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DEVELOPMENT OF A SUPER WEAPON

MONDAY, JANUARY 9, 1950

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United States Senate,
House of Representatives,

Joint Committee on Atomic Energy,

Washington, D. C.

The Joint Committee met at 10:30 a.m., pursuant to call, in Room 48-G of The Capitol, Senator Brien McMahon, Chairman of the Joint Committee, presiding.

Present: Senators McMahon (presiding), Connally, Tydings, Hickenlooper and Knowland; and Representatives Durham, Price, Kilday, Jackson, Cole and Van Zandt.

Committee Staff Present: William L. Borden, Executive Director; Harold Bergman, Deputy Director, and Messrs. Sheehy and Brobeck.

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The Chairman. Gentlemen, the committee will be in order.

Gentlemen, I have asked you to come together at this time ---

Senator Hickenlooper. I ask it that it is not conten-

plated that any formal controlling action may be taken this morning, is there? I thought that if there was these fellows ought to be notified so that they could be here, so that they could make a special effort.

The Chairman. Well, there may be. I might make a request. I think, however, that every man in this room will agree that the requests that I may make may be considered. If you don't, we won't do anything about it.

Senator Hickenlooper. My only thought was that Knowland asked me about what the meeting was about and I said that didn't know, I expected that there would be some reports. And he said, "Well, we won't be taking any action on anything," and I said, "I don't think so," and I didn't know. I think perhaps he thought that if it was a report that he had something else to do and he might not get here.

The Chairman. We will call Senator Knowland on the phone. That is why I wrote a special letter in which I said it was important and urgent.

Gentlemen, I asked you to come together today. There are many things which have transpired during the recess of the Congress which I think you should be brought up to date on, but it wasn't my purpose to go into them today. Just to enumerate a few of those things, there is the matter of the investigation of the Jordan episode which was

thoroughly investigated and completed. We have here a letter requesting the chance to be heard by the former Vice President, Mr. Wallace, on the situation.

Senator Connally. What is that matter?

The Chairman. That is the Fulton Lewis-Racey Jordan matter, the charges that have been made that Wallace and Hopkins shipped vital materials in the atomic situation. There is nothing urgent about that situation now.

The second matter is the British American negotiations which I think can be postponed for a future meeting with the Secretary of State and not a long delayed one, in which he can bring us up to date on just exactly where we are going.

Then there are some -- I hardly call them routine, but ordinary developments in the operation of the project which you should know about. There is the business of the supplementary budget which will be submitted today, and amounting to some $300-odd million dollars for expanded work, which I want to make arrangements with the Committee to hear, and some other matters.

But this meeting today is to my way of thinking probably the most important that we have had because I want to review with you the developments in the super-weapon, the so-called hydrogen bomb as to where we stand and what the situa-

tion is as I see it at the moment.

Now, let me give you to refresh your recollection ---

Senator Tydings. You are talking about the hydrogen bomb now?

The Chairman. Yes, I am. I want to give you quickly a chronological review starting in October of the developments and the high points in this matter. On October 15 the Joint Chiefs of Staff, in one of the final joint committee hearings of the last session, indicated a desire that the super be undertaken, and that was on October 15.

Senator Connally. When you speak of "super", you mean the hydrogen bomb?

The Chairman. I mean this hydrogen bomb. On October ---

Senator Tydings. What do you call it, the "super", you say?

The Chairman. Yes.

On October 17 I wrote the AEC requesting a full report and the status and the history of the super bomb. On October 22, I wrote Secretary Johnson requesting a report on the long-range detection situation in relation to the super. On October 27, the Secretary replied and told me that it was under study.

On October 27, the same day, the subcommittee under

Mr. Holifield, met at Los Alamos. On that subcommittee was Mr. Holifield, Mr. Price, Mr. Jackson, and Carl Hinshaw. After the subcommittee met and discussed at Los Alamos the practicality of this project, they went up to Berkeley to see Dr. Lawrence and Dr. Alvarez to discuss the matter further, where they were joined by Senator Knowland. Am I correct?

Representative Jackson. That is correct.

The Chairman. Then subsequently, Mr. Hinshaw, on a trip back to Washington met me and gave me an oral report as to the views of the subcommittee.

On October 30, the General Advisory Committee submitted a report on this matter to the Atomic Energy Commission. The General Advisory Committee is appointed you know by the President and they were assigned the problem of considering the building of a super weapon, and they made a report which I will go into with you in a few minutes.

On November 1, after I heard about that report, I wrote the President requesting that in case he feels inclined not to press ahead with the super, that I be given a chance to be heard. On November 2, the President replied in the affirmative by saying that the matter had not reached his desk, but of course he would see me.

On November 21, I wrote a detailed letter on the super

controversy to the President, which I wish to read to you today. On November 25 I verbally advised the President that in my opinion most of the Joint Committee members would probably agree with the views expressed in the letterof November 21, and I based that on my knowledge of you gentlemen plus the fact that the subcommittee had unanimously reported.

The President advised me at that time on November 25 that there was a three-man committee, consisting of Acheson, Johnson and Lilienthal had been appointed to study and make a recommendation on the super.

On December 3, the General Advisory Committee filed a supplementary report amplifying its views.

On December 30, a history of the super bomb was transmitted to us by the AEC.

On January 3, I wrote the President in relation to the report.

Senator Tydings. May I ask you one question there before you leave it? On the Alsop (J. + S.) Article, what particular article is that?

The Chairman. That is a series of articles that the Alsop brothers had written on the fact that a controversy existed in relation to building the super weapon.

Senator Tydings. I know what you mean.

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The Chairman. Plus a description of the kind of thing that it is as far as destructive power is concerned, and it didn't purport to tell how to make it.

Senator Hickenlooper. Were those Alsop articles submitted to the Commission before they were published?

The Chairman. I gather not. I told these gentlemen -- Alsop came to see me.

Senator Hickenlooper. I wonder where Alsop got his information.

The Chairman. I would like to know, too, and I wrote a letter of protest to the President about it, and the letter back to me was confidential but if you would read it ---

Senator Connally. Did they get it from him?

The Chairman. Oh no. My God, no!

When Alsop came to see me just the day before yesterday I tried to prevail upon him to stop writing about this whole thing on the ground that while I recognized the usual mission of the press and the newspapermen, that this certainly was a problem that was sui generis and would best be left alone until a decision could be made by the Executive Department. I tried also of course without success to find out who he had talked to, and I don't suppose that can be found out.

Now, Pearson also talked about it last night on the air, and he also has been talking about it, and I don't know how many of you heard him, but he also went on to say there was a controversy about it and made some of the statements of fact in his broadcast.

I think, gentlemen, the best thing I can do is to read to you the communication from the General Advisory Committee on the subject and then read what I think is a pretty complete answer to it that I wrote to the President from Los Angeles. I spent three days writing this letter in Los Angeles, after a trip which I made subsequent to the trip of the subcommittee to Los Alamos and to Hanford. I had Dr. Lawrence's views because he was in Washington and came to see me, and so it wasn't necessary to go back to him.

So, Bill, give me here the letter of the Advisory Committee.

This is dated October 30, 1949, and signed by Mr. Oppenheimer.

"Dear Mr. Lilienthal:

"At the request of the Commission, the 17th meeting of the GAC was held in Washington on October 29 and 30, 1949, to consider some aspects of the ques-

tion of whether the Commission was making all appropriate progress in assuring the common defense and security. Dr. Seaborg's absence in Europe prevented his attending this meeting.

