The enclosed statement was unanimously adopted by the scientists whose names are below, who met in the conference convened by Earl Russell at Pugwash, Nova Scotia, Canada, between July 6-10, 1957:

Australia	-	Professor M.L.E. Oliphant
Austria	-	Professor H. Thirring
Canada	-	Dr. G. Brock Chisholm
China	-	Professor Chou Pei Yuan
France	-	Professor A.M.B. Lacassagne
Great Britain	-	Professor C.F. Powell
		Professor J. Rotblat
Japan	-	Professor I. Ogawa
		Professor H. Yukawa
		Professor S. Tomonaga
Poland	-	Professor M. Danysz
U.S.A.	-	Professor D. F. Cavers
		Professor H.J. Muller
		Professor P. Doty
		Professor E. Rabinowitch
		Professor W. Selove
		Professor V. Weisskopf
USSR	-	Academician A.M. Kuzin
		Academician D.F. Skobeltzyn
		Academician A.V. Topchiev

Pugwash Conference
July 10, 1957

PRESS RELEASE

STATEMENT

At the invitation of Lord Russell, and through the generous hospitality of Mr. Cyrus Eaton, a group of scientists, drawn fromabout ten nations and widely representative of different political, economic and other opinions, met in Conference at Pugwash, Nova Scotia, between July 6 and 11, 1957. Mr. Y. Shimonaka and others also provided valuable assistance.

The meeting originated in the suggestion contained in the Russell-Einstein appeal, that scientists should meet to assess the perils to humanity which have arisen as a result of the development of weapons of mass destruction. Two years have passed since that statement was issued but the dangers remain. In fact, the stockpiles of nuclear weaponshave increased, new nations have joined the ranks of those producing weapons, or trying to produce them, whilst serious misgivings have been expressed as to whether the continued testing of such weapons may not result in damage to the population. The general belief that a full-scale nuclear war would bring universal disaster upon mankind, and the recognition that it is technically possible for both the two great contending forces to visit any desired degree of destruction upon an enemy, as well as certain political developments, have created an atmosphere in which it was possible for us to meet, and to discuss dispassionately, many important and highly controversial issues.

The international problems which have arisen as a result of the development of atomic energy are of two kinds, technical and political. A gathering of men of science can discuss with special competence only the scientific and technical implications of atomic energy. Such discussion, however, can be fruitful only if it takes into account the political

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problems which are the background to international negotiations.

The signatories of the Russell-Einstein appeal affirmed their intention to say nothing which might seem to favor one rather than the other of the two great groups of powers into which the world is divided. In attempting to formulate the conclusions which followed from our discussions, we too have tried to avoid any exacerbation of the differences between nations which might follow, for example, from emphasis on technical considerations unwelcome to one or other of the two great powers.

Men of science are now well aware that the fruits of their labors are of paramount importance for the future of mankind, and they are thus compelled to consider the political implications of their work. Their opinions on politics are as diverse as those of other men. These facts make it difficult for a conference such as the present to issue an agreed statement on matters which are controversial. The discussion of such issues, however, allowed the points of difference and the areas of agreement to be defined, and led to a measure of mutual understanding of the opinions of one another.

The main work of the meeting was centered round three principal topics: (1) The hazards arising from the use of atomic energy in peace and war; (2) Problems of the control of nuclear weapons; and (3) the social responsibility of scientists. Three committees were established to give detailed consideration to these topics. Their reports to the conference are given in the statements appended to this document, but the principal conclusions bearing on the hazards of atomic energy may be briefly summarized as follows:

Committee I on nuclear hazards, made an independent assessment of the effects of the nuclear tests carried out hitherto. From the details given in the appendix, it may be seen that the hazard, compared with others to

(More)

which mankind is subject from natural causes, is small. Nevertheless, because of the world-wide distribution of fission products, and the fact that some areas may be subject to effects much above the average, close attention to the dangers should be maintained, especially if tests of bombs which give large radioactive fall-out continue to be made.

The Committee also considered the hazards arising from the peacetime use of industrial atomic power, or the application of radiations in medicine and industry. Although these hazards must be viewed in the light of the great benefits which will flow from such applications, means of greatly reducing the attendant hazards are available and should be widely adopted.

The above mentioned estimates of the hazards which have arisen from test explosions permitted a closer examination to be made of the probable consequences of an unrestricted nuclear war. This examination led to the unquestioned conclusion that a general war with nuclear weapons would indeed represent a disaster of unprecedented magnitude. The radiological hazards would be thousands of times greater than those due to the fall-out effects of test explosions. In the combatant countries, hundreds of millions of people would be killed outright by the blast and heat, and by the ionizing radiation produced at the instant of explosion whether bombs of the so-called "clean" or "dirty" kind were employed. If "dirty" bombs were used, large areas would be made unhabitable for extended periods of time, and additional hundreds of millions of people would die from delayed effects of radiation from local fall-out, some in the exposed population fromdirect radiation injury, and some in succeeding generations as a result of genetic effects. But even countries not directly hit by bombs would suffer through global fall-out, which, under certain conditions, might be of such intensity as to cause large-scale genetic and other injury.

(More)

It is against the background of the fearful consequences for humanity of a general war with nuclear weapons that the conclusions of Committee II, which considered problems of control, must be viewed. The principle objective of all nations must be the abolition of war and the threat of war hanging over mankind. War must be finally eliminated, not merely regulated by limiting the weapons which may be used. For this purpose, it is necessary to reduce tension among the nations; to promote mutual understanding among the peoples; to strive for the ending of the arms race; and to provide an adequate control system so as to give substantial protection, and permit the development of mutual confidence.

One of the greatest difficulties in international affairs in recent years has sprung from the fact that in a period of delicate strategic balance, even secondary questions acquire strategic significance, in such a situation, they are rarely subject to agreed solutions because any particular solution appears to be to the strategic advantage of one rather than another of the powers. We believe that it is unrealistic to depend upon any sudden increase in mutual confidence and that it is more likely to grow from small beginnings. In this situation, even small agreements covering limited fields could be of great importance.

In the present circumstances, we believe that the greatest peril comes from the possibility that a war might break out between two smaller nations, that Russia and America might intervene militarily on opposite sides, and that such a war might be fought by using atomic bombs in combat. We believe it would be very difficult to limit a local war of this kind--particularly if it is fought with atomic weapons in the tactical area--and that what may start out as a local war may end as a general atomic catastrophe. In order to

avert this danger, political settlements aimed specifically at eliminating the risk of the outbreak of a local war between smaller nations are needed.

The conclusions of Committee III on the responsibilities of scientists state our common conviction that we should do all in our power to prevent war and to assist in establishing a permanent and universal peace. This we can do by contributing to the task of public enlightenment concerning the great dilemma of our times; and by serving to the full extent of our opportunities, in the formation of national policies. The Committee gives a statement of beliefs and aspirations suitable for scientists in the modern world.

Finally, we should like to give expression to the high degree of unanimity we have found among all the members of the Conference on fundamental aims. We are all convinced that mankind must abolish war or suffer catastrophe; that the dilemma of opposing power groups and the arms race must be broken; and that the establishment of lasting peace will mark the opening of a new and triumphant epoch for the whole of mankind. We earnestly hope that our conference may make a modest contribution to these great aims.

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For release 7-11-57

Appendix 1

STATEMENT OF COMMITTEE ONE

RADIATION HAZARDS

The effects of radiation, from nuclear tests, from peaceful applications, and from the possible wartime use of nuclear weapons, have been the subject of much concern and study. We have felt it desirable at this meeting to consider the available facts bearing on these problems.

With regard to the effects of nuclear testing, we have found that separate calculations carried out independently in Great Britain, Japan, the USA, and the USSR have yielded results in good agreement with one another on the amount of fall-out and on its effects.

A principal effect is due to strontium-90. If, as some evidence indicates, the production of leukemia and bone cancer by radiation is proportional to the dose, even down to very small doses, then we estimate that the tests conducted over the past six years will be responsible for an increase of about 1 per cent over the natural incidence of leukemia and bone cancer during the next few decades. Over the next 30 years, this increase would amount to about a hundred thousand additional cases of leukemia and bone cancer. The correct numbers may be several times larger or smaller. These additional cases could, however, not be identified among the 10,000,000 or so normal cases of the same diseases.

(MORE)

Statement of Committee One--Radiation Hazards

A second principal effect of global fall-out consists of genetic mutations. We estimate that these will cause serious injury to about as many individuals as those in whom leukemia or bone cancer will be produced by the strontium-90. However, the genetic effects from a given amount of fall-out, unlike the effects of strontium-90, will be scattered over many generations.

Peacetime uses of radiation, such as X-rays in medicine, or nuclear power production, will also be responsible for the delivery of radiation to large numbers of people. Genetic and long-term somatic effects will result from this radiation, in amounts depending on how much radiation is received by the reproductive cells and by other parts of the body.

It is important, in evaluating the effects from various sources of radiation, to try to put them in proper perspective. For example, the radiation received by the average individual from medical X-rays is, in countries of more highly developed techniques, considerably greater than the fall-out radiation from tests at the recent rate. This does not mean , however, either that we should stop using X-rays, or that we should not be concerned about fall-out from tests. Great benefits to man are obtained from the use of X-rays, as well as from the industrial use of nuclear energy. The new awareness concerning the deleterious effects of radiation is leading to greatly improved techniques in

the use of X-rays, and to more rigorous precautions in the application of nuclear energy. By these means it will be possible to reduce the doses received from medical and industrial radiation to levels that are justifiable in the light of the benefits obtained. It is useful to remember that modern industrialized society involves many developments with harmful side effects, as in the case, for example, of the fumes from automobiles and from industrial establishments. Accurate evaluation of the damage caused in this way has not been made but, even if it should turn out to be considerable, no one would expect to stop using all automobiles engines or noxious industrial processes.

With regard to fall-out effects from tests, it should be recognized that the effects are global, and exerted upon citizens of all countries, regardless of whether they or their governments have approved the holding of tests. In these circumstances, the usual criteria as to whether a given hazard is justifiable cannot be applied. According to the figures given above, many individuals will be affected, although the numbers represent only a small percentage increase over normally occurring effects, and it will not be possible to say, for example, which specific case of leukemia is due to fall-out and which is a natural case. It should also be realized that appreciable areas of the world will experience higher than average effects from fall-out.

(MORE)

Statement of Committee One--Radiation Hazards

We now come to the consideration of the effects of a nuclear war. It cannot be disputed that a full-scale nuclear war would be an utter catastrophe. Its effects would be thousands of times greater than the fall-out effects from nuclear tests. In the combatant countries, hundreds of millions of people would be killed outright, by the blast and heat, and by the ionizing radiation produced at the instant of explosion. If so-called "dirty" bombs were used, large areas would be made uninhabitable for extended periods of time, and additional hundreds of millions of people would probably die from delayed effects of local fall-out radiations some in the exposed population from direct radiation injury and some in succeeding generations as a result of genetic effects. Even countries not directly hit by bombs would suffer through global fall-out, which under certain conditions might be of such intensity as to cause large-scale genetic and other injury.

Appendix 2

REPORT OF SECOND COMMITTEE

In this age of atomic weapons, the objective of all nations must be the abolition of war and even the threat of war from the life of mankind. War must be eliminated, not merely regulated by limiting the weapons to be used. The advancement of this objective calls for:

1. The lessening of tensions among nations and the promotion of mutual understanding among their peoples.

2. The ending of the arms race.

3. The provision of reasonable safeguards in the arms control system to give substantial protection and build up mutual confidence. The development of atomic armaments has now gone so far that a completely effective and reliable control system appears to be no longer possible.

4. The initiation of a step-by-step process to develop as satisfactory a set of controls and safeguards as practicable. The prompt suspension of nuclear bomb tests could be a good first step for this purpose.

