

Metallurgical Laboratory

January 31, 1945

Mr. W. Bartky

Mr. L. Szilard

In the following I give you impressions which I have obtained from conversations with a number of people concerning Mr. Moon in an attempt to find out for what kind of a position Mr. Moon would be most suited.

Until a few days ago I had had practically no contact with Moon. At that time Mr. Bernat, who is no longer on our project but who used to work in the Instrument Section, approached me and told me that Moon was scheduled to leave the project on February 1st and asked me to try and think of some position outside the project which might be suitable for him. Mr. Bernat spoke with great warmth and enthusiasm about Moon's personality. He told me how often Moon helped him in the most disinterested manner and gave him very valuable suggestions in the field of electronics. He also told me of Moon's great love for the University of Chicago where Moon had spent 15 years and gave me a balanced account of his capabilities.

Subsequently I had a long talk with Moon and my own impression fitted in very well with what Bernat had told me.

Since I feared that Moon might be one of those men who have nice ideas but who are constitutionally incapable of carrying any of them to completion, I asked Henry Newson about this and other points. Newson told me the following: He and Moon studied chemistry at the same time in Chicago. During his studies Moon seemed to be very intelligent and capable. He took somewhat long to get his doctor's degree in chemistry but this was at least partly due to the fact that he often helped other people with their

Metallurgical Laboratory

Mr. W. Bartky

-2-

January 31, 1945

work rather than concentrating exclusively on his own work. Moon was one of the first people employed to work on the cyclotron which was being built under the auspices of Harkins. It was his ambition to build a good oscillator system and he got rather deeply interested in this problem to the exclusion of other problems which the building of the cyclotron presented. Newson later on joined this group and was placed above Moon. Newson found it difficult to get Moon to give up his elaborate plan for the oscillator and work on other parts of the cyclotron, and this attitude of Moon caused considerable friction in the group. Finally Moon finished his oscillator system, which proved to be a rather good one and which has been actually in use up to the present.

I talked to a number of other people who know Moon more or less intimately including Mr. Shonka and Mr. Hoyt and Mr. Franck but I was unable to talk to either Allison or Snell. As a result of these conversations I have a rather clear pattern of Moon's scientific and human personality and I wish to give you my version in the following:

Moon has spent 15 years at the University of Chicago. He is exceedingly fond of this University and very much in sympathy with the general aims of Hutchins inasmuch as it relates to the teaching of undergraduates. Moon is very much interested in the undergraduates and likes to teach. Whether or not he is a good teacher I do not know, but in personal contacts with students he apparently has the rare gift of making the students interested in the study of physics in general and in his own work in particular. As far as research is concerned he likes to pick out difficult and none too obvious problems. He goes after these problems with great tenacity and stubbornness and is capable of pushing them to conclusion with vigor. In choosing his

Metallurgical Laboratory

Mr. W. Bartky

-3-

January 31, 1945

subject of work he has a tendency to disregard the a priori chances of finding a positive result and it may be that he displays in this respect a virtue in a somewhat exaggerated form. For this reason it might be a good thing if he could have the guidance of a mature physicist whom he respects and who could help him to select among his ideas those which present a small but still finite chance of success on the basis of our present day knowledge. Clearly, Moon is not inclined to work on any problem except those which he personally feels are important but if he feels that a problem is important he is willing to work on it against great odds. Such an achievement as the betatron built by Kerst would have been entirely within the scope of Moon's character and ability. I say this in order to illustrate my evaluation of Moon and not to indicate that he had anything to do with building a betatron.

I cannot say on the basis of what I have learned that I would recommend Moon to be made a member of a Physics Department of any of those large universities where most of the emphasis is laid on post-graduate training and little or no emotions are wasted on undergraduates. I would not hesitate, however, to recommend him as a member of a Physics Department of some such University where perhaps not the training so much as the education of the undergraduates has the "tender loving care" of the University. Also it should be kept in mind that Physics Departments of such Universities which have a School of Engineering may be expected to have a sounder appreciation of the importance of electronics, which is one of Moon's specialities, than those Universities which have no Engineering School.

Though Moon has a Ph. D. in chemistry, I am uncertain whether he

Metallurgical Laboratory

Mr. W. Bartky

-4-

January 31, 1945

would fit in well in a Chemistry Department since his ability is more in experimental physics than in theoretical chemistry.

