to read these memos and that upon your return you might wish to tell me what you think about them.

ls:s

A handwritten signature in dark ink, appearing to be 'L.S.', is located in the lower right quadrant of the page.

Stearns

March 17, 1945

Mr. A. H. Compton

Mr. L. Szilard

Many thanks for your memorandum dated March 13th. In your absence I have taken up all matters relating to it with Mr. Bartky and Mr. Stearns.

I am afraid that your statement concerning the Argonne does not fully clarify my position and perhaps this point could be discussed sometime with all those who seem to be interested in drawing up a general program for the time after June 30th.

I assume that your time will be taken up on your return early next week with the monthly meetings and so I made an appointment to see Urey on Tuesday in New York. I understand that you are leaving Thursday or Friday for X where Mr. Bartky tells me he expects to see you. If you should wish to see me before you leave Chicago next week, I could come back from New York where Mrs. Sullivan can reach me by telegram. Naturally I would be very much interested to have your reactions to the two memoranda which you might perhaps have had time to read during your trip.

Sh.

April 3, 1945

Mr. A. H. Compton

Mr. L. Szilard

I had hoped to see you Monday or Tuesday of this week. However, Mrs. Tracy tells me that you had to change your plans and that she expects you to be in town Monday or Tuesday of next week.

In the meantime, I have talked to a number of people including Urey and Tolman and I would be glad to tell you about some of these conversations which seemed to bring out new points of view.

If you should wish to see me next Monday or Tuesday I should make a point of being back by then and Mrs. Sullivan, who will be kept informed of my address, can communicate with me if required.

I have now written (on the basis of the conversations which I have had to date) a revised version of the memo of which you have the first draft (dated March 12th) in your files and I should much appreciate any comments which you might care to make and discussing questions which are connected with it.

Sh.

~~SECRET~~

THIS DOCUMENT CONSISTS OF 1 PAGES
COPIES 3 OF 4 COPIES

July 24, 1945

DCVT-55443

To: Colonel K. D. Nichols (2)

From: Arthur H. Compton

In re: Transmittal of Petitions addressed to the President

I have been requested to transmit the enclosed petition to the President of the United States. At the suggestion of General Groves, I am herewith handing it to you for disposition. Since the matter presented in the petition is of immediate concern, the petitioners desire the transmittal to occur as promptly as possible. It will be appreciated if you will inform me with regard to its disposition.

You will note that the signed draft of the petition is enclosed within a sealed envelope. I have personally verified that this envelope contains only signed copies of a petition, identical in text with the carbon copy attached, together with receipt forms for classified material. Mr. Szilard, in his covering letter, has requested that this envelope be opened only by those authorized to read the President's mail.

You have requested me to evaluate this petition and likewise those submitted to you by Mr. Whitaker on behalf of certain members of Clinton Laboratories.

The question of use of atomic weapons has been considered by the Scientific Panel of the Secretary of War's Interim Advisory Committee. The opinion which they expressed was that military use of such weapons should be made in the Japanese War. There was not sufficient agreement among the members of the panel to unite upon a statement as to how or under what conditions such use was to be made.

A small group of petitioners initially canvassed certain groups of scientists within the project seeking signatures requesting no use of the new weapons in this war. The response was such as to call forth several counter petitions, of which those submitted through Mr. Whitaker are typical, and to cause the formulator of the original petition to rephrase it so as to approve use of the weapons after giving suitable warning and opportunity for surrender under known conditions.

In order to obtain a fair expression of the opinion of a typical group of scientists, an opinion poll was conducted on a group of 150. The results are described in the enclosed memo to me from Dr. Daniels. You will note that the strongly favored procedure is to "give a military demonstration in Japan, to be followed by a renewed opportunity for surrender before full use of the weapons is employed." This coincides with my own preference, and is, as nearly as I can judge, the procedure that has found most favor in all informed groups where the subject has been discussed.

~~SECRET~~

H4115

(4)

This document contains information in part, the national defense of the United States. It is the property of the United States Government and is loaned to you. It and its contents are not to be distributed outside your agency.

NDN-55432
~~SECRET~~ 5/13/60

To the President of the United States:

We, the undersigned scientific personnel of the Clinton Laboratories, believe that the world-wide social and political consequences of the power of the weapon being developed on this Project impose a special moral obligation on the government and people of the United States in introducing the weapon in warfare.

