SHALL THE UNITED STATES RESUME NUCLEAR TESTS?

Speech of

Hon. Hubert H. Humphrey

of Minnesota

in the

Senate of the United States

Tuesday, August 18, 1959

Not printed
at Government
expense

United States Government Printing Office, Washington : 1959

519354—72032

SPEECH

OF

HON. HUBERT H. HUMPHREY

OF MINNESOTA

Mr. HUMPHREY. Mr. President, the subject matter to which I shall address myself today is: Shall the United States resume nuclear tests?

Mr. President, the Geneva negotiations for a treaty to end nuclear weapons tests have now reached a critical stage. My purpose in speaking today is to discuss the nature of this crisis. I must voice a grave concern lest through indecision and internal differences our Government may contribute to the breakdown of the negotiations at this particular time.

The United States, the United Kingdom, and the Soviet Union have been negotiating to discontinue nuclear weapons tests for almost 10 months. Progress was being made. At the same time other hopeful signs were emerging. The President appointed Charles Coolidge to conduct a special review of U.S. disarmament policy. The Foreign Ministers Conference agreed to the desirability of having general disarmament negotiations, disbanded since 1957, reconvene, and it is expected that the details of the agreement for the renewal of the negotiations will be forthcoming soon. I say these are hopeful signs even though I believe that any new disarmament negotiations should not be devoid of a direct relationship with the United Nations.

We can embrace these encouraging moves on the part of the major powers only if we genuinely believe that they lead somewhere besides a dead end. I am convinced that the people of this and every other country are impatient with the inability of the leaders of the major powers to reach some agreement in the area of arms control. This race for weapons superiority is all so futile. It can lead nowhere. It is an expensive way of buying time to determine whether man is rational enough to live with his fellow man without engaging in the business of mass extinction through large-scale war.

It is in this framework that the test ban negotiations must be viewed. If they succeed, then future arms control discussions take on meaning, in fact, become imperative so that the momentum gained by one small step will not be lost. If they fail, then new talks will tinkle in a hollow chamber amid the reverberating echoes of the last failure.

STATUS OF THE GENEVA TALKS

The Geneva test ban negotiations, as I have said, have been going on for almost 10 months. This amount of time is not unusual in terms of average time taken in negotiating with the Soviet Union. What is unusual is the fact that of the remaining undecided issues only one—the number of on-site inspections—really stands in the way of an agreement among the three nuclear powers. On this one major remaining issue, the United States at the moment has no negotiating position. The Soviets have made no proposal on this point as yet either, but if they did, we would have no answer. The United States has no negotiating position because the Government is still divided on some basic aspects of the problem. It is divided between those who are concerned about the risks involved in a continuing arms race—those who think it is important to take a real step toward arms control—and those who feel that we have more to gain than to lose by continuing tests and that we cannot afford to stop testing our nuclear weapons in the face of a control system that is less than perfect.

Our negotiators are burdened by obstacles which have been built primarily by the Atomic Energy Commission and to a lesser extent by the Defense Department. The AEC seems to have difficulty in remembering that it was not created to be a policy-making body in the area of foreign relations. Although I think the AEC has overstepped the bounds of its functions in this instance, nevertheless, I cannot dispute its right to argue its case. The AEC is allowed to continue to oppose the official position of the United States and to inject its own views on foreign policy due to a lack of leadership at the top.

The Constitution provides that "the executive power shall be vested in a President of the United States of America." There can be no substitute for executive leadership on this problem. The President has failed to assert the leadership necessary to reconcile conflicting views. Our position is being determined by an interdepartmental committee, which can decide only when it is unanimous. In effect, every department

has a veto over the State Department's role in the negotiations in the absence of active Presidential participation. I am confident that the President and the Secretary of State want to reach a workable agreement to stop nuclear weapons tests. I am confident also that the overwhelming majority of Americans are behind the President on this issue. The President should exert his authority. That is what we are waiting for.

The technical advice of the AEC is valuable, but the matter is not only a problem of science and technology. It is not only one of the importance of perfecting new and better weapons. The issue involves judgment in many fields of which science and weaponry are only two of many factors to be considered.

FALLOUT STILL A CONCERN

The AEC and the Pentagon evidently are so eager to resume nuclear testing that they are promoting and fostering newspaper reports to that effect. The reports indicate that testing either will be resumed regardless of the outcome of the test ban negotiations, or that it is expected that the negotiations will fail and testing will be resumed as a matter of course. I personally think that if tests resume before we know the outcome of the test ban negotiations the United States will be inviting an outburst of indignation and criticism by the people of other nations. Furthermore, our own people are immensely concerned about the possible harmful effects of radioactive fallout. Scientists are still studying this problem so we as yet do not have all the answers we need. The results of studies conducted thus far, however, continue to give cause for alarm.

We could conceivably claim that tests should be resumed because there are no harmful effects of fallout and that the test ban talks are not making progress, two of the lines of argument being advanced by the AEC. The facts on the former are uncertain, as I have said, and the facts on the latter are to the contrary. The facts of this situation must be made known. Otherwise, the public will be fooled and decisions will be made behind closed doors without the kind of public discussion and knowledge which the people of a democracy must have if our system is to survive and endure.

I now wish to discuss some of these matters in detail.

COURSE OF THE NEGOTIATIONS

What progress has been made? What have the three nuclear powers thus far agreed to?

First. Vienna, Austria, has been chosen as the headquarters for the control organization.

Second. The control organization will be composed of a seven-nation commission of which the three nuclear powers will be permanent members; there will also be a conference once or twice every 2 years of all the parties to the treaty.

Third. An administrator, acceptable to the three nuclear powers, will be responsible for operating the control system.

Fourth. The control posts worldwide will number 170 to 180, each of which will be staffed by approximately 30 to 40 technicians plus supporting personnel.

Fifth. The treaty will continue indefinitely depending on the successful installation of the control system and the absence of evidence that atomic weapons tests have taken place in violation of the treaty.

Sixth. The control organization will conduct a continuous program of research to improve the quality and capabilities of the control system. The scientists at the Conference of Experts agreed this should be done and the nuclear powers have each declared their acceptance of this principle. An article of the treaty still must be drafted, however, on this point.

Seventh. Scientists from the United States, the United Kingdom, and the Soviet Union have recommended a series of space satellites to assure that clandestine tests cannot take place in outer space.

Eighth. The treaty will be open for other states to become parties to the agreement.

This is the list of the principal features of the 17 articles of the treaty agreed to thus far. What have the three nuclear powers not yet agreed to?

First. The staffing of control posts. The three nuclear powers still are discussing the composition of the staff at the control posts. The Soviets say that no more than one-third of the staff should be foreigners in the country where they are stationed, whereas the United States argues that no more than one-third should be nationals of the country in which the control post is located. Translated into terms of actual numbers the difference between the two sides is approximately a difference between 10 and 25, a difference which, I expect, can be resolved if negotiations continue.

Second. Composition of the control commission. Although the nuclear powers have agreed on a seven-nation control commission, they have not yet decided what nations should be on the control commission. This is not yet a matter of controversy because discussion of the subject has not taken place. This too should not provoke fundamental differences. One way to resolve the question which I suggested some time ago, is to divide the composition as follows: two Western nations—the United States and the United Kingdom—two members of the Soviet-Sino bloc—the U.S.S.R. and one other—and three neutral countries—nations which are not allied either with the United States or the Soviet Union in defense pacts.

Third. Control system for high altitude tests. The scientists from the three nuclear powers reached agreement on the system to be recommended to the governments on the control system to detect tests at high altitudes, that is, tests conducted above 31 miles. The nuclear powers have not yet incorporated these recommendations into treaty language. It is not expected that such a step will involve political problems. There are some engineering problems, however, to solve. These include the means by which satellites will be sent into space so as to assure that no nuclear tests are being conducted there.

Fourth. Budget. The Soviet Union is still contending that the budget for the operation of the control system should be acceptable to the three nuclear powers, since they will be expected to pay the main costs of the control system. The United States and the United Kingdom believe that the budget should be voted on by all the members of the treaty with a majority determining the final outcome. Again, I do not think that the question of the adoption of the budget, although an important issue, should present an insurmountable obstacle.

Fifth. Equipment at control posts. At the Geneva Conference of Experts last year, scientists from eight nations agreed on the type of equipment to be placed at each control post. Since that time the United States has requested what amounts to a revision of the list of equipment. Our Government has done this as a result of the Hardtack series of nuclear tests last October. From those tests we learned that the problem of detecting and identifying underground tests and other phenomena was more difficult than had been anticipated.

The improvements in the equipment being suggested by U.S. scientists are not such that the Soviets should object. They do not increase the number of manned control posts. As a matter of fact, if the United States would raise the question as one of improving the equipment at the control posts instead of asking for a reconsideration of the entire question of the detection and identification of underground tests by seismic means, I should think that the Soviets would see the merits of our proposal. In any case, improvement of equipment should not be a major obstacle to agreement.

Sixth. Number of on-site inspections. I come now to the last area of difference between the two sides at Geneva. The last area is the main and only major area of difference. This must be emphasized so that the public can know that, except for one major problem, the probabilities are that an agreement could be reached. This is not to say that the other differences will be easy to resolve. They won't. Negotiating with the Soviet Union is never easy because that nation operates on the principle of stalling and delay. I would even suggest that the United States should not allow the negotiations to go on indefinitely if it becomes apparent the Soviet Union does not wish to accept adequate and reasonable controls. But we cannot abandon the talks without first exploring with the Soviets the main obstacle to an agreement. This major area of difference is how many inspections of a suspicious and unidentified event, registered at the control posts, should be undertaken each year in the territories of the nuclear powers.

It is vital that we fully comprehend this one major area of difference, and so I intend to discuss the matter in some detail.

PROBLEM OF ON-SITE INSPECTION

At the Geneva Conference of Experts held in the summer of 1958 the scientists

from the eight countries represented concluded there would be from 20 to 100 events—presumably earthquakes—worldwide of the size of a 5-kiloton explosion or larger that the control posts would detect but probably could not identify. The scientists also said there would be an unspecified, but presumably large, number of unidentified events of sizes less than that of a 5-kiloton explosion. These unidentified events, the scientists concluded, should be subject to further investigation, including inspection at the site of the events. Inspection would include mobile teams going to the area of the event and examining it to determine whether the event was an earthquake or a nuclear explosion.

At the Geneva political negotiations, beginning last October, the United States recommended a formula for inspection. We proposed that all unidentified events the size of a 5-kiloton explosion or larger and 20 percent of all events below 5 kilotons should be subject to inspection. What figure would constitute 20 percent has not been suggested, but according to figures on earthquakes available this would make roughly a total of 85 inspections in the Soviet Union per year.

After the Hardtack series the scientists revised their estimates upward considerably and at the same time recommended new equipment in an attempt to cut down on the number of unidentified events. At the present time, using first, the estimates resulting from the Hardtack series; second, two of the recommendations of the Berkner Panel on Seismic Improvement; and third, the ratio of inspecting all unidentified events of 5 kilotons or larger and 20 percent of all unidentified seismic signals below 5 kilotons down to a half a kiloton, the number of inspections in the Soviet Union would be 366, or roughly one inspection in the Soviet Union per day. The number of inspections to be held in the United States would only be slightly less.

MORE THOROUGH ANALYSIS

These numbers give the impression that the inspection problem is so huge that the negotiators might just as well pack up their bags and go home because it is almost absurd to suggest that such a large number of inspections should take place. I would like to show in a few ways that the inspection numbers game must be subjected to more thorough analysis.

