

"C.B.S. REPORTS - DISARMAMENT

April 27, 1960

SZILARD AND STRAUSS....

ROSSI #49 - MACK #15/1

STRAUSS

Well Leo, you're the best looking patient I think I've ever seen.

SZILARD

Thank you very much.

STRAUSS

And I can't tell you, but it isn't a pleasure to call on you here. I'd rather be seeing you at your home, or mine. I brought with me, today, something that may have some sentimental interest for you. I've had it in my files for twenty-one years - and it's a letter. This is only a copy of it. The original of it is in a frame in my office in Washington. It's a letter that you wrote me on the 25th of January, 1939, from the Hotel King's Crown, here, in New York. Have you any recollection of it?

SZILARD

Yes, I remember it was about ^{what} - about ten days after I learned of the discovery of fission. *I wrote it*

STRAUSS

You're precisely correct.

(CUT)

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MACK #48 15/1 - ROSSI #49

STRAUSS

...which so far does not seem to have caught the attention of those who to whom I spoke. First of all, it is obvious that the energy released, in this new reaction, must be very much higher than in all previously known cases. It may be two hundred million volts instead of the usual three to ten million volts. If you remember that surge generator we were building, at the California Institute of Technology, just about this time - finished just about this time, I believe got up to twelve million volts.

SZILARD

I think that's correct.

STRAUSS

Something like that. This in itself - you continue this two hundred million volts by making it possible to produce power by means of nuclear energy. But I do not think that this possibility is very exciting. For if the energy output is only two or three times the energy input, the cost of the investment would probably be too high to make the process worthwhile. Unfortunately, most of the energy is released in the form of heat and not in the form of radio-activity. I think we would be

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MACK #15/1 - ROSSI #49

STRAUSS

happy if none of it were in the form of radio-activity. I see however, in connection with this new discovery...

(CUT)

STRAUSS

.....therapy uses can be produced for a fraction of the cost. But I need not tell you that. You know it.

SZILARD

Yes, I know it. And I almost had cobalt therapy, but then I decided for the wondergraph.

STRAUSS

What is the energy that they're using?

SZILARD

The Wondergraph is two million volts.

STRAUSS

Two million volts?

SZILARD

Yes -- difference from cobalt. Well anyway this is how it started. But the question is, where do we go from here?

(CUT)

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MECK #15/1 - ROSSI #49

STRAUSS

Of course, as between nations, the right to abrogate an agreement is inherent. No nation can ever enter into an agreement and deny the right of abrogation. So that you're right in saying it.

SZILARD

The agreement between nations can always....in fact.

STRAUSS

That's right.

SZILARD

It's much better if it also...

STRAUSS

Stated.

SZILARD

...stated. Assuming that America and Russia enter into such an agreement, there would be no need to spell out in the agreement any specific measures of inspection. Instead, it would be understood that unless the Russia is able to convince America that there are no major secret evasions, on her territory, America would be forced to abrogate the agreement. The same works, of course, in reverse for Russia. Now, how could America and Russia convince each other that there are no major

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SZILARD

secret evasions? America should have no difficulty in convincing Russia that there are no secret evasions occurring on American territory. Perhaps she need not do much more than to facilitate the pursuit of the traditional form of spying activities on American soil. Spying - spying is not a bad method to get information, if the measures are not too repressive against spies.

STRAUSS

You mean, if the consequences of spying are not too repressive?

SZILARD

If it's not made too difficult to engage in spying activities, the time might come when there'll be more interest to make it easier. You see, in a disarmed world - in a really disarmed world there are really no secrets left. There is no need to keep the espionage act on the books -- spying need not be outlawed.

STRAUSS

This being a very serious letter, I question whether you will want to have that sentence in it.

SZILARD

Well, I mean it seriously. You see, it is odd,

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MACK #15/1 - ROSSI #49

SZILARD

of course, because it is so logical. But it is true. If you have no secrets left, you don't have to outlaw spying. And if you want to convince the other that you are not doing anything in secret, permitting him to spy might be the cheapest way of convincing him. I see that you don't agree.

STRAUSS

No. No, I'm thinking of it being read, by many millions of people, without your explanation.

SZILARD

Oh, but this won't - this will be read only by the President-elect. No one else will read this.. Oh, the microphones! Forget about the microphones! Russia could of course submit to inspection. It may well be true that there would remain little reasons for Russia to resist inspection. In the setting of general and complete disarmament, that would leave virtually no military secrets. But if the Russian Government wanted to hide something - as long as it had the wholehearted cooperation of the Russian scientists and engineers in such an endeavor, how could we be sure that foreign inspectors would discover secret violations?

MACK #15/1 -- ROSSI #49

STRAUSS

There, I would say that - and I believe you would agree with me - that foreign inspectors could discover secret violations if those involved manufacture of weapons. But it would be extraordinarily difficult for them to discover violations of weapons already made and hidden.

SZILARD

I would agree with you - certain things can be discovered by foreign inspectors - and foreign inspectors, to some extent, are always needed. Because once you suspect a violation, you have to verify it. For that, you can use inspectors. For Russia to convince us that there are no secret evasions, Russia need not admit hordes of foreign inspectors, but might adopt an entirely different approach. At the time when the agreement is signed and published, the President of the Council of Ministers would address the Russian people, and of all the Russian engineers and scientists - over radio, television and through the newspapers - he would explain why the Russian Government had entered into this agreement and why it wished to keep it in force indefinitely. He would make it clear that any secret violation of the agreement would endanger

MACK #15/1 -- ROSSI #49

SZILARD

this agreement, and that the Russian Government would not condone such violation. If such violations nevertheless occurred - as they well may - they will have to be assumed to be the work of over-zealous subordinate agencies whose comprehension of Russia's true interest was rather limited. In these circumstances it would be the patriotic duty of every Russian citizen, in general, and Russian scientists and engineers in particular, to report any secret violations of the agreement to an agent of The International Control Commission. In addition..

STRAUSS

International Control?

SZILARD

Of course. An International Control Commission which would have offices in Russia, and agents in Russia - it would be very easy to contact them. In addition to having the satisfaction of fulfilling a patriotic duty - and the informer would receive an award of a million dollars from the Russia Government, and this award would not be subject to income tax. Any recipient of such an award, who wished to enjoy his wealth by living a life of leisure and luxury abroad, would be

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SZILARD

permitted to leave Russia with his family.

STRAUSS

I should think the tourist business would be -
would boom.

SZILARD

Tourist business?

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STRAUSS

Well, there'd be a great many people who'd be
turning in their - their neighbors, in order to get
the million dollars, if they thought there was a
violation.

SZILARD

Well, =the tourists - the tourists could be help-
ful in this - but only if they love Russia.

STRAUSS

I - I realize that this is not a very serious
comment.

SZILARD

By repeating the same thesis over and over again,,
as the Russians well know how to do this, the
Russian government would create an atmosphere in
which we could be certain that Russian scientists
and engineers would come forward to report secret
violations. Naturally, it would be within the

MACK #15/1 -- ROSSI #49

SZILARD

physical power of the Russian Government to have the informer arrested and shot. But such an action by the Russian Government could not remain secret and it would at once lead to the abrogation of the agreement. Now, this is what the Russian Government could do. And as far as I am concerned, I would not settle for less nor ask for more. What do you think of this?

STRAUSS

I think? What do I think of it?

SZILARD

Yes.

STRAUSS

I think it's most ingenious. The Russians would be quick to point out that to have such a Control Commission stationed in Russia and no such - no similar organization in the United States - would be a discrimination. And therefore, I presume that you mean this to be mutual?

SZILARD

Well, if the Russians insist that we also give a reward of a million dollars to our scientists - no harm in doing so. I doubt that we would have secret violations.

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STRAUSS

I doubt it.

SZILARD

So a million dollars is a generous gesture which wouldn't cost us any money.

STRAUSS

What about a violation by the military?

SZILARD

Well, the military is - you see, the military, of course, would almost disappear in such a situation.