Pugwash Conference
July 1957

RELEASE FROM
PUGWASH CONFERENCE
July 11, 1957

REPORT OF COMMITTEE III
Appendix 3

It is our conviction that the paramount responsibility of scientists outside their professional work is to do all in their power to prevent war and to help establish a permanent and universal peace. This they can do by contributing to the full measure of their capabilities to public enlightenment on the destructive and constructive potentialities of science and by contributing to the full extent of their opportunities in the formation of national policies.

To this aim, scientists of all countries without regard to political and economic systems can dedicate themselves because they share certain common beliefs. Following are some of them:

1. With the penetration of science into the world of atomic nuclei, humanity has entered a new epoch.

2. The development of science and technology have paramount importance for the future of all mankind. This imposes upon scientists the obligation to be more actively concerned with matters of public policy, and upon political leaders, the duty to take fully into account the scientific and technological facts.

3. As consequence of man's mastery of nuclear forces, a war can now cause immeasurable damage to mankind.

4. If the achievements of science are rationally employed, they could enormously increase the well-being of all men.

5. Scientific and technical progress is irreversible. With humanity basing much of its technological progress on the manipulation of nuclear forces, it is of paramount importance that war be made permanently and universally impossible.

REPORT OF COMMITTEE III
Appendix 3

6. In the past, nations have often resorted to force in the quest for natural resources and fruits of labor. These methods must now be replaced by a common effort to create wealth for all.

7. The security of mankind demands that no section of it shall have the capacity to destroy any other.

   The developments of science and technology tend to break down barriers between nations and, in effect, to unify mankind.

8. The need of all parts of mankind to cooperate in the growth of the total sum of human knowledge and wealth, despite ideological and other differences which may divide them, is permanent and not a matter of temporary "coexistence" of different political or economic systems.

9. Tradition tends to place the emphasis in the education of youth on separate ideals of single nations, including the glorification of wars. The atomic age urgently requires a modification of these traditions. Without abandoning loyalty to national heritage or fundamental principles of the different societies, education must emphasize the fundamental and permanent community of the interests of mankind, in peace and cooperation, irrespective of national boundaries and differences in economic or political systems.

10. Science has a well-proven tradition of international cooperation. We hope that this cooperation can be strengthened and extended into other fields of human endeavor.

11. Science develops most effectively when it is free from interference by any dogma imposed from the outside, and permitted to question all postulates, including her own. Without this freedom of thought, and the freedom to exchange information and ideas, full utilization of the constructive possibilities of science will not be possible.

THE UNIVERSITY OF CHICAGO
CHICAGO 37 · ILLINOIS
THE ENRICO FERMI INSTITUTE
FOR NUCLEAR STUDIES

August 20, 1957.

From: Leo Szilard
To: N. N.

Early in July of this year a meeting was held at the invitation of Bertrand Russell in Pugwash, Nova Scotia. The participants were guests of Mr. Cyrus Eaton. There were twenty-two scientists participating, and also Brook Chisholm (now retired from the World Health Organization), and D.F. Cavers (Harvard Law School). The statement issued by the meeting is not very exciting. (I did not sign it because it advocated the stopping of bomb tests in a somewhat misleading, even though very meek, fashion). Yet, this meeting was, I believe, a very important experiment.

I have now discussed with Professor Morton Grodzins, Chairman of the Department of Political Science at this University, the possibility that his Department and the Institute might jointly arrange a meeting, somewhat similar to the Pugwash meeting but different in many respects. The enclosed memorandum and appendix will show you just what kind of meeting I have in mind. A list of those to whom this inquiry is addressed is attached to the memorandum.

If the comments received from you and others to whom this material is being sent are favorable, Mr. Grodzins will explore whether the University of Chicago might want to assume responsibility for arranging for the first of a series of meetings of the kind described. I assume that if the University of Chicago assumes responsibility for such a meeting it would want the first such meeting to be held somewhere in the Western Hemisphere, possibly in Canada or Jamaica, B. W. I.

Only after one meeting of this kind has been held can we really

know whether we ought to hold further such meetings, perhaps at intervals of six months.

Could you jot down a few lines and give me, for my own guidance, your personal views on holding one such meeting? And would you also say, (provided you are in principle in favor of such a meeting) whether you regard the University of Chicago as an institution that may be suitable for arranging such a meeting?

* * *

THE UNIVERSITY OF CHICAGO

August 20, 1957

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Memorandum and Appendix Sent to:

Dr. Jerome B. Wiesner
Director, Research Laboratory
of Electronics M.I.T.
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Professor H. J. Muller
Department of Genetics
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Professor H. Yukawa
Director, Research Inst. for Fundamental Physics
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Berkeley, California

The Honorable Bertrand Russell
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Penrhyndeudraeth
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Moscow, USSR

Mrs. Albert D. Lasker
Albert and Mary D. Laskar
Foundation
Chrysler Building
New York 17, New York

Colonel Richard S. Leghorn
Rockefeller Brothers
Rockefeller Plaza
New York, New York

Senator Hubert Humphrey
U. S. Senate
Washington, D.C.

July 22, 1957

Memorandum based on a meeting held on the initiative of Bertrand Russell at Pugwash, Nova Scotia in July, 1957.

by Leo Szilard

The Pugwash meeting was largely occupied with preparing a public statement. Had it not been for this preoccupation, it might have been more useful in other respects. This meeting was very important as a "preliminary experiment," because it may enable us to devise future, somewhat similar, meetings that might serve different, perhaps more important, objectives.

I am proposing in this memorandum the holding of a sequence of meetings of a specific kind and serving a specific purpose. Such meetings could follow each other at six-month intervals, beginning perhaps with the end of this year.

The subject of the meetings

The subject of the proposed meetings would be the following general problem: The large-scale liberation of atomic energy accomplished in America during the war and the ensuing development of atomic and hydrogen bombs, has created a situation which has brought unprecedented danger to the world and also unprecedented opportunities for organizing a really stable peace. It is clear that the unprecedented problems posed by these developments can be solved only if the governments are willing to revise their past attitudes, adopt an adequate code of behavior, and to take unprecedented measures. Discussions among scientists, who by tradition try to free their thinking from the shackles of precedent, could, I believe, contribute much to clarification of thinking in this particular area.

Attached to this memorandum is a discourse on the topics that might be discussed at the first post-Pugwash meeting. Out of this discussion could then come a more detailed agenda for subsequent meetings.

The current public discussion of these and other related topics is most unsatisfactory. The voices heard in the public discussion are mostly the voices of statesmen, who of necessity must also be politicians, since it is their job not only to devise policies but also to persuade others to accept these policies. Statesmen frequently believe that they know what needs to be done, and that the only remaining problem is how to persuade others to do what needs to be done. When a statesman says something, what we primarily ask ourselves is not: is it true what he says, but rather for what purpose does he say it? This is probably the main reason why the public discussion of a political problem which is conducted among statesmen contributes so little to the clarification of our thinking.

In contrast to this, a discussion among scientists aimed at discovering the truth is a much simpler affair. If a scientist says something in such a discussion, we need not ask ourselves for what purpose he says it; all we must ask is: is it true what he says.

This is the main reason, I believe, why a discussion among scientists might go a long way towards clarifying an intricate problem. There are among scientists in all countries men who are deeply interested in the problems with which we are here concerned, and who are capable of thinking dispassionately about what may be regarded as a controversial subject. If we can prevail upon them to cooperate, we ought to consider holding a series of meetings, perhaps at about six-month intervals.

There would be present at these meetings perhaps twenty scientists and an undefined number of observers who are not necessarily scientists. We would want to have present among the participants and observers a broad spectrum of persons. At one extreme end of this spectrum will be those scientists who have no governmental responsibility and no special knowledge of relevant technical information which governments regard as highly secret. These men may examine all aspects of the problem with the same freedom and in the same spirit of experimentation as they are accustomed to examine scientific problems. At the other extreme end of the spectrum will be those of the observers who, because of their governmental connections, do not consider themselves free to say what they think.

The main function of those participants, who are free to experiment with ideas and inclined to engage in a freewheeling exchange of views, is to catalyze fresh thinking on the complex topic in which we are interested. The main function of the observers is to transmit, after the meeting is over, their own clarified thoughts to others. Some of the observers may, by writing articles or giving speeches addressed to an informed public, contribute to the formation of an informed public opinion and thereby indirectly facilitate the formation of an adequate political and military strategy on the governmental level. Other observers may have a more direct influence on the formation of governmental policy.

The inclusion in the meeting of observers whose opinions carry weight is, I believe, essential, and without this the scientists whom we want to have attend such a meeting might be reluctant to take time off from their own work. Even though the problems to be discussed at such a meeting are not without intrinsic interest to scientists, their intrinsic interest is not as great as that of certain scientific problems. Therefore, one cannot very well ask scientists to devote considerable time and attention to these problems unless they have some assurance that the community will benefit from the result of their thinking, at least if they are able to come up with acceptable remedies as well as convincing diagnoses.

It would be my hope that each successful meeting would serve more and more effectively the purposes which I have outlined. Apart from its intrinsic usefulness, each meeting might also be regarded as an experiment that should enable us to make the next meeting more effective. The first meeting ought to be attended by only a few observers. At subsequent meetings, as our discussions become less and less confused and as the real issues emerge more clearly, the circle of observers could be enlarged. I see no reason why men like Walter Lippman, Stewart Alsop, George Kennan, Raymond Aaron, etc. should not be

asked to attend one of the early meetings. And if the meetings prove to be very successful, we might in the end consider inviting as observers, perhaps to the fifth such meeting, men like Krushchev and Nixon, together with anyone whom they might choose to bring along.

Clearly I have gone now as far as thought can reach in trying to project the character which such meeting might take on in the future. As far as I can see the only limitation is our own ability to make meetings of this sort really productive.

Concerning the first meeting to be held, my thoughts are as follows:

1) The first meeting might take place between December and February, and might last from ten days to two weeks;

2) The meeting will not devote any attention to the issuance of any public statement, and the nature of the communique to be issued at the end -- since a communique obviously must be issued -- would be agreed upon in advance of the convening of the meeting. The communique could well list the topics that the conference has discussed (thought it need not list all of these topics), and thereby disclose what aspects of the situation were considered by the participants to be most important. The communique could further mention points of view that were expressed and thoughts that were put forward. No attempt, however, must be made to issue a public statement representing the consensus of the participants.

Appendix

to memorandum of July 29, 1957.
(Discourse on the relevant topics)
by Leo Szilard

On July 22, 1957, the Secretary of State gave a speech in which he defined America's aspirations concerning international control of atomic bombs. These aspirations appear to be quite limited:

America, it seems, would be satisfied with an arrangement which would leave America, Russia and England in possession of large stockpiles of bombs, presumably large enough for America and Russia to be able to destroy each other to any desired degree. America would like to see all manufacture of bombs stopped after a certain fixed date to be agreed upon, because she hopes thereby to prevent most of the other nations from acquiring large stockpiles of bombs. If this can, in fact, be prevented, the atomic stalemate between Russia and America, towards which we are moving, might be more stable than it would otherwise be. For example, if many nations possessed large quantities of bombs and if one of America's cities or one of Russia's cities were destroyed by bombs in a sudden attack, it might not be possible to identify the nation that caused this destruction, and this would introduce a new kind of instability.

There is some indication that America would like to see the stalemate between Russia and America be based on the atomic striking power of their respective air forces rather than on intercontinental ballistic missiles, and that she would welcome an arrangement that would stop the arms race prior to the full development of the intercontinental ballistic missiles system.

America also desires to institute mutual aerial inspection and some additional ground inspection. The reason given for this desire is that such inspection--as long as it is maintained -- would decrease the danger of a surprise attack and keep down the expenditures of the strategic air forces.

Scientists have learned not to take public statements issued by statesmen at their face value. In this particular case, I am, however, inclined to believe that the objectives stated above are, in fact, objectives in which America is at present seriously interested, even though I do not assert that the particular reasons given are valid reasons in each instance.

The discussions which may take place in our proposed meeting could start out with an examination of the American objectives listed above.