First, earthquake specialists tell us that at least two-thirds of all earthquakes in the Soviet Union occur in the Kamchatka Peninsula which is a very small part of the entire Soviet Union. Furthermore, they tell us that another 25 percent occur along part of the southern periphery of the Soviet Union. This would mean, using the above figures, that 242 inspections would take place in the Kamchatka Peninsula; 91 would take place along the southern periphery; and this would leave 33 for the rest of the country. I am reasonably certain that it would not be necessary to conduct 242 inspections in the Kamchatka Peninsula to satisfy ourselves that the Soviets were not sneaking tests in that area. A mobile inspection team might check on several earthquakes during one visit. Other means also exist to determine whether tests have taken place in addition to the reading of instruments and the conducting of mobile inspection teams. I am referring here to a variety of intelligence measures which would be available to the United States and which would have nothing to do with the operations of the control system.

Second, most of our able seismologists say that once the control posts are established and operating, many events will be identified as a result of close observance of earthquake activity from a given region. In other words, we will learn more about earthquake patterns which make the identification problem less complicated.

Third, one of the recommendations of the conference of experts is being completely ignored by our Government scientists and consultants. That is the possibility of using and reequipping existing seismograph stations throughout the world, and devising means to help assure that the data from them will be reliable. There are some 650 stations now in existence, of which only a fifth or a fourth are probably located in spots that can be used. However, the recommendation of the experts is ignored by the executive branch and thus kept out of any discussion for improving the control system.

The executive branch ought to request the help of the United Nations in improving existing seismograph stations. At the coming session of the United Nations General Assembly the United States should recommend that the United Nations establish a special working group to assist other nations in improving and modernizing their seismograph stations, and if necessary, erecting new locations for them. A test ban requires effective safeguards. Other nations have a responsibility to see a test ban control system succeed and to try to remove all possibilities of evasion.

I have mentioned a few of the scientific aspects involved in inspection. They are enough to indicate the complexity of the scientific problems, which, in turn, must be weighed along with the many facets of military security, our relations with the Soviet Union and with our allies.

Mr. RUSSELL. Mr. President, will the Senator from Minnesota yield?

The PRESIDING OFFICER. Does the Senator from Minnesota yield to the Senator from Georgia?

Mr. HUMPHREY. I yield.

Mr. RUSSELL. I am very much interested in the subject matter of the discourse of the distinguished Senator from Minnesota. I must say that I am somewhat amazed to hear him recite such exact figures in regard to various areas within the Soviet Union. I wonder whether he is certain in regard to the source of his figures, whereby he can differentiate between bomb explosions, earthquakes, and things of that kind.

Mr. HUMPHREY. Yes.

Mr. RUSSELL. I am very much interested in the very thorough work the Senator from Minnesota has done, but I am somewhat surprised that that information is available at all.

EARTHQUAKES AND ATOMIC EXPLOSIONS

Mr. HUMPHREY. Let me say to the distinguished Senator from Georgia that the figures I cited are the result of the calculations made by our scientists. The earthquake specialists tell us that two-thirds of all the earthquakes in the Soviet Union occur in what is known as the Kamchatka Peninsula, which is a very small part of the Soviet Union, and that another 25 percent occur along the southern periphery of the Soviet Union.

On the basis of the calculations which have been made by specialists and according to one formula suggested by the executive branch which show there would be a need for approximately 366 on-site inspections a year, that would mean that roughly 242 inspections would take place in the Kamchatka Peninsula and 91 would take place along the southern periphery. This is merely what one might call an interpretation of facts which were developed by our specialists, and then relating those facts to particular areas.

The Atomic Energy Commission apparently believes that in order to have a safeguarded inspection system, it would be necessary, on the basis of the Hardtack series of tests and the Berkner report, to have 366 inspections a year in the Soviet Union. When we relate that figure to the areas in which the earthquakes and other disturbances take place—I refer to those which would cause some problem of identification as between an earthquake and an atomic explosion—we see, then, that the vast majority of them would take place in the Kamchatka Peninsula, and that the majority of the others would take place primarily in the southern periphery of the Soviet Union.

Mr. RUSSELL. Mr. President, the Senator from Minnesota has done a great deal of work on this matter; and all of us might well be concerned about it.

But how could we tell whether a disturbance which occurred on the Kamchatka Peninsula was an earthquake or an atomic explosion? We might allow for a ratio of three earthquakes for each atomic explosion; but how would we be able to differentiate between disturbances caused by atomic explosions and those resulting from natural causes, such as earthquakes?

Mr. HUMPHREY. In the case of explosions of certain sizes of atomic weapons, the tracings on seismographic instruments indicate certain differences between earthquakes and atomic explosions, by means of the manner in which the tracings appear on the tape which records the earth disturbances. In other words, when such a disturbance in excess of a particular magnitude occurs it will leave a very definite trace upon a seismograph dial or upon the seismograph tracing paper. But the difficulty occurs when the disturbances are of small magnitudes, or the equivalent of atomic explosions in the very small yields.

When atomic weapons were tested for their efficiency, particularly atomic weapons which could be used for tactical purposes and missiles which would result particularly in explosions of 5 kilotons or less, a mobile inspection unit would move into the area, to determine

by testings of the earth itself—primarily underground, by borings into the earth and by other techniques—the nature of suspicious, unidentifiable disturbances which affected the seismographic instruments.

Our scientists now have outlined a program of unmanned seismographic stations which would correlate into a central station the tracings and recordings, and thus would greatly improve the system of detection.

Furthermore, I am sure that if the mobile inspection teams ever revealed a test which was a violation of the agreement, the agreement would be entirely ended. So there is a kind of self-enforcing apparatus.

Mr. RUSSELL. However, we do not rely altogether on instruments to determine whether there has been such an explosion.

Mr. HUMPHREY. That is correct; we do not. Of course, I am not an expert on these matters, although I have endeavored to learn something about them.

Mr. RUSSELL. Mr. President, I think the Senator from Minnesota has performed an important public service by placing this information in the RECORD, where it may be studied and considered by all, so that some understanding of the subject can be had. I believe the Senator from Minnesota has performed a very fine service in that connection.

Mr. HUMPHREY. Mr. President, I am very grateful to the Senator from Georgia for his praise.

Of course, the other methods of identification which we have are through what we call acoustical waves or magnetic waves. In addition to the seismograph, there are other means of being able to determine whether an explosion has taken place, particularly if there is any upburst from the earth of any debris into the atmosphere. That is a very good way of making such a determination.

Mr. RUSSELL. Yes, by means of the particles.

Mr. HUMPHREY. Yes, and also by borings of the earth, to determine whether the resultant heat or pressure changed some of the earth into a new form—as in the case of the Rainier test, I believe, which literally fused parts of the earth into glass.

Of course the next point I shall make is that we need to expand greatly our research into this area—something we have not yet done. Although we have participated at Geneva in conferences, on the one hand, and although we have received reports on the proposed inspection system, on the other, we have not yet taken the steps in the field of research which I believe are fundamental—namely, to increase our technical research, which is required in order to make it possible for us to arrive at some reasonably well safeguarded type of agreement. Certainly no Member of this body will vote for an agreement in regard to suspension of nuclear tests unless he believes we have done everything which modern science can enable us to do in order to protect ourselves from evasion on the part of the Soviets.

Mr. RUSSELL. I agree.

Of course, I hope our research in this area will be advanced. But, in the final analysis, I do not believe we can substitute any of these things for inspection.

Mr. HUMPHREY. Yes, we must have the right of inspection, including on-site inspection within the Soviet Union itself. Otherwise, the inspection system would be one in name only, and would actually be a travesty on the meaning of the word "inspection."

IMPORTANCE OF DETERRENCE

But there is a fourth aspect to this analysis, to my way of thinking one of the most important. We should apply the principle of deterrence to the control problem. We live by the concept of deterrence in our defense policies. We know that we cannot necessarily stop the Soviet Union from sneaking some missiles with nuclear warheads through our warning system to bomb our people and the people of nations allied with us. But we operate on the principle that if we have enough defense so that we can strike back, then the Soviets will be deterred from launching a surprise attack.

The same principle ought to apply in a control system. We must accept the fact that we cannot cover every little unidentified event in the Soviet Union to see whether it is an earthquake or a nuclear test. We can, however, demand the right to inspect a certain number of cases on the assumption that such inspections will constitute a spot check system of random sampling which will have a high probability of accuracy and which will deter a nation from thinking a few

sneak tests can be held without being caught.

At the present time there is no known perfect system for any arms control measure. There is a certain percentage of risk. But there is also a certain percentage of risk involved in doing nothing. If we let the present test ban talks die, then what do we think we can accomplish by starting new arms control discussions? If these test ban talks succeed, then new arms control discussions become imperative.

Today our own Government remains divided and hesitant. Our Government cannot make up its mind what proposal to offer on the inspection problem.

I want to state flatly that new data does not preclude a workable control system from being realized. The scientific problems that have been discovered during the course of the negotiations are not substantially or fundamentally different from those the scientists and the negotiators faced when the negotiations began. We knew then that we would never be able to explore for each and every unidentified earthquake. We knew then that in inspecting the site of an unidentified event it would be immensely difficult to determine whether it had been an earthquake or a nuclear explosion. We knew then that although our techniques of detecting and identifying tests would improve with increased research and knowledge we would also discover a larger number of natural phenomena with this newer and more sensitive equipment.

Nothing has changed since last October that justifies our giving up. The only justification for ending the talks at this point is the refusal of the Soviet Union to accept a reasonable number of inspections. I do not even think that the number ought to be so fixed that it cannot be altered from year to year. Numbers of earthquakes change and so should the number of inspections.

I do not claim that if we had a negotiating position on the inspection problem an agreement would follow. Perhaps the Soviets will insist that no more than a few inspections a year can be made. I do not think that would constitute a reasonable proposal. But if the conference negotiates and negotiates and concludes with a reasonable number of inspections, then I think that an agreement may be possible. The number of possible inspections we are discussing would be a number not subject to a veto. If the total inspections were used up and another inspection appeared necessary and if the Soviet Union vetoed it, then the agreement could be called off. It is my opinion we would seldom want to use the maximum number of inspections allowed us. But if and when we did, any use of the veto would be a warning signal at the least and the end of the agreement at the most.

LACK OF EFFORT ON RESEARCH

Added to the indecision of our Government on this issue is another astounding fact. We have said we need more research to perfect the control system as it is established. Yet, the executive branch has asked for no money for this from the Congress. We shall adjourn here in 3 or 4 weeks and the executive branch will not have funds to do the kind of a research program recommended by its own scientists and consultants. What is the answer to these questions? Why has the executive branch neglected asking for money? Why have many of the key recommendations of the Berkner report on seismic improvement, for example, been ignored?

I know for a fact that many of our technicians and scientists are eager to go to work to improve our knowledge about the problem of control.

But the executive branch, which still continues with the negotiations at Geneva, apparently says "No" to the request from the scientists for advanced research. Our executive officers act as if they would rather put money into almost anything else but the matter of arms control. The Congress, too, has been derelict in this matter. I have tried on three different appropriation bills to get money for this purpose. In fact, this morning I testified again for it. Each time the Congress has refused. There is one more opportunity, when we consider the mutual security appropriation, and I intend to try again. In fact, I advanced testimony this morning in the Appropriations Committee for that purpose.

How can this great Nation of ours maintain respect during the coming session of the United Nations General Assembly if we allow the negotiations for a cessation of nuclear weapons tests to collapse through any act or omission on

our part? With our record of bickering and indecision, how can we persuade the 79 members of the United Nations that are not nuclear powers that we tried to reach an agreement, but that the Soviet Union did not?

Mr. PROXMIRE. Mr. President, will the Senator yield?

Mr. HUMPHREY. I have one and a half pages remaining, and then I shall be through.

Mr. PROXMIRE. Very well.

CONCLUDING REMARKS

Mr. HUMPHREY. In conclusion, I wish to summarize my position on this great question of whether we should continue to seek a test ban agreement or whether nuclear tests should be resumed.

First. Nuclear weapons tests should not be resumed on the part of the United States unless the nuclear test ban negotiations collapse. I recognize that the military officers and AEC scientists want to start testing again, but the civilian authority of our Government and the overriding dictates of foreign policy and national security must be upheld.

