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C.B.S. REPORTS - DISARMAMENT

March 30, 1960

AN INTERVIEW WITH A PROFESSOR SZILARD

1/1

Q.

Well, Doctor Szilard, thank you very much for letting us come here, at the present, in these circumstances, and interview you.

A.

Well, I'm grateful that you came. But now that you are here, it seems to me we ought to stay together and solve the problem of the bomb - and even if we have to stay up until midnight.

Q.

We will have the best wished, of everybody on earth, if you do.

A.

You don't have to be afraid that you'll tire me. You see, I'm not in any kind of distress. It is true that I'm not expected to live - but I hope to be able to work for a few months - and perhaps for a year or two. If I could live forever, the thought would distress me that I don't have much time left. But if I can't live forever, it really seems to me it doesn't make much difference - whether you live a year longer - or two years longer. There's a story, I always like to tell, you know, of a patient

X

- 2 -

1/1

A.

who had heart trouble - and visited his doctor. The doctor told him that..(SOUND OF AUTO HORN)..he could have his normal life expectancy - he could live out his normal life if he were willing to slow down. But if he didn't slow down, he was probably - he will probably cut off ten years from his life expectancy. The man thought it over - and then he ~~said~~ to the doctor - you know, I don't think I will slow down. Because if worst comes to worst, I will be dead ten years longer. I think this is the right attitude to take. And - a - you know, I said, even as a child, I tried to imagine how it would affect my life if I knew I had only a short time to live - and I came to the conclusion that it wouldn't affect me at all. That is, I would just do exactly the same things which I would do otherwise. Now, I find that is not entirely true - it's almost true - but not entirely true. There is a certain change. I'm interested in the long range problems - and I'm not interested in the kind of short-lived problems like, say the problem of Berlin. Now, don't assume that I don't have a solution to the problem of Berlin. And if you want to hear it, I can tell it to you - but it doesn't interest me very much.

- 3 -

1/1

Q.

Well, Doctor Szilard, I read an article about you, recently, which said you had a special gift of deducing future events from present facts. And I read a book which said that - a- you have established your ability to think ahead of your times. So we mainly want to talk about the future. But before we do, can I ask you something about the past?

A.

Surely. Go ahead.

Q.

Well, the thing that you're going to be remembered for most, I think, is the fact that you virtually initiated the construction of the Atomic Bomb by inducing Einstein to sign this letter and send it to President Roosevelt. I would like to know - as you look back on that - are you proud of that achievement?

A.

No, I can't say that I'm proud of it, because it was just inevitable. You see, on the basis of the assumptions, which we made, we had no other course. We knew, at the time, - this was in the summer of '39 -

Q.

Um-hum.

- 4 -

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A.

It was quite obvious that we were just a few months away from a World War. It stood to reason the Germans would be working on this bomb. They had excellent physicists. And the question was - will they get the bomb first or will we get the bomb first? I did not contemplate, with equanimity, the possibility of the victory of the German Nazis - even if it hadn't been world domination - it would have been at least the domination of Europe. And so I think we had not much choice but to do what we did.

Q.

Well, sir...

A.

But being proud of it is again something else. And I may tell you something else, perhaps - you see, after the project started, I saw very little of Mr. Einstein - because he was not on the secret project - and I was not free to talk to him. I saw him, occasionally, during the war, and he knew roughly what was going on - but I was not at liberty to tell him anything in detail. Immediately after Hiroshima, I went to see him in Princeton - and the

- 5 -

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A.

X first words which he greeted me with - to say - you see, he said to me - the old Chinese are right - one must not do anything. One must not do ever anything. What he meant was that if you do something reallyk important it has consequences - and it is not possible to know what the consequences will be - and since you cannot assume the responsibility for consequences which we do not know what they are, the best thing is to do nothing.

Q.

Well, I don't know whether he was serious or not. That would seem a very barren life, to take no initiative of any kind. Well, sir, in 1943, I think, when the first chain reaction occurred, you said that this was - a - this iwill be remembered as 'a black day in history.' Do you still stand by that statement?

A.

X Well, you see, that was - a - On December 2, '42, when the chain reaction was demonstrated, and there was some - there was a platform built there, and some fifteen people watching it - and then when they all left - and Fermi remained - then, I was alone

- 6 -

1/1

A.

with Fermi - and this is when I said...

Q.

This is Enrico Fermi?

A.

Enrico Fermi, yes.

Q.

The Italian physicist?

A.

Yes. And this is when I said I thought this would go down as 'a black day in the history of mankind.' Well, I think it has gone down as a black day. I don't think that the world will forget Hiroshima so soon. What the future will bring, I cannot tell. But I would put it this way - for the first time, I think, just because a bomb exists - there is a possibility of abolishing war...

Q.

Hum.

A.

...and there is a fair chance that this will happen. On the other hand, if war will not be abolished, then the bomb may very well mean the end of life on earth.

- 7 -

1/1

Q.

Let me ask you one more question about the creation of the atomic bomb. The German physicist Heisenberg has been quoted as saying that in 1939^{if} so small a number as twelve men had agreed^{if} there would have been no construction of the atomic bomb. Can that be true?

(CUT)

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Q.

A - Doctor Szilard, Heisenberg, the German scientist, said that - a - if twelve men - just twelve men had come to an agreement on it, there would never have been the construction of an atomic bomb. Can that be so?

A.

I would say fifteen - and I would further say that this agreement, among them, not to make a bomb, would have to have been reached in the Fall of - of '39. It is quite remarkable how few people were really interested, to the point where they wanted to do something about it. You see, the reason that we have a chain reaction - that we can have a chain reaction - is the fact that uranium emits neutrons

- 8 -

16

A.

when it undergoes fission.

Q.

How was that again?

A.

The reason that you can make a chain reaction, based on uranium, is not the fact that uranium undergoes fission, but that uranium emits neutrons when it undergoes fission. Now, this was discovered, independantly, by Anderson and Fermi - by Zinn and myself - and by Jolie.....early in March. Now, as soon as this was discovered, it was obvious that in principle a chain reaction might be possible.

X Yet, from July '39 to March 1930 not a single experiment aimed at investigating the possibility of a chain reaction was underway in the United States.

X This - the number of people interested was very small. And if these people hadn't gotten together as Heisenberg indicates, indeed, there would have been no bomb.

Q.

X And - and the thing that forced them together was that they assumed that Nazi Germany was making progress?

A.

- 9 -

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A.

Well - no. I say that if the Germans had approached us and convinced us that they will not make a bomb, we would not have made a bomb - and there would have been no bomb.

Q.

Now, in 1945 you were very much opposed to the dropping of that bomb on Japan. Tell me, isn't it a little illogical to create a weapon like this - to leave it in the hands of a people fighting a life and death struggle - that they did not want in the first place - and then expect them not to use it?

A.

X Well, you see the bomb was made because they thought the Germans would make it - and our only defense against German bombs would have been to have bombs of our own. But in 1945, at the time when the issue of Japan came up, the war had been won against Germany. At that point, there was not a ghost of a chance that Japan might win the war - and the Japanese knew that they wouldn't win that war - at that point, the problem of bring the war to an end is a matter of negotiations. You see, in retrospect, we didn't see that - that clearly, at the time. But I think the basic trouble was the

- 10 -

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A.

principle of unconditional surrender.

