

Immediately after Hiroshima, I went to see Hutchins and told him that something needed to be done to get thoughtful and influential people to think about what the bomb may mean to the world, and how the world and America can adjust to its existence. I proposed that the Uni-

versity of Chicago call a three-day meeting and assemble about twenty-five of the best men to discuss the subject. Hutchins immediately acted on this proposal and he invited a broad spectrum of Americans ranging from Henry Wallace to Charles Lindbergh. Lilienthal attended this meeting; so did Chester Barnard, Beardsley Ruml, Jake Weiner.<sup>61</sup>

This was one of the best meetings that I ever attended. In a short period of time we discussed a variety of subjects. We discussed the possibility of preventive war; we discussed the possibility of setting up international control of atomic energy, involving inspection. The wisest remarks that were made at this meeting were made by Jake Weiner, and what he said was this: "None of these things will happen. There will be no preventive war, and there'll be no international agreement involving inspection. America will be in sole possession for a number of years, and the bomb will exert a certain subtle influence; it will be present at every diplomatic conference, in the consciousness of the participants, and will exert its effect. Then, sooner or later, Russia also will have the bomb, and then a new equilibrium will establish itself." He had certainly more foresight than the rest of us, though it is not clear whether what we have now is an equilibrium or whether it is something else.

One of those who attended the Chicago meeting was Edward Condon. Henry Wallace was at that time looking around for a director for the Bureau of Standards, because Lyman J. Briggs had reached the retirement age. I asked that Condon be invited, with the possibility in mind that he might be a suitable candidate. Wallace liked him at first sight, and Condon was interested in the position. What I did not know when I thought of Condon as a suitable candidate was the fact that Condon had admired Henry Wallace for a number of years. After the conference I had a discussion with Hutchins and Condon, and I proposed that Condon and I go to Washington for a few days and try to find out what thinking in Washington about the bomb might be.

William Benton, vice president of the University of Chicago, had just accepted an appointment as assistant secretary of state under Byrnes.

61. Chester I. Barnard, Bell Telephone Company executive, foundation officer, author, and government consultant; Beardsley Ruml, treasurer of R. H. Macy and Son and chairman of the Federal Reserve Bank of New York; Joseph Lee Weiner, deputy director of the Division of Civilian Supply, Office of Production Management.

When he heard that we were going down to Washington he offered to invite the top desk men of the State Department to dinner, and he asked whether Condon and I might give a short discourse on the bomb for the benefit of the Department of State. This we actually did, and I think that this was the first intimation that these people in Washington had, that the advent of the atomic bomb did not necessarily mean that American military power would be enhanced for an indefinite period of time.

While we were in Washington, we somehow picked up a copy of a proposed bill on the control of atomic energy which the War Department had prepared, and which went under the name of the May-Johnson Bill. I took this bill back home to Chicago and gave it to Edward Levi of the Chicago Law School to read, who promptly informed me that this was a terrible bill and we had better do something to stop its passage.

While I was in Chicago I read in the newspapers that the House Military Affairs Committee had held a hearing on the bill which lasted for a day, and then they closed the hearing and prepared to report out the bill. At that one-day hearing the proponents of the bill testified for the bill, but no opponent of the bill was heard. This was disquieting news, but I doubt very much that I would have swung into action had it not been for a more or less accidental circumstance.

When the war ended, we were asked not to discuss the bomb publicly. We were under the impression that this request was made because there were some important international negotiations on the control of atomic energy under way, and any public discussion at this point could have disturbed these negotiations. We were not actually told this, but we were permitted to infer it, and having inferred it, we all decided to comply. Therefore all of us refused the numerous requests to speak over the radio or before groups, on what the atomic bomb was and what it might mean to the world. We kept silent. S. K. Allison<sup>62</sup> was the only one who gave a speech, and he said that he hoped very much that the secrecy which was imposed upon this type of work during the war

62. Samuel K. Allison, senior physicist from Los Alamos and newly appointed director of the Institute for Nuclear Studies. He gave "Sam's butterfly speech" at a luncheon at Chicago's Shoreland Hotel, September 1, 1945, at which the University of Chicago announced formation of its new research institute. Alice K. Smith, *A Peril and a Hope: The Scientists' Movement in America, 1945-1947* (Chicago, 1965), p. 88.

would be lifted after the war; otherwise, he said, he personally would cease to work on atomic energy and would start to work on the color of butterflies.

When his speech became known, Colonel Nichols flew from Oak Ridge to Chicago, and gathered a number of physicists and asked them just for a little while to be quiet and not to stir things up. "There is a bill being prepared," he said, "on the control of atomic energy, and when that bill is introduced in Congress that will be the right time to discuss these matters. Hearings will be held, and everyone will have an opportunity to appear as a witness and to have his say."

On the day when the one-day hearing was held before the House Military Affairs Committee and the hearings were closed, A. H. Compton arrived in Chicago and he met with the members of the project. He told us on that occasion that the War Department had prepared a bill for passage through Congress, and that the request which was addressed to us to refrain from publicly speaking on the subject of the atomic bomb was due to the War Department's desire to pass this law without unnecessary discussions in Congress. I remember that I got mad at this point, and got up and said that no bill on the control of atomic energy would be passed in Congress without discussion if I could possibly help it.

Through pure chance I received a telephone call the next morning from Hutchins, who had lunched the previous day with Marshall Field, asking whether I would be willing to talk to somebody from the *Chicago Sun*. I said that I was eager to talk to the *Sun*, but I would not want to talk to the *Sun* without also talking to the *Chicago Tribune*, and would Hutchins call up Colonel McCormick and have somebody from the *Chicago Tribune* come and see me?