It is further believed that the power of this weapon should be made known by demonstration to the peoples of the world, irrespective of the course of the present conflict, for in this way the body of world opinion may be made the determining factor in the absolute preservation of peace.

Therefore we recommend that before this weapon be used without restriction in the present conflict, its powers should be adequately described and demonstrated, and the Japanese nation should be given the opportunity to consider the consequences of further refusal to surrender. We feel that this course of action will heighten the effectiveness of the weapon in this war and will be of tremendous effect in the prevention of future wars.

Signed:

Charles D. Coryell
Jack Siegel
Norman Elliott
Nathan E. Ballou
Waldo E. Cohn
S. G. English
Harrison S. Brown
Edward Shapiro
L. E. Glendenin
Melvin G. Bowman
Bernard J. Finkle
R. K. Maney
James G. Barrick
R. F. Leininger
John R. Dam
Elton H. Turk
Robert A. Penneman
A. W. Adamson
B. H. Ketelle
J. O. Blomeke
Robert L. Butenhoff
Jim Kroner
John B. Otto

~~Maxim~~ Cecil M. Nelson
Ralph Livingston
Joseph Khym
Clinton R. Vanneman
John P. McBride
Donald S. Schover
Dwight C. Lincoln
Edward G. Gohlmann
Jack K. East
John P. Hunt
Walton A. Rodger
D. E. Koshland, Jr.
Joseph Halperin
Robert B. Scott
Louis B. Wenner
Russell R. Williams, Jr.
Glenn H. Jenke
William G. Leslie
Charles W. Stanby
L. H. Gevantman
J. E. Satteszaher
Stanley Rasmussen

Paul C. Tompkins
R. W. Stoughton
Leionel S. Golding
Theodore B. Novey
Earl R. Purchase
Edward L. Brady
Howard Gest
A. J. Miller
William J. Knox
F. Boldridge
W. H. Burgus
M. Creek
Alan S. Jarrett
Kurt D. Kraus
Elwin H. Covey
Raymond R. Edwards
L. T. McClinton
A. R. Brosi
John A. Ghormley
C. J. Barkowski
Gordon Johnson
D. N. Hume

~~SECRET~~

~~SECRET~~

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H4662
H4115

June 11, 1945

TO: Mr. Arthur H. Compton

It was felt that the inclosed letters, which are addressed to the Secretary of War, ought to be submitted to you for transmittal. These letters were signed by all division directors and section chiefs in physics and chemistry of the Clinton Laboratories and by all the division directors and section chiefs in physics and chemistry of the Metallurgical Laboratory at Chicago who could be reached today. It is hoped that this significance of the signatures will be pointed out by you in your letter of transmittal to the Secretary of War.

Your kind cooperation in this matter is greatly appreciated.

Metallurgical Laboratory

P.O. BOX 5207
CHICAGO 80, ILLINOIS

July 19, 1945

BUTTERFIELD 4300

NDN-35430

9
~~SECRET~~

Dr. A. H. Compton
Metallurgical Laboratory
Chicago, Illinois

Dear Dr. Compton:

Enclosed is a petition to the President of the United States signed by 67 scientists residing in Chicago. You were good enough to say that you would forward this petition to the President via the War Department. Since those who have signed this petition are exercising a privilege under the Constitution, I believe that we are not free to disclose their names to anyone but to those who are authorized to open the mail of the President. May I, therefore, suggest that the petition be placed in an envelope addressed to the President and that the envelope be sealed before it leaves your office.

Enclosed are six unsigned copies of the petition which you may wish to communicate to others who ought in your opinion to be informed of the text of the petition.

It would be appreciated if in transmitting these copies you would draw attention in your covering letter to the fact that the text of the petition deals with the moral aspect of the issue only. Some of those who signed the petition undoubtedly fear that the use of atomic bombs at this time would precipitate an armament race with Russia and believe that atomic bombs ought not be demonstrated until the government had more time to reach a final decision as to which course it intends to follow in the years following the first demonstration of atomic bombs. Others are more inclined to think that if we withhold such a demonstration we will cause distrust on the part of other nations and are, therefore, in favor of an early demonstration. The text of the petition does not touch upon these and other important issues involved but deals with the moral issue only.