Q.

The principle of...

A.

Unconditional surrender which we postulated. Japan was suing for peace - as we now knew - and the Russians - the Japanese Ambassador had approached the Russian Government. The Russian Government informed us of this at the Potsdam Conference. There was no need to use a bomb, if we were willing to negotiate peace.

Q.

Um-hum.

A.

But, of course, I don't think the Japanese would have surrendered unconditionally.

Q.

No. Well, may we now talk about the present? At the present, we seem to be very close to the Russians on an agreement to stop testing nuclear weapons. How important do you think it is to achieve an agreement to stop testing nuclear weapons?

- 11 -

1/2

A.

This is difficult to answer, you see, because in a sense you may say it is important because we have now negotiated for such a long time about this problem - and the bad thing for negotiation to fail. But in this sense, it is important.

Q.

Psychologically, it's important then?

A.

I would say politically.

Q.

Politically.

A.

...it is important. You see, if we back out now, it is almost like an act of bad faith.

Q.

Act of bad faith.

A.

...if we back out now. Because we are so close to an agreement. But I wish we had not negotiated about this with the Russians. You see, we always make - I think - somehow, at this point of history, what is important is not that we negotiated with Russia formal agreements, but rather that we reach

- 12 -

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A.

- in informal discussions with the Russians - a
meeting of the mind of what really

(CUT)

END OF REEL #1

- 13 -

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Q.

Sir, I wanted to find out, from you, why you think tests - stepping tests is not important. Most people assume it is very important.

A.

Well, I wouldn't say it is not important. In a sense, since we have been negotiating it - about it - for such a long time - it would be bad to let these negotiations fail. But if you forget about these political considerations -- then, it would seem to me that at this point in history what is important is not to reach formal agreement with the Russians but rather to have informal conversations with them for the future purpose of reaching an understanding on-how jde we live through the next twenty-five or fifty years without a war? Now, there are several solutions to this -- there are several solutions to the problem which is raised by the bomb.

Q.

Um-hum.

A.

One is to get rid of it - the other possible solution is to find a way to live with it.

- 14 -

2/1

Q.

Now, - right now our aim is all to get rid of it, isn't it? That's what the disarmament talks are about?

A.

Well, you say our aim.

Q.

Yes.

A.

...is to get rid of it - but I'm not so convinced of this. This is what the Russians certainly propose - but we are not clear about whether we propose to get rid of the bomb. Certainly, we have not given a time scale to get ~~jk~~ rid of the bomb. And I'm not at all sure that this is our aim. I rather think our aim is some sort of an arm's limitation - it is not to get rid of the bomb but perhaps to limit a number.

Q.

Limit a number?

A.

Limit a number - perhaps to reach an agreement not to put bombs into orbit. And I would think our genuine aim is arm's limitation rather than/gxxxxx -- as the Russians put it - general and complete

- 15 -

2/1

A.

disarmament.

Q.

Total disarmament?

A.

This is the impression which I gain. Now, which of these two is really the better solution - namely, getting rid of the bomb or finding a way of living with it - I cannot say. And unless we discuss this with the Russians, we will not really discover the problems which are involved.

Q.

Well, sir, before you go on about what we should do, you had a program for stepping tests, though/didn't consider you that was very important. You had a financially based program, I believe. Could you tell us something about that?

A.

Well, I wouldn't really put it that way. I was - I had written an article analyzing what the problems involved are, and - a - what I said there - that some of the apparent difficulties which had(inaudible) these negotiations are no difficulties at all - and it just takes a little imagination to get around those difficulties. Well, the particular difficulty

- 16 -

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A.

which I mentioned was this - if the Russians want to limit the number of inspections - that is if we discover some suspicious earthquake type - a - disturbance, we would want to go there - send an expedition to inspect. The Russians want to limit this number. We want the number to be unlimited. Now, this kind of difficulties can be resolved. You see, the Russians take the position that we are unnecessarily suspicious. They say they know very well that they're not going to make - to engage in (inaudible)....testing. So they could very well propose to us that we can make any number of inspection trips.

Q.

Into Russia?

A.

In Russia - if we will discover a suspicious explosion. But we must pay for this unjustified suspicion. They could say we should pay a few million dollars for each such trip. If - a - we discover no explosion - that money's lost. Russians keep it. If we discover an explosion - well, of course we would get refunded all that we have spent and perhaps the Russians should even pay a fine of

- 17 28

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A.

a hundred million dollars. Well, in this way then the Russians don't have to limit the number of expeditions - the Bureau of the Budget would limit the number of expeditions.

Q.

The Bureau of the Budget would limit them. I think this is a very good idea.

A. *

This is a very minor thing. I just wanted to show that some of these difficulties are not really difficulties.

Q.

Yes.

A.

But I think I'm quite skeptical about the whole philosophy of wanting to discover violations of an agreement by means of gadgets.

Q.

Um-hum.

A.

And this is not a good -- this doesn't establish a good workable pattern for future agreements. I think it breeds suspicions more than it does anything else. And this is not the way to discover h

- 18 -

2/1

A.

~~SIX~~ hidden violations - when it is not an earthquake or a bombed explosion - but something else - say a hidden rocket cannot a hidden bomb or ~~xxxxxxxxxxxxxx~~ be discovered with gadgets.

Q.

Now, what about the danger then that the Russians might go on testing small nuclear weapons and get ahead of us in the realm of small nuclear weapons of the kind that you put in the warheads of missiles and rockets - if we don't have such an agreement, they might do that - that is the argument I often hear?

A.

You mean if we don't have an agreement at all?

Q.

If we don't have any agreement to stop tests, and inspect the stoppage..

A.

Yes.

Q.

Then, you say any inspection of that sort tends to increase suspicion. But - a - the people in the Pentagon say, if we are not able to inspect tests, then they will get ahead of us in producing small

-19 -

2/1

Q.

nuclear weapons?

A.

No - no - you and I assume - if I understand you correctly - there is an agreement - but the Russians might violate this agreement, secretly. Well, I have made a proposal, in this article which I wrote, how I would deal with this problem. You see, I would - I propose there, a two year moratorium on stopping the tests -- and during these two years all the Russian scientists and engineers who, in the past, had been engaged in such tests - and all American scientists - perhaps fifteen hundred of each group - would go into exile, and live together in a pleasant Austrian...

Q.

Pleasant where?

A.

In a pleasant Austrian resort.

Q.

Oh?

A.

I think they should draw twice the salary - twice their regular salary. They would be there with their families -- the Russians would learn English -

- 29 -

2/1

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-- The English would learn Russia -- and - a - I think that they ought to be addressed by the President of the United States - and by Mr. Khrushchev - and it should be made clear to them that they are there, you know, to convince both nations that there are no secret violations. Now, this, they can do by making frequent visits to their home base - talking freely to their colleagues. They would learn what's going on - no secret testing is possible which these people would not know in those circumstances. Now, if any of them knows - discovers the secret test - and if he makes this known - he would receive, from his own government, a million dollar reward - and this would be tax-free - and it would be regarded as ~~an~~^{was} patriotic duty to disclose such secret tests. Now, I think that the only way to discover secrets is to somehow to create a situation where the scientists and engineers understand that it is a patriotic duty not to tolerate secrets.^{enough}

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Patriotic not to?

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- 21 -

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A.