"For purposes of background, the committee met with the counsellor of the State Department" that is Mr. Gordon Fisher --

"with Dr. Gerald F. Henderson of AEC Intelligence, with the Chairman of the Joint Chiefs of Staff" -- that would be of course General Bradley, at that time ---

"the Chairman of the Military Liaison Committee, the Chairman of the Weapons Systems Evaluation Group, General Lauris Norstad and Admiral U. W. S. Parsons. In addition as you know we have had intimate consultations with the Commission itself.

"The report which follows falls into two parts: The first describes certain recommendations for action by the Commission directed toward the common defense and security. The second is an account of the nature of the super project and of the super as a weapon together with certain comments in which the committee is unanimously agreed.

"Attached to the report but not a part of it are recommendations with regard to action on the super

project which reflect the opinion of committee members.

"The committee plans to hold its 18th meeting in the City of Washington on December 1, 2 and 3, 1949. At that time we hope to return to many of the questions which we could not deal with at this meeting."

I might add that I don't think it would be necessary to go into the supplementary views unless you want to. They amplify the basic thesis that we should not build the super weapon.

Senator Connally. That we not build it?

The Chairman. Yes.

Senator Tydings. Was it unanimous?

The Chairman. No, Millard, that is rather puzzling. It is "yes" and "no," and in other words the general conclusion would be, but the reasoning is so different as to warrant the belief that ---

Senator Tydings. I would like to know if there was any dissenting opinion.

The Chairman. No, I don't think so.

Senator Tydings. Although it is obscured, they all signed it, did they?

The Chairman. Yes. Will you give me a list of the General Advisory Committee?

Now, here is their memorandum:

"Production: With regard to the present scale of production of fissionable material, the GAC has a recommendation to make to the Commission. We are not satisfied that the present scale represents either the maximum or the optimum scale. We recognize the statutory and appropriate rules of the National Military Establishment in helping to determine that. We believe, however, that before this issue can be settled it will be desirable to have from the Commission a careful analysis of what the capacities are which are not now being employed. Thus we have in mind that an acceleration of the program on the benefication of low-grade ores could well turn out to be possible. We have in mind that further plants, both separation and reactor, might be build more rapidly to convert raw materials into fissionable material. It would seem that some notion of the costs, yeilds and time scales for such undertakings would have to precede any realistic evaluation of what we should do. We recommend that the Commission undertake such studies at high priority.

"We further recommend that projects should not be dismissed because they are expensive but that their

expense be estimated.

"2. Tactical Delivery: The GAC recommends to the Commission an intensification of efforts to make atomic weapons available for tactical purposes, and to give attention to the problem of integration of bomb and carrier design in this field."

In other words, that is making smaller bombs.

"3. Neutron Production: The GAC recommends to the Commission the prompt initiation of a project for the production of freely absorbable neutrons. With regard to the scale of this project, the figure of one gram per day may give a reasonable notion. Unless obstacles appear we suggest that the expediting be assigned to the Argonne Laboratory.

"With regard to the purposes for which these neutrons may be required we make more explicit statements. The principal purposes are the following:

(a) The production of U-233.

(b) The production of radiological warfare agents.

(c) Supplemental facilities for the tests of reactor components.

(d) The conversion of 235 to plutonium.

(e) A secondary facility for polonium production.

(f) The production of tritium for boosters and for super bombs.

"We view these varied objectives in quite different light. We have quite an interest in the U-233 program, both for military and for civil purposes. We strongly favor, subject to favorable outcome of the '51 Eniwetok tests, the booster program."

I would like to have you take particular note of that sentence, "We strongly favor subject to favorable outcome of the '51 Eniwetok tests, the booster program."

"With regard to radiological warfare, we should not wish to alter the position previously taken by our committee with regard to the conversion of plutonium. We would hardly believe that this alone could justify the construction of these reactors though it may be important should unanticipated difficulties appear in the U-233 and booster programs. With regard to the use of the tritium in the superbomb, it is our unanimous hope that this will not proge necessary."

You will see why in view of what they say about the super.

"The opinion of the majority is that the super program itself should be not undertaken, and that the Commission and its contractors understand that construc-

tion of neutron producing reacters is not intended as a step in the super program.

"Super Bombs: The GAC has considered at great length the question of whether to pursue with high priority the development of the super bomb. No member of the committee was willing to endorse this proposal. The reasons for our views leading to this conclusion stem in large part from the technical nature of the super and of the work necessary to establish it as a weapon. We therefore here transmit an account of these matters.

"The basic principle of design of the super is the ignition of the thermo nuclear deuterium reaction by the use of a fission bomb of high temperatures, pressure and neutron densities which accompany it."

Senator Tydings. That is clear!

The Chairman. What that means is that an ordinary weapon is fired into this new cage or new box which would have in it the light element, which in turn would explode.

"In overwhelming probability, tritium is required as an intermediary, more easily ignited than the deuterium itself, and in turn capable of igniting the deuterium.

"The steps which need to be taken if the super

bomb is to become a reality include, one, the provision of tritium 6.2

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I might add on that, that as a result of the investigations, their estimate SANITIZED COPY SENSITIVE INFORMATION DELETED was not 6.2 borne out by the estimates of the scientists in the field with whom I talked and with whom you gentlemen talked.

Senator Hickenlooper. You say they are much lower?

The Chairman. They are much lower.

"(2). Further theoretical studies and criticisms aimed at reducing the very great uncertainties still inherent in the behavior of this weapon under extreme conditions of temperature, pressure and flow.

"(3) Also, the engineering of designs which may on theoretical grounds appear hopeful, 6.2

[redacted]

"(4) Careful instrumented test programs to determine

[redacted] 6.2

went wrong with the calculations.

"It is notable that there appears to be no ex-

perimental approach short of actual tests which will substantially add to our conviction that a given model will or will not work. And it is also notable that because of the unsymmetric and extremely unfamiliar conditions obtaining, some considerable doubt will surely remain as to the soundness of theoretical anticipation. Thus we are faced with a development which cannot be carried to the point of conviction without the actual construction and demonstration of the essential elements of the weapon in question.

"This does not mean that further theoretical studies would be without avail. It does mean that they could not be decisive.

"A final point that needs to be stressed is that many tests may be required before a workable model has been evolved, or before it has been established beyond reasonable doubt that no such model can be evolved.

"Although we are not able to give a specific probability reading for any given model, we believe that an imaginative and conserted attack on the problem has a better than even chance of producing the weapon within five years."

Senator Tydings. Read that last sentence.

The Chairman. "Although we are not able to give a specific probability rating for any given model, we believe that an imaginative and conserted attack on the problem has a better than even chance of producing the weapon within five years."

I might say that that is considerably less as given to me by Dr. N. Bradbury and Dr. E.O. Lawrence.

Senator Tydings. You mean you were given a shorter time?

The Chairman. A shorter time. Dr. Bradbury thinks three years and Dr. Lawrence says two years if it is proceeded with on an all-out basis.

Senator Tydings. Is there any place in this report where you are going to read of the danger of not doing it, but of some other country doing it?

The Chairman. I have written that which I will read to you, and which I think that you will agree with.

Senator Knowland. Might I ask one question here, Brien. As I came in late, did I understand you to say that this Advisory Committee has unanimously recommended we not go ahead or we go ahead?

The Chairman. That we not go ahead.

Senator Knowland. I think that that question of Sena-

tor Tydings is very pertinent. Was there any discussion as to strategically the position we would be in if somebody else went ahead in two years and had it and we still are thinking about it?

The Chairman. Wait me out, will you?

Representative Van Zandt. At this point I would like to clarify something in my mind. It has been said before this committee or I may have read it in the paper, that Russia is credited with having a super bomb, a hydrogen bomb?

The Chairman. Would you again withhold that question and let me get their views on this, and then my answer to all of those views which I hope you will agree with.

Representative Van Zandt. All right.