Second. The United States must not allow the talks to collapse through a failure to achieve a reasonable negotiating position on the most important remaining issue in the negotiations—the number of on-site inspections. The number of inspections must not be the few suggested by the Soviets, and it need not be the 366 suggested by Mr. McCone of the AEC. And, in arriving at a reasonable position in the negotiations we must keep in mind that if the Soviets ever use the veto when the control organization wants to investigate a truly suspicious event, this within itself will be the warning signal that cheating may be going on. That is the warning signal which could mean the end of the agreement.

Third. The United States should seek the assistance of the United Nations in modernizing existing seismograph stations around the world. We should look to them for assistance in reaching a successful test ban agreement, an agreement, may I add, that eventually and in agreed-upon stages, must include other nations.

Fourth. The executive branch should immediately embark on a vastly expanded research program to improve our knowledge, methods, and equipment of control. The Berkner Panel on Seismic Improvement revealed extensive Soviet advances in seismological research. It also recommended several important programs, but the President, I regret to say, has asked for no funds from the Congress for any of them.

I want to urge my colleagues in the Senate and my fellow Americans everywhere to ask themselves these questions: Do we want to be responsible for terminating the test ban talks before we have determined whether the Soviets will accept adequate controls? Do we really think our defense demands resuming tests the moment the gong strikes on November 1? Do we want to face the prospect that the arms race cannot be held back?

I think every Member of this body would answer these questions in the negative. Let us hope and pray that the President will have the wisdom and the courage to pursue the right course.

Mr. President, I ask unanimous consent that at this point in the RECORD there be printed an editorial which appeared in the Washington Post and Times Herald, entitled "More Test Pressure."

There being no objection, the editorial was ordered to be printed in the RECORD, as follows:

MORE TEST PRESSURE

Defense Secretary McElroy has joined in the pressure for renewed nuclear weapon testing that has been building up in the Pentagon and Atomic Energy Commission. Unless there is a test ban agreement with the Soviet Union by October 31, he says, he will ask for authority to resume nuclear tests.

Perhaps this and similar statements by others are designed in part as a psychological lever to induce Soviet acceptance of an adequate inspection system. More likely, however, they derive from the sincere conviction of some persons that new tests are essential to perfect additional nuclear weapons, particularly several for limited war defense. Some persons also quite honestly feel that any suspension agreement would be unenforcible and hence a mistake.

The merit of these beliefs cannot be challenged with any certainty. What is missing for public understanding, however, is any cogent official explanation of the other side of the argument. What are the paramount national security and international political advantages of an overall test ban, which is still the stated aim of American policy? What are the sticking points in the nuclear negotiations at Geneva? What has this country conceded? How far has the Soviet Union gone to satisfy American objections?

It may be that, in the absence of any enforcible agreement, the time will come when a resumption of testing will appear only prudent. The nuclear agreements with this country's allies recently approved by Congress imply resignation to the conclusion that security will be better advanced by the sharing of information and nuclear technology than by secrecy and suppression. We share this conclusion, somewhat reluctantly, as the only presently realistic defense against nuclear blackmail.

But there is another point that also needs to be considered very seriously in any discussion of nuclear test resumption if an agreement proves impossible. Underground tests presumably would not create much if any new fallout hazard. Chairman Anderson of the Joint Committee on Atomic Energy hints, however, that some aboveground tests also might be conducted.

The ultimate health effect of the fallout already in the atmosphere is not and cannot yet be known. Almost every new appraisal points either to increased potential danger or to reduce tolerance of strontium 90, cesium, carbon 14 and the other fission products which descend as fallout. Indeed, the dangers in slipshod disposal of atomic wastes from peaceful applications of nuclear energy are still inadequately appreciated. No one really knows, despite the frequent sunny assurances, whether there will be general genetic or other damage from past tests and applications.

In such circumstances it would be almost contemptuous of human welfare to authorize new fallout-producing tests, and the mere mention of the idea is alarming. Here, as on the whole case for continued effort to obtain a reliable test suspension, more facts from the administration are urgently needed.

Mr. HUMPHREY. Mr. President, this editorial points out the pressure that is being exerted now from the AEC and the Pentagon for the resumption of tests, and asks, of course quite properly, that this matter be considered in light of our foreign policy objectives and that the civilian authority of our Government assert its leadership in this matter.

I also ask unanimous consent that an article in the New York Times of Thursday, August 6, entitled "Senator Sees United States Resuming A-Tests—Anderson Predicts Action Will Come in October as Year Moratorium Ends," be printed in the RECORD at this point in my remarks.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

SENATOR SEES UNITED STATES RESUMING ATOM TESTS—ANDERSON PREDICTS ACTION WILL COME IN OCTOBER AS YEAR MORATORIUM ENDS

(By Harold M. Schmeck, Jr.)

Senator CLINTON P. ANDERSON, chairman of the Joint Congressional Committee on Atomic Energy, predicted last night that the United States would resume testing atomic weapons after October 31.

He said other nations could be expected to follow suit.

The date marks the expiration of a year-long moratorium on atom-bomb testing announced by President Eisenhower in the summer of 1958.

Senator ANDERSON made his prediction in a speech at a meeting of the General Council of District 65 of the Retail, Wholesale and Department Store Union.

He predicted that the United States would confine its tests largely to underground and outer-space shots in an effort to minimize fallout, but he declared that "no one should be surprised if testing within the atmosphere is continued on a limited scale."

In Washington administration officials said yesterday that no decision had been reached yet on the testing.

DISCUSSION INTO OPEN

An effect of the Senator's prediction, it was indicated in Washington, was the bringing into the open of discussions on the subject that had been going on within the administration and with the British Government.

Senator ANDERSON had indicated in Washington that his prediction was not based on any official information but largely on the lack of progress of talks in Geneva on an atom test ban.

The talks began there last October 31, coinciding with the start of the West's self-imposed year-long ban.

In his speech last night the Senator said that results of the conference seemed to indicate that detection and inspection systems acceptable to all three nations directly involved would not be possible.

Present techniques are not sufficiently sophisticated to assure identification of all nuclear explosions, particularly those underground, he said.

"Most important," Senator ANDERSON said, "I am not sure that the Government of either the United States or Russia really wants to cease nuclear testing."

He said many U.S. scientists and defense officials believed that testing was the only foolproof method of developing the weapons needed to assure an adequate defense system.

"I am not trying to say whether this is good or bad," the Senator said.

Mr. HUMPHREY. Mr. President, I also ask unanimous consent that the Washington Post article of Sunday, Au-

gust 9, 1959, entitled "New Tests Scheduled in Detection of Blasts," written by Joseph L. Myler, of the United Press International, be printed in the RECORD at this point in my remarks.

There being no objection, the article was ordered to be printed in the RECORD, as follows:

NEW TESTS SCHEDULED IN DETECTION OF BLASTS

(By Joseph L. Myler)

American earthquake experts hope to begin tests in February or March of improved methods for detecting underground nuclear explosions.

Eventually they expect to check various parts of the new system with both high-explosive and atomic blasts.

This was disclosed yesterday in connection with a report by the Coast and Geodetic Survey on research "directed toward developing an effective solution to the problem of nuclear test detection."

Many scientists, the report said, believe "that within a few years it may be possible to develop a reliable seismological method of detecting and identifying nuclear explosions at considerable distances."

KEY TO NEGOTIATIONS

On this possibility depends in part the success of East-West negotiations for an international ban on nuclear weapons tests in the future.

Nobody could cheat on such an agreement with surface or air bursts of test weapons. Airborne radioactivity would give them away. But the possibility exists that a nation might violate the ban by staging test explosions underground.

The only way to detect such explosions at a distance would be by the so-called seismic earth waves they generate. Such waves are different for explosions and earthquakes, but it is difficult to detect the difference when the energy involved is less than that of 20,000 tons of TNT.

Last summer a panel of East-West experts said 180 seismographic stations around the world could do a good job of detecting man-made earth shocks down to around 5,000 tons of TNT.

But later experience with underground blasts in Nevada in 1958 showed that detection of nuclear explosions was much more difficult than previously supposed.

For one thing, so-called background noises—the surface waves always rolling through the earth's crust—caused interference comparable to radio static.

In June a panel of U.S. scientists led by Lloyd V. Berkner of the associated universities reported that this difficulty could be greatly increased by intentional efforts to muffle waves from underground shots.

The Berkner group said, however, that the 180-station plan might be made more effective by setting up arrays of 100 seismic instruments each to filter out background interference. It also suggested use of wave-measuring instruments in holes, many thousands of feet deep, where interference would be reduced.

The Coast and Geodetic Survey said in yesterday's report that it already has done research indicating the effectiveness of the array and deep-hole systems.

It proposed 100-instrument arrays which would feed data into a central station where electronic devices automatically would weed out background noise.

Dean S. Carder, the Survey's chief seismologist, told United Press International such an array could reduce background interference at least 10 times, and perhaps 100 times.

Deep-hole instruments, he said, would be similarly effective, though probably much more costly than the array system.

Carder said the survey hopes to have an array system ready for preliminary tests in February or March. Eventually, he said, such a system will have to be checked against actual explosions to determine their effectiveness. Deep-hole tests would come later.

Such tests also could be used to get further information about intentional muffling and how to counteract it.

FIVE YEARS SEEN NEEDED

The Berkner group said the new system could be made effective in 5 years, given enough research and development.

Like other seismologists, however, Carder emphasized that wave analysis can only do a screening job. Suspect small shocks, he said, will always have to be verified by other means.

This means inspection on the site. The Russians so far have refused to agree to any inspection system which the West considers adequate.

Mr. HUMPHREY. Mr. President, this particular article relates to the program of our scientists to begin tests in February or March of improving methods of detecting underground nuclear explosions. The theme of the column is based upon the Berkner report recommendations for the improvement of our seismographic instrumentation as a means of improving the control system.

Mr. President, I ask unanimous consent to have printed at the conclusion of my remarks an editorial entitled "Test Talks," from the Manchester Guardian Weekly.

The PRESIDING OFFICER. Without objection, it is so ordered.

(See exhibit 1.)

Mr. HUMPHREY. Mr. President, the editor of the Manchester Guardian states the case, as I see it, very succinctly. He says:

Unless there are overwhelming military reasons—and it is hard to believe that there are—the suspension of tests ought to continue. To end it would be hurtful both in diplomacy and in public health. During the past 9 months of negotiations, progress has not been insignificant. Both sides have accepted the principle of a quota of veto-free inspections of unexplained phenomena, although there is no agreement so far on their number. On the staffing of control posts, the Russians have recently moved a little closer to the Western proposal that in each country these staffs must be composed predominantly of nonnationals of that country. At no stage have the Russians been asked to accept controls which the Western powers would not accept for themselves. Moreover, the Russians, like the West, must wish to limit the number of nuclear powers, and they know that an agreed and controlled ban on tests may turn out to be one of the ways of doing it.

This editorial summarizes in the main some of the points I have attempted to make today. Primarily, the continuation of these negotiations, so long as there is a hope for some constructive agreement, is in the best interests of the United States and of the free world. Surely we should not have upon our hands and upon our conscience the responsibility for concluding these negotiations when there is still an opportunity and still a chance that they may be successful.

I think this is particularly pertinent in the light of the impending visit of the Soviet Premier, Mr. Khrushchev. I want our President to be able to discuss with Mr. Khrushchev matters such as nuclear test suspension with clean hands, in the full knowledge that our Government seeks an honorable agreement and seeks to have inspection and control which is effective, reasonable, and modern, to advance continuously in terms of technical competence. I believe this can be done.

