

March 11, 1957.

*will make known to the public press in a more interesting way.*

MEMORANDUM ON THE BOMB

← Statement of the problem

The public discussion of the issue of the bomb seemed to be based on <sup>a/</sup> the false premise - a premise which is rarely explicitly stated but <sup>is</sup> almost invariably implied. *until this premise is brought out into the open it's subterfuge which may tend to paralyze*

This again became very apparent in the public discussion on the bomb which preceded the last elections. Those who advocated that we should stop testing hydrogen bombs <sup>advocated</sup> this as the first step towards the elimination of the bomb <sup>altogether</sup> from the armaments of the nations which now possess it. Their premise, not explicitly stated but <sup>clearly</sup> implied, <sup>was</sup> is as follows: *the following tenet:*

Somehow we must devise a foolproof inspection system and get the Russians to agree to it. <sup>most</sup> As soon as we can be sure that we can get such an inspection system in operation so that we must not fear secret evasion of the agreement - for we are not willing to take the risk of unilateral disarmament - both we and Russia <sup>can</sup> then proceed to eliminate the bombs <sup>altogether</sup> from our <sup>and their</sup> armaments. <sup>and</sup> But those who advocated the stopping of bomb tests and those who opposed it, <sup>implicitly</sup> have tentatively accepted this tenet, <sup>in all</sup> probability this tenet is false and is probably false in two respects:

- 1) there is no valid reason to believe that either Russia or America would want to eliminate the bombs from their armaments even if they could be sure that all other nations <sup>would</sup> do likewise and even if they could be sure that secret violations by either Russia or the U.S. <sup>would</sup> be promptly detected;

*and the check of his boy turned back with the barrel gun we can then relax*

Insert page 1 -

*Believe that this*  
*that there is some secret hope* 12  
 With the bomb gone and the clock of history turned back to where it was before the last war, we can then relax and continue our ~~feasible~~ <sup>serious</sup> efforts towards the establishment of a stable world order that had begun with President Wilson's actions towards the end of World War I. Why - assuming the absence of bombs - we should be more successful in this respect today than we were after World War I, is ~~not~~ <sup>however</sup> quite clear. It is also not clear why - if another world war breaks out for essentially the same reasons for which wars have broken out in the past - such world war should not end in an all out atomic catastrophe. Unless, of course, one assumes that somehow Russia and America will have forgotten <sup>by then</sup> how to make hydrogen bombs.

There was no essential difference among those who advocated the stopping of bomb tests and those who opposed it in <sup>regard to the basic tenets</sup> this regard. They disagreed merely on the ~~technical~~ <sup>substantive</sup> technical aspects of the bomb tests; they did not disagree on the ~~basic tenet~~ <sup>the</sup> described above as the correct premise of our long-range national policy. Because of this the ~~only~~ <sup>concerning the bomb ought to be</sup> contribution of the pre-election discussion was to ~~increase~~ <sup>did not clarify</sup> the confusion of our thinking on the subject of the bomb -- if anything can ~~indeed~~ <sup>if rather increased</sup> increase the prevailing confusion still further.

*assist the main impetus*  
*to progress* *to progress* *was* *responsible*  
 to the Desplacé progress was impeded mainly by the Progressives, according to the Democrats it was impeded by the Progressives as well as the Republicans

*anybody opposed that it was*  
*that the*  
*of the last few years*  
*to be*

(starts in middle of sentence)

the governments of the great powers are more inclined these days to think in terms of military force rather than in terms of political incentives. Therefore, realistically speaking, the urgent question before us today is this: what policy concerning the bomb should the great powers adopt that could be put into action in every conceivable contingency without invoking the danger of triggering an all-out atomic attack? We are rapidly moving at present toward an atomic stalemate which, depending on the policy that is adopted, might be unstable or stable; i.e. depending on the policy adopted a minor perturbation might trigger an all-out atomic attack or else even major perturbances will fail to do so.

Just what precisely is meant by the term, atomic stalemate, in this context? How are we going to derive a policy concerning the bomb that fulfills the requirement of stability in such a stalemate? What may induce the governments of the great powers to adopt such a policy, if one can be found? Shall we appeal to the enlightened self-interest of the nations or shall we appeal to the basic moral issues, to which the members of the national governments, being human beings, are to some extent susceptible? These are the questions that I now shall try to answer.

violent actions of individuals in an orderly community. When it comes to nations, clearly the broader question is what are the incentives that move nations to action and occasionally to armed action? By creating a situation in the world where nations have no incentive to arm and to use force to settle their claims, the role of the defense establishment in the light of the nation will be diminished and may finally become negligible. As ~~xxxx~~<sup>long</sup>, however, as the great nations maintain large defense establishments, military thinking will influence their policies. Because it is the responsibility of the military establishment to be prepared for any conceivable contingency, and because the military establishments are untrained in political thinking and incapable of appraising what contingencies are likely and what contingencies are unlikely to occur.

The governments of the great powers must at present have a policy on the bomb which could be put into action in every conceivable contingency without triggering an all-out atomic attack. The policy must be such as to render the atomic stalemate which is in the offing stable in the sense that even major perturbances do not trigger an all-out atomic attack. Just what precisely is meant by the term atomic stalemate in this context? How are we going to arrive at such a policy? And how are we going to get the governments of the great powers to adopt it? Shall we appeal to the enlightened self-interest of the nations or shall we appeal to the basic moral issue, to which the members of the governments being human beings are to some extent susceptible?

It should be obvious ~~xxx~~ that my discussion here has nothing to do with Iran. There is no reason to believe that Russia would have any incentive to move troops into Iran even if by doing so she did not incur the risk of an international conflict. I have chosen Iran as an example precisely because this is the case. It is far easier to discuss ~~xx~~ dispassionately a contingency that is manifestly unlikely to occur than a contingency that is likely to occur. It was my purpose to demonstrate, by using this example, that our prevailing policy on the bomb is a bad policy, because of necessity it will lead in case of a local conflict, in which America and Russia intervene militarily on opposite sides, either to the total destruction of the area which is being defended before the fighting can be stopped or else to an expansion of the conflict and the triggering of an all-out atomic catastrophe.

