

Letter to Editor.

January 1, 1954.

You often hear people thinking that the most complete difference between a democracy such as ours and the lack of it, such as we find in proletarian states, is a fact that in those states, the state is above the individual. Whereas, here in the United States doubt is resolved in favor of the individual. By and large this is probably true with one important exception. A man who works directly or indirectly for the Government, and whose loyalty comes under suspicion, or who is suspected to be a security risk will often, in case of doubt lose his position and if he happens to be a scientist he might find it impossible to continue his profession. To lose not only his job, but also his livelihood even though he may be innocent can not be reconciled with a conception of justice to which everybody professes to be deeply attached.

Scientists have been much disturbed by this problem, and often raise their voice, urging the improvement of the procedures which are applied to cases of this sort. It seems to me however, that they have missed the main point which is at issue. No matter how much the procedure is improved there will always remain a number of cases when there is doubt which can not be resolved. In such a case the public interest demands that the man shall be removed from a position in which he would be dangerous if the suspicion were founded. At the same time justice demands that the man should not lose his livelihood, and that if no suitable job can be found for him he should be retained on leave of absence without pay, until such time as he can find employment which he is willing to accept. Had this policy been adopted and had all men been retained on the Government payroll, who could not prove in court to have violated any law, no matter how obnoxious they otherwise might be, it would have cost the taxpayer several million dollars a year. But the real issue then is this: Are we willing to spend several million dollars a year in order to uphold our principles of justice, or is this too high a price to pay for justice? It seems to me that this is the crucial issue and had we gone along on this issue, the whole aspect of a Security and Loyalty clearance procedure would have been radically altered. Most men suspended without pay would, of course, not want to remain in this situation for very long. But, there still would be enough of those who would greatly enjoy basking in this California sunshine while drawing their salary while unjustly suspected of being a security or loyalty risk. Because of the possibility of this type of malingering, the F. B. I. would be forced to look not only for evidence of disloyalty as they now do, but also for evidences of loyalty that would enable the Government to catch the malingerer. This, at one stroke, would completely change the whole aspect of F. B. I. investigation. Because

Letter to Editor.

investigations, as carried out today have both the farcical and the tragic aspects. The last three men, about whom I have been contacted by the F. B. I., in the case of what was manifestly routine investigation, were the following: Alvin Weinberg, Director of Research of the Oak Ridge National Laboratory, Hans Bethe of Cornell University, and Bacher, former member of the Atomic Energy Commission and now in the College of Technology. It was obvious from the routine questioning, they were not under any suspicion. When I told the investigator that these men must have been investigated numerous times and I failed to see the point in asking the same questions over and over again, except of course if the F. B. I. desired to ask everybody about everybody. At least once, I was given a reply that the investigation must be continuous because people changed, and even though they had been loyal, they might one day become subversive. This would have made sense to me if the investigator had not omitted to ask me whether I had had any contact with any of these men in the last few years. That was one question he did not ask. Unfortunately, there is the tragic aspect to the situation of which I was not aware until a few years ago. It was just a few weeks before the issue of whether we should not attempt to build "H" bombs, became public. At that time a group of us were so disturbed by the lack of progress in methods for producing plutonium and other official material and not press their applications in atomic energy producing, that it was seriously considered asking for public hearings in Congress. Public hearings were heard previously under Senator _____ but during those hearings the scientists kept their dissatisfaction with the functioning of the atomic energy commission a closely guarded secret. Whatever had to be done, we preferred collaboration of both Congress and the Administration, rather than collaboration with a Republican Congress in opposition to it, in the form of an attack against the Democratic administration. Now that we thought of asking for another set of public hearings, we established contact with Congress thru Senator Mc Mahan, the Chairman for the committee of atomic energy, and with the White House, David Nyes.

In talking with Nyes I happened to mention that practically all the advancement on the development of the bomb, after the war, had come from one single man. Upon hearing this, Nyes interrupted me to urge me to keep the name of that man a secret. It is within the power of the Russians today, as explained to me, to smear this man - if they know who he is, in such a way that the President himself would be powerless to keep the man working in the position which he now occupies.

Letter to Editor.

I was not alone with Nyes on this occasion and now I know my two companions had any doubt that what Nyes said, he said in deed earnest. I had never realized before, how far things had come. In the mean time, we had a change of administration but things have gone for the worse rather than the better. The topic has become too disturbing for me to read it in any other but a facetious manner. But, few things are these days more farcical than history and so it might be that the fictitious letter proposed to be written in the year 1957 will be not only equalled, but surpassed by the time the next administration takes off.

Leo Szilard

February 2, 1955

LETTER TO THE EDITOR

In 1913, one year before the First World War, H. G. Wells wrote a book, THE WORLD SET FREE. In this book he describes the discovery of artificial radioactivity and puts it in the year 1933, the very year in which it was discovered. This is followed, in the book, by the development of atomic energy for peactime uses and Atomic Bombs. The World War in which the cities of many nations are destroyed by these Bombs Wells puts in the year 1956. After the devastation of a large part of the World an attempt is made to set up a World Government which very nearly fails but in the end, somehow, miraculously succeeds.

It seems that all of these predictions -- even the dates -- may prove to be correct; for now it would appear that 1956 is the year most likely to see the advent of Atomic War.

It would take much imagination and resourcefulness -- no less perhaps than went into the development of the Bomb itself -- to devise a settlement that would resolve the power conflict between Russia and the United States and would not only postpone the next war, but create a situation in which war would not be likely to occur again. But up until now the public discussion of these issues has moved at a level of political thinking at which no solution is possible at all, and so far neither the Government nor any one else has presented even the principles on which an adequate settlement could be based.

If we have no concept of a real solution, almost any course of action can be argued, for and against, endlessly and inconclusively. Some military leaders seem to advocate that we take armed action in the Pacific while it is still possible to keep Russia, through the threat of "massive retaliation," from intervening on a large scale. If we accept the premise that it is not too late for a preventive war and if we are willing to devastate China to such an extent that recovery may take one or two generations, then there may be nothing much wrong with the reasoning of these men, except that they leave God out of their equations.

According to press reports, Admiral Radford suggested in September that Chiang Kai-shek be permitted to bomb the mainland of China in defense of Quemoy Island and that the United States agree to intervene in the support of this action if necessary. At that time President Eisenhower vetoed this proposal. In doing so the President followed his instinct, and his instinct is to strive for peace.

It is generally known that the President ardently desires to keep the country out of war. He believes that a satisfactory general agreement could probably be drafted that the Russians would be likely to accept; but he does not know how to make sure that the Russians would keep such an agreement and therefore he is unable to steer a clear course which offers a chance of leading to peace. With many of his advisers in favor of taking calculated risks and having an early showdown, how long can the President be expected to hold out?

The day on which we bomb the Chinese mainland -- say in defense of Quemoy or Matsu -- is likely to turn out to be the first day of the Third World War. Those who think that the course of such a war

can be predicted in any way are, I believe, sadly mistaken; and the war might very well end with the devastation of Russia and perhaps also of the United States, to the point where organized government in these two countries will cease to exist.

At the time of this writing it appears quite possible that we may have a reprieve. But such a reprieve can be only a short one; for we have now advanced close to the point of no return, and one of our next groping steps, unguided by a clear concept of the road to peace, could very well carry us beyond that point. This result, to me, seems indeed unavoidable unless the men within our Government who are shaping our policies will soon begin to see clearly some course of action that may lead us out of the present impasse.

To remove the instability inherent in the power conflict between Russia and the United States will take a far-reaching agreement that will settle all major outstanding issues. Such an agreement, if it offers Russia, ourselves, and several other nations strong continuing incentives for keeping it in operation, can create a setting in which the chance of war may be regarded as remote. Only in such a setting is it possible to dispose of the controversial issues which loom so large today. No progress can be made towards this goal piece-meal.

To outline such an agreement in some detail will require the kind of imagination and resourcefulness that cannot be expected from the Government. In our political system the intellectual leadership needed here can arise only through private initiative.

Our only remaining hope is, I believe, that under the sponsorship of universities, research foundations, and, above all, committees

of citizens set up for the purpose, it may be possible to gather at this late hour several groups of highly qualified men who will think through the problems that are involved. Some of these groups might perhaps succeed in outlining for us in some detail, within the next few months, the kind of international arrangements that we could trust. The problem lies not so much in working out all the details as in finding the right principles from which the details would follow more or less automatically. The details can wait but reaching a meeting of minds on the basic principles cannot. Only groups of like-minded men who can agree at the outset on basic premises can hope to come up with something really constructive that may catch -- as it must -- the imagination of the public, Congress and the Administration.

I am fairly confident that with the right kind of sponsorship to provide the necessary moral and financial support, the men needed to carry out this work could be found. We have great resources in men of ability, devotion, and -- yes, even courage; and such men would make themselves available in response to the proper invitation.

Will sponsorship, however, be forthcoming soon enough and on a sufficient scale? True, we are now faced with a clear and present danger, and it is in such times that patriots may rise to the challenge; but will there be men willing to assume responsibility when nobody in particular has assigned them such responsibility? This, of course, I cannot say. I am certain of one thing only: Unless we find the right answers soon, war will come; and maybe in the final analysis it will come because there was too much patriotism in the United States and there were too few patriots.