STRAUSS

Not entirely.

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SZILARD

You see, this is world disarmament and abolition of bombs - and the military would become a very small organization in this.

STRAUSS

Well, I did not realize that you were coupling this with general - conventional disarmament as well.

SZILARD

Oh, yes. Look. You see, this kind - this kind of a surveillance of Russia will not be acceptable to Russia if there are major military secrets left.

STRAUSS

Well, I think probably an oversight could be

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STRAUSS

corrected in the early part of this letter by indicating that this is not simply atomic disarmament.

SZILARD

Oh, no.

STRAUSS

....that you're discussing, but general, comprehensive disarmament...

SZILARD

Yes.

STRAUSS

...of conventional weapons as well.

SZILARD

Getting rid of the bomb in the setting of general and complete disarmament, which I think will leave machine guns uncontrolled, - but heavy...

STRAUSS

That's right.

SZILARD

..but heavy equipment would disappear. And of course, the army would essentially melt away.

=

STRAUSS

But it's conceivable to me that units of the Russian army might well conceal weapons. And they would hardly be likely to be turned in by anyone,

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MACK #15/1 -- BOSSI #49

STRAUSS

since no one would know it except men who are subject to military discipline. They would be unable to report it to a Control Commission.

SZILARD

Look. I would agree with you, that in spite of such a system small groups of conspirators could make a few bombs - or hide a few bombs. What you cannot...

END OF MACK #15/1

MACK #16/

SZILARD

...revising is a difficult job.

STRAUSS

...is satisfactory for the Western world with the exception of the unification of Germany. And this - and this was at one time a Russian aim as well. So that the only changes - the only map makers, who are looking for revision, are the Russians.

SZILARD

This is true. But you see, this exception, which you mentioned, is a very important exception.

STRAUSS

Well, it's...

SZILARD

And it's not the only exception.

STRAUSS

It's an important exception because of the threat that is - that has been made by the Russians.

SZILARD

No, I think -- I know - what I mean is that this situation which now exists is very difficult to freeze. I mean the East Germans are very dissatisfied with their government. One day they may want to make a revolution. West German volunteers might move in and help. And then we'll have a war.

MACK #16

SZILARD

So this is not easy to freeze. And even if Germany were united, I'm not sure that a united Germany, twenty-five years from now, would not want to reconquer the territories they lost to Poland. Now, no such thought is in the minds of the Germans - they're prosperous. But twenty-five years from now let there be an economic recession and unemployment, you might see history repeat itself.

STRAUSS

Well, it seems to me that the centripetal forces of history are going to bring East Germany and West Germany together. They had been united in the past - they have a common history - common inheritance - common language - and their separation is artificial. It can't - it can't continue for very long.

SZILARD

Yes. So this...

(CUT)

MACK #16 (MIDDLE TAKE) ROSSI - #51

SZILARD

But even those who favor this view - and I'm not among them - recognize that the aim of such a limited war cannot be victory. They hold that America can resist a change, that is to be brought about by force, by threatening to exact a price. But they recognize that, generally speaking, she cannot exact a higher price than she's willing to pay herself.--That is, if she resists, by means of a limited war. Now, I would like at this point to ask - what do you think of a limited war?

STRAUSS

Did I gather that you said you believed that limited wars are feasible?

SZILARD

No. I did not say that. I just described a school of thought, which says that even though an all-out war, aimed at victory, is no longer practicable, America can resist, by fighting a limited war - and she can use atomic bombs there against troops in combat - and that this is a method for America to exact a price and thereby to resist a change - even though the price she pays herself may be just as great as the price she may exact.

STRAUSS

MACK #16 --(MIDDLE TAKE) - ROSSI #51

STRAUSS

Well Leo, characteristic of times of peace is that all citizens are more - many citizens become amateur tacticians and strategists. I held a commission in time of war but I did not have any questions of tactics or strategy to decide. And I can only give my answer to you as a completely lay observer. It seems to me that the notion of atomic weapons can be used in a limited war presupposes - and against troops or tank formations - presupposes that the deployment of troops and mechanized units will follow the pattern of World War I and World War II, wherein large concentrations, they can be attacked and destroyed by small atomic weapons. I don't believe that that's going to happen. I think there's going to be, in the event of a so-called limited war starting, that there would be a very wide dispersal of the enemy forces. Witness the fact that the German break-through in 1940 was not the frontal attack at all. They penetrated with spearheads. The French army was caught by surprise. This was not an orthodox war. The next war isn't going to be orthodox. And I'm not impressed by the notion that any nation which possesses atomic armament of great size is going to be content to

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NACK #16 -- (MIDDLE TAKE) - ROSSI #51

STRAUSS

be defeated in a war in which small weapons are used against them. Defeat is unacceptable to any nation that has the power to resist. Therefore, I think the idea of a limited war is an illusion.. It's a pleasant one, but it's an illusion.

SZILARD

Well, I will not argue with this, because I ^{rather} share your views. But nevertheless, let me be the devil's advocate and say that those who believe in a limited war would say that - take a case where say Russia may invade Iran. Now, say that using atomic weapons in Iran favors a defense. Because you can build up a defense position, which is difficult to break through, except by massing troops. The massing ~~is~~ is to be prevented if you use atomic bombs. And I say that such a war - the aim is not victory - perhaps not even the retention of Iran--But the idea to make ~~the~~ the conquest of Iran so costly to Russia that she will not attempt it. We can't make it costly to Russia without paying a high price ourselves. But this is the price we have to pay if we want to prevent changes from ~~being~~ coming about against our wishes.

MACK #16 (MIDDLE TAKE) - ROSSI #51

STRAUSS

Well, I - I wouldn't want to comment. And I think you'll understand. I wouldn't want to comment on the likelihood of a limited war occurring in any specific area. I might be misunderstood in that context. But it does seem to me that the prospect of a limited war has not been given a thorough exploration. And it's equally possible that my own philosophy is at fault. There is - the whole truth doesn't reside with - with any one man. But I am unconvinced that small weapons are a reliance - except - and this is an important exception - now, I believe that small weapons are our reliance in a waryⁱⁿ/which we are defenders. Because I know of no other way of preventing enemy attack, by missiles or bombers, than by using small weapons in very considerable quantities.

SZILARD

Look. The only reason I brought in a limited war is because the discussion of limited war has brought two important recognitions. One - that in the future any action which we take cannot be aimed at victory.

STRAUSS

Cannot?

NACK #16 - MIDDLE TAKE - ROSSI #51

SZILARD

...be aimed at victory. And secondly, the best that we can do is to resist, by exacting a price. And that we cannot exact, generally speaking, a higher price than we are willing to pay ourselves. These recognitions have a validity which go far beyond the validity of concept of limited war. And this is what I want to say - that once we have come this far, then it takes only one more step to recognize also that America and Russia are now each in the position to resist the other by means other than war -- and they are thus now in the position ~~to~~ to forego war. It is my contention that in n one of the contingencies, that are likely to arise in the predictable future, would it be necessary for America or Russia to threaten anything worse than to demolish a limited number of cities, which would have been given - which will be given adequate warning to permit an orderly evacuation. Thus America and Russia may retain the threat of force and yet abolish war.

STRAUSS

This is the idea that you developed in that very interesting article that you wrote sometime ago.

MACK #16 - MIDDLE TAKE - ROSSI #51

SZILARD

Yes. And here I just take a few thoughts out of it. I don't go into the full article. But one important thought, which I have to mention here, is this - say/^{in a}that conflict with Russia, American cannot aim at exacting a price which is higher than the price she herself is willing to pay - it follows that if American were to threaten the demolition of a limited number of evacuated Russia cities she would have to be willing to lose cities of her own, about equally in number - in size. As long as the damage, inflicted on America, remains within this limit, America could not threaten, with reprisals, without triggering a chain of events, leading to greater and greater destruction. So you see, this - the price for abolishing war, by this method - the price for abrogating war is a degree of self-restraint, which is rather demanding. Without the self-restraining, the threat of demolishing evacuated cities will trigger a chain of events which will lead ultimately to the destruction of all American and all Russian cities. With this self-restraint however, war could be abolished and the threat of force would be retained.