What then are the principles on which a saner policy on the bomb must be based? In discussing this problem I shall limit myself below, as I have limited myself up to now, to purely military considerations. Were I to discuss the broader policy of the issue of peace, which is of course the overriding issue to which sooner or later we must devote our attention, I would be quickly led into an unexplored area of political thought. A really adequate discussion of the issue of peace is not possible without doing so. Let us for a moment look at the simpler problem and think for a moment of what it is that keeps peace in the community, and why it is that violent action of one individual against another is the exception rather than the rule. Whatever the reasons are, it is clear that we cannot exhaustively deal with them by discussing the organization of the police and the kind of weapons with which the police is equipped. Clearly it is not the police alone that limits the

Insert 4 - Page 5

How shall we go about deriving the right basic philosophy?  
Must we ask ourselves what is the morally right thing to do, or shall  
we try rationally to think about our enlightened self-interest?

It is important for us to ask ourselves why this was so.

For one thing, it is frequently easier for individuals, as well as for governments, to find out what the right thing to do is than to discover the expedient course of action. For instance, during the Korean war after American troops had pushed the north Korean troops who had invaded south Korea back to the 38th parallel, it was perfectly obvious that the right thing to do was to stop there. Whether or not China would intervene if we did cross the 38th parallel, it was impossible to say with any degree of assurance. It would have been possible to argue this issue back and forth forever, and there was not much time in which to decide whether to stop at the 38th parallel or to go forward. Thus we took a calculated risk, crossed the 38th parallel, and it turned out to be a miscalculated risk. In the atomic stalemate which is approaching, there will not be much of a margin left for error and we had better not take miscalculated risks. What holds for governmental decisions also holds for the decisions of individuals like the shopkeepers of England. Most of the time individuals pursue their individual self-interest in a traditional manner. They are guided by precedence and the experience of many generations. It occurs only rarely that moral considerations interfere or have to be taken into account. But when the opportunity arises for a radical innovation -- such as the introduction of fixed prices -- it becomes manifest that the rational pursuit of enlightened self-interest does not come naturally to individuals. Individuals are governed by emotions, desires, and passions as well as by traditions. Deprived of the guidance of tradition few, if any, are capable of a consistent pursuit of <sup>rational</sup> ~~regional~~ considerations. Hence useful social

innovations rarely come about as a result of the pursuit of unlightened self-interest. Since individuals who happen to have a passion for <sup>the</sup> doing/right ~~a~~ thing are not numerous either, yet they outnumber the former and exert on occasion a measurable effect on human progress.



and in addition most individuals are to some extent susceptible to an appeal which is made on moral grounds. Governments, however, do not act like individuals even though they are composed of individuals. The selfishness of individuals is mitigated by their occasional generosity but people delegate to their governments only their self-interest, not their generosity. The governments represent the people by and large in the manner in which a lawyer represents his client. This means that governments cannot be expected to give much weight to moral considerations, and the only effective appeal to them must be based on considerations of enlightened self-interest. This does not mean that governments are evil; it only means that they are amoral, and even this is not entirely true for governments are composed of individuals who are not devoid of conscience. Unfortunately, this makes matters frequently rather worse than better. For these consciences prevent the governments from embarking on an evil course based on strictly rational considerations of enlightened self-interest of the nation for which there is often frequently substituted an irrational course of action which appears to be less evil but leads to consequences which are equally bad. It is frequently easier to find out what the right thing to do is than to discover the expedient course of action. But governments are, by and large, precluded from being guided in the direction of what is the "right thing to do".

For instance, during the Korean war after American troops had pushed the north Korean troops who had invaded south Korea back to the 38th parallel, it was perfectly obvious that the right thing to do was to stop there. Whether or not China would intervene if we did cross the 38th parallel, it was impossible to say with any degree of assurance. It would have been possible to argue this issue back and forth forever, and there

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was not much time in which to decide whether to stop at the 38th parallel or to go forward. Thus we took a calculated risk, crossed the 38th parallel, and it turned out to be a miscalculated risk. In the atomic stalemate which is approaching, there will not be left much of a margin for error and we had better not take miscalculated risks.

During the war the Germans had attempted to force Holland out of the war by bombing the residential sections of Rotterdam from the air and killing tens of thousands of men, women, and children. Terror bombing may thus have been invented by the Germans, but it is the British and the Americans who, by resorting to it themselves, made it respectable. It is they who have abolished the moral and psychological barriers against the use of the bomb as an instrument of mass murder. Primarily because of this, the scientists turned their attention after the war almost exclusively to the issue of getting rid of the bomb, and there was no one among them left who was willing to examine dispassionately whether the bomb - cleansed of its bloody connotation - might not provide us with a novel basis for the organization of peace. To some extent this preoccupation with atomic disarmament was justified for there was a real danger that a war between America and Russia might break out as the direct result of an atomic arms race after the first Russian atomic bomb test.

I do not wish to discuss here the moral issue raised by the use of the bomb that caused such an upheaval among the scientists working for the Manhattan District between the testing of the bomb at Alamagordo and the actual dropping of the bomb on Hiroshima. But can anyone seriously doubt that, had Germany - just prior to losing the war - somehow got a few atomic bombs, and had she destroyed an American city in the way in which we destroyed Hiroshima

in preparation for the Nuremberg trials, the dropping of an atomic bomb on a city would have been defined as a war crime and those responsible for this crime would have been tried at Nuremberg and hanged.

