

CONFIDENTIAL

MRD
Jan

Huskey

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March 13, 1942

Dr. E. V. Murphree
Standard Oil Company of New Jersey
26 Broadway
New York, New York

CLASSIFICATION CANCELLED

Date 9/21/56
For The Atomic Energy Commission

C. L. Marshall/ncR
Director, Division of Classification

Dear Dr. Murphree:

Today Professor Wigner and I were in Washington where we talked to Dr. Briggs and Dr. Bush. Our purpose in going was to see if anything could be done to speed up the procurement of materials for which we believe we shall have great need very soon. Of course the problems to be met in obtaining suitable graphite and metal are many and difficult. First a likely producer must be found, then one must find out whether he can hope to produce the purity required, and new chemical and physical tests have to be devised for analysis and control at each step of the process. Also new methods of manufacture have to be tried out, and sources of satisfactory raw materials have to be sought for. In the meantime the physical form which is believed to be most useful may change. Only the greatest cooperation with the producer can hope to lead to a satisfactory product. Dr. Bush suggested that we keep you more closely informed as to what we believe our needs are from day to day. Of course the work has many aspects. The part with which I am most familiar is the Westinghouse situation. Therefore I shall discuss this mostly. Others can give you similar reports on some of the other materials. For instance, we shall need He and BeO in rather large amounts.

Probably you have received from Professor Fermi a copy of the "danger coefficients" of impurities in the metal. I am sending a copy of this list, which has also been given to Dr. Marden. Obviously these requirements are extremely stringent and cannot be met by ordinary methods of manufacture. What is worse, for example in the case of the rare earths, tests do not exist for quantities of the order indicated by the danger coefficient as being fatal. Even in the case of beron, for which reasonably well standardized sensitive tests exist, considerable labor has already had to be done to find a consistent method easily enough applicable to serve as a routine control analysis. Professor Furman at Princeton has been working on this problem. I enclose his recent reports. He has also been working on sensitive tests for Cd, Li, and the rare

~~CONFIDENTIAL~~

Dr. E. V. Murphree

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NRG
Jm
March 13, 1942

earths. This last is not in a satisfactory state as yet, although there seems to be good reason to hope that, especially if his work is complemented by that of other competent chemists, the situation can be gotten in hand. Professor Mack, also at Princeton, is working on a spectroscopic test for the same group of elements. Of course you are familiar with the fine work being done at the Bureau on these problems.

As for the physical form of the metal that will be desirable, the final specifications cannot be made until some is available for tests. For this purpose we at Princeton have been cooperating with Marden to hasten the casting of spheres of various sizes. We have succeeded in obtaining BeO crucibles which seem to offer promise of success. Most ceramics react with the hot metal. The crucible problem is a research job in itself. When we get a few spheres (probably next week) we shall go immediately to work on them to decide the most desirable size. Then will come the question of what sort of drilling or cutting must be done to them, if any. It seems fairly obvious that the only way to work out these problems is to maintain extremely close connections between Westinghouse and the experimental groups.

In the case of oxide, many of the same problems come up. How shall it be purified? By leaching? By converting to nitrate, separating with ether, and then calcining? Shall U_3O_8 or UO_2 be used? Professor Compton has found that the General Electric Company can produce the UO_2 . Again close supervision must be maintained over all companies concerned.

If I have been negligent in the past in not getting to you all of the ideas on the type of material desired, I shall endeavor to keep you posted from now on. Of course I have told Dr. Marden all I could about what was wanted from him.

We have felt all along that it is essential that production be gotten under way as rapidly as possible even if we shall not be sure of exactly what is needed until we have obtained some of it. Changes can be worked out later. That this may be a reasonable attitude is suggested by the fact that Marden has gone ahead with plans and experiments for some two months now, although he received the letter of intent only last Monday. This is very fortunate for us all, because out of this faith of his have developed many improvements in the process. Being a reasonable person and a scientist he is, we expect, going to produce what is needed, not just something that squeezes in under the specifications made at one time, if these specifications must change later. This sort of attitude and willingness to take a chance seems essential if we are to hope to have suitable materials available when we are ready for them.

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Dr. E. V. Murphree

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WRP
John
March 13, 1942

Many of the mistakes in research are of the type that cannot be prevented until they have once been made. This whole project can be of such terrible importance that it seems worth while to take a few chances to get the result in a hurry.

As you are in charge of obtaining materials, I and the others working in the laboratories shall assist you in every way we can to carry out expediently this very urgent work. I trust that this will achieve and maintain a perfect coordination between the producers and others concerned, a coordination which is so necessary in order to finish the job in the shortest possible time.

Sincerely yours,

ECC:zh
Enclosures

E. C. Creutz

CC: A. H. Compton
V. Bush
L. Szilard ✓
J. A. Wheeler

"This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law."

Metallurgical Laboratory

July 10, 1945

Dr. Ed Creutz
Box 1633
Los Alamos, N.M.