Our discussions must of necessity differ from similar discussions that might be conducted by government officials -- in preparation of inter-governmental negotiations -- either in Washington or in Moscow. Negotiations between two governments in the general area in which we are interested usually serve a double purpose. On the one hand the negotiating governments want to make progress towards a distant goal which they both consider desirable; on the other hand, each

one wants to approach this distant goal by steps which give it a temporary advantage. Very often for the sake of such temporary advantage real progress towards the distant goal is sacrificed.

In the discussions at the proposed meeting the emphasis will be different. We will try to discover what are the right goals that the governments ought to pursue, and how can these goals be approached through steps which give neither government any appreciable temporary advantage. We must also try to understand what the real reasons are for the objectives which the governments pursue, and examine whether the reasons they put forward for pursuing these objectives are valid. If they are not valid, we must try to discover whether there might not be other reasons that may be the real reasons that are valid and that lead to the same conclusion.

I may as well illustrate this point by starting out with Mr. Dulles' speech. Mr. Dulles tells those who would like to see the world rid itself of atomic bombs that it is too late for this because by now there are large stockpiles of bombs, and even if America and Russia made an agreement to get rid of these stockpiles, there is no way to make sure that no hidden stockpiles would remain. Thus those who are still pressing for getting rid of the bombs are now told that it is too late; several years ago they were told that it was too early.

We may examine whether the reason given by Mr. Dulles for wishing to retain the stockpiles of bombs is a valid reason. I personally believe that it is not a valid reason, but I am inclined to think that there may be other reasons which are valid and which lead to the same conclusion.

This is a point which ought to be carefully examined at our meeting. Because, if it is indeed true that there are valid reasons for America and Russia to wish to retain their stockpiles of bombs, then the stalemate between the strategic atomic striking forces of Russia and America toward which we are at present movingis likely to be maintained indefinitely or, to be more precise, for the foreseeable future. If this is indeed correct, then our immediate problem is not how to rid the world of the bomb but rather how to live with the bomb.

Should we adopt this thesis as the premise upon which we may base several days of discussions?

While I personally favor our adopting this as a valid premise for some of our discussions, I believe that before we do so we must spend one or two days in carefully examining the validity of this crucial premise.

Getting rid of the bomb

In the course of examining the validity of this premise, we ought to discuss a number of points mentioned below:

What might be gained if atomic bombs were outlawed, in the sense that each nation involved would agree not to use atomic bombs if there is a resort to

force, except if atomic bombs are used against her or one of her allies? Clearly a number of unilateral declarations would have in this respect exactly the same force as an agreement which, by its very nature, must remain unenforceable. In this contest we might have to consider past experience with the convention outlawing gas warfare, and we must try to understand in what respect the situation with respect to atomic bombs is similar and in what respect it is different.

Next, we might consider whether a program aimed at getting rid of the stockpiles of bombs as well as means which are adequate for delivering bombs (assuming that both Russia and America desire to accomplish these objectives) could be carried out without the risk that dangerous secret violations of the agreement might remain undetected.

If we come to the conclusion that such a program would be practicable and the previous attempts to devise inspection schemes were too narrowly conceived, we must then next examine if there are any valid reasons why Russia or America or both may regard such an objective as practicable but undesirable. We might come to the conclusion that there may be valid reasons for thinking that such an objective may indeed be regarded as undesirable by both America and Russia. In this case we may then want to shift our full attention to the question of "How to live with the bomb" rather than continue to discuss "how to get rid of the bomb."

Stabilizing the stalemate

At present we are moving towards a stalemate between the strategic atomic striking forces of Russia and America. When this stalemate becomes an accomplished fact, America may be able to destroy Russia to any desired extent and Russia may be able to destroy America to any desired extent. Under what conditions can such a stalemate remain in existence for an extended period of time and be stable enough to permit Russia and America to live through this period without getting entangled in an all-out atomic war?

I believe we ought to discuss the stability of the stalemate under the optimistic assumption that no nation except Russia, America and England have at their disposal substantial quantities of bombs and means suitable for their delivery.

At some point in our analysis, we will have to distinguish between the stalemate based on Russia's and America's strategic air forces and the stalemate that might later on develop on the basis of intercontinental ballistic missiles. At that point we must then discuss the merits and disadvantages of current proposals aimed at aborting the developments of intercontinental ballistic missiles, for instance by prohibiting the testing of such missiles.

The stalemate between the strategic atomic striking forces of America and Russia would be inherently unstable if either side could knock out in one single sudden blow or several repeated blows the power of the other to retaliate. For the purpose of our discussion, we may assume that efforts will be made both by America and Russia to safeguard themselves against this possibility. But a stale-

mate that is not inherently unstable may become so if a technological break-through occurs, either in America or in Russia, and this might lead to a dangerous transition period.

There are three factors of very different character which have a bearing on the stability of the stalemate, and we shall discuss these three factors separately. They are as follows:

1) The magnitude and kind of disturbances which will occur while the stalemate is maintained;

(2) The restraints which America and Russia may impose upon themselves in order to keep from being entangled, if there is a resort to force, in an all-out atomic war, and

3) Technological break-throughs which may introduce an inherent instability during the period of transition.

These three factors might be discussed at the proposed meeting from the following points of view:

1) Disturbances

Today the greatest danger appears to be a conflict between two smaller nations which may lead to a resort to force and military interven on the part of America and Russia on opposite sides. What measures might be taken to eliminate the danger of disturbances of this sort?

Clearly this danger can be eliminated only if there is a political settlement between the Great Powers which makes it reasonably certain that in case of any of the foreseeable conflicts between two smaller nations the Great Powers will not intervene militarily on opposite sides. Once such a settlement is reached, it might then become possible to take measures aimed at preventing the smaller powers from resorting to force in settling their conflicts.

At the end of the last war, it was generally believed that -- as long as the Great Powers act in concert with each other -- the United Nations Organization may be able to guarantee the security of the smaller nations and may make it impossible, for them to go to war with each other and unnecessary to waste their resources on defense. Attempts to use the United Nations in the past ten years for purposes other than for which it was designed have weakened this organization. Have they damaged it beyond repair? Or should it be possible to restore the United Nations to its original function, once there is a political settlement between the Great Powers that will eliminate the danger that these powers will militarily intervene on opposite sides in a conflict that may arise between two smaller nations.

Assuming, for the sake of argument, that this might be possible, what measures might the United Nations then take to forestall the outbreak of local

conflicts? Should one think in terms of maintaining in the various troubled areas of the world small armed forces equipped with conventional weapons of high-fire power which would be strong enough to enforce maintenance of the territorial status quo? Should such armed forces be under the central control of the United Nations or should they be placed under the control of those few nations, presumably chosen from the smaller neutral nations, who would man these forces, and the role of the United Nations be restricted to financing and equipping these troops?

2) Restraints

Another factor relevant for stability in the atomic stalemate depends on the restraints which America and Russia may impose upon themselves concerning the use of atomic bombs in case they do intervene militarily in a conflict on opposite sides. It is generally recognized that, in the absence of such restraints, which must be clearly formulated in advance and understood by all nations involved, what might start out as a local disturbance might end up in an all-out atomic war.

This does not necessarilymean that America and Russia must reach with each other an agreement that lays down a code of behavior for both parties to obey in case of war. Such a code of behavior, which would clearly define the restraints to be exercized, could also be proclaimed by unilateral declarations either by America or by Russia or by both.

We might examine to what extent the code of behavior advocated at present by informed groups both in America and in England is or is not adequate. This particular code of behavior might be phrased as follows: "If war breaks out, either America or Russia may use atomic bombs in combat, within the tactical area and perhaps also in the immediate vicinity of the tactical area. But they must limit the use of atomic weapons to the area of the local conflict and, depending on the circumstances, either America or Russia must be willing to concede defeat when the war has reached a certain point, rather than extend the war and thereby get entangled in an all-out atomic war."

Is it likely that it would be in the interests of both Russia and America to impose just this kind of restraints on themselves? And even assuming that they should both proclaim, in peace time, a rule of conduct based on this kind of restraint, what are the chances that this rule of conduct would in fact be obeyed, if put to the test when there is a resort to force?

I believe we ought to devote one or more days to a very careful examination of what might be in fact the crucial question of the atomic stalemate: What are the proper restraints which America and Russia might impose upon themselves, in case of a resort to force, which would satisfy the following conditions:

a) The restraints upon which this rule of conduct is based must not be such as to encourage a resort to force. One of the favorable aspects of the atomic stalemate is that it discourages a resort to force and the proposed rules of conduct must not nullify this effect of the stalemate.

b) The rule of conduct, if it is to survive, when put to a test, must be such that there shall be no appreciable incentive for either side to throw it overboard if a resort to force does in fact occur.

c) The rule of conduct incorporating the proposed restraints should be capable of commanding widespread public support, and in order to deserve public support should be satisfactory from the moral point of view.

d) The rule of conduct proposed need not depend on an agreement between Russia and America, which in any case would be unenforceable, and it should be possible for either of these two nations to put such a rule of conduct into effect by each making known the restraints which she proposed to impose upon herself, in case there is a resort to force, and by declaring that she will abide by these restraints, as long as the adversary shall abide by the same restraints.

3) Technological break-through

If there is a stalemate between the strategic air forces of Russia and America which is inherently stable, such a stalemate might be temporarily upset either by a technical break-through (in one of these two countries) or by a race in defensive arms (which is won by one of these two countries).

If, for instance, one of these two countries develops a defense which enables it to shoot down 99% of the jet bombers, there will result an imbalance. For instance, one of these two nations might make a determined effort to defend her cities against jet bombers by an elaborate system of anti-aircraft rockets carrying an atomic warhead. This, incidentally, might start a race in "atomic defense" which might make it impossible ever to fix a date for stopping the manufacture of atomic bombs.

In this respect the stalemate based upon the strategic air forces might be less stable than would be astalemate based on intercontinental ballistic missiles. To develop a defense for intercontinental ballistic missiles is far more difficult, and when a stalemate which is based on such missiles is reached, one might adopt a somewhat Utopian solution for safeguarding it against being upset by a further technical breakthrough. A large-scale research operation on rocket research, jointly carried out by America, Russia and several other nations might be such a solution.

Before we can reconcile ourselves to accepting this inevitable a stalemate based on intercontinental ballistic missiles, we must carefully examine the arguments of those who believe that the development of such missiles ought to be aborted. Their arguments fall into three categories:

a) In the transition from the strategic air force to the intercontinental ballistic missiles, there might be a dangerous period in which either Russia or America is ahead of the other nation.

b) At the time when defense is largely based on intercontinental ballistic missles, there is likely to be a decentralization of the authority to fire a given missile. It is not clear whether sufficient safeguards can be had in such a situation against a war being started by individuals or groups taking action on their own initiative.

c) We must not give up the hope that sooner or later the world may be ready to rid itself of the bomb. This will be very difficult to accomplish once intercontinental ballistic missiles have been manufactured in quantity and installed in subterranean command centers. Assuming that Russia and America would want at that point to conclude an agreement that would eliminate these weapons, how could they convince each other that no such weapons have been retained in hidden positions, ready to be fired at a moment's notice?

Miscellaneous

We may hope that, by discussing all problems with which we are confronted as broadly as outlined above, we can establish a framework, and that it will then be possible to discuss intelligently within this framework a number of questions which are currently discussed in an inadequate manner. One of these questions is as follows:

It has been proposed to safeguard America and Russia against a surprise attack from each other by establishing aerial as well as ground inspection. As long as such inspection is maintained, each of these two nations could count on 1-3 days warning before a large-scale attack could occur. This safety margin would enable each of them to reduce considerably the costs of the strategic air forces.

If one takes the point of view that a wanton attack by Russia against America or by America against Russia is far less likely, at least under present-day conditions, than the military intervention of America and Russia in a conflict between two smaller nations, then one is led to the raising of the following question:

Assuming such an intervention, just what are the chances that America and Russia would be able to keep in force throughout such a period the inspection system that has been mutually agreed upon? Would the "safeguard" against a surprise attack not be likely to break down just at the time when the probability for a surprise attack begins to be appreciable?