MACK #16 _ MIDDLE TAKE - ROSSI #51

STRAUSS

Would you expect these cities, which had been evacuated, to be defended?

SZILARD

No.

STRAUSS

Not even against attack?

SZILARD

No. The cities would be evacuated, and there would be no point in defending them .

STRAUSS

Why?

SZILARD

First, because...

STRAUSS

They would contain monuments - they would contain libraries - they would contain the accumulated culture of their history.

SZILARD

Yes, but you see, there is no doubt that the Russians will be capable of destroying a city. Now, if we defend this city, they'll destroy another city. And we prefer that a city be demolished and no people be killed. Of course, today, we don't have the means to defend the city anyway. I mean a long

MACKEN #16 - MIDDLE TAKE - ROSSI #51

SZILARD

range rocket, today, aimed at Philadelphia cannot be shut out of..

STRAUSS

Not today probably, but one would hope that this technique will improve.

SZILARD

Well, one would hope that it would not, if you accept my method of abolishing war as a good method. So you see, everything depends on the point of view.

STRAUSS

I might say that if the cities were nominated in advance, they would become evacuated cities in time of peace - the real estate values would drop through the floor.

SZILARD

No. Why? Why in time of peace? Because, after all, you don't know in advance which city it will be.

STRAUSS

These are only going to be denominated after hostilities commence?

SZILARD

Well, I think probably the same situation would arise

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MACK #16 - MIDDLE TAKE - ROSSI #51

SZILARD

is this -- when - when -- suppose there is a conflict in the Middle East.

STRAUSS

Yes.

SZILARD

We had such a conflict in the past. You remember we sent troops into Lebanon and the British sent troops into Jordan at the time of the Iraq revolution.

HND MACK#16XXXXXX

MACK #17/1 -

SZILARD

You see, this approach has many difficulties.

(CUT)

MACK #17/2 - ROSSI #51

SZILARD

You know, I have ^{somewhat} painted a too black and white picture here, by saying there are two alternatives. Because there are solutions which can be put in one or the other class. And one of it's ^{XX} rather interesting proposals, I think, were made for the first time by Colonel Richard Leckhorn. It was the following: He said that, all right, let's think in terms of far-reaching disarmament. But if we really get rid of all the bombs and all the weapons, then it is really - it must be really a great concern that not a single secret violation be permitted. Whereas, he feels that if we had far-reaching disarmament, but America retained - I don't know - fifty, a hundred bombs and rockets suitable for the delivery - and Russia did the same - then, of course, secret violations would not be so terribly dangerous. Because, suppose there are ten bombs hidden somewhere, we still have a hundred. Moreover, the general thought of this

MACK #17/2 - ROSSI #51

SZILARD

philosophy is that we should have enough - enough bombs to inflict very considerable damage. The Russians may have also enough bombs for that - but still not total destruction. So the whole threat of murder and suicide with which people are - like to operate, and which is not a very good thing to operate with, would then disappear. I wonder whether you have heard...

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(CUT)

SZILARD

Well, you see, this philosophy of Lettkhorn - you raise an objection which I cannot quite accept. Because, if the agreement with the Russians would provide that we have a hundred bombs and they have a hundred large bombs, of course, andj rockets, then the agreement would also provide that we can test them. But since you mention the tests, let me say this - I really think that what we ought to do is to reach a meeting of the minds, with the Russians, of where we~~r~~ are going. You see, this agitation for 'let's stop tests' - really, those who seriously were interested in~~t~~ it were not jso much worried about radio-active contamination.

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MACK #17/2 - ROSSI #51

SZILARD

Because, after all, that can be avoided by tests underground. But what they're really concerned with was to take a first step. Now, it seems to me we can't...

(CUT)

STRAUSS

...and 1954. We held the first one in Geneva in 1955. We held a second one in Geneva in 1958. We revealed everything that we had - that we knew on the subject of peaceful uses. I think our Russian friends were considerably less than frank. And it has been my feeling, that while we get information from them, it is invariably along the lines that we have already explored. I don't think we've learned anything new from them. And they - the gestures all appear to come from our side of the Iron Curtain.

SZILARD

Well, I agree with you that we are not going to make progress with first steps. We are going to make progress when we agree - when we reach a meeting of the minds with the Russians of where we are going. And then I think everything - from

MACK #17/2 -- ROSSI #51

SZILARD

then on everything can move very fast. You cannot say - well, all right, I think I want to elaborate on that. So I have no enthusiasm about these negotiations stopping the tests. But I must say, on the other hand, that now that we have been negotiating for such a long time, I find - I would feel very uneasy if these ^{negotiations} ~~suggest~~ break down. Because...

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STRAUSS

They should not break down. And one of the reasons that I have declined to comment on the terms which have been proposed is that in no way should the devoted men, who are negotiating in Geneva, have their task complicated by any sort of coaching from the sidelines. However well meant, the coaching from an American like myself is irresponsible coaching. I'm not informed as to the latest developments - and I wish them well, in my own interest as well as the interest of the world.

SZILARD

Look. Let me say this - that while I express great confidence that if we have an agreement which provides for almost total disarmament - which does away with all secrets - that then we can set up a system

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MACK #17/2 -- ROSSI #51

SZILARD

which gives us assurance there are no secret
ris evasions. I am not confidence that this can
be done.

STRAUSS

Nor am I.

SZILARD

If we don't provide for a general and far-reaching
disarmament, and just want to take out one thing
like stopping tests - this is a very difficult
thing then, because the kind of inspection which
would be acceptable to Russia, after our secrets
are all gone, will not be acceptable to Russia as
long as they have important secrets to keep. I
assume the Russians want to keep secrets, where
their rocket launching sites are, for instance.

STRAUSS

Don't you suppose that if the Russians were sincere
in their endeavor - in their protestation to have
atomic~~ity~~ disarmament, that~~it~~ long ere the eighteen
months, that these conferences have gone on, had
not lapsed, they would have agree to a workable
inspection system and not simply a proposed and
unworkable token inspection system? I question
their sincerity.

MACK #17/2 -- ROSSI #51

SZILARD

Now, wait a moment. Do you mean now, in the negotiations of stopping the tests?

STRAUSS

I mean the negotiations of stopping the tests.

SZILARD

Well, I think that - that a far-reaching inspection system is not acceptable to the Russians as long as the bomb stockpiles remain - as long as the rockets remain - as long as they want to keep their launching sites secrets. I think, as long as the secrets remain, inspection - really effective inspection will not be acceptable to Russia. And I don't think we should - we should be astonished about this. This is natural. I think that inspection will become possible only when you make an agreement which removes the need for secrecy. Now, even if you stop tests, the need for secrecy remains. So I won't accuse them of bad faith. I would rather say that we were very inept of choosing the methods through which we want to supervise the agreement, and perhaps we were even ill-advised to enter into any kind of negotiation aimed at a formal agreement to stop the tests - because it may just not be feasible.

(CONT)

MACK #17 -- ROSSI #52

STRAUSS

Leo, you may be interested, that sometime within the next fortnight, the National Academy of Sciences is gto issue a follow-up report, to a report which they made at my request, in 1956, on the affect of radiation from atomic tests. I haven't the slightest idea what is in that re-~~e~~port. But the first report, which was followed by an independent report, made by the British Medical Council - and it was followed, in 1958, by a report by the Committee on Atomic Radiation - the affects of atomic radiation of the United Nations - and a report last year by the General Advisory Committee of the A.B.C. - all came to the same general conclusion, the purport of which was that although the biological effects on human beings, of fall-out, could not be definitely established, and would require years, and perhaps generations to evaluate, that the amount of radiation involved was far-less than five percent - external radiation - of the radiation normally experienced from cosmic rays and background radiation in the soil, and less than five percent in the United States, of the affect of medical ex-rays. This is not known to the general public. The general public are

NACK #17 - ROSSI #52

STRAUSS

under the impression that the fall-out, from tests, is lethal - which it's not, as you know - or that it is sure to produce cancer or leukemia or sterility or human mutations, for which there is no observed evidence. On the other hand, the fact that radiation, from an atomic war, would be simply ghastly, is passed over in the general publicity on the subject.