The Chairman. It continues:

"A second characteristic of the super bomb is that once the problem of initiation has been solved, there is no limit to the explosive power of the bomb itself except that imposed by the requirements of oblivion. That is because one can continue to add deuterium, an essentially cheap material, to make larger and larger explosions, the energy released, and the radio active products of which are both proportional to the amount of deuterium itself.

"Taking into account the probable limitations of carriers likely to be available for the delivery of such a weapon, it has generally been estimated that the weapon would have an explosive effect some hundreds of times that of present fission bombs. This would correspond to a damage area of the order of hundreds of square miles, the thermal radiation effects extending over a comparable area and to very grave contamination problems which can easily be made more acute and may possibly be rendered less acute by surrounding the deuterium with uranium or other materials.

"It needs to be borne in mind that for delivery by ship, submarine or other such carrier, the limitations here outlined no longer apply, and that the weapon is from a technical point of view without limitations with regard to the damage that it can inflict."

Does anyone want that read again?

Senator Tydings. They don't even given you a tentative maximum, do they?

The Chairman. No, it is truly described as open-ended, if it can be carried. Of course, there is no maximum, and I can point out to you that we would have to carry

it by air, but they can carry it by submarine.

"It is clear that the use of this weapon would bring about the destruction of innumerable human lives."

Senator Connally. You are reading from the Advisory Committee report?

The Chairman. Yes, sir, I am. It is not mine, Mr. Connally, I assure you.

"It is not a weapon which can be used exclusively for the destruction of material installations of military or semi-military purposes. Its use therefore carries much further than the atomic bomb itself the policy of exterminating civilian populations. It is of course true that super bombs which are not as big as those contemplated here could be made, provided the initiating mechanism works."

In other words, they could make a super bomb somewhat smaller.

"In this case, however, there appears to be no chance of their being an economical alternative to the fission weapons themselves. It is clearly impossible with the vagueness of design and the uncertainty as to performance as we have them at present to give anything like a cost estimate of the super. If

one uses the strict criteria of damage area per dollar and if one accepts the limitations on air carrier capacity likely to obtain in the years immediately ahead, it appears uncertain to us whether the super will be cheaper or more expensive than the fission bomb."

Does everybody get the point that they are making there?

"Although the members of the Advisory Committee are not unanimous in their proposals as to what should be done with regard to the super bomb, there are certain elements of unanimity among us. We all hope that by one means or another, the development of these weapons can be avoided. We are all reluctant to see the United States take the initiative in precipitating this development. We are all agreed that it would be wrong at the present moment to commit ourselves to an all-out effort toward its development."

That is the guts of the thing.

"We are somewhat divided as to the nature of the commitment not to develop the weapon. The majority feel that this should be an unqualified commitment. Others feel that it should be made conditional on the response of the Soviet government to a proposal to re-

nounce such development."

Senator Knowland. Would you read that again?

The Chairman. That is certainly a joke. Suppose they did? Who the hell would believe them?

"We are somewhat divided as to the nature of the commitment not to develop the weapon. The majority feel that this should be an unqualified commitment. Others feel that it should be made conditional on the response of the Soviet government to a proposal to renounce such development. The Committee recommends that enough be declassified about the super bomb so that a public statement of policy can be made at this time. Such a statement might in our opinion point to the use of deuterium as the principal source of energy. It need not discuss initiating mechanisms nor the role which we believe tritium will play. It should explain that the weapon cannot be explored without developing it and proof-firing it. In one form or another, the statement should express our desire not to make this development. It should explain the scale and general nature of the destruction which its use would entail. It should make clear that there are no known or foreseen non-military applications of this development. The separate views of the members of the

Committee are attached to this report for your use."

That is signed by Oppenheimer.

Now, on the General Advisory Committee are the following gentlemen: Oppenheimer, Conant, President of Harvard, DuBridge, President of Cal-Tech, Fermi, Professor of Physics, University of Chicago; Dr. Rabi at Columbia University; Hartley Rowe, Vice President and Chief Engineer of United Fruit; Dr. Seaborg who is in Europe, Dr. Smith who is with the University of Chicago; Dr. Oliver Buckley, the President of the Bell Telephone Company of New York, and Dr. John H. Manley, Secretary of the General Advisory Committee.

Now, gentlemen, let me read you because it isn't too long ---

Senator Tydings. Mr. Chairman, have you read and maybe you are coming to it, and I don't want you to answer it if you are, as to whether or not the Russians can do this just the same as we might do it?

The Chairman. The General Advisory Committee has not examined that, it seems to me, unless they do so in their supplementary statement. Do they do it?

Mr. Borden. Only implicitely, Senator.

Senatof Tydings. It seems like they will have a gun at our heart if they do it and we do not.

The Chairman. Let me get through this, if you don't mind. This is dated October 30, and this is according to Oppenheimer, the separate views of the members of the Committee.

Senator Knowland. What is the date of the other document?

The Chairman. The other document is dated the 30th of October, too.

"We have been asked by the Commission whether or not they should immediately initiate an 'all-out' effort to develop a weapon whose energy release is 100 to 1000 times greater and whose destructive power in terms of area of damage is 20 to 100 times greater than those of the present atomic bomb. We recommend strongly against such action."

Now, before I read further, this is signed by Conant, Rowe, Smith, DuBridge, Buckley and Oppenheimer. It isnot here signed by Fermi, Rabi, or Seaborg who wasn't there. They have a separate thing which I will read to you.

"We base our recommendation on our belief that the extreme dangers to mankind inherent in the proposal wholly outweigh any military advantage that could come from this development. Let it be clearly

realized that this is a super weapon; it is in a totally different category from an atomic bomb. The reason for developing such super bombs would be to have the capacity to devastate a vast area with a single bomb. Its use would involve a decision to slaughter a vast number of civilians. We are alarmed as to the possible global effects of the radioactivity generated by the explosion of a few super bombs of conceivable magnitude."

Let me interrupt just at that point about radioactivity. Teller at Los Alamos told me that he was not concerned about that problem at all.

"If super bombs will work at all, there is no inherent limit in the destructive power that may be attained with them. Therefore, a super bomb might become a weapon of genocide.

"The existence of such a weapon in our armory would have far-reaching effects on world opinion: reasonable people the world over would realize that the existence of a weapon of this type whose power of destruction is essentially unlimited represents a threat to the future of the human race which is intolerable. Thus we believe that the psychological effect of the weapon in our hands would be adverse to

our interest. We believe a super bomb should never be produced."

Senator Connally. What is that?

The Chairman. (Reading)

"We believe a super bomb should never be produced. Mankind would be far better off not to have a demonstration of the feasibility of such a weapon until the present climate of world opinion changes.

"It is by no means certain that the weapon can be developed at all and by no means certain that the Russians will produce one within a decade."

And I might add that we are by no means certain that they will not.

Representative Price. Even a decade is a short time.

The Chairman. They will have it in three years.

"To the argument that the Russians may succeed in developing this weapon, we would reply that our undertaking it will not prove a deterrent to them."

Have you got that? "To the argument that the Russians may succeed in developing this weapon, we would reply that our undertaking it will not prove a deterrent to them. Should they use the weapon against us, reprisals by our large stock of atomic bombs would be comparably effective to the use of a super.

"In determining not to proceed to develop the super bomb, we see a unique opportunity of providing by example ---"

Senator Tydings. Do I get that right? In other words, they don't mind killing the same number of people by using 100 bombs, but they object to killing the same number of people by using one bomb, is that right?

The Chairman. That is right.

"In determining not to proceed to develop the super bomb, we see a unique opportunity of providing by example some limitations on the totality of war and thus of limiting the fear and arousing the hope of mankind."

Now, I gave you that, and I am going to read you just a short page and a half, the opinion of Fermi and Rabi.