ACTION TO PREVENT WAR

Sponsorship of Qualified Group to Formulate Agreements Proposed

(The writer of the following letter was instrumental in persuading the United States Government in 1939 to take up the development of atomic energy. He is now a professor at the University of Chicago.)

TO THE EDITOR OF THE NEW YORK TIMES:

In 1913, one year before the First World War, H. G. Wells wrote a book, "The World Set Free." In this book he describes the discovery of artificial radioactivity and puts it in the year 1933, the very year in which it was discovered. This is followed, in the book, by the development of atomic energy for peacetime uses and atomic bombs. The world war in which the cities of many nations are destroyed by these bombs Wells puts in the year 1956. After the devastation of a large part of the world an attempt is made to set up a world government which very nearly fails but in the end, somehow, miraculously succeeds.

It seems that all of these predictions--even the dates--may prove to be correct; for now it would appear that 1956 is the year most likely to see the advent of atomic war.

It would take much imagination and resourcefulness--no less perhaps than went into the development of the bomb itself--to devise a settlement that would resolve the power conflict between Russia and the United States and would not only postpone the next war, but create a situation in which war would not be likely to occur again. But up until now the public discussion of these issues has moved at a level of political thinking at which no solution is possible at all. So far neither the Government nor anyone else has presented even the principles on which an adequate settlement could be based.

Preventive War Theory

If we have no concept of a real solution, almost any course of action can be argued, for and against, endlessly and inconclusively. Some military leaders seem to advocate that we take armed action in the Pacific while it is still possible to keep Russia, through the threat of "massive retaliation," from intervening on a large scale. If we accept the premise that it is not too late for a preventive war and if we are willing to devastate China to such an extent that recovery may take one or two generations, then there may be nothing much wrong with the reasoning of these men, except that they leave God out of their equations.

According to press reports, Admiral Radford suggested in September that Chiang Kai-shek be permitted to bomb the mainland of China in defense of Quemoy Island and that the United States agree to intervene in the support of this action if necessary. At that time President Eisenhower vetoed this proposal. In doing so the President followed his instinct, and his instinct is to strive for peace.

It is generally known that the President ardently desires to keep the country out of war. He believes that a satisfactory general agreement could probably be drafted that the Russians would be likely to accept. But he does not know how to make sure that the Russians would keep such an agreement, and he is therefore unable to steer a clear course which offers a chance of leading to peace. With many of his advisers in favor of taking calculated risks and having an early showdown, how long can the President be expected to hold out?

Course of Devastation

The day on which we bomb the Chinese mainland--say in defense of Quemoy or Matsu--is likely to turn out to be the first day of the Third World War. Those who think that the course of such a war can be predicted in any way are, I believe, sadly mistaken. The war might very well end with the devastation of Russia and perhaps also of the United States, to the point where organized government in these two countries would cease to exist.

At the time of this writing it appears quite possible that we may have a reprieve. But such a reprieve can be only a short one. For we have now advanced close to the point of no return, and one of our next groping steps--unguided by a clear concept of the road to peace--could very well carry us beyond that point. This result to me seems indeed unavoidable unless the men within our Government who are shaping our policies will soon begin to see clearly some course of action that may lead us out of the present impasse.

To remove the instability inherent in the power conflict between Russia and the United States will take a far-reaching agreement that will settle all major outstanding issues. Such an agreement, if it offers Russia, ourselves and several other nations strong continuing incentives for keeping it in operation, can create a setting in which the chance of war may be regarded as remote. Only in such a setting is it possible to dispose of the controversial issues which loom so large today. No progress can be made toward this goal piecemeal.

Initiating Leadership

To outline such an agreement in some detail will require the kind of imagination and resourcefulness that cannot be expected from the Government. In our political system the intellectual leadership needed here can arise only through private initiative.

Our only remaining hope is, I believe, that under the sponsorship of universities, research foundations, and, above all, committees of citizens set up for the purpose, it may be possible to gather at this late hour several groups of highly qualified men who will think through the problems that are involved. Some of these groups might perhaps succeed in outlining for us in some detail, within the next few months, the kind of international arrangements that we could trust.

The problem lies not so much in working out all the details as in finding the right principles from which the details would follow more or less automatically. The details can wait, but reaching a meeting of minds on the basic principles cannot. Only groups of like-minded men who can agree at the outset on basic premises can hope to come up with something really constructive that may catch--as it must--the imagination of the public, Congress and the Administration.

I am fairly confident that with the right kind of sponsorship to provide the necessary moral and financial support the men needed to carry out this work could be found. We have great resources in men of ability, devotion and--yes, even courage; and such men would make themselves available in response to the proper invitation.

Will sponsorship, however, be forthcoming soon enough and on a sufficient scale? True, we are now faced with a clear and present danger, and it is in such times that patriots may rise to the challenge. But will there be men willing to assume responsibility when nobody in particular has assigned them such responsibility? This, of course, I cannot say.

I am certain of one thing only. Unless we find the right answers soon war will come; and maybe in the final analysis it will come because there was too much patriotism in the United States and too few patriots.

Leo Szilard.

New York, Feb. 2, 1955.

LETTERS TO THE TIMES

(New York Times,
February 6, 1955)

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Leo Szilard.

New York, Feb. 2, 1955.

LEO SZILARD

February 28, 1955

Memorandum to "Letter to the Editor", New York Times, February 6, 1955.

It is not likely that any group which attempts to think through the problem of resolving the Russian-American conflict on the basis of enlightened self-interest will succeed in coming up with the right answers to the difficult problems which face the world today. The right answers cannot be found by a straight application of logical reasoning and, in order to find them, one must have ideas. We do not know just how ideas come about, but somehow or other, enlightened self-interest does not seem to be very conducive to their generation. Somehow, enlightened self-interest lacks in appeal to the imagination of Man.

Bertrand Russell, in his book, Icarus, discusses how the "fixed price" came into existence in England. Up to that time, it took protracted negotiations to buy a pair of shoes in a shop. The shopkeeper started out by asking a price which was way too high, and the customer offered a price which was way too low. After long negotiations, the pair of shoes changed hands at a reasonable price - if one does not count the time invested by customer and shopkeeper in the negotiation of the price. The first shopkeepers to introduce the fixed price were - according to Russell - Quakers, who felt it was wrong to ask for a higher price than the merchandise was worth. The customers saved time by buying in these Quaker shops, and preferred to buy in them, with the result that the Quakers became prosperous. Russell stresses the fact that any merchant guided by enlightened self-interest could have arrived at the same conclusion which the Quakers reached on the basis of a moral argument, but the fact remains that enlightened self-interest did not produce the "idea" which was required.

Ideas of greater depth are needed today if we are to find the right answers to the problem that confronts the world. To come up with these ideas is a task that requires qualities of the heart as well as qualities of the intellect.

Provided that the necessary moral and financial support can be obtained, I shall try to assemble a group of men, perhaps 5 to 10, who would make themselves available on a full-time basis for about 6 or 7 months, in order to carry out the study described further below. I have so far written to the following men, inquiring whether they might be available for the purposes of such a study:

Stringfellow Barr, formerly President of St. Johns' College, author of the book, "The Pilgrimage of Western Man".

Father John Cavanaugh, formerly President of Notre Dame University.

Colin Clark, economist, formerly in Australia, at present at Oxford, England.

Colonel Faymonville, Ret., formerly Military Attache at the American Embassy in Moscow.

General Hugh B. Hester, Ret., lawyer, formerly in charge of supplies of the American Occupation Army in Germany.

Marshal MacDuffie, formerly in charge of the UNRA Control Commission in the Ukraine, lawyer, author of the recent book, "The Red Carpet".

With the exception of Colonel Faymonville, I know them all personally, and I am approaching Colonel Faymonville through General Hester, who knows him well.

It would be my hope that a group of men of this type would come up with ideas which other groups, motivated by enlightened self-interest, might fail to produce.

In the following, I shall refer to the full time working group here proposed as the "Commission" in order to distinguish it from the "Board", which might be set up later. Such a Board could be composed of distinguished men, who serve on a part-time basis; they would scrutinize the results of the Commission's work from the point of view of enlightened self-interest and, if justified, they would attest the validity of the conclusions reached by the Commission from this point of view.

The Commission's task is not to arrive at recommendations concerning the conduct of American foreign policy, and the members of the Commission must not

consider that their responsibility is primarily to the American people. Rather, the Commission ought to function as follows:

(a) They shall devote perhaps 12 weeks to clarifying their own minds on what they themselves would consider to be a desirable and adequate international arrangement, from the point of view of the nations involved.

(b) Having accomplished this, the Commission shall discuss their thoughts with individual members of the Russian, British, and American Governments and, if practicable, also the Chinese Government. Thus, the Commission shall learn how these individuals, who are entrusted with Governmental responsibilities, feel about the Commission's plan in general. Furthermore, the Commission shall find out through such discussions how these individuals look--from the point of view of the national interest which they represent--upon the specific proposals contained in the plan. Some of these proposals would adversely effect vested interests wielding political influence and the discussions should enable the Commission to assess the practical difficulties which these proposals are likely to encounter.

It is assumed that this phase of the work of the Commission would take about 8 weeks.