Dear Creutz:

I have sent to you with Lapp eight sets of a "petition" which has been circulating in Chicago for some time.

Please give one set to Oppenheimer for his information and give the other sets to such men as are willing to circulate them. You may address one set to Teller, one to Bob Wilson, one to yourself, one to Morrison, one to McMillen, etc., but please use your own judgement and ask the persons involved if they are willing to circulate it in their group.

Before circulating this petition you had better stamp all copies "secret". It would be desirable to have the circulation finished in five days from the receipt of the petition and I will communicate with you within one week in order to discuss where the signed copies should be sent.

Of course, you will find only a few people on your project who are willing to sign such a petition and I am sure you will find many boys confused as to what kind of a thing a moral issue is.

Clearly, there are more important things to do and more effective ways to influence the course of events than the circulating of a petition but I have no doubt in my own mind that from a point of view of the standing of the scientists in the eyes of the general public one or two years from now it is a good thing that a minority of scientists should have gone on record in favor of giving greater weight to moral arguments and should have exercised their right given to them by the Constitution to petition the President. With kind regards,

Very sincerely yours,

~~P.S. Please pass on enclosed letter to Oppenheimer.~~

P.S. - Please give the enclosed letter to Oppenheimer together with a set of the petition

Leo Szilard

1155 E. 57th St.,
Chicago 37, Illinois.

February 8, 1956.

Edward C. Creutz,
Physics Department,
Carnegie Institute of Technology,
Pittsburg, Pa.

Dear Creutz,

I just saw Eugene in Princeton (where I am spending this week). He suggested that I send to you some material which relates to the early work on atomic energy. Eugene expressed some interest recently to see this material and I sent it to him about a week ago with a covering letter which explains how this material hangs together. Attached you will find this covering letter addressed to Eugene together with the rest of the material.

With kind regards,

Sincerely,

Leo Szilard



GENERAL ATOMIC

DIVISION OF GENERAL DYNAMICS CORPORATION

POST OFFICE BOX 608
SAN DIEGO 12, CALIFORNIA

January 10, 1957

Professor Leo Szilard
Department of Biophysics
University of Chicago
Chicago 37, Illinois

Dear Leo:

Some time ago we discussed the possibility of your helping us get going in the atomic energy business. We now have a staff of about fifty scientists and engineers, and have reached the stage where we should like to have your advice and ideas. We have a number of research projects under way including Wade Fite's work on excitation of atomic hydrogen beams by electron bombardment, Duffield's study of the asymmetry of photofission using the Naval Electronics Laboratory betatron, Simnad's work on surface phenomena and corrosion, and Park Miller's work on semiconductors. In addition we are designing some novel types of research reactors stressing a high degree of safety by building in large, prompt, negative temperature coefficients of reactivity.

If you should be interested in the possibility of a consulting arrangement with us I should appreciate very much your dropping me a line.

With best personal regards,

Sincerely,

E. Creutz
Director of Research

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DIVISION OF:



February 1, 1957

Dr. E. Creutz
Director of Research
General Atomic
Post Office Box 608
San Diego 12, California

Dear Ed:

It would give me very great pleasure indeed to collaborate with you in the manner suggested in your letter of January 10th, and I appreciate your having thought of me in this connection.

I discussed your suggestion with Warren Johnson - who is Dean of the Physical Sciences Division - and he seemed to be pleased also.

There are a number of questions which arise in this connection and which we could perhaps discuss personally or over the telephone before you may decide just what kind of consulting arrangements would be most suitable from your point of view. You can reach me in Chicago through Extension 3789 (Mrs. Mann who acts as my Secretary) - Midway 3-0800; or else at home (The Quadrangle Club), Hyde Park 3-8601.

With kind regards,

Yours,

Leo Szilard



GENERAL ATOMIC

DIVISION OF GENERAL DYNAMICS CORPORATION

POST OFFICE BOX 608
SAN DIEGO 12, CALIFORNIA

January 10, 1957

Professor Leo Szilard
Department of Biophysics
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Chicago 37, Illinois

Dear Leo:

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If you should be interested in the possibility of a consulting arrangement with us I should appreciate very much your dropping me a line.

With best personal regards,

Sincerely,

A handwritten signature in dark ink, appearing to be 'E. Creutz'.

E. Creutz
Director of Research

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February 18, 1957

Dr. E. Creutz
Director of Research
General Atomic
Post Office Box 608
San Diego 12, California

Dear Ed,

De Hoffman tried to reach me over the telephone Sunday, the 10th, but he did not get through to me. I am staying in Chicago until about Thursday of this week, and after that Mrs. Mann will transfer any call that comes in (on extension 3789; Midway 3-0800) during office hours to wherever I may be. The odds are that I will be in Denver for a few days, and then go either to Pasadena, California or straight to New York. I am due in New York on March 1st.