Very sincerely yours,

Leo Szilard

Leo Szilard

jjp
encls.

~~SECRET~~

July 5/13/60

H4115

H4662

3

1947



In our search for knowledge
may we find the path to peace
Betty McCloskey Compton
Arthur Holly Compton

CALENDAR 1948

1948	JANUARY							1948
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1948	FEBRUARY							1948
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29								

1948	MARCH							1948
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1948	JUNE							1948
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1948	JULY							1948
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1948	AUGUST							1948
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29	30	31						

1948	SEPTEMBER							1948
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1948	OCTOBER							1948
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1948	NOVEMBER							1948
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28	29	30						

1948	DECEMBER							1948
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WASHINGTON UNIVERSITY
 RIDGLEY ARCH
 GRACE VALLE' JANUARY HALL
 GRAHAM MEMORIAL CHAPEL

To Compton

ARTHUR HOLLY COMPTON
WASHINGTON UNIVERSITY
SAINT LOUIS 5, MISSOURI

March 3, 1960

Dear Leo:

First let me tell of my deep and sincere sorrow at the news of your serious illness.

Let me further say that with the passing years I have become more clearly aware of the sincerity and earnestness and effectiveness of your efforts to turn the development of nuclear energy to the preservation of freedom and the meeting of man's humane needs throughout the world.

It is true that we have not always seen eye to eye as to how these humane ends could best be achieved. But of the sincerity of your intent I have never had a doubt. Also your clear understanding of human reactions is impressive to me, ^{and} ~~which~~ has led you to foresee with unusual clarity some trends of history.

May I venture the prediction, which neither of us will probably be able to test, that history will see you not only as one of the important initiators of the "atomic" age but ^{also} as one who labored bravely to make of that age a condition of life under which men could enjoy an increasing degree of safety and mutual confidence, in spite of the threats of war.

With sincere friendship,
Arthur C

A.H. Compton
Ryerson Physical ~~Laboratory~~ Laboratory
University of Chicago
Chicago Ill.

Kindly advise whether you wish me to extend exploration of New York area to vicinity of Harvard and Princeton universities. I assume that you are aware of Fermi's strong preference for Columbia which is also the first choice of every member of the Columbia group. Anderson, Fermi, Zinn and myself consider Harvard and Princeton our second best choices. Berkeley is rated third and Ann Arbor fourth. If you so desired a preliminary investigation of facilities offered by laboratories of suitable universities could be completed by middle of the next week provided four men collaborate on this job. The next meeting of the steering committee could remain in ~~session~~ session until each proposal has been thoroughly discussed and your final decision is announced. I am convinced that any decision at which you arrive after full discussion in Committee will be wholeheartedly excepted by everybody. Please advise if you want me to find out all about Princeton including their willingness to move Wilson's group to Berkeley and their ability of housing all members of our project within a six miles radius. Please advise also if you want me to explore facilities at Harvard by approaching Van Vleck or whether you have other plans concerning Harvard.

Szilard



AMERICAN AIRLINES Inc.

①

~~Dear Professor Crompton,~~
~~It may be told you that I am~~
~~deeply concerned about the confusion~~
~~both material and moral~~

Dear Professor Crompton,
~~may I put certain other~~
~~things about the project~~
~~and I feel that~~
~~the metallurgical~~
project is slipping into a situation
in which the moral of
the workers who are
associated with the project may
suffer irreparable damage.



AMERICAN AIRLINES Inc.

~~The way the vast~~
~~the vast all finger pe~~
~~thru~~

It seems to me that
getting a working organization
set up immediately is ^{by far the most} ~~much so~~
~~more~~ important ~~that any thing~~ ^{even}
~~that may be caused by interrupting~~
~~getting expenditures and should~~
~~more useful equipment should~~
~~be taken care of, which~~
acknowledges every other consideration.
This calls for a certain degree
of concentration and raises the
~~questions which~~ question which
place should be the new center.
~~So the issue is really~~ What
would seem a very unorganized



AMERICAN AIRLINES Inc.

(3)

issue at present is ~~in reality~~
~~really an~~ but if we look closer
into the matter it reduces
itself to a very simple
issue and I should like
to state it explicitly if
you will allow me to
do so. All of us, you included
~~we~~ have conflicting loyalties
in the matter and the question
is are we willing to break
away from them for the
sake of the ~~highest~~ of these
loyalties are cause.

~~Anderson, with whom I was~~
~~to you yesterday a M. but it~~



AMERICAN AIRLINES Inc.

L.P.

~~Please allow me to state
my position~~

~~I believe we are more dependent
on Columbus than you are~~

I believe that

~~we are more dependent on Columbus than you are~~

You can expect most of us to
cut loose from these unwholesome and
put loyalty to you and the
cause which you represent above
all as soon as it becomes clear that
you put loyalty to us and the
cause which we represent above
all. ~~What is the matter~~ Yesterday
when you were expecting
at Columbus to receive a reply
from you indicating your
preference either for B or for C



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6

in order
handed to me with
~~the request of~~ ^{to be sent off} ~~submitting~~
~~that I should drop~~
~~them~~ (I took the liberty
of withholding them ^{for 24 hours} because
I was unable to reach Fennie
last night and ^{of you} felt that
he should have an app.
was ~~to~~ to express ~~the~~
app. an appreciation, if he wished
to do so.) This morning
~~when I saw Fennie I felt~~
~~that I better bring you these~~

0



AMERICAN AIRLINES Inc.

7

~~My dear~~ I am very glad to see
that our group took the
first step to state clearly
that ~~we~~ ~~they~~ ~~will~~ ~~put~~ ~~the~~
~~they~~ ~~will~~ ~~of~~ ~~necessity~~
they are willing to
cut through the present
tangle of loyalties. — ~~It~~

~~It is~~ ~~the~~ ~~most~~ ~~important~~
~~question~~ ~~is~~ ~~now~~ ~~whether~~ ~~you~~ ~~wish~~ ~~to~~
give the go ahead signal
by ~~submitting~~ ~~irrevocably~~



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P

stopping that you ~~give up~~
~~the very substantial~~ ~~to~~
~~trans~~ ~~are~~ ~~willing~~
to cut loose from Chicago
(Exp ^{there is no reason of course why} ~~with the eye~~ and ~~all~~ ~~the~~
in ~~should~~ ~~that~~
~~could~~ ~~of~~ ~~course~~ ~~go~~
be continued
as long as they are
considered ~~useful~~, ^{part of} ~~any~~
~~the~~ experiments which do not
require such equipment
we started ~~several~~ ~~but~~
we would at once be
thrown ~~be~~ ~~into~~ ~~the~~
present state of insecurity
(~~disturb~~ and ~~compassion~~)



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9

If in addition to this
Smith were to declare
that he ~~is~~ ^{would} ~~would~~ of the
let Williams group move to
Berkeley if you ^{should} ~~should~~ ^{wish}
to move the Dewey group
to Princeton. Then the
air would have been
cleared ~~by~~ and some
useful discussion could

begin. — ~~There are two points~~
~~→~~ ~~was~~ ~~not~~ ~~mentioned~~ ~~any~~ ~~point~~ ~~of~~ ~~order~~
You are well aware of ^{which} ^{we} ^{ought}
Fenn's strong preference
for Columbia, ~~and so~~ ~~in~~ ~~addition~~
to keep in



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and I would be
very happy if we could
avoid asking Tennie to
move until he himself
realizes that he ought to
~~do so~~ take that step. Also
I believe that it would
not be fair to ask Anderson
who is so ^{very} closely associated
with Tennie to separate
from Tennie even if ~~he~~
~~were~~ in a surge patriotic
enthusiasm he were very
~~disposed~~ ^{ready} to do so. It
is my conviction though
that if you would move
the Chicago group to any place



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41

~~in the east~~ ~~found~~ would
~~probably~~ of your choice
found would soon wish
to join you there.

May I therefore suggest
the following:

To use the next
few days to explore the
possibilities at ~~any~~ all the which
you want to be considered

To have a meeting of
the steering the next
week which is to remain
in session until each of
these possibilities have been



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thoroughly discussed,
and until you have reached
a final decision. I
am convinced that every
body will wholeheartedly
cooperate in carrying
out any decision
which you reach after
full discussion in CHe.

L. C.