I think something of the sort, I say, could readily be practically put into effect now that the Russians have come up with a proposal for moratorium. Because the Russians propose a moratorium, but also proposed during that moratorium Russian engineers and scientists should cooperate with American engineers and scientists to develop methods for discovering small underground explosions. Now, I would go - I would say this is fine - but let's go one step further. This is a very boring thing to work on how to discover small underground explosions. And I would say that these Russian-American scientists should cooperate on many other things - should live together - should establish personal friendships -- and this would be the best guarantee that nothing secret can go on without its being discovered. You see, we have nothing secret can go on without a number of physicists and scientists knowing about it. So all it takes is their willingness to disclose it.

Q.

Now, let me ask you something, sir. You became rather famous, in scientific circles, in the late thirties, because you proposed a kind of self-censorship for scientists. And I think the basis

- 22 -

2/1

Q.

for the censorship was that you did not trust scientists from totalitarian countries - they might not have freedom to - to cooperate with you. Why is it now that you do trust scientists from a totalitarian country to be more loyal to this group of scientists - international scientists - than to their own country?

A.

They could not do that unless they were asked by their own government. You see, ~~it would~~ - it is the Russian Government which would have to take the position that since they wanted to stop tests - they have no intention to make tests which are illegal - and therefore any illegal tests takes place without the knowledge and consent of the Russian Government - and disclosing such illegal tests is therefore a patriotic duty of every scientist and - and - and engineer in Russia. They can do this only at the request of their own government.

Q.

Yes. But now, isn't that an upsetting of all the Communist values that we know of? Their first

- 23 -

2/1

Q.

patriotism of all Russian scientists is supposed to be directed to the Party and the State. Now, this would cause them to have almost a psychological revolution.

A.

I don't think so - because I don't believe that the Russians - if the Russians stop test now, I don't think that their purpose of stopping tests is to make illegal tests -- I don't believe that this is their purpose. They really want to stop tests for reasons which are not quite clear to me. But I really believe they want to stop test. They are not going to stop tests, I believe, and then risk illicit tests being discovered.

Q.

An illicit test.

A.

Yes. I don't believe so. So I thinkk that it is - for whatever reason the Russian Government decided to stop tests - is varied for Russia - and I think the Russian Government will be quite prepared to create a situation in which illicit tests could be discovered. Because I don't think they are going into illicit testing.

- 24 -

2/1

Q.

Yes. Well, I have the impression that one way or another we're moving towards an agreement on tests anyhow. So let us move on to the other problem which you posed a moment ago - that is the dilemma between a policy of wanting to do away with the bomb or a policy of trying to live with the bomb? Now, which of those two policies do you recommend for us?

A.

Well, I couldn't say this. I think I couldn't say it flatly - what I would say is that we must do either one or the other - and therefore, I gix have given much thought to the last, popular problem of how to live with the bomb. And I will tell you something about it later. But let me first say how I look upon the problem of getting rid of the bomb. This is the obvious solution - and this is what the Russians now propose. I have never believed what most of my colleagues said -- No, let me rephrase this. It is customary to say about this problem - it has been, for the last fifteen years - that it will be highly desirable to get rid of the bomb and have total disarmament. But unfortunately, this is almost impossible of .

- 25 -

2/1

A.

accomplishment. Because bombs...

(CUT)

END OF REEL #2

- 26 -

3/1

Q.

Well, I was asking you about the dilemma between the policy of destruction, or just doing away with the bomb, and the policy of trying to find a way to live with it.

A.

Well, you see, immediately after the Second World War there was talk about getting rid of the bomb. And it became clear that if we get rid of the bomb, this must be in the framework of perhaps general and complete disarmament. Now - but, in spite of all the talk that there was, there wasn't really very much -- little thought given to it. What you normally hear - what you generally hear is that it is highly desirable to get rid of the bomb - and have general disarmament. But it is very doubtful whether this is feasible - because bombs could be hidden away secretly - rockets could be hidden away secretly. How do we know that there is no -- there are no secret violations of an agreement providing for general disarmament? I think the opposite is probably true. There is some doubt whether such a disarmed world would be stable.

Q.

Such a disarmament would what?

- 27 -

3/1

A.

Such a disarmed world - where there are no bombs and no weapons - except machine guns perhaps...

Q.

Um-hum.

A.

This would be stable - there wouldn't be major wars - major wars arising in such a disarmed world. But there's very little doubt in my mind that if it should turn out that it is really desirable, both from our point of view and from Russia's point of view, to have total disarmament - that this would be feasible.

Q.

They could find a way to do it, if they really wanted it - is that it?

A.

Well, let me put it this way. If it's really desirable to have such an agreement - and if we may assume that the Russians want to keep such an agreement in force - they will find ways to convince us that there are no secret violations - and we will find ways to convince them that there are no secret violations over here. Now, you cannot write, in my opinion, a formal agreement in which

- 28 -

3/1

A.

you spell out, in advance, what needs to be done in order to detect secret violations. ~~The method~~ what needs to be done in Russia, to convince us that there are no secret violations, may be quite different from what needs to be done over here to convince them. But I really believe that if such a disarmed world is desirable, for Russia and for us, then it also is feasible.

Q.

The way you say this might happen is quite the reverse of what people are thinking now. Right now we're thinking of means whereby we can go in and convince ourselves they're not breaking the agreement. But you say if both sides really want an agreement they will come and convince us they're not breaking the agreement?

A.

I think this is the logical way of doing it. I mean the Russians know very well that we must abrogate the agreement unless they convince us. You see, if they want to keep an agreement - the agreement in force - they are going to convince us one way or another.

Q.

- 29 -

3/1

Q.

Could you indicate how they could do that?

A.

Yes. I think I could. Well, I think they could do the following. For instance, they could make it known - and repeat it over and over again - over the radio and television - that it is the desire of Russia not to tolerate any secret violations ~~themselves~~. Q.

This is radioed to their own people?

A.

To their own people - that anyone who finds a secret violation will receive a reward, from the Russians Government, of a million dollars - that if he and his family later on want to eat up this million dollars in Switzerland, they will be free to do so. Now, it is, of course, quite possibly - I mean it is physically possible for Russia to arrest somebody who discloses a secret violation -- but this cannot be done without - without - a- the world finding out that these people have been arrested. And this would be tantamount to an abrogation of the agreement.

Q.

Um-hum.

- 30 -

A.

You see, what cannot be tolerated, and what is an impossible situation, is the situation which you had after the First World War, in Germany, where, on the one hand, Germany had signed an agreement which essentially kept Germany permanently disarmed - on the other hand, the German courts sentenced Germans, who disclosed violations of that agreement, under the Germany Espionage Law, to prison.

Q.

Yes.

A.

The German Espionage Law remained on the statute book - at the same time when everything was abolished, that could conceivably be secret, under the Espionage Law. Now, the great advantage of the Russian proposal of general and total disarmament is that it does erase secrets. You see, there's nothing - once you have general and total disarmament, there's no reason for secrecy - and therefore, measures of inspection, which are not tolerable today, and which will not be tolerable under partial disarmament, become tolerable under ~~g~~total disarmament. So total disarmament is rather easy to police. But I don't think it shall be noticed by these old fashioned

- 31 -

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A.

methods - which have been discussed - which have been under discussion in the last fifteen years. Those are really - those are really pedestrian methods - and they are not useful.