SZILARD

I agree with you. But I never understood why people are more excited about what will happen in case of war, as a result of radiation, and are so very much excited about what happens as a result of tests. As a matter of fact, you know that if my vies on this are correct - and they may not be - but I have written, a year ago, a paper on the theory of aging.

STRAUSS

The theory of aging ageing?

SZILARD

Of ageing--and the most disasterous affect of largescale exposure of population to ionization and radiation--if this theory is correct -- would manifest itself in accelerating ageing of the next generation - the following generations -

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NACK #17 - ROSSI _ #52

SZILARD

the descendants of this irradiated population. And
was able
I/~~XXXXXXXX~~ to compute a certain radiation ~~XXXX~~ dose,
given to the whole population, which would do no
more than double the spontaneously present mutations -
would lead to an acceleration of ageing to this
extent - that a man aged fifty, in that exposed
population, would be physiologically as old as a
man of sixty-five today. And now...

STRAUSS

Oh, pardon...

SZILARD

So that really, a population could be permanently
crippled.

STRAUSS

Yet there are parts of the world where a hundred
times as much radiation as we experience, in tests,
in the United States, has been normally present
for centuries - thousands of years - with no
observed difference between their populations and
ours.

SZILARD

Yes. This is not in connection with what I'm
saying. Because what I'm saying - that if the
radiation exposure would double ^{the} existing spontaneous

MACK #17 - ROSSI #52

SZILARD

mutations which are not due to cosmic rays.

STRAUSS

Oh, if they would double it?

SZILARD

Yes. If this case of war, you see - ~~inxxxxxxof~~

~~WAXXXX~~

STRAUSS

In case of war?

SZILARD

In case of war. Oh, yes, the tests don't come anywhere near it. I don't get excited about radiation due to tests. And I think that this is really an artificial excitement which came about as a result of a political movement aimed at stopping the tests.

STRAUSS

And a movement which was probably initiated overseas, I think?

SZILARD

No, I don't think so. I think that many people here really genuinely are of the opinion that the road to the abolishment of war goes through general disarmament - that this requires formal agreement between America and Russia - and they thought that - let's - the thought that it would be comparatively

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MACK #17 - ROSSI #52

SZILARD

easy to reach a formal agreement on stopping the tests. They thought this was a good first step - and this was their motivation. I think it is - it is very respectable but somewhat misguided.

(CUT)

END OF MACK #17

MACK #18 - ROSSI #52 (SECOND STICKS)

STRAUSS

It has always seem to me a pity that in connection with tests and in connection with the agitation to ban testing, that the general public has gotten the notion that there's something evil about tests - that the tests were designed and conducted in order to prove weapons for the defense of the country. They made a weapon's posture for the country possible - that in the opinion of more experienced men - Mr. Churchill, for example - have discouraged war. And yet testing has gotten a bad name. I'm sure that nothing that I say is going to change it. But it would be very desireable, in the course of your speaking and your writing, you could occasionally, with your - the great authority with which you speak, set the public right on that.

SZILARD

Well, I've written something on the subject of testing. But really, what I would like to say..

(CUT)

SZILARD

....do not put America to a military disadvantages to accept it. Now, this may be so, but nevertheless

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MACK #18 - ROSSI #52

SZILARD

it offends somewhat my sense of proportions, and
it brings vividly back to my memory something that
I lived through in 1933, in London - in 1933.

(CUT)

SZILARD

....a disarmament conference. And before the
conference was a proposal to abolish bomber planes -
to outlaw and abolish bomber planes.

(CUT)

STRAUSS

...for the future?

SZILARD

Oh, yes, but you see...

(CUT)

SZILARD

We are discussing....

(CUT)

STRAUSS

Here you are in Memorial. I've had the privilege
of being a member of the board of trustees of

MACK #18 - ROSSI #52

STRAUSS

this institution for many years. I've known it ever since the days when Doctor Ewing was the head of it, back in the thirties. Have you been here long enough to form an opinion of the kind of scientific experiment that is going on here, where research on a very large scale, and therapy, are being conducted, literally under the same roof?

SZILARD

Well, I cannot say I can form an opinion here, as a patient. Of course, the research is more conducted...

STRAUSS

in Sloan-Kettering.

SZILARD

In Sloan-Kettering.

STRAUSS

It's a part of the complex.

SZILARD

And the research, of course, is very many directions in which it is followed. Now, I would have had - I really would have to have an opinion of my own on - on the direction from which the solution of the cancer problem will come, to be able to ever create what is being done here.

NACK #18 - ROSSI #52

XXXXXXXX STRAUSS

As you know, they are running down every avenue that they can - following every lead that has been - that is suggested, and that offers any promise.

SZILARD

Yes, but you see I don't have much faith in progress, in science running down every avenue. Progress usually, in science, comes from something completely unexpected - from an avenue which was not visible - some young man sees something somewhere and draws a conclusion.

STRAUSS

Well - and yet a thing like salversan, for example, was a result of many experiments with - that were programmatic - they were directed to a certain end,- so were the uses of micro-biological agents which ended with penicillin - began with penicillin.

SZILARD

Well now, look, let me grab your own example. You know Ehrlich's great idea was that it should be possible to find a chemical that will essentially kill all micro-organisms, and he pursued that. He pursued that. But the first chemical which does

MACK #18 - ROSSI #52

SZILARD

this came from and entirely different experimen-
tation and resulted in certain ~~discoveries~~

STRAUSS

Dolomites.

SZILARD

Dolomites - the sulphanilimides with what Ehrlich
was looking for. But Ehrlich's systematic re-
search, search, did not produce it. It came more
or less by an accident, such later. So you are
proving my point, that even when you have the
right idea, the systematic.....does not...

STRAUSS

Well, is it fair to say that the accidents occur
to people who expose themselves to their occurrence?

SZILARD

Oh, this is very true.

STRAUSS

And these people - these scientists here, are
exposing themselves to discovery - and some one
of them may come up with it.

SZILARD

Well, they have a chance.

STRAUSS

A better chance than I have, walking down the

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MACK #18 - ROSSI #52

STRAUSS

street.

SZILARD

Δ somewhat better chance.

(CUT)

END MACK #18 - ROSSI #52

NACK #15/1 - ROSSI #49

STRAUSS

Well Leo, you're the best looking patient I think I've ever seen.

SZILARD

Thank you very much.

STRAUSS

And I can't tell you that -- it isn't a pleasure to call on you here. I'd rather be seeing you at your home or at mine. I brought with me, today, something that may have some sentimental interest for you. I've had it in my files for twenty-one years - and it's a letter. This is only a copy of it - the original of it is in a frame in my office in Washington. It's a letter that you wrote me on the twenty-fifth of January, 1939, from the Hotel King's Crown here, in New York. Have you any recollection of it?

SZILARD

Yes, I remember it. It was about - about ten days after I learned of the discovery of fission.

STRAUSS

You're precisely correct. Would you like to hear it?

=

SZILARD

Yes, refresh my memory.