As the picture of Moon's personality gradually developed I was more and more impressed and am convinced that we have to do with qualities which are very rare and under favorable circumstances exceedingly valuable. I fear very much that Moon would be very unhappy if he took a position in the east. Though persons like Moon are naturally rare anywhere, in the middle west many people understand and appreciate him. This and the great attachment that Moon has for the University of Chicago makes me wonder whether any opportunity at this university could be found for him outside the physics and chemistry departments. I was thinking primarily of the interest which biologists might have in having among them a physicist who has a general disposition of helping others in a disinterested manner and who, with or without guidance, might pick out problems of his own which have a small but finite chance of leading to remarkable results.

ls:ls

Metallurgical Laboratory

~~SECRET~~

March 16, 1945

Mr. W. Bartky

Mr. L. Szilard

MUC-28-62

This document consists of 14 pages and 0 figures
No. 4 of 6 copies, Series A

WRD
John

DIC
P197

I received a communication from Mr. Compton dated March 13th which contains the following passages:

"With regard to your suggestion of working at the Argonne Laboratory, I do not want to start an enterprise there now which may require changing within a few months. As you know, plans for the coming year are as yet quite uncertain and among these plans, those for the Argonne. Until this situation is clarified, would it not be preferable to follow your present procedure of presenting problems to Mr. Zinn which you wish to have undertaken and which can then be assigned to groups now working at the Argonne. I understand that this procedure has been working well not only for yourself but also for others in the laboratory who have found it desirable to have the Argonne facilities turned toward problems in which they are interested.

"If you so desire, I shall be pleased to discuss this matter further with you on my return to Chicago."

Since the questions which I discussed with you are intimately connected with the possibility of my carrying out certain experiments at the Argonne, I thought that I should inform you of the text of Mr. Compton's communication. I am afraid that Mr. Compton's note does not indicate what the situation might be after June 30th. Clearly we have to take into account different alternative possibilities as far as the time after June 30th is concerned, but I would like to know what my position would be in case of these various alternatives.

I wonder whether I should propose to Mr. Compton that we try to clarify the situation at a joint meeting with yourself, Mr. Compton and Mr. Zinn present. I might also suggest to Mr. Compton to include Mr. Stearns and Mr. Daniels if you think they ought to be included.

ls/s

cc: Daniels
Franck
✓ Stearns
Zinn

METALLURGICAL LABORATORY
P. O. Box 5207, Chicago 90, Ill.
OFFICE OF THE DIRECTOR

Sh

NR

MAR 17 1945

A.M. 7|8|9|10|11|12|1|2|3|4|5|6 P.M.

~~SECRET~~

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

Report

THIS DOCUMENT HAS BEEN TAKEN FROM A FILE OF THE ARGONNE LABORATORY March 16, 1945 AND WAS TURNED OVER TO DR. LEO SZILARD ON

Mr. W. Bartky
DB' GEO SZILARD ON
VI Mr. L. Szilard
VRSOJKE NATIONNY FVBOKATOKA
TKEN ENOV A LIFE OF THE
THIS DOCUMENT HAS BEEN

MUC- *LS 62*
This document consists of *1* pages and *0* figures
No. *6* of *6* copies, Series *A*

I received a communication from Mr. Compton dated March 13th which contains the following passages:

"With regard to your suggestion of working at the Argonne Laboratory, I do not want to start an enterprise there now which may require changing within a few months. As you know, plans for the coming year are as yet quite uncertain and among these plans, those for the Argonne. Until this situation is clarified, would it not be preferable to follow your present procedure of presenting problems to Mr. Zinn which you wish to have undertaken and which can then be assigned to groups now working at the Argonne. I understand that this procedure has been working well not only for yourself but also for others in the laboratory who have found it desirable to have the Argonne facilities turned toward problems in which they are interested.

"If you so desire, I shall be pleased to discuss this matter further with you on my return to Chicago."

Since the questions which I discussed with you are intimately connected with the possibility of my carrying out certain experiments at the Argonne, I thought that I should inform you of the text of Mr. Compton's communication. I am afraid that Mr. Compton's note does not indicate what the situation might be after June 30th. Clearly we have to take into account different alternative possibilities as far as the time after June 30th is concerned, but I would like to know what my position would be in case of these various alternatives.