Q.

May I conclude, from what you said, that you think we ought to accept Khrushchev's proposal of total disarmament?

A.

No, I think we ought to examine that - and really, we should first of all examine it from a point of view whether it is desirable - and when I say desirable, I mean also desirable from a point of view of Russia. I'll tell you what troubles me - if I ask myself first - what does total disarmament mean? It seems to me it cannot very well mean disarmament which ~~is~~ eliminated machine guns. I recall a story, which came out of Germany in 1934. This was a time when Germany was bound by the Versailles Treaty and was disarmed -- and the story tells of a man who meets a schoolmate of his and tells him how troubled he is because he has so many children - and another baby's on the way - and really, with a small income. And his friend says -

- 32 -

3/1

A.

speak well, maybe I can help you. You know, I'm employed in a baby carriage factory and you need a baby carriage. I can't give you a baby carriage. But I can send you the parts and you can put it together yourself. If you want me to do that - this, I'll be happy to do. So this is agreed. And a month later, when they meet again, the man who received the baby carriage parts tells his friend - you know, I received your gift, and I tried to put together those parts. I put it together in three different ways, but each time it was a machine gun that came out. So, I believe that probably we must say a disarmed world is a world in which machine guns are still present in unlimited quantity. Now, what I would try to..

(CUT)

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Q.

Will you tell me that story again? Will you attach it to what's gone?

A.

Now, I remember an anecdote which came out of Germany in 1934. At that time Germany was bound by the Treaty

- 33 -

3/2

A.

of Versailles, which provided for her disarmament. And this is how the story goes. A man met a school friend of his and told him that his wife's ex-expecting a baby. He had already seven children - and this was his eighth - and he really didn't know how to make ends meet. And his friend said - well, maybe I can help you. I am employed by a baby carriage factory.

Q.

A baby carriage factory?

A.

Yes. I can't send you a baby carriage, but I can send you a box containing the parts, and maybe you can put it together yourself? So this is agreed. And a month later, when they meet again - a- the man tells his friend - you know, your package arrived, and I tried to put together the baby carriage. I put it together in three different ways, but each time I got a machine gun out of it. I'm assuming that a disarmed world will be a world in which machine guns are present in unlimited quantity or can be manufactured secretly - very rapidly -- arms may be disbanded -- well, an army trained to use machine guns can be created in a few

- 34 -

3/2

A.

weeks. Then, I ask myself - how - what kind of bad things could happen in such a world? Well, the first question I think we shall ask ourselves - would such a world be satisfactory, from the point of view of Russia? Because unless it is, the agreement will not remain in force. What I would like to ask our Russian friends is - what would happen if we say German volunteers move into East Germany armed with machine guns?

Q.

West German volunteers move into East Germany?

A.

Yes, West German volunteers move into East Germany armed with machine guns, and depose the West German Government. I'm sorry.

Q.

The East Germany Government.

A.

depose the
And/~~the~~ East German Government. What
would happen if there's a united Germany and
German volunteers move into Poland, with machine
guns, and take back those territories which Germany
has lost to Poland?

- 35 -

3/2

Q.

The Germans moved into Poland, you say, now?

A.

The Germans moved into Poland, armed with machine guns, and retake the territory which they have lost to Poland as a result of the war. What would happen? Would Russia sit by and let this happen, or would Russia find this intolerable, and feel that they must intervene - and in order to intervene, they must rearm? So what I would like to see is a serious examination - not whether general and total disarmament is feasible, but first, is it desirable?

END OF REEL #3

SA

- 36 -

4/1

Q.

Well, sir, you've made a strong argument that a total disarmament agreement between American and Russia is possible - but what about other nations who possess arms? Couldn't they cause trouble?

A.

Well, no. I - my worries go even deeper. Let me assume that a disarmament agreement is observed by all - but this doesn't mean that you don't have machine guns - or that you can't produce machine guns almost anywhere in a very short period of time. Now, what I would ask the Russians, at this point, would be this - what would happen if say West German volunteers moved with machine guns into East Germany and make a revolution? And what would further happen if a united Germany would move, with machine guns, into Poland and re-conquer the territories that Germany had lost to Poland? How would Russia feel about it? Would they just say - well, these are changes which don't bother them very much - and they are quite willing to have wars of this sort going on - or would they be disturbed by this? You see, we have to examine, first of all, would such a disarmed state

4/1

A.

be desirable from Russia - the Russian point of view? Because unlesss it is, it will not be possible to maintain that agreement in force. On the other hand, if we carefully examine the situation, we ~~we/must~~ come to the conclusion that yes, such a disarmed world is desirable - both for Russia and for us - then, I think such a disarmament will also become feasible - because both governments would do everything possible to make it feasible.

Q.

Would do everything possible to make it feasible?

A.

Yes - Russia would find ways to convince us there are no secret violations on her territory - and we will ~~find~~ find ways to convince the Russians that there are no secret violations on our territory. So the ~~first~~ question is/it desirable? And this is where I have my doubts. I think that the technique which we employ, in our negotiations, where we say - oh, we don't yet know what we want but let's first see what's feasible - is a bad technique. Because what is feasible depends on ~~time~~

- 38 -

4/1

A.

how desirable it is - how desirable it is determines the price you are willing to pay for making it feasible. We did this on the stop the test negotiations. We said first, we don't know whether we want to stop tests - but we are willing to examine whether it is feasible. I think it's an illogical procedure, and nothing - and not much good will come of it.

Q.

Now, you expressed the possibility that it may not be desirable to do away with - to have total disarmament? What did you mean by that?

A.

Well, I mean by that - well, I meant in a totally disarmed world there are still machine guns - that wars could be fought with machine guns - that once a war breaks out it can spread - and pretty soon other weapons will appear, including atomic bombs. The question is - can you have a stable peace in a disarmed world? Well, it seems to me that a disarmed world will be a satisfactory world only if we can stabilize either the status quo or stabilize the territorial status which is agreed upon.

O.

- 39 -

4/1

Q.

Do you have any proposals for creating such a situation?

A.

No - my thinking has not moved very much along those lines. I have rather assumed that disarmament will not come into existence - that is - and by this I mean that the bombs jwill remain in existence - that both the ^{ussiaan} and we will retain stockpiles of bombs. If we did that, it doesn't matter very much that we get rid of the navy and the army and the air force -- this will be just - be a measure which we can do - take - it'll probably happen even with us in agreement -- it'll become useless -- just as bows and arrows used to be part of our equipment. And then I asked myself - could - could we live with the bomb?

Q.

Yes, what about that? That is the key question of our time.

A.

Well, it seems to me that really, here, we have had a blind spot - and the blind -- this is - a - you see, somehow, people thought that there will be small bombs and big bombs. The big bombs will

4/1

A.

be so dangerous to use that wars will be fought with small bombs. We had such a blind spot before -- when the war ended, no one thought of the possibility of using atomic bombs against troops in combat. It was just something that didn't occur to anybody. Then came a period that everybody thought of this possibility, and where people begin to think in terms of limited wars, with atomic bombs used against troops in combat, neglecting the existence of the large bombs -- the large bombs will remain frozen in a stockpile -- this again is a blind spot. What I really believe is this -- that if the bombs are retained, then war perhaps will be abolished - by a unilateral decision of either Russia or America. What I contend is this - that in none of the foreseeable conflicts would it ever be necessary for Russia to threaten anything worse than demolishing a city which has been evacuated - because it has received adequate warning-a few weeks warning. Now, this is a rather another way of looking at it - and I've gone to great trouble to make my position clear, by writing a rather - a - lengthy article in the February issue of the Bulletin - Atomic Scientists - where I have described how a stable

- 41 -

4/1

A.

world might be possible if only Russia and America realize that it is within their power to abolish war, and that it is to their advantage to abolish war.