"A decision on the proposal that an all-out effort be undertaken for the development of the 'Super' cannot in our opinion be separated from considerations of broad national policy. A weapon like the 'super' is only an advantage when its energy release is from 100 to 1000 times greater than that of ordinary atomic bombs. The area of destruction therefore would run from 150 to approximately 1000 square miles or more."

Senator Tydings. That is 100 miles long?

Senator Hickenlooper. It would be about 30 miles to the side.

Senator Tydings. Yes, you are right. You would have 40 miles to the side, or 35 to 40 miles to the side, roughly. It would take in the District of Columbia, and it would take in Delaware pretty well.

The Chairman: (Reading)

"Necessarily such a weapon goes far beyond any military objective and enters the range of very great natural catastrophies. By its very nature it cannot be confined to a military objective but becomes a weapon which in practical effect is almost one of genocide.

"It is clear that the use of such a weapon cannot be justified on any ethical ground which gives a human being a certain individuality and dignity even if he happens to be a resident of an enemy country. It is evident to us that this would be the view of peoples in other countries. Its use would put the United States in a bad moral position relative to the peoples of the world.

"Any postwar situation resulting from such a weapon would leave unresolvable enmities for generations. A desirable peace cannot come from such an in-

human application of [illegible] The postwar problems would dwarf the problems which confront us at present.

"The application of this weapon with the consequent great release of radioactivity would have results unforeseeable at present, but would certainly render large areas unfit for habitation for long periods of time.

"The fact that no limits exist to the destructiveness of this weapon makes its very existence and the knowledge of its construction a danger to humanity as a whole. It is necessarily an evil thing considered in any light.

"For these reasons we believe it important for the President of the United States to tell the American public, and the world, that we think it wrong on fundamental ethical principles to initiate a program of development of such a weapon. At the same time it would be appropriate to invite the nations of the world to join us in a solemn pledge not to proceed in the development or construction of weapons of this category. If such a pledge were accepted even without control machinery, it appears highly probable that an advanced stage of development leading to a

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test by another power could be detected by available physical means."

Do you want me to read that again?

"If such a pledge were accepted even without control machinery, it appears highly probable that an advanced stageof development leading to a test by another power could be detected by available physical means. Furthermore, we have in our possession, in our stockpile of atomic bombs, the means for adequate 'military' retaliation for the production or use of a 'super'."

Now, gentlemen, when I got that, I wrote to the President this letter.

Senator Hickenlooper. May I just suggest, Mr. Chairman, that up to this point the General Advisory Committee it seems to me, with complete respect for them, they are able gentlemen, of the highest order, have indulged in a discussion of the morals and not the thing that they are set up to discuss. They are there discussing the morals of this thing and it seems to me that the morals of the development of the super bomb must inevitably rest with the President and the defensive responsibility of this country, and I think that these fellows in the General Advisory Committee should contain themselves to saying whether or

not a super bomb is feasible, what it will do, and then let the morals be decided by the proper people whose job it is to decide the morals of the country.

The Chairman. Before I read this, I would like to point out that Conant, according to my information, has declared that if the decision is made to go ahead with this, he is going to take the decision to the country.

Senator Tydings. How much do the Russians know about this already? Is there any CIA report?

The Chairman. They have been unable to get any intelligence as to the status of any super project, super bomb project in Russia.

Senator Tydings. Of course, this thing if carried formally to the country or if the President makes the announcement which they recommend, will serve notice to the Russians that we have taken this super bomb thing seriously, and they will go to work on it like all hell.

The Chairman. Do you think that they need any such advice?

Senator Tydings. I don't think at the moment they would be spurred on as much as a formal announcement would spur them on, Brien.

The Chairman. Of course, let me read to you, not in any sense of pride of authorship but simply because I did

spend a couple of days on this letter and bedause I have tried to compress in it the answer to the reasoning that they advance.

Senator Hickenlooper. May I amplify my statement of a moment ago. I don't want to be misunderstood. These men have a perfect right as citizens to express their moral views and attitudes, as citizens. But I conceive it to be their job to advise scientifically and technically in their official capacity.

The Chairman. I am glad to know what they think about it, for this reason, that we cannot have any revolution among these boys because if we go ahead with this, as I think we have got to go ahead, we have got to have cooperation.

Senator Hickenlooper. I think their personal views as to the morals are very valuable, there is no question about that, but I think they have put their entire report on the basis of morals here, that is their entire report and their contributions technically and scientifically, and I think the ultimate moral decision and the discussions of that philosophy probably are better left to the departments of government that have that responsibility as a prime responsibility, and that begins with the President and the defense forces and in some ways perhaps the Congress.

Senator Connally. Right there, I don't want to argue the thing here, it seems to me that the whole problem is one thing, and themoral attitude is perfectly legitimate, not that it is determinative, but they weren't appointed simply as technicians to advise about the mechanical operation. It seems to me that it is perfectly proper for them to review the whole thing from a standpoint of National policy. We don't have to follow them, but I think it is proper that they submit their views.

Representative Kilday. We have another ground there, the impossibility of peace after a weapon of that type, and I think that the Committee on Armed Services took the same views with regard to the A-bomb.

Senator Hickenlooper. Could I complete this matter and then I think that we can argue this at a more proper time.

Senator Tydings. Let us get this information.

Senator Hickenlooper. The General Advisory Committee, reading from the law, is provided as follows:

> "There shall be a General Advisory Committee to advise the Commission on the scientific and technical matters relating to the materials, production and research."

The Chairman. Gentlemen, here, I think, is the answer.

You will undoubtedly have additional thoughts, but I think that you will find a lot of them in here.

Representative Cole. Let me ask to clarify my mind, is this bomb you are speaking of now the tritium, the same one I have been reading about as being characterized as the hydrogen bomb?

The Chairman. That is right.

This is dated November 21, 1949, at Los Angeles, California:

(At this point the Chairman read the letter, which is attached as follows:)

COPY

Los Angeles, California
November 21, 1949

Dear Mr. President:

The profundity of the atomic crisis which has now overtaken us cannot, in my judgment, be exaggerated. The specific decision that you must make regarding the super bomb is one of the gravest ever to confront an American president. This letter, reflecting ideas stimulated by a number of recent conferences which I attended at Washington, Los Alamos, Argonne, Hanford, and elsewhere, is written in sincere hopes of being helpful to you. It is easily the longest letter that you have ever received from me, and I apologize in advance for its length, although the gravity of the subject justifies extended discussion.

Those who oppose an all-out "crash" effort on the super impress me as being so horrified at the path down which the world is traveling that they have lost contact with common sense and reality. Of course I can understand and share in their horror. In a moment I will try to show the good that may come of the revulsion which any moral individual must experience at the prospect of bringing forth a weapon such as the super. But first it may be useful to attempt an expose of what I regard as the false, horror-inspired logic put forward by those who recommend against this project.

They stress that the super is unique and that it differs in kind, not merely in degree, from ordinary atomic bombs; and yet they argue that its military worth is dubious and that ordinary atomic bombs could retaliate adequately against an enemy who used it upon the United States. Here is a fundamental inconsistency. If the super would accomplish no more than weapons already in our arsenal, why single it out for special objection? If, on the other hand, the super represents a wholly new order of destructive magnitude - as I think it obviously does - then its military role would seem to be decisive. Consider that about current-type fission bombs would be needed to duplicate 6.2 the effect of one super which destroyed 150 square miles; about fission 6.2 bombs would be needed to equal the effect of one super that destroyed 1,000 square miles; and the ratio increases still further assuming, as the scientists suppose, that the super is unlimited in potentiality and might take out far more than 1,000 square miles. If an enemy employed a few supers against us, our entire stockpile of ordinary atomic bombs might fall pitifully short of inflicting an equal damage area upon him. Moreover, the expense of developing this weapon is estimated at only $200 or $300 millions - less than a sixth of what we spent upon the wartime Manhattan project - and unit cost, as was true of the fission bomb, may be expected to decline markedly when production and design improvements are achieved.