~~Insert~~

This is hardly surprising for men are not rational beings. They are governed by traditions, precedence, emotions and desires, and the number of those who are capable of a rational pursuit of enlightened self-interest is so few that their contribution to social progress is negligible. The number of those men who have a passion for doing the right thing is not large either, yet they outnumber the former and have a measureable effect on human progress. Unfortunately, any new basic philosophy concerning the bomb must be adopted by governments in order to be effective, and governments have no passion for doing the right thing. Governments are not men although they are composed of men. We cannot expect any government to have a passion for doing the right thing, and the only basis on which we can appeal to governments is on the basis of their enlightened self-interest. But inasmuch as they are composed of men who find it difficult to rationally pursue enlightened self-interest, they will find it difficult to do so; yet this is what they need to do.

2/21/47  
Lester

INSERT -(EARLIER)

Shouldn't  
it be?

We can ~~xxx~~ therefore appeal to governments only on the grounds of their enlightened self-interest and even then, regardless of how strong our case may be, we still might fail. For government is composed of men, and man is not given to rational considerations of his self-interest. <sup>A man and desires</sup> If his emotions <sup>and desires</sup> are involved and if he has the right emotions, <sup>he</sup> he will have little trouble in discovering what needs <sup>to be done</sup> to be done; <sup>do he has to</sup> just by following his heart. But if he has the wrong emotions or desires, and if he tries to use his brain, more likely than not he will be tripped up by his desires and come out with the wrong conclusions. Scientists, I regret to say, are not immune to this weakness, which may be seen if they step out <sup>side</sup> of science.

A. H. Compton, in his book "Atomic Quest", writes <sup>knows</sup> "Now, why could they not think of a way? Of course, they may not have ~~even~~ known that Japan was actually suing for peace but everybody, including the Japanese, knew that Japan could not win the war and was in fact losing the war. When such a point is reached, bringing the war to an end ceases to be a military problem. When such a point is reached, bringing the war to an end becomes a political problem, and the responsibility for it ought to be shifted from the War Department to the State Department. Why could these physicists not have spoken as follows: "The war against Japan is won. There remains to negotiate peace. We suggest that our government contact the Japanese government, not by way of radio announcements but through diplomatic channels, and make the following proposal: 'We are ready to enter into peace negotiations with Japan. However, we have one condition. Before we start these negotiations, we want to demonstrate to the

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Japanese Government a new type of bomb which is far more destructive than any heretofore built. We propose that the Japanese Government designate a city of about 100,000 inhabitants, remove the inhabitants from the city, send observers to watch the projected demonstration - who are advised to stay ten miles away from the center of the city. If the Japanese Government agrees to this demonstration, we shall send a single bomber, accompanied by an observer plane; only one bomb will be dropped, and our planes will then return. Subsequent to this demonstration, we shall then be ready to enter into peace negotiations. We feel that it is only fair that we acquaint Japan with the destructive power of our new bombs in order to enable Japan to conduct the peace negotiations ~~on our part~~ on a realistic basis'."

Now why could such a course not have been adopted? Henry Stimson, who was at that time Secretary of War, ~~is~~ has given his reason but his reason is an insult to our intelligence. At the time when we had to decide about dropping the bomb, so ~~Mr.~~ Stimson explains, we had only two bombs. Since we had tested only one bomb, we could not be sure that these <sup>two</sup> bombs were not duds, and therefore we could not have staged a demonstration of the sort here indicated without risking a loss of face. Why we could not have waited a few weeks, and tested a second bomb and, if need be, a third and fourth bomb before we staged such a demonstration, ~~Mr.~~ Stimson does not say. It might well be that ~~the course of action here proposed would have involved a delay; not the delay necessitated by making more bombs, but the delay involved in reaching an agreement within our own government, and secondly between our own government and our allies.~~

inconvenience and delay

*Shift to Mr.*

There may have been considerations involved other than the desire to avoid the few weeks' delay that the manufacture of further bombs would have necessitated. *There is one other reason!* In order to negotiate peace with Japan, it would have been necessary to go to the inconvenience of negotiating first of all within our own government, and secondly between our own government and our allies the peace terms to be proposed to Japan. Our government had to balance our desire to bring the war to an end as soon as possible on the basis of unconditional surrender at the cost of setting up a precedent <sup>for</sup> of the use of the bomb as an instrument of mass murder, against the inconvenience of having to reach, within our own government and subsequently between our own government and our allies, the basic terms for a negotiated peace with Japan without leaving moral considerations out of account. The decision reached can hardly fail to offend the sense of proportions of those who possess such a sense. ~~It is a world where political decisions are based on force and might rather than right -- and this is the world in which we are bound to live for the time being -- we could have lived much easier with the bomb if the bomb had been demonstrated as a symbol of demolition rather than being made a symbol for mass murder. Because the bomb has become a symbol of mass murder, it will now be very difficult to think about the bomb -- on how to live with the bomb -- in a rational and dispassionate manner.~~

This is precisely what we must now do if we want to escape an all-out atomic catastrophe. Because the bomb is wholly unprecedented, if we want to live with it and remain at peace, we must do things which are wholly unprecedented. If we are willing to do this, we might be able to achieve a situation which is the attempt might provide us with an entirely new tool of policy. It

*rough?*

*draft*



I do not wish to discuss here the moral issue raised  
by the ~~use of~~ <sup>decision to use</sup> the bomb that caused such an upheaval among <sup>Americans</sup> the scientists  
working for the ~~Manhattan District~~ between the testing of the bomb at  
Alamogordo and the actual dropping of the bomb on Hiroshima. But can  
anyone seriously doubt that, ~~had~~ <sup>if</sup> Germany - just prior to losing the war -  
somehow <sup>had</sup> got a few atomic bombs, and had ~~she~~ <sup>it</sup> destroyed an American city <sup>in</sup>  
in the <sup>the manner</sup> way in which we <sup>and</sup> destroyed Hiroshima <sup>then</sup> -

in preparation for the Nuremberg trials, the dropping of an atomic bomb  
on a city would have been defined <sup>as</sup> a war crime and <sup>Germans</sup> ~~those~~ responsible  
for <sup>such a</sup> ~~this~~ crime would have been tried at Nuremberg and hanged.