Q.

Did you explain that system to us, that you...

A.

Well, I have to do that by giving you a few examples. Because, otherwise, it sounds very odd. I've been experimenting with examples - and finally, I have an example which perhaps will serve. You see, at first-wait well, I've been experiments with examples at the various Pugwash Meetings. These Pugwash Meetings - there were four of them bynow - bring tgether English, French, Russian and American scientists - and they talk not about science - but about the problems radded by the bomb. And at every such Pugwash Meeting I was experimenting with this idea of perhaps - war cannot be abolished without - without being able to eliminate the threat of force.

Q.

That sounds contradictory to do, automatically.

~~One doesn't think in those terms. Could you explain?~~

- 42 -

4/1

A.

Well, I will give you various examples. You see, at the Second Pugwash Meeting, I started out by saying that - let me assume there is a Communist Government - Revolution in Mexico - and immediately, one of my Russian colleagues said - Russia would not instigate such a revolution. And then he said I that perhaps my Russian colleague would agree with me - just for the sake of argument - that a Communist revolution could occur somewhere, even though Russia may not instigate it. This was not answerable. I was just laughed at - and then I was able to go on - and I went on saying that - let me now assume that there are free elections in Mexico, following the Communist revolution, and the Communist Government is reelected in free elections, in a great majority. Now, in such a situation, nevertheless, there might be great popular pressure on Washington for a military intervention in Mexico to unseat that Communist Government.

Q.

Yes.

A.

Now, I asked my Russian colleagues, what could Russia do in an instant invasion? And they said that if

- 43 -

4/1

A.

Russia were willing to sacrifice one or two of her cities she could advise us - she could name twenty American cities - and she could say that in case of a military intervention in Mexico, Russia would demolish two of these twenty cities. She would give these cities four weeks warning to permit their evacuation. Further, Russia would have to make it clear, however, that she would not take reprisals if America would retaliate by demolishing two evacuated Russian cities of the same size.

Q.

Two ~~equal~~ equivalent Russian cities?

A.

Yes, because in such a situation, you can never exact a bigger price.

Q.

No.

A.

...then you are willing to pay yourself. And I said - what would happen in those circumstance if Russia were willing to lose two cities? It is quite possible that the popular pressure on Washington would cease. Because it happens - of those twenty cities would not cherish the thought that their

- 44 -

4/1

A.

own city would be one of those which will be demolished. Well, the Russians sat there with stony faces. And when the meeting ended, one of them came to me and said - you know, you didn't do so very well with our delegation today. And I said - well, what did I do wrong? I went out of my way to create - to depict the situation where Russia was in the right and America was in the wrong. Russia did nothing illegal -- illegal action was threatened by America. What did I do wrong? Well, he said, yes - yes, this is alright. But why do you have to choose such an unrealistic example?

Q.

Unrealistic?

A.

I said, what do you mean? He said, why do you assume that Russia would be willing to have one or two of her cities demolished to protect Mexico - when nothing that could happen in Mexico could possibly threaten the Russian security. So then, when I wrote my article, I didn't use this example. The example I used was this - you

- 45 -

4/1

A.

see, I reminded - a - correction - the example which I used was this -I said perhaps a crisis might occur in the Middle East, similar to a crisis that happened in the past when there was the revolution in Iraq and America and Britain landed troops in Lebanon.

Q.

And Jordan.

A.

Jordan, yes. Now, suppose another crisis of this type arises, which involves the Arab Republic - Turkey suppose, ~~knowing~~ mobilizes and threatens to invade Syria - and suppose Russia mobilizes and threatens to invade Turkey in case Turkey invades Syria? And suppose at this point we would declare that if Russian troops cross into Turkey we would land troops in Turkey?

Q.

America?

A.

America would land troops in Turkey, and fight an atomic war, where atomic bombs would be used against troops in combat, on Turkish territory - and perhaps in hot pursuit, even beyond the Turkish-Russian

- 46 -

4/1

A.

boundary? Does Russia have to accept to fight a war on these terms? And my answer is no - Russia may choose to do something else. She might single out twenty American cities - she might inform us that in case we move into Turkey with our troops she will destroy two of them, giving them due warning so that nobody is killed.

END OF REEL #4

5/1

A.

Well, it seems to me that Russia could, at that point, choose to designate twenty American cities and declare that if the American troops invaded Turkey, Russia would destroy two of these cities - demolish them - give them four weeks warning so that they can be evacuated. Now again, Russia would have then to say, to make quite clear, that if we retaliate and demolish only two Russian cities of equal size, this will be the end of it. Russia would not retaliate again - otherwise, you see, the Russian threat would be a threat of unlimited destruction - and such a threat would hardly be believable. Well, this is what I might do. Now, the question is - what we do in such a situation? Well, some people say - people are irrational, and we will tell the Russians that they if/we destroy say Philadelphia, we are going to destroy ten Russian cities. This, of course, would mean that the Russians retaliate by destroying ten American cities. Now, I don't doubt that people are irrational - but I rather doubt that a man in Chicago, if he learns that Philadelphia may be destroyed, and that we will retaliate by destroying

- 48 -

5/1

A.

one Russian city, will demand that we destroy ten Russian cities, and provoke the Russians perhaps to destroy Chicago as a result. I think people ^{ir} are mostly/rational if someone else pays the price - they're not so irrational if they have to pay the price themselves.

Q.

Well now, sir, on that very same point, suppose ^w had Adolph Hitler/~~xxxx~~ possessed such weapons, wouldn't he be irrational in using them? Can we count on both America and Russia to be perfectly rational?

A.

I think that if Hitler had had bombs, and we had pushed Hitler to ultimate defeat, he would have been irrational about it. You see, when a nation's existence is at stake, then even murder and suicide become a possible cause of action. If Hitler had the bombs, I think it would have been necessary to have negotiated peace with Germany. It would not be possible to push the war to victory. And certainly, it would not have been possible to have unconditional surrender.

- 49 -

5/1

Q.

And your proposal is roughly a negotiated peace even before war breaks out - a kind of a limited contract?

A.

You might put it that way.

Q.

Yes.

A.

You might put it that way. Now, I have tried to explain, in this article, you see, what would happen if not only two nations but five or ten nations..

Q.

Yes, what about that? Suppose the Chinese get the bomb?

A.

Well, this still works. The trouble, however, becomes very great when many nations got only have bombs but can fire them by means of rockets, from submarines.

Q.

Hum!

A.

- 50 -

5/1

A.

who fire the bomb - what nation is responsible for the attack? You can't trace a rocket to points at sea, but the submarine, is by that time gone.

Q.

Hmm.

A.