Assuming that we conclude that such a safeguard against a surprise attack would indeed be very valuable, we would then want to discuss the following question:

Could an adequate aerial and ground inspection be organized without giving the strategic air forces of the potential enemy information concerning the ex-

act location of important targets which he does not now possess? And if this is n ot possible, is the advantage of the proposed aerial inspection sufficient to overcome the reluctance of Russia to let a potential enemy get possession of such information?

There is one favorable aspect to the proposed aerial inspection which I believe we must not underestimate. The strategic stalemate confronts the world with an unprecedented situation, and it will take unprecedented measures to cope with the problems which it reaises. The reciprocal aerial inspection has all the earmarks of a highly unprecedented measure. Those who take the position that it does not make much sense may still favor it for this reason alone. They may say that once we start to cooperate in such an unprecedented manner the ice will be broken, and it might then be easy to establish other unprecedented forms of cooperation that may make more sense from the point of view of all the nations that are involved.

Appendix

to memorandum of July 29, 1957.

(Discourse on the relevant topics)

by Leo Szilard

On July 22, 1957, the Secretary of State gave a speech in which he defined America's aspirations concerning international control of atomic bombs. These aspirations appear to be quite limited:

America, it seems, would be satisfied with an arrangement which would leave America, Russia and England in possession of large stockpiles of bombs, presumably large enough for America and Russia to be able to destroy each other to any desired degree. America would like to see all manufacture of bombs stopped after a certain fixed date to be agreed upon, because she hopes thereby to prevent most of the other nations from acquiring large stockpiles of bombs. If this can, in fact, be prevented, the atomic stalemate between Russia and America, towards which we are moving, might be more stable than it would otherwise be. For example, if many nations possessed large quantities of bombs and if one of America's cities or one of Russia's cities were destroyed by bombs in a sudden attack, it might not be possible to identify the nation that caused this destruction, and this would introduce a new kind of instability.

There is some indication that America would like to see the stalemate between Russia and America be based on the atomic striking power of their respective air forces rather than on intercontinental ballistic missiles, and that she would welcome an arrangement that would stop the arms race prior to the full development of the intercontinental ballistic missiles system.

America also desires to institute mutual aerial inspection and some additional ground inspection. The reason given for this desire is that such inspection -- as long as it is maintained -- would decrease the danger of a surprise attack and keep down the expenditures of the strategic air forces.

Scientists have learned not to take public statements issued by statesmen at their face value. In this particular case, I am, however, inclined to believe that the objectives stated above are, in fact, objec-

tives in which America is at present seriously interested, even though I do not assert that the particular reasons given are valid reasons in each instance.

The discussions which may take place in our proposed meeting could start out with an examination of the American objectives listed above.

Our discussions must of necessity differ from similar discussions that might be conducted by government officials -- in preparation of inter-governmental negotiations -- either in Washington or in Moscow. Negotiations between two governments in the general area in which we are interested usually serve a double purpose. On the one hand the negotiating governments want to make progress towards a distant goal which they both consider desirable; on the other hand, each one wants to approach this distant goal by steps which give it a temporary advantage. Very often for the sake of such temporary advantage real progress towards the distant goal is sacrificed.

In the discussions at the proposed meeting the emphasis will be different. We will try to discover what are the <u>right goals</u> that the governments ought to pursue, and how can these goals be approached through steps which give <u>neither government</u> any appreciable temporary advantage. We must also try to understand what the real reasons are for the objectives which the governments pursue, and examine whether the reasons they put forward for pursuing these objectives are valid. If they are not valid, we must try to discover whether there might not be other reasons that may be the <u>real</u> reasons that are valid and that lead to the <u>same</u> conclusion.

I may as well illustrate this point by starting out with Mr. Dulles' speech. Mr. Dulles tells those who would like to see the world rid itself of atomic bombs that it is too late for this because by now there are large stockpiles of bombs, and even if America and Russia made an agreement to get rid of these stockpiles, there is no way to make sure that no hidden stockpiles would remain. Thus those who are still pressing for getting rid of the bombs are now told that it is too late; several years ago they were told that it was too early.

We may examine whether the reason given by Mr. Dulles for wishing to retain the stockpiles of bombs is a valid reason. I personally believe that it is not a valid reason, but I am inclined to think that there may be other reasons which are valid and which lead to the same conclusion.

This is a point which ought to be carefully examined at our meeting. Because, if it is indeed true that there are valid reasons for America and Russia to wish to retain their stockpiles of bombs, then the stalemate between the strategic atomic striking forces of Russia and America toward which we are at present moving is likely to be maintained indefinitely or, to be more precise, for the foreseeable future. <u>If this is indeed correct, then our immediate problem is not how to rid the world of the bomb but rather how to live with the bomb</u>.

Should we adopt this thesis as the premise upon which we may base several days of discussions?

While I personally favor our adopting this as a valid premise for some of our discussions, I believe that, before we do so, we must spend one or two days in carefully examining the validity of this crucial premise.

<u>Getting rid of the bomb</u>

In the course of examining the validity of this premise, we ought to discuss a number of points mentioned below:

What might be gained if atomic bombs were outlawed, in the sense that each nation involved would agree not to use atomic bombs if there is a resort to force, except if atomic bombs are used against her or one of her allies? Clearly a number of unilateral declarations would have in this respect exactly the same force as an agreement which, by its very nature, must remain unenforceable. In this contest we might have to consider past experience with the convention outlawing gas warfare, and we must try to understand in what respect the situation with respect to atomic bombs is similar and in what respect it is different.

Next, we might consider whether a program aimed at getting rid of the stockpiles of bombs as well as means which are adequate for delivering bombs (assuming that both Russia and America desire to accomplish these objectives) could be carried out without the risk that dangerous secret violations of the agreement might remain undetected.

If we come to the conclusion that such a program would be practicable and the previous attempts to devise inspection schemes were too narrowly conceived, we must then next examine if there are any valid reasons why Russia or America or both may regard such an objective as practicable but undesirable. We might come to the conclusion that there may be valid

reasons for thinking that such an objective may indeed be regarded as undesirable by both America and Russia. In this case we may then want to shift our full attention to the question of "how to live with the bomb" rather than continue to discuss "how to get rid of the bomb."

Stabilizing the stalemate.

At present we are moving towards a stalemate between the strategic atomic striking forces of Russia and America. When this stalemate becomes an accomplished fact, America may be able to destroy Russia to any desired extent and Russia may be able to destroy America to any desired extent. Under what conditions can such a stalemate remain in existence for an extended period of time and be stable enough to permit Russia and America to live through this period without getting entangled in an all-out atomic war?

I believe we ought to discuss the stability of the stalemate under the optimistic assumption that no nation except Russia, America and England have at their disposal substantial quantities of bombs and means suitable for their delivery.

At some point in our analysis, we will have to distinguish between the stalemate based on Russia's and America's strategic air forces and the stalemate that might later on develop on the basis of intercontinental ballistic missiles. At that point we must then discuss the merits and disadvantages of current proposals aimed at aborting the development of intercontinental ballistic missiles, for instance by prohibiting the testing of such missiles.

The stalemate between the strategic atomic striking forces of America and Russia would be inherently unstable if either side could knock out in one single sudden blow or several repeated blows the power of the other to retaliate. For the purpose of our discussion, we may assume that efforts will be made both by America and Russia to safeguard themselves against this possibility. But a stalemate that is not inherently unstable may become so if a technological break-through occurs, either in America or in Russia, and this might lead to a dangerous transition period.

There are three factors of very different character which have a bearing on the stability of the stalemate, and we shall discuss these three factors separately. They are as follows:

1) The magnitude and kind of disturbances which will occur while the stalemate is maintained;

2) The restraints which America and Russia may impose upon themselves in order to keep from being entangled, if there is a resort to force, in an all-out atomic war, and

3) Technological break-throughs which may introduce an inherent instability during the period of transition.

These three factors might be discussed at the proposed meeting from the following points of view:

1) Disturbances

Today the greatest danger appears to be a conflict between two smaller nations which may lead to a resort to force and military intervention on the part of America and Russia on opposite sides. What measures might be taken to eliminate the danger of disturbances of this sort?

Clearly this danger can be eliminated only if there is a political settlement between the Great Powers which makes it reasonably certain that in case of any of the foreseeable conflicts between two smaller nations the Great Powers will not intervene militarily on opposite sides. Once such a settlement is reached, it might then become possible to take measures aimed at preventing the smaller powers from resorting to force in settling their conflicts.

At the end of the last war, it was generally believed that -- as long as the Great Powers act in concert with each other -- the United Nations Organization may be able to guarantee the security of the smaller nations and may make it impossible, for them to go to war with each other and unnecessary to waste their resources on defense. Attempts to use the United Nations in the past ten years for purposes other than for which it was designed have weakened this organization. Have they damaged it beyond repair? Or should it be possible to restore the United Nations to its original function, once there is a political settlement between the Great Powers that will eliminate the danger that these powers will militarily intervene on opposite sides in a conflict that may arise between two smaller nations.

Assuming, for the sake of argument, that this might be possible, what measures might the United Nations then take to forestall the outbreak

of local conflicts? Should one think in terms of maintaining in the various troubled areas of the world small armed forces equipped with conventional weapons of high-fire power which would be strong enough to enforce maintenance of the territorial status quo? Should such armed forces be under the central control of the United Nations or should they be placed under the control of those few nations, presumably chosen from the smaller neutral nations, who would man these forces, and the role of the United Nations be restricted to financing and equipping these troops?

2) Restraints

Another factor relevant for stability in the atomic stalemate depends on the restraints which America and Russia may impose upon themselves concerning the use of atomic bombs in case they do intervene militarily in a conflict on opposite sides. It is generally recognized that, in the absence of such restraints, which must be clearly formulated in advance and understood by all nations involved, what might start out as a local disturbance might end up in an all-out atomic war.

This does not necessarily mean that America and Russia must reach with each other an agreement that lays down a code of behavior for both parties to obey in case of war. Such a code of behavior, which would clearly define the restraints to be exercized, could also be proclaimed by unilateral declarations either by America or by Russia or by both.

We might examine to what extent the code of behavior advocated at present by informed groups both in America and in England is or is not adequate. This particular code of behavior might be phrased as follows: "If war breaks out, either America or Russia may use atomic bombs in combat, within the tactical area and perhaps also in the immediate vicinity of the tactical area. But they must limit the use of atomic weapons to the area of the local conflict and, depending on the circumstances, either America or Russia must be willing to concede defeat when the war has reached a certain point, rather than extend the war and thereby get entangled in an all-out atomic war."

Is it likely that it would be in the interests of both Russia and America to impose just this kind of restraints on themselves? And even assuming that they should both proclaim, in peace time, a rule of conduct based on this kind of restraint, what are the chances that this rule of conduct would in fact be obeyed, if put to the test when there is a resort to force?

I believe we ought to devote one or more days to a very careful examination of what might be in fact the crucial question of the atomic stalemate: What are the proper restraints which America and Russia might impose upon themselves, in case of a resort to force, which would satisfy the following conditions:

a) The restraints upon which this rule of conduct is based must not be such as to encourage a resort to force. One of the favorable aspects of the atomic stalemate is that it discourages a resort to force and the proposed rules of conduct must not nullify this effect of the stalemate.

b) The rule of conduct, if it is to survive, when put to a test, must be such that there shall be no appreciable incentive for either side to throw it overboard if a resort to force does in fact occur.

c) The rule of conduct incorporating the proposed restraints should be capable of commanding widespread public support, and in order to deserve public support should be satisfactory from the moral point of view.

d) The rule of conduct proposed need not depend on an agreement between Russia and America, which in any case would be unenforceable, and it should be possible for either of these two nations to put such a rule of conduct into effect by ~~each~~ making known the restraints which ~~it~~ proposes to impose upon herself, in case there is a resort to force, and by declaring that she will abide by these restraints, as long as the adversary shall abide by the same restraints.