We would probably be better off today had this been the  
actual course of events for if the Germans had been the only ones to  
use the bomb as an instrument of mass murder, we could have shrugged  
our shoulders and said: "What else ~~can you~~ would you expect from the  
Huns?"

shift  
to end

During the war the Germans had attempted to force Holland out of the war by bombing the residential sections of Rotterdam from the air and killing tens of thousands of men, women, and children. Terror bombing may ~~not~~ have been invented by the Germans, but it is the British and the Americans who, by resorting to it themselves, made it respectable, ~~It is they who have~~ <sup>and thus</sup> ~~abolished~~ <sup>helped</sup> the moral and psychological barriers against the use of the bomb as an instrument of mass murder <sup>in war.</sup>

Primarily because of this, the scientists turned their attention after the war almost exclusively to the issue of getting rid of the bomb, and there was no <sup>T</sup>one among them ~~left~~ <sup>unhindered</sup> who was willing to examine dispassionately whether the bomb - cleansed of its bloody connotation - might not provide us with a novel basis for the organization of peace. To some extent this preoccupation with atomic disarmament was justified for there was a real danger that a war between America and Russia might break out as the direct result of an atomic arms race ~~after the first Russian atomic bomb test.~~

~~Perhaps it would have been better~~

short  
to end

might well change the basic premise on which the foreign policies of the great powers were based in the past, and eliminate the instability inherent in those basic premises.

INSERT (shift above) *A*

I do not wish to discuss here the moral issue raised by the use of the bomb, but I want to say this: can anyone in his right mind doubt that had Germany got the bomb first and used it for destroying an American city in the way we destroyed Hiroshima, after the defeat of Germany the destruction of a city by atomic bombs would have been defined as a war crime, and those Germans responsible for this crime would have been tried at Nuremberg and hanged.

rephrasing

just prior to losing the war  
that had Germany/somehow made a few bombs and destroyed  
an American city in the way in which we destroyed Hiroshima

After the war most scientists, both those who were opposed to the dropping of the bomb and those who did not oppose it, devoted their main attention to the problem of how to rid the world of this instrument of mass murder.

Baruch negotiations

The <sup>4th</sup> *bulb* premise

Maybe we ought not

We might ~~still~~ have cause to regret that

~~that~~ this was not the actual course of events might ~~turn out to have~~  
 disastrous consequences for the world. <sup>For</sup> If the Germans had been the  
 only ones to ~~engage in mass murder~~, <sup>we the bomb as an instrument of mass murder</sup> the world could have said: "What  
 else do you expect to <sup>we</sup> the Huns?" As it is, the Germans might have  
 been the first to engage in terror bombings for the sake of accelera-  
 ting the end of the war when ~~their~~ <sup>the Germans may have been first to</sup> dive bombers destroyed a large <sup>who</sup> ~~large~~  
 section of Rotterdam, but if ~~it is the~~ <sup>it is the</sup> Germans who invented this ~~method of warfare~~ <sup>method of warfare</sup>, ~~it is the~~ <sup>it is the</sup> British and the Americans who, by resort-  
 ing to it themselves, ~~made it respectable~~. <sup>we terror bombing when they destroyed</sup> Having abolished the moral  
 barrier to the use of the bomb as an instrument of mass murder, we are  
 now faced with the tedious task of convincing the governments of the  
 great powers that enlightened self-interest demands the adoption of a  
 new philosophy concerning the use of the bomb which entails its diver-  
 sion from a <sup>blunt</sup> ~~blunt~~ instrument of mass murder into a less exciting, but  
 by no means less potent, instrument of demolition.

After the end of the war particularly, all scientists turned,  
 because of the manner in which the bomb was used, to the issue of  
 getting rid of the bomb, and I know of no one who was willing to ex-  
 amine dispassionately the question of whether the bomb, cleansed of  
 its bloody connotation, might not provide us with a new basis for a  
 stable peace. To some extent this preoccupation with atomic disarma-  
 ment was justified even though it was clear that in a certain sense we  
 cannot ever get rid of the bomb. For, once we have learned how to make  
 the bomb and unless somehow we can contrive <sup>some</sup> / how to forget it, in a sense  
 the bomb will remain with us. For ever thereafter, if war should break  
 out for any of the same reasons for which war broke out in the past,  
 even if there are no bombs in existence at the outset of the war, the  
 war might well turn into an atomic war and an all-out atomic catastrophe.

*who*  
*we terror bombing when they destroyed*  
*responsible*  
*of Rotterdam*

But what concerned scientists most was the danger that a war between America and Russia might break out as a result of <sup>an</sup> atomic arms race, and indeed I am not so sure that this would not have ~~had~~ happened had there been a protracted period after the first Russian atomic bomb had been tested.

..... *in 1949*

~~Had~~ the first Russian atomic bomb test been followed by a protracted period during ~~this~~ which Russia would have gradually built up her stockpile of atomic bombs. Perhaps no one in America would have advocated a preventive war and few might have advocated it in private, but if this critical period had lasted long enough, America would have displayed an increasing inclination to make stiff demands and take calculated risks. Somewhere in the subconscious of <sup>the</sup> statesmen a voice would have said: "either we get what we want - well and good -- or we do not, and at least we have the war at a time when it does not as yet endanger our national existence."

*was might have broken out as the result of the arms race*

Right now we are past the point where a war is likely to arise as a result of the atomic arms race itself. ~~So it seems to me the time has come for scientists to dispassionately reexamine what needs to be~~

*done* and this is a good time <sup>therefore</sup> perhaps for scientists to reassess the situation which we actually face ~~as well as~~ to try to discover what needs to be done.

