

September 23, 1945

The following remarks were made by me Saturday, September 22, 1945, at the meeting of the Atomic Energy Control Conference at the University of Chicago. The text has been written down from memory and deviates therefore to some extent from the transcript.

Leo Szilard

The Szilard Group proposals were worked out Friday afternoon with the collaboration of a number of people who participated in the discussion.

Their names are as follows: Staley, Hecht, Stearns, Shils, Marshak, Friedman, Wirth, Nickson, Carter Goodrich, Lindbergh, Condon, Rabinowich, and Szilard. Visitors to this group included <sup>Layman</sup> Klein, Koopmans, Merriam, and Hutchins. The overwhelming majority of the group was yesterday in agreement with these proposals. This does not necessarily mean that everyone who <sup>agreed to</sup> ~~honored~~ them yesterday is still in agreement with them. There may be some who have had serious misgivings since, and I must confess that I am one of them.

It seems to me that the situation which faces us cannot be effectively dealt with by means of purely mechanical gadgets like inspection and international institutions such as the League of Nations might have set them up 25 years ago. It seems to me that as a minimum requirement we will have to include measures which indicate an encourage a change of heart on the part of at least a certain section of the population.

Unless we can guarantee immunity to the scientists and engineers everywhere in the world in case they should report violations of the arrangements agreed upon, we cannot have reasonable assurance that these arrangements will not be violated. This calls for a Bill of Rights for scientists and engineers all over the world which would make them the guardians of

the international arrangements relating to the control of atomic energy. In case of need any one of them ought to be free to request and it shall be possible for him to obtain ~~international~~ <sup>some sort of</sup> status which would remove him from the jurisdiction of his own national government. This would mean that all countries would have to revoke their espionage acts inasmuch as they affect scientific and engineering secrets and scientific and technical secrets (as far as ~~the~~ <sup>the</sup> government ~~is~~ <sup>are</sup> concerned) would have to remain without legal protection. ↓

I ~~do not~~ believe that unless we can go at least this far in the first instance we shall <sup>not</sup> be able to feel safe and I do not believe that it will be any easier to achieve this advance by trying to bring it about gradually, step by step.

It is as if in our wanderings we had reached a brook. The question is, can we jump over it. I fear that if we try to wade through it we will get cold feet and are likely to turn back rather than go forward.

September 23, 1945

Below is, written down from memory, the address given in the morning on Friday, September 21, 1945, at the Atomic Energy Control Conference at the University of Chicago.

The purpose of this address was to define the task confronting the subcommittee headed by me which was scheduled to meet in the afternoon.

Leo Szilard

### Part I

Any attempt to formulate what the policies of this nation should be --in the present contingency--must be based on some set of assumptions. I should like to attempt to formulate those of my beliefs which are relevant in this connection.

First of all we must try to understand what the existence of the atomic bomb might mean in the next ten to twenty-five years. The atomic bomb detonated over Hiroshima corresponded to about 10,000 tons of TNT and had a radius of action of slightly more than a mile. According to a statement made by Professor Oliphant of Birmingham, England, as reported in American newspapers, he thinks that within a few years we might have atomic bombs corresponding to one million tons and ten million tons of TNT. Such bombs would have a radius of action of ten miles.

Dr. Oliphant presumably knows along what road he would have to travel in order to reach this goal. Of course he cannot know for certain that he will not find the road blocked at one point or another.

"Progress" might, however, go far beyond the stage described by Dr. Oliphant. I do not think anyone can tell right now whether or not it might become possible to start nuclear reactions which could destroy all life on the earth. Roughly speaking, the earth consists of the solid

*This is and should be Newt. 48  
L. S.*

land, the water of the ocean and the air of the atmosphere. The question which I am raising involves two distinct and separate questions. One is whether any of these three kinds of matter is combustible in the sense that it is capable of propagating a nuclear reaction provided we detonate it by igniting it with the right kind of match.

If any one of them is combustible then the further question arises whether it is within our power to construct the right kind of match which is needed in order to actually detonate it.

I do not think that anyone knows the answer to these questions right now. But I believe that physics is sufficiently far advanced to investigate these questions and that an answer will be forthcoming in due time.

It is almost certain that we shall not be faced with this ultimate danger within the next three years. At present it must be considered a remote possibility, but not so remote as to make it impossible for the physicists to know where to begin, what experiments to undertake, and what calculations to make in order to find out whether the danger exists in fact.

If we focus our attention on the next twenty-five years we may say that development is likely to reach some point intermediate between the first bomb detonated over Hiroshima and processes which once initiated might put an end to all life on earth. Just what intermediate point will be reached within twenty-five years no one can tell.

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## Part II

When the Japanese surrendered we did not stop our production of atomic bombs. On what cities do we intend to drop these bombs? Our enemies are defeated but some of our Allies may prove difficult to live with, so we are making atomic bombs and we reserve to ourselves the possibility of using them if worst comes to worst. Perhaps we are resolved not to use them but think that the mere possession of them will impress other countries and may make it easier to settle the difficult international questions which now after the war confront us. This does not seem to me to be sound psychology. In peacetime these bombs will be of no earthly use to us unless we are actually determined to go to war if necessary about some question which we consider vital. If we are not actually willing to go to war we can use this bomb for purposes of bluffing only, and the others will see through our bluff.

Three to six years from now Russia is likely to have a stockpile of atomic bombs of her own. I do not believe that an armed peace in which both the United States and Russia have large stockpiles of atomic bombs can be a durable peace.

### Part III

I do not believe that permanent peace can be had at any lesser cost than at the cost of a World Government. World Government we cannot have at once--not by peaceful means--because we cannot bring about the necessary shift in the loyalty of people simply by passing laws, national or international.

The only thing that we can hope to establish in the immediate future is therefore a durable peace, but the question is, can we make it durable enough to allow time to reach the ultimate goal of a World Government before another world war breaks upon us. If the peace which we establish is not durable enough, then all we shall have achieved is to postpone the third world war and the later it comes the more complete will be the destruction which it will cause.

If we could insure a period of peace for twenty to thirty years this might give us enough time--provided we are determined to make use of it--to approach step by step, perhaps in accordance with some predetermined fixed schedule, the ultimate goal of a world government.

Education alone can hardly be counted upon to bring about the shift of loyalty which is a necessary condition for a stable world government. It will be necessary to create institutions that will actually affect the lives and careers of at least the more highly educated strata of society.

The question is not whether or not we shall have a World Government. World Government is almost a certainty within the period of the next fifty years. If the Germans had won the war we would have a world government right now. If Russia should win the next world war she will certainly

extend her government over the surface of the whole earth. If we should win the next war and if we should lose in that war the lives of the 30 million people who live in cities of over 250,000 in this country, perhaps we too will be prepared to take over the government of the world.

It is a priori probable that we shall have a world government only at the cost of a terrible war and if I have to give a personal appraisal for this probability I would put it somewhere near 90%. If we then put forward proposals for the establishment of a durable peace, durable enough to permit a transition without war into permanent peace guaranteed by a World Government, it follows that our proposals can have only a 10% chance of being successful.

Ten percent is not a very high chance, but it seems to me that we have to base our thinking and acting entirely on this narrow margin of hope.

Viewed in this light, our objective must be considered to be a modest one since what we propose cannot be expected to have but a slim chance of success. This fact should make us indulgent towards proposals made by others than ourselves and should make it easier to approach our task in a spirit of humility.