MACK #15/1 - ROSSI #49

STRAUSS

Well, it is - - you writer- I feel that I ought to let you know of a very sensational new development in nuclear fission --~~at~~ in a paper in ^{Hann} (German City...) reports that he finds, when bombarding uranium with neutrons, the uranium breaking up into two halves, giving elements of about ~~th~~ half the atomic weight of uranium. This is entirely unexpected and exciting news for the average physicist. And then you add - the Department of Physics at Princeton, where I spent the last few days, was like a stirred up ~~an~~ heap. Apart from the purely scientific interest, there may be another aspect of this discovery, which so far does not seem to have caught the attention of those ~~who~~ to whom I spoke. First of all, it is obvious that the energy released in this new reaction must be very much higher than in all previously known cases. It may be two hundred million volts instead of the usual three to ten million volts. If you remember that surge generator ~~were~~ were building at California Institute of Technology - just about this time - finished just about this time - I believe, got up to twelve million volts.

MACK #15/1 - ROSSI #49

SZILARD

I think that's correct.

STRAUSS

..something like that. This in itself - you continue - this two hundred million volts might make it possible to produce power by means of nuclear energy. But I do not think that this possibility is very exciting - for if the energy output is only two or three times the energy input, the cost of the investment would probably be too high to make the process worthwhile. Unfortunately, most of the energy is released in the form of heat and not in the form of radio-activity. I think we would be happy if none of it were in the form of radioactivity. I see however, in connection with this new discovery --this is really prophetic, Leo - I see however, in connection with this new discovery, potential possibilities in another direction. These might lead to a largescale production of energy and radioactive elements - unfortunately also, perhaps to atomic bombs. And that's the first time in my life I ever heard those two words used together. This new discovery revives all the hopes and fears, in this respect, which I had in 1934 and 1935, in which I have as good as

MACK #15/1 - ROSSI #49

STRAUSS

abandoned in the course of the last two years. Then you tell me that I should look out for a paper to be published in -- by Frisch and Mikner. And I get that. And I thought you might care to have this letter. I don't know whether you kept a copy of it or not.

SZILARD

Nox. I would very much like to have it-- put it in my files. STRAUSS It is - it's, for me, an historic document.

SZILARD

Well, it is a historic document. And it was really, at that time, a dramatic situation which we faced.

STRAUSS

You remember, that it put the surge generator out of business. We were going to make radioactive cobalt for therapeutic use, to take the place of radium, which was selling at such a fantastically high price. Now, by the use of reactors, cobalt '60, which has replaced radium, in most therapy uses, can be produced for a fraction of the cost. But I need not tell you that. You know it.

SZILARD

Yes, I know it. And I almost had cobalt therapy,

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NACK #15/1 - ROSSI #49

SZILARD

but then I decided for the Wondergraph.

STRAUSS

What is the energy that they're using?

SZILARD

The Wondergraph is two million volts.

STRAUSS

Two million?

SZILARD

Yes. Not very different from the cobalt. Well anyway, this is how it started. But the question is, where do we go from here?

STRAUSS

Yes, that is - that is the sixty-four million - billion person question.

SZILARD

Look, I've been trying to draft a letter to the President-elect of the United States.

STRAUSS

That's an entry. You don't even know who he is.

SZILARD

No, I don't know who he is. STRAUSS This - this being a television program, I won't volunteer any guesses, because they might have to give someone else equal time.

BACK #15/1 - ROSSI #49

SZILARD

And I don't volunteer any guesses because my guesses would not be any good. Now, I am struggling with this because I'm trying to put in not too many pages what I want to say. Perhaps I can read it to you, because I would like to - you to be object if you think my analysis is not correct.

STRAUSS

Alright.

SZILARD

I'm trying, you see, to give an analysis of the problems which the President will face in connection with bomb, of course.

STRAUSS

I'd be very much intrigued to hear it. I don't know that my observations would be of any use to you, but I'm flattered to think that you'd be - care to have them.

SZILARD

Well, I'm thinking - the process of thinking about it. Anything you might say will affect my further thinking, and thereby it will affect the next draft of this letter. Well, this is how it reads.

STRAUSS

I might - I might interject here, that you have

NACK #15/1 - ROSSI #49

STRAUSS

written, beside the letter that I read just now, another extraordinary letter. I refer to the one that wasn't taken down to the White House, on the second of August, 1939, by the -- you took it down, did you now, the one that Einstein signed?

SZILARD

No, Alexander Sachs took it to the White House. I remember that, of course.

STRAUSS

I have no doubt as to who drafted it - namely yourself.

SZILARD

Well, I drafted it, after I talked over the problem with Einstein-- one of the problems which faced us. We knew very well what we wanted to say, but the question was how many pages does the discovery of atomic energy rate? Would two pages, double space, be too much? I think we settled, finally, on one and a half pages, single space. Well, this will be a little longer. Let me read it to you.

STRAUSS

I'd like to hear it.

SZILARD

Sir, I cannot address you by name, for I do not

MACK #15/1 - ROSSI #49

=

SZILARD

know who you may be. And because I am not well, I dare not defer writing this letter very much longer. It is now almost certain, that during your term of office, America will be forced to make a fateful decision concerning the problem that the bomb poses to the world, by making it perhaps an irrevocable choice between two alternative approaches to this problem.

STRAUSS

You're assuming that there will be no solution of this problem between now and election day?

SZILARD

Well, I'm certain that in an election year, no major decisions can be taken. And moreover, I think we are just not ready to make a decision. The problem, posed by the bomb, can only be solved..

STRAUSS

Pardon me. Do you want me to interrupt from time to time?

SZILARD

Anytime you wish. The problem, posed by the bomb, can only be solved by abolishing war. And there are two schools of thought on how this may be accomplished. One school holds that America and

NACK #15/1 - ROSSI #49

SZILARD

Russia could abolish war by getting rid of the bomb, in a setting of general and far-reaching disarmament. The other school holds that America and Russia could abolish war by retaining the bomb and finding a way to live with it. Most of those, who speak in public on the subject of getting rid of the bomb within the setting of far-reaching disarmament, confuse the issue rather than clarify it.

=

STRAUSS

They also confuse the issue of the cessation of testing with the issue of getting rid of the bomb. And that is a very serious confusion in the American mind. But perhaps we might discuss that a little later?

SZILARD

I thought we might discuss this after we are through with the main problems. Most of them take the position that it would be doubtless be desirable for America and Russia to get rid of the bomb. But that is not feasible, because there is no way of making sure that there would be no major secret evasions. I believe that this thesis is wrong, and that it is imperative that

MACK #15/1 - ROSSI #49

SZILARD

it be recognized as wrong.

STRAUSS

Do you mean, when you say that you believe it is wrong, that secret evasions are impossible? No. Surely, you do not.

SZILARD

Well, I mean the following - let us read the next paragraph.

STRAUSS

I'm sorry.

SZILARD

It says - it may or it may not be desirable that America and Russia get rid of the bomb. You see, I wouldn't take this for granted, that it is desirable. It's a serious question, whether it is. But if both Russia and America want to get rid of the bomb, then the possibility of secret evasions could be almost certainly eliminated. In my opinion, the difficulties of instituting safeguards against secret evasions are grossly overestimated at present. These difficulties may appear to be almost insurmountable, if one thinks in terms of drafting an agreement aimed at arms limitations, to which America and Russia are

MACK #15/1 - ROSSI #49

SZILARD

irrevocably committed, and which spells out in detail the measures of inspection to which they must submit. Conceivable evasions are almost innumerable. And as time goes on, there might ^{be} arise of evasions which were not previously apparent.

STRAUSS

I go along with that.

SZILARD

It lies in the very nature of arms limitations that an agreement which provides for it can remain in force only as long as both America and Russia want to keep it in force. Therefore, it would be logical to say that America and Russia ought to retain the right, legally, to abrogate the agreement at anytime, without cause, then.

STRAUSS

Of course, as between nations, the right to abrogate an agreement is inherent. No nation can ever enter into an agreement and deny the right of abrogation. So that you're right in saying it.

SZILARD

The agreement between nations can always in fact be abrogated.

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MACK #15/1 - ROSSI #49

STRAUSS

Certainly.

SZILARD

It's much better if it's also...

STRAUSS

Stated.

SZILARD

Stated.

(CUT)

SZILARD

But unless Russia is able to convince America that there are no major secret evasions on her territory, America would be forced to abrogate the y agreement. The same holds, of course, in reverse, for Russia.