The public discussion of such issues as "shall we or shall we not stop testing hydrogen bombs", which preceded the last American elections, has tended to confuse further the real issues. Those who advocated stopping all bomb tests implied that this was meant to be a first step towards getting rid of the bomb altogether. The implicit premise of

*obscure later*

*the end*

all such discussions is the notion that if only America and Russia could devise<sup>a</sup>/foolproof inspection system so that secret violations of an disarmament agreement could be detected with great assurance, both we and Russia might then be willing to get rid of the bomb and be satisfied with possessing conventional, non-atomic weapons. I believe that this premise is not correct. I believe that neither Russia nor America would be willing to get rid of their bombs even though they could be sure that their adversary is getting rid of his bombs also, and moreover I suspect that getting rid of the bomb is far from being the best course of action that ~~was~~ is open to them in the present circumstances. ~~For~~ If Russia and America are on the verge of reaching an agreement on disarmament, it is likely to be the kind of agreement which eliminates from their ~~armaments~~ armaments bows and arrows. If it should really turn out that they are thinking of reaching an agreement that would eliminate bomb tests and would eliminate the development of new types of bombs and bomb tests, they had better think again before they go forward with such an agreement, for I am convinced that the issues involved here have not been thought through ... so far have not even been touched upon in public discussions of the bomb, and I strongly suspect they have not been thought through either in Washington or Moscow. ~~There was a time~~ *Can we have at this and is this what is needed?* There was a time early after the war when men influential in our government were willing to enter into an agreement with Russia for the elimination of the bomb. According to the official estimate, it would have taken Russia 7-15 years to produce ~~its~~ her first bomb, and when the time came where Russia could mass-produce these bombs, then many thought we should be willing to give up our bombs in return for keeping Russia from making bombs. Whether the influence of

*shift  
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INSERT - SEPARATE SHEET

INSERT

Not all governments are alike in this respect; there are those that do not believe that God exists, and those that do not believe that God matters. But the difference is at best quantitative. It relates to the amount of incentive to which they respond but not to the quality of their response.

*stuff  
to  
send*

of these men would have been strong enough to sway the government of the United States, I could not say. In our negotiations on the Baruch plan, we talk about stages but we never define the time scale and we never stated at what point we would be willing to give up the bombs. Why the Russians did not force us to clarify this point, we shall probably never learn.

There is no indication that the Baruch plan was ever cleared with the Senate leadership, as one would have expected had the administration reached a consensus that they wanted to go through with it. Initially I thought that it was not in the interests of Russia to remain without atomic bombs because atomic bombs were the only means by which they could carry ~~the~~ the war, in which America and Russia are lined up on opposite sides, to American territory. But later on I permitted myself to become convinced that Russia would have welcomed some arrangement that would have permitted the world to get rid of the bomb. The Russians did not know for sure how long it would take them to get the bomb, and instead of pursuing rational considerations of enlightened self-interest, they were thinking about future wars in terms of past wars; wars which Russia had won by retreating within her own vast territory rather than by carrying the war to someone else's territory. So it is probably true that for a short period after the war it would have been possible to get rid of the bomb had we really wanted to badly enough to be willing to be flexible in our demands. But this period, if it ever really existed at all, existed at best for a very short length of time. Soon thereafter more and more men in our government began to look upon the bomb as an instrument for safeguarding western Europe. Thinking in military terms rather than in political terms, they posed ~~this~~ <sup>the</sup> question of how we could defend Western Europe

*Shy  
to  
end*



in the conceivable -- although not necessarily likely) contingency of invasion by Russian troops. Massive retaliation was their handy answer, and this of course meant keeping possession of the bomb and increasing as fast as we could our stockpile of bombs. As soon as this thought became prevalent, the fate of the Baruch plan was sealed. The negotiations were continued for a long time thereafter, and whatever was said in these negotiations was said for the record. On whom we hoped to make a favorable impression with this record has so far remained a mystery to me. Those who advocated the policy of massive retaliation felt that it was perfectly permissible for us to destroy every Russian city and ~~kill~~ their inhabitants for the sake of protecting against invasion the territory of one of our allies. It is not surprising that governments should consider such an attitude permissible, for governments are not persons, but it is a different matter for individuals who have no governmental responsibility to acquiesce in such a policy. At times I am inclined to doubt their sanity. It is as if a man left his apartment in town to go away for an extended vacation, and gave notice to burglars that he has placed a massive high explosive in his apartment and has arranged matters so that if a burglar forcibly opens the door of the apartment the explosive will be detonated and will kill not only the burglar but all the innocent tenants of the apartment house. Even though this might be a very effective way to deter burglars, it is permissible to doubt the the sanity of the author of the notice. The threat of mass retaliation must, of course, lose its deterrent action when the nation which is supposed to be deterred can mass retaliate also. The threat of murder and suicide can hardly be assumed to be effective.

Should  
be  
and

Because initially after the war the scientists were obsessed with getting rid of the bomb, it did not occur to any of them that bombs could be produced in such large quantity that some day they might be used as weapons in the area of combat rather than merely as instruments for the strategic destruction of cities. The author regrets to say that he was among those who overlooked this possibility, and that for this he can claim only scant excuse.

As the threat of massive retaliation began to lose its effectiveness, the emphasis shifted to the employment of atomic weapons in the combat area and to the prevailing policy of trying to fight a war in the very spot where the armed conflict arises, and then somehow attempt to localize the war. Provided we are willing, if need be, to lose such a war and limit in each case our investment and the right of our losses, a small war - so they say - need not <sup>if</sup> trigger a big one. Just what the ground rules should be ~~for~~ such a war begins to spread, if bombs begin to hit cities, and if an American city is hit leading to the death of hundred of thousands and perhaps millions of people, no one as so far clearly stated. To say that the war will not spread because no one desires that it shall spread, without carefully investigating the problem of stability which is involved approaches, it seems to me, a degree of irresponsibility which may be permitted to our statesmen but which cannot be tolerated among scientists.