I wonder whether I should propose to Mr. Compton that we try to clarify the situation at a joint meeting with yourself, Mr. Compton and Mr. Zinn present. I might also suggest to Mr. Compton to include Mr. Stearns and Mr. Daniels if you think they ought to be included.

ls/s

cc: Daniels
Franck
Stearns
Zinn

LS

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

Metallurgical Laboratory

Original

June 7, 1945

TO: Messrs. W. Bartky and J. C. Stearns

FROM: Mr. L. Szilard

I am concerned about the postwar plans which relate to development work. I have primarily in mind the development of breeders and other similar new structures.

The majority of the scientists are keenly aware of the need for further free basic research and it may therefore be taken for granted that free basic research will be provided for at a number of universities and we may hope that it will be supported in the form of grants rather than by contracts with the Government. The development work in the field of uranium, however, which from the national point of view is perhaps the most important phase for the next ten years does not appeal to many of the first class scientists. Only few of these men have taken a real interest in the development work during the war and even fewer are willing to do so after the war. Among the top men whose names are well known and who enjoy universal respect, I know only of E. P. Wigner and H. C. Urey who would be willing, under favorable circumstances, to devote their time to development work. Unless development work is so organized that development and research can both be carried out in the same framework under conditions which are congenial to men who under normal conditions are attracted by universities and unwilling to work for industrial companies, the development will be slowed down by attempts to apply conventional engineering methods to a revolutionary branch of physics. Only if we can apply the same imagination and ingenuity toward the engineering aspects of this work

Metallurgical Laboratory

Messrs Bartky and Stearns

-2-

June 7, 1945

which has been applied to the physics aspects of it can we expect to progress fast.

I propose that the feasibility of the following scheme be explored: Both research and development in the field of the uranium work be pursued by a corporation having the charter of an ordinary business corporation. This corporation would be owned by the Government. It could either be set up by some broader authority established by act of Congress or perhaps it could be brought into existence by being incorporated by the Secretary of War and the Secretary of Commerce. The corporation ought to have five or six divisions wholly independent of each other with separate budgets which are allocated by some board of directors of the corporation. Each division could be headed by a scientist acting as a director and aided by an administrative director of his own choice. Each such division ought to be located at the site of one of our larger universities and have men attached to the respective university act in an advisory capacity or on the local board of directors of the division. Seventy percent of the funds allocated to a division would be used for development work along the lines determined by the board of directors of the corporation that would embrace all divisions, but 30% of the funds allocated are free at the discretion of the division to be used for other development work. This would enable any division to use a substantial part of its funds for competing with other divisions, for duplicating their work, and possibly succeeding where other divisions have failed.

It can be anticipated that scientists will be unahppy in certain

Metallurgical Laboratory

Messrs. Bartky and Stearns

-3-

June 7, 1945

divisions and if there is free interchange of personnel some divisions will gradually grow at the expense of others. In such a manner by trial and error the unsuccessfully operating divisions will be eliminated and will gradually be replaced by new divisions.

ls:ls

COPY

Metallurgical Laboratory

P.O. BOX 5207
CHICAGO 80, ILLINOIS

June 7, 1945

BUTTERFIELD 4300

TO: Messrs. W. Bartky and J. C. Stearns

FROM: Mr. L. Szilard

I am concerned about the postwar plans which relate to development work. I have primarily in mind the development of breeders and other similar new structures.

The majority of the scientists are keenly aware of the need for further free basic research and it may therefore be taken for granted that free basic research will be provided for at a number of universities and we may hope that it will be supported in the form of grants rather than by contracts with the Government. The development work in the field of uranium, however, which from the national point of view is perhaps the most important phase for the next ten years does not appeal to many of the first class scientists. Only few of these men have taken a real interest in the development work during the war and even fewer are willing to do so after the war. Among the top men whose names are well known and who enjoy universal respect, I know only of E. P. Wigner and H. C. Urey who would be willing, under favorable circumstances, to devote their time to development work. Unless development work is so organized that development and research can both be carried out in the same framework under conditions which are congenial to men who under normal conditions are attracted by universities and unwilling to work for industrial companies, the development will be slowed down by attempts to apply conventional engineering methods to a revolutionary branch of physics. Only if we can apply the same imagination and ingenuity toward the engineering aspects of this work

June 7, 1945

which has been applied to the physics aspects of it can we expect to progress fast.