EXHIBIT I

TEST TALKS

Just when Mr. Khrushchev says he does not want to pay his visit to the United States with his rocket showing out of his pocket, some Americans want to jingle theirs. Senator ANDERSON has tried to ginger up the Geneva test talks with his statement that America should start testing nuclear weapons again if there is no agreement by the end of October. By then the year of test suspension by the three Powers will have run out. Although the Senator is chairman of the Joint Atomic Energy Committee of Congress, he was simply expressing his personal view—being impatient, like the rest of us, to see more progress toward agreement. But as a warning to the Russians it cannot be convincing. They know that Britain is unlikely to resume tests in a hurry, even if a Conservative majority is returned at the elections, and certainly not if Labour comes in. While that need not hinder the Americans from going ahead, they might be reluctant to incur the odium of being the first to resume tests. They know that the whole question of ending tests is being debated before a world audience, and, however careful they are in keeping radiation to a minimum, they cannot wish to present the Russians with an opportunity to point scornful fingers at them. (The State Department, at any rate, cannot wish it; the Defense Department may have other priorities.) The Russians, for their part, always try to create the impression that they are eager to get an agreed ban. They talk about wanting actions, not words, and they raise their obstacles chiefly in the conference room when the talks get down to control arrangements. These details, they seem to think, are too complicated and boring to be of much interest to the public outside. They hope that Asians and Africans will therefore conclude that the Russians are prepared to end tests, while the West is not. Senator ANDERSON'S warning can be turned to fit in with this concept. So can the statement by the American Secretary of Defense that it would be desirable to resume the testing of weapons.

Russian military leaders may share Mr. McElroy's view, but they are careful not to say so. They are content to leave the Americans with the apparent responsibility for ending the moratorium. (Mr. Khrushchev on Monday offered a most solemn pledge that Russia would not be the first to resume tests.) Yet it is improbable that the West has a greater need to resume tests than the Russians (if, indeed, there is any real need on either side). For the West to show impatience is neither good politics nor good tactics. True, while the talks continue the Russians get their ban without any control. But there has been no suggestion of secret Russian tests, and these will become more difficult to arrange as the means of detection develop. Why, then, should anyone break the nuclear silence? Unless there are overwhelming military reasons—and it is hard to believe that there are—the suspension of tests ought to continue. To end it would be hurtful both in diplomacy and in public health. During the past 9 months of negotiations progress has not been insignificant. Both sides have accepted the principle of a quota of veto-free inspections of unexplained phenomena, although there is no agreement so far on their number. On the staffing of control posts, the Russians have recently moved a little closer to the Western proposal that in each country these staffs must be composed predominantly of non-

nationals of that country. At no stage have the Russians been asked to accept controls which the Western Powers would not accept for themselves. Moreover, the Russians, like the West, must wish to limit the number of nuclear powers, and they know that an agreed and controlled ban on tests may turn out to be one of the ways of doing it. Although newcomers such as China and France may not hesitate to blow off bombs while they are not themselves parties to an agreement suspending tests, eventually they may adhere to a general agreement. And, while the Americans may intend to take great care not to pollute the atmosphere further through any tests they undertake, others without the ability to send explosives into outer space may be less successful in diminishing the hazards to health. More tests almost certainly mean more radiation.

Several Senators addressed the Chair.

Mr. HUMPHREY. I yield to the Senator from Wisconsin.

SURVIVAL OF MANKIND

Mr. PROXMIRE. Mr. President, I enthusiastically congratulate the Senator from Minnesota for an extremely timely, important, and significant speech. It is about time a U.S. Senator made this kind of speech. I realize the Senator from Minnesota has been informing the Senate from time to time on this particular issue.

I can think of nothing more important than the survival of mankind, and that is what the Senator is talking about.

I should like to ask the Senator about a statement on page 6 of his prepared text, in which he talks about the need for seismological research. I ask the Senator how much money has been appropriated by Congress in the last 3 or 4 years for this purpose.

Mr. HUMPHREY. I will have to look into the record to determine that, but I believe it is about a million dollars.

Mr. PROXMIRE. How much of a program does the Senator from Minnesota believe is necessary? If the Berkner recommendations were carried out, how much would the cost be?

Mr. HUMPHREY. Let me point out that in the Berkner panel study it was revealed, even though there was very little public attention to the fact, that the Soviet Union was expending about 10 times as much on certain aspects of seismological research as we are expending, in the Government of the United States. I surely feel that a substantial increase is required.

I do not want to profess to have the intimate knowledge which is necessary for a definitive statement as to the exact amount of dollars needed. All I can say is that there are a number of scientists of great competence and fine background who have been urging that greater effort be made in terms of improving our seismographic stations and in terms of updating the equipment. The tragedy of the situation is that much of the equipment is outdated. Much of it could be improved so that it would give a great deal more sensitivity, and thereby we would be able to give to the United States a much greater degree of assurance of no evasion and no cheating on a testing system.

Furthermore there is a need for research in what I call the unmanned seismographic stations, where we can collate information from a number of unmanned stations which are strictly mechanical, instrumented stations. The facts and information can be collated at a central station which can be manned and staffed. This is a research problem in itself. Something can be done about it with adequate funds for the research required.

Mr. PROXMIRE. The Senator is talking about two things. He is talking about adequate seismological research, so that we can be in a position to protect ourselves, and to make our inspections more effective and efficient; and the Senator is also talking about adequate research, so that we can give ourselves and our prospective opponents the kind of confidence which is necessary in an inspection system, to indeed work to prevent the terrible impact on human lives of fallout from testing.

Mr. HUMPHREY. Exactly. The Senator has summarized it well.

Mr. PROXMIRE. The Senator is also interested in lessening the prospect of nuclear war. However little we may lessen it, we can lessen to some extent the prospect of nuclear war.

Mr. HUMPHREY. The Senator is correct.

Mr. PROXMIRE. The Senator has said that we have spent about a million dollars for this in the past.

A MODEST SUM

Mr. HUMPHREY. This is roughly correct. We have spent a modest sum.

Mr. PROXMIRE. The Senator is talking about not more than a few million dollars for this kind of research, to save literally millions and millions of lives, as compared to the expenditure of tens of billions of dollars on weapons of destruction, is that not correct?

Mr. HUMPHREY. That is correct.

I will say to the Senator that I have been asking for an additional $500,000 for technical studies in the field of disarmament. I have been trying to get $500,000, when we have a $39 billion defense program, and that effort has been rejected. It has been said that we did not have quite enough information as to what we would do with the $500,000.

Mr. President, it is not sound policy to engage in the political aspects of disarmament unless one is reasonably well informed and fortified on the technical aspect of disarmament. In other words, I do not want to see our country pressing forward politically, on the political agreement aspect of disarmament, unless we are sure what we are doing can be safeguarded so that our national security will be safeguarded from a technical point of view.

Mr. PROXMIRE. Let me simply say, in conclusion, if we would spend something like one-tenth of 1 percent, or perhaps less than one-tenth of 1 percent of our defense budget for this kind of research, which can save lives and which can do so much to provide an effective inspection system, to preserve our country's defense, we could make real progress.

Mr. HUMPHREY. I have some of the figures which were made available by the Berkner Panel of the President's Science Advisory Committee on the matter of the system development which would be required for an effective seismological inspection program. It appears to be in the sum of $22,825,000. That is the amount which would be required. That is a small price to pay, I will say, for a safeguarded inspection program, for some possibility of reducing the terrible tensions which beset the world today, and for impeding or slowing down the arms race.

Mr. PROXMIRE. That would mean we would be spending $1 for this purpose for every $1,400 or so we are spending in our defense budget. I am not stating that our defense budget is not essential, for indeed it is. However, I am saying this research to make inspection feasible is a constructive way to preserve life and to defend our country, for a very, very modest sum—in fact, in comparison it is an insignificant cost.

Mr. HUMPHREY. The Senator is surely correct. I would encourage every Member of the Senate who is interested in this subject to read the very fine report released on the date of June 12 by the State Department, giving the more important portions of the Berkner Panel report to the American people.

Mr. HUMPHREY subsequently said: Mr. President, I ask unanimous consent, in connection with the discussion with the Senator from Wisconsin [Mr. PROXMIRE], relating to the costs of research, to have printed in the RECORD pertinent paragraphs from the Berkner report, beginning on page 13, with section 6, and continuing through pages 14, 15, and 16.

There being no objection, the excerpt was ordered to be printed in the RECORD, as follows:

6. THE NEW LEVEL OF SEISMOLOGICAL RESEARCH: A DISCUSSION OF ITS ADMINISTRATION, ITS BUDGET AND ITS IMPLICATIONS

A seismological research program of the magnitude discussed in this report must draw upon the facilities of the universities, the Government and industry for implementation. It is anticipated that many groups will submit proposals under the new program of support. Some mechanism must be established for collating, evaluating and following the projects. It is recommended that an advisory panel be established, perhaps through the National Academy of Sciences, to perform these functions. The panel has demonstrated how effectively a group drawn from research seismologists, physicists, mathematicians and engineers can function in advancing seismological research and it is recommended that the advisory panel be similarly constituted.

It is strongly recommended that this program be viewed as a "package," one centrally funded and directed, in order to derive the fullest benefits.

In addition to projects definable as research, there is clearly a need to initiate immediately activity that may be described as "system development." Such activity would include planning in detail the complete worldwide seismic detection system. In its first phase of implementation, the system will probably resemble closely that envisaged in the Geneva proposal (since it will not likely be possible to develop anything more sophisticated in the time available). But planning must extend to later phases, in which improvements coming from results of research will be incorporated, because these improvements must be anticipated as much as possible to permit their orderly implementation into the then existing system.

"System development" will include development of new equipment, such as improved seismometers, and data processing and transmission apparatus, described earlier in this report. It will also include the field trials, mentioned earlier, of significant elements of the detection system as well as the planning of the operational procedures. As the system plan is established (and approved by the appropriate government agency), implementation must be programed and executed with due consideration of funding limitations, manufacturing capabilities, logistical problems, and international agreements.

The panel believes that the research program can best be carried out by various existing private, university, and Government laboratories, coordinated by a panel of scientists, possibly under the aegis of the National Academy of Sciences. In contrast to this arrangement for research, the panel recommends that the "system development" responsibility be assigned to a single well-organized central laboratory. Such a laboratory should have competence not only in seismology, but also in development, engineering, and large system operation. The laboratory would likely subcontract with private industry for much, or perhaps all, of the specific hardware development and procurement. However, it is essential that the laboratory have full responsibility for the planning of the system (including its orderly metamorphosis with time), for field trials, for implementation, and possibly for the American portion of its operation.

Tentative cost estimates are given below for the first 2 years of a program which will continue thereafter at least at the levels indicated. The estimates are divided among three categories: (a) Research, (b) system development, and (c) nuclear and HE detonations.

[Thousands of dollars]

	1st year	2d year
Individual research projects:		
Equipping of selected stations with modern seismic equipment	1,250	1,000
Study of shear waves	225	170
Identification from aftershocks	100	100
Long-period surface and body waves	1,000	1,000
Geophysical investigation of crustal structure	1,000	4,000
Equalization experiments	300	1,000
Model studies	100	100
Noise studies and development of standards	150	150
Large arrays	500	1,000
Deep hole detection	500	500
Deep ocean seismograph	400	400
Research computing facilities	750	750
Library of digitized seismograms	50	100
Theoretical studies of explosion sources	100	100
Other	150	150
Subtotal	6,575	10,520

[Thousands of dollars]

	1st year	2d year
System development:		
Unattended seismic stations	750	1,250
Improved seismographs	300	300
Portable or "throw-away" seismographs	200	230
Automatic data processing	1,000	1,700
System planning and field trials	2,000	4,000
Implementation of detection system	(1)	(1)
Subtotal	4,250	7,480
Nuclear and HE detonations	12,000	12,000
Total, not including implementation	22,825	30,000

[1] Not estimated.

The items in the research budget are not meant to be all inclusive. Although they represent aspects of seismological research which are pertinent to the detection problem, each project can be justified on the basis of significance to fundamental seismological research. On the other hand, the appendixes are not meant to define specific programs in detail but rather to outline broadly needed research areas.

The panel submits this program of research as a means of realizing the optimum contribution to seismology to the detection problem. In so doing it also recognizes that this program will result in dramatic advances in our knowledge of the earth's interior, of the mechanism of earthquakes, and of elastic wave propagation. Now that seismographic stations are being planned for placement on other planets, seismological research will bear on new questions relating to the origin of the solar system. Seismology is a fundamental tool, providing data to geologists, geochemists, geophysicists, astronomers, engineers, petroleum prospectors and underwater accousticians, etc., and rapid developments in these fields can be expected from this program.