I am not a professional strategist, but various military possibilities inherent in the super seem clear even to a layman. An attacker who dropped a half-dozen supers upon the opponent's largest industrial areas would free the hundreds of fission bombs otherwise needed to do the same job for other purposes. These fission bombs could therefore be used simultaneously against air and sea bases, aswell as smaller industrial objectives. Thus the attacker would compress within a few hours or days several times the total punishment administered to Germany throughout the entire span of World War II. Equally important, the fission bomb strikes upon air and sea bases - made possible because supers were available for use against wide-area targets - would severely reduce the opponent's capacity to retaliate. The attacker might escape with comparatively little injury to himself. Lacking supers, however, he could not inflict nearly so much damage using fission bombs alone; and such damage as he did inflict would require more time - giving the opponent opportunity to adjust, to recover from shock, to tighten defenses, and to retaliate in force.

I am aware that numerous TNT bombs, accurately distributed and equal in cumulative blast effect to one fission bomb, actually create greater havoc 6.2 than a single atomic explosion. Similarly, fission bombs, properly placed, might exceed the effect of one super bomb. But to stress this point is to overlook the shock and demoralization, psychological and otherwise, that follows from concentrating an offensive within the shortest possible space of time. Also a fission bomb must usually detonate a mile or half-mile or even less distance from the target to be effective, whereas a super might miss its target by ten miles or more and still serve the purpose intended. The problem of deliverability is not an easy one, but it can be overcome through sufficient effort - just as the once difficult problem of delivering the Hiroshima and Nagasaki bombs was overcome. One estimate given me as to how much a super might weigh is less than the maximum pay load of the present B-36 airplane. In all probability the delivery of a super would be easier and tax our resources less than delivery of an equivalent number of conventional atomic weapons. Therefore, if it was militarily worthwhile to build the fission bombs dropped upon Japan, even though a large fleet of planes carrying fission bombs might do somewhat comparable damage.

I am likewise aware that Moscow and Leningrad, the two chief cities of the sole potential enemy in sight, are only said to occupy areas of about 120 and 110 square miles respectively. Thus, runs the anti-super argument, there are scarcely more than two or three urban targets in all Russia which measure up to the tremendous destructive power of this explosive, and they could be thoroughly attacked with ordinary atomic bombs. But the argument admits that at least two or three urban targets tailored to the super do in fact exist - and rapid Soviet industrialization may soon increase the list. Air bases and isolated factories surrounding these same targets might succumb to a super although they would not

succumb to a fission bomb attack. Air bases and isolated factories in the vicinity of other, smaller cities - as well as medium-sized towns or built-up areas located within ten, twenty, or thirty miles of one another - might also supply objectives against which the use of a super would be economical. There are additional targets, many of them tactical, which only the super might successfully destroy: a fleet, troops in the field, forces preparing for amphibious invasion, guerrilla fighters, an underground storage site containing fissionable material, key segments of a radar warning network, the Baku and Caucasian oil fields, a string of air strips, submarine pens, missile launching sites, fortifications around a narrow water passage such as the Dardanelles, or atomic production facilities grouped in the same general area but too far apart for efficient employment of fission explosives. Even further, the Hiroshima and Nagasaki bombs did not themselves defeat Japan, but they accelerated recognition by her that she could no longer resist - and supers might perform a like function in the future.

It is claimed that the super would inevitably exterminate hosts of civilians and therefore constitute a pure weapon of genocide. But aside from the exclusively tactical purposes which it might serve, its use against cities could be preceded by a warning to the inhabitants that they must either evacuate or suffer the consequences. If the warning were heeded, bomb damage would be confined to physical buildings and plants; and the disruption generated by evacuees moving from city to country might hamper the enemy's war effort more seriously even than mass casualties. The basic question, however, is this: what happens if supers are aimed at New York, Chicago, Los Angeles, and Washington? Will we possess our own supers, ready to retaliate in kind and to throttle the attack at its source - or will we lack such weapons and suffer defeat and perhaps utter annihilation as the result?

There is no moral dividing line that I can see between a big explosion which causes heavy damage and many smaller explosions causing equal or still greater damage. Where is the valid ethical distinction between the several Hamburg raids that produced 135,000 fatalities, the single Tokyo "fire" raid that produced 85,000 fatalities, and the Hiroshima bomb that produced 65,000 fatalities? What, then, is the distinction between the 1,000 square miles which one super might scorch and the 1,000 square miles which [illegible] fission bombs might equally destroy? Is a given weapon to be adjudged moral or immoral depending upon whether it requires hours, days or weeks to take its toll? In this same connection, those who oppose the super nevertheless urge speedy development of the booster - although both bombs exploit a thermo-nuclear reaction, both therefore represent a radical new departure, and both multiply the effectiveness of existing models. They differ only in that one develops a bigger explosion from a single package than the other. The millions who might yield their lives to numerous fission and booster bombs would be just as dead as if they had been struck by one super. Modern warfare, even if waged with pre-atomic weapons only, is the real instrument of genocide - not a single agent like the super. The havoc which Germany visited upon Russia and Western Europe and which the Allies visited upon Germany and Japan during World War II probably surpasses the destructiveness of a dozen supers.

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The contention is made that a war involving the super would leave behind such chaos and vengefulness as to create a worse situation, with a darker outlook for lasting peace, than the one existing at present. Perhaps this is so. Yet our first duty consists in doing what is necessary to win. We know that because of manpower limitations and the oceans that separate us from Eurasia, we could not use surface forces to invade and occupy Russia. The only choice left open is heavy reliance upon strategic air power, despite our own immense vulnerability to nuclear weapons. The super should end all debate as to whether or not strategic air power could win a war. Without American victory - which supers alone might render feasible - there would be no post-war existence for our country, much less post-war problems. I might add that, to my mind, almost nothing could be worse than the current atomic armaments race and that victory in a future war, ah lower its sequel in other respects, would at least assure effective international control over weapons of mass destruction.

A number of reasons for opposing the super are advanced that impress me as make-weight arguments. Radioactive contamination resulting from a super explosion is one such reason. The advices I have received are to the effect that contamination would merely correspond to the aftermath of ordinary fission bombs and that, in any event, it might be reduced through the use of appropriate "casing" materials. The super is said to promise little or no progress in the field of peaceful applications - even though this contention flouts all past experience and even though, to the best of my knowledge, there never has been research and development of any type or character that failed to increase human capacity for constructively harnessing the forces of nature. It is argued that if we build a half-dozen or more new reactors and use them to manufacture the tritium necessary for supers, we would forego the plutonium otherwise obtainable from those same reactors - thereby losing about as much as we gained.

6.2

- and probably a very small fraction - of such a damage potential. Realistically speaking, moreover, the half-dozen new reactors would not be built rapidly without a super program to spur along their construction - so that, absent the program, we would not soon acquire much additional plutonium anyhow.

Opponents of the super imply that as much as five years would elapse before an all-out effort produced results and that success is only a little more likely than failure. This, I fear, represents an attempt to dampen feelings of urgency. My information, in contrast, is that Teller, Oppenheimer, and Bethe made the first calculations respecting a super bomb in 1942; that the matter has been under study ever since; that no reason for anticipating failure has emerged from such study, that, on the contrary, success seems highly probable; and that intensive work short of wartime methods might reach fruition in early 1952.