In two separate interviews I told the reporters who came to see me that there was an attempt on the part of the Army to pass a bill through Congress without "unnecessary discussions," and the physicists would see to it that this would not happen. Because the information came from Compton and I regarded it as confidential, I did not feel free to identify either myself or Compton in this context; and the *Chicago Tribune* told me that under these circumstances they could not use the story. The *Chicago Sun*, being a less well-run newspaper, did not care, and printed

the story on its front page. In retrospect, I know that I made a mistake, and should have permitted the papers to use my identity and have the story printed both in the *Tribune* and the *Chicago Sun*.

But in any case, the fight was on.

I went back to Hutchins and called up Condon, who was at that time associate director of research of Westinghouse, and Condon and I once more went down to Washington to see what we could do. We could probably have done very little, had it not been for the excellent advice which we received from Bob Lamb, who was at that time legislative advisor of the C.I.O.<sup>63</sup> He was recommended to us very highly by a number of people, and even though we did not like the idea of working with somebody who was legislative advisor of the C. I. O., because we did not want to involve the C.I.O., we decided to overlook this for the sake of getting really first-class advice.

I don't think that anyone knew the Congress as well at that time as did Bob Lamb. When he read the bill, he agreed with us that this bill must not pass. He arranged for us to see Chet Holifield and George Outland. Chet Holifield was on the House Military Affairs Committee, and was picked by Bob Lamb for this reason; George Outland was a friend of Chet Holifield, and a highly intelligent and competent Congressman. Both Condon and I went to see these two gentlemen and explained the situation to them. In the evening Bob Lamb reported to us that they were convinced that we had a good case, and that Chet Holifield would fight for us. Chet Holifield then arranged for Condon and me to see the chairman of the House Military Affairs Committee, May, and Sparkman. He himself joined us at this conversation, and we presented the case to them. May was not impressed, and he shortly thereafter made it public that he was not going to reopen the hearing even though Dr. Condon and Dr. Szilard had asked him to do so.

By this time, however, the scientists in the project got organized in Chicago, in Oak Ridge, and in Los Alamos. Both Chicago and Oak Ridge came to the conclusion that the May-Johnson bill was a bad bill which must not pass, and they were so vocal about it that a larger and

63. Robert K. Lamb counseled Szilard and Condon, also Lyle B. Borst and Harrison Davies, two younger scientists from Clinton Laboratories, helping in the campaign to defeat the May-Johnson bill.

larger portion of the press got interested in the fight. Los Alamos, under the influence of Oppenheimer, took the opposite position, and was in favor of the passage of the bill.

Condon and I found that everybody in Washington was greatly interested in the issue. We set ourselves a schedule: everybody wanted to see us, and we decided that we would keep Cabinet members waiting one day, Senators for two days, and Congressmen for three days before we'd give them an appointment.

Henry Wallace was very much interested, and he arranged for us to meet Senator Lister Hill.

We went to see Ickes and Ickes grumbled that he had not read this bill at all. The War Department brought it over, left it there for half a day, and then took it away again. "This is not the first time," he said, "that Royall<sup>64</sup> has been giving me the bum's rush."

We went to see Lewis Strauss who was at that time in the Department of the Navy, and discovered that the Navy did not have any particular views about this bill. The bill was prepared in the War Department, and even though the President made some friendly remarks about the bill, it was not really in any sense an Administration bill. It was a War Department bill.

We then went to see James Newman, in Snyder's office,<sup>65</sup> which was supposed to steer the bill through Congress. James Newman had read the bill, and he said to us, "I don't believe that you really understand this bill." "Well," we said, "we didn't really claim to understand it, but we just didn't think it was a good bill."

"Well, I don't think it is a good bill either," said Newman, "but I doubt that you understand what it says. Look," he said, "here the bill says: 'there will be a Managing Director and an Assistant Managing Director, and the Managing Director has to keep the Assistant Managing Director informed at all times.' Now," said Newman, "have you ever seen a provision of this type in a bill? What does this mean? Clearly,

64. Brigadier General Kenneth C. Royall, who was co-author with William L. Marbury of the May-Johnson bill, later became secretary of war.

65. James Newman, head of the science section of OWMR, became *de facto* science adviser to the President. John Snyder was director, Office of War Mobilization and Reconversion (OWMR). On October 18, President Truman authorized OWMR to take charge of atomic energy legislation.

it means that the managing director will be someone from the Army and the assistant managing director will be someone from the Navy, and since the Navy and the Army don't talk to each other, you have to write into the bill that they must talk to each other on this occasion." For all I know it may well be that he was right.

Under public pressure, May, the chairman of the House Military Affairs Committee, in the end was forced to reopen the hearings. He reopened the hearings just for one more day. Towards six one evening I received a telephone call from the office of the Military Affairs Committee, asking me whether I could testify before the committee the next morning. I said that I would testify. Who else could testify? There was no one in town whom I knew had anything to do with atomic energy except Herbert Anderson, who had worked on the project mainly as Fermi's assistant. He was a spirited young man at that time. He is now director of the Enrico Fermi Institute of Nuclear Studies at the University of Chicago. I asked Anderson whether he was willing to testify and he said he would, so I gave his name to the committee. The War Department asked Oppenheimer and A. H. Compton to testify for the bill, and so there were four witnesses.