It is the opinion of the panel that the research studies described in this document will certainly improve detection capabilities of underground nuclear detonations. However, the improvements are not likely to be evaluated adequately for proper assessment of value in a detection system before 1 year of research activity at best. Most of them will undoubtedly require more time, perhaps 3 years. Thus, it is important to conceive of the detection system as one which will gradually evolve with time and reach a high level of detection capability only after several years.

Mr. HUMPHREY. This particular material gives the actual statistical data about which the Senator from Wisconsin sought information, and also the recommendations of the Berkner Panel relating to improved research in the field of seismology.

Mr. CLARK. Mr. President, will the Senator yield for a few questions?

Mr. HUMPHREY. I yield to the Senator from Pennsylvania.

Mr. CLARK. I wish to commend the Senator for the fine speech he has made. I did not hear all of it, but I have had an opportunity to glance through most of the text.

I should like to ask my good friend whether he could not buttress his desire to have these negotiations continue, almost without any thought of terminating them until we explore to the fullest our position on each of these critical points, and certainly until after the President has had an opportunity to have conversations with Mr. Khrushchev, both here and in Russia, to see if there is not some prospect of reaching an agreement.

Mr. HUMPHREY. I concur with the Senator in that observation. It seems to me, from all we have been able to ascertain thus far, that our security would in no way be prejudiced by the continuation of the suspension of nuclear tests. I say this because the experts in our Government, both military and scientific, have told us in the Congress that we are ahead of the Soviets in nuclear research, that we are ahead of the Soviets in nuclear weaponry, and that we are ahead of the Soviets in tactical strategic weapons. If that is the case, it is surely not to our disadvantage to continue a cessation of nuclear testing, because it is only through nuclear testing that the technological gap can be filled by the Soviet Union. Every time there is new testing the Soviets come that much closer to our position of strength. So relatively speaking, testing has been advantageous to the Soviet Union.

This is not the testimony of Senator HUMPHREY. It is the testimony of experts before our committee, who have testified that, had we been able to obtain a test-ban agreement 2 years ago, we would have been so far ahead of the Soviet Union in atomic and nuclear weapons that there would have been no hope of their ever catching up. In other words, time has been on the side of the Soviets when that time has been used for testing.

To be sure, we improve our weaponry. Testing is advantageous to our military; but the relative benefit has been to the Soviets thus far. That is a matter of testimony before congressional committees.

Mr. CLARK. The Senator would agree, would he not, in view of what he has just said, that this is no time to break off the negotiations in Geneva?

Mr. HUMPHREY. I surely feel that to break off negotiations at this time would not be in the national interest or in the interest of world peace.

Mr. CLARK. As I understood the Senator's comments, he indicated that there is a critical point in those negotiations at which the United States has no agreed or announced position.

Mr. HUMPHREY. That is correct. We have been ambivalent, indecisive, and, in fact, in conflict in our Government over the so-called on-site inspection program.

Mr. CLARK. The Senator is a distinguished member of the Committee on Foreign Relations; and I hazard the guess that he would agree with me—he will tell me if he does not—that one of the most unfortunate things the State Department did during the tenure of office of the late Secretary of State was to downgrade the policy planning staff, so that position papers on matters of great importance, on questions which might confront the United States at any moment, were not being prepared by thoroughly qualified individuals. Does the Senator care to comment on that statement?

Mr. HUMPHREY. It is my feeling that the Senator's statement is correct. I recall discussions in the Senate Committee on Foreign Relations, in which members of the committee expressed their distress and unhappiness over the downgrading of the Policy Planning Division of the State Department.

Mr. CLARK. It is my understanding that the Foreign Relations Committee has at least informally called the attention of Mr. Herter to this situation, and urged him to reinstate the policy planning staff at the level it had during the Truman administration, with a top level chairman who would be able to assemble an able staff to make these very important studies. Is my information correct?

POLICY PLANNING STAFF

Mr. HUMPHREY. It has been the recommendation of individual members of the committee. As to whether or not it is a concerted committee policy, I

cannot recall. However, I know that members, including the chairman of the committee—and he can speak for himself better than anyone else can speak for him—have stated that the policy planning staff should take on the stature and position it once had, in preparing expert position papers, removed from the political considerations of the moment, so as to give the Secretary and the President the best possible advice on these crucial matters.

Mr. CLARK. Does the Senator agree with me with respect to a matter which is not identical, but closely allied with what we have been discussing, namely, that it would be constructive if a reconstituted, high level policy planning staff in the State Department were to begin at the earliest possible moment a series of high level studies to determine the possibility of achieving world peace through enforcible world law, and through an appropriate modification of the charter of the United Nations, which, in all probability, would take into account the whole matter of nuclear testing?

Mr. HUMPHREY. I enthusiastically agree with that position. It seems to me that this is exactly what the policy planning staff should be engaged in. I want to see the United States known not only for its military and economic strength, but as a pioneer in seeking the road to peace—a peace that it is not appeasement, a peace based upon the principles of justice; a peace that can be sustained through enforcible world law.

Mr. CLARK. The Senator from Minnesota is a distinguished cosponsor of Senate Concurrent Resolution 52, which calls upon the President to make such studies, looking to the achievement of world peace through enforcible world law, and through an appropriate modification of the Charter of the United Nations to be proposed at a charter revision conference. I know that I can rely on his support in endeavoring to bring this matter to the favorable attention of Secretary of State Herter, who, as I understand, has not yet had an opportunity to consider it. Does the Senator think it would be a constructive move to talk with Secretary Herter and see if we could not persuade him to have such studies started?

Mr. HUMPHREY. I think it would be a constructive move. The Senator has pointed out that the proposal embodies a program of studies. The proposal is not a dogma or doctrine, declaring, "This will be done this way." Rather, it is an effort to seek and obtain an objective study as to how we could best present to the United Nations proposals for the revision of the charter, so as to give the United Nations authority in certain areas of conflict between nations, to operate within what we call enforceable law.

Mr. CLARK. I see in the Chamber the distinguished senior Senator from New York [Mr. JAVITS], who is also a cosponsor of Senate Concurrent Resolution 52. I invite his attention to the comments I am about to make.

Last week I had the privilege of calling on Charles Coolidge, the newly appointed Assistant to the President in Charge of Disarmament. I had hoped that the senior Senator from New York [Mr. JAVITS] would be able to accompany me on that visit, but he was detained by another engagement. He has assured me that he is in accord with the views which Representative PORTER, of Oregon, Representative SCHWENGEL, of Iowa, and I presented to Mr. Coolidge, and that the Senator from New York would buttress those recommendations in a separate talk which he would expect to have with Mr. Coolidge.

At that meeting, we urged Mr. Coolidge to urge the State Department to begin these studies through a reconstituted high level policy planning staff in the State Department, looking to the preparation of position papers on the question of world peace through enforceable world law. The Senator from New York is as much interested in that subject as I am, and he may wish to comment briefly.

Mr. HUMPHREY. I yield to the Senator from New York.

Mr. JAVITS. Mr. President, I agree with my colleague from Pennsylvania. I have already taken up this question, and I shall do so again. I think it is extremely important.

I have one suggestion to make to the Senator from Minnesota with regard to his speech. I hope the Senator will give me his attention.

The Senator knows that I have a deep affection for him. I do not wish to become involved in criticisms of the administration, either pro or con. I would rather keep my eye on the ball and express what I think is the proper gratitude of the Senate to the Senator from Minnesota for keeping our feet to the fire on this question of an effort to cease nuclear testing, which is tied directly to disarmament.

If you do not test, then you are not going to develop new nuclear weapons. Nobody realizes the danger from this better than the Senator from Minnesota. If somebody else is testing and we are not, the fact is that nuclear extinction can come either way. It can come from a nuclear war, or it can come from others having such a long lead that they may blackmail us—that we may have to choose between being extinguished and becoming slaves.

That is the big issue the American people face.

I have a practical suggestion for the Senator. As I said, I do not wish to get into this business of criticizing the administration because I think that is beside the point.

The Senator set an excellent precedent in asking the President for an explanation of these particular arrangements with Turkey and West Germany, with respect to the nonnuclear aspects of nuclear weapons technology. I join the Senator on that. I also wrote the President asking for a high level pronouncement that this arrangement would not complicate the future of disarmament negotiations.

Can the same method be pursued in trying to get a definitive administration position on this subject directly from the President?

When we lawyers look at something when it is not reasonable, we suspect there is another reason for it, for a flat position, like that which the Senator cites at page 7 of his excellent speech, in which he says, "But the executive branch says no."

That is, it seems strange to me that the executive branch says no to the proposition for the kind of experimentation for controls to which the Senator refers.

So, would it be a good suggestion to ask the President about it directly, to get a specific and definitive statement of policy from him on that particular subject?

Mr. HUMPHREY. May I just correct the Senator's observation?

Mr. JAVITS. Yes, please.

Mr. HUMPHREY. I know that perhaps I did not explain my position adequately or accurately.

What I was talking about was the position of the executive branch, the Bureau of the Budget, in reference to additional funds for seismographic research, not on the matter of developing a control system, because, first of all, I said early in the speech that the policy of the President and the State Department was the policy of the continuation of seeking an agreement to prohibit further nuclear weapons tests. This was the policy of the late Secretary of State, Mr. Dulles. It is the policy of the present Secretary of State, Mr. Herter, and it is the policy of President Eisenhower. This policy I applaud. This policy I approve. This policy I commend. But I must say with equal candor that there has been a rash of rumors and statements coming out of the Atomic Energy Commission and the Department of Defense which seeks to blur what should be the clear-cut image of the United States in reference to seeking an agreement on the test ban prohibition.

AEC AND PENTAGON TO STAY IN HARNESS

I have said, and I think with due consideration, that the AEC does have a responsibility for weapons, that the Department of Defense of course has a responsibility, the responsibility for our defense and our security. But over and above all of this is the overall power of the President, under the Constitution, to be our spokesman in the field of foreign relations and foreign affairs. When a policy statement is laid down by the President to the State Department as his agent in coordinating foreign policy matters, it is then the responsibility and the duty of the AEC and the Pentagon to stay in harness, and if they have disagreement, have that disagreement within and in the circle of the administration, rather—and I say this very advisedly—than having some authorized junior officers, and sometimes some authorized senior officers, leaking stories to newspapers, to columnists, making statements which lend themselves to the belief that an agreement cannot be obtained, and that if one were obtained, it would jeopardize the security of the country; and finally that tests ought to be continued.

I desire to give the President, may I say, an expression on the part of one Senator, reasserting again, if need be, his unqualified right of leadership in this matter.

Mr. JAVITS. I applaud the Senator's statement on that; I like it, and I think it is very helpful. I suggest these two things. In the matter of seismological research, if the President be appealed to for a precise statement, I think it would help us quite a bit on the floor of the Senate.

Mr. HUMPHREY. I shall be very happy to join the Senator in that.

Mr. JAVITS. I will be glad to do it. The second proposition is, perhaps the Senator could set up all views on two sides of a paper, as we do in these committees, arguments as to why there should not be an appropriation on one side, and on the opposite side arguments of the Atomic Energy Commission and others why there should not be. Then we will not have Senators coming to the floor in the final analysis saying, "Well, you are popping this on us very suddenly. We really do not know anything about it."

In short, before it ever reaches the floor, let us set forth the points on a major issue with the arguments on both sides so that the Senators can be fully informed, and not feel that this is a new thing which has just been popped out of the air. They would then have a major policy statement, with the arguments set forth on both sides, and they can then use that.

Mr. HUMPHREY. I thank the Senator for a very constructive suggestion, and it shall be my purpose, at the time when the appropriation items are before us, to have a factual statement as to the actual amount of funds being expended for research in the seismographic area, the amount I deem to be needed in light of the recommendations of scientists and experts, and try to present a case that is worthy of the attention of the Senate.