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The Atomic Energy Commission weapons program, as formulated more than a year ago, envisaged achievement of a super by about 1958. No one in authority protested against the program; no one argued that problems affecting the super should be left unexplored. Now that Russia has broken our atomic monopoly three years sooner than we had expected - giving us compelling reason to speed up the rate of American development - the anti-super counsellors adopt a reverse logic. Instead of agreeing that the new situation pressures us to accomplish in two years what all along we planned to accomplish in eight, they would either mark time or abandon the project together. Their advice, if followed, would also have the effect of placing a ceiling upon our military advancement; for I do not know how the Los Alamos Laboratory would occupy itself, after a few years had passed, unless it ventured far into the thermo-nuclear field.

Equally surprising is the suggestion that we refrain from pressing the super if Russia pledges herself (without any inspection or control) to follow a similar policy. Since mid-1946, we have urged the world to accept our view that atomic weapons are so unique and dangerous that only far-reaching international measures will afford protection. The need for a tight control system of the kind approved by the UN General Assembly is now intensified, since the secret manufacture of just one fission bomb might furnish an initiator for a super and since the necessary tritium might be produced in dozens of small reactors difficult to locate through inspection. Yet - with more cause than ever before to insist upon strict safeguards - it is proposed that, as regards supers, we repudiate the position taken during the past three years and depend upon a mere paper pledge.

This proposal, to be sure, assumes that probably, when Russia has almost completed her first super, our Long-Range Detection would serve notice of the fact. If an actual, full-fledged super were tested, the gigantic blast effect could hardly help but make itself known to us. But I am told that tritium and deuterium, after a thermo-nuclear reaction, would not register upon distant monitoring instruments. Also the crucial parts of a super are those designed to set off pure deuterium. If they function successfully, then the deuterium is very likely to ignite. Therefore, if Russia elected to test merely the initiating assembly, she would gain essential information; she would know that, in all probability, her scientists had mastered the super; and the experimental explosion - if we detected it at all - would appear to us as an ordinary fission bomb. Apart from these points, I fail to see the special advantage of knowing when Russia has nearly acquired supers if we were so far behind that she would achieve them first regardless.

To me the notion that our possession of this weapon would harm our moral position makes no sense, provided that we offered to relinquish it in exchange for a just and enforceable system of control. Only the nation which rejected such an offer would occupy an indefensible moral position. Any idea that American renunciation of the super would inspire hope in the world or that

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"disarmament by example" would earn us respect is so supportive of an appeasement psychology and so at variance with the bitter lessons learned before, during, and after two recent wars that I will comment no further.

But I do think it important to challenge the complacent attitude toward Soviet progress that pervades the thinking of those against the super. Some of them are the very ones who preached, from 1945 onward, that Russia would soon achieve the atomic bomb through her own independent effort; and yet they now ignore the logic which led them to this correct conclusion, saying that Soviet achievement of the super may well be a decade away, if not longer. They speak of our taking the initiative in super development - just as though such a weapon has never occurred to Russian scientists, just as though we dare assume that the Soviets are not working toward it with all haste, and just as though American and British intelligence had not lately underestimated Russia to the extent of missing by three years the date of her first fission bomb test.

Only about one-fortieth of our total military spending since 1945 has been devoted to atomic weapons. In fiscal 1950, funds for that purpose will comprise less than one per cent of the national budget. These amounts might impress us as inadequate, to say the least, if we could know the precise extent of Soviet commitments. Recently acquired evidence, I am told, shows that Russia is constructing a gaseous diffusion plant to separate U-235; and U-235 not only permits a more efficient use of the plutonium which she now produces but it also fuels the which our own experts regard as the likeliest means of initiating a super. German scientists imported into Russia have long studied the heavy-water reactors well suited to tritium manufacture; Kapitza, the great Soviet physicist, is a specialist in low-temperature problems associated with liquid deuterium densely populated American cities are made-to-order for an explosive that levels hundreds of square miles; communism suffered a prestige loss when "decadent capitalists" completed the earliest atomic bombs, but this loss would be more than recouped should Russia complete the earliest super; and if the Kremlin believes that it cannot out-produce us in ordinary fission weapons, then its logical strategy is to excell in the thermo-nuclear field. All such factors as these warn that complacency could be fatal. As one noted American scientist has said, we should imagine a force of Soviet planes and submarines, each carrying a super and each poised to effect delivery at our inland and coastal cities - and with that picture in the forefront of our minds move heaven and earth to gain the super first.

Although any other decision would almost guarantee disaster for our nation, in my opinion, I thoroughly agree with the opposite school of thought that armaments races lead to war. I agree that ours are the cities most threatened by the super. I agree that if war comes - and if it is postponed until Russia accumulates a stockpile of supers and fission bombs, or even fission bombs alone - Western civilization may well crumble whether we win or lose. I consider the most significant single aspect of the present situation to be this: with each day, week, and month that passes, the Kremlin acquires an added supply of

fissionable material. My thesis, however, is that if we let Russia get the super first, catastrophe becomes all but certain - whereas, if we get it first, there exists a chance of saving ourselves.

That chance can best be grasped, as I see it, by immediately taking the entire problem of the super to the people of the United States and the world. The existence of an all-out American effort to build this weapon could not be kept secret in any case: the purchase of lithium and other key materials in great quantity, the construction of special new reactors, the presence of Teller and, I hope, Fermi, Bethe, and equally famous scientists at Los Alamos, the extensive literature already published about the super, the question of Congressional appropriations, and the need for British and Canadian assistance would inevitably alert Russia to the true facts. But even if our effort could be successfully concealed, the people of New York are entitled to know that an innocent-appearing merchant vessel registered under the Dominican flag might introduce a Russian super into their harbor and destroy, not just a few square miles, but their entire metropolis. The people of Chicago are entitled to know that a robot-controlled bomber, located only a few hours away in Kamchatka, might visit their city at night and leave it a wasteland. The people of Washington - when they discuss civil defense against atomic warfare - are entitled to know that organization of a disaster corps, dispersion of hospitals, and such-like measures would be futile in coping with the super weapon which Stalin may own within three years, two years, or even less. That is more, the people of Russia are entitled to know of the suicide terminal point toward which the refusal of their rulers to accept international control is leading them.

Since this issue, involving as it does the survival or extinction of whole populations, transcends all others in importance, it should be treated in the most important possible manner. If I may make the suggestion, you have an opportunity to deliver an address before the current United Nations Assembly that might alter the destiny of mankind. You could explain to the world's peoples, through the UN forum, that we are able to build the super and that Russia possesses a like capability. You could point out that the possibility of ravaging 1,000 square miles at a single blow does not decrease the danger from ordinary fission bombs but that it dramatizes and renders still more urgent the need for effective international control. Thus the horror and revulsion which the super inspires in moral beings might be harnessed and made to generate a world-wide pressure of public opinion upon the Kremlin to accept a sane and worthwhile control plan.

Sincerely yours,

Chairman

The President

The White House

Senator Connally. May I ask you a question there. I don't want to interrupt.

The Chairman. I am through now.

Senator Connally. Now, there has been no machinery set up to manufacture these bombs? We have had no tests, in other words?

The Chairman. No.

Senator Connally. How do we know that the super bomb without those tests will do what it is assumed that they will do.

The Chairman. In a conversation which both the subcommittee and I had at Los Alamos, with Dr. Shields Warren and [illegible] Zinn in Chicago, they expressed themselves as being very confident, as Teller puts it they are far more confident of the result of the super bomb than they ever were on the ordinary A-bomb until it went off. The Abomb principles now having been established and now having worked, they regard this as at least scientifically, not a difference in kind but a difference in degree.

You see, we have been working on a booster program which is in part a super weapon, that would boost our ordinary bomb as we have it now to a magnitude of about six times that of the present bomb. And they have no doubt about that working, they express themselves as having

no doubt at all.