3) Technological break-through

If there is a stalemate between the strategic air forces of Russia and America which is inherently stable, such a stalemate might be temporarily upset either by a technical break-through (in one of these two countries) or by a race in defensive arms (which is won by one of these two countries).

If, for instance, one of these two countries develops a defense which enables it to shoot down 99% of the jet bombers, there will result an imbalance. For instance, one of these two nations might make a determined effort to defend her cities against jet bombers by an elaborate system of anti-aircraft rockets carrying an atomic warhead. This, incidentally, might start a race in "atomic defense" which might make it impossible ever to fix a date for stopping the manufacture of atomic bombs.

In this respect the stalemate based upon the strategic air forces might be less stable than would be a stalemate based on intercontinental ballistic missiles. To develop a defense for intercontinental ballistic missiles ~~To develop a defense for intercontinental ballistic missiles~~ is far more difficult, and when a stalemate which is based on such missiles is reached, one might adopt a somewhat Utopian solution for safeguarding it against being upset by a further technical breakthrough. A large-scale research research operation on rocket research, jointly carried out by America, Russia and several other nations might be such a solution.

Before we can reconcile ourselves to accepting as inevitable a stalemate based on intercontinental ballistic missiles, we must carefully examine the arguments of those who believe that the development of such missiles ought to be aborted. ~~These~~ Their arguments fall into three categories:

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b) At the time when defense is largely based on intercontinental ballistic missiles, there is likely to be a decentralization of the authority to fire a given missile. It is not clear whether sufficient safeguards can be had in such a situation against a war being started by individuals or groups taking action on their own initiative.

c) We must not give up the hope that sooner or later the world may be ready to rid itself of the bomb. This will be very difficult to accomplish once intercontinental ballistic missiles have been manufactured in quantity and installed in subterranean command centers. Assuming that Russia and America would want at that point to conclude an agreement that would eliminate these weapons, how could they convince each other that no such weapons have been retained in hidden positions, ready to be fired at a moment's notice?

Miscellaneous

We may hope that, by discussing all problems with which we are confronted as broadly as outlined above, we can establish a framework, and that it will then be possible to discuss intelligently within this framework a number of questions which are currently discussed in an inadequate manner. One of these questions is as follows:

It has been proposed to safeguard America and Russia against a surprise attack from each other by establishing aerial as well as ground inspection. As long as such inspection is maintained, each of these two nations could count on 1-3 days warning before a large-scale attack could occur. This safety margin would enable each of them to reduce considerably the costs of the strategic airforces.

If one takes the point of view that a wanton attack by Russia against America or by America against Russia is far less likely, at least under present-day conditions, than the military intervention of America and Russia in a conflict between two smaller nations, then one is led to the raising of the following question:

Assuming such an intervention, just what are the chances that America and Russia would be able to keep in force throughout such a period the inspection system that has been mutually agreed upon? Would the "safeguard" against a surprise attack not be likely to break down just at the time when the probability for a surprise attack begins to be appreciable?

Assuming that we conclude that such a safeguard against a surprise attack would indeed be very valuable, we would then want to discuss the following question:

Could an adequate aerial and ground inspection be organized without giving the strategic air forces of the potential enemy information concerning the exact location of important targets which he does not now possess? And if this is not possible, is the advantage of the proposed aerial inspection sufficient to overcome the reluctance of Russia to let a potential enemy get possession of such information?

There is one favorable aspect to the proposed aerial inspection which I believe we must not underestimate. The strategic stalemate confronts the world with an unprecedented situation, and it will take unprecedented measures to cope with the problems which it raises. The reciprocal aerial inspection has all the earmarks of a highly unprecedented measure. Those who take the position that it does not make much sense may still favor it for this reason alone. They may say that once we start to cooperate in such an unprecedented manner the ice will be broken, and it might then be easy to establish other unprecedented forms of cooperation that may make more sense from the point of view of all the nations that are involved.

From: Leo Szilard July 7, 1957

PROPOSAL CONCERNING A STATEMENT THAT MIGHT BE ISSUED TO THE PRESS AT THE CONCLUSION OF THE CONFERENCE.

I propose that we issue at the conclusion of the conference a statement to the press in which we list in detail a number of issues (though not necessarily all of them) which the conference discussed and that we make clear the purpose which moved us to discuss these issues.

Since the conference has just begun it is of course not possible to prepare this list at this time. The list given below is therefore almost entirely fictious and I am presenting it here only to illustrate by the manner of my presentation what kind of statement I have in mind.

The statement might for instance run as follows:

1.) Being aware of the danger which the present atomic arms race presents to mankind we have examined a number of issues which appear to stand in the way of progress towards achieving a stable peace. Finding out what the right questions are, which must be asked, is the first step towards the solution of any problem and in some cases it carries you half way towards the solution.

We were particularly anxious to understand clearly what were the main obstacles that prevented the nations of the world from making real progress toward establishing a secure peace during the past ten years. In this respect we examined a number of questions which are included in the list given below. -

1.) What were the considerations that had lead the American government to the decision to drop an atomic bomb on Hiroshima and what effect did this event have on international relations in the past war period.

2.) What considerations induced the American government to put forward the first plan for international control of atomic energy, known as the Baruch plan, and why did Russia find this plan inexceptable?

3.) Does the approaching stalemate between the American and Russian air-forces increase or decrease the danger of war and what could be done to render this stalemate less instable than it is at present.?

4.) Does the concept of fighting the local war in which atomic weapons may be used in the combat area offer reasonable chance of averting an all-out atomic catastrophy?

5.) What is the connection between this concept of local war and the presence of the American airbases in the middle east? Why does Russia insist that these airbases be dismanteled and why does America find it difficult to accede to this Russian demand? Under what conditions might the dismantling of these airbases become acceptable to America?

6.) What are the chances of achieving an international agreement that would rid the world of atomic weapons - assuming that an adequate system of inspection is devised that is acceptable to the nations which are concerned.

7.) Suppose that America and Russia were to propose an agreement that would provide for the stopping of bomb tests and the stopping of the manufacture of atomic bombs, after a certain fixed date (but permit America and Russia to retain their stockpile of bombs) under what circumstances would such a proposal be likely to be acceptable to all other nations?

8.) What could be accomplished if the nations involved were to accept President Eisenhower's open sky proposal and what are the limitations of this particular method aimed at guarding against a surprise attack?

9.) Does the present division of Germany represent a potential danger for peace and what are the difficulties that stand in the way of creating a united Germany."

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The statement might for instance run as follows:

1) Being aware of the danger which the present atomic armes race presents to mankind we have examined a number of issues which appear to stand in the way of progress towards achieving a stable peace. Finding out what the right questions are, which must be asked, is the first step towards the solution of any problem and in some cases it carries you half way towards the solution.

We were particulaly anxious to understand clearly what were the main obstacles that prevented the nations of the world from making real progress toward establishing a secure peace during the past ten years. In this respect we examined a number of questions which ~~were as follows~~ are included in the list given below.-

1) What were the considerations that led the American government to the decision to drop an atomic bomb on Hiroshima and what effect did this event have on international relations in the past war period.

2.) What considerations induced the American government to put forward the first plan for international atomic energy, known as the Baruch plan, and why did Russia find this plan inexceptable.

3.) Does the approaching stalemate between the American and Russian airforces increase or decrease the danger of war and what could be done to render this stalemate less instable than it is at present.

4.) Does the concept of fighting the local war in which atomic weapons may be used in the combat area offer reasonable chance of averting an all-out atomic catastrophy.

5.) What is the connection between this concept of local war and the presence of the American airbases in the middle east? Why does Russia insist that these airbases be dismanteled and why does America find it difficult to accede to this Russian demand? Under what conditions might the dismantling of these airbases become acceptable to America?

6.) What are the chances of achieving an international agreement that would rid the world of atomic weapons - assuming that an adequate system of inspection is devised that is acceptable to the nations which are concerned.

7.) Suppose that America and Russia were to propose an agreement that would provide for the stopping of bomb tests and the stopping of the manufacture of atomic bombs, after a certain fixed date (but permit America and Russia to retain their stockpile of bombs) under what circumstances, if any, would such a proposal be likly to be acceptable to all other nations.

8.) What could be acomplished if the nations involved were to accept President Eisenhowers open sky proposal and what are the limitations of this particular method aimed at guarding against a surprise attack.

9.) Does the present division of Germany represent a potential danger for peace and what are the difficulties that ~~thand~~ stand in the way of creating a united Germany."

~~Statement~~ an organ

8.) What could be accomplished if the nations involved were to accept President Eisenhowers open sky proposal and what are the limitations of this particular method aimed at guarding against a surprise attack.

9.) Does the present division of Germany represent a potential danger for peace and what are the difficulties that ~~stand~~ in the way of creating a united Germany.

8 Pkt
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Pugwash

Mittwoch, den 18. Dezember 1957

M E M O

Ich fliege heute nachmittag ueber Hamburg nach London zu einer Besprechung, die von Bertrand Russel einberufen worden ist, um die nächste - und hoffentlich verbesserte "pugwash conference" vorzubereiten.

Karl Friedrich von Weizsäcker ist auf demselben Flug von Hamburg ab.

Ich bin in London erreichbar:

c/o Professor J. Rotblat
Physics Department
The Medical College of St. Bartholomew's Hospital
Charterhouse Square, E.C.1

Von London aus werde ich noch einmal nach Berlin zurueckmuessen zu einer Besprechung mit dem regierenden Bürgermeister und anderen Mitgliedern der Verwaltung des Landes Berlin. Diese Besprechung wird vermutlich in den letzten Tagen des Dezember oder in den ersten Tagen des Januar stattfinden. Meine Adresse in Berlin bleibt: Hotel Steinplatz, Berlin-Charlottenburg 2, Uhlandstr. 197, wo ich nach meiner Rückkehr meine angesammelte Post erhalten werde.

Ich habe die Absicht, ziemlich früh im Januar nach Amerika zurueckzufliegen und dort etwa 4 Wochen in Washington zu verbringen, zum Teil, um einer Einladung des National Institute of Health Genuege zu tun und zum Teil aus anderen Gründen.

Pugwash

Draft (very rough) of suggested letter, LAK to Cyrus S. Eaton

Dear Cyrus:

We are continuing to get responses to the inquiry, initiated by Leo Szilard, from leading scientists throughout the world concerning desirability of one or more post-Pugwash meetings. The views we have so far received are generally favorable. Within the next four to six weeks we hope to have enough data in hand to determine whether the University of Chicago should sponsor the first meeting. By that time we also hope to know whether, and from whom, we might raise the money for such a meeting.

You will be particularly interested in the news that we have had about the most marked reactions to the Pugwash meeting in the Soviet Union. Eugene Rabinowitch has received several documents from the USSR which indicate that "the Soviet reaction to the Pugwash conference appears to be much more encouraging than could have been expected." Among the documents are a long resolution (August 9, 1957) of the Soviet Academy, approving the work of the USSR delegation at Pugwash, and an appeal of 195 Soviet scientists for another and larger conference. Translations of these documents are attached, in the event that you have not already seen them.

Many Russians apparently would like to see the next meeting a very large affair, attended by several hundred, or even a thousand, delegates. Their aim would be to foster official propaganda on stopping bomb tests and related matters. If this sort of meeting is the only one in which the Russians will participate, we can of course have nothing to do with it. But there is a good chance that the steering committee, established at Pugwash, will recommend the kind of meeting that Szilard sketched in the documents previously sent to you. (There is some hope that the committee, with Lord Russell, presiding, will meet in London next month.) We are keeping closely in touch with the steering committee.

I will write you again as soon as we have a more comprehensive response to Szilard's inquiry and a clearer idea of the steering committee's views.