Mr. JAVITS. But give us other arguments, too, arguments for, and arguments against.

Mr. CLARK. Mr. President, the Senator has been very patient, but I would ask him if he would indulge me in one more very brief question.

The Senator has pointed out most ably the need for additional seismographic research in order to enable us properly to negotiate with the Russians on the question of elimination of nuclear tests through an appropriate system of inspection.

A little while ago the distinguished junior Senator from Washington took the floor to point out the need for substantial additional research in the field of oceanography, bringing up to date our knowledge and our obsolete and defective equipment in that regard. I suspect that there are a number of other fields where a little seed money would go a long way not only for assisting in the safety of the United States and other countries, but in promoting important scientific research.

I want to ask the Senator if he will comment on the statement I have seen so often coming out of the Bureau of the Budget and other administration agencies, to the effect that, oh, there is a limit on what one can spend for research. We have got more than enough money now for all the research that needs to be done.

It would occur to me that a little more selectivity in determining where research should be engaged in would be a wise policy for this administration to follow, and I wonder if the Senator from Minnesota would agree with that comment.

Mr. HUMPHREY. I do. I am sure there is a limit to how much money can be effectively and productively expended for research at any one time. In other words, it is possible to get a sort of glut of funds over and beyond the capacity of the system to utilize them, but we are not in any such danger in either the field of oceanography or the field of seismology.

In fact, 3 years ago, at the time the distinguished Senator from Florida [Mr. HOLLAND] was handling the appropriation item for the Coast and Geodetic Survey, in the Department of Commerce, the Senator from Minnesota brought to the attention of the Senate, in colloquy with the Senator from Florida, the sorry lack in the funds for oceanographic research, and it was brought to my attention by an article I had read some weeks prior to that about the tremendous amount of research and activity on the part of the Soviet Union in oceanography. They are conducting surveys, on the one hand, with a vast fleet of submarines, probing all over the areas of the world with these submarines. On the other hand, they were spending vast sums of money in studying the currents, the floor of the ocean, the currents of the ocean; in other words, oceanography.

Here we were actually with a 19th century apparatus in the field of oceanography. I feel that it might have been because the Senator from Minnesota pressed his point that day, and because a very receptive U.S. Senator saw the need of further exploration in the area of oceanography, that it was possible to get some new information and to get new research underway. As I recall, both the Navy and the Coast and Geodetic Survey within a week had men at my office stating their needs and saying they had been denied funds by the Bureau of the Budget. They needed funds but could not get them.

The same I believe to be true in the field of seismological instruments and seismological research.

Mr. CLARK. I thank the Senator from Minnesota for his comments. I observe in the Chamber the distinguished junior Senator from Missouri [Mr. SYMINGTON]. I am sure he will agree with me that not only in these two fields, but also in the field of missile development and the field of the modernization of our Armed Forces, to enable them to fight a brush war more effectively, it is certainly not tenable to say there is only a certain amount of money which can be spent. We must meet the needs.

Mr. SYMINGTON. I agree with the distinguished senior Senator from Pennsylvania.

○

File 0001454 Article

GENEVA TEST BAN NEGOTIATIONS

Mr. President:

The subject of my remarks today is the conference of the U. S., the U. K., and the U. S. S. R. that has been going on in Geneva for a controlled cessation of nuclear weapons tests. My purpose in speaking is to voice a grave concern that through indecision and internal differences our Government may contribute to the breakdown of these negotiations at this particular time.

The Geneva test ban negotiations have been going on for almost ten months. This amount of time is not unusual in terms of average time taken in negotiating with the Soviet Union. What is unusual is the fact that of the remaining undecided issues only one (the number of on-site inspections) really stands in the way of an agreement among the three nuclear powers. On the one remaining issue, the United States at the moment has no negotiating position.

The United States ——————————→

has no negotiating position because the Government is divided. The Government is divided between those who would like to see a real step taken to help slow down the arms race and those who feel we cannot afford to stop testing our nuclear weapons in the face of a control system that is less than perfect.

Obstacles being thrown in the United States negotiators are burdened by obstacles and resistance which stem primarily from the Atomic Energy Commission and to a lesser extent from the Defense Department. The former was not created to be a policy making body in the area of national security and I think we should object to its intrusion now into the test ban policy decisions. Those who are against an agreement have tried to confuse the public by seeming to say to them that the matter is all a problem of science and technology. The issue before the conference table and, before, the people of this and all other countries is not solely one of science. It is primarily one of judgment, of which science plays only one, albeit an important, part.

Along with the situation of a divided government come newspaper stories reporting that after October 31 the United States will again resume its testing. The stories indicate that testing either will be resumed regardless of the outcome of the test ban negotiations, or that it is expected that the negotiations will fail and testing will be resumed as a matter of course. The country is indebted to Senator Anderson, Chairman of the Joint Atomic Energy Committee, for bringing to light the intent of the Executive branch.

I now wish to discuss some of these matters in detail.

Course of the Negotiations

The negotiations have continued, except for three brief recesses, for almost ten months. Have they made progress? The answer is yes. This is not just my opinion. This is a fact. What have the three nuclear powers thus far agreed to?

1. Vienna, Austria, has been chosen as the headquarters for the control organization.

2. The control organization will be composed of a seven nation commission of which the three nuclear powers will be permanent members; there will also be a conference once or twice every two years of all the parties to the treaty.

3. An administrator, acceptable to the three nuclear powers, will be responsible for operating the control system.

4. The control posts worldwide will number 170 to 180 and will be staffed by approximately 30 to 40 technicians plus supporting personnel.

5. The treaty will continue indefinitely depending on the successful installation of the control system and the absence of evidence that atomic weapons tests have taken place in violation of the treaty.

6. The control organization will conduct a continuous program of research to improve the quality and capabilities of the control system.

7. Scientists from the United States, the United Kingdom, and the Soviet Union have recommended a series of satellites to assure that clandestine tests cannot take place in outer space.

What have the three nuclear powers not yet agreed to?

1. The staffing of control posts. The three nuclear powers still are discussing the composition of the staff at the control posts. The Soviets say that no more than one-third of the staff should be foreigners, whereas the United States argues that no more than one-third should be nationals of the country in which the control post is located. Translated into terms of actual numbers the difference between the two sides is approximately a difference between 10 and 25, a difference which, I expect, can be resolved if negotiations continue.

2. Composition of the control commission. Although the nuclear powers have agreed on a seven nation control commission, they have not yet decided what nations should be on the control commission. This is not yet a matter of controversy because discussion of the subject has not taken place. This too should not prove to be a matter of fundamental difference. One possibility of resolving the question, which I suggested some time ago, is to have the composition be divided as follows: two Western nations (the U. S. and the U. K.), two members of the Soviet-Sino bloc (the U. S. S. R. and one other), and three neutral countries (those nations which are not allied either with the United States or the Soviet Union in defense pacts.)

3. Control system for high altitude tests. The scientists from the three nuclear powers reached agreement on the system to be recommended to the governments on the control system to detect tests at high altitudes, that is, tests conducted above 31 miles.

The nuclear powers have not yet incorporated these recommendations into treaty language. It is not expected that such a stop will involve political problems. There are some engineering problems, however, to solve. These include the means by which satellites will be sent into space to assure that no nuclear tests are being conducted there.

4. Budget. The Soviet Union is still contending that the budget for the operation of the control system should be acceptable to the three nuclear powers, since they will be expected to pay the main costs of the control system. The United States and the United Kingdom believe that the budget should be voted on by all the members of the treaty with a majority determining the final outcome. Again, I do not think that the question of the adoption of the budget is one which should present an insurmountable problem.

5. Equipment at control posts. At the Geneva Conference of Experts last year, scientists from eight nations agreed on the type of equipment to be placed at each control post. Since that time the United States has requested what amounts to a revision of the list of equipment. Our Government has done this as a result of the Hardtack series of nuclear tests last October. From those tests we learned that the problem of detecting and identifying underground tests and other phenomena was more difficult than had been anticipated. The improvements in the equipment being suggested by United States scientists are not such that the Soviets should object. They do not increase the number of manned control posts. As a matter of fact, if the United States would raise the question as one of improving the equipment at the control posts instead of asking for a reconsideration of the entire question of the detection and identification of underground tests by seismic means, I should thinkthat the Soviets would see the merits of our proposal. In any case improvement of equipment should not be a major obstacle to agreement.

6. Number of on-site inspections. I come now to the last area of difference between the two sides at Geneva. The last area is the [redacted]y one and only major area of difference. This must be emphasized so that the public can know that except for one major problem, the probabilities are [redacted] that an agreement could be reached. This major area of difference is how many inspections of a suspicious and unidentified event, registered at the control posts, should be undertaken each year in the territories of the nuclear powers.

It is vital that members of the Senate and the public in general fully comprehend this one major area of difference, and so I intend to discuss the matter in some detail.

At the Geneva Conference of Experts held in the summer of 1958 the scientists concluded there would be from 20 to 100 events (presumably earthquakes) worldwide of the size of a five kiloton explosion or larger that the control posts probably could not identify. The scientists also said there would be an unspecified,

but presumably large, number of unidentified events of sizes less than that of a five kiloton explosion. These unidentified events, the scientists concluded, would also be subject to inspection. Inspection would include mobile teams going to the area of the event and examining it to determine whether the event was an earthquake or a nuclear explosion.

At the Geneva political negotiations, beginning last October, the United States recommended that all unidentified events the size of a five kiloton explosion or larger and 20 per cent of all events below five kilotons should be subject to inspection. What figure would constitute 20 per cent has not been suggested, but according to figures on earthquakes available this would make roughly a total of 85 inspections in the Soviet Union per year.

After the Hardtack series the scientists revised their estimates upward considerably and at the same time recommended new equipment in an attempt to cut down on the number of unidentified

events. At the present time, using 1) the estimates resulting from the Hardtack series, 2) two of the recommendations of the Berkner panel on seismic improvement, and 3) the ratio of inspecting all unidentified events of five kilotons or larger and 20 percent of everything below five kilotons, the number of inspections in the Soviet Union would be 366, or roughly one inspection in the Soviet Union per day. The number of inspections to be held in the United States would only be slightly less.

I believe that the result of this exercise is to play a numbers game with the problem of peace and security. Using these numbers gives the impression that the inspection problem is so huge that the negotiators might just as well pack up their bags and go home because it is almost absurd to suggest that such a large number of inspections should take place. ~~I would like to show in a few ways that this~~ However this is not the case. numbers game must be subjected to more thorough analysis. First, earthquake specialists tell us that at least two-thirds of all the earthquakes in the Soviet

Union occur in the Kamchatka peninsula which is a very small part of the entire Soviet Union. Furthermore, they tell us that another twenty-five per cent occur along part of the southern periphery of the Soviet Union. This would mean, using the above figures, that 242 inspections would take place in the Kamchatka peninsula; 91 would take place along the southern periphery; and this would leave 33 for the rest of the country. I am reasonably certain that it would not be necessary to conduct 241 inspections in the Kamchatka peninsula to satisfy ourselves that the Soviets were not sneaking tests in that area. Other means do exist to determine whether tests have taken place in addition to the reading of instruments and the conducting of mobile inspection teams, and I am referring here to intelligence measures.

Second, most of our able seismologists say that once the control posts are established and operating, many events will be identified as a result of close observance of earthquake activity

from a given region. In other words, there evidently are earthquake patterns which make the identification problem less complicated.

Third, one of the recommendations of the Conference of Experts is being completely ignored by our government scientists and consultants. That is the possibility of using and reequipping existing seismograph stations throughout the world, and devising means to help assure that the data from them will be reliable. There are some 650 stations now in existence of which only a fifth or a fourth are probably located in spots that can be used. However, the recommendation of the Experts is ignored by the Executive branch and thus kept out of any discussion for improving the control system.