(c) Subsequent to these discussions, the Commission would then revise their proposals and also fill in at least the most important details which are needed in order to make the plan meaningful.

It is estimated that this phase of the work might take 6 weeks.

It is not possible to have all the talent required assembled in a small full-time Commission. Therefore, from time to time the Commission will have to call in experts in the various fields.

The Commission ought to start its work at once. As its work progresses and its ideas begin to crystalize, they could begin to assemble a Board of distinguished men, well thought of on the local American scene. The Board would, from time to time, meet with the Commission and gradually familiarize themselves with the Commission's reasons for choosing certain solutions and rejecting others. The Board's real function would begin only after the Commission has completed its work, when the issue of convincing the Administration, Congress, and the public of the validity of the Commission's conclusions will have to be met.

** The End **

April 16, 1955

ADDENDUM TO MEMO OF FEBRUARY 28.

Please note that the function of the Board is to judge the recommendations of the Commission from the point of view of enlightened self interest and that it must, therefore, be composed of American citizens only. The function of the Commission is to conduct an enquiry into what appears to be both desirable and likely to be acceptable to the various governments. The Members of the Commission must not regard themselves as representing America's interest and they may be foreigners, as well as Americans.

I have asked a few men whose names are given in the Memorandum whether they would make themselves available on a full time basis for the work of the Commission and I shall ask some others the same question. All these are tentative enquiries for the purpose of finding out whether qualified men of standing would make themselves available. The final composition of the Commission will not be determined until the point is reached where we are ready actually to set up an operation.

The response of those so far asked is helpful from the point of view of guiding our further thoughts and it appears that about half of those approached say that they will make themselves available. It is my impression that it will be possible to obtain the services of the right kind of people for the work of the Commission.

To my mind it is not desirable to have the Commission composed of experts. The Members of the Commission should be laymen who have faith in the possibility of working out an arrangement. In addition they must have imagination and critical ability. They can greatly profit by discussing their problems for days and, perhaps, weeks with

experts, including those who have past experience in International negotiations. To learn from the experts is important but the experts must not run the show.

Since an important function of the Commission is to explore the thinking of Members of the Russian, Chinese, British and American governments, it would be well to obtain half of the financial support needed for the work of the Commission from the Russian government. Attempts in this direction will be made. The other half ought to come from American sources, from private individuals, Foundations or, conceivably, from the Government.

Since the work of the Commission consists in an enquiry, the fund needed for its work could be administered by a University or some other tax exempt educational or research institution. Donations to this fund would, therefore, be tax exempt.

The work of the Board is more political and funds for its operation would have to be administered in a different manner. The financing of the Board must come from purely American sources.

Leo Szilard

Aug 1956 cm

DRAFT OF PROPOSED LETTER FOR DR SZILLARD

In recent weeks, an ad hoc, ^{non}political group which includes scientists, writers and businessmen, has been working to focus attention on the ^{implications of} ~~new and critical state of affairs brought about~~ by the race to perfect the intercontinental ballistic missile.

~~The first result of~~ ^{first} their effort ^{clarify} was a conference at Gould House in June, at which an attempt was made to ~~define~~ the problems involved, ^{and to discuss} mostly from the technological standpoint, and to uncover the obstacles which have so far prevented even the ^{the} formation of a clear United States policy ~~on which a program~~ ^{inspected, controlled} to achieve disarmament, in ^a the framework of national and international security, ~~could be based.~~

It has been apparent for some time, and ^{this} was reaffirmed at the conference, that there is a far greater desire among ^{the} American ~~people~~ public ^{in the field of disarmament on the part of the government,} for ~~some~~ positive governmental action, than either Congress or government officials recognize. [It is no longer a matter of preparing a reluctant people for the idea that one day we might find ourselves having to contemplate some form of settlement with Russia. This has been accepted, the anxiety is now how soon can

~~such a settlement be reached, and what form should it take.~~

no P ~~These questions~~ *put* ~~transend in urgency and importance any of other~~ *disarmament question and problems associated with it*
of our time,
~~the issues which will be discussed ad nauseam in the next few~~

P ~~weeks.~~ The same group which organized the Gould House conference

has therefore decided to provide a forum in which they ~~can be~~ *disarmament question*

debated by the people most able to contribute positive proposals

toward a ~~for their~~ solution, at a time when national attention will be

and ~~centered~~ on the formulation of future national policies.

I am enclosing some material on the Gould House meeting, and some details of the plans for the forthcoming conference to be held at Arden House, New York, during the weekend of Oct 19-22nd, in the hope and belief that you will feel able to approach Governor Stevenson with an invitation to attend and address the meeting, and if possible to accompany him.

You will see from the list of those who are to be invited, some of whom have already signified their acceptance, that the level of the meetings is as high as any the Governor is likely to attend;

~~xxxx~~ and that he may find the opportunity to take part in the *most* ~~discussions almost as valuable, as the occasion to reach a highly~~ *In addition of course by the National*
~~influential crosssection of voters.~~ *OVER* *Democratic*

Committee ^{may} ~~should~~ wish to ~~add~~ schedule a
on Disarmament
major address by the Governor during this
conference.

We are planning to present a
A similar invitation ~~is being extended~~
to the Republican ^{party and its} candidate, ~~President Eisenhower~~

I am enclosing some material on the Gould House meeting, and
some details of the plans for the forthcoming conference to be
held at Alden House, New York, during the weekend of Oct 19-22nd,
in the hope and belief that you will feel able to approach
Governor Stevenson with an invitation to attend and address the
meeting, and if possible to accompany him.
You will see from the list of those who are to be invited,
some of whom have already signified their acceptance, that the level
of the meeting is as high as any the Governor is likely to attend;
it is and that he may find the opportunity to take part in the
discussions almost as valuable as the occasion to hear a highly
influential presentation of various views.

A44
[July, 1956]

D R A F T

When the President announced his program of "Atoms for Peace" I received his announcement with mixed feelings. I did not know whether it was simply another move in the Cold War -- part of the game which our diplomats have been playing in the last years, in which the objective seemed to be to win every battle regardless of whether or not ~~xxx~~ we are going to lose the "war". Also it offended my sense of proportion. To establish a secure peace when the bombs stare us in the face is a tall order. If we want to have peace, we have to make peace and not atoms. There are things which the rest of the world needs far more urgently than additional power plants, and if we are going to build atomic power plants abroad -- as we may and as I think we should -- we will do it because by doing so we shall build up an atomic industry at home ready to go into action at a future time when atomic power plants may commercially be able to compete in this country with conventional plants. It is just as much as for the sake of exporting capital to foreign countries while in need of capital.

far more
There may be/need of capital in other forms but we ~~may~~ not be
willing to give them capital in substantial amounts in any other
form.

Letter to the New York Times

Sir:

Because these days the ~~statement~~ ^{discrepancy} statesmen of the great powers cannot ~~help but be aware of~~ ^{propose} the menace of the bomb, they present us from time to time with bold ~~proposals~~ ^{measures} aimed at making the peace more secure.

They may propose to stop further bomb tests, to abolish conscription, ~~or~~ to have mutual aerial inspection of ground installations in order to pre-

vent a surprise attack, or even general disarmament. But ~~whatever they~~ ^{they} ~~carefully refrain from proposing the~~ ^{might} suggest they do not work for the one thing that ~~can~~ ^{could} make any of the other ~~such measures~~ ^{these} suggestions possible; i.e. an adequate political settlement among the

great powers that would be kept in force because it would be in the interests of the ~~great powers~~ ^{contracting parties} to keep/in force. ^{The main purpose} ~~Such a settlement would~~ ^{of such a settlement should be to achieve} serve its purpose if it made it reasonably certain that in case of a conflict between nations -- other than the great powers themselves --

if resort to arms cannot be prevented, the great powers will ~~at least~~ not ^{thus} militarily intervene on opposite sides. Until we have such a settlement the bombs ~~will remain~~ ^{must} ~~as will be with us and~~ an ever increasing menace. I am so keenly

aware of the nature of this menace and I believe so strongly that ~~today~~ ^{to day} it persists only because of ~~criminal negligence on the part of the lead-~~

are faring us
 ing statesmen of the great powers that I cannot trust myself to write
~~about the bomb~~ -- and write about it I must -- in a serious vein without

letting a trace of bitterness creep into my script. This will explain

to the reader why I ~~am~~ going to say what I ~~am~~ saying in the way I ~~do~~.

The last important announcement on the bomb emanating from
 authoritative sources in Washington told us that our efforts towards
 humanizing the bomb have been crowned with success. Our editorial
 writers, whose ability to elucidate such oracles is rarely impeded by
 any knowledge of the atomic energy field, have promptly explained to us
 the meaning of this announcement: It seems we have discovered the
 "secret" of how to make bombs that ~~either~~ omit ingredients that are
 transformed into radioactive dust, or ~~bombs~~ that can be exploded very
 high above the ground without impairing their ability to reduce a city
 to ashes, ~~so that~~ in either case the bomb can destroy a city without
 spraying the suburbs and the surrounding countryside with a lethal
 amount of radioactive dust.