We must ~~accept~~ accept, I believe, the premise that force will continue to be employed or held in reserve by the national governments to protect their vital interests and their national integrity. I think we must further accept the premise that large bombs, capable of destroying a city, will be an integral part of that force. What we need to examine now is this: in the approaching atomic state

where Russia can destroy America to any desired degree and American can destroy Russia to any desired degree, is there any basic policy concerning the use of force which America could adopt and Russia could adopt which would render this stalemate stable? Stability means the requirement of stability demands that even if an American city is destroyed or a Russian city is destroyed or if several such cities are destroyed, no matter how great the perturbances the disaster caused, the conflict remains limited and does not deteriorate into an all-out atomic catastrophe.

I shall describe now the rules of conduct which would satisfy this requirement of stability without renouncing the use of force in case force needs to be used. Subsequently, having established that such rules of conduct would stabilize the atomic stalemate, I will try to show in what manner the very existence of the atomic stalemate will make it possible for America and Russia to reach a settlement that could not be reached hitherto. The only purpose - and perhaps the sole content - of the political settlement of which I speak is to make sure that, in case of a military conflict between two or more nations which does not directly involve either America or Russia, Russia and America will not intervene on opposite sides. The policy which I advocate here can be described as follows:

We could say to Russia: "We cannot renounce the use of force in certain contingencies and we may use our large bombs for the purpose of destroying cities but we can do all this henceforth without waging war in the old sense of the word; i.e. without engaging in combat in which soldiers are killed and without killing any innocent civilians. It is clearly in your interests as well as in our interests that neither of us shall henceforth engage in that kind of a war, and we want to explain to you how force and the threat of force can be used by either of us without running the danger of triggering an all-out atomic war."

"There are a number of territories, including of course the territory behind the states which we have determined to protect. These territories are divided into zones, and we are presenting to you a list of these zones. We trust that you shall not find it necessary to invade any of these zones with your own soldiers, and that you will not permit the invasion of any of these zones by soldiers from any territory under your protection; or if such invasion occurs nevertheless you will withdraw your protection from the invading nation. "

"Should you, however, for any reason find yourself forced to invade any of these zones or forced to permit them to be invaded, then we shall destroy a number of your cities. How many cities will be destroyed and how large they may be is stated in a list which is attached. We have divided your cities into ten categories, and if you, for instance, invade Iran, we shall destroy at least three and not more than six of your cities falling in category 4. If you, in fact, invade Iran, we will name the cities that we are going to destroy and we shall allow two weeks' time for you to evacuate the population of these cities. Perhaps from a purely administrative point of view you might find it less troublesome if these cities were bombed without warning so that all of the inhabitants would die because then it would not be necessary to house and feed the refugees, but we are sure that you will see why this would not be desirable."

"We know, of course, very well that in an era of the atomic stalemate the policy here announced would trigger an all-out atomic war unless we were willing on our part to tolerate your destroying as many American cities as we have destroyed in Russia, provided they are cities which fall into the same size category."

"So there shall be no dispute about which city falls into what category, we propose first to sit with you and make up a list of

American cities in categories which, by stipulation, will be regarded as corresponding in size to the Russian cities of the same category. Unless we reach an agreement with each other on which American city corresponds in size to what Russian city, and vice versa, we might render the atomic stalemate unstable .....

and thereby eliminate the possibility of any dispute on this score with you which might trigger an all-out atomic war in the case of a local conflict."

"We want you to understand that if you are willing to pay the price listed, you may move into Iran at any time. We shall have no ill feeling about this after having set the price high enough we will have no ill feeling about this but would rather consider you a fool to up such a high price. Nevertheless, if you, in fact, invade Iran - to which we shall respond by destroying between one to three cities of category 4 (just how many we will decide in the light of prevailing circumstances at the time) - you will force us to revise the whole price list upward. You will force us to conclude that we have not set the price high enough, and we may then revise the whole price list upward. Naturally, we reserve the right to revise the price list in any case, at any time, but we shall communicate to you the new price list promptly, and it will not go into effect until after you have received it. You might think it rather odd that we shall be willing to tolerate the destruction of as many of our own cities as we have destroyed of yours, and naturally we wish this were not necessary, but upon further reflection and with the help of your mathematicians, you will undoubtedly come to the conclusion that there is no other way to meet the requirement of stability in an atomic stalemate.

If in an atomic stalemate we do not want to use force and yet want to be sure that the use of force, including the destruction of cities which might occur accidentally or otherwise, does not trigger an all-out atomic catastrophe, it will be necessary for both of us strictly to observe the following rule of conduct:

"If we destroy one of your cities, we shall tolerate the destruction of one of our cities, and if you destroy one or more of our cities, we shall destroy an equal number of your cities (of the same category), and in this manner any perturbation of the stationary state will lead to a new stationary state in which the same number of cities have been lost in Russia as have been lost in America. We hope, of course, that you will not invade any of the territories under our protection, and we certainly do not intend to invade any of the territories under your protection. In this case there will be no destruction anywhere."

"But we cannot foresee the future with certainty. Cities might be destroyed by accident. Catastrophes of this sort can happen through mistakes or the <sup>acts</sup> ~~action~~ of some overzealous, patriotic commanders, but what we must and can make sure of is that the accident does not trigger an all-out atomic war."

If this were indeed the policy that Russia and America both decide to adopt, nothing better could happen to us than some minor invasion that would put the system to a test. I shall give presently an example of how this might work but, before I do so, it might be well to tell an anecdote with which most children were familiar in the country in which I grew up.

Two men were walking along the road when along came a toad, and as it crossed the road, one man picked it up and handed it to the other. "If you eat the toad" he said "I will give you \$20." Twenty dollars is a lot of money, and so the man pushed the toad into his mouth and tried to swallow it. After working hard he managed to get it down, but even after it was down and in his stomach it seemed to jump around, and the whole thing was really rather horrible. Still he got the \$20 which he put into his pocket. As they walked further along the road, along came another toad. The man who had swallowed the ~~first~~ toad and who could still feel it <sup>jumping around</sup> in his stomach turned to his companion and said, "if you swallow that toad, I will give you \$20." By that time his companion had begun to regret the loss of his \$20., which after all is a lot of money, and so he accepted. He grabbed the toad and pushed it into his mouth, swallowed hard, and finally got it down into his stomach. But even after it was down and in his stomach it kept jumping around. It was really quite horrible. <sup>He</sup> After a while as they kept walking down the road, suddenly one of the men turned to the other and asked, "what for did we swallow ~~these~~ toads?"