I have mentioned a few of the considerations that ought to be included if we are to engage in a numbers game on the problem of inspection. But this is only part of the total picture.

The Executive branch of our Government is so divided and so uncertain on the test issue that the Department of State cannot work out practical and reasonable proposals to put forward to the Soviets. We cannot even discuss the inspection problem in the negotiations because we have nothing to discuss. And then some of our public officials complain about lack of progress! We are used to the Soviets procrastinating and stalling during the course of negotiations, but it is with regret and [redacted] that I say in this instance all the evidence points to the fact that we are stalling and procrastinating. If October 31 comes along and the Atomic Energy Commission and the Defense Department say that we must resume nuclear tests because the conference is making no progress, it will be because we - the United States - confounded ourselves so much in numbers and technology that we could not make a constructive effort toward overcoming the one last remaining barrier to an agreement.

I do not claim that if we had a negotiating position on the inspection problem an agreement would follow. Perhaps the Soviets will say no more than two inspections a year can be made. I do not think that constitutes a reasonable proposal. But if the conference negotiates and negotiates and concludes with a number around 30 or 40 a year, then I think that an agreement may be possible. Let me explain why I think such a number may be a reasonable one for an initial agreement. The number of possible inspections we are discussing would be a number not subject to a veto. If the total inspections were used up and another inspection appeared necessary and if the Soviet Union vetoed it, then the agreement could be called off. It is my opinion we would seldom want to use the maximum number of inspections allowed us. But if and when we did, any use of the veto would be a warning signal at the least and the end of the agreement at the most.

What we should really be after is to apply the principle of deterrence to the control problem. We live by the concept of

deterrence in our defense policies. We know that we cannot necessarily stop the Soviet Union from sending missiles with nuclear warheads to bomb our people and the people of nations allied with us. But we operate on the principle that if we have enough defense so that we can strike back, then the Soviets will be deterred from launching a surprise attack.

The same principle ought to apply in a control system. We must accept the fact that we cannot cover every little unidentified event in the Soviet Union to see whether it is an earthquake or a nuclear test. We can, however, demand the right to inspect a certain number of cases on the assumption that such inspections will deter a nation from thinking a few sneak tests can be held without being caught.

If we cannot operate on this principle of deterrence, then we must face reality and conclude that any arms control proposal is doomed to failure. At the present time there is no known

perfect control system for any arms control measure. If we let the present test ban talks die, then what do we think we can accomplish by starting new arms control discussions? If these test ban talks succeed, then new arms control discussions become imperative.

Today our own government remains divided and hesitant. Our government cannot make up its mind what proposal to offer on the inspection problem. ~~Our government~~ The Administration has gotten itself into the position of blocking discussion of the one remaining obstacle to agreement.

I want to state flatly that new data do not preclude a workable control system from being realized. The problems that have been discovered during the course of the negotiations are not substantially or fundamentally different from those the scientists and the negotiators faced when the negotiations began. We knew then that we would never be able to ~~dig~~ explore for each and every unidentified earthquake. We knew then that in inspecting

the site of an unidentified event it would be immensely difficult to determine whether it had been an earthquake or a nuclear explosion. We knew then that although our techniques of detecting and identifying tests would improve with increased research and knowledge we would also discover a larger number of natural phenomena with this newer and more sensitive equipment.

Nothing has changed since last October that justifies our giving up. The only justification for ending the talks at this point is the refusal of the Soviet Union to accept a reasonable number of inspections. Furthermore ~~I do not even think that~~ the number ought not to be so fixed that it cannot be altered from year to year. Numbers of earthquakes change and so should the number of inspections.

(more)

Added to the indecision and the behind-the-doors bickering of our Government on this issue is another astounding fact. We have said we need more research to perfect the control system as it is established. Yet, the Executive branch has asked for no additional money for this type research from the Congress. We shall adjourn here in three or four weeks and the Executive branch will not have funds to do the kind of a research program recommended by its own scientists and consultants. ~~Does this sound as if we really want to have an agreement?~~

I know for a fact that many of our technicians and scientists are eager, ~~practically begging,~~ to go to work to improve our knowledge about the problem of control. But the Executive branch says no. Our Executive officers would rather put money into almost anything else but the matter of arms control. How can this great nation of ours walk into the coming session of the United Nations General Assembly and claim that we favor a halt to the arms race if we allow the negotiations for a cessation of nuclear

weapons tests to collapse. How can we persuade the 79 members of the United Nations that are not nuclear powers it was the Soviet Union that again prevented an agreement?

Frankly, I am tired of the Atomic Energy Commission constantly fighting, battling, maneuvering to try to prevent an agreement. I cannot think of one solitary act that the Commission has performed to help the world along the path of arms control. I can think of many that ~~were designed~~ to impede the way. Surely the vested interests of the Commission cannot be so great that they must contest an agreement to the bitter end. Surely this great organization with its truly dedicated and brillant servants do not want to stand before the world as an obstacle to every attempt to slow down this maddening race for weapons superiority.

In conclusion I want to urge my colleagues in the Senate and my fellow Americans everywhere to ask themselves this question:

Do we want to be responsible for terminating the test ban talks before we have determined whether the Soviets will accept adequate controls? If this conference fails, failure must not be attributed to us. The world is waiting to see what our decision will be.

SHALL WE RESUME NUCLEAR TESTS

(Remarks of Senator Hubert H. Humphrey
On the Senate floor, August 18, 1959)

Mr. President:

The Geneva negotiations for a treaty to end nuclear weapons tests have now reached a critical stage. My purpose in speaking today is to discuss the nature of this crisis. I must voice a grave concern lest through indecision and internal differences our Government may contribute to the breakdown of the negotiations at this particular time.

The United States, the United Kingdom, and the Soviet Union have been negotiating to discontinue nuclear weapons tests for almost ten months. Progress was being made. At the same time

other hopeful signs were emerging. The President appointed Charles Coolidge to conduct a special review of United States disarmament policy. The Foreign Ministers Conference agreed to the desirability of having general disarmament negotiations, disbanded since 1957, reconvene, and it is expected that the details of the agreement for the renewal of the negotiations will be forthcoming soon. I say these are hopeful signs even though I believe that any new disarmament negotiations should not be devoid of a direct relationship with the United Nations.

We can embrace these encouraging moves on the part of the major powers only if we genuinely believe that they lead somewhere besides a dead end. I am convinced that the people of this and every other country are impatient with the inability of the leaders of the major powers

to reach some agreement in the area

of arms control. This race for weapons superiority is all so futile. It can lead nowhere. It is an expensive way of buying time to determine whether man is rational enough to live with his fellow man without engaging in the business of mass extinction through large scale war.

It is in this framework that the test ban negotiations must be viewed. If they succeed, then future arms control discussions take on meaning, in fact, become imperative so that the momentum gained by one small step will not be lost. If they fail, then new talks will tinkle in a hollow chamber amid the reverberating echoes of the last failure.

STATUS OF THE GENEVA TALKS

The Geneva test ban negotiations, as I have said, have been going on for almost ten months. This amount of time is not unusual in terms of average time taken in negotiating with the Soviet Union. What is unusual is the fact that of the remaining undecided issues only one (the number of on-site inspections) really stands in the way of an agreement among the three nuclear powers. On this one major remaining issue, the United States at the moment has no negotiating position. The Soviets have made no proposal on this point as yet either, but if they did, we would have no answer. The United States has no negotiating position because the Government is still divided on some basic aspects of the problem. It is divided

between those who are concerned about the risks involved in a continuing arms race - those who think it is important to take a real step toward arms control - and those who feel that we have more to gain than to lose by continuing tests and that we cannot afford to stop testing our nuclear weapons in the face of a control system that is less than perfect.

Our negotiators are burdened by obstacles which have been built primarily by the Atomic Energy Commission and to a lesser extent by the Defense Department. The AEC seems to have difficulty in remembering that it was not created to be a policy-making body in the area of foreign relations. Although I think the AEC has overstepped the bounds of its functions in this instance,

nevertheless, I cannot dispute its right to argue its case. The AEC is allowed to continue to oppose the official position of the United States and to inject its own views on foreign policy due to a lack of leadership at the top.

The Constitution provides that "The executive Power shall be vested in a President of the United States of America." There can be no substitute for executive leadership on this problem. The President has failed to assert the leadership necessary to reconcile conflicting views. Our position is being determined by an interdepartmental committee, which can decide only when it is unanimous. In effect, every department has a veto over the State Department's role in the negotiations in the absence of active presidential participation. I am confident that the President and the Secretary of State want to reach a workable agreement to stop nuclear weapons tests. I am confident also that the overwhelming majority of Americans are behind the President. The President should exert his authority. That is what we are waiting for.

The technical advice of the AEC is valuable, but the matter is not only a problem of science and technology. It is not only one of the importance of perfecting new and better weapons. The issue involves judgment in many fields of which science and weaponry are only two of many factors to be considered.

FALLOUT STILL A CONCERN

The AEC and the Pentagon evidently are so eager to resume nuclear testing that they are promoting and fostering newspaper reports to that effect. The reports indicate that testing either will be resumed regardless of the outcome of the test ban negotiations, or that it is expected that the negotiations will fail and testing will be resumed as a matter of course.

I personally think that if tests resume before we know the outcome of the test ban negotiations the United States will be inviting an outburst of indignation and criticism by the people of other nations. Furthermore, our own people are immensely concerned about the possible harmful effects of radioactive fallout. Scientists are still studying this problem so we as yet do not have all the answers we need. The results of studies conducted thus far, however, continue to give cause for alarm.

We could conceivably claim that tests should be resumed because there are no harmful effects of fallout and that the test ban talks are not making progress, two of the lines of argument being advanced by the AEC. The facts on the former are uncertain, as I have said, and the facts

on the latter are to the contrary. The facts of this situation must be made known. Otherwise, the public will be fooled and decisions will be made behind closed doors without the kind of public discussion and knowledge which the people of a democracy must have if our system is to survive and endure.

I now wish to discuss some of these matters in detail.

COURSE OF THE NEGOTIATIONS

What progress has been made? What have the three nuclear powers thus far agreed to?

1. Vienna, Austria, has been chosen as the headquarters for the control organization.

2. The control organization will be composed of a seven nation commission of which the three nuclear powers will be permanent members; there will also be a conference once or twice every two years of all the parties to the treaty.

3. An administrator, acceptable to the three nuclear powers, will be responsible for operating the control system.

4. The control posts worldwide will number 170 to 180, each of which will be staffed by approximately 30 to 40 technicians plus supporting personnel.

5. The treaty will continue indefinitely depending on the successful installation of the control system and the absence of evidence that atomic weapons tests have taken place in violation of the treaty.

6. The control organization will conduct a continuous program of research to improve the quality and capabilities of the control system. The scientists at the Conference of Experts agreed this should be done and the nuclear powers have each declared their acceptance of this principle. An article of the treaty still must be drafted, however, on this point.

7. Scientists from the United States, the United Kingdom, and the Soviet Union have recommended a series of space satellites to assure that clandestine tests cannot take place in outer space.

8. The treaty will be open for other states to become parties to the agreement.

This is the list of the principal features of the seventeen articles of the treaty agreed to thus far.

What have the three nuclear powers not yet agreed to?

1. The staffing of control posts. The three nuclear powers still are discussing the composition of the staff at the control posts. The Soviets say that no more than one-third of the staff should be foreigners in the country where they are stationed, whereas the United States argues that no more than one-third should be nationals of the country in which the control post is located. Translated into terms of actual numbers the difference between the two sides is approximately a difference between 10 and 25, a difference which, I expect, can be resolved if negotiations continue.

2. Composition of the control commission. Although the nuclear powers have agreed on a seven nation control commission, they have not yet

decided what nations should be on the control commission. This is not yet a matter of controversy because discussion of the subject has not taken place. This too should not provoke fundamental differences. One way to resolve the question which I suggested some time ago, is to divide the composition as follows: two Western nations (the U. S. and the U. K.), two members of the Soviet-Sino bloc (the U. S. S. R. and one other), and three neutral countries (nations which are not allied either with the United States or the Soviet Union in defense pacts.)