I worked through the night and ended up with some sort of a prepared testimony, which I delivered, and I was then questioned by members of the committee.<sup>66</sup> Herbert Anderson testified after me and then came Compton and Oppenheimer. Neither Compton nor Oppenheimer were really, at heart, in favor of the bill. Oppenheimer managed to give the most brilliant performance on this occasion, for he gave members of the committee the impression that he was in favor of the bill, and the audience, mostly composed of physicists, his colleagues, the impression that he was against the bill. He did that by the simple expedient of answering a question put to him by a member of the committee. He was asked, "Dr. Oppenheimer, are you in favor of this bill?" And he answered, "Dr. Bush is in favor of this bill, and Dr. Conant is in favor of the bill, and I have a very high regard for both of these gentlemen." To the members of the committee this meant that he favored the

66. Szilard's testimony is recorded in "Hearings before the Committee on Military Affairs," *House Report*, 79 Cong., 1 Sess., no. 4280 (October 9 and 18, 1945), 71-96. See also the text of Szilard's speech in *Cong. Record*, 79 Cong., 1 Sess. (1945), A4877-A4878.

bill; to the audience composed of physicists this meant that he did not favor the bill.

H. C. Urey was ready to testify and this was communicated to the chairman, but he was not called. After my testimony, the chairman dryly remarked that I had consumed two and a half hours of the committee's time. It was obvious that the chairman played ball with the War Department and that the committee was stacked against us. There was no hope of inducing the committee into amending the bill; but even if there had been some hope, it is not possible to get a good bill by writing a bad bill and amending it. The only hope was to have the bill bottled up in the Rules Committee, and in this we succeeded. The bill never reached the floor of the House.

One of the men whom I saw rather late in the game was Judge Samuel Rosenman, in the White House. There was no need to convince Rosenman. "I told the President," Judge Rosenman told me, "that it looks as though the Army wants to pass this bill by number only."

The Senate set up a Committee on Atomic Energy under the chairmanship of McMahan, and this committee started hearings on atomic energy legislation early in 1946. They heard a number of witnesses, and when I testified before this committee, delivering a carefully prepared testimony, I found a much friendlier reception than I had found before the House Military Affairs Committee.<sup>67</sup>

In retrospect it seems to me that at this point I could have left Washington because there was not very much more that I needed to do. There were plenty of other people interested who were more influential than I was, yet I stayed throughout most of the hearings and listened to the testimony of several distinguished witnesses. One of the most impressive of these testimonies was that of Langmuir.<sup>68</sup>

One of the things which we tried to get across, and tried to get across very hard, was the notion that it would not take Russia more than five years to develop an atomic bomb also. Even though all younger men and everybody who had a creative part in the development of atomic energy were of that opinion, this is a case of "youth did not prevail."

67. See U. S. Senate, *Hearings before the Special Committee on Atomic Energy*, 79 Cong., 1 Sess. (1945), 267-300.

68. Irving Langmuir, physicist at the General Electric laboratories.

In his book, *Speaking Frankly*, James Byrnes relates that when he became secretary of state he tried to find out how long it would take Russia to develop a bomb. He needed this information in order to evaluate proposals for the control of atomic energy. He reports in his book that, from the best information which he could gather, he concluded that it would take Russia seven to fifteen years to make the bomb. He adds that this estimate was based on the assumption that postwar recovery would be faster than it actually was, and therefore he thinks that this estimate ought to be revised upward rather than downward. Dr. Conant, Dr. Bush, and Dr. Compton all estimated that it would take Russia perhaps fifteen years to make the bomb. Why this should be so is not clear, though it is of course possible to contrive a psychological explanation for these overestimates. If you are an expert, you believe that you are in possession of the truth, and since you know so much, you are unwilling to make allowances for unforeseen developments. This is, I think, what happened in this case.

10. *America August 6, 1945, to the passing of  
the Atomic Energy Act*

- A. *The scientists become vocal on the issue that  
the U.S. will not have a monopoly of the bomb  
for long.*
- B. *Fight of the scientists for civilian control of  
atomic energy.*

Additional Material for page 134

re: ATOMIC ENERGY CONTROL CONFERENCE, September 19-22, 1945, U. of Chicago

Letter, Robert M. Hutchins to General Groves  
attached to: Sept. 17, 1945

Letter, Groves to Hutchins  
which enclosed: Sept. 15, 1945

Confidential memorandum, dated Sept. 14th, 1945  
From War Department, Bureau of Public Relations.  
To Editors and broadcasters.

These three documents all relate to security at the Conference.

Speech, given by L.S. at the Conference Sept. 19, 1945  
"General Considerations Concerning the Atomic Bomb"

Szilard predicts that Russia will have the bomb in a  
short time; he suggests setting up control arrangements with  
Russia, the relocation of populations of cities, and planning  
towards eventual world government.

Letter, Bearsley Ruml to William Benton, Assistant Secretary of State.  
Sept. 27, 1945

Ruml, in a paragraph encircled by Szilard, says, "... the bomb  
conference...was a huge success."

Letter, L.S. to Wm. Benton, Asst. Secretary of State Oct. 5, 1945  
Summary of points made during the conference.