Now, when that becomes a real danger, then still *without* there is a Russian conduct which will make it unprofitable to stage an anonymous attack. But the strain then - the emotional straining then becomes so great that I would myself be afraid of such a situation. Now, I believe that here is something where Russia and America might act in concert - in concert - to avoid the possibility of many nations being in a position to stage an anonymous attack.

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Q.

Now, sir, even if we work in concert, as you say, isn't it possible that some smaller nations may not agree to this concert in - for example - Russia and America may set up this agreement not to do anything without retaliation - exact retaliation from the other side - but suppose the West Germans

2 |

- 51 -

5/1

Q.

get angry and do something against Poland - and the Russians have to come and defend Poland - then we have to go and defend West Germany - aren't we likely to get in a war over that?

A.

Now, wait a minute. You are assuming that the West Germans have bombs and rockets, are you?

Q.

Yes.

A

Well, if the West Germans have bombs and rockets, then it's probably very little, with Russia, we could do except giving bombs and rockets~~s~~ to Poland. Then the situation between Germany and Poland is much the same as it is between Russia and America.

Q.

Um-hum.

A.

The West Germans may not move into Poland if it will cost them five major cities.

Q.

Um-hum.

A.

an I think that if many nations become armed with

- 52 -

5/1

A.

atomice weapons - both Russia and we will/~~maxyat~~
regret
to cut our commitments to them - and rather than
give them bombs and rockets - than maintain our
commitments - because if we live up to our
commitments, it means that our own cities might
be destroyed as a result of an action of an ally
over which we have no fulþ control.

Q.

Well, this business of equivalent retaliation is
very hard to grasp immediately. A - let me ask
you another question about it? A - doesn't it
call for amazing restraint on the part of every-
body in the world? And doesn't it tend to jmaintain
the status quo? Won't it prevent any change occurring
in the world? For example you gave the example of
Mexico having a revolution. Now, supposing Mexico
needs that revolution? Yet - we will be able to
prevent it and no one else will be able to pre-
vent us from stopping the revolution.

A.

No, I think it will - I think that this system -
this security system, which I've described, will
tend to preventz territorial changes.

- 53 -

5/1

Q.

Territorial?Hungary

A.

But it will not prevent revolutions. You see, if Mexico has a Communist revolution - well, it has a Communist revolution. We will not be able to intervene, provided Russia is willing to protect Mexico. If Mr Russia's not willing to protect Mexico, then, of course, we can intervene - in which case - with troops - we don't even need bombs then.

=

Q.

Well now, what about the case of Hungary? That's a recent example that actually happened. Supposing there's a revolution in Hungary, and that's a good revolution - it's necessary. It has to happen. Won't this system permit Russia to stifle that Revolution without any fear of consequences?

A.

Yes, I think you - this system would prevent Russia to stifle this revolution - but so - so do any other system, in a world where there are bombs stockpiles.

Q.

Is that...

a

- 54 -

5/1

A.

Because I don't think we are going - we may have sympathy for the Hungarian Revolution, but we are not willing to lose New York or Chicago in order to protect such a revolution.

Q.

Yes.

A.

What - you see - what I contend is this - that this threat of demolishing a limited number of cities is not - is strong enough. If you make the threat stronger - if you threaten mass retaliation - which is tantamount today to a threat of murder and suicide - this strongest threat will be not really strong, because w~~h~~ it will be less believable.

Q.

Now, a while ago I mentioned the possibility of China getting the bomb. Would that alter this plan, that you're talking about, ~~in~~ in anyway?

A.

I don't think that would alter the plan, if China got the bomb. I think the same system would work between China and America.

- 55 -

5/1

Q.

Or say between China and her neighbors, for example? Suppose China and India have a very passionate conflict about the border, and China threatens to use the bomb on India - which does not possess one?

A.

Well, China could, of course, conquer India today if she wanted to. I think - I think that it is almost impossible to have a stable situation if you assume that every nation will do all the things she's capable of....

Q.

Yes.

A.

...without examining if she has really any incentive to do those bad things. I think, really, if everybody did his worst, we could not have a civilized society in existence.

Q.

Well now, this system that you're proposing - I'm trying to grasp it fully in my mind - this system that you're proposing is that America and Russia set up virtual pricelists of - a- what they're willing~~to pay~~ to pay for certain - a - to prevent

- 56 -

5/1

Q.

certain things from happening?

A.

Well, this does not require a formal agreement.

Q.

Um-hum.

A.

America and Russia can unilaterally decide to do this. For instance, Russia could set a price for American troops invading Turkey - and she could say she's going to destroy one or two - demolish one or two American cities if this happens. And there's nothing we can do about it - there's no agreement necessary there. The only point where there is sort of an understanding, advisably, is, I think we should agree, with Russia, on which city - how many population - so we can draw up a list of cities - just listing the population of the /~~tiny~~ city - so there shall be no quarrel about our having destroyed a Russian city which was three times as large as a city which Russia destroyed. But perhaps I should add this - that this system will be rather and easy system if the prices are actually invoked - and if cities are actually

- 57 -

5/1

A.

demolished. But I think that under such a system there's a very good chance that nothing would ever happen. Because, in the past, American people - The American people have shown that they're willing to pay a very high price - very often for very little return - for a very questionable advantage. But I don't think they're willing to pay a high price if they know the price in advance.

Q.

We'll cut out this question - but could you tell the story of the toads? The blasting of one another's cities?

A.

Well, in this paper which I wrote, I envisaged the world's possibilities and described what would happen if the prices were invoked - and suppose American troops were moved into Turkey - and suppose Russia destroyed two cities - and we destroyed two Russian cities -- and after a while, perhaps Russia would move in Iran - and the price of Iran are two Russian cities - and we would destroy two Russian cities -- and the Russians would destroy two American cities. Soon, thereafter, we might

- 58 -

5/1

A.

discover that the position of the Middle East is not as variable for us - and the loss of Iran is really more painful. Then, it is conceivable that we would agree, with Russia, that they we move out of the Middle East and they move out of Iran And then we would end up just where we were - except that four Russian cities and four American cities have been destroyed. And at that point, I think someone would remind the world of the story of the two toads.

Q.

The two toads.

A.

You know that story?

Q.

No, sir.

A.

Well, this is how the story goes. When Joe and Bill move along the road - well, a toad comes hopping along - crossing the road -- and Joe says to Bill - I will give you twenty dollars if you swallow that toad. Twenty dollars is a lot of money, so Bill picks up the toad and ~~pink~~ puts it in his mouth

- 59 -

5/1

A.

even after he swallowed it, the toad jumps around in his stomach - you know - it's a horrible feeling. They walk for a while when another toad comes along - and Bill, who is - in whose stomach the toad still jumps around...

END OF REEL #5

- 60 -

6/1

Q.

Will you tell the story about the toads, now, sir??
Go ahead.

A.

Well, even/Bill swallowed the bomb - correct -
even after Bill swallowed the toad, the toad jumped
around in his stomach and made him feel horrible.
As they walked further along the road, suddenly
another toad came^{up} hopping/~~xxxxx~~ crossing the
road. The toad was still jumping around in Bill's
stomach. Now Bill said to Joe - if you swallow
the toad I'll give you twenty dollars. Boy! This
time Joe has regretted the bet because twenty
dollars is really quite a lot of money to lose.
So he picked up the toad and put it in his mouth
and swallowed hard - and finally he managed to
swallow it. But even after he swallowed it, the
toad jumped around in his stomach - which made
him feel horrible. So they were walking in silence,
for a while, and suddenly Bill said to Joe -
say, what for did we swallow those toads?