MAX-PLANCK-INSTITUT FÜR PHYSIK
GÖTTINGEN BÖTTINGERSTRASSE 4
Prof. W. Heisenberg

(20b) GÖTTINGEN, 8. Okt. 1957
Tel.: 23651

Herrn
Professor Dr. Leo S z i l a r d
The Enrico Fermi Institute for
Nuclear Studies,
The University of Chicago,
C h i c a g o 37, Jllinois, USA

Pugwash

Sehr geehrter Herr Szilard!

Haben Sie vielen Dank für den Bericht über die Konferenz in Pugwash und für Ihre Mitteilung über den Plan einer weiteren internationalen Konferenz, die dem zukünftigen Erfahrungsaustausch dienen soll. Ich habe mich im vergangenen Jahr im ganzen mehr aus diesen politischen Fragen zurückgezogen und diesen Teil unserer Göttinger Physikertätigkeit Weizsäcker überlassen, der Ihnen sicher schon ausführlicher geschrieben hat. Ich glaube also auch nicht, daß ich an einer Konferenz über solche politischen Fragen teilnehmen sollte, obwohl ich alles, was auf diesem Gebiet geschieht, mit großem Interesse und mit einiger Hoffnung verfolge.

Da Sie, wie ich hörte, nächstens einmal nach Deutschland kommen werden, würde ich mich sehr freuen, wenn sich die Gelegenheit zu einer persönlichen Aussprache dabei ergäbe.

Mit vielen Grüßen
Ihr
W. Heisenberg

Weizsäcker
WIRTZ

Berlin, 3. Dezember 1957

An den
Herrn Bundestagsabgeordneten
Fritz Erler
Bundeshaus
B o n n

Sehr geehrter Herr Erler !

Herr v. Weizsäcker erzählte mir, dass Sie sich vielleicht gelegentlich einmal mit mir über gewisse - durch die Existenz der Atombomben geschaffene - Weltprobleme unterhalten möchten.

Ich bin zur Zeit in Berlin und obwohl ich vielleicht in Westdeutschland etwas herumreisen werde, so wird doch Berlin einstweilen meine Ausgangsbasis bleiben. Sie erreichen mich z.Z. per Adresse Prof. M. von Laue, Faradayweg 4-6, Berlin-Dahlem. Ich wohne im Hotel Kempinski und bin dort unter der Nummer 91 02 21 erreichbar.

Falls Sie einmal nicht gar zu beschäftigt sein sollten und sowohl Musse wie Lust haben, sich etwas eingehender über diese komplizierte Frage zu unterhalten, so lassen Sie es mich bitte wissen und ich werde dann versuchen, Sie telefonisch zu erreichen, um etwas Konkretes zu verabreden.

Ihr sehr ergebener,

Leo Szilard.

P.S. Anliegend finden Sie die Kopie eines Briefes, den ich an Prof. Rotblat in London schrieb. Es handelt sich dabei um die Fortsetzung der Konferenz, die von Bertrand Russel einberufen wurde und in Nova-Scotia, Kanada, im Juli d.J. stattfand. Ich schicke Ihnen diese Abschrift wegen der Anregung, die in diesem Brief enhalten ist und die sich auf eine evtl. politische Aktion bezüglich der Verwendung von Atombomben bezieht. Dieses ist einer der Punkte, ueber die wir vielleicht sprechen können, wenn sich die Gelegenheit zu einem Zusammentreffen ergibt.

Negotiating from Strength and the Difficulties of Inspection

While Atcheson was Secretary of State, it became fashionable to talk about 'negotiations from strength'. We were not going to negotiate with Russia at all for the time being, we were going to build up strength, and whenever we shall be strong enough we shall negotiate a treaty with Russia that may settle the most controversial points in our favor. The concept of negotiating from strength, if it refers to negotiations between Russia and America, is clearly a concept which is based on a fallacy. The fallacy arises, it would appear, as a result of assuming that an agreement between Russia and the United States is somehow comparable to an agreement between two American business men. In a business negotiation, he who negotiates from strength may succeed in concluding an agreement which settles most controversial points in his favor. Once the agreement is signed and sealed, he is then ~~in~~ embark in a rather favorable position, for if the other fellow fails to perform ~~his part of the agreement~~ he can be taken to court and a judgment obtained against him, and if he is not bankrupt, the judgment can be enforced. In contrast to this, an agreement betwenn America and Russia is useful only as long as both nations wish to keep it in force. If the agreement prescribes a settlement which stabilizes peace, enables Russia and America to reduce their arms' expenditures to a reasonable level, and allows Russia and America to get rid of the bombs -- assuming, for the sake of argument, that both Russia and America want to get rid of the bombs -- and if both America and Russia may want to keep this agreement in force because they regard it as in their interests that the agreement remain in force, then the ~~xxxxxxx~~ vexatious question of inspection would present no difficulty. ~~For, in that case, the question is~~ not what kind of provisions concerning inspection may have been written into the agreement, but rather the question will be in what way can America convince Russia that there are no hidden illicit stockpiles of bombs left in

should here

our territory, and vice versa, and who can doubt that in a setting so completely different from the setting of the cold war America and Russia can find ways that will permit them to convince each other of the fact that there are no illicit stockpiles concealed, provided only that there are in fact no illicit stockpiles concealed. Imagine for a moment that America has entered into an agreement with Russia which provided for the elimination of bombs from the national arsenals. Since it is well understood that the agreement can remain in force only as long as both nations want to keep it in force, we may as well imagine that the agreement gives both America and Russia the right to abrogate it at any time. Imagine in such a situation an appeal being made by the President of the United States to the American people, setting forth the purpose of the agreement and America's desire to keep the agreement in force. Imagine the President explaining the need to keep Russia currently convinced that no bombs have been illicitly concealed, and appealing to the citizens of this country for their cooperation in this regard. Suppose the President makes it clear that a citizen, who has any knowledge of illicitly hidden stockpiles, will perform a patriotic duty if he informs an agency of the United Nations, which has been created for the purpose of supervising the fulfilment of the disarmament provisions of the agreement. Suppose the President makes it clear that any nation, including Russia, is free to offer large monetary rewards to those who come forward with such information, and suppose he adds for good measure that the receipt of such monetary rewards will not be subject to the United States income tax. Who would, therefore, doubt that bombs, if there are any that have been hidden, will not be discovered? My point is that the problem of inspection is not primarily a technical problem. The only real problem is to make sure that we have an agreement that the Great Powers wish to keep in force because it is in their interests

to keep it in force and, therefore, that they will be eager, in order to avoid abrogation, to convince each other that there are no illicit violations. The hypothetical proclamation of the President of the United States to which I have referred above might sound odd in the present setting when the cold war has not yet ~~abated~~ abated, but I could not in good conscience advise the Russians to trust anything else, nor would I want the United States to trust anything less than a similar guarantee on the part of Russia. I remember only too well how the Treaty of Versailles, which was negotiated from strength, imposed disarmament provisions on Germany which Germany did not regard as in her interests to keep. Germany signed the treaty and there was an Inter-Allied Control Commission in Berlin willing to receive information on illicitly concealed or manufactured arms. However, a German citizen who might have given information on such illicit activities to the Inter-Allied Control Commission would have been tried and convicted under the Espionnage Law of Germany which had not been amended and had not been brought into conformity. An inconsistency of this sort would hardly be a tolerable situation if disarmament ever reaches the stage where America and Russia both are supposed to give up their atomic striking power. Negotiating from strength is a fake concept and the supposed difficulty of having foolproof inspection is a fake difficulty.

Draft.

Most of us who came to this meeting, came to it because we are concerned about the future. And we really are concerned that there whall be a future. But what Ixq want to do here with your permission is to say a few things about the past and to discribe to you the resolution of my own ideas concerning the bomb and xx how to look at a bomb. I shall also talk a little about the present. But I like to talk more about the past than the present. New these are troubles as the following: We are now faced with the situation in the world which we cannot desolve if we are conservative. And as John Manehard Case once said, I quote: I do not know what makes a man more conservative to do nothing with the past or to know nothing about the present. Now I shall talk to you about the various ideas which I had in the past and if you wish you can regard my talk here today as a confession of my errors. I shll start out with July 1939. In July 1939, I became somehow convienced that it will be possible to set up a chain reaction in a system composed of uranium and graphite. I also became convienced that this meant that somehow it will be possible to construct an atomic bombs, even so, I am not able to say just how such an atomic bomb could be made. By July 1939, it became it was pretty obvious that the world was was in frontage. My main concern was that the Germans might get ahead of us and that they could blackmail us into surrender by making atomic bombs and threatening to use them against our cities. I did not know just how to proceed from here on and so I contacted Eduard Taylor in Washington and E. V. Wegener in Princeton. They are old friends of mine and whom I knew shared my concern. Wegener came to New York at my request and we decided that the first thing to do would be to warn the Belgian Government who are in contrat of the Uranium deposit in the Belgina Congo and get them to agree not to sell any Uranium to Germany. How to get a couple Professors of Physics to make the Belgian Government to listen to them! At that point I remembered that Professor Einstien xxxx used to have quite well agreement of the Belgians. Accordingly Mr. Wegener and I took a trip to the late Mr. Einstein and to discuss with him the situation. As you probably know out of the discussions arose the letter of Einstein to President Rosevelt, which started the Government of the United States on the enterprise to deadlock the Chain Reaction of Uranium.

From July 1939 I shall now jump to December 2nd 1942. In the afternoon of the day some 10 of us stood on a platform and witnessed the in the ceremony in parting of nuclear reactor. I call it the ceremony because it is a number of month that the reactor can be build to the piint that it become g critical." Fermi was in charge of uranium into graphite and starting th reactor.

I remaember very clearly that when the ceremony was over the others had left probably I and were alone on the platform. Finally I said to him, this day will be recorded as a blud day in the history of mankind. As far as I know this was probably the first time that anyone I konw has voiced any misgivings about what we were doing. Nothing that I remember in this collection was a vivid in 1943 to Lord Charwell. Charwell was a of Churchill on matters connected with Atomic Energy .. He was a member of the Brittish Cabinet and he came out of his Churchil on a visit to the White House. On mission of collebaration with the U. S. and England on matter This collebaration had broken down. It was I who Charwell visit knowing that we get information was exchanged between the American Uranium Project and the English Uranium Project which was located in Canada. This I was not free to talk to Lord Charwell about technical matters and I went to see him to talk with him about matters as political rather than technical. In the middle of 1943 when I saw Lord Charwell we had of course not jet made any bombs. And the bobms whcich we knew how to make did not appear to be very impresseive. Those however we knew how to make allowiences for future developments and to furnish future developments have every reasons to be concerned about what the excistance of the bobnb will mean. really it was a fordrawn conclusion to void. But mainly to come foreaward with the conclusion it that we will have to use every political wisdom that we may e if we want to avoid the atomic arms race between Russia and the United States. To follow the termination of the wars. I was thinking in terms of eliminating the atomic bobm s from armaments and of negotiating with Russia. An agreement to this effect, wilch would include inspection . To reach such an agreement would be difficult was clear anough even in 1953. Therefore I thought that negotionations must take palce before the end of the war and in time when Russia and the United States still had an common enemy. I thought that there might be change to reach such an eagreement if we negotiate during the war and if we made an offer to Russuia, which

Draft.