3. Control system for high altitude tests. The scientists from the three nuclear powers reached agreement on the system to be recommended to the governments on the control system to detect tests

at high altitudes, that is, tests conducted above 31 miles. The nuclear powers have not yet incorporated these recommendations into treaty language. It is not expected that such a step will involve political problems. There are some engineering problems, however, to solve. These include the means by which satellites will be sent into space so as to assure that no nuclear tests are being conducted there.

4. Budget. The Soviet Union is still contending that the budget for the operation of the control system should be acceptable to the three nuclear powers, since they will be expected to pay the main costs of the control system. The United States and the United Kingdom believe that the budget should be voted on

by all the members of the treaty with a majority determining the final outcome. Again, I do not think that the question of the adoption of the budget, although an important issue, should present an insurmountable obstacle.

5. Equipment at control posts. At the Geneva Conference of Experts last year, scientists from eight nations agreed on the type of equipment to be placed at each control post. Since that time the United States has requested what amounts to a revision of the list of equipment. Our Government has done this as a result of the Hardtack series of nuclear tests last October. From those tests we learned that the problem of detecting and identifying underground tests and other phenomena was more difficult than had been anticipated.

The improvements in the equipment being suggested by United States scientists are not such that the Soviets should object. They do not increase the number of manned control posts. As a matter of fact, if the United States would raise the question as one of improving the equipment at the control posts instead of asking for a reconsideration of the entire question of the detection and identification of underground tests by seismic means, I should think that the Soviets would see the merits of our proposal. In any case, improvement of equipment should not be a major obstacle to agreement.

6. Number of on-site inspections. I come now to the last area of difference between the two sides at Geneva. The last area is the main and only major area of difference. This must be emphasized so that the public can know that,

except for one major problem, the probabilities are that an agreement could be reached. This is not to say that the other differences will be easy to resolve. They won't. Negotiating with the Soviet Union is never easy because that nation operates on the principle of stalling and delay. I would even suggest that the United States should not allow the negotiations to go on indefinitely if it becomes apparent the Soviet Union does not wish to accept adequate and reasonable controls. But we cannot abandon the talks without first exploring with the Soviets the main obstacle to an agreement. This major area of difference is how many inspections of a suspicious and unidentified event, registered at the control posts, should be undertaken each

year in the territories of the nuclear powers.

It is vital that we fully comprehend this one major area of difference, and so I intend to discuss the matter in some detail.

PROBLEM OF ON-SITE INSPECTION

At the Geneva Conference of Experts held in the summer of 1958 the scientists from the eight countries represented concluded there would be from 20 to 100 events (presumably earthquakes) worldwide of the size of a five kiloton explosion or larger that the control posts

would detect but probably could not identify. The scientists also said there would be an unspecified, but presumably large, number of unidentified events of sizes less than that of a five kiloton explosion. These unidentified events, the scientists concluded, should be subject to further investigation, including inspection at the site of the events. Inspection would include mobile teams going to the area of the event and examining it to determine whether the event was an earthquake or a nuclear explosion.

At the Geneva political negotiations, beginning last October, the United States recommended a formula for inspection. We proposed that all unidentified events the size of a five kiloton explosion or larger and 20 percent

of all events below five kilotons should be subject to inspection. What figure would constitute 20 percent has not been suggested, but according to figures on earthquakes available this would make roughly a total of 85 inspections in the Soviet Union per year.

After the Hardtack series the scientists revised their estimates upward considerably and at the same time recommended new equipment in an attempt to cut down on the number of unidentified events. At the present time, using 1) the estimates resulting from the Hardtack series, 2) two of the recommendations of the Berkner panel on seismic improvement, and 3) the ratio of inspecting all unidentified events of five kilotons or larger and 20 percent of all unidentified seismic signals below five kilotons down to a half a kiloton,

the number of inspections in the Soviet Union would be 366, or roughly one inspection in the Soviet Union per day. The number of inspections to be held in the United States would only be slightly less.

These numbers give the impression that the inspection problem is so huge that the negotiators might just as well pack up their bags and go home because it is almost absurd to suggest that such a large number of inspections should take place. I would like to show in a few ways that the inspection numbers game must be subjected to more thorough analysis.

First, earthquake specialists tell us that at least two-thirds of all earthquakes in the Soviet Union occur in the Kamchatka peninsula which is a very small part of the entire Soviet Union.

Furthermore, they tell us that another twenty-five percent occur along part of the southern periphery of the Soviet Union. This would mean, using the above figures, that 242 inspections would take place in the Kamchatka peninsula; 91 would take place along the southern periphery; and this would leave 33 for the rest of the country. I am reasonably certain that it would not be necessary to conduct 241 inspections in the Kamchatka peninsula to satisfy ourselves that the Soviets were not sneaking tests in that area. A mobile inspection team might check on several earthquakes during one visit. Other means also exist to determine whether tests have taken place in addition to the reading of instruments and the conducting of mobile inspection teams. I am referring here to a variety of intelligence measures which would be available

to the United States and which would have nothing to do with the operations of the control system.

Second, most of our able seismologists say that once the control posts are established and operating, many events will be identified as a result of close observance of earthquake activity from a given region. In other words, we will learn more about earthquake patterns which make the identification problem less complicated.

Third, one of the recommendations of the Conference of Experts is being completely ignored by our government scientists and consultants. That is the possibility of using and reequipping existing seismograph stations throughout the world, and devising means to help assure that the data from them will be reliable. There are some 650 stations now in existence, of which

only a fifth or a fourth are probably located in spots that can be used. However, the recommendation of the Experts is ignored by the Executive branch and thus kept out of any discussion for improving the control system.

The Executive branch ought to request the help of the United Nations in improving existing seismograph stations. At the coming session of the United Nations General Assembly the United States should recommend that the United Nations establish a special working group to assist other nations in improving and modernizing their seismograph stations, and if necessary, erecting new locations for them. A test ban requires effective safeguards.

Other nations have a responsibility to see a test ban control system succeed and to try to remove all possibilities of evasion.

I have mentioned a few of the scientific aspects involved in inspection. They are enough to indicate the complexity of the scientific problems, which, in turn, must be weighed along with the many facets of military security, our relations with the Soviet Union and with our allies.

IMPORTANCE OF DETERRENCE

But there is a fourth aspect to this analysis, to my way of thinking one of the most important. We should apply the principle of deterrence to the control problem. We live by the concept of deterrence in our defense policies.

We know that we cannot necessarily stop the Soviet Union from sneaking some missiles with nuclear warheads through our warning system to bomb our people and the people of nations allied with us. But we operate on the principle that if we have enough defense so that we can strike back, then the Soviets will be deterred from launching a surprise attack.

The same principle ought to apply in a control system. We must accept the fact that we cannot cover every little unidentified event in the Soviet Union to see whether it is an earthquake or a nuclear test. We can, however, demand the right to inspect a certain number of cases on the assumption that such inspections will constitute a spot check system of random sampling which will have a high probability of accuracy

and which will deter a nation from thinking a few sneak tests can be held without being caught.

At the present time there is no known perfect system for any arms control measure. There is a certain percentage of risk. But there is also a certain percentage of risk involved in doing nothing. If we let the present test ban talks die, then what do we think we can accomplish by starting new arms control discussions? If these test ban talks succeed, then new arms control discussions become imperative.

Today our own government remains divided and hesitant. Our government cannot make up its mind what proposal to offer on the inspection problem.

I want to state flatly that new data do not preclude a workable control system from being realized. The scientific problems that have been discovered during the course of the negotiations are not substantially or fundamentally different from those the scientists and the negotiators faced when the negotiations began. We knew then that we would never be able to explore for each and every unidentified earthquake. We knew then that in inspecting the site of an unidentified event it would be immensely difficult to determine whether it had been an earthquake or a nuclear explosion. We knew then that although our techniques of detecting and identifying tests would improve with increased research and knowledge we would also discover a larger number of natural phenomena with this newer and more sensitive equipment.

Nothing has changed since last October that justifies our giving up. The only justification for ending the talks at this point is the refusal of the Soviet Union to accept a reasonable number of inspections. I do not even think that the number ought to be so fixed that it cannot be altered from year to year. Numbers of earthquakes change and so should the number of inspections.

I do not claim that if we had a negotiating position on the inspection problem an agreement would follow. Perhaps the Soviets will insist that no more than a few inspections a year can be made. I do not think that would constitute a reasonable proposal. But if the conference negotiates and negotiates and concludes with a reasonable number of inspections, then I think

that an agreement may be possible. The number of possible inspections we are discussing would be a number not subject to a veto. If the total inspections were used up and another inspection appeared necessary and if the Soviet Union vetoed it, then the agreement could be called off. It is my opinion we would seldom want to use the maximum number of inspections allowed us. But if and when we did, any use of the veto would be a warning signal at the least and the end of the agreement at the most.

LACK OF EFFORT ON RESEARCH

Added to the indecision of our Government on this issue is another astounding fact. We have said we need more research to perfect the control system as it is established. Yet,

the Executive branch has asked for no money for this from the Congress. We shall adjourn here in three or four weeks and the Executive branch will not have funds to do the kind of a research program recommended by its own scientists and consultants. What is the answer to this question? Why has the Executive branch neglected asking for money? Why have many of the key recommendations of the Berkner report on seismic improvement, for example, been ignored?

I know for a fact that many of our technicians and scientists are eager to go to work to improve our knowledge about the problem of control. But the Executive branch says no. Our Executive officers would rather put money into almost anything else but the matter of arms control. The

Congress too has been derelict in this matter. I have tried on three different appropriation bills to get money for this purpose. Each time the Congress refused. There is one more opportunity, the Mutual Security Appropriation, and I intend to try again.

How can this great nation of ours maintain respect during the coming session of the United Nations General Assembly if we allow the negotiations for a cessation of nuclear weapons tests to collapse through any act or omission on our part? With our record of bickering and indecision, how can we persuade the 79 members of the United Nations that are not nuclear powers that we tried to reach an agreement but that the Soviet Union did not?

CONCLUDING REMARKS

In conclusion, I wish to summarize my position on this great question of whether we should continue to seek a test ban agreement or whether nuclear tests should be resumed.

1. Nuclear weapons tests should not be resumed on the part of the United States unless the nuclear test ban negotiations collapse. I recognize that the military officers and AEC scientists want to start testing again but the civilian authority of our government and the overriding dictates of foreign policy and national security must be upheld.

2. The United States must not allow the talks to collapse through a failure to achieve a reasonable negotiating position on the most

important remaining issue in the negotiations -- the number of on-site inspections. The number of inspections must not be the few suggested by the Soviets and it need not be the 366 suggested by Mr. McCone of the AEC. And, in arriving at a reasonable position in the negotiations we must keep in mind that if the Soviets ever use veto when the control organization wants to investigate a truly suspicious event that is the warning signal that cheating may be going on. That is the warning signal which could mean the end of the agreement.

3. The United States should seek the assistance of the United Nations in modernizing existing seismograph stations around the world. We should look to them for assistance in reaching

a successful test ban agreement, an agreement, may I add, that eventually and in agreed upon stages, must include other nations.

4. The Executive branch should immediately embark on a vastly expanded research program to improve our knowledge, methods, and equipment/control of. The Berkner Panel on seismic improvement revealed extensive Soviet advances in seismological research. It also recommended several important programs but the President has asked for no funds from the Congress for any of them.

I want to urge my colleagues in the Senate and my fellow Americans everywhere to ask themselves these questions: Do we want to be

responsible for terminating the test ban talks before we have determined whether the Soviets will accept adequate controls? Do we really think our defense demands resuming tests the moment the gong strikes on November 1? Do we want to face the prospect that the arms race cannot be held back?

I think every member of this body would answer these questions in the negative. Let us pray that the President will have the wisdom and the courage to pursue the right course.

Minnesota
Historical Society