END OF MACK #15 - ROSSI #49

ROSSI #50

STRAUSS

...by millions of people without your explanation.

= (CUT)

SZILARD

...resist inspection in the setting of...

(CUT)

SZILARD

It will be very easy to contact them. In addition to having the satisfaction of fulfilling a patriotic duty, the informer would receive an award, of the order of a million dollars, from the Russian Government, and this award would not be subject to income tax. Any recipient of such an award, who wished to enjoy his wealth by living a life of leisure and luxury abroad, would be permitted to leave Russia with his family.

= STRAUSS

I should think the tourist business would be -
would boom.

SZILARD

Why the tourist business?

STRAUSS

Well, there's be a great many people who'd be

ROSSI #50

STRAUSS

turning in their - their neighbors, to get the million dollars, if they thought there was a violation.

SZILARD

Well, the tourists - the tourists could be helpful in that, but only if they are around Russia.

STRAUSS

I - I realize that this is not a very serious comment.

SZILARD

By repeating the same thesis, over and over again, the Russians - as the Russians well know how to do this - the Russian Government would create an atmosphere in which we could be certain that the Russian scientists and engineers would come forward to report secret violations. Naturally, it would be within the physical power of the Russian government to have the informer arrested and shot. But such an action, by the Russian government, could not remain secret, and it would at once lead to the abrogation of the agreement.

(CUT)

ROSSI #50

STRAUSS

No one, except men who are subject to military discipline - they would be unable to report it to a Control Commission.

SZILARD

Look. I would agree with you, that in spite of such a system, small groups of conspirators could make a few bombs, or hide a few bombs. What you cannot have however, is a major delivery system.

STRAUSS

That is true.

SZILARD

And therefore, if this were the method of - of which we rely, it might still be necessary to have inspectors on every Russian and American ship and plane which is capable of crossing the Atlantic or the Pacific.

STRAUSS

And what about missiles?

SZILARD

Missiles, I think, cannot really be hidden. Because missiles are too big. They need launching platforms - they need spaces from which they are launched. And I think these could be discovered.

One you can warn the - freely - roam Russia freely,

ROSSI #50

SZILARD

and go anywhere and look at everything, as you would in such a situation...

STRAUSS

Then - then this is coupled, in your mind, with roaming freely - that is to say with unlimited right of access in Russia and in other countries?

SZILARD

I would say so. I think unlimited right of access.

STRAUSS

I think that, of course, is the ultimate goal of real disarmament.

SZILARD

The right to make - you see, the unlimited right of access is necessary, but not sufficient. If only foreigners roam around, and if we are - we have to rely on foreigners to discover secrets, we're still in a bad way. We must be able to rely on the Russians, who really know their way about. To my mind, the issue in doubt is not whether general and complete disarmament is feasible, but whether it's desirable. I have so far not been able to convince myself that it is. And therefore, in the past years, I have given more attention to the problem of how to live with the

ROSSI #60

SZILARD

BOMB than to the problem of how to get rid of it. But even though I see a number of difficulties with disarmament, which I have not been able to overcome, this does not mean that others might not find a way to get around them. The Russian government has now actually proposed that general and complete disarmament be put into force within a few years. No one can know for certain just how serious this proposal may be, perhaps not even the Russian government. In these circumstances, the questions involved need to be examined now, in all seriousness, in order to find out whether it is possible to get around the difficulties which this solution obviously presents. In my opinion, general and complete disarmament will be acceptable, to the nations of the world, only if they need not rely, for their defense, on force or the threat of force. That is, if it really abolishes war. Otherwise, there will be no such disarmament, and America and Russia are going to retain substantial stockpiles of bombs and long range rockets suitable for their delivery. Since this might very well happen, we must ask, in all seriousness, what would it take to live with the bomb? Now,

ROSSI #50

SZILARD

let me ask you here, $\frac{1}{2}$ point black - do you think
-- forgetting about the difficulties of inspection -
now, do you think that one could get rid of war
if one could abrogate war by having general and
complete disarmament - leaving machine guns still
in existence?

STRAUSS

Pragmatically, I doubt it. But I retain enough
of youthful idealism to believe that it is possible.
And I think that statesmen have to work to that
end. May I ask you a question about something you
said on the preceding page?

SZILARD

Yes, sir.

STRAUSS

I'm not sure that I quote you correctly, Leo,
but I believe you said that you were not certain
that atomic disarmament was necessary - was
necessarily desirable.

SZILARD

Yes. By this I meant we could abolish war....

STRAUSS

I see.

ROSSI #50

SZILARD

...by getting rid of the bomb within the framework of a general and complete disarmament.

STRAUSS

But there's no question of the fact that you and I would agree that if atomic energy could be used only for peaceful purposes - and if there were no prospect of bombs being used for military purposes, it would be desirable.

SZILARD

~~XXXXXXXX~~

STRAUSS

Oh, certainly. There's no mil - there's no benign military use that we know of.

SZILARD

Certainly. But you see - however, if it does not abolish war, then once war starts, all armaments would reappear, including the bomb.

STRAUSS

Yes. And the bombs, I think, rather more quickly than some of the conventional arms.

SZILARD

So the question is - is a disarmed world - can it be made stable? In what circumstances would it be stable? And this/~~question~~^{vermutlich} could also discuss-- for instance, clearly it's much easier to be ~~able~~ stable in a disarmed world, if the

ROSSI #50

SZILARD

great powers are satisfied with keeping the map frozen.

STRAUSS

Keeping...?

SZILARD

The map frozen.

STRAUSS

Um-hum.

SZILARD

Now, the present map is very difficult to freeze, with tensions in many parts of the world. Now, if it were possible to revise this map, perhaps we could get a map which is more easy to freeze? But then, revising the map is a difficult job, politically.

=

STRAUSS

The Russians...

SZILARD

So I don't know.

STRAUSS

The Russians must be aware that we have no desire to change the map. The map is satisfactory to the Western world, with the exception of the reunification of Germany. And this was at one time a Russian

ROSSI #50

STRAUSS

aim as well. So that the only change - the only map makers, who are looking for revision, are the Russians.

SZILARD

This is true. But you see, the exception, which you mentioned, is a very important exception.

STRAUSS

It's an important exception because of the threat that is - that has been made by the Russians.

SZILARD

No, I think - I ~~th~~ know it. What I mean is that this situation, which now exists, is very difficult to freeze. I mean the East Germans are very dissatisfied with their government. One day they may want to make a revolution. The West German volunteers might move in and help - and then we have a war. So this is not easy to freeze. And even if Germany were united, I'm not sure a united Germany, twenty-five years from now, would not want to reconquer the territories they lost to Poland. Now, no such thought is in the minds of the Germans - they are prosperous. But twenty-five years from now, let there be an economic recession and unemployment, you might see history repeat

ROSSI #50

SZILARD

itself.

STRAUSS

Well, it seems to me that the - the centripetal forces of history are going to bring East Germany and West Germany together. They have been united in the past - they have a common history - common inheritance - a common language - and their separation is artificial. It can't - it can't continue for very long.

SZILARD

Yes. So this map cannot be frozen easily.

STRAUSS

No.

SZILARD

Now look, let us talk a little bit about living with the bomb, and then if we have time we can come back to the problem of a disarmed world. And here, I'm raising a number of questions.

STRAUSS

When you speak of living with the bomb, are you thinking about its - are you talking about its peaceful uses - about plowshares - or are you thinking...

ROSSI #50

SZILARD

No. No, I'm talking about a situation where you have the so-called atomic stalemate.

STRAUSS

Ah!

SZILARD

Where we have stockpiles of bombs - stockpiles - the Russians have bomb stockpiles - and we both, the means of delivery.

STRAUSS

In other words, this is the pragmatic approach now.

SZILARD

It is. It is the thing which may happen to us, because we may not make - be able to make any headway along the other road. This is the present. It might be the predictable future.