Were Russia and America to adopt the policy which I am here advocating, I can think of nothing that would do more to insure everlasting peace in the world than the following course of events. Russia, ~~so I would hope~~, may one day decide to take Iran. Our minimum price for Iran was three Russian cities of category 4, and our maximum price was six. Suppose now, because we are really very indignant, we decide to destroy four Russian cities. As soon as we name the cities about to be destroyed, the Russians will name four American cities in category 4,

and we both begin to evacuate our cities. Housing and feeding the evacuees will put a strain on our administration, but somehow we manage to take care of them. But public indignation finally induces the American government to encourage the south Koreans, whom we are protecting, to invade north Korea. The Russian list has specified that in the case of the invasion of north Korea, they are going to destroy between one and two American cities in category 3, and immediately after the invasion of north Korea they decide to destroy two American cities which they name, and we in turn name the two Russian cities which we are going to destroy. All of these cities are evacuated and we care for the refugees or evacuees as best we can. In the meantime Russia has invaded Iran and with American help south Korea occupies northern Korea. ~~As things begin to calm down, we discover that the independence of Iran is far more valuable to us than the possession of northern Korea. Russia in turn discovers that they care more for northern Korea than they care for Iran. Thus there is a basis for agreement, and we arrange that in return for Russia's evacuation of Iran we shall evacuate north Korea. To whom will it first occur to ask, "What for did we swallow those toads?"~~

*Mostly we value what we have not lost. Iran is important. We must have it.*

~~We cannot predict with any degree of certainty, but sooner or later this question will be asked, and a happy day it will be for the cause of peace.~~

Now imagine if you can that in this manner or in some other manner the atomic stalemate, in which Russia can destroy America to any desired degree and America can destroy Russia to any desired degree, can be stabilized. Then not long thereafter it should be possible to reach a political stalemate with Russia and to make certain that America and Russia will not intervene on the opposite sides in any



military conflicts that might break out between nations that are  
 under the protection of neither. Hence a settlement ~~Since a settlement~~ becomes possible  
 because an atomic stalemate that is stable creates an entirely new  
 situation in the world, from which we have eliminated the vicious  
 circle in which the great powers found themselves entangled in the  
 past whenever a power conflict arose. A classical example for the  
 operation of this vicious circle is afforded by the history of the  
 Peloponnesian War, which centered around Athens and ~~Sparta~~ <sup>Sparta</sup>, and which  
 destroyed Greece. Neither Sparta nor Athens wanted war but the rising  
 power of Athens threatened Sparta and the rising power of Sparta  
 threatened Athens. Because war between them had to be regarded as  
 possible, if not probable, each tried to increase the number of her  
 allies and to improve her strategic position. <sup>If</sup> ~~If~~ any conflict which  
 arose between them was settled one way or another, it either increased  
 Sparta's chances to win the war or it increased Athens' chances to  
 win the war. Since the issue of who is going to win a war cannot be  
 settled on the basis of compromise, none of the issues could be  
 settled. Each step that ~~then~~ Athens took to increase her chances to  
 win the war also increased the probability of having a war, and the same  
 held true for any such steps that Sparta took. In the end .....

In this century America has twice participated in a world war.  
 In both cases there was a major rational consideration in favor of Ameri-  
 can participation. If America had permitted Germany to win either of  
 these wars, Germany would have become so strong that she might have  
 defeated America in a subsequent war. The basic premise of the foreign  
 policy of the great powers in the past was that they must not allow  
 themselves to be maneuvered into a situation where any power or likely

coalition of powers could vanquish them. Because of this premise they made alliances so as to jockey for position and keep an eye on the increasing war potential of their potential enemies. It is my contention that as far as Russia and America are concerned, this premise is no longer valid. When America and Russia can destroy each other to any desired degree so that we have an atomic stalemate, and if they adopt a policy that will render this atomic stalemate stable, neither of them can be vanquished by any power or coalition of powers. From a military point of view, there is no need for them to be concerned about the rising war potential of any nation. None of the outstanding issues between them on which they were deadlocked in the past have any bearing on the issue of "who is going to win the war." As far as military considerations go, it is not important any longer how much of these issues is settled. The only thing that remains important from the point of view of preserving peace is that each such issue should be settled one way or another. Thus the strategic stalemate makes it possible to reach a settlement then freeze the status quo.

The zones which either America or Russia will want to protect will be limited in number. As to the rest of the world, the only real interest America and Russia will have is to enforce peace. Unless this is done, we shall have no orderly world development for as long as the small nations can hope to bring about forcibly territorial changes they will have a strong incentive to acquire atomic armaments. If a number of nations have atomic bombs, the requirements of stability are very difficult to meet even though it is possible to meet these requirements also. I shall not go into this in detail since the reader can easily figure out for himself how this can be done. However, if the nations are permitted to spend up to 10% of their income for defense,

Most of them will have spent as much as they can save and nothing will be left for economic development. This would put the burden of their economic development on Russia and the United States, neither of whom is likely to cherish this burden. The cheapest way to relieve these nations of such an unnecessary expenditure for defense seems to be to establish not an international police ~~for~~ but a regional police force with great autonomy even though they may be operated under the auspices of the United Nations. These regional police forces would not be token forces. They would be highly mobile forces, armed with conventional weapons of high fire power, and they would greatly exceed in strength any of those of the nations of the region. Their only task would be to safeguard/<sup>the</sup>territorial integrity of the nations in the region and not to tolerate any changes of boundaries. Even though once Russia and the United States have reached a settlement and we would have created the conditions under which the United Nations could be effective, it would seem undesirable to make the United Nations responsible for the direction of these regional police forces. It would appear to be better to give the regional police forces far-reaching autonomy; i.e. the member nations who man these forces should have full direction of them. It is hardly necessary to spell out the details of such a system on this occasion. As long as it is clear that once the atomic stalemate can be stabilized, Russia and America will be able to reach a settlement, and once such a settlement is reached, they will be able to cooperate in the enforcement of peace.