Most of us came to this meeting, came to it because we are concerned about the future. And we really are concerned that there shall be a future. But what I want to do here with your permisision is to say a few things about the past and to discribe to you the resolution of my own ideas concerning the bome and to how to look at a bomb. I shall also talk a little about the present. But I like to talk more about the past than the present. Now these are troubles as the following: We are now faced with the situation in the world which we cannot desolve if we are conservative. And as John Manehard Case once said I quote: I do not know what makes a man more conservative to do nothing with the past or to know nothing about the present. Now I shall talk to you about the various ideas which I had in the past and if you wish you can regard my talk here today as a convession of my errors. I shall start out with July 1939. In July 1939 I became somehow convienced that it will be possible to set up a chain reaction in a system composed of uranium and graphite. I also becam convenced that this meant that somehow even so just such it will be possible to construct an atomic bombs, I am not able to say how an atomic bobm could be made. By July 1939 it became it was pretty obious that the world war was in frontage. My main concern was that the Germans might get ahead of us and that they could blackmail into surrender by making atomic bombs and threatening to use them against our cities. I did not know just how to proceed from here on and so I contacted They are and Eduard Taylor in Washington and E. V. Wegener in Princeton old fried of mine whom I knew shared my concerne. Wegener came to New York at my request and we decided that the first thing to do would be to warn the belgian Goverment who are in contract of the Uranium deposit in the Belgian Congo and get them to agree not to sell any Uranium to Germany. How to a couple Proffessors of Physics make the Belgian Govermant to listen to them. At that point I remembered that Proffessor Einstein just to have quite a well the agreement of the Belgians. Accordingly Mr. Wegener and I took a trip the the late Mr. Einstein and to discuss with him the situation. As you probably know out of the discussions arose the letter of Einstein to President Rosevelt which started the Government of the United States on the enterprise to deadlock the change reaction of Uranium.

I remember that Churchill asked Suppose the Russians do not agree?

replied

But the Russians did not agree. What will you do / And I remembered that we something of this sort. If we would really make the Russians a fair and generous offer to give up our bombs and to set up a workable system of international control, and if this offer would not only be regarded as generous and by the Russian but if it would be really generous, and fair then I believe that the right cause of action would be not to stop with the defeat of Germany but keep on moving our armies into Russia.

Although Charles H. Hetzel at the time with the day to day business of winning the current war and remember the war had not been won by the time, so this conversation took place before the battle of Stalingrad. I am sure that he must have thought that I had lost my mind. No Seed of discussion that the bomb may need to avoid after the war took place within the Uranium Project of Chicago until the Spring of 1945. At that time it was quite clear, that the war was lost, And I found that many of my colleges in Chicago were beginning to be apprehensive about the bomb. The first time that I heard the word Russian mentioned in the Project was sometime late in 1944. About that time a number of my colleges and I should perhaps say that I was not among them began to take the view that the excistance of the bomb becomes an established fact shall not be kept secret from the American people and the world.

Some time in 1944 Edward Kreutz reported to me a conversation which he heard with J Jeffries of the . Dr. Jeffries told him that the army want to keep the excistatnce of the bomb secret for fear that its use in the war against Japan would be opposed by Public opinion. The thought that the army was convinced that after this war perhaps a war would have to be fought with Russia. And therefore that they were eager to try out the effects this the effect s of the bomb in this war in order to be able to of the bomb against from the conference office . I went straight to the Director of the Project J. C. Stains in case that the Russians and told him of The ARmy people tell me that if this war is over that we must fight a war with the Russians. I keep asking him why must we To this there seem to be no clear answer." End of quote. It was during this incident which set me to think about the post war situation and the possiblity of the power cbnflict between Russia and the United States. Of the atomic armes race and the danger that war might brake out and the result of the atomic armes race . If we put the atomic armes race into , so it seemed to me overwalming odds that war may break out as the result of this atomic armes race. If we would stop the atomic

~~bombs and if Russia would stop it atomic bombs also America would~~

~~we woudl start to~~ prevent the atomic war.

If there is an atomic arms race between America and Russia the most likely outcome was a preventive war ~~started at a time war~~ that ~~would start a~~ might come ~~time~~ when Russia was about to catch up with us. A preventive war was of course morally indefensible and this consideration was likely to delay its outbreak but it was not likely to do more than to postpone it.

Everybody knows of course that to start a preventive war is morraly wrong. In my consideration it might as well be later of August . Conditions are likely to make matters rather worse than better. For what could be worse than for American to fight a preventive war at a time when she has enought atomic bombs to destroy 2000 of the russian cities while Russia has only sufficient bombs to destroy 1/3 of the american cities. Yet besides of this was what I thought to the most outcome of the matter regarding this to allow the in the spring of 45 we knew that the war was won and encies I began to talk to colleges at matter regarding this to help. If I talked about these things at the project, I found that with my friends about the dangers of our absolute armsrace after the war, I found that most many of my colleges showed different views. There was on the other hand no indication of them shared my pers.
anything but or
that the army looked upon the atomic bomb as an other military weapon that branches of the government other than the army were concerned with the problem . In March 1945 as you remember Rosevelt was still above the bomb had not yet been tested, the bomb as a matter of fact did not get tested until the middle of July , just a few weeks before it was dropped on August 6 on Hiroshima. The war against Japan was still going on but it was clear that Japan could not serve to win the war at this point. And under these circumstances the task of bringing the war against Japan to an end ought to have been made a responsibility of the State Department rather than the responsibility of the War Department. Trying to force a japanese surrender by throwing atomic bombs on the cities of Japan seemed to me at that time a rather horrifiying prospect. It seemed to be both, utterly wrong and most unwise. I therefore prepared a memorandum discussing the bomb not as an other military weapon, but as a danger to the universe civilisatio in the whole wide world. I therefore put down my thoughts on this subject in the form of a memorandum and when I found that most of my friends consideration continued this memorandum had the approval of most members of the

the project and I was seeking some means of bringing it to the attention of President Rosevelt. I knew that it was a hopeless undertaking to try to get do this thru the official channels. In what was there to do than as to go dixxxxlyxto the White House directly andxtoxxdoxso with a letter of introduction from Professor Einstein to Rosevelt whom wxxxI hoped would forward it to Rxxxxxx the President for a day in April. I went to the office of A. Cocton who was in charge of the Uranium Project in Chicago and showed him the memorandum. I was prepared to hear from him xxxxx a violent objection voiced against my going to the White House surpassing all officila channels. But to my surprise Counton after reading the memorandum returned it to me with the words: I hope you will sudxx cceed to get the Presient to read this. to find encouragement rather were I expected to find opposition I returned to my office. I hand not been xx in my office for 5 minutes then there was a knock at the door and when I opened the door there was Concton's assistance thatding and rambling and he said: News just came over the radia that President Rosevelt had didd. Now I knew of course that we were in trouble. The appointment with Mrs. Rosevelt was of course being cancelled. There had been any number of people who could have brought me to Rosevelt, I knew of no one who wasxxxxxxx personally aquainted with President Truman At that time xx however we were large and striving government project. There must be someone in this project I said to myself who comes from Kansas City and knows how to reach President Truman. To cutt a long story short, ther was xxxx some one from Kansas City. And within a week I was sitting across the desk of Exc. Secr. of President Truman. Nat Connedey, who is right now I am sorry to say sitting in jail. Connedey read

the memorandum and than told me that he had been instruct by President Truman to make an appointment for me to see James Briens of Carolina. Would I be willing to go through the expenses and go to South Carolina. Soon I went to see Briens at . I did not go there alone. I was accompanied by the Ass. Director of the Uraniu Project at Chicago Walter Bartke and H. J. Hue whom I asked to fly down from Chicago for this occasion . James Briens was about to be appointed on the day when we saw him Secr. of State . But he was still a private citizen . Nor had we been informed he is about to become Sec. of State. Since the President told us to see James Burns, we saw James Burns. The President did not bother to explain why he wanted us see James Burns, nor did anyone else. When I talked to Briens about the need for international control of atomic energy and the need to avoid an atomic armes race I did not find him very receptive. General ago Burns told us saw me a few days and he says Russia has no Uranium deposits. In my mind it was clear that there was some Uranium in Tschochoslowakia but I had to admit that these are not major uranium deposits. I therefore tried to argue by saying that it seemed exceedingly likely that on the vast teritory of Russia there could be found no and that it did not take high grade uranium ore low grade uranium ores such as we had in Canada or in the Belgian Congo to ex uranium for the purpose of making bombs . There was no reason to believe That Generla knew more about low grade uranium deposits in Russia than anyone else. And his statement that there are no Uranium deposits in Russia could not have been based on facts. I found Burns to be a man of conservatively intelligence. He was ready to

Insert I (1)

Byrnes contd.

We discussed wether the bomb should be used against Japan and I raised the question wethr it was wise to use it or even to demonstartate it

We spend 2 Bill. $ on these bombs said Byrnes how are you going to justify this to Congress if you would not demonstrate the bomb and if you want to develop atomic energy for peace time aplucation you will want more monney from Congress Also said Byrnes if lpeaple will learn that we have the means to end the war against Japana and we w did not use them this will be grately resented .

But Byrnes was concerned about something else also. Russia has moved its troops into Poland Rumania and Hungary and it will be very difficult to persuade them to withdraw these troops. Byrnes sthought if Russia is aware of the great military might that the possision of the bomb will give to America she might be more managable than she appears to be right now . Quote: You would not like the Russians to remain in Hungavry permanetntly, would you? This appiel Byrnes's to my patriotiseam shocked me into silence . The arguments of Mr. Byrnes offended my senible porpotions . I was not without compassion for Hungary , the country where I was born , and where I spent my childhood . But I was concerned at this moment, for the survival of the whole civilized world and Hungary was a very small part of the civilized world . After this remark of Byrnes there was not very much left that I could say. I shared Mr. Byrnes concern about Russian expansion in Europe but his believe that America could by rattling the bomb persuade Russia to be more cooperative appiele to me utterly wrong . As I was sitting across Mr. Byrnes at the Luncheon table the thought crossed my mind who

Insert I (2)

much better of the world would be of had Mr. Byrnes been born in Hungary and become a physisist and had I been born in America and become a Statesman. Perhaps there might be no bombs in excistance in that case, and if they did exists I could act as a spokesman for with a greater chance to be heard .

excamine any aspects of aggression which we raised. But it was quite clear, that she and I could not accomplish a meeting of the mind. When I returned to Chicago I had enough inside on the ways of the mind how the government worked to be certain when the atomic bomb will be used as a military weapon on the cities of Japan, so that there was nothing we could do to prevent it, I was merely concerned with those who felt as I did shall go on record in an unmistakeable manner making it clear that we had opposed the use of the bombs against the cities of Japan. This we did, by sending a pertition to the President in which we urged that the United States shall not let the President atomic energy for purpose of destruction. The petition the matter which was involved and did not try to argue because on the grounds of expediency. During the debate of whether or not the bomb should be used against Japan that took place inside the Uranium Project in Chicago many of my colleges showed confused thinking. This debate has never completely seazed. Nor did the confusion which accomplied it If you look at A. F. book which has been recently published you will see an example of this confusion . In the spring of 1945 Japan was already defeated. And as we now know she for peace at the time of the Potsdam conference. This of course does not mean, that she would have accepted unconditional surrender . But under the there was no indication to demand an unconditional surrender. Thre was no reason why the Japanese Government could not have been approached not through radio speeches, but through regular diplomatic channels. There was no reason why we could not tell the Japanes Government that we were interested really to negotiate peace. But that before negotiated peace

But in the prevaling circumstances there was no justification for demanding a unconditioned surrender there was no reason why the Japanese Government could not have been approached. Not thru radio speeches, but thru regular diplomatic channels. There was no reason, why we could not have told the Japanese Government that we are willing to negociate peace. But that before negotiating peace we want to demonstrate a new bomb. We could have offered Japanese to the city of Hiroshima and suggest that the Government observer assigned by the city become completely evacuated that the center of the Japanese Government and located 10 miles from the city. We could have made it clear, that a single bomb at the city at the previous determined agreet upon time and a single bomb and that no further bombs would be dropped thereafter. until the negotiations would have taken place. Had we infact done that and demonstrated the power of a single bomb to demolish a city we could have avoided making the bomb a symbol of mass murder. Thereby avoided I believe perhaps the present dangerous confusion of thinking concerning the bomb. One of the arguments mentioned at the time our

It could not have been possible to stage such a demonstration of the bomb and its demolishen such as the argument goes at the time of dropping the bomb of Hiroshima we had only two bombs in readiness. The one we dropped in Hiroshima and the one we dropped at Nagasaki. A third bomb was in the making when we tested the bomb in Mexico in the middle of July. Under these circumstances we could not have been sure that either of the two bombs might not prove to be a dudd. And to stage the demonstrations and than to drop a bomb which proves to be a dudd

would have been disasterous to our prestiege. to say just how many weeks would it ~~xxxxxx~~ have been necessary to wait until we would have had plenty of bombs to make additional bomb tests and to make sure that our bombs are not likely to prove to be duds. After the bomb was drop at Hiroshima and the war was ended it was obvious that we are in trouble and so we will have to ~~xx~~ make an effort to do some clear thinking concerning the situation we wish at peace. So I wrote to Mr. Hutches suggested ~~x~~ to call a three day meeting of about 20 people and try to gather the best ~~m~~en in the United States to think clearly and who are likly to influence the thinking of the Government if they succeed in clarifying their own thinking first. The meeting of course was a closed meeting and it was of about ~~30~~ 20 to persons. It covered a broad ranging from Henry wallace to Charles Limberg .