This, if the editorial writers are correct, is undoubtedly
 good news for our potential adversaries in warfare. I am, of course,

wholly in sympathy with those of ^{my} ~~our~~ fellow citizens who ^{will now} ~~now wish to~~ pray to God that someone may sneak the "secret" to Russia so that in case of the dreaded war, even though our cities may be reduced to ashes, those of us who live in the suburbs or the countryside may survive. For their benefit I can say ~~that~~ ^{thus} on good authority that by praying to God in such a manner they would not lay themselves open to prosecution by the Department of Justice. I must, however, warn any would-be traitor who ^(is tempted to regard as instrument) might imagine himself performing God's work: ~~that~~ God does not need the ^{cooperation} ~~service~~ of any traitor; God can work miracles. God can work a miracle and make the Russians discover the secret all on their own. Of if he were a revengeful God to whom it would be pleasing to have the Sodom and Gommorah of our cities perish ^(go up in flames and be reduced to ashes), while the innocent people in our suburbs and our countryside escape unscathed, he could work an even greater miracle and keep the Russians from discovering the "secret" on their own. Having exhausted the subject and perhaps ^{patience also} ~~also~~ the reader, I now turn to a different ^{topic} ~~subject~~.

If a satisfactory way of maintaining a controlled fusion reaction can be found, it will in the long run provide the world with a virtually unlimited source of power. More and more of my eminent colleagues demand these days that the cloak of secrecy be withdrawn from this field in order to ~~promote~~ ^{speed up} this development. ~~Our~~ ^{the} authorities are opposed to this for the following reason: In a fusion reactor there will be a copious emission of neutrons which can be used ~~in~~ ^{to} manufacturing a fissionable isotope ~~of uranium~~ ^{from uranium} from ordinary thorium. Countries like the United States and Russia have, of course, much better methods for producing fissionable materials, and moreover within the near future will have in stock ~~all~~ ^{the material} that they can possibly want to possess for military purposes. There are other countries, however, who ~~might have difficulty in obtaining an adequate supply of uranium and in emulating the example of Russia and America,~~ ^{may} and it is conceivable that they might be able to acquire bombs sooner if they are taught how to operate a fusion reactor. ~~One might argue~~ ^{One might argue} ~~It is bad enough that Russia and America have the bombs; why take the risk -- however small it may be -- that countries who can neither manufacture fissionable material from uranium~~ ^{utilize}

can
 nor buy bombs from either Russia or America may ~~one day~~ be able to make bombs by using a fusion reactor.

A future ~~state of affairs~~ *large* in which many countries have stock piles of atomic bombs is not exactly pleasant to contemplate, and if we are ~~unwilling~~ *unable to think of* to ~~work for~~ a political solution of this problem, it is understandable that we ~~wish~~ *was* to delay the advent of such a future. But keeping the fusion reactor under a cloak of secrecy ~~would seem to be not~~ *will help* ~~wholly adequate~~ *very little if* because we cannot control what information in this field the Russian government is going to release. Repeatedly, in the recent past, *Russian physicist published papers* they have made announcements in this field ~~which is, of course, in violation~~ *which* of our secrecy rules. *Really about* Therefore, if our authorities are ~~seriously~~ concerned in keeping this field under wraps, they ought without any further delay approach the Russian government and propose a full exchange of information on the fusion reactor in return for their ~~promise~~ *promise* not to abandon secrecy in this field by unilateral action.

- Sam was saying -
 I realize, of course, that *T* the course of action that I propose here is fraught with danger. *S* for should the Russians perchance be ahead of us in this field and should they learn of this fact as a result of

~~The proposed~~

~~an~~ exchange of information, could we trust the Russians to keep secret

the fact that we ~~can~~ ^{ed} learn more from them than they ~~can~~ ^{could} learn from us?

It seems that somehow things have become ~~more~~ ^{very complicated} difficult. The

difficulty comes, it seems to me, from the fact that scientists and engineers do their job too well and statesmen do not do theirs nearly well enough. The world is faced with a political problem which the statesmen are reluctant to tackle and by egging on our scientists and engineers they are barking up the wrong tree. Maybe there is a shortage of scientists and engineers in America as well as in the rest of the world but, my God, what a shortage of ~~real~~ statesmen.

August 15, 1957

The Pugwash meeting.

Letter to the Editor of the Bulletin of the Atomic Scientists

by Leo S. Ford.

The last issue of the Bulletin contained a description of the Pugwash meeting written by Eugene Rabinowitch. ^{which} ~~This~~ description was mainly concerned with the official sessions, and ~~naturally it was not possible to cover any~~ ^{did not} ~~of the informal discussions which probably~~ ^{that may have} exceeded them in importance. ^{one of us can describe only that} ~~Naturally no one man could cover more than that~~ small fraction of these informal discussions in which he personally participated, ^{and no one} ~~And even if he~~ ^{is free to} ~~wanted to do that he is faced with the difficulty that he is not free to~~ quote anyone except ~~perhaps~~ himself. ~~Yet in~~ ^{would} these informal discussions, in which a man ^{mere-to-me} listens and then responds with a frown or a smile without having to say anything, ~~would be more revealing -- to me at least --~~ than the public ~~and some limited use was made of this~~ sessions. ~~This is a powerful way to explore each other's mind, and the~~ ^{of scientists} ~~Pugwash meeting, which was the first international meeting of its kind where~~ ^{this} ~~it was possible for us to explore each other's mind in this manner~~ ^{at} ~~this could be done.~~ At breakfast on the first day of the meeting, I sat

When I arrived at Pugwash, I was somewhat apprehensive that when we got into the discussion of highly controversial issues -- as indeed we must if we wished to come to grips with the real issues -- our Russian colleagues might give forth the Russian government's publicly stated views, in which case the American delegates would have almost no choice but to present the views which /American governmentXX has publicly stated. If that happened the meeting would have lost its usefulness. For this reason it seemed to me that it would be very important to start off on the right foot. In order to be able to attempt to do just this, I asked to be the first speaker at the informal meeting which convened in the afternoon of the first day, prior to the beginning of the official sessions.

~~To be the first speaker at the informal meeting which convened in the afternoon of the first day~~

Some twenty to twenty-five years ago when I lived first in Berlin and then at Oxford, I had close contacts with a number of Russian physicists whom I met first in Germany and later on in England. I always found these men exceedingly easy to talk to. They were not in the least touchy and did not hesitate to speak their minds on controversial political issues. But I have not met any Russian scientists since that time, and when I arrived at Pugwash I was uncertain how they would respond. I, therefore, sought the guidance of several of the delegates who had a thorough knowledge of Russia and to begin with abided by their advice when they told me to cut out something that I had planned to use.

Thus, for instance, I wanted to start out at the first informal meeting by telling a story which cropped up in America when the cold war was at its worst. I did not think that the story could be considered anti-Russian by any stretch of the imagination; quite on the contrary, I thought that the story presented a joke in which the uneasiness generated in many minds by the cold war was seeking release, but I was told to cut it out because the Russians

might feel touchy about it. I refrained from telling the story because my friends thought that it might offend the sensibilities of the Russian delegates.

The story circulated in America at the time when Marshall Stalin was in the Kremlin and President Truman was in the White House, and it goes as follows:

"There is nothing much wrong with you", said a psychiatrist practicing in Washington to his patient, "except that you are frustrated. You have all these strong emotions and impulses but you never act them out. Now you tell me that you hate the Russians. Why don't you just go around the corner to the Russian embassy and tell them what you think of Stalin?" A few days later the psychiatrist received a call from the hospital. His patient was in the hospital and wanted to see him. When he gets to the hospital he finds his patient in bed, his head bandaged and his leg in traction. "For God's sake," he said, "what happened to you?" "Well," said his patient, "I followed your advice. I went to the Russian embassy and when I rang the bell a husky Russian opened the door. I said to him, 'Your Marshall Stalin is a son of a bitch.' He grabbed me by the arm and led me down the steps and started to take me across the street. In the middle of the driveway, he suddenly stopped and said, 'What was that you said?' I said again, 'Your Marshall Stalin is a son of a bitch.' He thereupon said, 'Your President Truman is a jackass,' and just as we were about to shake hands a truck came around the corner and knocked us both down."

I thought that as far as current Russian and American policies are concerned the delegates could do worse at this meeting than to adopt an attitude of "a plague on both your houses."

However, upon being advised to cut it out, I cut it out. I made a point, however, of engaging in frequent informal conversations with the Russian delegates to find out for myself on what particular points they might be touchy, if touchy they were.