L.S. to Benton Oct 5  
1945

Not from HIST. Box  
but for only 2 pages  
seemed a good summary

Hist-B

THE UNIVERSITY OF CHICAGO

CHICAGO 37 ILLINOIS

THE CENTRAL ADMINISTRATION

ROBERT M. HUTCHINS *Chancellor*  
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R. G. GUSTAVSON *Vice-President*  
*and Dean of Faculties*  
W. C. MUNNECKE *Vice-President*  
NEIL H. JACOBY *Vice-President*  
WILLIAM BENTON *The Assistant to the Chancellor*

September 17, 1945

Dear General Groves:

The conference to which you refer in your letter of September 15 was called in response to Chapter XIII, paragraph 8 of the Smyth Report, sponsored by the Manhattan District.

As we informed your office on the Campus some days ago, this conference is to be private. None of its discussions will be open to the public or the press. There are no plans for releasing any of its conclusions. The conference will deal only with matters of common knowledge, facts known before the war, and those set forth in the Smyth Report and official releases.

Since the President's note requests editors and broadcasters to withhold information, it has, of course, no application to a conference at which no editors or broadcasters will be present. I shall, however, call the note to the attention of the conferees as you suggest. I shall be glad to read your letter to the conference if you wish me to do so.

Sincerely yours,

ROBERT M. HUTCHINS

Major General L. R. Groves, USA  
War Department  
P.O. Box 2610  
Washington, D. C.

cc: Messrs. Gustavson, Bartky, Szilard, and Redfield

Hist-B

CONFIDENTIAL  
WAR DEPARTMENT  
P.O. Box 2610  
WASHINGTON, D. C.

September 15, 1945

Chancellor Robert M. Hutchins  
University of Chicago  
Chicago, Illinois

Dear Chancellor Hutchins:

I have just learned that you are planning to have a meeting from September 19 to September 22 of physical and social scientists, public officials and other citizens to discuss the problems raised by certain recent applications of new scientific developments in military use. I understand that a number of scientists who have been connected with the Manhattan District have been invited and that some of them are planning to attend.

Frankly I am worried about the grave security hazards. Such hazards are inherent in any discussion which inevitably will constantly border on classified information particularly where the degrees of authorized knowledge possessed by the individual participants are so varied. Experience has taught us that it is impossible to control such an affair. No matter how well planned the conference, discussions can not be limited to the necessary degree. The situation is made even worse by the well known fact that the War Department still has a secret contract with the University of Chicago.

The President of the United States has directed all government executive agencies that all vital information pertaining to the Manhattan Project remain secret. These vital phases include everything pertaining to the supply of raw materials, the present state of research, the design and construction of the bomb and everything pertaining thereto, stockpiles of end material, and the production capacities and methods. The limits of discussion are the Smyth Report and other authorized public releases.

Not only is information harmful but misinformation and speculation, no matter how wild, in such a group in a conference sponsored by one of the several universities which played important roles in the successful development of the atomic bomb is certain to be most damaging to security and to the best interests of the United States.

For your information I am enclosing a copy of an announcement to the press which the President of the United States has just directed. I would suggest that you call its contents to the attention of the persons attending the conference.

If there are any details which may bother you regarding the security problems involved in your scheduled conference, Lt. Col. A. V. Peterson who is now in Chicago at the Metallurgical Laboratory would be happy to discuss them with you.

Sincerely yours,

(signed) L. R. Groves  
Major General, USA

1 Incl.

(Hist-B)

WAR DEPARTMENT  
BUREAU OF PUBLIC RELATIONS  
PRESS BRANCH  
Tel. - RE 6700  
Brs. 3425 and 4860

September 14, 1945

C O N F I D E N T I A L - - N O T F O R P U B L I C A T I O N

N O T E T O E D I T O R S

The following memorandum is CONFIDENTIAL AND NOT FOR PUBLICATION:

The President of the United States today made the following request for the cooperation of American editors and broadcasters and the public in protecting the secret of the atomic bomb. The President said that his action was in the national interest and not with any idea of imposing censorship upon the press or radio.

The request, herewith communicated to you in confidence, is as follows;

"In the interest of the highest national security, editors and broadcasters are requested to withhold information (beyond the official releases) without first consulting with the War Department, concerning scientific processes, formulas, and mechanics of operation and techniques employed in the operational use of the atomic bomb; location, procurement and consumption of uranium stocks; quality and quantity of production of these bombs; their physics and characteristics; and information as to the relative importance of the various methods or plants, or of their relative functions or efficiencies."

END

DISTRIBUTION: a, b, c, d, e, f, l, m, n.

It is expected that the contents of this memorandum will be treated with discretion and that the text will not be released for purposes of publication.

GENERAL CONSIDERATIONS CONCERNING THE ATOMIC BOMB

(Address given before the Atomic Energy Control Conference at the University of Chicago on September 19, 1945)

by  
Leo Szilard

Our discussion in the next two days would perhaps be less confused than it might otherwise be if we could agree today on a set of assumptions to serve as a basis of discussion. Unfortunately, these assumptions cannot be derived from established facts. They have to be derived from a mixture of facts and guesses and I am afraid that the guesses will predominate in the mixture.

Let us, for instance, consider the question of the destructive power of a single bomb. According to newspaper reports, the bomb detonated over Hiroshima destroyed by its blast four square miles; that is, four square miles was the area of total destruction. The bomb detonated over Nagasaki was considerably more powerful and would have destroyed a larger area if it had been detonated over Hiroshima. It is certain that the radius of action of the bomb will increase as time goes on, but it is not certain that this increase will be very important within the next ten years.

In order to see what this question involves we have to remember that as far as the destructive action of the blast goes, the radius of action of a bomb increases only with the third root of the charge which is detonated. Consider, for instance, a quantity of about 10,000 tons of TNT which will destroy, if detonated, buildings within a radius of about one mile. If we

then wish to increase this radius from one mile to ten miles, we would have to increase the amount of TNT by a factor of one thousand, that is, we would have to use an atomic bomb corresponding to 10 million tons of TNT.