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Three day meetings rarely accomplish annythin. But this meeting to everyboddys surprise proved to be productive byond expactation. I personnaly was still obsessed by the idea of undoing what we had done. I was still thinking in terms of making a very generaus offer to Russia. For the purpose of establishing international control of atomic energy. I thought that we ought to give up our own bombs at once. That we should insist on instpection and also that we should offer to Russia large skade assistance and help her to restore here economy. But I also thought that if we do all of this and still Russia refuses to cooperated, than we ought to go over to war over the issue of gaining a world wich is free of bombs. By that time I should have known thatl the American political system makdes it virtually impossible for ~~xxxxxgoxxxxxxxxt~~ any president even if he were a man of greater vision than was President Truman to make that kind of generous offer that I had in mind. This of course became abondandly clear later, when American put forward the so clalled Baroc plan. At this three day meeting there were of course opinions voiced which were rather different than mine. Proffersor Jack Viener a economist and historian, showed probalby more foresight than any of us. His view was that the international control of atomic energy safeguarded by inspection will not come to pass He thought that as long as Amerinca had a monompolly on the bomb there will be a precareas situation in which all diplomatic negotiations will take place in the shadow of the bomb But after a while Russia will come into the possession of the bomb also and than some sort of a balalnce will be restored. I also remember the remarks by Prof. Weblin , a mathematician formthe Institute of Advanced Math. at Princeton who took the view thqat we are faced with an un situation and if there is a solution of the problem withihch we face it will be a quick sort ic solution and if we rule out quick sortic solutions than ther is just no solution. I have come to believe recently thqat Prof. Weblin was right and I propose to say more about this point later

A few days after this meeting Wilm Benton Vice President of the Un. of Chicago was appointed Assistant Secr. of State. He asked Edw. Condolen and me to talk to the top desk man of the State Dep. about what we thought wht the bobm meant to the U. S. A. At dinner at his house to which he invited these men We found that most of these men thoulght that the possession of the bomb gave the U. S. A. over whelming and usuperbertory ofer Russia.. And they were wery much interesten to hear the contrary view which Edward Concon and I presented.

I realized very quickly in Washington that vor the time being at least the scientiest who were regarded as being responsible for the creation of the bomb had the ear of the statesman. It seemd reasonable to believe that th Russian Government whih at that time was more than ever depepndend on the coopration of the scientists for the development of metallurgy atomic energy would also be willing to listen whatever Russian Scientist may have to say to them. Therefore I proposed to Mr. Benton That we try to arrange for a converence between Russian and American Scientists and that we try to reach meeting of the minds on what must be done to safeguard the world of the p guard of the atomic bombs. I thought that the Russian Scientists and we will understant each other and that we had a much better change chance to reach an agrrement with Russia if discussiona with America and Russian Scientiest were to preseed any negotiations between the two Governement Mr. Benton was ethusiatic about this probposal but Bus who was at that time Sec. of S_t ate veto the proposal. In the menatime I had discussed the general idea with a number of my colleges who were not willing to admit defeat so easily and were determined to appiel to the President over this issue. Mr. Hutchins Chanselor of the Un. of Chicago say the President in the presence of the Sec. of State but again Burns vetoed the idea and President T^{R}uman did not overrule the Sec. of State.

In the meantime we get ingaged in a political battel in Wash. One half of this battle we won and the other half we lost The W are Dep. tried to pass a bill in Congress for the domestic control of atomic energy which we regard as being dangerous We succeded in defeating this bill At the same time we fought the second battle. We were convienced that the American monompoly of the bomb was of short duration We thought it very likely that Russia will have Atomic Bombs within five years that we must loos no time in trying to negotiate with Russia an agreement of control of international control of atomic energy and that our negotiations must take into account Russian capability of having the bomb rather soon. Of this latter point we where unable to convience the Government of the U. S. A. In his book speaking frankly Jame burnes relates that because of the importance for negotiating an agreement with Russia on the internationla control of the atomic energy he had - a Secr. of State tried to form an oppienion who long it would take Russia to get the bomb. From the best information which he was able to gather - s o Burns relates in his book he concluded that it would take Russia between

seven and fifteen years to produce the first p bomb . This estimate was based so Burns continues on the assumption of the rather rapid postwar recovery . Because postwar recover was slower that he anticipated this estimate outht to be reviesed upward and down ward.

~~Accordingly to those who prepaired the Edgerdson report were thinking~~

Just we scientist were right on a few things you must not conclud that we were always right . Because a bomb had become the symbol of mass murder we had lost our capacity to think passionately aout it. And thus, in those critical days early in 1946 there was not one man amoung ush who saw that Edwig Bons (atomic bombs) might become a military weapon that might be used technically in combat Atomic bombs so we thought will remain so scarce and so expensive that no country want to wast e s them on anything but the distruction of cities.

Accordingly to those who prepared the Edgerdson - report were thinking of atomic bombs essential as means suitable of distruction of cities and thereby anywhere of any other military application By the time the official amerinca proposal was put foreward in form of the Baroc Report I was quite convinced that nothing will come of these negotiations This conviction was first of all based on what I had learned had happened at Potsdam and in a lesser degree it was based on the introduction by Mr. Baroc of the issue of the veto into the discussions of the E. Report

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~~The Potsdam conference created the situation~~ Ever since the Potsdam conference it was appearant that Russia and America regarded ~~it~~ each other as potential enemys In the days before the Potsdam conference Oppenheimer stressed the need that the used of the bomb against Japan must not take Russia by surprise Stimson the Secr. of War was fully aware of this need and he impressed on President Truman the necessity to dicuss the bomb with Marshall Stalin . Truman promissed to Stimson that he would do this. And indeed he makde a half hearted attempt to keep his promiss . But when he told Stalin that we had a new bomb Which we planed to use against Japan Stalin was engrossed in a discussion of the importance of having double track railroads . In response to Trumas' remark of having a new bomb he said he would hope we would use the new bomb and kept on discussing his double track railroads . Truman let it go at that He did not say excuese me Marshall Stalin you don't understand , I don't mean just anouther biger bomb. I mean something so new and revolutionary that if we use this bomb the wordl will never be se the same again . That this was a serious ommission is certain but I had no strong feelings about this point either than or later on . But something els happend at Potsdam which I thought was truely disasterous and an ill foreboding for the Russian - American relations Even before Yalta Russia has raised the question of reparations from Germany what Russia wanted were 10 Billion %$ payable in 10 years current out of German production . Neither Rosevelt nor Churchil licked this idea . Reparations exctracted from Germany after the first World War had proved to be troublesome . Churchil and Rosevelt did not want to make the same mistake that had been made after th first world war . (Why make the same mistakes

indeed when you can so easily make new ones) It was also pretty clear that for many years to come Germany will not be able to pay and that America would have to foot the paying . One Billion $ a year was not an overwhelmenly large sum for America . But was America willing to put up this sum ? Nevertheless at Yalta because the Russians continued to insist on this amount of reparations we agreed on 10 Billion $ reparations payable in 10 years as a basis of discussions . I learned what happened at Potsdam on this score from some of those who were involved in those negotiations . And what they told me I saw later confirmed in Byrned's book : Qote speaking frankly . When the Russians raised the reparations issue we vetoed any reparations payments from current production. Byrnes relates that when th e rRussians reminded us that we had agreed to 10 Bill. $ as the basis of discussions we replied that we in th e meantime we had discussed it and as far as America goes we have discieded against it . As soon as this story was related to me I new that the world was in for more trouble . It was in the economist's fear atomics field were we could have helped to extent to Rusuia a helping hadn at very little costs to us . AT Yalta we have purchased forom Russia - at a rather exorbing price - an obtion on peaceful and friendly coexcistance . At Potsdam we declared that we are not going to excercise this option. The result of Potsdam was that hence force Russia and American regarded each other as potential enemeys rather than potential friedns .

Onee Russia has come to regard us as a potential enemy I thought it very unlikely that she could be persuated to except international control of atomic energy along the lines of the E. R. Report Or as a matter of fact any other agreement that would have deprived her of learning how to make atomic bombsn well it would have left the United States if not in the possedion of bombs in the position of making the atomic bombs on a short notic when ever she should decide to do so . Later on I was told by someone who had been quite close to Glominko in the early days of these negotiations that I was qwrong about this point and that Russia not knowing for certain how long it would take her to master the art of making such bobmbs and also of a general dislike for this kind of enovation of welfare would have wellcomed an arrangement that she considered practible that would have raded the world of bombs. Ludwigx was on my side I believe but I must admit that Russian con sermation represent only the first consultation and in the second approcimation sicological considerations enter in a major way .

Gradually it became clear that America and Russia wære caught in a par conflict very similar to the conflict between its evans which lead to the Pelopenesian war and the distruction of Greesce . The most dangerous aspect of a par conflict of this lassical type is a vicious cirle which operates in it The more probable war appears the more becom e the considerations which have a bearing on our change to win that war We want to make as sure as we possible can that we are going to win the war for nothing worse could happen to us than to be vancished or perhaps even conquered. In such a situation almost every controversial issue is regarded from the point of view

of its strategic importance and depending on whether it is settled one way or the other it increases or decreases .our chance to win the war when it comes. And because it is not possible to reach a compromise on the issue of who shall win the war when it comes it is impossible to settle any of these controverisial issues. None of the old issues are settled and new issues arise from time to time and ths situation goes from bad to worse and the Nations cause is past such a conflict move like puppets of a grave tragedy closer and closer to the ultimate clash and distruction The postwar conflict between America and Russia had inicially all the earmarks of such a classical par conflict and it was agravated by the atomic armes race As it became clearer and clearer that the atomic bomb monompoly of America is nearing its end the outbreak of a preventive war became more and more a problem Those who were consientially thinking of american policy in terms of a preventing war were not numerous and only very vew men ever talked about it even in private f Yet the sx thought of preventive war was alive below the surface of conciencinous and it manifested itself in an increased tendentdy on the part of American policy makers to take - what they call - cariculated riskes Either we get what we want - so the subconcient mind whispers - and than we have gained a point in our jokeying for a strategic position or else there is war an d if we must have war it is better to have it now than later when the Russians have caught up with our atomic stop past.

I am inclined to think that if there had been a protected period between the explosion of the first atomic bomb and the event of the so clalled staly mate between the strategic air forces of america and russia America would have kept on taking carefully risks and it would have come to a world war . As it is it became clear after the Vermou crisis that the American people were in no mood to rellish any further calculated risks taking .

At this point I believe it is importatn to define a little more precisely in what sence I use the term " Stalemate between the strategic air forces of America and Russia" I believe the most importatn issue with wilsh we are faced at this juncture is the issue of stability of the Stalemate By discussing dispassionatly our problem of stability of the Stalemate scientists could render a great public service to the world . Whether or not such a stalemate could be rendered stable depends on a number of factors. And I hope that there will be opportunity on this meeting to have a dispassionate discussion of there factors.

If you allow me for a moment to postuate without prove that such a Stalemate could be made perfect stable than it is my contention that for the first time since the end of the war we are faced with the situation in which the vicious circle that aggrevated the post war conflict between America and Russia no longer operated.