Q.

Very good.

A.

I would assume that under the circumstances

- 61 -

6/1

A.

I have described, probably the status quo would be frozen and no city would be destroyed. But if - but if it came otherwise - and if the prices were invoked, I think this would happen only once - because something - somebody, sooner or later, would ask - what for did we swallow those toads? And I believe, more than once, this would not happen. Now, it is not pleasant to contemplate that four cities should disappear, but it is perhaps not such a very high price to pay. If we get by at this price, I think we can be satisfied.

Q.

Well now, you have suggested a plan that would be possible. Can you exercise your gift for applying imagination, and looking into the future, and tell us what you think is probable?

A.

No, I do not know what will happen. But if I tell - I can tell you something that may happen - and this might be a compromise between what the Russians propose and what we vaguely, occasionally hint at. I could imagine - a - almost totally - and a generally disarmed world - where the navies, the

- 63 -

6/1

A.

air force and the armies disappear - but where Russia and America each retain say fifty large hydrogen bombs and rockets suitable for their delivery. Let us assume that we have fifty such rockets with bombs, mounted on railroad cars, and the team which moves along with these rockets would include a Russian inspector. The "Russians will then know that if they discover anywhere, a rocket on a railroad car where there is no Russian inspector, that is an illicit rocket. So there is, here, a way of checking up on the fact that an agreed arms limitation is not secretly violated.

then, you
Now you still must say - what are these rockets good for? Ah - then you and I say - that I think that what we would use it for would be precisely a threat to demolish an evacuated city - and that this would be the only threat of force. War has become unnecessary and can be abolished. This threat of demolishing an evacuated city would be sufficient, I believe, in practically every foreseeable conflict - a - which can be more or less foreseen now. In none of these conflicts would, I think - would either Russia or America be willing

- 63 -

6/1

A.

retained fifty rockets and bombs - and so do Russia - then we no longer have to worry whether perhaps one or two bombs are secretly hidden somewhere in Russia - and we cannot find them. That wouldn't matter. Now, you may say, well now, Russia could have hundred of bombs? Well, Russia could have hundreds of bombs and we would not be able to discover a hundred, but we wouldn't be able to discover a few of those hundreds. And if we do, we would know that we are in trouble. And then, of course, the arms agreement would collapse and the arms race would start again. So this is, I think, something that might happen.

Q.

Have you any idea how long it may take us to discover that? I'm think of the fact that probably in tens years a great many other nations will have these weapons - if we don't agree by that time - and controlling them may become more difficult.

A.

It seems to me that the issue which faces the world will probably come to a decision during the tenure of office of the next President.

Q.

- 64 -

6/1

Q.

During the tenure of office...

A.

..of the next President. I think this is a very - these will be a very crucial four years. We are at present in a transitional phase of the atomic stalemate - we will be just emerging out of the transitional phase, into a more stable phase, towards the end of the next President's term. And,, at that time, by that time we will have to have made up our minds whether we want to get rid of the bomb or leave the bomb - or perhaps leave a limited number of bombs.

Q.

What are we transitioning from? I don't quite understand.

A.

Well, the transition - at present, you see, may be an imbalance. Russians are building rockets - perhaps they build them faster? The bombs are bigger than ours. In this situation, our bases may be vulnerable and we're forced to build submarines which can fire rockets, because these are invulnerable bases. And in this transitional phase where we do this, the situation is changing

- 65 -

6/1

A.

rapidly.

Q.

Um-hum.

A.

It is not worthwhile even to make proposals...

Q.

Yes.

A.

...for it. Because by the time the proposal is understood and accepted, then the situation is changed ~~ja~~ already. But when we are through this phase - both Russia and we will have rockets which can be fired from invulnerable bases.

Q.

Yes.

A.

From home bases. Then there will be no longer reason to fear that the sudden attack could destroy our power to retaliate - and that this one element of instability, which at present exists, will be eliminated.

Q.

So the stability may consist, really, of the fact that either one of us can destroy the other. but

- 66 -

6/1

Q.

we can do so only at the cost of being destroyed in return?

A.

Well...

Q.

We have a common interest then in not doing it?

A.

This is one element of stability, but it's not sufficient. It is also -- we must also reach some understanding with Russia - what kind of self-restraints are necessary.

Q.

Uh-hum. Sir, what do you think, today, about the dropping of the bomb on Hiroshima?

A.

Well, I think the same thing as I thought at the time when this decision was discussed. And I don't want to go - you see - into all the arguments in favor of dropping the bomb or against dropping the bomb. But I want to say one thing -- let me suppose that it is not America who would have had the bomb but that Germany somehow had been in possession of two bombs, towards the end of the war. in 1955. Let me now assume that she would

- 67 -

6/1

A.

have dropped those two bombs on two American cities and in the end lost the war. Can you doubt that the dropping of atomic bombs on cities would have been defined as a war crime and that the Germans responsible for it would have been sentenced at Nuremberg and hanged?

Q.

It poses a very serious moral question. Sir, when did you first - when did the thought of such a thing as an atomic bomb first occur to you?

A.

Well, that is a very peculiar story. It occurred to me in the Fall of 1933. But that - this occurred to me - is not due to the fact that I'm a better physicist than many of my colleagues. I think it's due to the fact that I occasionally read a book. The particular book which I read, was a book by H.G. Wells, which he published in 1913.

Q.

Did you say H.G. Wells?

A.

H.G. Wells. (coughs) He published this book in 1913, one year before the First World War. And in this book he described the discovery of artificial

6/1

A.

radio activity, and put it into the year 1933, the year in which it was in fact discovered by Joliot??? He then goes on describing the advent of large-scale liberation of atomic energy. The construction of the bomb - an atomic war fought by means of the bomb, in 1956, in which Paris, London and Chicago are destroyed. Now, I have read that book in '32 - and I didn't give it much thought - it was just another piece of fiction. But in 1933 I found myself in London as a refugee from Hitler Germany, and I read in the newspapers, a report off their - the British Scientific Meeting - a yearly meeting, called The British - British Association - which took place in the Fall of '33 - and there, Lord Rutherford was quoted to say that whoever talks about the liberation of atomic energy on an industrial scale, talks moonshine. This gave me to thinking -- this gave me pause to think. Because I don't see how anybody can know what might be discovered-- and statements of this sort are something -- that's impossible - are always a challenge to me. So I was thinking a little bit about this,, as I was walking along Southampton Road, in London. And when I stopped at the curb to renew the light

- 69 -

6/1

A.

was led - the light was red. And as the light turned, I suddenly saw a possibility of a chain reaction. I said to myself - that if an element absorbs a neutron and then emits two neutrons, an element could sustain a chain reaction, if it were assembled in a heavily, large mass. And from then on, I began to think about the chain reaction. Several elements appeared to be candidates for sustaining a chain reaction. My first candidate was beryllium. Later on it turned out that beryllium was not a suitable candidate. But I --

END OF REEL #6

- 70 -

7/1

Q.

Sir, you were saying that you were trying to think of an element that would support a chain reaction..

A.