It appears likely, therefore, that it will take further inventions before we can have atomic bombs that have a radius of action of ten miles. It is by no means certain that the physicists will actually make these inventions in the next few years. On the other hand, if one of you were to ask me for a positive assurance that ten years from now the radius of action of atomic bombs will not reach ten miles, I would have to decline-- with regret.

We are, however, in a position to assess the danger which faces this country without making any assumptions about the further development of atomic bombs. There is no reason why another country, for instance, Russia, should not have, six years from now, a large number of bombs of the type which we used at Nagasaki. Unless we arrive at some workable arrangement with Russia rather soon, it is more likely than not that she will have, six years from now, a quantity of such bombs corresponding to 10 million tons of TNT. This quantity, I believe, would be sufficient to destroy all of our major cities.

I ought to pause here for a moment in order to say the following: If Russia is singled out by me in this discussion, I do this because it appears likely that if an arrangement were worked out between Russia and the United States it would be fairly easy to extend the arrangement to all other countries.

The first question that we have to examine then is this: Do the Russians know enough to start manufacturing those two active elements which form the basic materials of atomic bombs? Those of you who read the official release of the War Department, namely the Smyth Report, saw that we instructed clearly all those who can read along what road they have to travel in order to reach the goal. It is now possible for other countries to carry out the development in an organized manner and any group which travels along the road which we have pointed out will find, step by step, what we have found and get the results which we have obtained.

By releasing the Smyth report we have given the other countries essentially as much knowledge as we possessed ourselves in the late fall of 1942. Since it took us from then two and one-half years until we had the first atomic bomb, we may say this: If knowledge were the only limiting factor, the Russians could have an atomic bomb two and one-half years from now.

I do not wish to give the impression, however, that we have given away all of our secrets. We still have retained what we may rightly consider important secrets. These secrets which we have kept are, however, of interest only in connection with the work which may take place from here on. They have practically no bearing on the manufacture of the atomic bombs which are at present available.

Coming back to the question of Russia, clearly, knowledge is not the only limiting factor. Another possible limitation may be due to the scarcity of uranium ores in Russia. The only important deposits within easy reach of Russia which are known to us are the Czechoslovakian deposits. Those deposits

yielded 20 tons of uranium oxide per year before the war. They might yield 40 tons of uranium oxide per year if worked under strained conditions. It is my understanding that the total deposits in Czechoslovakia may not be very significant. It seems to me, however, that it would be foolhardy to assume that in the vast territory which is within the grasp of Russia in Europe and in Asia, no significant uranium deposits will be found, once prospecting gets under way with such an extraordinarily high premium on finding uranium.

Still another factor which might slow down the work in Russia might be the lack of technically trained personnel. In the United States this work was carried out with the help of a very large staff of scientists and engineers, but it would be misleading to consider this as a standard by which to gauge the staff which Russia may need for carrying out her development. Many of those who were engaged in this work sometimes wondered whether the work would not have progressed faster if it had been carried out by a smaller staff. But however that may be, we certainly must not take the amount of \$2 billion which we have spent as a measure of the industrial effort which another country would have to make in order to bring about large scale production of atomic bombs. Another country would pick out from among all the processes which we tried the one which proved to be the most successful. Also, some other countries could operate in a much more economical manner than it was possible to operate in this country under cost contracts in a field where large chemical firms had virtual monopoly.

On the strength of these considerations I propose that as a basis of

our discussion we assume the following: It is more likely than not that Russia can have, six years from now, enough atomic bombs to be able to destroy all of our major cities if she so desires.

Perhaps the greatest danger which faces the world at present is the outbreak of a war which would arise more or less automatically out of an armament race in which Russia and the United States would be building up stockpiles of atomic bombs.

It is proposed to consider tomorrow in detail two rather closely related types of alternative arrangements by means of which such an armament race could be avoided. With your permission I shall again assume that if we succeeded in setting up such an arrangement with Russia it would be easy to extend it to other countries. For this reason I shall not mention any other country but Russia.

I am speaking now of arrangements which could be and ought to be set up immediately. To consider these arrangements in detail appears therefore particularly urgent.

For purposes of discussion, I propose that we distinguish between two alternative arrangements. In either case stockpiles of atomic bombs would be outlawed both within the territory of the United States and within the territory of Russia.

In case of the first alternative there would be no industrial installations for the manufacture of active materials permitted within the territories of sovereign states. This restriction might severely limit, or would perhaps

completely suppress, the development of atomic power. Those who are in favor of these restrictions believe that if we accepted these restrictions then at the price of a close supervision of mining activities we could convince ourselves that there was in fact no manufacture of atomic bombs going on in the inspected territory.

The second alternative would permit industrial installations for the manufacture of active materials and also atomic power plants within the territory of sovereign states but it would not permit the manufacture of atomic bombs. In this case it would be necessary to have a rather tight system of inspection and also other related arrangements, which would cut more deeply into the sovereignty of individual nations than mere inspection of mining activities. I personally prefer this second alternative to the first.