~~and~~
across the table from one of the Russian delegates, ~~when~~ I asked him whether
he thought the meeting, upon its conclusion, should attempt to issue a

public statement. I expected the Russian delegates would favor the issuance
~~to say that we should do so~~ ~~of such a public statement, and when this was confirmed, I said that in anti-~~
~~since I anticipated that the Russians would take to see~~
~~cipation of this response I had already prepared, prior to the beginning of~~
~~a statement to be in favor of this~~ ~~in advance of the~~
~~the meeting, a public statement, the adoption of which I might move after~~
~~a statement suitable for publication and I plan to~~
the meeting convened. The response to this was -- quite legitimately -- a

~~when~~ ~~its adoption~~
frown. I then proceeded to say that I was not quite able to draft one state-
ment to which everybody would agree but that I ~~was able to~~ ^{feel necessary} draft two state-
ments; one to which the Russians could be expected to agree, and one to which
the Americans could be expected to agree. One of these reads: "We do not
believe in Capitalism", and this would be signed by all American delegates.
The other would read: "We do not believe in Communism", and this would be

^{all} signed by the Russian delegates. For clearly ^{no one knows better} by now all Americans know the drawbacks of Capitalism, ^{then the Americans, who have} having lived under the system for a long, long time, and by now ^{should also} the Russians know the drawbacks of Communism. As I said this I looked at the face of the Russian delegate to whom I spoke and what I saw gave me satisfaction. ^{I was satisfied that}

^{he got the point.} To my mind, the issue of stopping bomb tests provides more an outlet for emotions than ^{it offers} real guidance ^{to the solution of} to a rational approach to the real ^{issues} dangers that we are facing. Sitting across the luncheon table from two Russian delegates, I asked them whether they were really sincere in their insistence that bomb tests must stop. "This", I said, "I find a little difficult to believe because it is ^{rather} perfectly obvious that if Russia wanted us to stop testing our bombs, ^{it is within their power} there is one better way to do so. Why does ^{Russia} she not use this power?" In response to the question put to me by ^{their} raised eyebrows, I explained -- what I ^{meant} believe is perfectly obvious. "The Atomic Energy Commission of the United States has officially stated what they consider ^{to be the} a maximum permissible level of X radioactivity beyond which the fall-out from further tests becomes definitely harmful. ^{that} "Why", I said, "all you Russians have to do, ^{really} if you are serious, is to take a few hydrogen bombs -- of the dirty kind -- out of your stockpiles and detonate them one after the other until the fall-out from these bomb tests raises the level of radioactivity up to the maximum permissible ^{level} ~~set~~ by the U.S. Atomic Energy Commission." That should put an end to our testing further bombs. ^{that} The response to this was a ^{shaking} shaking of heads -- whether signifying disapproval of me or a certain degree of merriment, I am not in a position to say with any degree of certainty. ^{I like. I liked their response.}

^{me} There are many reasons why ^{some} none of us ^{was} is entirely free to say what ^{at} he thought during the official sessions of the meeting, and I for instance never stated in any of these meetings what I really felt about the positions of those ^{at the official session many} of my colleagues who were saying again and again that the most impor- ^{expressed the view}

tant single step in combatting the peril of atomic bombs and hydrogen
 bombs, ^{were} which we ~~are~~ all agreed represents a clear and present danger,
 would be the conclusion of an agreement between America, Russia, and Eng-
 land that they will stop testing bombs. ~~Those who hold this view know, of~~
~~course, just as well as I do, that a single bomb exploded anywhere for pur-~~
~~poses of destruction may kill anywhere between 10,000~~ ^{in war} ~~or~~ ^{and} a million people,
 depending on how it is used. ^{whereas} ~~The same bomb exploding in a test is, of~~
~~course, harmless~~ ^{which} ~~(in comparison).~~ ^{ed} Yet at no time during the official dis-
 cussions did I feel free to say what I really thought on this score, and
 only on the last day of the meeting, ^{Not until the session were all over} when the meeting was over and we had
 had our dinner -- naturally, not only food but also drinks -- did I publicly
~~feel disposed to take issue with this view.~~ ^{clear and present danger} ~~But then on that occasion~~
 take up the issue; only then did I ask my colleagues whether they did not
 think that the ~~peril~~ ^{rather} which mankind faces could be eliminated not by stopping
 the testing of bombs but ~~only~~ by doing exactly the contrary; ~~this~~ ^{I expect} peril
 would be eliminated if Russia, America and England went ahead and tested
 every single bomb that they have at present in their stockpiles. ^{I expect}
~~for assent but got only applause.~~ ^{thumped} ~~← smart.~~

Insert on p 3

4

But to mention a more serious topic which I discussed with the Russian delegates also, it appears to be the American position that, now that both America and Russia have large stockpiles of bombs, getting rid of the bomb may be impossible because if we agree to eliminate the stockpiles, there would be no reliable way of making reasonably sure that no illicit stockpiles remain hidden. ~~I told the Russians frankly two things:~~

both

(1) That there may be a valid reason why/America and Russia may not want to get rid of the bomb, even if this were technically feasible but that the ~~reasonxputx~~ argument put forward by the American government as quoted above must not be accepted as a valid argument without a careful examination. The fact of the matter is that I heard that argument advanced by Americans who were opposed to the Baruch plan at the time when negotiations on the Baruch plan were still in full swing. I told such men at that time the following:

It seems to me absurd to say that if we want to convince the Russians that we have no stockpiles of hidden bombs and if we want to convince the Russians of this fact that we should not be able to do so. Imagine, for instance, that having concluded an agreement for the purpose of getting rid of the bomb and in a setting which is different from that of the cold war, inasmuch as having reached a settlement which both America and Russia consider to be to their advantage and which, therefore, both of them are eager to keep in force Suppose that given such a setting, the President of the United States goes before the American people and explains to them that it is in the interests of America and of the world to rid the world of bombs, but that America has entered into this agreement because it is in her interest to do so, that she wants to keep the agreement, and wants to convince Russia that there are no hidden stockpiles anywhere, or that if there are some hidden stockpiles that they will be discovered in a very short time. Therefore, the President calls upon every patriotic citizen to cooperate with the International

Controll Commission that has been set up to advise this Control Commission of any hidden stockpiles of bombs if they should know about such stockpiles or if they should be able to discover some. The President would make it clear that there would be not the slightest objection if Russia or the United Nations offered high monetary rewards for such information, and that the President will recommend to Congress legislation which will exempt such rewards from the United States income tax.

I am personally convinced, as I told the Russian delegates, that under these circumstances no stockpiles could remain hidden in America for long.

Before I raised this topic with the Russian delegates in private conversations, I had been warned by friends who know Russia better than I do to avoid getting into this kind of discussion with the Russian delegates. I am glad to be able to say that the Russian delegates did not react in the manner predicted by the colleagues who gave me the friendly warning. Quite on the contrary.

Naturally that part of the informal discussions that I just reported here does not represent by itself a contribution to the solution of any of the problems with which we are faced. However, I believe I ^{have} succeeded ~~in~~ ^{through} these informal discussions ~~in~~ ^{to} convincing the Russian delegates that I was not anti-Russian, ^{as soon as} and I found that ~~the very moment when~~ they were convinced of this they were willing to listen to anything I had to say. From then on I was able to discuss with them highly controversial and touchy subjects and they were willing to examine the arguments that I put forward, even though they ran contrary to the type of arguments they were accustomed to hear. Such an attitude is both a necessary and a sufficient condition for a successful exchange of opinions, in an area where an unprecedented situation will

*They
in such an information meeting of
this kind*

demand -- if the problems posed are to be solved -- new attitudes on the part of the governments as well as a willingness to adopt if necessary unprecedented measures.

What I just said about the Russians I cannot assert the same view with equal assurance about the Chinese. There was only one Chinese delegate at the Pugwash conference, and a distinguished friend of mine, Professor Michael Polanyi once cautioned me to be careful about making generalizations. "It is not safe to generalize, even from one case", he said.

Just how free a man is to say what he thinks in an international meeting of this sort depends ^{on} /not only from what nation he comes but also how closely he works with his own government which, in certain circles, may make it impossible for the listeners to know just when he expresses his own views and when he expresses what he thinks are the views of his government. It depends also on the temperament of the individual. A man may not be free to say what he thinks and may not be aware of this fact. Several years ago freedom of expression was in real danger in the United States. This was at the time when Dean Ackerman, Dean of the School of Journalism at Columbia University, disclosed, as reported in the New York Times, that the students in his classes were no longer willing to discuss any controversial subject for fear that they might express opinions that would be held against them when, upon leaving school, they applied for a job. But even when things were at their worst the majority of Americans were free to say what they thought for the simple reason that they never thought what they were not free to say. Neither Americans nor Russians are completely free to say what ~~they~~ they think even in a closed international meeting where every remark is supposed to be off the record. But such limitation as still exists in this respect no longer represents a serious limitation in an international conference among scientists devoted to the discussion of the highly controversial issues which arise from the threat that the bomb presents to the world.

add about State secret

Upon the conclusion of the conference a statement was issued which I did not sign. My main reason for not signing were the references contained in the statement about bomb tests. These references, both as to the effect of fall-out and the political desirability of stopping the bomb tests were, I thought, more misleading than enlightening. It is customary for statesmen to issue misleading statements for the purpose of leading the people to the right conclusions on the basis of the wrong premises. I feel rather strongly that scientists should not emulate statesmen in this respect. Had it not been for these references, I would have signed the statement even though it did not say very much that is worth saying. It is, of course, difficult to draft a statement for publication if you are aiming at its being unanimously adopted by an international group of scientists. At the request of C. F. Powell, who chaired the meeting, I summarized what ^{were} on the basis of my informal discussions with other delegates, the important controversial issues on which I felt the vast majority of the delegates were agreed. Part of this summary was incorporated in the official statement issued -- and it was, to be candid, the only part of that official statement that I really liked. More important than the issue of what should be the content of the public statement was, to me, the issue of whether a meeting of this sort should be aimed at issuing a statement that represented the conclusions which the meeting had reached. If it is intended to ~~is~~ issue such a statement, most of the attention of the delegates is focused on the question: what is it that we should say. Under such circumstances it is impossible to reexamine dispassionately all the controversial issues which are involved, develop new points of view, and gradually clarify the thinking of the participants in the meeting on what needs to be done. A meeting somewhat similar to the Pugwash meeting could be far more productive, if it were clear from the outset that the ^{to be}communique/issued when the meeting is over will list issues on which the delegates ^{are}/agreed as being the most important issues that must be settled, describing the different

points of view that were expressed, as well as important lines of thought that were presented. Such a meeting could indeed be exceedingly useful particularly if it were attended not only by scientists who are free from governmental ties and, therefore, free to experiment with thought, but also by observers who are either opinion-makers or men who are concerned with policy making on a governmental or semi-governmental level. Any major thoughts that were developed at such a meeting could then filter through the observers to the general public and to the governments involved.