Senator Connally. How about the materials? This is a hydrogen bomb?

The Chairman. It will necessitate the production of tritium. Tritium can be produced in our reacters that we have at the present, and if we do not build additional reacters we would have to reduce the production of our ordinary atomic weapons in order to get the tritium that would go into the super bomb. It has been produced, there is no doubt about the production.

Representative Jackson. The Canadian reacter is very helpful in this.

Senator Connally. When you say that it has been produced, the tritium has been produced?

The Chairman. Yes.

Senator Connally. Is that a metal? I suppose it is.

The Chairman. Tritium is a metal, it can occur in the form of gas, and it can be gasified, but it is produced as I understand it in the form of metal. It can be made into solid gas if there is such a thing, I am not an expert on that.

Representative Jackson. What is the status of all of this now?

The Chairman. The status of it is this, gentlemen ---

Senator Knowland. What was the date of your letter to the President?

The Chairman. My date is November 21.

Senator Knowland. Do you have a reply from the President?

The Chairman. I talked to the President as soon as I got back, and he told me that he had read this, had done me the courtesy of reading this three times and turned it over to a committee of Lilienthal, Acheson and Johnson, and he said to me, I might say entirely in the room -- I have no doubt as to what the President's decision is, you see what I mean. He has just got enough of Missouri common sense in this thing, and I can go ahead on that. However, of course he appreciates and I am sure we all do, the tremendous decision that it is. He said, "Brien, it is not an easy thing to order the development of a weapon that will kill ten million people," and I said, "No, Mr. President, and the only way it can be justified, I suppose, in addition to the reasons given, is that you know damn well that they are busy at it right now."

Senator Tydings. What is there in the picture that makes you think that there won't be something within five years that would kill one hundred million people?

The Chairman. That is the evil of this weapon. It

is open-ended and it can be vast. Now, of course I can see them putting their supers in these Snorkel submarines.

Senator Tydings. They can put it in an ordinary freighter and take it right into New York Harbor and set it off. You don't have to have a submarine.

The Chairman. They can drop it on the bottom and sail the submarine away and explode it seven days later.

Representative Jackson. The answer to all of this business about the moral aspects of the thing, I think, is that it seems to me a greater possibility of avoiding war if we have this weapon than if we don't have it, that maybe even the Russians will come to understand that situation.

Senator Tydings. If they have it and you don't have it, you are in one hell of a fix.

Representative Jackson. It seems to me that we have to be in a bargaining position, and we can only be in a bargaining position if we are in a position where we can't be bullied. But the only hope for world peace is if we get this weapon first, and if they get it first we are through and the world is through.

On top of that, it seems to me, too, that if we get it the Russians will get it sooner or later, but they certainly have enough common sense that they don't want to

destroy themselves and the rest of the world, too, and there won't be anyone left on this planet.

Senator Knowland. I want to congratulate you on a well-written letter.

The Chairman. Senator, would you be agreeable to this, to my informing the President that we believed that the decision should be made speedily and should be made to go ahead with the project?

Senator Connally. Hadn't we better wait until we get some more of these absentees here before we make a decision?

Senator Knowland. I merely say for my own part, Mr. Chairman, and after having listened to the report of the Advisory Committee, the discussion here today, and your letter to the President, that it is inconceivable to me that this country would get itself into a position where the Soviet Union might have it and we would be left without it. That to me would be the greatest threat to the peace of the world that could possibly happen. I think that our chief hope of maintaining peace is to keep in the hands of a group of law-abiding nations sufficient amount of power that the calculated risk of the Soviet Union winning a war is less than their losing it. Once they decide that they have got a better chance of winning

than losing, I think that is the explosive point of World War III. I think that we should go ahead.

The Chairman. In view of the tremendous issues that are involved here and as confident as I am in my own mind that I am right, in view of the fact that we would be taking part in making one of the greatest decisions that was ever made and an historic decision, would it not be better to get the letters in the hands of the absentees and have the staff take these to them and sit there while they read them, and then to have a two-hour session wherein the opponents of the view might present their view to us?

Senator Knowland. And subject themselves to some examination.

The Chairman. And have them come before us?

Senator Tydings. You mean outside the committee?

The Chairman. In this historic and important matter, shouldn't we tell Oppenheimer and Conant to produce themselves here and to give us their views?

Senator Knowland. In view of the statement that Conant is alleged to have made, I think it was Conant, that he would feel it necessary to go to the country, I would be very much interested to know his reaction to I think the very valid answers that you have made to his line of reasoning. I think it would be helpful to this

Committee if Conant was here.

The Chairman. It would also serve this result, Senator, that if he is going to the country, he could not say that we had so disregarded the opponents that we haven't even heard them.

Representative Jackson. There is another aspect to this, to this matter, too. When we were out at Los Alamos and talked to Dr. Teller, I gained the impression that if we are going to be successful, speaking specifically with reference to the race of time which is what it boils down to, as a race of time, a race of discovery, there is some question in the minds of some of the scientists whether they are going to work on this project unless there is an understanding that we are going to go all-out in our efforts to see to it that some sense is pounded into the Soviet Union. Teller went around and around on this point.

Senator Tydings. You mean we have got to put it up to them first and get a "yes" or "no"?

Representative Jackson. No. Teller was pretty sensible. He feels that you can't trust the Soviet Union, and he is a pretty capable guy, and he is a very intelligent individual in the field of practical common sense above and beyond the academics of his profession,

and now I think what is troubling these people, and we ought to know this in advance and I think that the Chairman will bear me out, is that the scientists having made possible the A-bomb and now going into another field of tremendous destruction, there is a moral aspect of this thing that weighs heavily on their minds.

Senator Knowland. You remember, I might just add this, when we were out at Berkeley, and this situation or this question came up with Dr. E. O. Lawrence, I gained the very clear indication from Dr. Lawrence that he did not think that there was likely to be what I think I termed a sit-down strike on the situation as far as the national security of this country was concerned. Certainly from his point of view I don't believe that he felt that there would be any hesitation to do what was nedessary to protect the country.

Representative Jackson. That is right, Senator. I think that this is true, however, that Dr. Teller was definitely of the impression that something was needed to be done above and beyond the technical aspects of this program, that they wanted to make sure that they were not going to get into another situation where we found ourselves with the A-bomb. We got the A-bomb and we used it, and we got nowhere with international controls, and now

we are going into another thing, and this is just pyramiding and leading to total destruction. Now, these people, men like Teller, are people who I think are quite realistic as is Dr. Lawrence. Dr. Lawrence was really emotional about this business, as far as moving ahead. He wants to move right now and he is talking in terms of the Russians getting this in less than two years. I mean if you listen to Dr. Lawrence you would jump out of your chair and Lawrence is a pretty capable man from all that I know. He is one of our top men, isn't he?

The Chairman. Before you go, Bill, I would like to make this comment, that in addition to what Representative Jackson has said, Teller who it must be emphasized believes we should go ahead immediately, is also under the belief that in order to get ahead swiftly and effectively we should have a political -- not solution, but a political approach and if we build it not knowing what we are going to do, but that we ought to have in mind this going before the United Nations, that they have got to have an objective, a chance of success with this weapon instead of just destruction, and there is a good deal to be said for that.

Senator Hickenlooper. That leads to preventive war, and we have got to decide that question.

Senator Tydings. That is a very sound approach, that whoever is responsible for this proposition, it isn't just the development of the super bomb, but the super bomb ought to be made to serve the national policy of the United States and civilization and the world. In other words, it is possible, I wouldn't want to decide on this now, that the President might be willing to go before the United Nations, and he might want to deal directly with Stalin or there might be a hundred different things. But there ought to be a well-settled time-table of progress quite apart from the bomb, to make this super bomb serve a part of the ultimate objective.