We cannot hope to achieve more by means of any such arrangements than to make certain that no atomic bombs will be available for instant use and that violations of these arrangements will become instantly visible and known throughout the world. Such arrangements could prevent the outbreak of a war arising out of an armament race, but they cannot prevent Russia or any other major power from deliberately starting an armament race by revoking or by sabotaging the agreement which provides for inspection. I personally believe that if we succeeded in establishing a satisfactory arrangement providing for inspection in the near future, that after the arrangement had operated satisfactorily for a number of years the chances for keeping the arrangement in force would be fairly good, since neither Russia nor any other major power would want to abrogate it unless they were deliberately out for

starting a war.

Nevertheless it is necessary for us to try to give an answer to the following question: If Russia suddenly revoked an arrangement which provided for inspection, how long would it take for her to have atomic bombs available in quantity?

In order to answer this question we have to make guesses and these are the guesses which I propose to you as a basis of discussion. If there are no industrial installations for the manufacture of active materials within the territory of Russia, but if Russia has available a large crew of trained scientists and engineers who have full knowledge of the methods of manufacture which could be used, it will take Russia probably two to three years to have as much as 10 million tons of TNT in the form of atomic bombs.

If, on the other hand, industrial installations for the manufacture of active materials and atomic power plants are going full blast in Russia with certain restrictions of a technical nature which I am not free to explain at the present time, then a conversion of these active materials into forms which can be used for the manufacture of atomic bombs might take anywhere from six months to a year and it is more likely than not that within one year Russia could have atomic bombs corresponding to 10 million tons of TNT.

We are living in a world in which there are no generally accepted principles of justice upon which to base a solution of inter-national conflicts. From time to time there are conflicts which have to be settled by the so-called "method of negotiations." Sooner or later such negotiations might lead to strained relations with Russia. If Russia were then to abrogate the existing arrangement providing for mutual inspection, within six months

or two years our cities would be threatened with annihilation. Thirty million people live in this country in cities of over 250,000, and 60 to 70 million people living in metropolitan areas. This vulnerability of the United States represents a temptation to other countries and to remove this temptation would appear advisable.

If it were possible to relocate, on the basis of a ten-year plan, 30 to 70 million people at a cost not exceeding \$20 billion per year, we ought to do so, since it would very considerably decrease the danger to our cities. A cost of \$15 to \$20 billion would be a burden that our economy could very well bear and there need not be more than perhaps a small decrease in the standard of living during the transition period. Perhaps it would be possible to build cities in shapes which are less vulnerable to atomic bombs than our present cities. One might think of cities one mile wide and 50 miles long with a built up area of 50 square miles. Using some such shape we could still have cities between 100,000 and 500,000, so that we need not forego the advantages of urban life and could have, on the whole, better living conditions than ever before.

It is necessary, however, for a scientist to warn against the belief that the relocation of the population can in the long run save us from extermination in a modern war. I have indicated earlier that the development of atomic bombs might catch up with measures taken for the dispersal of the population since it is quite possible that further work will lead to atomic bombs which will destroy everything with a radius of action of ten miles. But atomic bombs are by no means the only serious threat that we have to face.

Thinking along the lines of biochemical and biological warfare has barely started. Thinking along these lines was slow in getting under way and this slowness was due--I personally believe--to the moral inhibitions which were still strong ten or twenty years ago. The experience of this war, however, shows that these moral inhibitions can no longer be counted upon and the way is open now for finding new methods of extermination against which the dispersal of cities will provide no defense.

Some 15 years ago I happened to ask Dr. Lanpmuir whether he thought that mankind might perish in a major war. He replied that seeing how difficult it was to get rid of insect pests there was hope for the survival of man. This was the most reassuring argument that I have ever heard, but today, after the discovery of DDT, the argument is no longer valid.

Considering all these things on a time scale extending over more than one generation, we are led to say that we shall not be able to have peace at a lesser cost than at the cost of a world Government. Since we obviously cannot have world government just by asking for it, we ought to examine the question whether world government could perhaps be created step by step within a fixed time interval of perhaps 20 to 30 years. It is my understanding that there will be an opportunity to discuss such questions on Friday and that it is not proposed to discuss them this afternoon

I have omitted mentioning two points which I hope will both be covered in the discussion today. One is the difficulty of defense against atomic bombs--I mean, defense in the narrow military sense of the word. The other

point is the following: This country enjoyed in the past a unique position due to the fact that its industrial capacity made it possible for her to out-produce in tanks, guns, and airplanes every other country or combination of countries in the world. This unique position might now be gone due to the fact that atomic bombs are primarily a weapon against cities and once we have enough of them to destroy all cities of the enemy, the value of additional bombs may be rather small. Outproducing other countries in the sense of building enormous stockpiles of atomic bombs may therefore not help the United States to recover her former favorable position.

Hist D  
(66 s 2)

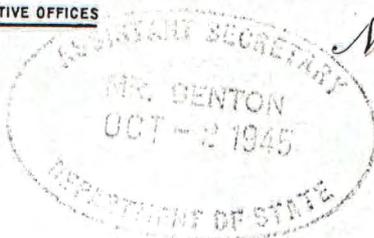
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*New York 1, New York*  
September 27, 1945



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

Dear Bill:

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

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

Very sincerely yours,

Beardsley Rumel

*The Crown of  
World  
Politics*

October 5, 1945

E-16

Mr. William Benton,  
Assistant Secretary of State,  
Department of State,  
Washington, D. C.

Dear Mr. Benton:

In the following I have summarized for your convenience some of the points which were made during the confidential discussion at the University of Chicago.