There is a technical point which must be mentioned, however. The proposal here presented is based on the existence in sufficient quantity of powerful bombs which can destroy a large city without spreading appreciable quantities of radioactive dust across the sur-

rounding countryside. Do such bombs exist? In the recent past there was an announcement, issued by the Atomic Energy Commission, which dealt with this subject. The announcement bore a certain resemblance to the Phthean oracles, except that it was slightly more ambiguous. The announcement followed the test of a bomb which was detonated at high altitude, and it seemed to indicate that we have discovered the secret of how to make large ~~atomic~~ bombs which are capable of destroying a city without producing dangerous amounts of radioactive contamination, and it was presented as great good news to the readers of our newspapers. Taking the announcement at its face value, I have ever since been praying to God, let there be a patriotic  who will leak the secret of how to make clean bombs to the Russians so that in case of war with Russia our suburban residents will not perish from radioactivity just because the Russians were not able to discover the secret of the clean bombs themselves. When I was asked by my Democrat friends if I favored an agreement with Russia calling for a test of hydrogen bombs, I told them that it might be a mistake to stop Russia from testing atomic bombs unless we are sure they have discovered how to make clean bombs. That clean bombs can be made, we may take for granted but there still remains the question of how fast we can make them and what they will cost. On this score, I do not feel at present reassured. The other day I was greatly troubled when, in one of the physics seminars open to all of the members of the faculty, the speaker indicated that he is seeking advice on what to put around the hydrogen bomb to eliminate the abundant fall-out of radioactive strontium. To make sure that I heard right, I asked him whether the question was was not to put around the hydrogen bomb in order to avoid the fall-out of radioactive strontium. At this he grinned and repeated his ~~question~~ original question. Are we to conclude

that clean bombs are more difficult to mass produce at a reasonable cost, or what? I submit to you that if it is still necessary to develop the bomb further, both here and in Russia, in order to be able to mass produce clean bombs, from the point of view presented in this paper, we would have to regard it as a major disaster if, contrary to expectation, Russia and America reach an agreement that would stop the further development in this direction, for in the present state of our ignorance, it would be irresponsible to scatter in case of war appreciable amounts of radioactive dust over the face of the earth.

Because of our ignorance of the basic processes of aging, we have no assurance that ~~the~~<sup>a</sup>/comparatively moderate amount of radioactivity may not destroy the human race. Depending upon what theory of aging you wish to believe in, and we cannot at present rule out any of these theories, you may have to conclude that if mankind is exposed to irradiation at a rather moderate level, the age at which senescence sets in will drop from generation to generation, and that a few generations hence senescence, which among us sets in somewhere between 65 and 75, may set in between 30 and 40 years of age. Human longevity is very probably the result of a selection which originated during prehistoric times, when women went on bearing children as long as they were capable of doing so and when the population remained stationary because of the high infant mortality. Of the spontaneous mutations which kept on occurring during this period, a few tended to lengthen the childbearing age of women, whereas the majority tended to shorten it. This life-shortening effect of the majority of the mutations was counteracted by selection. The offspring of mothers who bore children up through middle age had a greater representation among the surviving progeny than the offspring of mothers who reached senescence earlier and stopped bearing

children at an earlier age. Nowadays this selection has stopped being operative. The lowered child mortality has forced us to limit the number of children. Children are born early in marriage, and thereafter birth control prevents further pregnancies. With selection for longevity no longer operative, an increase in the mutation rates, such as is brought about by irradiations emanating from radioactive dust, will step by step shorten the child-bearing age of mothers, and hand in hand with this there will be a decrease in the age at which senescence sets in. As I said before, we do not know enough about the basic processes of aging to be able to assert that this danger is real, but unless we know for certain that this danger does not in fact exist, who would be willing to advocate this kind of a risk? It is difficult to see why the issue of the clean bomb should be shrouded in secrecy, and it is necessary for us to have the relevant information if we are to make up our minds on how to live with the bomb.

— Prince Karim (Alpha Khan IV)  
 John Fell Stevenson

60 ~~100~~ years

60 x 365 days

$10^6$  born per day ||  $T = 22,000$  days

$60 \times 10^6$  people live on earth

$60 \times 10^6 \left(1 - \frac{1}{2200}\right)$

$\tau_1 = \tau_{\text{old}} - 10 \text{ days}$

In thirty years there die:  $30 \times 10^6$  people

~~extra~~ extra death:  $\frac{30}{2.2} \times 10^6$  people

$= \frac{3}{2.2} \times 10^4$  people die extra

or per year extra death =  $\frac{10^6}{2.2 \times 1000} = \frac{1}{2.2} \times 1000$

On fallout planet population

$60 \times 10^6 \left(1 - \frac{1}{2200}\right)$

yearly <sup>total</sup> death:  $10^6 \times \frac{1}{2200}$   
 prob of dying from fallout  $\frac{1}{2200}$

20% of males  
smokes

if you 10% smoke death rate  
increases by factor of 1.1

~~40% of males~~

total <sup>additional</sup> deaths per year is 1,000,000  
or in thirty years:  $\frac{3 \times 10^6}{2.2}$  death  
due to smoking compared to

$$\frac{3}{2.2} 10^4$$

Thus is 10% of our pop. smoke  
or more or more a day 200 times  
as dangerous

If every body were to smoke  
 $\frac{1}{2}$  of deaths is due to smoking  
and <sup>15 million</sup> of deaths are caused by smoking  
in 30 years. —