Senator Connally. Can we accomplish anything with the United Nations or with these other nations until we have the bomb? I don't see how we can approach them and say, "Here, we are figuring on getting this bomb, and so on." It looks to me like the strength of our position is dependent upon us having the bomb.

Representative Jackson. Senator, I think that this should be made clear, that if we are going to get the support and cooperation of these top people in the scientific field, they seem to feel that we should have some kind of a program in mind, and an objective. They feel that our present international program simply does not fit into

the field of the super bomb, that we are entering an entirely different era, and this, Senator, comes from men like Dr. Teller who say that we should go ahead with the program, men who are realistic but I think that what troubles them are certain Christian ethics that go pretty deep.

Senator Hickenlooper. What they are saying is what Gene Millikin said three years ago, when we had our special meetings, and he summed it up in one phrase, and he said, "When do we fight?" That is the whole end thing.

I think that it must lead inevitably, any policy, and that is one of the things that is involved here, whatever action this committee takes, any policy that we take has got to say, "Does there come a time under certain conditions when we fight?" In other words, we have got to decide the issue of preventing war. Are we willing to adopt as a policy in this country that if we get the superbomb and then comes a time in which we say that you either settle now or we drop the bombs.

The Chairman. I think the quickest thing we should do is get away from the use of the term "preventive war," which has unfortunate connotations.

Senator Hickenlooper. Whatever term you want to use.

The Ch[illegible] is important, if you don't mind my pointing it out, that it isn't admissible [illegible] this situation. In my opinion any nation which refuses in the view of these scientific facts -- any nation which refuses a just and equitable plan for control is ipso facto creating and committing an act of aggression against the world.

Senator Hickenlooper. What is Russia doing today?

The Chairman. I think she is an aggressor against the world.

Representative Jackson. I agree with the Chairman's position on the re-definition of aggression which he has mentioned several times before.

The Chairman. You see, after all, human beings and nations have the right of self-defense, and if you are going to create this kind of power as I phrase it, which is total power in the hands of total evil ---

Representative Durham. And we are charged with that.

The Chairman. It can only lead to destruction for mankind. So therefore, Bourke, it seems to me that in view of the scientific facts there has to be a re-definition of what constitutes an act of aggression, and then mankind everywhere has to be mobilized in support of it.

Senator Hickenlooper. Well, you can define it any way

you want to ... is what are we going to do about it? Just as Millikin said, "When do we fight?" Now, we have got to have an end result some place in any policy that is not thought through and is formally adopted. And now whether you call it preventive war or a redefinition of aggression and then fight if that is violated, or whatever term you use, it is more or less immaterial as a matter of terms, or a matter of definition, but you finally come down to the point, "What are we going to do about it if all signs fail, and we have to use whatever power we have?" We can use the power of moral strength.

Representative Jackson. Isn't there a lot of difference from the moral standpoint if for instance in a world government toward which we are headed inevitably if we are going to go ahead on this planet -- and I am not speaking up in the clouds either -- you have rules of conduct in which people live in the world and if they violate it they have to be punished.

Senator Hickenlooper. You have people down here to put them in jail, and when do you put them in jail?

Representative Jackson. Isn't there a difference in the situation where I take the law unto myself and as an individual I put the man in jail, and where the City of Washington acting collectively in trying to maintain an

orderly co[illegible] in jail.

Senator Hickenlooper. I am not suggesting unilateral action. I am suggesting a policy that we have got to figure out a policy as to what is the end result. Are we going to be willing to defend ourselves completely and solely, or are we going to attempt to get united international action which we have failed to get in the last several years, but what is the end result?

Representative Jackson. That is what the scientists are asking.

Senator Hickenlooper. But it involves that very thing.

The Chairman. Let me make this plea before the Senator goes ---

Senator Connally. Let me say a word about these scientists' views that Mr. Jackson has expressed, and it doesn't seem to me that these scientists ought to undertake to dictate the whole policy about this thing, simply from their viewpoint. They are technicians and they are scientists.

Representative Jackson. I don't think that they want to dictate it, Senator.

Senator Connally. But you say that they will not act unless we do so and so, and they won't go along.

...e Commission is responsible for carrying out this program, and now for us to get in an argument with these people on the outside, even the Advisory Committee, I don't go that far. I think that you are going to get into something that you don't want to get into, because they are going to carry this thing to the country sooner or later, some of them, and I don't say that all of them will. Now, to send the Advisory Committee down here, I don't know whether it is a wise thing or not.

We have got the responsibility to the people, and the Commission has been set up and charged by an act of Congress to carry out this program, and for us to go outside and to take these people in here, you are going to have everybody involved in it.

Senator Hickenlooper. They are created under the Act, the Advisory Committee. They are specifically created under the Act, and they are appointed by the President and they are an inherent part of this whole set-up, so I think that we have got a perfect right to haul them in.

Representative Durham. What good is it going to do? They are set up as an advisory commission.

Senator Hickenlooper. I think the Chairman has got the

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right idea, that if we don't call them in here, then they can maybe very justifiably sometime in the future say that they were not consulted about this, and then we are going to be jumped on. They can say, "The Committee never consulted us and never gave us an opportunity to present our views."

Representative Durham. They presented their views through a written statement to the Commission.

Representative Jackson. We ought to cross-examine them on their views.

Representative Durham. If you get a college professor in here, then everybody in the country will want to come in here and they are not going to be for this thing, and you know it and I know it, a lot of them, thousands of them. It is just cold-blooded national defense for your country and there is no moral issue.

The Chairman. Of course, we could call in the Commission, and after all they have been advised by the GAC; but I really think, Carl, that they are an official body appointed by the President, and they have made a recommendation, and now you might want to hear them in the presence of the Commission, but if it is their view which is going to get to the country then I think that there is something to be said for Conant not being able to run

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around saying, "We declined to take a position on this simply without cross-examining us or hearing us."

Representative Durham. I want to hear the Commission's views first and I prefer to know them before they call the Advisory Committee in here.

Representative Jackson. May I ask, Mr. Chairman, what is the status of this project? Are they going ahead or what?

The Chairman. No, the Committee of Three as I understand it, have had several meetings, as I told you I am not in any doubt about what the President's decision will be, it is not an easy decision, despite the overwhelming evidence that can be produced for the wisdom of doing it, when you have the final responsibility it is a hell of a decision.

In the meantime, the work is going forward theoretically, at least I assume.

Representative Jackson. I am worried about the loss of time here.

The Chairman. I think it is important that we attack this thing and that we get the Commission up here. Bourke, would you waive your position to the point of hearing the Commissionfirst?

Senator Hickenlooper. I think it would be advisable

to [redacted]mittee up independently of the Commission.

The Chairman. You want to hear the Commission?

Representative Durham. I want to hear the Commission first. Let them put themselves on record and I don't know whether they are for it or against it.

Senator Hickenlooper. You do whatever you think is best. It doesn't make any difference to me. My personal view is to get the General Advisory Committee up here and we have had this tossed in our lap here.

The Chairman. Let me think it over for the afternoon, will you?

Senator Hickenlooper. I don't think that we are in any position to take any final action on this thing until we have at least had the General Advisory Committee give their views pro and con on the thing, and then amplify this a little bit and maybe subject themselves to some questions, and probably the Commission is not ready to do that.

The Chairman. Mr. Borden, will you see if you can sit down with each member of the committee so that we don't have to repeat all of this to them and give them this thing, and by that time I will tell you who to call.

I certainly hope that everybody is here at the next meeting.

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(Thereupon at 12:20 p.m., an adjournment was taken.)

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