1. The aim of our policy might be to create a situation in which no atomic bombs are available and ready for instant use. If we could reach an arrangement with Russia that would give us assurance in this respect (under conditions in which we could be ~~assured~~ *sure* that violations would be detected and would become known to the world as further discussed below) we would be in a much better position than if we were engaged in an armament race.
2. From 1919 to 1933 it was reasonable to think of sanctions by an organization like the League of Nations as a possible means of enforcing of arrangements which had been agreed upon between nations. Today with Russia and the United States in a dominating position it is difficult to think of methods of enforcement. It appears therefore advisable to think of arrangements with Russia as agreements which could be legally abrogated by either party at any time.
3. In these circumstances the following question appears to be pertinent: Let us assume that some such arrangement is made with Russia, that this arrangement is extended to all other nations and let us now envisage the possibility that this arrangement is abrogated say seven or ten years from now, during which time there were no secret violations of the arrangement. If at the time of the abrogation there have been large-scale atomic power installations in operation on the territory of Russia and other countries, how long would it take to convert these installations into factories for atomic bombs and how long would it be until atomic bombs become available in quantity ready for instant use? The answer to this question can be given only very tentatively on the base of certain guesses. The answer is six months to a year on the assumption that certain specific restrictions had been applied previously to the development of atomic power installations. These restrictions would slow down but would not completely inhibit the development of atomic power installations.
4. The abrogation of such an arrangement seven or ten years from now might thus lead within a year to the accumulation of large quantities of atomic bombs which would threaten the sudden annihilation of all of our major cities. The very large concentration of our population in the cities - 50,000,000 people live here in cities of over 250,000 - makes this country particularly vulnerable.

*ought*  
An arrangement with Russia which can be abrogated legally or otherwise are therefore to be supplemented by something like a ten-year plan for the relocation of 30 to 70,000,000 people. It is estimated that this would involve an expense of fifteen billion dollars per year for ten years and it appears likely that after the relocation we will still have cities between 100,000 and 500,000, but

they might have to be built in certain shapes. Cities one mile wide and fifty miles long with a built-up area of fifty square miles have been discussed and are to be further considered.

6. Perhaps the most serious danger that faces us is the danger of a war which would arise more or less automatically if, in continuation of the present trend, the United and Russia were to compete in piling up large stockpiles of atomic bombs. A war might break out then which neither country really wants.

The suggested arrangement could serve to avoid this danger. The arrangement would not prevent a war if either Russia or the United States actually wanted to go to war with the other. It may be hoped, however, that if for a number of years the arrangement has worked satisfactorily and if there are no strong international tensions there would be no desire on the part of Russia to abrogate the arrangement, knowing that by doing so she would precipitate a race in bomb production which might lead to war at once or within a few years.

7. If we consider seriously entering into such an arrangement, we ought to know in advance what assurances we shall ultimately require within the frame-work of the arrangement in order to be sure that secret violations would be detected. Clearly, for this purpose the arrangement would have to include provisions for inspection of mining operations and certain key points in industry. It may be doubted, however, that inspection carried out by agents of some international agency or by American and Russian agents could offer sufficient assurance.

It would be highly desirable to create conditions in which the native engineers and scientists would be put in a position to act as guardians of the international arrangement and would report violations if they occurred. For the scientists and engineers to play this role, it would be necessary that the various espionage acts insofar as they relate to scientific or technical information, be revoked so that scientists and engineers can be pledged perhaps in the form of a new Hippocratic oath to report violations.

8. If the arrangement would provide for conditions under which practically every Russian scientist or engineer would at least twice a year find himself on a visit in some country outside of Russia together with his family, he would be in a position to report a violation and would then be freed by the international agency from his obligation to return to Russia. Assuming international collaboration in the field of atomic power and assuming that ten or even one percent of the Russian engineers or scientists would live up to their oath, we could be fairly sure that violations of arrangements would be detected and would become known to the world. Keeping track of the scientists and engineers inside Russia appears to be more effective method of inspection than keeping track of the movements of uranium ores.

Very sincerely yours,

Leo Szilard

2nd set  
May, 1969 ✓

Additional Material for pages 137-140

DEFEAT OF MAY-JOHNSON BILL

Telegram, to L.S. Oct. 9, 1945  
From the Executive Committee of the Association of Oak Ridge  
Scientists at Clinton Laboratories.  
This is a copy of the telegram sent to Senator Barkley.  
(See press release, below.)

Letter, to L.S. and Edward U. Condon Oct. 10, 1945  
We have only a carbon copy of this letter, and it has  
no signature. John Snyder is the most likely writer.  
(DIV SWMR)

Press release, from Atomic Scientists of Chicago Oct. 11, 1945  
"Atomic Scientists Oppose Hasty Legislation on Atomic Bombs"  
Includes a quote of the telegram from the Oak Ridge  
Scientists (above).

Higinbotham  
Letter, Herbert Anderson to William ~~Higinbotham~~ Oct. 11, 1945

Telegram, to L.S. Sent Oct. 17? Received Oct. 18, 1945  
From: Association of Oak Ridge Scientists at Clinton Laboratories;  
Atomic Scientists of Chicago.  
October 18th is the date of Szilard's testimony before the  
House Committee, and the telegram is marked, deliver "immediately  
regardless of time." Szilard is accepted as presenting the  
group statement.  
Note the inclusion of Nixon as a possible signer.  
(NICKSON)

"Statement by War Department to May Committee, to be made October 22"  
Handwritten note: "A.H. Compton transmitted this to the  
Chicago people"

Telegram, ~~Higinbotham~~ to Anderson Oct. 24, 1945 ?