7/18/58
At the time of this writing American troops have landed in Lebanon and British troops have landed in Jordan. In a column this morning, Joseph Alsop tries to sum it all up by writing. "There is, in fact, only one real reason for not taking action in Iraq--fear of what the Soviets may do about it."

The purpose of this letter is to speak of another good ^{reason} and, in my own personal opinion, a very good reason for not

intervening in Iraq. ^{But} before discussing why America should not intervene, ^{if this is any} we must first ~~examine what are the real arguments~~ ^{strong and as well as valid argument of expediency} in favor of intervention. Clearly, Western Europe and other

nations who have been supplied with oil from the Mid-East are dependent for their fuel needs on the Middle East. Since Russia is in no need of importing oil and since there are no other major customers in sight, ~~clearly, there is no danger--~~ as long as America and Britain do not throw their weight about.

There can be no reasonable doubt that Western Europe could continue to buy Mid-East oil at the market price, no matter what happens in the Middle East, provided ^{only} that American and Great Britain ^{are able to} restrain their own actions. ^{meanwhile} This does not, of course

^{could} mean that American and British oil companies ~~can~~ preserve their ~~own~~ investments in Mid-East oil. In one form or another, ~~and~~

^{if the middle East might} sooner or later and, perhaps, at an early date, ~~these might~~ ^{the oil resources} be nationalized or even expropriated. ^{and perhaps} In the case of Great

Britain, this may represent a loss which would appreciably affect not only the financial standing of private companies but, also, the fiscal balance of the nation. In ^{the} case of America, no appreciable interest of the nation ~~has~~ as a whole would be involved.

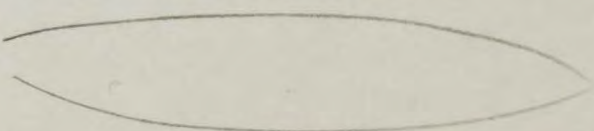
What about the moral consideration which are involved in the issue of American participating in or supporting an intervention in Iraq. In every civilized society, human beings which make up the society differ greatly in the extent to which moral considerations, as opposed to considerations of pure expediency, affect ^{their} ~~the~~ thinking and ^{decisions.} ~~directions of~~ Those who are strongly motivated by moral considerations represent a small minority which differs in size and influence in the different countries. This minority, because it holds strong convictions for a political influence quite out of proportion to their numbers, but even so their political influence is rarely decisive. At the present time, the influence of this minority appears to be considerably stronger in England than in the United States where they are hardly able to make their voices heard above the din created by political speeches and official utterances.

Political decisions are taken ~~by~~ not by individuals but by governments. Governments are not human beings. They are guided almost exclusively by considerations of expediency and moral considerations play no direct role in governmental decisions. If attention is paid to moral considerations at all on the part of the Government, this is done mainly because democratic elected governments have to take into account the opinions of even small minorities, provided that they feel strongly about an issue.

Under the two-party system as it exists both in America and England, a few percent of voters switching from one party to the other might decide the outcome of an election. During the life of the present generation, unbeknown to the governments, moral considerations have, however, played a decisive role in the life of the nations. This came about because it so happened that ~~science~~ science played an incisive role. While in the general population, individuals who are strongly guided by moral considerations represent the exception rather than the rule; within the small, but exceedingly important group of scientists, who possess ingenuity, creativity and inventiveness, susceptibility to moral consideration is a rule rather than the exception.

The fission of uranium was discovered by Otto Hahn in Germany in 1931. It is doubtful that, in wartime, Germany could have developed the separation of Uranium-235 on an industrial scale in time to have available atomic bombs prior to the end of the war. But there is no reason why Germany could not have built ~~an~~ atomic reactors composed of graphite and Uranium ~~and produced for~~ for the production of plutonium and have atomic bombs available in quantity, of the type America has dropped on Nagasaki.

~~As~~ After a perfunctory consideration of the possibility of building such a reactor, the German physicists and, foremost among them, Bernard Heisenberg, concluded that the graphite-uranium system would not be capable



of sustaining a chain reaction. Manifestly, this was a blind-spot and, obviously, a most remarkable blind-spot. The fact of the matter is that the German physicists had moral scruples about contributing such to Hitler's victory. They did not, at first, conscientiously decide against serving their government in the war effort and even less did they, of course, go on a sit-down strike. But, because it would have given them no pleasure to make discoveries that would have placed in Hitler's hand an atomic bomb, they simply failed to make these discoveries. If they were traitors to their country, they were traitors on the subconscious level only. I have watched the same phenomenon repeat itself in the United States after considerations of expediency--and, incidentally, considerations based on the false premise that Russia had no uranium--had led the United States Government to decide to use the atomic bombs against the cities of Japan at a time when the war against Japan was already won and could have been ~~g~~ brought to an end by political rather than military means. I am not saying here that the war could have been brought to an end by political means on the basis of unconditional surrender, nor is this a place to argue the merits of the decision of using the atomic bomb. But, who can doubt that had the situation been the ~~xxx~~ reverse and had the Germans developed the atomic bombs first and not America and had the Germans dropped two atomic bombs on United States cities just prior to the end of the

war and then, in spite of this, lost the war, in that case the cropping of atomic bombs on inhabited cities would have been defined as a war crime and the Germans responsible for such an act would have been tried at Nurenberg and hanged.

Because the human mind is not logical, a double standard of ~~the~~ morality may be regarded as ^a legitimate basis from the point of view of writers of political speeches. But ~~that~~ logic prevails below the surface ~~of~~ of the human mind, on the subconscious level. I can from my own personal knowledge trace, without difficulty, the straightline from Hiroshima to the appearance of the Russian sputnik. I can see clearly, in retrospect, what the blind-spots of the American scientists were and when they knew the answers that were very reluctant to put up the fight ~~they~~ would have been necessary to induce the American Government to do what needed to be done.

I know why the development of the hydrogen bomb started in America five years later than it could have been started and, even when it was started, this was due to accident that there was still one man left, Dr. Edward Teller, who wanted to develop the bombs. Just as easily, there could have been no one, for a sample of one is, from a statistical point of view, equivalent to a sample of none.

In the course of the last year, there ^{has} ~~have~~ been a significant rapprochement between scientists and the Government. There was an increasing conviction ~~was~~ among American scientists that the Government, at last, had begun to understand--even

though imperfectly, but still slowly and gropingly--the issues that the bomb poses to the world and there was a ~~correspondingly~~ corresponding increase in the willingness of individual scientists to leave their laboratories and work in close co-operation with the Government.

If America should not ~~intervene~~ intervene in Iraq or support an ~~intervention~~ intervention by British or intervention by Jordan backed by Britain, we might if we are diplomatically skillful convince many people that what we are doing is morally right. But, will we be able to convince ourselves? Somthing new has come into the world for the first time in this generation, for the first time in history if the Government of a Major Nation, when amking a fateful decision disregards the moral considerations involved, it is automatically punished. It gets a punishment that fits the crime! It has now happened twice, and it might happen once more, and there is absolutely nothing that any Government could do about it.

May 10th. 1960.

THE MORATORIUM ON BOMB TESTS

At the risk of becoming eligible for the Lenin Prize, I feel impelled to say that, in the Geneva negotiations on the cessation of bomb tests, we are wrong and the Russians are right, on one important point.

In my view, the general approach which we have adopted in the negotiation with Russia on the cessation of bomb tests has been ill-advised from its inception. The cessation of bomb tests is of not major importance in itself; it will in no way stop the arms race, nor will it eliminate the existing stockpiles of bombs, or stop the further development of the means suitable for the delivery of these bombs. If our entering into formal negotiations with Russia on the cessation of bomb tests can be justified at all, it can be justified only on the grounds that it may establish a pattern for later agreements that may provide for far-reaching arms limitations.

Our present approach would hardly establish a useful pattern for later agreements. Illicit bomb tests conducted on Russian territory might perhaps be detected by suitable gadgets if a sufficient number of them were installed. But what kind of gadgets would discover secret evasions of an agreement which limits the number of bombs that may be stockpiled, or restricts the means of delivery? And what would be the point of going to all the trouble and expense to track down earth tremors which have their focus in Russian territory when Russia could evade the agreement if she desired to do so by conducting her bomb tests on Chinese territory?