At first I thought that beryllium might support a chain reaction - but later on this turned out to be wrong. I have however never given up the idea that some element or other might support a chain reaction - until the late Fall of '38 when I finally gave up. In January '39, just a few months later, however, on a visit to Princeton, I learned of the discovery of the fission of uranium (name....Strassman, in Germany, discovered that when uranium is bombarded with neutrons, the uranium atom falls into two fragments. As soon as I heard it, I knew that uranium was a candidate. Because it appeared very likely that these fragments will evaporate neutrons. So that for one neutron which is absorbed by uranium, there will be two or perhaps even more than two neutrons emitted. From then on the road was clear. First of all, one had to show that uranium does in fact emit neutrons when it goes undergoes fission. This was done early in March - done ~~independently~~ independently at three

- 71 -

7/1

A.

to think about the chain reaction.

Q

I think you expanded the story a bit when you were talking to Howard, and mentioned that a man was trying to get you two thousand pounds of uranium?

A.

Yes, I can go back to that. When I was in England in - from '34 to '37 - I thought that one ought to do a systematic search and try to find out which element may emit neutrons when it absorbs a neutron-by going through all the elements. There were only ninety-two of them -- for this it was necessary to have some equipment, and also to have some technical help - because it's a rather long-drawn out process to investigate all elements. My English colleagues - the physicists - thought that it was a rather crazy idea -- and some of those may still remember that I said something crazy, even though I may no longer remember what I said. However, I found one man who seemed to be interested - and that was Professor Weissman, a chemist. I told Weissman that if he could get me the two thousand pounds - it's about ten thousand

7/1

A.

thousand dollars -- this will be: enough to carry out this investigation. The next thing I heard was that he had consulted a friend of mine - Michael Polani, who was the head of the chemistry department in Manchester, and Polani thought that this was a good plan and should be pursued. Then, I heard nothing until in 1945, after Hiroshima, I met Professor Neitzman in Washington. He seemed to be very happy to see me. And when he saw me, he asked me - do you remember when you came to see me in London? I said I did. Well, do you remember what you came to talk to me about? I said I did. And then he said - well, maybe you won't believe me, but I tried to get you those tho thousand pounds, and found that I couldn't get them.

Q.

That's fine, sir. Earlier on you were telling Howard how you had opposed dropping the bomb on Hiroshima. And at that point, I don't think he pursued you a little bit more - to ask what the alternative was. You had a plan to demonstrate it by dropping it on a (name) or something. Could you tell us a little something about that?

7/1

A.

Well, I did not have any definite substitute for using the bomb - except that it seemed that once the war was won it should be ended by political rather than by military means. However, in retrospect, seeing things as clearly as we now do, it seems that the right way to demonstrate the bomb - if we had to demonstrate it - would be to approach Japan, through the.....channels - say through the Swiss - not through the radio - we could have told Japan that we were willing to negotiate, but prior to negotiating we would like to demonstrate a new ~~jux~~ bomb. We could have proposed that we will send a single plane over Hiroshima, with a single bomb, and as long as Hiroshima remains undefended, no more than one place would arrive. And we could have then said - that because this bomb is rather destructive, we would urge that the city be evacuated - and that they will be notified ~~this~~ of the time that will be convenient for the Japanese. Well, the argument against such a demonstration was quoted by Stimson in an article he wrote in the Atlantic Monthly - and he said that we couldn't have ~~shown~~

- 74 -

7/1

A.

demonstrated the bomb because we had only two of them - both of them might have proven to be duds - and then we would have lost face. It is quite true that we had only two of them - but what Stimson didn't say is just how many weeks it would have taken until we would have had more than two of them. And - a- I believe that this was just an unseemly haste.

Q.

Sir, you've been remarkably courageous and considerate and candid in speaking of your own life expectancy. You have left quite a legacy for the human race, in the atomic bomb. I wonder if there is anything else you would like to say about the meaning of it for these future generations? Or perhaps even as close as the next Administration? Is there anything you'd like to say to the next President - whoever he is?

A.

I would like to say something to the next President. And I've been trying to draft a letter. Of course, I don't know who he will be, and I don't know if I'll ever find out who he is. It is a difficult thing to write to a President. You see, once before,

7/1

A.

I've been laboring on a letter. At that time it was a question of getting the U.S. Government interested in the problem of uranium - and we spent quite sometime discussing - how long can the letter be which a President can be expected to read? Finally, at that time, we arrived at two pages. We thought that the fission of uranium rates two pages. Now, it is very difficult to say, what one has to say on the present issues, in two pages. Obviously, we have to make a choice, sometime, between getting rid of the bomb or living with the bomb. Without making this choice, we will just engage in endless negotiations which will lead nowhere. There is perhaps a compromise between these two proposals - and perhaps we can get rid of all the armaments and most of the bombs, but still retain, say, fifty large hydrogen bombs and rockets suitable for delivery. Russia might also retain such a limited number. This would be a compromise between those two positions - and perhaps not a bad compromise. Now, whether this will be called disarmament - I doubt it. I think it should be called arms limitations. And I believe that if

- 74 -

7/1

A.

we come to the conclusion that through disarmament - I mean general and total disarmament - which is now being proposed by Russia - Russians - that this is not really desirable - it will be far better to say so clearly rather than to say that - yes - yes, it's very desirable, but it's not feasible. I think that in a difficult situation, which we find ourselves, there is only one good prescription - the truth and nothing but the truth.

Q.

Sir, we'll keep the camera running for just one moment. The opening questions that we earlier filmed were done on a wider lense - and Mr. Friendly asked if we could ask you to do it on a tight lense - which we are on now? Much

A.

What do you want me to do?

Q.

So if I may, I'll just ask you the questions that Howard asked you at the very, very beginning. He started off by saying - Doctor Szilard, thank you very, very much for letting us come and talk about this. And you had some comment to make.

- 75 -

7/1

A.

Oh, it was a long comment, was it not? Well, now that you are here, Mr. Smith, perhaps...

Q.

Could you put your notes down?

A.

Now that you are here, perhaps you should stay and we should try to stay together, even if it takes until midnight, and solve the problem ~~which~~ posed by the bomb? You don't have to be afraid that you will tire me. I'm not in any distress. It is true that I don't expect to live, but I still hope to be active for a few months, and perhaps for a year. If I could live forever, I would be very much distressed by the thought that my time is limited - but since I know that I can live forever, I don't think it really matters very much whether I live one or two years, or three years - or not even a year. I always liked, you know, the story of a man who had heart trouble and who went to see his doctor. And the doctor told him that he could live out his normal life expectancy if he were willing to go slow and to restrict his activities. The man thought this

7/1

A.

over - and finally, he told his doctor that he is not going to slow down. You see doctor, he said, if worst come to the worst, I'll be dead ten years longer. This, I think, is a healthy attitude to take towards life and towards death. Even as a child, I tried to visualize what I would do if I knew that I don't have to live very long - that my time is strictly limited -- and I came to the conclusion that I would do exactly what I would do otherwise -- that it would make no difference at all. I find that this is almost true - but not quite. I find that there is a certain change - I am not so much interested now in the short-range issues, for instance, like the issue of Berlin - the conflict around Berlin 0 and much more interested in the general problems like the problem of that is posed by the bomb. Now, that doesn't mean that if you want me to I couldn't give you a solution of the Berlin problem at the drop of a hat. But I suppose this is not what we want to talk about today.