STRAUSS

I must irritate you by interrupting. But you invited it, to begin with, and it's easier for me to understand, by asking questions. I hope you don't mind?

SZILARD

Not only that, but you even clarify it by asking questions. And I must prefer a dialogue to

ROSSI #50

SZILARD

monologue, even if I am myself holding the floor. Now, in the past, the great powers have always regarded war as the ultimate result, and war meant a contest of strength to be resolved by the exhaustion or total collapse of one of the two parties to the conflict. These days, when America can destroy Russia to any desired degree, and Russia can destroy America to any desired degree, these two countries can no longer engage in a contest of this sort, with each other, without being both destroyed. As far as America and Russia are concerned, war between them, in this classical sense of the term, is no longer practicable. Now, this does not mean that America cannot make use of the threat of forces in order to prevent Russia from changing the map by force, or the threat of force, and vice-versa. There is a school of thought, for instance, which holds that America might threaten to fight a limited war, in which atomic bombs, if need be, might be used against troops in combat. But even those who favor this view - and I'm not among them - recognize that the aim of such a limited war cannot be victory.

ROSSI #50

STRAUSS

Might I observe there, that this is also upon the assumption that troops are going to be used in combat, in a war in which atomic weapons/~~xxx~~^{would} be used, in the same kind of formations and the same concentration that they were used in World War I and II? They will be very widely dispersed, in the event of such a war.

(CUT)

END OF ROSSI #50

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MACK #16 - MIDDLE TAKE - ROSSI #51

SZILARD

But even those who favor this view - and I am not among them - recognize that the aim of such a limited war cannot be victory. They hold that America can resist a change, that is to be brought about by force, by threatening to exact a price. But they recognize that, generally speaking, they cannot...

(CUT)

ROSSI #51

STRAUSS

Would you expect these cities...

(CUT)

STRAUSS

...nominated in advance. They would become evacuated cities in time of peace. The real estate values would drop through the floor.

SZILARD

No. Why? Why in time of peace? Because, after all, you don't know in advance which city will be...

STRAUSS

These are only going to be nominated after hostilities

ROSSI #51

STRAUSS

commence?

SZILARD

Well, I think probably the situation that would arise is this. When - when - suppose there is a conflict in the Middle East.

=

STRAUSS

Yes.

SZILARD

We had such a conflict in the past. You remember, we sent troops into Lebanon and the British sent troops into Jordan at the time of the Iraq revolution. Now, imagine another upheaval in the Middle East - and we send troops to these countries. And perhaps - perhaps we send troops into Iraq and Saudi Arabia, and Egypt is hostile, and Syria is hostile, and Turkey, our ally, mobilizes, concentrates troops on their border of Syria - and Russia mobilizes troops - as they have done before, on the border of Turkey.

STRAUSS

Right.

SZILARD

And there is now a situation where we are on the point of moving into Turkey, to defend Turkey. And

ROSSI #51

SZILARD

what we would do there is fight a limited war - use atomic bombs against troops in combat, and perhaps even in hot pursuit across the Russian-Turkish boundary. And suppose the Russians believe this is too dangerous? Suppose they think the war may not remain limited? Well, whatt ~~exist~~ they could do is this - they could tell us - look, if you send troops into Turkey, we will demolish one of these twenty cities.

STRAUSS

Ah!

SZILARD

We will name the city, only after you have - you moved into Turkey - then we will name the city - and that city will have four weeks for evacuation.

STRAUSS

This will be - this will be a great stimulus to the removal of populations to unimportant cities.. The smaller - the smaller communities will build up and the larger ones, I think, would, considering themselves vulnerable, say the first twenty cities..

SZILARD

Well...

ROSSI #51

STRAUSS

...would be unhealthy places to live - if you own property.

SZILARD

Well, I think that people who dabble in real estate are not long-sighted enough to do this. But you have more - but you know more of them than I do.

STRAUSS

No. No, I - I agree that my objection to this is a quibble. But..

~~SZILARD~~

SZILARD STRAUSS
Look. /The practicality of the idea somewhat eludes me, Leo. On the other hand, it certainly is novel. It - anything makes more sense than an atomic war. And my way of evading an atomic war is something that should be very, very carefully weighed. I presume that this is the sort of thing that you think such a Commission, as the President elect would name, would have, as the first order of business on their docket?

SZILARD

Precisely. You see, this approach has many difficulties. It has certain advantages and certain great risks. And I have analyzed these in a rather extensive article which I wrote in

ROSSI #51

SZILARD

the Bulletin of Atomic Scientists, which appeared in the February issue. And even though I went to great lengths in analyzing it, I cannot say that I see all the difficulties. But it is this kind of - of possibilities, which a group of people should seriously investigate. And in the end, we'll have to make up our mind whether we have to live with the bomb, in the predictable future, or whether we can get rid of it in the setting off far-reaching disarmament? This decision, we will be forced to make. And we can't make it unless we think very seriously about this. This is really all I can say - that not enough thought has been given to any of these problems.

STRAUSS

Right.

(CUT)

MACK #17/2 - ROSSI #51

SZILARD

You know, I have somewhat painted a too black and white picture here, by saying there are two alternatives. Because there are solutions which can be put in one or the other class. And one of the rather interesting

MACK #17/2 - ROSSI #51

SZILARD

proposals, which I think were made for the first time, by Colonel Richard Leckhorn. It was the following. He said take - alright, let's think in terms of far-reaching disarmament. But if we really get rid of all the bombs and all the weapons, then it is really - it must be really of great concern that not a single secret violation be permitted. Whereas, he feels that if we had far-reaching disarmament, but America retained - I don't know - fifty, a hundred bombs and rockets suited for delivery x- and Russia did the same - then of course secret violations would not be so terribly dangerous. Because, suppose there are ten bombs hidden somewhere, we still have a hundred. Moreover, the general thought of this philosophy is that we should have enough - enough bombs to inflict very considerable damage. The Russians may have also enough bombs for that - but still not total destruction. So the whole threat of murder and suicide, with which people are - like to operate, and which is not a very good thing to operate with, would then disappear.

(CUT)

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SZILARD

I wonder what you might think of this intermediate approach to the problem?

STRAUSS

Leo, it's the first time I've heard it. It's ingenious. I see certain technical shortcomings immediately, as an old ordinance man. Assuming that we had a fixed number of weapons, and the Russians a fixed number of weapons, that we would continue and not augment,--without testing, they could not be presupposed to be viable. Even orthodox weapons have to be pulled out of the stockpile and tested periodically to find out whether they'll go or not. It's conceivable, after two or three years of this, that they might have a hundred good weapons, and we would have none. Or we would have a hundred good weapons and they would have none. This is only one of the drawbacks. But the thing that people, it seems to me, overlook is that it is the continual manufacture of weapons, by existing design - continually stockpiled weapons, by existing design, rather than the testing of weapons, that poses the great threat to life. In other words, it isn't radiation from tests, it's radiation from

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STRAUSS

an atomic war. They have a totally different order of magnitude. If I don't have to tell you this. You know it better than I do. But the public mind is greatly confused on the subject because of all the agitation to cease testing of weapons.

SZILARD

Well, you see, this philosophy of Leckhorn - you raised an objection, which I cannot quite accept. Because, of course, if the agreement with the Russians would provide that we have a hundred bombs and they have a hundred large bombs, of course, and rockets, then the agreement would also provide that we can test them. But since you mentioned the tests, let me say this - that I really think what we ought to do is reach a meeting of the minds with the Russians of where we are going. You see, this agitation for - let's stop tests -- really, those who seriously were interested in it were not so much worried about radioactive contamination. Because, after all, that can be avoided by testing underground. But what they ^{were} really concerned was to take a first step. Now, it seems to me, we can't take a first step until we know where we are going. And rather

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SZILARD

than discussing first steps, we should reach a meeting of the minds, with the Russians, on where we are going. Once we agree on that, then we will know what a good first step is. The stopping of bomb tests is a good first step only if we think in terms of early formal agreements in the disarmament. If this is not what will happen - but if we must find a modus vivendi - hard to live with the bomb - then it is wholly uninteresting to stop this thing.