The negotiations in Geneva have now taken a new turn, however. Our newspapers reported on May 4th that the Russians have accepted May 11th as a starting date for a meeting of East/West scientists in Geneva to make plans for the research program which would go into opera-

tion with the signing of the moratorium relating to bomb tests. The Soviet Union has asked that the research program and the experimental explosions be carried out "jointly" by East and West. In contrast to this, the United States feels that the research should be carried out largely on the basis of existing national detection programs with observers from the other side present, and the results then "coordinated". Mr. Tsarapkin said that this would lead to trouble and the questioning of results and declared that the scientists of the two sides should work as a team.

If we are really willing to have an enduring moratorium on bomb tests and are concerned only about the illicit testing of bombs by Russia then we ought to welcome the Russian proposal of a research program carried out jointly by East and West. Moreover, we ought to go one step further and suggest that this proposal be implemented by setting up a project along the following lines:

"The Russian and American governments shall each draw up a list of all engineers and scientists who have participated in the past ten years in the performance and evaluation of bomb tests. Such a list might include perhaps, 1500 Americans and an equal number of Russians. These men shall be located with their families for the duration of the moratorium at some pleasant Austrian resort. There ~~may~~ they may organize themselves into teams which could jointly invent and develop methods for detecting illicit bomb tests. Experimental explosions could be carried out by such teams through arrangements with the American and Russian governments. There shall be no attempt, however, to limit the members of the Project to working on such a narrowly conceived and perhaps basically ill-advised program and they might thus initiate research and development programs of far greater importance which could be jointly carried out also".

"It is essential that during the moratorium the members of the Project shall frequently visit their homeland and spend as much time as possible at their home base in free communication with their colleagues. It is further

essential, that the President of the U.S. and the President of the Council of Ministers of the USSR shall make a personal appeal to the members of the Project and ask their help to insure that, if there are secret evasions of the agreement they shall be promptly discovered. Accordingly, it ^{shall} ~~will~~ be the patriotic duty of each man to come forward with such information as may lead to the disclosure of illicit bomb tests. In addition to having the satisfaction of performing their patriotic duty, those who make available relevant information shall receive an award of one million dollars from their own government. Any recipient of such an award who should choose to remain abroad with his family and to enjoy his wealth by living a life of leisure and luxury shall be permitted to do so."

By agreeing to the setting up of a project along the lines here described, Russia could reassure America that she is not engaged in the illicit testing of bombs either on her own territory, or on Chinese territory - without having to permit foreign inspectors to roam freely about the country.

Sooner or later America and Russia might get around to negotiating an agreement providing for far-reaching arms limitations. This would then create a situation in which there will remain no military secrets that need to be safe-guarded and therefore, adequate measures of inspection - which are not acceptable today - may then become acceptable.

Leo Szilard,
The Enrico Fermi Institute for Nuclear Studies,
The University of Chicago,
Chicago 37, Ill.

Letter to the Editor

born
May 10th
~~May 6th.~~ 1960.

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~~TO TEST OR NOT TO TEST~~

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Leo Szilard,
The Enrico Fermi Institute for Nuclear Studies,
University of Chicago, Chicago, Illinois.

~~Washington, D.C.~~
April 21, 1961

LETTER TO THE EDITOR

by Leo Szilard

The Enrico Fermi Institute for Nuclear Studies
The University of Chicago
Chicago 37, Illinois

Insert A → In discussing President Kennedy's "blunt rejection" of Chairman Khrushchev's Note, you mention in your issue of April 20th that hundreds of telegrams have been received from Americans by the White House upholding the President's "firm stand," and that there was not a single one voicing dissent among them. This total lack of dissent is remarkable; it is also deplorable.

In case of an armed attack against Cuba by an invading force, Russia would act in conformity with the Charter of the United Nations if she were to invoke Article 51 of the Charter and render armed assistance to Cuba. In his "blunt rejection" of Chairman Khrushchev's Note, the President says that a military intervention on the part of Russia on behalf of Cuba would be "external aggression" and he indicates that we would resist such "aggression" by force, but he does not explain how we could do so without violating the Charter.

In addressing the American Society of Newspaper Editors on April 20th, the President seems to have gone even further. In this address, he said: "... if the nations of this hemisphere should fail to meet their commitments against outside communist penetration, then I want it clearly understood that this Government will not hesitate in meeting its primary obligations, which are to the security of our own nation."

These words were generally interpreted to mean that if other American republics did not join in a common effort to end communism in Cuba, this nation would take things into its own hands and send United States forces into Cuba to do the job. "Should that time ever come," the President said, "we do not intend to be lectured on 'intervention' by those whose character was stamped for all time on the bloody streets of Budapest."

The President was right in speaking in the same breath of the putting down of the Hungarian revolt by Russia and the possibility of an armed intervention in Cuba on the part of the United States. If we were to intervene in Cuba with our own troops, we would do so in order to prevent the stabilization of a hostile

government located in our proximity, which is much the same reason for which the Soviet Union intervened in Hungary. The trouble is that two wrongs don't make a right.

Only a clear and present threat to our military security could justify the transgressing of the Charter -- in the eyes of the world. Short of establishing bases for intermediate range rockets in Cuba (which, clearly, Russia would not need, since she has an adequate number of long range rockets that could be launched from bases inside of her own territory), I fail to see what Russia could possibly do in Cuba that would threaten our military security.

Are we, then, going to continue to help Cuban exiles to reach Cuba and set fire to department stores and other similar facilities? Are we going to continue to help Cuban exiles establish beachheads? And finally, if there is no popular uprising in Cuba, are we going to send American troops into Cuba to squash Castro?

If we are going to do all this, the United States will suffer an irretrievable loss because we would be guilty of an inexcusable violation of the United Nations Charter.

Cuban exiles could, of course, establish a beachhead and we could recognize them as the legal government of Cuba. We could then subsequently argue that we are rendering assistance to the rightful government of Cuba. It is conceivable that in this manner we might be able to fool some of our more gullible friends. But would we be able to fool ourselves?

It is conceivable that by squashing Castro we would regain some of the prestige that we have lost, but by embarking on such a course of action we would lose far more in honor than we might gain in prestige.

~~I do not know whether we could squash Castro in this manner without getting into war with Russia. But I do know that if we should succeed in avoiding a war, we would live in constant danger of war. We shall not be able to extricate ourselves out of the current balance of terror and we shall be unable to make any progress towards disarmament through controlled arms reduction. If we squash Castro in the manner described above, we shall lose rather than gain in security.~~

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THE END

April 21, 1961

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by Leo Szilard

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It would seem that the Administration finds itself in a corner on the issue of Cuba; if it doesn't extricate itself from it, rumors that Russian rockets are being re-introduced into Cuba will keep on recurring and may each time be exploited for domestic political purposes. In the end, such rumors might force the President to choose between again risking war over Cuba or risking losing the next elections.

It is hardly practicable for the Secretary of Defense to refute such rumors, again and again, by going each time before the American people and showing aerial photographs of Cuba. Also, it is one thing to take aerial photographs of Cuba in an emergency and quite another thing to continue the aerial surveillance of Cuba indefinitely, in violation of international law, and by courtesy of the Russians who restrain the Cubans from shooting down our aircraft.

During the Cuban crisis, the U. S. asked for U. N. inspection of Cuba and offered in return to guarantee Cuba against a U. S. supported invasion. At that time U Thant conveyed that Cuba would accept U. N. inspection provided it would cover not only Cuba but also the adjacent Caribbean areas, including Florida, from which an invasion against Cuba might be staged.

U. N. inspection of Cuba on a continuing basis might solve the problem which currently plagues us. The Secretary General of the United Nations could then take appropriate action whenever it becomes necessary to refute new rumors about Russian rockets being in Cuba and he would be immune to the charge of having a domestic political axe to grind, a charge which can be levelled against any spokesman of the Administration.

February 20, 1963

Year after year, America has been prodding Russia to accept measures of reciprocal inspection which America deemed to be necessary. By accepting the kind of United Nations' inspection of Florida which would offer assurances to Cuba against a surprise invasion, America would set just the precedent that is needed. It seems to us that if another opportunity were to present itself to obtain United Nations' inspection of Cuba, on the terms described by U Thant, America ought not to let it slip by again.

It is a foregone conclusion that nationalistic sentiments opposed to United Nations' inspection of Florida would be exploited for domestic political purposes also. This would not be as dangerous, however, as pressure for a blockade of Cuba which is likely to recur if there is no inspection of Cuba.

February 20, 1963

Council for a Livable World

William Doering
Bernard T. Feld
Allan Forbes, Jr.
Leo Szilard

Letter to the Editor

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Council for a Livable World

William Doering
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Leo Szilard

Washington, D. C.
February 22, 1963

year, a level approximating the average rate of release for the period 1954 to 1961. Radiation from other man-made sources is estimated to constitute only a fraction of a per cent of the total dose.