Speech by L.S. Corrected by L.S. Nov. 12, 1945  
Given at Voorhis meeting." Nov. 8 - Smith: 208  
On Sunday, November 11th, Szilard gave a talk at a tea  
given by former Pennsylvania Governor and Mrs. Pinchot.  
Guests included Jerry Voorhis, as well as other Representatives,  
Senators and scientists. (A PERIL AND A HOPE, page 214.)  
Alice K. Smith.

in Nov. 14 Cong Rec

Pages 137-140

Page 137

re: "Both Chicago and Oak Ridge came to the conclusion that the May-Johnson bill was a bad bill which must not pass, and they were so vocal about it..."

see: Telegram, to L.S. from Oak Ridge scientists Oct. 8  
Press release Oct. 11  
Telegram to L.S. from: Oak Ridge Scientists Oct. 17-18  
Atomic Scientists of Chicago

Page 138

re: "Los Alamos, under the influence of Oppenheimer, took the opposite position, and was in favor of the passage of the bill."

see: Telegram, Higinbotham to Anderson Oct. 24 ?

re: "We went to see James Newman, in Snyder's office, ..."

see: Letter, to L.S. and Condon Oct. 10

Page 139

re: "Herbert Anderson ... He was a spirited young man at that time."

see: Letter, Anderson to Higinbotham Oct. 11

Page 140

re: "it is not possible to get a good bill by writing a bad bill and amending it."

see: Statement by War Department Oct. 22

Hist-D

(652)

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A. N. WILLIAMS  
PRESIDENT

(175)

C

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CAU14 NL PD 27 EXTRA=OAKRIDGE TENN OCT 8

LEO SZILARD=DLR QUADRANGLE CLUB

1945 OCT 9 AM 8 21

1155 EAST 57=

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

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

# WESTERN UNION

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A. N. WILLIAMS  
PRESIDENT

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

90%

Gentlemen:

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

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

Sincerely yours,

Director

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

JRN/rl  
10/10/45

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

ATOMIC SCIENTISTS OPPOSE HASTY LEGISLATION ON  
ATOMIC BOMBS

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

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

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

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

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

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

Please do not use my name.

Metallurgical Laboratory

October 11, 1945

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

Dear Willie:

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

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

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

October 11, 1945

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

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

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

Yours very truly,

Herb Anderson

HA:K

#1st D (6652)

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PRESIDENT

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

5 50T 18 AM 12 25

DR LEO SZILARD=

CARE WARDMAN PARK HOTEL DLR IMMEDIATELY REGARDLESS OF  
TIME WASHDC=

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

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

(END SHEET ONE).

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CA 879 / 2 / 166

1945 OCT 18 AM 12 25

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

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

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

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

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

(END SHEET TWO)

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UNION

A. N. WILLIAMS  
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CA879/3/195=

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

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

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

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

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

(END SHEET THREE)

WE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

WE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

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PRESIDENT

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CA879/4/182

1945 OCT 18 AM 12 25

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

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

:(END SHEET FOUR)

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CA 879 1577=

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

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

*W. J. G. Wilson*

STATEMENT BY WAR DEPARTMENT TO MAY COMMITTEE,

TO BE MADE OCTOBER 22

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

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

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

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

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

Hist-D (6632)

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Corrected Nov 12<sup>th</sup> - 45 L. Gilard  
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I have to apologize for not having prepared a speech for this occasion, but only after my colleagues and I met today in Washington were we able to discuss what aspect of the subject each one of us might cover. We all are interested in the May-Johnson Bill, but it is not possible to discuss this Bill or any other Bill until it is made clear what the purpose is for which the proposed legislation is intended. Let me, therefore, say what I believe to be the real problem for which a solution must be found and you will see that that problem cannot be solved by an Act of Congress alone.

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

Warrior's meeting

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

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

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

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

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

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

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

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

know how to vote. *There would be no need for them to know how such points are considered.*

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

2nd set ✓  
May, 1969

Additional Material for page 140

re: McMAHON COMMITTEE HEARING

Subpoena, to L.S.  
Signed by Brien McMahon.

Dec. 10, 1945

U.S. Senate. 79th Congress. Special Committee  
on Atomic Energy. Hearings. re S. Res. 179.  
Title page, list of Committee members, and first  
page of Szilard's testimony. Dec. 10, 1945.

(Hist-D)  
(bb.2)

THE SENATE OF THE UNITED STATES  
SPECIAL COMMITTEE ON ATOMIC ENERGY

Dec. 10, 1945  
(Date)

THE CITY OF WASHINGTON,

THE DISTRICT OF COLUMBIA

To Leo Szilard, GREENBERG;

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

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

Brien McMahon  
Brien McMahon, Chairman

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

Sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, 194\_\_.

My commission expires the \_\_\_\_\_ day of \_\_\_\_\_, 194\_\_.

# ATOMIC ENERGY

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## HEARINGS

BEFORE THE

SPECIAL COMMITTEE ON ATOMIC ENERGY

UNITED STATES SENATE

SEVENTY-NINTH CONGRESS

FIRST SESSION

PURSUANT TO

### S. Res. 179

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

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#### PART 2

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

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Printed for the use of the Special Committee on Atomic Energy

*Szilard's  
testimony  
pp. 267-300*



*p. 280  
p. 283*

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## ATOMIC ENERGY

MONDAY, DECEMBER 10, 1945

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

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

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

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

The CHAIRMAN. Dr. Szilard.

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

Doctor, would you proceed, please?

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

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

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

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

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