STRAUSS

I'm - I'm discouraged about a first step theory and the overture theory. I proposed an international atomic energy conference, on the peaceful uses of atomic energy, in 1954. We held the first one in Geneva in 1955. We held a second one in Geneva in 1958. We revealed everything that we had - that we knew on the subject of peaceful uses. I think our Russian friends were considerably less than frank. And it has been my feeling, that while we get information from, it is invariably along the lines that we have already explored. I don't think we have learned anything new from them. (CUT)

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STRAUSS

Leo, you may be interested, that sometime within the next fortnight, the National Academy of Sciences is to issue a follow-up report to a report, which they made at ^{my} request, in 1956, on the affect of radiation from atomic tests. I haven't the slightest idea what is in that report. But the first report, which was followed by an independent report, made by the British Medical Council,-- and it was followed, in 1958 by a report by the Committee on Atomic Radiation - the affects of atomic radiation - of the United Nations - and a report, last year, by the General Advisory Committee of the A.E.C. -- all came to the same general conclusion, the purport of whichk was that although the biological affects, on human beings, of fall-out, could not be definitely established, and would require years and perhaps generations to evaluate, that the amount of radiation involved was less than five percent - external radiation - of the radiation normally experienced from cosmic rays and background radiation in the soil - and less than five percent, in the United States, of the affect of medical ex-rays. This is not known to the general

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STRAUSS

public. The general public are under the impression that the fall-out, from tests, is lethal - which it's not, as you know - or that it is sure to produce cancer or leukemia or sterility or human mutations-for which there's no observed evidence. On the other hand, the fact that radiation, from an atomic war, would be simply ghastly, is passed over in the general publicity on the subject.

SZILARD

I agree with you that I never understood why people are not more excited about what will happen in case of war.

(CUT)

SZILARD

I think it is very respectable but somewhat misguided motivation.

STRAUSS

I - it's misguided because, I think if we reach a solution of that, many people will take a deep breath and feel that the whole danger has been removed, and the issue has been solved. And it will only have been nibbled at.

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SZILARD

Look, I talked to one of these people, who are the prime movers of this movement - let's stop the tests - and I said to him - now look, I will - I will accept your thesis that it is very important for America and Russia to reach an agreement on something. But why don't we reach an agreement, with the Russians, that we'll both continue testing? As good an agreement as the other - and it's much easier to arrive at.

STRAUSS

Underground, where there's no fallout.

SZILARD

Underground, if you wish.

STRAUSS

What was his answer.

SZILARD

He laughed.

(CUT)

END OF MACK #17

MACK #18 - ROSSI #52 (SECOND STICKS)

STRAUSS

It has always seemed to me a pity, that in connection with tests, and in connection with the agitation to ban testing, that the general public has gotten the notion that there's something evil about tests - that tests were designed and conducted in order to prove weapons, for the defense of the country. They made a weapon's posture for the country possible - that, in the opinion of experience men - Mr. Churchill for example - have discouraged war. And yet testing has gotten a bad name. I'm sure that nothing that I say is going to change it. But it would be very desirable if, in the course of your speaking and your writing, you could occasionally, with your - the great authority with which you speak, set the public right on that.

SZILARD

Well, I've written something on the subject of testing. But really, what I would like to say most, at this moment, is something which will blame not the people but the government. Because I think our government should attempt to do the right thing, and not attempt to do the popular thing.

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STRAUSS

Well, it certainly has, during my tenure in it, tried to do the right thing and not necessarily the popular thing. I'm an object lesson of that.

SZILARD

Well, I'll accept that. But let me perhaps, at this point, ask you something else. It just occurred to me, that it's an interesting question to ask. You know the Russians have, oh, for a very long time, demanded the bomb be outlawed. Now - they have now refined what they mean by that. And what they are now proposing is that the nations each should pledge themselves not to be the first to use atomic bombs. That is, all nations should say, we are not going to use atomic bombs unless we are attacked by atomic bombs. Now - well, this is at present opposed by the government, or anyway by the official spokesmen. Because it would put, so they say - and I'm not sure they are right - they say this would put America to a military disadvantage to accept it now. This may be so. But nevertheless, it offends somewhat my sense of proportions. And it brings vividly back to my memory something that I lived through with in 1933, in London. In 1933,

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SZILARD

there was a negotiation going on in Geneva - a disarmament conference. And before that conference was a proposal to abolish bomber planes - to outlaw and abolish bomber planes. In these negotiations, at one point Anthony Eden rose. He was, at that time, a civil servant - and he spoke in the name of His Majesty's government. And what he said was - that His Majesty's government could not agree to the abolishment of bomber planes because England needed bomber planes to destroy the (name...) of savage tribes on the northerwestern frontier of India. I thought, at that time, that Eden did not have such sense of proportions, if he was able to give this reasoning. And what happened later even confirmed my view in this regard. Now, it offends somewhat my sense of proportion if we say that the reason we cannot enter into such a branch is it would put us into a military disadvantage. Maybe it would? But maybe it would also save our lives?

STRAUSS

Well, what reason do you - do you have to believe that such an undertaking would be honored, in the face of a long history of violated undertakings?

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STRAUSS

Even those which are signed and delivered ^{under} the most solemn circumstances, as treaties...

SZILARD

Well, undertakings do not always prevent use of a weapon which has been prohibited. But sometimes they do. And I think that certainly, a minor conflict, if we had given such a pledge, we would certainly, in a minor conflict, live up to the pledge.

STRAUSS

Well, I believe we would live up to it, but I have no reason for thinking that the other fellow would, based on his performance.

SZILARD

Ah, yes, but if we would live up to it, this is already half the battle won. Because in half the wars, where it would be to our advantage to use atomic weapons, no atomic weapons would be used. Also, you cannot be sure that others would not live up to it, because it might be perhaps not to their advantage in that particular conflict to forego the use of atomic weapons. But it would be, in the longer advantage, not to have atomic weapons used in local conflicts. If there's an

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SZILARD

all-out war -- I'm talking about limited war.

STRAUSS

You know the statement which I'm not able to quote verbatim - to the effect that nations that do not remember their past are fated to live it over again. It seems to me that we are faced with the decision of whether we should accept an undertaking delivered to us by those who've violated undertakings in the past, and treat it as something that is new and reliable for the future.

SZILARD

Oh, yes, but you see this is not an agreement now we are discussing. We are discussing unilateral pledges, by us and by the Russians. We simply say that we are not going to use it first. We don't enter into an agreement of any kind.

STRAUSS

What possible good would come of it? It's the present status. Neither of us is using an atomic weapon.

SZILARD

Well, there's no war at present. What the possible use coming of it would be, that in the next local

MACKE #18 - ROSSI #52

SZILARD

conflict we will not be tempted to use atomic weapons. We were strongly tempted to use atomic bombs in the Indo China conflict, you remember?

STRAUSS

I have a vague recollection of it, yes.

SZILARD

Well, it would reduce the temptation. Well look, I'm not advocating this. All I'm saying is that I would not, offhand, dismiss this. I think this should be thought out and we should try to have some sense of proportions about this.

STRAUSS

There's a sense of un - unreality, which I'm sure you share with me, in - in the discussion of this - in a vacuum - as - as we have to do it. I'd like to ask you about something much more concrete and much more of the moment. Here you are, at the Memorial. I have ~~th~~ had the privilege of being a member of the board of trustees of this institution for many years. I've known it ever since the days when Doctor Ewing was the head of it, back in the thirties. Have you been here long enough to form an opinion of the kind of scientific experiments that is going on here - where research

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STRAUSS

on a very large scale - and therapy - are being
conducted, literally under the same roof?

SZILARD

Well, I cannot...

END OF REEL.