Concerning the biological effects of radiation at the dose levels to which the population is currently exposed, the committee stressed the uncertainties in estimating such effects—emphasizing, however, that mankind has always lived in the presence of radiation from natural sources and that the additional dosage from all artificial contributions still average less than one-third of the natural background. At the same time, it noted the growing evidence that genetic and somatic effects may result from small amounts of radiation and that the effects of successive exposures may be cumulative, although new observations on experimental animals and man indicate a greater complexity in the relation between dose and effect than was heretofore recognized, for both genetic somatic effects. Hence, especially since certain genetic effects may not become manifest until after several generations, the committee urged that all unnecessary radiation exposure be minimized or prevented, particularly when large populations are involved, pending further information on dose-response relations at low dose levels. In the absence of more adequate data on absolute risks, the hazards of radiation from various sources are compared in relation to those from natural background, on the basis of comparative radiation doses. For example, the cumulative, genetically significant radiation dose to all generations from fallout of weapons tested up to the end of 1961 was estimated to correspond to less than two years exposure to natural background.

It is too early to assess the influence this report will have on the scientific and political community. It may be expected, however, that the document will be widely used as a reference work. Despite deficiencies in style and continuity of a sort which are common to committee reports, it should be intelligible and informative to readers in all parts of the world and thus may help in shaping a sound and constructive policy on ionizing radiation and nuclear energy.

Arthur C. Upton



LETTERS TO THE EDITOR

U.N. IN CUBA

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WILLIAM DOERING
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JAMES G. PATTON
LEO SZILARD

*Council for a Livable World
Washington, D.C.*

THE OLD ADAM

Theodore H. Von Laue, in his article, "Modern Science and the Old Adam" (January *Bulletin*), argues that scientific hope for progress is outweighed by the increasing complexity of our society and its "furiously accelerated" rate of change. He is concerned about the misuse of science by what he terms "scientism," but his main worry seems to be the rapidity of change brought about by "the flood tide of science." He fears this rapid change will "exceed our strength," and his solution is that "we must resolutely turn away from our reliance on science. We must return to the science of the self . . . our primary need is not for a greater understanding of science but of human nature."

As a psychiatrist, whose main job is to try to understand human nature, I dissent. The instability and anxiety which always accompany rapid change are not necessarily destructive. Furthermore, although we may be full of anxiety in our urban-industrial society, that is because we have time for it.

Past centuries seem "simpler" only because the daily fears which beset our ancestors allowed no time for anxiety about how to relate effectively and honestly to fellow human beings around the entire globe.

In the past, people could believe that nothing important would change, but modern science has revealed that change is an inevitable part of life, even of the universe itself. We can't avoid change, and now perhaps we can't even slow it down. Ninety per cent of all the scientists who have ever lived are living now, hard at work exploring everything from the outer reaches of space to the surgical uses of glue. Moreover, they are accelerating the rate of change by building machines to handle information faster—machines to translate, tabulate, compute, and perhaps even think.

Dr. Von Laue fears that the demands induced by this rapidity of change will be beyond the adaptive capacities of "simple-minded citizens." He underestimates human flexibility and sense of adventure, and he ignores the fact that people always do get anxious during rapid change, including change for the better. "The incessant subversion of all familiarities" is what happens to a patient who is changing rapidly from mental sickness to health, but the resulting anxiety can be a guide to his self-understanding and can motivate him to use all his resources, including many he did not know he had. He learns to free himself from rigidities of defense and misconceptions of reality which prevent him from making full use of his capacities to cope with whatever the future holds, and possibly to bring about a more gratifying future.

When a patient erects defenses against his own developmental change, he is neither safe nor happy. By narrowing his horizons, he may think he has shut out problems, but he has only restricted his view of life, missing the signs of opportunity as well as of danger around the next corner of change. When he turns the corner, he is likely to miss the opportunity and run headlong into the danger. He may say, "If I change, I may not be as comfortable, there will be more things to adjust to, there will be more danger." But he gets well because he *does* want to change, and because he learns to use his anxiety constructively. Modern science of the self knows that

the "will" cannot be "structured" to achieve illusory stability in opposition to change.

There will always be some people who block change, who think the dangers involved are not worth the effort. Dr. Von Laue even fears the problems of venturing out into space as another source of "fatal dangers." He is disappointed in "the house that modern science has built for the Old Adam," but perhaps we descendants of "the Old Adam" don't really need a house. Anxious yet adventurous, we can use our science of the self to keep us sailing (as President Kennedy put it) with the winds of change at our backs.

JANET JEPSON

New York, New York

The author replies: Had I been concerned with an individual patient, I would wholeheartedly agree with Dr. Jeppson: there is cause for optimism. My patient, however, is the global world, an entity infinitely more complex and strained. Even over him our disagreement does not, perhaps, go very deep.

All I argued was that this patient should be allowed a respite from over-rapid technologically-induced change, so that he could learn to cope with his anxieties and problems more constructively. I seem to remember something about rats in mazes learning to solve problems until the problems became too intricate and the rats broke down. My fear is that global society, as a whole or in parts, will be overwhelmed by its baffling complexities and choose destructive rather than constructive solutions. My fear, I believe, is not entirely unfounded, to judge by recent history. Fascism, national socialism, even communism constitute what I would consider an irrational response to a set of tasks which Italian, German, and Russian society could not solve creatively. Likewise the first world war (more than the second) was an irrational response to anxieties for which no peaceful answer seemed available. And if I look into the future, at all the non-western societies trying to vault over centuries or millennia of western civilization from one day to the next, I cannot but wonder whether their intellectual and spiritual resources are sufficient for the great leap forward.

Finally, when I scan American editorial opinion on Castro or communism, I have grave doubts whether we ourselves possess a rational escape from our fears. These and other problems which for lack of space cannot be discussed here are piling up too thick and too fast for comfort. I am not opposed to change, only to avalanches of change.

I wonder, would a psychiatrist encourage a patient to tackle a new set of taxing demands before he solved his old problems? Our government, at any rate, bars all unstable natures from access to top secrets and atomic weapons. If I had the power, I would bar my patient from these weapons, and also from the new mazes of interstellar exploration. Or rather, since no one possesses that power, I would hand him over to the care of people concerned with human nature and society, not to those who spend their prime working hours on the hardware of natural science and technology. The more rapid the change, the more we need humanists, psychologists, social scientists—imaginative and compassionate thinkers and creators of human values. Wouldn't a psychiatrist say Amen to that?

OPEN LETTER TO SCIENTISTS

I trust that by now the scientists and others who form our nation's intellectual elite have become convinced of the futility of their methods directed toward ending the presently spiralling and maniacal arms race.

Most of these efforts which I have followed have been attempts to impress those at the top, or near the top, in the executive and legislative branches of government. Although the intellectual and scientific elite may reach some of these, and may convince some of the truth of your message, those reached cannot, or for quite obvious reasons will not, act without a reasonably broad base of support from the people. And "the people" are getting little of your message as to the danger of fallout, the inevitability of war should the present course of governments continue, the hideousness of such a war. The words of certain powerful persons and institutions are given the greatest space in the news media. The other side, however poorly sub-

LETTER TO THE EDITOR

June 5, 1963

Sir:

Since the United States is spending ^{very} large funds on space research, would it be too much to expect that if the Space Agency does an experiment, it ^{will} also do the control experiment which is necessary to permit us to draw a valid conclusion. If the Space Agency puts an astronaut into orbit, they ought to arrange for him to address a joint session of both Houses of Congress, not only after the flight but also before the flight. Then, if an astronaut on his return to Earth gives a moronic speech in addressing the Congress, at least it will be possible to know whether this may be due to a congenital condition or whether it may be attributed to brain damage, caused by prolonged exposure of the astronaut to a state of weightlessness.

Leo Szilard
June 5, 1963
Washington, D.C.

Letters to the Editor

After the Test-Ban

The Test-Ban Agreement which the Administration has submitted to the Senate for ratification would advance the cause of peace if, subsequent to its ratification, the Government were to propose to the Soviet Union an agreement providing for an adequate political settlement, which would serve the interests, and which the Soviet Union might rightly be expected to accept. If this were not done, however, and if the Government proceeded with an extensive program of underground bomb testing, then, rather than furthering the cause of peace, the Test-Ban Agreement would be likely to do just the opposite.

By engaging in this type of testing on a large scale, the United States would force the Soviet Union to conduct numerous bomb tests also. The underground testing of bombs is very expensive, however, and since the Soviet Union is economically much weaker than the United States, it would in the long run be forced to abrogate the Agreement. Such a turn of events would prove Dr. Edward Teller to have been right—for the wrong reasons.

The problem of establishing peaceful coexistence between the United States and the Soviet Union involves the rest of the world as much as it involves Europe. It is difficult to visualize a political settlement in which Russia would agree to coexist with parliamentary democracies located in its proximity which look to us for support, while at the same time the United States would continue to maintain its present position that it cannot coexist with a Communist country, located in this hemisphere, which looks for support to the Soviet Union. Any attempt on the part of the Government to arrive at a political settlement with the Soviet Union on such a basis would be an attempt to "eat one's cake and have it too" and few people, if any, have ever accomplished this feat.

If I were a member of the

Senate, I think I would want to know at this point how the Government proposes to follow up the conclusion of the Test-Ban Agreement, before casting my vote for the ratification of the Agreement.

I am not speaking here as a scientist who can claim to have special knowledge of the atomic bomb, but rather as a citizen whose political judgment is not obscured by being in possession of "inside information."

LEO SZILARD.

Geneva, Switzerland.

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