I propose that the feasibility of the following scheme be explored: Both research and development in the field of the uranium work be pursued by a corporation having the charter of an ordinary business corporation. This corporation would be owned by the Government. It could either be set up by some broader authority established by act of Congress or perhaps it could be brought into existence by being incorporated by the Secretary of War and the Secretary of Commerce. The corporation ought to have five or six divisions wholly independent of each other with separate budgets which are allocated by some board of directors of the corporation. Each division could be headed by a scientist acting as a director and aided by an administrative director of his own choice. Each such division ought to be located at the site of one of our larger universities and have men attached to the respective university act in an advisory capacity ^{(perhaps by serving} ~~on~~ the local board of directors of the division. Seventy percent of the funds allocated to a division ^{ought to} ~~would~~ be used for development work along the lines determined by the board of directors of the corporation that would embrace all divisions, but 30% of the funds allocated are free at the discretion of the division to be used for other development work. This would enable any division to use a substantial part of its funds for competing with other divisions, for duplicating their work, and possibly succeeding where other divisions have failed.

It can be anticipated that scientists will be unhappy in certain

Messrs. Bartky and Stearns

-3-

June 7, 1945

divisions and if there is free interchange of personnel some divisions will gradually grow at the expense of others. In such a manner by trial and error the unsuccessfully operating divisions will be eliminated and will gradually be replaced by new divisions.

ls:ls

Organis.

June 11, 1945

TO: Mr. W. Bartky

FROM: Mr. L. Szilard

The following may be said with respect to the organization of the uranium work after the war: In an armament race the nation which has the better breeder can be expected to out-produce the other nations within six to ten years. The development of breeders and other related structures is therefore the most important phase of the future work from the national point of view. Yet there are only a few first-class scientists to whom this kind of work will appeal. Only few scientists have taken a real interest in the development work of uranium during the war and even fewer will be willing to do so after the war. Among the top men whose names are well known and who enjoy universal respect, I know only of H. C. Urey and E. P. Wigner who could be persuaded, under favorable circumstances, to devote their full time to development work.

To keep first class scientists interested in the development work is, however, a task of the greatest importance. Only if we can apply the same imagination and ingenuity to the engineering aspects of this work which has been applied to the physics aspect of it can we expect to make fast progress. Otherwise the development will be slowed down by attempts to apply conventional engineering methods to a revolutionary branch of physics.

The development work will involve a considerable amount of research work which cannot be separated from it and will have to be carried out within the same organizational framework. It can be conducted successfully only if the conditions under which it is carried out are congenial

to men who under normal conditions are attracted to universities and rather unwilling to work for industrial companies. A large and exceedingly valuable group of young scientists fall into this category. In view of the foregoing it is proposed that research and development be carried out in the following manner.

The research and development ought to be concentrated at comparatively few centers. Such centers might, for instance, be established at Cambridge, Massachusetts, at Los Angeles or Pasadena, at Berkeley, at Chicago, and in the Princeton-New York area. At each of these centers the development ought to be placed in the hands of a government owned corporation which would closely collaborate with a university, a group of universities, or some regional laboratory set up by a group of universities. For the sake of simplicity, we will refer to these two different units as the corporation and the regional laboratory. Free research will be carried out in the regional laboratory which is a privately managed, non-government organization. Development work and research work both will be carried out by the government owned corporation.

The government owned corporation will assign 70% of its scientific and technical personnel to development and research work along the lines determined by some central board of directors which is part of the overall government authority under which all these corporations operate. Thirty percent of its scientific and technical personnel may be assigned to research and development work at the discretion of the director of the local corporation. This gives any of the government owned corporations

the freedom to devote a substantial part of their funds for competing with other corporations, duplicating their work and possibly achieving results better or faster than the corporation to which that particular task was originally assigned.

The relationship between the corporation and the regional laboratory would be as follows; A number of scientists attached to the universities would subscribe to the regional laboratory will be members of the board of directors of the local government owned corporation. The government owned corporation may recommend to the overall central government authority that government funds be given in the form of a grant to the regional laboratory. The total amount of government contributions to the regional laboratory shall, however, not exceed two dollars for every dollar that has been privately contributed. At the request of the government owned corporation the regional laboratories will carry out certain scientific investigations. They should, however, not be obliged to assign more than one-third of the scientific and technical staff to such tasks and two-thirds of the scientific and technical staff should be left free to be devoted to free research and to be devoted to the education of graduate students in the field of nuclear physics and high energy physics.

The overall government authority that establishes the government owned corporation at these various centers shall have a board of directors of which 50% are eminent scientists. The scientists who serve on the board of directors of the local government owned corporation at the different centers shall receive a salary and shall consider it as their task to serve as consultants as well as on the board of directors.