With kind regards,

Yours,

Leo Szilard



GENERAL ATOMIC

DIVISION OF GENERAL DYNAMICS CORPORATION

POST OFFICE BOX 608
SAN DIEGO 12, CALIFORNIA

March 11, 1957

Professor Leo Szilard
Department of Biophysics
University of Chicago
Chicago 37, Illinois

Dear Leo:

Fred has told me of his interesting chat with you. I am anxious that we can discuss some of our problems with you in the near future. As Fred mentioned, we are particularly interested in getting some novel ideas on power reactors and hope we can get you together with our group in this field. I look forward to seeing you at the Rochester meeting next month, where Fred tells me you will be.

With best regards,

Sincerely yours,

E. Creutz
Director of Research

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DIVISION OF:



March 23, 1957.

Dr. E. Creutz
Director of Research
General Atomic
P.O.Box 608
San Diego 12, Calif.

Dear Creutz,

My plans have changed since I talked to Freddie and I now do not intend to go to the Rochester meeting. I plan to leave New York within a few days to go to Chicago. I intend to be back in New York between 13th and 20th of April, and in Washington for two or three weeks after April 20th. I could see you in any of these places or else I could fly to La Jolla from Chicago between now and April 13th. Why don't you call me over the telephone so that we can set a date? If you call me person to person at extension 3789 at the University of Chicago (Midway 3-0800) my secretary will answer the phone and either put me on or re-direct the call to wherever I am in Chicago or elsewhere.

With kind personal regards,

Yours sincerely,

Leo Szilard

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GENERAL ATOMIC

DIVISION OF GENERAL DYNAMICS CORPORATION

POST OFFICE BOX 608
SAN DIEGO 12, CALIFORNIA

April 5, 1957

Professor Leo Szilard
Department of Biophysics
University of Chicago
Chicago 37, Illinois

Dear Leo:

I am sorry I shall miss you at the Rochester meeting as I had looked forward to talking to you there.

We are pretty tied up at the moment writing some reports on various projects, so this is probably not the most efficient time to get together with you. I hope we can work out a meeting later this spring.

With best regards.

Sincerely yours,

A handwritten signature in dark ink, appearing to be "E. Creutz".

E. Creutz

EC:AM

DIVISION OF:



Gen Cole

June 27, 1957

Dr. E. Creutz
Director of Research
General Atomic
Post Office Box 608
San Diego 12, California

Dear Creutz:

I was sorry that we were not able to get together. In the meantime I have accumulated a series of commitments which might make it quite difficult for us ~~to~~ to arrange an early date for the postponed meeting. These commitments are as follows:

I have to give two talks in Berlin early in October and one in Heidelberg late in September. I have arranged to visit Cambridge, England early in September. In about a week I have to leave for a meeting arranged by Bertrand Russell in Nova Scotia, and will not be back in the States until July 11th. I have to spend at least two weeks in Washington some time between July 11th and August 15th.

It is possible, however, that I will have to fly to Los Angeles for a few days in July, and if you think we can squeeze something into this somewhat crowded schedule, please let me know.

I saw de Hoffmann in Chicago for a minute and so I was able to tell him in a hurry something that I had on my mind for some time. When I last talked to de Hoffmann at some length in New York, he described to me the general framework in which your operations take place at present. Subsequently it then occurred to me that the strength and weakness of your situation is just complementary to the situation of NDA. I talked to Menke about this and he seemed to see my point.

NDA has no difficulty earning its way and at the same time enlarging its business. But the faster they grow the smaller becomes the share of the original stockholders. Even when they issue bonds, they must give the bondholders an option on shares.

In the existing circumstances, it occurred to me that the following scheme might be of great benefit both to you and to NDA:

You could create a corporation -- let us call it Corporation X -- which would be a wholly owned subsidiary of General Atomic. NDA could funnel into this corporation all of their business which -- for lack of capital -- they cannot handle themselves, and also make available on a contractual basis such of their personnel as is needed to handle the job. In return for this NDA would obtain a certain fraction of the profit of Corporation X.

My thought is that under such an arrangement you could fairly easily build up a routine operation that would take care of a large fraction of your expenses and leave the rest of your operations at La Jolla free to pursue long-range objectives.

Having mentioned this possibility to de Hoffmann, I thought I would submit it to you also for what it is worth.

With kind personal regards,

Sincerely,

Leo Szilard

m
cc: Frederick de Hoffmann

you have



GENERAL ATOMIC

DIVISION OF GENERAL DYNAMICS CORPORATION

P.O. BOX 608, SAN DIEGO 12, CALIFORNIA

July 10, 1957

Professor Leo Szilard
Enrico Fermi Institute
University of Chicago
Chicago 37, Illinois

Dear Leo:

Thank you very much for your letter of June 27th. I have discussed this matter some with Fred. We realize it is an interesting suggestion but do not believe this is practical. We should be glad to discuss this with you, however, when we see you.

I too am sorry that we did not get together before now. Why don't you give us a call when you are in Los Angeles and try to drop down to see us.

With best regards.

Sincerely yours,



E. Creutz

EC:AM

DIVISION OF:

