U.S. CHEMICAL WARFARE POLICY

HEARINGS
BEFORE THE
SUBCOMMITTEE ON NATIONAL SECURITY
POLICY AND SCIENTIFIC DEVELOPMENTS
OF THE
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INTRODUCTION

In November 1969 the Subcommittee on National Security Policy and Scientific Developments held extensive hearings on the subject of U.S. policies on and international effects of chemical-biological warfare. Since that time little if any concentrated attention has been devoted to the issue.

While several encouraging developments have occurred in the ensuing years, the period has also been marked by inaction and stalemate in other crucial CW areas. Thus, it seemed appropriate for the subcommittee to conduct a thorough review of the issues in an attempt to gain new insight and perspective on the complex and challenging question of chemical warfare.

Forming the legislative basis of the subcommittee's inquiry were a number of similar and identical resolutions sponsored or cosponsored by some 46 Members of Congress. Basically, they called on the President and the Congress to resolve the U.S. position on the future status of herbicides and tear gas so that the Senate could move forward toward immediate ratification of the 1925 Geneva protocol. The resolutions also provided that reconsideration of the protocol would in turn afford an opportunity for a comprehensive review of U.S. chemical warfare policies, with some specific reference to the proposed binary nerve gas proposal.

In its efforts the subcommittee was fortunate to have the cooperation of a distinguished group of witnesses, including Members of Congress, private experts, representatives of interested professional organizations, and spokesmen for the Departments of State and Defense and the Arms Control and Disarmament Agency.

Their testimony provides a significant body of information and opinion on chemical warfare. In an effort to formulate as comprehensive a record as possible, an appendix of related documents also has been included.

This volume is being released now because of its timely relevance to the anticipated renewed discussion of Senate ratification of the protocol, the current debate on the binary issue, and related issues such as the ongoing negotiations at Conference of the Committee on Disarmament in Geneva.

Following further review of the information received during the hearing, the subcommittee intends in the near future to report legislation to the full Foreign Affairs Committee and to release a report of its analysis, findings, and recommendations.

CLEMENT J. ZABLOCKI,
Chairman, Subcommittee on National Security Policy and Scientific Developments.

JUNE 6, 1974.
The subcommittee met at 10:40 a.m. in room 2172, Rayburn House Office Building, Hon. Clement J. Zablocki (chairman) presiding.

Mr. ZABLOCKI. The subcommittee will please come to order.

The subcommittee today opens very important hearings on U.S. chemical warfare policy. More specifically, we have under consideration a number of similar and identical resolutions sponsored or cosponsored by some 46 Members of Congress* calling on the President and the Congress to resolve the U.S. position on the future status of herbicides and tear gas so that the Senate may move forward toward immediate ratification of the 1925 Geneva protocol. The resolutions also provide that reconsideration of the protocol would in turn provide an opportunity for a comprehensive review of U.S. chemical warfare policies.

Today we are privileged to hear testimony from Members of Congress who have a special interest in this important subject.

Our first witness is the Honorable Gaylord Nelson, a leading authority in the Senate on chemical warfare and a distinguished colleague and fellow Wisconsinite. We are proud to welcome you, Senator. If you will proceed, sir.

I would like to state in view of a Democratic caucus we have had a problem, Senator, in getting Members here on time. I hope you will accept our apology.

STTTMENT OF HON. GAYLORD NELSON, A U.S. SENATOR FROM THE STATE OF WISCONSIN

Senator Nelson. Thank you, Mr. Chairman.

URGES RATIFICATION OF GENEVA PROTOCOL

I appreciate the opportunity to come here this morning. I want to commend the chairman of the committee for undertaking this com-

*List of sponsors and cosponsors for resolutions on chemical warfare policy:
H. Res. 710: Introduced by Representative Dellenback.
comprehensive hearing and evaluation of the issue of the use of chemicals in warfare. Regrettably it is still necessary to review this issue even 4 years after the Senate Foreign Relations Committee completed its hearings on the 1925 Geneva Protocol Ban on Chemical and Biological Warfare.

When the President submitted the Geneva protocol to the Congress for ratification he specifically excluded herbicides from his interpretation of the Geneva ban. Chairman Fulbright of the Senate Foreign Relations Committee sent a letter, dated April 15, 1971, to the President advising him that the committee's position was that the protocol does include a ban on herbicides; that is, that that was the interpretation of the committee. That position is embodied in Executive Understanding No. 1, which I introduced on January 29, 1971.

I might say at this point, Mr. Chairman and members of the committee, I would ask to be able to submit the testimony in full for printing in the record and that I condense the testimony a bit since I am needed in the Interior Committee of the Senate in a markup session on an important bill.

Mr. ZABLOCKI. Without objection, the prepared and complete statement will be made a part of the record following your oral summary.

You may proceed, Senator Nelson.

Senator NELSON. Now that interpretation has been under review for nearly 3 years. I think the Geneva protocol interpretation has been considered long enough and that we ought to get a final resolution of this matter with the administration's interpretation concerning herbicides at an early date.

The need to reexamine the status of the 1925 protocol is, I think, urgent. We in the United States have courted international approbrium long enough, and we have backed ourselves into a corner with a tiny minority of countries voting against the great majority of the United Nations countries in the General Assembly, which agreed in 1969 on a resolution stating that the military use of herbicides was within the purview of the Geneva protocol.

I neglected to check the vote on that. I think it was something like 80 to 3, with the United States the only major country dissenting from the interpretation that herbicides be covered by the Geneva protocol.

American soldiers are now out of Vietnam, and no longer is there any reason for continued support of herbicides as a military weapon, if in fact there was any sound military reason for it in the first place, which I doubt.

In fact, the mere notion that herbicides were useful weapons of war in Southeast Asia has become increasingly doubtful. A series of studies in the aftermath of the Vietnam war have thrown cold water on the thesis that herbicides are effective military agents.

A Department of the Army study entitled "Herbicides and Military Operations" lists only two situations in which herbicides might have been useful—to increase limited visibility and to destroy crops. The Army study damned herbicides with the concluding faint praise:

Herbicides can be useful as a support to military operations provided that special circumstances exist.

NO REASON TO SUPPORT HERBICIDES
I can find no really convincing evidence that in fact it is a useful military weapon.

The study provides little tangible evidence of these "special circumstances", or that they did in fact exist in Vietnam to an extent which can justify the far more extensive counterproductive ecological, sociological and psychological effects on the Vietnamese which are discussed in another study by the National Academy of Sciences.

**EFFECTS OF HERBICIDE USE IN VIETNAM**

The recently released NAS herbicide study,* which was contracted by the Department of Defense, revealed that herbicides extensively damaged Vietnam's inland tropical forests, destroyed 36 percent of the mangroves along the South Vietnam coast, may have caused deaths among Montagnard children, and caused many Vietnamese to view the United States as its enemy because Americans destroyed their crop lands and forests, which are so critically important to the economy.

In my view, this study fully supports the scientific estimates of the Herbicide Study Group of the American Association for the Advancement of Science, which reported in the late 1960's of widespread ecological damage to certain regions of Vietnam. We now have unequivocal evidence that the mangrove forests, for example, have been damaged to such an extent that without considerable reforestation efforts, it may be decades, if ever, before these important ecosystems will recover from that damage.

**DAMAGE TO SOIL AND WATER**

More studies are required to definitely state the effects on human beings from the extensive use of herbicides in Vietnam. New, sophisticated techniques of analysis, however, are demonstrating that the dioxin contaminants of Agent Orange, the military compound consisting of herbicides 2,4,5-T and 2,4-D, persist in the soil and water of Vietnam and have even entered the food chain.

The damage done eventually involved an area of destruction the size of the State of Massachusetts. As you know, finally the Pentagon abandoned its defoliation program after many expressions of concern within the Congress and within the country.

We incidentally have used 2,4,5-T in this country for purposes of restoration of croplands, and serious issues have been raised about the residual effect of introducing dioxin into the food chain and into the environment. Dioxin, as you know, is the most toxic synthetic agent known to man. Next to botulinum toxin, dioxin is the world's most toxic agent. It is present in 2,4,5-T in only very, very small amounts, but it is dangerous in only very, very small amounts. Furthermore, we do not know what occurs, if anything, in the biological magnification in the food chain.

**DIOXIN**

The Environmental Protection Agency is presently completing a major health and environmental monitoring program aimed directly at the dioxin contaminant in 2,4,5-T. Extensive hearings by the EPA.

*A summary of the National Academy of Sciences study on the use of herbicides in South Vietnam appears in the appendix on p. 261.
are scheduled to begin this month to determine whether any agricultural use in this country of 2,4,5-T should continue.

EPA is not the only agency concerned about this potent compound which was dumped so indiscriminately on the Vietnamese landscape. The Food and Drug Administration has included 2,4,5-T as one of its priority substances which the Toxicological Research Center in Pine Bluff, Ark., is studying to determine low dose, chronic teratogenic, mutagenic, and carcinogenic effects.

If the U.S. Government persists in excluding this kind of dangerous chemical from its interpretation of the Geneva protocol, we can be certain that the world will place little credence in America's ratification of this treaty. How can we expect any other reaction from any other nations of the world? Chemical warfare agents are designed to be toxic. Certainly everything we have learned about 2,4,5-T indicates that it should be classified as a toxic agent and included within the scope of the protocol ban.

EFFECT OF BINARY PROGRAM ON GENEVA NEGOTIATION

The issue of excluding herbicides is not limited only to the 1925 Geneva protocol. For the past 2 years, U.S. negotiators have been engaged in discussions at Geneva on an expanded chemical warfare treaty which would go beyond banning chemical warfare and involve itself in restricting research, development, testing, and stockpiling chemical munitions. Thus far, the United States has devoted considerable discussion to the definitions of compounds such as herbicides which should be excluded from the definitions of chemical weapons. Some observers view this American semantic exercise at Geneva as a stalling tactic.

It seems to me that this same problem is true for the current Army proposal to begin the production of binary (nerve gas) chemical weapons. The binary nerve gas system consists of two chemical agents which, when kept separate, are relatively harmless, but when combined, such as in an artillery shell after it has been fired, produce a lethal nerve gas.

At a time when we might make some progress in chemical arms control negotiations, we have a proposal from the Army to begin what will certainly and ultimately be a massive reconstruction and modernization of our chemical weapons stockpile. I wonder if the risks which accompany this proposal in terms of potential proliferation of chemical weapons have been fully evaluated by the Department of Defense compared to the estimated risk associated with the status quo pending the outcome of treaty negotiations.

Mr. Chairman, I would conclude here. That covers the essence of what I had to say, particularly about the herbicides, and not impose further upon the time of the committee.

I thank you very much.

Mr. Chairman, I appreciate this opportunity to join with the House Foreign Affairs Committee in its efforts to examine the very important issue of U.S. chemical warfare policies.
Regrettably, it is still necessary to review this issue four years after the Senate Foreign Relations Committee completed its hearings on the 1925 Geneva Protocol ban on Chemical and Biological Warfare.

When the President submitted the Geneva Protocol to the Congress for ratification, he specifically excluded herbicides from his interpretation of the Geneva Ban.

Chairman Fulbright of the Senate Foreign Relations Committee sent a letter dated April 15, 1971, to the President advising him of the Committee's position that the Protocol included a ban on herbicides. That position is embodied in Executive Order No. 11671, which I introduced on January 29, 1971.

The Administration has had its controversial interpretation of the Protocol "under review" now for nearly four years. To this day, the Foreign Relations Committee has not received an Administration response.

The Administration, in my opinion, has delayed long enough on the deadly serious question of chemical warfare. The need to re-examine the status of the 1925 Protocol is urgent. We in the United States have courted international opprobrium long enough. We have backed ourselves into a corner with a tiny minority of countries voting against the great majority of the United Nations General Assembly which agreed in 1969 on a resolution stating that the military use of herbicides was within the purview of the Geneva Protocol.

American soldiers are out of Vietnam. No longer is there an excuse for the Administration's continued support of herbicides as military weapons.

In fact, the mere notion that herbicides were useful weapons of war in Southeast Asia has become increasingly doubtful. A series of studies in the aftermath of the Vietnam War have thrown cold water on the thesis that herbicides are effective military agents.

A Department of the Army study entitled "Herbicides and Military Operations" lists only two situations in which herbicides might have been useful—to increase limited visibility and to destroy crops. The Army study damned herbicides with the concluding faint praise: "Herbicides can be useful as a support to military operations provided that special circumstances exist." The study provides little tangible evidence that these "special circumstances" did in fact exist in Vietnam to an extent which can justify the far more extensive counterproductive ecological, sociological, and psychological effects on the Vietnamese which are discussed in another study by the National Academy of Sciences.

The recently released NAS study, which was contracted for by the Department of Defense, revealed that herbicides extensively damaged Vietnam's inland tropical forests, destroyed 36 percent of the mangroves along South Vietnam's coasts, may have caused deaths among Montagnard children, and caused many Vietnamese to view the United States as its enemy because Americans destroyed their croplands and forests, which are important to the economy.

In my view, this study fully supports the scientific estimates of the Herbicide Study Group of the American Association for the Advancement of Science which reported in the late 1960's of widespread ecological damage to certain regions of Vietnam. We now have unequivocal evidence that the mangrove forests, for example, have been damaged to such an extent that without considerable reforestation efforts, it may be many decades, if ever, before these important ecosystems will recover.

More studies are required to definitely state the effects on human beings from the extensive use of herbicides in Vietnam. New, sophisticated techniques of analysis, however, are demonstrating that the dioxin contaminants of Agent Orange, the military compound consisting of herbicides 2, 4, 5-T and 2, 4-D, persist in the soil and water of Vietnam and have even entered the food chain.

As you know, the issue of the environmental effects of herbicides has troubled me for a long time. I used every legislative device at my command to require the prohibition of the use of herbicides in the Vietnam War. And eventually in 1970—after an area the size of Massachusetts had been sprayed—the Pentagon abandoned its defoliation program in Vietnam.

In this Country, I have fought to restrict the use of 2, 4, 5-T for agricultural purposes pending any conclusive scientific evidence that the chemical is safe. Compelling evidence suggests that it is indeed not safe, since it is highly probable that certain toxic trace elements—namely dioxin—which is present in 2, 4, 5-T may accumulate in the food chain and present a potential danger to human beings.

Dioxin is the most toxic synthetic agent known. Next to botulinum toxin, dioxin is the world's most toxic agent. It is present in 2, 4, 5-T in only very, very small amounts, but it is dangerous in only very, very small amounts.
The Environmental Protection Agency is presently completing a major health and environmental monitoring program in this country aimed directly at the dioxin contaminant in 2, 4, 5-T. Extensive hearings by the EPA are scheduled to begin this month to determine whether any agricultural use of 2, 4, 5-T should continue.

EPA is not the only agency concerned about this potent compound, which was dumped so indiscriminately on the Vietnamese landscape. The Food and Drug Administration has included 2, 4, 5-T as one of its priority substances which the Toxicological Research Center in Pine Bluff, Ark., is studying to determine low dose, teratogenic, mutagenic, and carcinogenic effects.

If the U.S. Government persists in excluding this kind of dangerous chemical from its interpretation of the Geneva Protocol, we can be certain that the world will place little credence in America's ratification of this treaty. How can we expect any other reaction from the other nations of the world? Chemical warfare agents are designed to be toxic. Certainly, everything we have learned about 2, 4, 5-T indicates to me that it should be classified as a toxic agent and included within the scope of the Protocol ban.

The issue of excluding herbicides is not limited only to the 1925 Geneva Protocol. For the past 2 years, U.S. negotiators have been engaged in discussions at Geneva on an expanded chemical warfare treaty which would go beyond banning chemical warfare and involve itself in restricting research, development, testing, and stockpiling chemical munitions. Thus far, the U.S. has devoted considerable discussion to the definitions of compounds such as herbicides which should be excluded from the definitions of chemical weapons. Some observers view this American semantic exercise at Geneva as a stalling tactic.

The question is whether the Administration is serious in wanting to establish and enter into a meaningful chemical warfare arms control treaty. Our representatives to this conference have indicated in general terms a desire to conduct such negotiations but they have nevertheless procrastinated in their actions. It seems to me that this matter is not receiving the necessary priority attention from the White House and that our negotiators, in the absence of more direct and specific guidance, have been forced into the delaying tactic of detailed and agonizing deliberations on definitions and elaborate discussion on chemical warfare-terminology. Our representatives have yet to complete and present to the Conference a proposal which would indicate what would be considered an acceptable treaty. The issue of verification of compliance with a chemical warfare treaty is critical. However, I wonder what priority the Administration has placed upon evaluation of the alternative risks associated with the questionable military usefulness of herbicides as compared to the existence of a majority world opinion which classifies herbicides as chemical warfare agents.

**BINARY**

It seems to me that this same problem is true for the current Army proposal to begin the production of binary (nerve gas) chemical weapons. The binary nerve gas system consists of two chemical agents, which when kept separate, are relatively harmless but when combined, such as in an artillery shell after it has been fired, produce a lethal nerve gas.

At the very time when we might make some progress in chemical arms control negotiations, we have a proposal from the Army to begin what will certainly and ultimately be a massive reconstruction and modernization of our chemical weapons stockpile. I wonder if the risks which accompany this proposal in terms of potential proliferation of chemical weapons have been fully evaluated by the Department of Defense compared to the estimated risk associated with the status quo pending the outcome of treaty negotiations.

In my view, we risk nothing by including herbicides within the purview of the Geneva Protocol and we increase the credibility of our intention to comply with the treaty. We risk nothing by delaying the modernization of our chemical warfare stocks and if we decide to procure a binary system we may destroy the gains which we hope will accompany the ratification of the Geneva Protocol and the progress of current negotiations at Geneva on arms control of chemical research, development, and stockpiling.

The Army appropriation proposal to develop and procure a binary system, the National Academy of Sciences study which demonstrates the vast ecological damage in Vietnam from herbicides, the Biological Convention which this Nation has signed but not yet ratified, the ongoing Geneva Negotiations on chemical
warfare—all are happening within a very short period of time. They are all inextricably linked.

The Biological Convention, for example, has a provision that states that the ratifying nations will work for a new chemical treaty in addition to the Geneva Protocol. The Geneva Protocol bans use of toxic chemicals in warfare. The Biological Warfare Convention contains language which says that the ratifying nations will work for a new treaty to restrict research, development, testing and stockpiling of toxic chemical agents.

Inclusion of herbicides in the Administration's interpretation of the Geneva Protocol, many observers feel, will permit U.S. ratification of the Biological Convention. As it is now, the Biological Convention is being held up pending a response from the Administration as to its interpretation of the Geneva Protocol. The ratification of the Biological Warfare Convention will, in turn, indicate our intention to comply with that provision in the Biological Convention which relates to a chemical arms control treaty. The resolution of the current stalemate on verification of chemical arms control which is presently delaying action on the new treaty in Geneva is dependent upon strong indications on our part to express good will and cooperation.

Exclusion of herbicides from the Geneva Protocol and adoption of binary chemical weapons will, in my opinion, severely jeopardize progress in all of these linked events in controlling development of chemical agents of death and destruction.

International opinion notwithstanding and the dangers to the environment and human health notwithstanding, the military continues to insist that herbicides must be retained in America's arsenal. The latest available policy statement by the Army on this subject appeared during hearings on DoD's fiscal year 1974 appropriations request. The Army asked for $630,000 for exploratory development in the field of "vegetation control chemical investigations." The DoD representative noted:

We are continuing investigations in the area of vegetation control in an effort to significantly improve our current capability. We are looking for ways that herbicides can demonstrate their effects at a more rapid rate; agents which are effective in lesser concentrations; and agents which are nonherbicial defoliants... As you know, the President made the decision that in the future we could use no herbicides not USDA approved. Therefore, we are doing no work in the development of new herbicides.

We are doing a small effort in development of delivery systems to insure that we have the capability.

In this year's budget request, DoD has asked for $5.8 million for part of the procurement of a binary system for nerve gas. The remaining request is classified. Some experts feel that the total program cost converting our chemical stockpiles into a binary system will cost as much as $2 billion. This expense—together with the international implications which I have spelled out—add up to a momentous decision which Congress should carefully scrutinize.

If we have learned anything from recent developments in America's chemical warfare capability, it is that we have permitted the Department of Defense to make too many independent decisions on weapons policies. DoD should provide Congress with a full and complete arms control impact statement before we authorized any new weapons procurement.

Too often arms control policies and negotiations have been conducted without benefit of foresight. Bureaucratic momentum within the Department of Defense and other related agencies and the onrush of technological breakthroughs have generated research and procurement of agents of death and destruction without adequate consideration for what the consequences are for the peace of the world.

If Congress required an analysis on the full impact of the proposed adoption of binary munitions, we might be able to isolate the relationship between this proposal and the threat to the world of chemical weapons proliferation. Too often these research and development decisions are made in the context of some isolated logistic program or with some specific or peculiar requirement in mind. The binary program has been on-going for some 15 years. The military has been forced to face the fact that public opinion is strongly against the transportation of toxic nerve agents needlessly from one storage site to another and that concern is easily aroused about proposed destruction procedures for deteriorating munitions. Placing this problem in the environment of a massive defense bureaucracy, pressed forward by a dedicated corps of chemical war-
fare specialists anxious to justify 20 years of research and development, has meant a shift of stockpiles from its current configuration to the binary system with its reported safety from hazards in stockpiling and shipping.

But what about the impact of a decision to procure binaries on events and policies outside the immediate domestic problems associated with existing stockpiles? Who examined the effect on the Geneva negotiations? Who factored in the potential risks of escalation of the use of the safer to manufacture and handle binary munitions as mass destruction weapons within non-nuclear countries? Who conducted the risk benefit analysis in terms of our current very delicate relationships with our NATO allies? And finally, what conclusions were reached if such analyses were conducted?

If we had a requirement for arms control impact statements for new weapons programs—a proposal I recently introduced in the Senate—we might be able to get some answers to these questions. Had we had a system of arms control statements a decade ago before full-scale utilization of herbicides in Vietnam, the ecological catastrophe we have perpetrated on the Vietnamese land and people might have been avoided.

In summary, I would like to reiterate my support of the Geneva Protocol with the understanding that herbicides are included. To this end, I shall introduce once again in the Senate, the same proposal that I introduced in the last Congress—namely an Executive Understanding that clearly states that the Geneva Protocol prohibits the use in war of chemical herbicides.

I am hopeful that this series of hearings will be a prod to the Administration to report to Congress the results of its 8 years of reconsideration of the Senate view which is embodied in the Executive Understanding which I originally introduced in January, 1971. Should we hear a favorable response from the Administration, the Senate could then get on to the business of ratifying the Geneva Protocol and the Biological Convention. And then our negotiators could perhaps get on with their business of negotiating an expanded treaty on chemical munitions.

ADMINISTRATION POSITION AFFECTS BOTH BW CONVENTION AND 1925 PROTOCOL

Mr. Zablocki. Thank you, Senator, for your excellent statement and your summary.

It appears to me that since we are not now engaged militarily anywhere in the world, indeed, during this period of détente, it is an ideal time to pursue the ratification of the Geneva protocol and other agreements to prevent the use of chemical and biological agents for military purposes.

You have touched upon the failure to ratify the Geneva protocol as having a significant effect on current disarmament negotiations on chemical warfare arms control at Geneva. Would you agree that the failure of the United States to ratify the 1925 protocol is also a significant factor in the delay of the ratification of the biological warfare convention?

Senator Nelson. Yes; I think it is. I can't speak for the Senate, or the Foreign Relations Committee, but it is my understanding the committee would like to deal with both of those protocols, and that it would like a response from the administration as to whether it agrees now with the Foreign Relations Committee interpretation of the Geneva protocol as to the inclusion of herbicides in the prohibitions of the Geneva protocol. If they receive a positive response from the administration, it is my guess, though I am not on the committee, that we could get ratification of both of those protocols.
RATIFICATION A STEP TOWARD ARMS CONTROL

Mr. ZABLOCKI. Senator, in your opinion, what significant advantage would accrue in U.S. foreign policy if the protocol could be ratified immediately without the exclusion of herbicides and riot control agents?

Senator NELSON. To be honest, I think it is a significant useful step forward in the whole negotiations in arms control, if the protocol with the appropriate interpretation is ratified. I think the next step has to be to try to design an agreement which is being talked about in Geneva to prohibit the further research, development, and stockpiling of these weapons. They are really quite unnecessary and have disastrous potential effects worldwide, particularly the biologicals and the herbicides. So I think the general protocol is really part of the bigger picture of negotiations on arms control.

If we go ahead with the binary program and spend hundreds of millions of dollars and then others proceed to do the same, it will escalate the competition in nerve gas weapon systems. Furthermore it will make it much more difficult to reach agreements on developing and producing new weapon systems to deliver more effective biological and chemical weapons in warfare.

EXCLUSION OF HERBIQUDES AND TEAR GAS: SENATE VERSUS THE EXECUTIVE

Mr. ZABLOCKI. Senator, I have one additional question, and I don't know whether I really should ask it. I don't intend to embarrass you, but could the Senate Foreign Relations Committee report the Geneva protocol with the stipulation that it does not agree with the exclusion of herbicides and tear gas and then report it back to the executive branch so to speak, with an amendment.

Senator NELSON. I guess they could, but the chairman and members of this committee are probably more familiar with what legally that might mean to the international community. If the Congress approved it clearly stating that it did include herbicides and the President is saying that it didn't, I don't know what the effect of that is and what interpretation the international community could put on it. I would suspect that it would raise a very serious doubt in anyone's mind as to whether in fact herbicides were included in the protocol.

Mr. ZABLOCKI. We are coequal branches in our Government, and I think the Senate could voice its approval or disapproval of a particular provision and send it back to the Executive. I hope that will not be necessary.

Thank you, Senator.

Senator NELSON. Thank you.

Mr. ZABLOCKI. Mr. Broomfield.

DELAY IN RATIFICATION?

Mr. BROOMFIELD. Thank you, Mr. Chairman.

Senator, why has the Senate Foreign Relations Committee just been sitting on this? I think they have to accept some of the responsibility. The longer they keep dillydallying around, the more new techniques will be developed in this field. What is your answer to that?
Senator Nelson. Well, as to the Geneva protocol, it is 3 years now, and I didn't bring the statement with me, but the President at that time expressed his interpretation of the protocol as to not include herbicides as a prohibited chemical. The Foreign Relations Committee stated their position did include it and sent a letter to the President in 1971. As of this date so far as I know, there has not been a response as to whether the administration had modified its position or adhered to it, and that is what is holding up the protocol.

Mr. Broomfield. How about before that time? How about the previous administration? I don't recall President Johnson sending up any kind of request on this at all.

Senator Nelson. I think the protocol was negotiated in 1925, so I think we can equally criticize every administration and whatever part any Congress may have played from that date to today. I was not making any special criticism of this administration; the protocol has been around for nearly a half century.

Mr. Broomfield. I thank the Congressman.

Mr. Zablocki Governor Thomson.

Action Required to Break the Stalemate

Mr. Thomson. Thank you, Mr. Chairman.

I want to welcome the Senator from Wisconsin, our contemporary in the other body. We have been very interested and looking forward to hearing your views on this subject because you have become somewhat of an expert and acknowledged in this field.

I would like to just ask what further action seems to be required by the Congress in order to break the stalemate between the Senate Foreign Relations Committee and the administration's interpretation of the protocol?

Senator Nelson. Mr. Thomson, I don't know that I can answer that except that I think in fact that these hearings by this committee are a very useful educational device in getting visibility to the issue. It is like so many other things. If they are not brought out and discussed, and if they don't become part of the political dialog of the country, we don't get any action. So I think the committee is performing a very important function in thrusting this upon the attention of the Members of Congress and the public.

No Reason to Continue Herbicide Exclusion

Mr. Thomson. Were there any really significant reasons for continuing to exclude herbicides from the Geneva protocols as proposed by the President?

Senator Nelson. I don't think there are any good reasons. I am no expert on any of this, but the only thing that I have read extensively on is the literature, including the study by the National Academy of Sciences, on this herbicide, defoliation, and its implication and effect as well as its military value. I conclude that really it had no genuine military value. That is why we debated that question on the floor of the Senate and offered an amendment to prohibit its use in Vietnam. And this was done when the war was still on.
The arguments against prohibiting its use, on the floor of the Senate, I thought, were quite weak. And in fact the Pentagon did stop its use, even though the war was still going on. So they must have concluded themselves that it was not of great value.

**ECONOMICAL DAMAGE OF HERBICIDES**

It is clear that the damage is very extensive, and nobody knows how serious the long-term ecological imbalance that has occurred will be in terms of breeding grounds for fish on which the Vietnamese live, the destruction of valuable forests which may never come back at all because the area might very well be overrun by valueless grasses and other scrub trees.

So I think, in any event, it is counterproductive to use it. It is not very valuable militarily, and it poses, I think, a worldwide problem because any country can use it. All you need is a little tiny airplane equipped to spray that stuff out on the forest. So it is a very cheap weapon, and you could have this being sprayed on all parts of the world in little wars between countries. And the result would be to create great damage to the planet with no military advantage.

So I see no purpose in permitting the continuance of its use. I understand there is some legislation in the House of Representatives to prohibit its use.

Mr. Thomson. Senator, you are worried about the fish life in Vietnam. Has it not affected the fish in America, and we have not dropped in anger any herbicides in this country! What is the effect of the herbicidal use in this country on the American bald eagle that flies up along the Mississippi River in your home state?

Senator Nelson. Well, I think it has been disastrous, and it is not, of course, as the Congressman knows, a question of simply being concerned about fish or a bald eagle, because when you conduct activities that cause extinction of any critter, you should always keep in mind John Donne's words, "Never send to know for whom the bell tolls; it tolls for thee," because when you create these great upsets, you are having dramatic upsets on humans.

**THE CASE OF DDT**

The DDT case is instructive in the discussion of 2,4,5-T. DDT has been a disaster for this country, and we don't even know yet the long-term implications of our massive use of DDT. It has a half life of at least 10 years. It has infiltrated the tissue of almost every living creature in this country, including marine life, the human, and other animals. Its disastrous first consequences showed up in the bald eagle and the Paragon Falcon birds.

At the end of the food chain, there were heavy concentrations of DDT because of magnification in the food chain. We can see that it indeed can destroy the bald eagle. We don't know the effect of DDT on all other creatures. But it is major, serious issue—important not only to the bald eagle and its mate but important to us, too.

Mr. Thomson. You include the human then in those creatures that you mentioned?

Senator Nelson. I include the human among them. It can be disastrous to the human species to continue the massive use of all kinds of...
herbicides and pesticides without having any long-term studies to see what their environmental implications are for us and for every other creature in the food chain.

SIGNIFICANCE OF NONRATIFICATION

Mr. Thomson, Senator, is the failure to ratify the Geneva protocol having any significant effect on current disarmament negotiations on chemical warfare control at Geneva?

Senator Nelson. I probably should not address myself to that because I have been following it casually, but the biological protocol includes a clause on chemical weapons negotiations and moreover, discussions ongoing in Geneva on chemical arms control involve the issue of including herbicides in the definition of chemical weapons. We have not reached any agreement on this issue, so I am assuming that the fact that the United States has not ratified the Geneva protocol is having some effect. But I think you better ask somebody who has followed it much more closely than I have for an informed answer.

Mr. Thomson. Thank you very much.

Mr. Biester. Mr. Chairman.

Mr. Biester. Thank you, Mr. Chairman.

Senator, I also wish to welcome you here, and am pleased to hear your testimony this morning.

I am wondering if you draw, or does anyone in consideration of this matter, draw a distinction between herbicides and riot control agents? You seem to have lumped them here together, and I notice in the resolution offered in the United Nations they were placed together, and I am wondering if anyone has considered this distinction.

Senator Nelson. Well, most of the nations of the world do include riot control agents, but if we were to put them on some scale of importance I would consider that if riot control agents did not inflict damage permanently, I would consider them inconsequential compared to herbicides. I do not mean to infer that riot control agents are not consequential, but compared to herbicides, their danger is inconsequential.

U.N. RESOLUTION OF 1969*

Mr. Biester. Do you detect anywhere in the votes on the resolution in 1969 in the United Nations or in the remarks or papers of the participants in that discussion a willingness on the part of some of the 36 countries that abstained to vote for an inclusion of herbicides and against an inclusion of riot control agents?

Senator Nelson. What was the last part of that, an inclination by the 36 that abstained to do what?

Mr. Biester. They would vote for inclusion of herbicides but not for inclusion of riot control agents.

Senator Nelson: Well, I read that U.N. debate, that was so long ago that I cannot recall precisely. The distinguished woman—Mrs. Myrdal—lead the debate as I recall it. What sticks in my head is that the 36 abstentions were mostly countries who didn't want to affront the United States. That is my recollection of my interpretation at that time.

*The text of the 1969 U.N. resolution appears in the appendix on p. 372.
MAJOR NATIONS HAVE RATIFIED PROTOCOL

Mr. Bieste. And what nations do not currently adhere to or have currently failed to ratify the Geneva protocol?

Senator Nelson. I don't have that list with me. I think every major nation in the world has already ratified it.

Mr. Bieste. The Soviet Union has ratified it?

Senator Nelson. Yes.

Mr. Bieste. China has ratified it?

Senator Nelson. I better not be furnishing information for the record that stands on its own. I have forgotten. It has been 3 or 4 years since I looked at that list.

Mr. Bieste. Thank you very much, Mr. Chairman.

Mr. Zablocki. Mr. Fraser.

THE TEAR GAS ARGUMENT

Mr. Fraser. Thank you very much, Mr. Chairman.

Senator, I want to apologize for my tardiness. There is a Democratic caucus underway discussing committee jurisdiction reorganization and that accounts for the absence of many Members on our side.

If I may just make clear my understanding, you are seeking to have the Senate ratify the Geneva protocol with the understanding that it encompasses herbicides in its ban on use of chemical warfare?

Senator Nelson. Correct.

Mr. Fraser. And what has been on the table at Geneva, not from us but from other nations, is a proposal to ban the manufacture or the maintenance of stockpiles in the same field?

Senator Nelson. That is now under-discussion; yes.

Mr. Fraser. We have not taken the first step—ratification of the now 49-year-old Geneva protocol—and as I understand it we have failed to table or put down a position for the United States in the Geneva conference on this issue of manufacture and the maintenance of stockpiles.

Senator Nelson. I don't think we have taken a specific position. The negotiations are ongoing, but as I said a few moments ago I have not followed them that closely.

Mr. Fraser. My recollection of the argument over tear gas is that the allegations were made that we were using it in conjunction with our war effort to, in effect, drive the enemy out of protected places so that they would be exposed to artillery fire, and thus the tear gas was an integral element of our war making or our capacity to carry on the battle.

HERBICIDES: A LETHAL AGENT

Senator Nelson. There have been several arguments about that. One of the responses of the military was that it was a humanitarian use of that instrument in special circumstances. One example given is a number of soldiers and civilians within a cave with weapons who will not come out. Some argue that it was humanitarian to put in tear gas which would do no permanent damage to make them come out. This, it is argued, avoids blowing up the caves.

As to the extent, use and military value of riot control or tear gas, my knowledge is limited to what I read in the papers. The issue I paid
special attention to in Vietnam was the herbicide question and the environmental effects and health implications of dioxin in 2,4,5-T which appears to persist in the environment.

Only 6 parts per 10 billion of dioxin in laboratory tests killed the guinea pigs in the test.

Now that is an incredible lethal agent. To be introducing that into the environment, and to have it magnify in the food chain as it appears to do in the limited tests that have thus far been done poses a very serious matter because it may end up that a good many parts per billion are in living creatures including human beings. Scientists still don't know what amounts are built up in living creatures. So there is the health question and the environmental one, and that is the agent I have paid close attention to so far as Vietnam was concerned.

INDEPENDENT LEGISLATION ON HERBICIDE USE?

Mr. Fraser. Your thought is that if this subcommittee looks at the matter and comes to some conclusion, this may have some influence in the Senate?

Senator Nelson. I think it would have some effect. And I think it is worth considering whether we should just legislate a prohibition against it. It is not my business to instruct this committee, but I would like to see one House or the other require the military to come in and really specifically justify the military value of the use of this herbicide. I don't think they could.

Mr. Fraser. I see. Apart from the ratification of the treaty and the understanding that it encompasses the use of herbicides, we could independently legislate with respect to its use by our own Armed Forces?

Senator Nelson. I think you could. I don't think there is any place in the world where this instrumentality has to be used.

Mr. Fraser. Thank you very much.

Mr. Zablocki. Thank you, Senator. I know your time is valuable. We appreciate your coming before the committee this morning. Your testimony was very helpful.

Senator Nelson. Thank you, I appreciate the opportunity.

Mr. Zablocki. Our next witnesses are Representative Patricia Schroeder of Colorado and Representative John Dellenback of Oregon, We will hear them as a team.

The Honorable Wayne Owens of Utah, who is the chief sponsor of the resolution before us is unfortunately ill and therefore unable to appear this morning. We will hear them as a team.

We will hear Congresswoman Schroeder first.

STATEMENT OF HON. PATRICIA SCHROEDER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Mrs. Schroeder. Thank you.

First, if it is all right with the committee, I would ask unanimous consent that my written statement be inserted in the record and then attempt to briefly summarize some of the things that I think are most important.

Mr. Zablocki. Without objection, your complete statement will be made a part of the record after your oral summary.
Mr. Schroeder. Mr. Chairman and members of the committee, I am delighted that you decided to focus on this area. I have to confess that the way I became interested in it was because we have one of these large stockpiles of chemical weapons in my backyard in Denver, and so there was an immediate concern, and that is why I became very interested in what was going on.

I proposed to direct my remarks mainly to the status of the negotiations in Geneva of the Conference of the Committee on Disarmament. Last August, in 1973, I attended sessions for over a week in Geneva as a House of Representatives observer appointed by the Speaker. The stated position of the United States at these meetings as regards chemical weapons was then and remains today as follows: We will not be the first to use them, but retain a chemical capability in order to deter enemy use of such weapons, and to provide a retaliatory option in the event deterrence fails. We insist, moreover, that any meaningful agreement restricting these weapons be accompanied by verification procedures capable of producing the requisite observations or data entrusted to nations wishing to reassure themselves.

**U.S. Position: No First Use, But Retain Capability**

So in essence what we are saying is that we will never use chemical weapons first. Then what the Geneva conference is looking into is whether we can come to a multilateral agreement on prohibition of development or production or stockpile. There is no agreement at the moment, and any one of these three things, or all of or some combination, might be the subject of agreement.

I would like to look at the U.S. position because I feel it is one of the reasons these talks have been stalled for about 2 years. I think in saying that we won't use these weapons first, but need them to deter, we have to examine what the threat would be to the United States. I think that the threat to the geographical United States per se is very, very small. The main threat is to our NATO Allies in Europe.

**Main Threat is to Europe**

I think also in looking at the threat we often blur chemical and nuclear concepts. I think that unlike nuclear arms we do not need to worry so much about balance because I don't think that in this area deterrence lies in our ability to respond in kind, one for one, mainly because in chemical warfare there are defensive measures that will work. We don't have the same defensive capability with respect to nuclear weapons.

Let me expand. As anyone in the chemical warfare area knows you can defend your troops against the use of chemical weapons through such basic countermeasures as masks and ponchos and other such equipment. Granted it is cumbersome, but it is available. The effective use of chemical weapons by either side, then, means seizing the tactical advantage of surprise—to surprise the other side by using them first.

And obviously, if any country intended to use them against us, it is going to be prepared to defend against them if we respond in kind. Therefore, I think we have to reexamine our position that we are only
holding these chemical weapons to deter the other side, because I would think that anyone who would use them first against us would be adequately prepared to defend against our counteruse.

INADEQUATE FORWARD DEPLOYMENT

Next, I think that if the retaliation in kind were truly effective—and NATO is the main area where I think the use of chemical weapons is the most probable—it seems to me we do not have adequate forward deployment. As you know, there is one area in Germany where we have stockpiled chemical weapons. The supply is small and if we were to need them in the European Theater we would have to airlift them from the United States, which would mean a great delay. So I think if we are really serious about needing these weapons to respond in kind, we certainly haven’t demonstrated that need in our deployment policies.

VERIFICATION PROBLEMS

Many have argued that we cannot have an agreement based on good faith alone, and insist on foolproof verification. The problem with chemical weapons, of course, is that you can store them almost anywhere, you can manufacture them almost anywhere. Again, we have a different kind of animal than in the nuclear area.

I think we also have to be very careful about the proliferation, because chemical weapons are much cheaper to manufacture and almost any country with any manufacturing ability can make them. Maybe we have to look at this again and consider whether the kind of verification that we have required in the nuclear area might not be less critical in this area.

REASONS FOR AMERICAN POLICY

Well, why do I think we have not looked at our policy this way and have not reconsidered our stance in Geneva? I think part of the reason for the intellectual sterility of American policy in Geneva has been the SALT I backlash, that we have been a little concerned as to how fast we want to proceed, after some of the comments on SALT I.

Another is this diplomatic stare decisis that I mentioned before. In other words, we take a nuclear verification formula and because we fear the precedent of anything less try to apply it to another class of weapons that is not analogous at all. We say if we cannot have on-site inspection, or whatever else, we cannot proceed to negotiate.

Finally, the Committee on Disarmament is a multinational group, and unfortunately in our country it seems that we have put low priority on multilateral negotiations and have done much better with bilateral agreements, as we know from just having heard the discussion on the Geneva protocol.

INVENTION—THE MOTHER OF NECESSITY

Then, too, there is the matter of institutional inertia. In 1962 the Army Materiel Command absorbed many of the functions of the old Chemical Corps. They are now asking to recreate a new kind of chemical weapon, a binary. Sitting on the Armed Services Committee I must
say that once you vest some bureaucratic branch with a certain weapon system it is unlikely that they are going to come in and ask you to dismantle that weapon system or to halt its improvement. So I think we have a case of that holding us back, too.

CHANGES DICTATED BY TECHNOLOGY ABILITY

We almost find these different groups saying that if we have the technological ability to change directions then we absolutely must; invention becomes the mother of necessity.

So what I am saying is that I certainly commend the committee for looking into our national policy on chemical weapons. I think anything we can do to restate it, to clarify it, would certainly help the American negotiating team in Geneva.

I think our Arms Control and Disarmament Agency under Dr. Ikle is doing an excellent job.

I certainly appreciate the opportunity to testify here this morning. Thank you.

Mrs. Schroeder’s prepared statement follows:

PREPARED STATEMENT OF HON. PATRICIA SCHROEDER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Mr. Chairman, I very much appreciate the opportunity to appear before this subcommittee today. I feel these hearings can prove most useful in determining why the Conference of the Committee on Disarmament appears to be stalled on the issue of controlling the development, production, stockpiling and use of chemical warfare weapons. A thorough analysis of the issues involved may encourage representatives of this government to develop an affirmative position of their own, thereby moving the Geneva negotiations off dead center.

I do not pretend expertise in the subtleties of international arms negotiations or, for that matter, in the technology of chemical weapons. Last year’s disclosures of a lethal chemical stockpile in my Denver backyard, though, brought me in quick order to begin learning all I could about this part of our military arsenal and efforts to negotiate its demise.

The CCD was organized in 1962 as the Eighteen Nation Disarmament Conference. It was enlarged to 26 members in 1969, at which time it was given its current name. While public attention has tended to focus in recent years on the intercontinental dashes of our talented and ubiquitous Secretary of State and his essentially bipolar approach to issues of disarmament, it should not be forgotten that the CCD has played a pivotal or contributing role to a number of major arms control agreements, including the limited test ban treaty, the nuclear nonproliferation treaty, the seabeds arms control treaty, and, most recently, the convention banning biological and toxin weapons. Moreover, precisely because the CCD membership involves many nations, including several which would hardly qualify as world powers, its accomplishments should be cherished and its continued existence regarded as an important goal of American foreign policy.

Last October’s events in the Middle East should serve to refresh our recollections of how the problems and disillusionments of small nations inevitably affect the security of large ones.

In August, 1973, I attended several CCD sessions in Geneva as a House of Representatives observer appointed by the Speaker. The stated position of the United States as regards chemical weapons was then, and remains to this day, as follows: We will not be the first to use them, but we retain a chemical capability in order to deter enemy use of such weapons, and to provide a retaliatory option in the event deterrence fails. We insist, moreover, that any meaningfully comprehensive agreement restricting such weapons be accompanied by verification procedures capable of producing the requisite observations or data and, in addition, entrusted to the nations wishing to reassure themselves. (For a more detailed discussion of the verification question I refer the subcommittee to the “Work Program” (CCD/360) submitted to the Conference by the U.S. delegation on March 20, 1972. As far as I know, this is the last constructive contribution our government has made to the progress of the negotiations.)
That position, enunciated time and again by Ambassador Joseph Martin, Jr.—usually as part of the critique of proposals submitted by other nations—struck me as a non-starter, more an excuse for not reaching agreement than an attempt to reach one. This perception was shared by the delegates of several attending nations, and, as I was to learn through private discussion in subsequent months, by a number of individuals within our own arms control establishment. Among those most conversant with the problem of controlling the weapons of chemical warfare and most anxious to solve that problem a number of premises are accepted as beyond dispute:

First, the United States (proper) faces no threat whatsoever from a chemical warfare attack. To the extent any threat exists at all it is to our NATO allies as part of a massive attack by Warsaw Pact Nations.

Second, unlike the situation that applies with respect to the nuclear balance of terror, the primary deterrent to a nerve gas attack is not the ability to retaliate in kind. Casualties from such an attack can be reduced to negligible proportions through the utilization of countermeasures as basic as a poncho and a gas mask. The intrinsic tactical advantage rests therefore with the nation initiating a surprise first-use of chemicals. Such a nation is likely to anticipate retaliation and equip its troops with appropriate defensive materials. The real deterrence to a surprise attack, then, is an adequate chemical defense plus the credible threat to retaliate with conventional or tactical nuclear weapons depending upon the severity of the initial attack.

In this area, it is worth noting that neither we nor our European allies are either adequately trained or equipped to defend ourselves against a nerve gas attack. Army chief of staff, General Creighton Abrams, admitted as much this past February in his post-mortem on last October's war delivered to the House Armed Services Committee. In one respect this indicates an area where improvement is necessary. Perhaps more importantly it shows the low probability our military planners attach to such an attack.

Third, even were retaliation in kind an effective deterrent, the ability of NATO forces to do so effectively is limited. Due to excessive resupply times, chemical weapons stocks positioned in the United States cannot be considered part of a credible retaliatory possibility. Further, there is only a single NATO storage area for chemical weapons, located in Germany. That Government would be far from unhappy to see those stocks removed and, in any event, would be precluded by West German political exigencies from approving expanded facilities or even the introduction of new types of chemical weapons.

Fourth, a number of the world's industrialized nations have the capability today to produce chemical warfare weapons. Agreements to limit the production or stockpiling of chemical warfare agents are at best difficult to monitor and would always be subject to substantial reliance on the good faith of the signatory nations. From a technological point of view, unlike those systems regulated by the SALT I accords, for example, air or satellite recognizance would be of limited, if any, use. And the opportunities for the secret manufacture and storage of nerve gas are substantially unlimited.

Fifth, a unilateral renunciation or an unverified comprehensive prohibition on all or part of the activities related to the conduct of chemical warfare would not increase the risk to U.S. or NATO forces and may in fact decrease it by placing political and, perhaps, military constraints on potential aggressor nations. Again it is worth noting the primary constraint against surprise first-use by an enemy comes not from our essentially fictitious ability to retaliate in kind but from effective, passive defenses plus our ability to respond with conventional or tactical nuclear weapons as the occasion may dictate. That sort of deterrence would not be hampered and might actually be enhanced by our abandonment of the chemical warfare concept altogether.

Given these widely shared premises and juxtaposing them with the American bargaining position it was not surprising to see the CCD adjourn last summer in an atmosphere heavy with pessimism and with several of the participating nations—nations otherwise friendly toward the United States—dubious as to American intentions. The Administration's autumn decision to press ahead with the development of binary nerve gas weapons further blackened the picture.

Where many nations last summer regarded the United States as having assigned a rather low priority to CCD activities, by mid-March as the 26 nations reconvened one of the more influential western delegates (Dr. Alfonso Garcia Robles, Leader of the Mexican Delegation) went so far as to suggest that we planned to trigger a chemical arms race. Indeed the mood of the COD at this
point is such that an agreement imposing meaningful restrictions in the area of chemical warfare is not soon achieved the existence of the organization will be threatened.

My purpose here is not to undertake an exhaustive review of the military and nonmilitary pros and cons of the binaries, Mr. Chairman, which as you know involve two "relatively non-toxic" chemicals capable of generating lethal nerve agent when mixed. I believe other testimony will address these questions.

Rather my intention is to assess binaries from the standpoint of their impact on the ongoing work of the CDD, and here my conclusions can be summarized in a single word: disastrous.

While binaries add little to America's anti-chemical warfare deterrent, they do significantly add to such verification problems as already exist. Even the definition of agents to be included in an accord would not be easy. When we deal with binaries, after all, we are dealing with sets of individually harmless or relatively harmless substances, chemicals that may have perfectly benign non-military value to the private sector. The production of many such substances could be accomplished by a nation's commercial chemical industry. Indeed, this is one of the binaries' prime recommendations. How then would an agreement banning binaries along with traditional nerve agent be worded? How could it ever be policed? What assurances could there ever be that existing stockpiles have been destroyed?

This, however, is only part of the problem. Proliferation is another. There is much apprehension that binary chemical weapons would become the "poor man's atom bomb." They are of far greater military significance to smaller countries than to larger ones, and, given their heralded ease of manufacture and transport, pressures on the major powers to assist their smaller allies by equipping them to use the binaries would eventually become severe.

Then there is the matter of forward deployment of any binary weapons or agents produced by the United States. Included in this year's military budget are funds to commence the manufacture of binary agents at the Army's Pine Bluffs, Arkansas facility. Common sense, though, tells us that these chemicals can serve no effective purpose in Pine Bluffs, or for that matter, anywhere else in the United States.

The howitzers, missile warheads, aircraft massive-bombs, cluster-bombs, air-to-ground rockets and aircraft spray-tanks that will eventually fire these chemicals—as well as the agents themselves—would take weeks or months to transport in an emergency and would, in the process, absorb a considerable percentage of our airlift capacity.

Yet the alternative of forward deployment is equally unacceptable. It would play havoc with the policies of our western European allies, introduce a new and mischievous element into ongoing MBFR negotiations and greatly increase the risk that our putatively defensive motivations could be misconstrued by the Soviets thereby encouraging development and deployment of their own binary chemical arsenal.

Small wonder then that our decision to commence production of binary weapons has been greeted with alarm by many members of the CDD. Small wonder that many participants in international arms control efforts, including several staff members of the American team, would prefer an accord banning chemical weapons based upon limited verification, self-verification or no verification at all to the position, or more correctly the nonposition, of the United States. The latter substitutes for the uncertainties of an arms control agreement the certainty of a new and dangerous chemical arms race.

What accounts for the intellectual and moral sterility, the total lack of innovativeness, of the current American posture? Several suggestions have been advanced by those closest to the scene.

First, there was the unfortunate backlash against the SALT I accords from certain segments of the public and the Congress. The Administration, having been once smitten, is now somewhat gun-shy about bringing home agreements which do not on their face reflect a major American bargaining victory. This is particularly true in the current period when President Nixon, to paraphrase Von Clausewitz, is attempting to keep his right flank strong.

Second, there is the precedential element to any agreement negotiated. We have for about two decades insisted upon on-site inspection with respect to certain types of agreements in the area of nuclear weaponry, and while banning nerve gas is an entirely different matter there is still the bureaucratic fear of what can best be termed diplomatic stale decsals.
Third, the plain fact is that we have not assigned a ‘very high recent priority’ to CCD affairs, including the control of chemical warfare. We have had difficulty gaining domestic approval of past multi-lateral arms treaties and protocols and our emphasis today is on the bi-lateral approach. In the grant orchestration of all our international negotiations, everything is playing second fiddle to SALT, including CCD.

But above all else the real answer may lie in the sort of institutional inertia that tends so often to generate policies. The Army Materiel Command, which in 1962 absorbed the functions of the old Chemical Corps, would after all, have very little to do—particularly in the light of the restrictions placed upon its activities by the Congress in 1969—were it not developing, procuring and stockpiling one variety of nerve gas or another. The development of binaries promises to ripen into a $1.5 to $2.0 billion effort that will keep the Materiel Command in business at least through 1985. And while the program itself creates more problems than it solves, that seems a matter of little concern. As one British critic of the binary program recently noted: “In circles where technological prowess is highly valued, it seems to be a fact of life that the mere existence of a technological solution, even one to a problem or no obvious moment, has a tendency to upgrade the status of the problem to that of a bad situation requiring immediate remedy.” Invention, in other words, becomes the mother of necessity.

This may all seem a bit cynical, but my exposure to this problem has persuaded me that chemical warfare is important chiefly to the old Chemical Corps, that the Army Materiel Command is the prime mover within government circles for experimentation in the area and the prime road block to international accord. I am further convinced that the Arms Control and Disarmament Agency under the able leadership of Fred C. Ikle could press meaningfully ahead in the direction of international control of lethal chemical weapons if it had the active support of its own State Department, even of modicum of encouragement from the White House and the prodding of a concerned and enlightened Congress. That is why these particular hearings can prove so positive a force. This will be a critical year on the arms control front. Accordingly, I believe that government witnesses should be drawn out in a number of areas. Is there any reason for technical—indeed insurable—verification problems to permanently block an accord? I submit the answer is no. Would the expenditure of funds for the production of binary chemicals threaten the life and work of the CCD? I suggest the answer is yes. Does the development of such weapons, either as a retaliatory option or as a deterrent, serve our national security? No. Would such development and deployment impede verification of and compliance with any agreement and greatly complicate relationships with allies, adversaries and the other members of OCD? Yes. Are there at least two distinct voices within the government on this subject—one of the Chemical Corps and the ACDA? Yes. Has the CCP suffered from the failure of this government to assign a high diplomatic priority to its work? Yes. And, would the Conference benefit from the presentation of an imaginative, concrete and comprehensive American proposal? Yes again.

Mr. Chairman, now that I have answered most of my own questions, I would be delighted to attempt to respond to some of yours. Again, I appreciate your invitation for me to appear here and express my views and concerns.

Mr. Zablocki. Thank you, Mrs. Schroeder.

Mr. Dellenback.

STATEMENT OF HON. JOHN DELLENBACK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON

Mr. Dellenback. Mr. Chairman, I would ask also for the sake of the subcommittee that my full statement might be made part of the record, and that I be permitted to make a brief summary rather than to read the statement to you which has been supplied to the members of the subcommittee.

Mr. Zablocki. Without objection, your statement will be made part of the record after your summary.
UNITED STATES AT THE HEART OF CW IMPASSE

Mr. Dellenback. I would say just a few things, if I may, that I have touched upon in part in my statement and part not. It seems to me that for far too long a time now the United States has really been at the heart of this impasse. We are at a unique time now to study the matter as this subcommittee, deserving some commendation for so doing, has determined you are going to do.

It is time that a clear position was determined. The Vietnamese situation—which was at the heart of our difficulty for so many years because we were in the process of utilizing weaponry which caused problems in going forward with the ratification of the protocol—that is now behind us. We no longer have to face that particular situation, and hopefully we are in a position which is much freer as to what we now can do.

CRITICAL TIME

We are also, for another reason it seems to me, Mr. Chairman, at a critical time as to why we should move now. And that is that we face the decision time as to whether we are going to proceed with this proposed Army program to switch to binary chemical munitions. Before we allow the military to go forward with that kind of a move I think this subcommittee and the Congress ought to be facing the question of whether we need or want this arsenal of chemical weaponry. Because this is not only a question of what is happening with the 1925 protocol, what is happening with the 1972 biological convention, what is happening with the proposals that are in Geneva at the present time, but it goes way beyond that.

ARE CBW ADDITIONS NECESSARY?

I would refer this subcommittee to something which is already in the minds of some of you. In fact as early as 1969 a group of 15 of my Republican colleagues and I made a study on this which was entitled, "CBW and National Security." We published it on November 3, 1969. If I may, Mr. Chairman, I would submit this or another copy of it to the subcommittee for its records.

Mr. Zablocki. Without objection, the study will be incorporated in the appendix of the hearing.

Mr. Dellenback. Essentially it seemed to us that the heart question, as well as the hard question, is do chemical and biological weapons make a positive and necessary addition to our already impressive arsenal. I submit that is part of what your subcommittee, Mr. Chairman, is really in the process of looking at at the present time. The conclusion which is spelled out in our study is that in comparison with conventional and nuclear weapons CBS, chemical biological systems, were neither more cost-effective nor more certain to prove a deterrent to either limited or all-out war.

RISKS OUTWEIGH ADVANTAGES

Furthermore, the risks involved in developing CBS weaponry seemed to us to far outweigh any dubious advantages of such a system. We went into the details of that and we came out with certain recom-
recommendations. I am pleased that since the time of that report the United States has made some progress along the lines which we recommended in our study. You will recall that in late November of 1969 President Nixon announced a series of decisions which were based on a National Security Council review of our policy. All biological weapons—and later on toxins were added to that—were denounced and the United States indicated that it would never be the first to use lethal or incapacitating chemical weapons. Irritant gases and herbicides were not included at that time. The President also said he would submit the 1925 Protocol again to the Senate, and he did so.

THREE STAGES: DEVELOPMENT, PRODUCTION, AND STOCKPILING

Since that time—and if I may, I would say this in further elaboration of the question you asked, Mr. Fraser—the question is where do we now stand in connection with the protocols and conventions? As I understand the situation there is, of course, the 1925 Protocol which has been hanging fire for 49 years without our having acted on it. In addition to that there is a convention that came forth in 1972 that dealt with the development, production, and stockpiling of biological and toxin weaponry, and that is actually out. The convention was submitted to the Senate for ratification in August 1972, and the Senate has not acted on that.

The present impasse that is taking place in Geneva, as I understand it, goes to the question of development, production, and stockpiling of chemical weapons. This means the question is in three stages. Two stages are in the hands of the Senate at the present time with no action to date, and the third one locked in an impasse at Geneva at the present time.

IMPORTANCE OF U.S. RATIFICATION

Mr. Chairman, you asked the question of Senator Nelson when he was here about why American ratification of the 1925 Protocol is important, and if I may add to what was said at that time in response to it, I would suggest that there are at least three good reasons: The first of which is that the United States was among those who originally proposed the Protocol in 1925, and our failure now after 49 years to ratify it has been a constant source of embarrassment to any further negotiations. Anytime we get to a very sticky situation and we are proposing something it is thrown back at us that the proposal we produced in 1925 has never been ratified by our Government. That is a sticky first hurdle for our people to get over.

Second, ratification which would present us with action taken by the Congress would have a very important binding effect for the future. While the President has taken steps at the present time—and I am pleased with the steps that he has taken—those are subject to reversal at any time in the future that a President elects to reverse them. However, if once we ratify that Protocol then we have taken a significant action in the form of a Congress moving into the issue, and it has much more effect in the future.

Third, Mr. Chairman, it seems to me that the ratification of that Protocol would very much enhance our efforts at Geneva to move forward from here. The impasse that is hanging us up there could very well be broken by that. So I would suggest at least those three reasons...
for making this a first priority in considering what we should do. I won't go into the discussion as my statement does as to where we are at the present time and why we have not ratified. You and the other members of this subcommittee are at least as aware of that as I.

**NEED TO MOVE FORWARD**

I think I would end up saying that the current session in Geneva, which is important, should be moved forward. As you know, it is hung up over two main problems: One, we are insisting on some acceptable means of verification that the terms of the convention would be carried out, and that has problems attached to it. It is not a simple thing. Second, we are concerned with the difficulties in segregating specifically what chemicals should be considered weapons.

We need to move forward. This is a time where it seems to me that we see a third stage in the development of an individual's involvement with society. When it was merely a case of what an individual did we could deal with what was a crime and what was a fault, and we could control the individual. And then we came into the situation where an individual was set off against a nation at times. And here we are at the present time where we must, under certain circumstances, subordinate individual rights because the risk to the Nation is so great that the individual right, in limited degree, must be subordinated to this.

We are almost, it seems to me, with this kind of weaponry to the situation where the interests of humanity are at stake. And we cannot afford to permit further development of this kind of chemical weaponry because just as if something threatens the state then individuals are going to go by the wayside if the state is damaged, so also if something really threatens humanity then states are going to go by the wayside if humanity falls, and this is part of what is at stake at this particular moment.

**U.S. ONLY MAJOR POWER NOT TO RATIFY PROTOCOL**

If I may make one more statement in response to Mr. Biester. I think that you will find, Mr. Biester, that the People's Republic of China has ratified the protocol. That the U.S.S.R. has ratified the protocol. That West Germany has ratified the protocol. That France has ratified the protocol. And with the ratification by Japan in 1970, the United States is now the only major power which has failed to do so.

You are aware also of the fact that on the U.N. vote on whether herbicides and tear gas were included in the terms of the protocol, the vote of those who went on record on it was 80 to 3, and the only 3 nations that voted against it were Portugal, Australia, and the United States.

I thank you very much, Mr. Chairman, for this chance to be with you.

[Mr. Dellenback's prepared statement follows:]
From what I know of your proposed hearing schedule, it appears the subcommittee will be giving this entire question a very thorough review. I commend you for this. For too long now the United States has been at the heart of an international stalemate in the area of both biological and chemical weapons disarmament because we've been unable to resolve some crucial points in disarmament proposals and the Congress has yet to find its voice on the issue.

Moreover, the time is now optimum for the Congress to study the matter and determine a clear position. We are no longer involved in the Vietnam war where our own policy in using herbicides and tear gas placed us in an embarrassing position among those who had already ratified the 1925 Geneva Protocol. Furthermore, just two months ago the National Academy of Sciences released its long-awaited report on "The Effects of Herbicides in South Vietnam." While I have not yet read the entire report, I am hopeful that it will be helpful to the subcommittee and other Members of Congress in evaluating the wisdom of the U.S. decision to employ such weapons during the Vietnam conflict and their value to us in the future.

We are also at a point of decision on whether to proceed with a proposed Army program to switch to binary chemical munitions as we destroy our current stockpile of mustard gas and nerve gas. The fiscal year 1975 budget requests some $6 million for continued R. & D. on binary weapons and almost another $6 million to construct a facility at Pine Bluff, Arkansas, to begin producing such weapons. Before we allow the military to go any further with a new chemical weapons program, we must answer the question of whether we need or want an arsenal of chemical weaponry at all.

Moreover, the President will be going to the Soviet Union for another summit meeting in June at which point the question of chemical weapons disarmament will undoubtedly be discussed. With our delegation at the Conference of the Committee on Disarmament in Geneva presently facing an impasse, a Congressional statement on the matter might contribute to the making of some substantive decisions at the summit.

The particular resolution I introduced last year deals with two basic areas of this issue: first, the inability of the Senate to move forward with ratification of the 1925 Geneva Protocol, and second, the need for a Congressional review of United States policies in the chemical warfare field and of our reasons for including chemical weapons as part of our "defense program. Let me address myself first to the second point of why we should even be stockpiling weapons of this type and what U.S. policy should be concerning their use.

In November, 1969, a group of 15 Republican colleagues sponsored a study entitled CBW and National Security which discussed the tactical and strategic implications of chemical and biological weapons. We began with the premise that the sole justification for developing and producing biological and chemical weapons should rest in their overall value to our national security. We could not accept the rationale that we should pour American money into these systems simply because other nations might be doing so. The question is, rather, do chemical and biological weapons make a positive and necessary addition to our already impressive arsenals?

We examined the basic characteristics of the various types of these weapons and some of the problems involved with their use in military situations. In comparison with our conventional and nuclear weapons, our study concluded that CBW was neither most cost-effective nor more certain to prove a deterrent to either limited or all-out war. Furthermore, the risks involved in developing and stockpiling CBW seemed to us to outweigh any dubious advantages of such a system.

Another issue we questioned in the study was the contention that CB weapons is humane. While some of these weapons which merely incapacitate the enemy for a limited time might appear on the surface to be more humane than conventional weaponry, we noted that they are generally used in combination with conventional weapons, thus increasing the attacker's chances of inflicting casualties. In addition, the potential ecological damages caused by these weapons may be extensive, with profound effects on future generations.

Some would argue that the use of CBW might enable us to maintain a low-level conflict and prevent rapid escalation to an all-out war. It was our conclusion, however, that "the possibility of escalation results from the breaking of tradition, not from the military mission these weapons are assigned. Their employment indicates that conventional warfare cannot do the job and defeat is unacceptable. Thus it is unlikely that lethal chemical or biological agents could be considered less escalatory than tactical nuclear weapons."
Our final concern was that the mere possession of chemical and biological weapons increases the likelihood of their being employed. The ease with which we decided to introduce chemical weapons into the Vietnam war lends support to this contention. Because the logical of our study suggested that the disadvantages of OBW far outweighed their marginal advantages, we recommended careful consideration of the following actions:

1) Eliminating all stockpiles of chemical and biological weapons, including any low-level chemicals designed for military use. This does not include riot control agents for crowd control in the U.S.
2) Publicizing the results of future research in the field of OBW.
3) Encouraging international agreements on the prohibition of chemical and biological production and usage.
4) Ratifying the 1925 Geneva Protocol.
5) Declaring that the United States will not use such weapons, but will respond to their use by adversaries with appropriate conventional or nuclear force.

I'm pleased to be able to say that since that time the United States has made some progress along the lines recommended in our study. As the Subcommittee Members will recall, shortly after our study, on November 25, 1969, President Nixon announced a series of decisions based on a National Security Council review of our policies. All biological weapons (toxins were included in February 1970) were renounced and the U.S. indicated that it would never be the first to use lethal or incapacitating chemical weapons. Irritant gases and herbicides, which the United States was using in Vietnam, were not included in the ban on first use. The President also indicated he would submit the 1925 Geneva Protocol prohibiting the first use of chemical and biological weapons to the Senate for ratification and he did so in August 1970.

Some progress was also made in disarmament talks on this type of weaponry at Geneva. The session in 1972 came forth with a convention proposing to bar the development, production and stockpiling of biological and toxin weapons (something the 1926 Protocol failed to do) and the convention was submitted to the Senate for ratification in August 1972. Unfortunately, however, the Senate Committee on Foreign Relations has not acted on the Convention—apparently because it has locked horns with the Administration over the 1925 Geneva Protocol.

In comment on the second major issue of ratification of the 1925 Protocol, I am convinced that American ratification of this treaty is very important for three reasons.

First, it was the U.S. which originally proposed the Protocol in 1925 and our failure to ratify it has been a constant source of embarrassment to our diplomats. Second, ratification, representing action by the Congress, would be binding on future Presidents, while our present stance could change with a new Administration. Third, the overall strength of the Protocol would be reinforced and our efforts at Geneva to eliminate stockpiling would be enhanced by our ratification. It should be noted that with Japan's ratification in 1970, the United States became the sole major power to fail to bind itself to the Protocol provisions.

Why haven't we ratified the Protocol? Because to date the President has insisted on adding an interpretation that tear gas and herbicides are not included in its provisions. I must agree with the Senate Committee. Tear gas and herbicides should be included in the prohibition.

It should be clear from the virtually complete abstinence since 1925 from the use of tear gas in war that most countries do in fact believe it to be outlawed by international law. A U.N. General Assembly resolution in 1969 indicated that the other parties to the Protocol felt it covered tear gas. If we were to attach an understanding of a different sort, it would only serve to weaken the force of the agreement.

There are additional reasons why a tear gas reservation is unnecessary and unwise. Such a reservation would really not preserve a valuable military option for the U.S. Tear gas is only effective against troops lacking simple gas masks. In addition, it could probably only be used in operations where the U.S. is not an ally of a Protocol adherent which feels that use of tear gas for military purposes is prohibited. Both allies would want to follow similar weapons policies and the use of tear gas by the U.S. could easily lead to gas retaliation by our common enemy against both the U.S. and its allies. This would certainly be
completeley unacceptable to any ratifying ally. Thus, realistic opportunities for using tear gas may be quite rare.

As far as herbicides are concerned, I am convinced their value in assisting an attack is overrated. When they are used to destroy crops which are meant for enemy soldiers, it is generally the civilians who suffer first and most as available food supplies are taken to feed the combatants first. Furthermore, once an area is cleared of foliage, it may be avoided by the enemy. The troops which would have operated in that area, however, will simply be deployed elsewhere, negating the supposed advantage.

Lastly and most importantly, I believe we must consider the very delicate psychological barriers existing in the world against chemical or biological weaponry and the repercussions of American use of tear gas and herbicides during the Vietnam war. As we indicated in our 1969 study, "by making them respectable after an almost complete international avoidance of them since World War I, the U.S. has made all chemical weapons more attractive in any future war. Once the barrier between conventional and chemical weapons is broken, it is difficult if not impossible to erect new ones which distinguish between categories of chemical weapons." 

There are several reasons why chemical warfare would be attractive to many nations once international prohibitions against its use could be easily ignored. Such weapons are relatively easy to develop and comparatively inexpensive if a nation feels a need for a mass killer to improve its security. The U.S. has already made scores of countries aware of the potential surface advantages that chemicals seem to offer by training foreign military officers in the use of these weapons.

Smaller nations which are denied access to nuclear weapons could easily turn to CBW. Such weapons in the hands of smaller countries which would not hesitate to use them would offset in significant degree the advantage the U.S. maintains in industrial strength and conventional military firepower.

For the above reasons, I am persuaded that the U.S. should renounce the future use of irritant gases and antiplant agents in warfare and ratify the 1925 Geneva Protocol as it now stands and as it is interpreted by the other parties to the Protocol.

If the Administration were to agree to this, The Senate Foreign Relations Committee might move forward on the 1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction. This could also lead to further progress at the CCD meetings currently going on in Geneva. The current session in which we are discussing a comprehensive agreement on chemical weapons is still stalemated, basically over two main problems. We are insisting on some acceptable means of verification that the terms of the convention would be carried out, and we are concerned about the difficulties in identifying and segregating specifically what chemicals would be considered weapons. In an effort to answer our concerns, compromise suggestions have been offered by a group of non-aligned nations and also by Japan. Although ratification of the 1925 Protocol and the 1972 Convention would not resolve these problems, they might well increase optimism and sense of purpose at the talks and speed up progress in our summer session this year. Regardless of what other nations do, today in 1974 the question raised in our 1969 study is still the main issue. Are the chemical weapons which our nation is still producing and storing necessary to our national security? Do they want the risks involved? It is my contention that they do not. I commend you, my colleagues on the appropriate Committee of the House for looking hard at this fundamental issue.

Thank you for your consideration.

U.S. ARMY: WHY WE NEED CHEMICAL WEAPONS

Mr. ZABLOCKI. I want to thank both of you for your excellent statements. The mandate of the subcommittee, of course, is to deal with all matters affecting our foreign relations that concern matters of national security. Certainly, treaties—particularly those in the area of chemical and biological warfare—do affect our national security and our rela-
tions with other countries, and that is why this subcommittee has undertaken these hearings. It is not our intention to go into the pros and cons of chemical weapons. However, you stated rather flatly Mrs. Schroeder, that the Army Materiel Command is the “prime mover” for the binary program and the “prime roadblock” to an international accord on chemical warfare. Now that is really a rather serious charge, and I am wondering whether you are prepared to back up that charge with documentation or solid evidence?

Mrs. SCHROEDER. Well, I do have copies of different speeches that have been given. In particular I have one here from Colonel Dismore, Chief of the Chemical Branch in the Army, who is going around giving speeches about chemical weapons and why we need them. The interesting thing that I find as I read them is that as he goes through and says—well, let me give a quote here. Actually, probably the best thing to do would be to put this in the record.

[The information referred to follows:]

speech by W. E. DISMORE TO THE AMERICAN CHEMICAL SOCIETY SYMPOSIUM ON CHEMICAL WEAPONS AND U.S. PUBLIC POLICY; APRIL 1, 1974

CHEMICAL WEAPONS—A NECESSARY DETERRENT

I am very pleased to have the opportunity to speak to you today. The invitation was most welcome and the offerings of the previous speakers have been most interesting.

I have been told that these sessions are generally called to consider questions relating to “Chemistry and Society.” Certainly the theme chosen for the symposium—“Chemical Weapons and U.S. Policy”—seems to fit well into consideration involving the societal implications of the science of chemistry. Certainly, the dialogue between scientists concerning chemical warfare has been most lively since World War I, when gas warfare first attained notoriety. The range of this dialogue has been widespread and has led to many debates ranging from considerations of gas warfare as a “moral” approach to warfare, to the total devastation of gas warfare as a prime example of man’s immorality.

I do not intend to debate the morality of chemical warfare—or of any other form of warfare. Rather, I would speak to you on the avoidance of war. I think we can all agree that this is an objective which we all support without reservation, but on what terms? Are we to resort to a form of isolationism turning our backs on the world and hoping that alone we can survive? I think not! We have heard it said many times that “No man is an island, entire of itself.” In the world we live in, no nation can be strong or capable or healthy entire of itself. It may be that the current energy crisis has just provided us with an example of the wisdom of that statement. On life as a free nation depends upon others, and others depend on us. Now for some people that is the core not of our strength, but of our problems. But I don’t believe this. Our links and our ties to other nations are part of our life’s blood. If we don’t protect our freedom—which is tied to the freedom of other nations—then we will be far the poorer.

This principle, that our strength and vitality as a nation are tied to our freedom in the world, explains a great deal about our security interests and about why we have an Army. We exist to protect that freedom, and we work to secure that freedom.

So if you ask why we have forces in being or why we have programs overseas—or why we are involved in so many programs that are not directly tied to the defense of the continent itself—it is precisely because our well being is at stake. We are not just defending someone else’s job. We are protecting our security by recognizing that we must preserve the bonds and links that keeps us alive and prosperous in the world.

To insure the well-being of our country, we must be militarily prepared. We are not looking for war. In fact, by being ready for war, we may deter our enemies and prevent a war. But we must be ready to fight. As a result, the Army spends its time on remaining prepared, on demonstrating that we are ready.

What does preparedness mean? It means having the forces you need where you need them and when you need them. It also means that these forces must be capa-
ble. And it means that the strength of these forces must be credible, to our friends and allies as well as to our potential enemies if we are to deter war. Preparedness also explains other important parts of our Army's activities. It accounts for our concern that we have modern effective weapons systems with which to equip these forces and our interest in having a strong production and mobilization base on which we can build additional strength if needed.

Now if we develop and buy the right equipment, if we organize ourselves efficiently and position our forces properly and do all the other things right, we'll be well on our way to accomplishing the mission.

But what precisely is the Army's mission? Basically, it is to deter armed conflict and failing that, to resolve the conflict on terms favorable to the United States. For the moment, then, let us concentrate on the Army's primary role—that of deterrence. Webster's dictionary defines deterrence as "a state of mind" and the Army dictionary adds that the state of mind is "brought about by the existence of a credible threat of unacceptable counteraction." To achieve this "state of mind," then, a credible capability must exist. As I have already indicated, the Army spends a great deal of its time seeing that its strength is, in fact, credible. This is a highly complex and difficult task. Every actual and potential threat must be analyzed so that the best method of meeting the threat can be identified. Even when a decision has been made as to the best method for meeting the threat, consideration must be given to the degree of flexibility inherent in the selected response. Because our Army today is a small Army, at least in relation to the huge and distant missions we are expected to carry out, our success in these missions—in protecting our Nation's well-being—as well as the well-being of other free nations—depends not only on the skill of our forces but also upon the degree of flexibility built into them.

So far I have dealt in generalities about the goals and mission of our forces and about the type and quality of our overall capability to perform the mission.

Now I will direct my remarks to a small, but none the less important, part of our overall deterrent capability—chemical weapons. We have included these weapons in our armament to assist us in achieving our primary mission—to deter armed conflict—specifically to deter the use of chemical weapons in any conflict in which the U.S. is involved. If chemical weapons are used against us, then our policy is to have the ability to retaliate. (Of course, any use of chemical weapons by U.S. forces would first require, Presidential approval.) Keeping in mind that part of the Army's mission is to be able to resolve a conflict on terms favorable to the U.S. if deterrence fails, the maintenance of this capability to retaliate in kind supports our overall strategy of deterrence while bolstering the credibility of that strategy.

I have previously stated that while we seek to avoid war, we must be prepared to fight, even though the threat may not be to the continent itself. This is particularly true for the chemical warfare threat. Chemical weapons are not, and have never been considered strategic weapons by the U.S. However, as we meet our commitments overseas, we are placed in positions where we could be subjected to an attack with tactical chemical weapons. In these situations the initiators of chemical warfare could gain a significant tactical advantage over the defender if the defender does not have the ability both to protect himself and to retaliate in kind. Even if protective equipment is available and used by the defender he may still suffer a serious disadvantage in tactical mobility since his forces would be encumbered by the necessary protective equipment. With a retaliatory capability, he can subject the attacker to similar severe operational constraints attendant to warfare in a toxic environment.

I have also stated that one of our goals in providing an effective, credible fighting force is to provide for a flexible response to any threat. One of the primary reasons for the chemical capability is that it provides the President and the nation an option for limited retaliation to the use of chemical weapons which is below the nuclear threshold. This option thus provides for a greater degree of flexibility in conflicts involving chemicals while improving the credibility of deterrence against any use of chemical weapons.

A credible deterrent and defensive posture limits the temptation to an adversary which could arise if we were vulnerable to chemical warfare. In fact, many authorities attribute the exclusion of chemical weapons by Germany in World War II to a fear of retaliation by the allies.

I spoke earlier about threats and the difficulties inherent in their analyses. It is no secret that foremost among potential adversaries of the U.S. is the Soviet Union. It is there that the dominant threat of chemical warfare exists for U.S.
forces. The Soviet Union is considered to be well equipped in the chemical warfare arena. Evidence of delivery systems, weapons development, protective systems, realistic operational training, and extensive civil defense training support the condition of a Soviet capability to operate in a toxic environment which exceeds that of the U.S. or our NATO allies.

It should be noted that Soviet influence is not limited to the European Continent but is felt world wide. The Vietnam War and the recent Middle East War are prime examples of conflicts in which vast amounts of Soviet equipment were available on the battlefield. In the Middle East War, in particular, the quantities and sophistication of Soviet protective equipment provided Arab forces point up the degree of Soviet preparedness for chemical warfare.

I would be less than candid however, if I did not state that the question remains as to whether the Soviet capability represents their keeping open an option to initiate offensive chemical warfare operations or is merely a hedge against the possibility that the U.S. might use chemical warfare and is therefore a deterrent and a defensive capability.

At this point I think it advisable to note that the achievement of an effective, credible deterrent/retributive capability is not our only objective in the chemical warfare arena. We are committed to seek effective international restraints or limitations on chemical weapons and the U.S. has actively participated in discussions on this subject at the Geneva Conference of the Committee on Disarmament. The main problem to date has been the question of adequate verification, particularly as regards proposals for comprehensive limitations. We have focused on the relationship of possible verification measures to the scope of activities to be limited and we have been continuing our thorough reviews of how to achieve effective and worthwhile restraints. The issues inherent in CW are more complex than those associated with BW. Therefore, we feel that a CW treaty will require different measures than were achieved in the recently negotiated Biological Warfare Convention, which was the only new treaty in recent years which seeks to limit an entire weapons system.

It has been widely reported in the press that the Army has plans for a "new" chemical weapon called the binary weapon. This is essentially true, although the binary concept for the in-flight production of toxic chemical agents is not new and has been reported in the literature since at least the early 50's.

This literature has also dealt with the chemistry of the nerve agents. Accordingly, any competent organophosphorus chemist could prepare compounds analogous to the nerve agents including the binary components. However, I believe ballistically sound munitions-design to produce the exacting environment required for efficient chemical reaction of the binary components is technologically very difficult. Thus, the introduction of a binary munition into U.S. deterrent/retributive stockpile would not increase the access of small nations or dissident groups to technology necessary to produce a nerve agent. In addition, the physical access to U.S. munitions would not be enhanced by any introduction of binary munitions. The security afforded these munitions would be at least as great as current non-binary munitions—and the two components necessary to create a complete munition would be physically separated.

Before I leave the subject of binary technology, I feel it necessary to make a final point. Critics of the Army chemical weapons program have stated that regardless of the rationale for modernization, the selection of the binary weapon for this modernization was inappropriate because it is less effective on the target. Let me assure you that this is not true. Binary munitions design assures a target effectiveness equal to the non-binary rounds of equipment caliber or size.

I have indicated that the reason for this program is to provide for the modernization of our chemical stockpile. This modernization is limited to areas of obvious tactical uses in retaliation. Additionally, if our deterrent capability is to be credible, it must be effective and compatible with new all-purpose delivery systems. Although other technical approaches could have been selected for modernization, the binary approach offers several important advantages. These include improved safety during production, transportation and storage; no requirement for high-cost toxic production facilities; and simplified low-cost demilitarization procedures.

I feel that this approach to modernization is completely compatible with U.S. objectives in that the credibility of the U.S. deterrent/retributive capability will be maintained, while negotiations are underway to achieve effective and worthwhile chemical arms restraints. At the same time, the binary weapon
being developed by the Army could be readily demilitarized if a chemical arms limitation treaty requiring such was implemented.

In conclusion, as long as there is a threat of chemical warfare and it is judged to be in the best interests of U.S. National Security to have a deterrent and retaliatory capability to meet that threat, then the Army will continue to insure that it has the ability to accomplish the mission in support of those interests. Thank you.

Mrs. SCHROEDER. We all know that depending on your views, you can emphasize the pros or you can emphasize the cons. They emphasize the pros and leave out the cons, or they leave out the fact that we can develop a defensive capability against first use. Obviously they are not going around saying we are going to use these weapons first. I mean that is not the policy of the United States, thank goodness. They are not saying that, but they are saying we absolutely need them for a deterrent capability and for national security et cetera.

Now, because the Russians might use them first, or someone else might use them first—

BINARIES—NOT A NEW WEAPON SYSTEM

Mr. ZABLOCKI. The argument also is proposed that in order to have a defense against chemical or biological warfare, there has to be research and development.

Mrs. SCHROEDER. The development experimentation in the area of binary weapons does not promise us any new weapon system, it is exactly the same weapon system, and they are probably even 60 percent less efficient than the current weapons we already have in the stockpile.

The main reason they want to go to the binary system is that the binary will use the same kind of shells and delivery vehicles that our current chemical arsenal has. The only difference will be that you will have two chemicals that by themselves will not be harmful, so the storage won't be so obnoxious to people.

In other words, people in my area do not like to have chemical weapons stored in their backyard.

Now, the main idea for moving ahead is not that it gives us a new system. It does not create a new kind. It is the same delivery system, the same problems as with the old one. The only thing is that the storage would be safer.

That is why I think that we should make it very clear where we stand on chemical weapons, because if we don't think we need them, why spend probably $1.5 to $2 million to just create at nicer way to store them?

RESEARCH AND DEVELOPMENT FOR DEFENSIVE CAPABILITY

Mr. ZABLOCKI. I understand that, but it is also my understanding that as a member of the Armed Services Committee, you might be in a position to enlighten our subcommittee on the argument that they need to go into research and development for our own protection against chemical warfare.

Mrs. SCHROEDER. I think if they want to protect our troops against chemical warfare, we should be going in to the defensive capability of the mask, the clothing, and new ideas in that area, because if anyone uses them against us, it will be a surprise attack and we should have
developed some way to defend the people in the field. This is not like a nuclear attack where you cannot defend. You can defend against chemical weapons, and I think that would be the best way to do it.

We are not doing research and development in this area. I think anyone who would use them against us would surmise that since we have a stockpile, we intend to retaliate in kind, and therefore, they would be prepared to defend against our chemical weapons and they would be useless.

**Protocol deals with utilization, not stockpiling**

Mr. Zablocki. Mr. Dellenback, is there not some stockpiling of chemical weapons in West Germany? Does that not seem incongruous with their position as a signatory to the protocol, permitting military capability of chemical warfare to be stored in their country?

Mr. Dellenback. Well, Mr. Chairman; I don't know about the stockpiling so far as West Germany is concerned, but as you are fully aware, and in effect more aware than I, the 1925 protocol is not to be confused with the 1972 convention, nor with what is happening in Geneva at the present time. The 1925 protocol deals with utilization in warfare, and that is what is at stake in the 1925 protocol. It is only when you get into the question of the 1972 convention and what is happening in Geneva at the present time that you are in the question of production and stockpiling.

Mr. Zablocki. We are at the moment concerned with the protocol.

Mr. Dellenback. Yes, but this protocol deals with utilization in warfare, and this is a point of distinction that was touched on by a member of the subcommittee that had to do with the utilization for riot control, because again the 1925 protocol does not speak to that. The 1925 protocol does not speak to the question of domestic utilization or crowd control within a country of course, it deals with utilization in warfare. Therefore, I must plead, Mr. Chairman, that I do not know whether or not there is storage in West Germany, but even if there were, this would not interfere with ratification of the 1925 protocol because that has to do with utilization rather than stockpiling or production.

Mr. Zablocki. Of course, but a stockpile is not intended for any other purpose than utilization.

**Distinction between R. & D. and Production**

Mr. Dellenback. I was merely trying to speak to your question, Mr. Chairman. Actually as I referred to our paper earlier, I have very serious reservations that go a step beyond, you see, what you are now asking me about, as to whether or not we should be having this kind of thing at all.

A distinction should be made between doing research and development and going into production. Research and development is largely for preventive purposes—so we understand what is happening in a field and can countermove if we have to countermove in at some time—moving from the R. & D. into production. I don't think we should go into the question of stockpiling, which of course follows if we go into production.
I was trying to stay with the answer to the chairman's question in making the distinction between the 1925 protocol which I think the Senate could move on very soundly no matter what we had at the present time in connection with West Germany or all our dealings with NATO. If anybody should use that as an argument why we cannot go forward with the 1925 protocol, and the chairman of course is not doing that—you were merely raising a question about that—if anyone should use that question as an argumentation, I just don't think it is relevant to the question of whether we need to ratify that 1925 protocol, or whether we could indeed do so, sir.

Mr. Zablocki. I am in perfect agreement with the gentleman for the purpose of record.

Mr. Biester.

NUCLEAR FALLOUT—A TYPE OF CW?

Mr. Biester. Mr. Chairman, I also appreciate that last answer very much. I wonder if we can go off on a slight tangent here, and that is a question which has been going around in my mind as we talked about ratification by countries. I noticed that Germany ratified in 1929. To what extent is radiation from nuclear weaponry a form of CBW warfare, or is it just simply an extension of an explosive device?

Mrs. Schroeder. I would have to say that not being a scientist I don't know.

Mr. Biester. I am not either.

Mrs. Schroeder. Here we look at custom I guess, and generally we have considered one area being strictly chemical and the other being nuclear detonation and its fallout.

Mr. Biester. Sort of it being a side effect.

Mrs. Schroeder. Yes.

Mr. Biester. I think that is probably the way I look at it also as a non-scientist, but it seems to me that Germany, a signatory to this document in 1929, was by 1941 engaged in the rapid process of developing nuclear weaponry which certainly as one looks at it has to have some kind of side effect beyond simply an explosive impact, and a side effect which seems to me partakes some degree of nature of chemical or biological warfare. At least it gets into what I would call the gravamen of the offense of sweeping chemical warfare.

WHEN MANKIND IS THREATENED

Also as I reflected on the fact that Germany signed in 1929, that even though they did not resort to CBW warfare directly in the field as far as I know, when man turns vicious he has been ingenious enough to construct fairly deadly means in his own way.

Mr. DeLene. If I may make a brief comment on that, Mr. Biester, I would just say two things in passing: First, without in any way approving what Germany did or didn't do, we were not party to the contract and, therefore, we are not in a position to claim breach by the other side because we had not even done that as of that time, nor even as of this very much later time. I would suggest that that was one possibility and that it would follow that our capacity to really do some-
thing about it would be much better if and when we have ratified it. Then we can move insofar as future action is concerned.

In addition to that, it would seem to me extremely important that we take steps which go beyond this one, that we not settle for the 1925 protocol as to where we go. I think, as you said, when mankind is threatened he seems to do devious things. Although we might feel chemical weapons would not be valuable, and might even prove counterproductive, if we are really threatened, we might lash out, with something that we have even though it won't work. Better not to have it if we know in advance that it will not work.

CHEMICAL WEAPONS NOT THE MOST EFFECTIVE

Mrs. Schroeder, I think too we have to keep in mind that we are not giving away our ultimate weapon either. I think so often we forget that chemical weapons are not the only thing we have, so it is not that we are suddenly left naked standing as a nation.

Mr. Dellenback. Would you yield?

They are not even our most effective. It is a question of whether they are not negatively effective.

Mr. Brestler. I am not disputing any of that. I am pointing out it is probably not even worth the time that we spend on it. When Hitler decided to construct nuclear weaponery, that an earlier German Government had signed or ratified this protocol did not at the crunch point make much difference to him.

NATO POSTURE: ONE OF DEFENSE

Now with respect to the NATO countries themselves at the conference that was attended by Mrs. Schroeder, what was the view of the individual NATO countries at that conference in terms of either stockpiling or forward deployment?

Mrs. Schroeder. Well, with respect to NATO countries, there is only one that has forward deployment, that is, Germany, and I don't think they are really happy about it, they have the same problem that we have in Denver, even if you want it, not here. Thank you very much. We are glad you share with us, but we can do without it.

The NATO countries have decided that in the nuclear, biological, and chemical warfare area NATO’s posture will be one of defense, not offense, which I think is very commendable. In other words, they would hope to defend against someone else using them, they would not consider using them first. So I think that they would much prefer masks, ponchos, anything of that kind, and having training missions and all sorts of things. This could be very, very effective, and again for several reasons in all three of these areas.

In the nuclear area, however, as you know, we have not got that kind of defense system, but that is their posture.

Mr. Brestler. That is helpful to know.

Mr. Chairman, I don't have any other questions. I simply would like to commend both of our witnesses here in not only being well conversant with the issue but also having strong feelings about moving our country in what I hope most of us regard as the right direction.

Mrs. Schroeder. Thank you.

Mr. Zablocki. Mr. Fraser.
DIFFICULTY OF ADMINISTRATION’S POSITION

Mr. Fraser. Thank you very much, Mr. Chairman.

The problems that we have before us, just to get us to a common starting point, are No. 1, the ratification of the 1925 Geneva protocol banning the use of chemical agents in warfare, and then, second, the ratification of the 1972 convention on the manufacture and storage of biological agents, and as I understand it, the latter is hung up on the former.

Mr. Dellenback, that is what I get from your statement, the fact that we have not been able to come to an understanding with the executive branch on the inclusion of herbicides and perhaps tear gas, or whatever the general name is for that and this has in turn caused some difficulty with the 1972 convention.

Mr. Dellenback. Well, it is my understanding substantially, Mr. Fraser, that as you point out, the 1925 protocol has been in the Senate’s hands several times, most recently for several years, and the 1972 convention is being hung up because of disagreements with the administration that relate to the 1925 protocol. And then going forward at all in Geneva at the present time with chemical warfare is hung up because of these couple of issues, and failure on the part of the administration to go along with what most of the other nations of the world feel about herbicides and tear gas.

NO DOMESTIC ADVANTAGE TO CW STOCKPILES

Mr. Fraser. Let’s move to the next matter, which is the proposal to ban the production and the storage of chemical agents, the subject of current and I should say—the preceding 3 or 4 years activity in Geneva.

The arguments both of you make lead one to the conclusion that whether or not we had an agreement, the United States could afford to stop production and end our stockpile. In other words, it seems to me that you are arguing that given the nature of chemical warfare and its inherent difficulties and its relationship to other weaponry, including nuclear weapons, the United States gains no real advantage by having a chemical warfare stockpile, and that, therefore, there is no real reason for us to go forward with our own capability whether or not there is an agreement at Geneva.

You don’t say that in your statement—maybe you do—but in any event that is the conclusion I think one would come to in reading your statement.

Mr. Dellenback. If I may, I would like to reply. I think that is the thrust of our 1969 study, Mr. Fraser, so far as chemical and biological weaponry is concerned. Now for purposes of international agreement I think there would be great value in the nations of the world reaching agreement on this particular thing, but I would make the point substantially as you put it.

Mr. Fraser. Well, this then leads me—

Mrs. Schroeder. I was just going to say I would certainly concur, and I think one of the things that concerns us about the binary is proliferation. What do we want? If our allies want to buy them and stockpile them, aren’t we really then being responsible for proliferating these kinds of weapons?
IS BINARY LETHAL?

Mr. Fraser. This leads to my next question, which is the question of U.S. action to continue development, testing, and procurement of a binary type weapon. Is that lethal gas, does it come under the term "lethal gas"?

Mrs. Schroeder. No; it is not until the components combine.

Mr. Fraser. I know; but once combined is it not disabling?

Mrs. Schroeder. Yes.

Mr. Fraser. In any event, the question whether we should go forward with that then is, in a sense, not a matter for us to consider in this committee except as it may have arms control implications. It is a matter the Armed Services Committee should be examining. In other words, you are arguing on the merits that we don't need it. You are also arguing that there also needs to be action in the arms control field. But I want to refer again to the Armed Services Committee. Are they looking at this question of whether we need it?

Mr. Dellenback. If I may, an Armed Services Subcommittee last fall had 2 days of hearings on this particular matter, and since then I have heard of no action taken by the Armed Services Committee whatsoever. But the Armed Services did take a 2-day look at this in the Congress at the question of what should be done in chemical and biological warfare.

Mr. Fraser. Generally.

Mr. Dellenback. Yes.

CONGRESSIONAL ATTEMPT TO CUT BACK BINARY PROGRAM

Mrs. Schroeder. Let me say in our Research and Development Subcommittee there is going to be an attempt to cut back the binary program that is in the fiscal year 1975 budget, and whether it will be successful or not I am not sure, but they are looking at it very seriously. It is not anything new. It will have the same delivery. It will go as far. In fact, it will be 60 percent less effective. So if we want exactly the same stockpile we have now, we would have to produce just that much more, and I believe many people feel it is an obsolete weapon in search of a use, some way to justify itself, and I question if that is the kind of thing we should be spending money on when there are so many areas we are behind.

BINARY DEPOLITICIZES CW STOCKPILES

Mr. Fraser. Its principal advantage, then, of the binary gas is that until the two compounds are combined they are relatively safe to handle and store?

Mrs. Schroeder. That is right. They figure people like us would not be concerned because constituents would not object to it in their back yard.

Mr. Fraser. So in addition to detoxifying the chemical warfare stockpile, binaries also depoliticize it.

Mrs. Schroeder. That is right. I must admit too, I have to take my hat off to the Army for, I think, one of the great common sense decisions of the year, in that they finally decided to detoxify the stockpile in Denver that obviously no one else wanted it, and it was one Federal
installation everybody felt their district could do without; no place to put it, nobody wanted it. They decided to detoxify it in place, which I think also is an admission in part that maybe it is not quite as vital as we once thought it was.

COMMITTEE MANDATE

Mr. DeLelenback, I would hope, Mr. Fraser, as you consider the question of the real thrust of this subcommittee, however, that you not shift the burden to the Armed Services Subcommittee. I commend this subcommittee and the chairman for what you are doing.

Yes, I think there is a very real-military question—as a lay military man, not as a professional military man—but as one like you charged with responsibilities of setting policy in this field, Our study led us to the conclusion that I alluded to earlier that this was not a sound weapon, but I think it goes way beyond that. I think it does have major impact in the relationships with other nations because in so many ways what we do or don't do as leader of so many nations has impact on them.

I think what we do or don't do in that protocol will be critical. What we do or don't do in the convention will be critical, so it is very much within the province of this committee. I feel very strongly on that, sir.

U.S. POSITION SUSPECT

Mr. Fraser. I think one of you, Mrs. Schroeder perhaps, underscored this; we have been unable to produce a U.S. position at Geneva. on top of that we now appear to be embarking on a new program of development. and procurement. Thus the U.S. position becomes even more suspect.

Mr. DeLelenback. I would agree with that.

Mrs. Schroeder. Yes.

Mr. Fraser. I would too. I was at Geneva just about the time we were being denounced rather soundly for our unwillingness or inability to do anything.

Mrs. Schroeder. You think that our arms control director is doing a good job. He may be, but where is the evidence?

Mrs. Schroeder. Well, I think he can't go it on his own. He has to have a mandate.

Mr. Fraser. That is the problem though. I mean, wherever the constraints are coming from, how can you say he is doing a good job in the absence of any results?

EFFECTIVENESS OF ACDA

Mrs. Schroeder. That is true, he must have infinite patience because it must be very hard to keep the morale of his troops up year after year when our response is no response; our response is: that is a very interesting proposal, however, we don't see any on-site verification. That is how it boils down. So he must be very patient.

Mr. Fraser. Are we going to give him high marks because he's patient?

Mrs. Schroeder. No. I think his problem is trying to get the administration to focus on it. The SALT talks have had much more glamour.
The MBFR has had much more glamor. The bilateral approaches in the State Department have had much more glamor, and this has gotten pushed to one side. I think it is very difficult.

Since the Geneva protocol and the 1972 convention have not been ratified it really looks like the United States just does not pay much attention to multilateral agreements. So we keep pushing, but no one listens.

Mr. Fraser. Do you know that he is pushing?

Mrs. Schroeder. I think so. I think he is trying hard.

Mr. Fraser. That is an inference we may draw at least?

Mrs. Schroeder. Yes.

Mr. Fraser. As to whether he can come up and tell us that or not—thank you, Mr. Chairman.

Mr. Zablocki. Mr. Harrington:

NUCLEAR WAR MORE "THINKABLE"

Mr. Harrington. I am just speculating, Mr. Zablocki. I appreciate it. I just wanted to get informed and I appreciate being able to hear the witnesses.

I would like to throw out just one question which may not be entirely relevant, that is in keeping with the Secretary's generally expressed preference for suggesting to the world, this year, that he is going to make nuclear war somewhat more thinkable. Was the Secretary asked anything analogous to this as far as chemical weapons are concerned in his appearance before the Armed Services Committee? I am referring now to Secretary Schlesinger's comments made earlier this year.

Mrs. Schroeder. No, not that I recall. Mainly we stayed on the nuclear aspects of that discussion, and everybody was so overtaken by that new approach we didn't get back to the chemical.

Mr. Harrington. Thank you.

Mr. Fraser. Mr. Chairman.

Mr. Zablocki. Yes.

Mr. Fraser. I forgot to say, and I don't do this as a matter of routine, how much I appreciate how much interest you are both taking in this matter. This is not pro forma. Without the kind of support and interest and knowledge that you are bringing to this our job would be considerably harder.

Thank you very much.

Mr. Deilenback. We appreciate that.

Mr. Fraser. Thank you.

SUPPORT OF ACDA

Mr. Zablocki. Mr. Fraser had asked you, Congresswoman Schroeder, what input the ACDA and its Director, Dr. Fred Ikle had. You responded that ACDA could do more if the agency had the active support of its own State Department. That would imply that the State Department is not only not supporting but probably hindering ACDA in its efforts. Have you any evidence of the State Department's activities in this connection?

Mrs. Schroeder. Let me say I have not had any direct evidence, and I feel a little—I think we should have them speak for themselves
on this. Even in the Armed Services Committee, many people would like to pretend like they didn't exist.

It is like a conflict of interest. We cannot have these people giving away the wonderful weapons system. We are not interested as a committee very often in hearing from them either, and I sympathize with them because the door has been shut in their face—at least that is what I hear as I drift around, and it is hearsay.

I think the best would be to ask the doctor himself.

Mr. Zablocki. You can be assured we will ask the State Department, the Defense Department, ACDA, and any other agency of Government who has any views or any input on this question.

PREVIOUS HEARINGS ON CBW

I failed to mention, and I apologize for it, when I welcomed you, Mr. Dellenback, that on November 18, 1969, together with our colleague Don Fraser and the Honorable Richard D. McCarthy of New York, you were the leading witness in a similar series of hearings that we started on that date on "Chemical-Biological Warfare: U.S. Policies and International Effects." At that time you gave excellent testimony.

I want to say that both of our witnesses today have demonstrated their sincerity and their insight on a very difficult and complex issue, one that we are going to pursue, and we are in accord with your concerns.

Mr. Dellenback. If I may, Mr. Chairman, the issue is not only complex, as you have so well said, but it is extremely important. I really do commend you, Mr. Chairman, and the members of this subcommittee for taking this issue which is one of the most critically life and death issues that this Nation and this world are going to be dealing with, and seriously trying to do something about it. You deserve commendation for it.

Mr. Zablocki. Thank you very much for your very generous comment.

SUPPORT FOR PROTOCOL RATIFICATION

In 1969, when we held the hearings, we thought we would jar the Senate loose. Our hope did not materialize. Nevertheless, we don't give up easily. We waited 5 years, but we are trying again. This time I note that there is wider support among our colleagues.

I would like to ask unanimous consent to include at the beginning of the hearings where I refer to the sponsors of the resolutions introduced into Congress, the names of all the principal sponsors and cosponsors of House Resolutions 679, 710, 712, 713, and 752.

Again, thank you, Congresswoman Schroeder and Congressman Dellenback, for appearing before this committee.

Mrs. Schroeder. Thank you very much, Mr. Chairman.

Mr. Dellenback. Thank you.

Mr. Zablocki. Since I am advised there will be another caucus, the committee stands adjourned until 10:30 instead of 10 tomorrow when we will hear the three distinguished private experts: Dr. Matthew Meselson, Dr. Julian Perry Robinson, and Mr. Alan Pittaway.

[Whereupon, at 12:10 p.m., the subcommittee adjourned, to reconvene at 10:30 a.m., Thursday, May 2, 1974.]
U.S. CHEMICAL WARFARE POLICY

THURSDAY, MAY 2, 1974

HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
SUBCOMMITTEE ON NATIONAL SECURITY
POLICY AND SCIENTIFIC DEVELOPMENTS,
Washington, D.C.

The subcommittee met at 10:40 a.m. in room 2172, Rayburn House Office Building, Hon. Clement J. Zablocki (chairman) presiding.

Mr. Zablocki. Today is the second in a series of hearings by the Subcommittee on National Security Policy and Scientific Developments on the U.S. Chemical Warfare Policy.

Yesterday the subcommittee heard testimony from interested Members of Congress. Because he was ill, Representative Wayne Owens, chief sponsor in the House of the legislation, which is the subject of these hearings, was unable to be present, and we are, therefore, pleased to welcome him here this morning.

Following Congressman Owens' testimony, we will hear three distinguished private witnesses with expert knowledge in the field of chemical warfare: Dr. Matthew Meselson, Dr. Julian Perry Robinson, and Mr. Alan Pittaway. They will present their testimony as a team, and we will question them as a team.

Congressman Owens, if you will please take the stand and present your testimony.

STATEMENT OF HON. WAYNE OWENS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

Mr. Owens. Thank you, Mr. Chairman.

I appreciate very much your kindness and thoughtfulness in letting me postpone by one day my testimony. I am very pleased, of course, that your committee has decided to devote considerable time to an examination of the current status of this Nation's chemical warfare policies as proposed in legislation which I and my cosponsors have introduced.

U.S. MAINTENANCE OF CW STOCKPILES

Mr. Chairman, I first became involved in this matter last June when the U.S. Army proposed the transportation of surplus chemical nerve agents from Denver's Rocky Mountain Arsenal to the Tooele Army Depot in my district. Although this particular matter was resolved after hearings before the Armed Services Committee in October by a change in Army plans, permitting destruction of these materials on-site, I was curious and concerned as to how such an issue could recur again. Following congressional investigation on chemical and biologi-
cal warfare in 1969-70, it appeared that these programs were well under control.

I began questioning U.S. chemical warfare policies in terms of (1) identifying some threat to our security which required the continued maintenance of nerve agents in our stockpiles and (2) the processes which were governing the changes and modifications in our chemical warfare programs which continually led to such issues as had emerged again in 1975 in the Denver area.

After examining the chemical warfare stockpiles in my district and at Denver through visits and a series of briefings on intelligence estimates of the basis of the threat, I analyzed the deterrence policy associated with the maintenance of stockpiles for retaliation. I then studied the history and development of the World War I Geneva Protocol on Biological and Chemical Weapons and the current negotiations at Geneva on more complex arms control measures.

I examined the current research, development, and test and engineering programs, and the proposed procurement by the Army of the first portion of binary chemical weapon. Even after all of this effort on my part, I have to admit that I still retain the same feeling of uncertainty regarding the justification for our continuance of an offensive chemical warfare program.

HISTORICAL BASIS OF CW POLICY

The whole basis for our offensive chemical warfare policies seem to stem from the use of chemical weapons in World War I. The revulsion which the world exhibited following the use of gas in that war produced a number of proposals which led eventually to the Geneva Protocol of 1925. From those early efforts for arms control we passed into another major war, when the United States warned our enemies that if chemicals were used against our forces we would retaliate in kind—and in fact, we actually had chemical agents in the European theater so that our forces could carry out this promise if necessary.

Although there is no doubt that the enemy had chemical agents at least as potent as ours, and as we later learned, more effective than anything we had, there was no use of chemical warfare agents during that war. Historians disagree as to whether the threat of retaliation was the real deterrent to the use of chemicals in that war, but the point I want to make here is that I think that our current posture on maintaining chemicals in stocks for retaliatory purposes was reinforced by the military position taken at that time.

CW PROGRAMS SINCE WORLD WAR II

Since World War II, we have gone through several distinct phases in our chemical warfare programs. We built nerve agent plants in the 1950's because we learned that the Germans had nerve agents during the Second World War, and it was obvious that at least one other major nation, the Soviet Union, obtained this same information. Because this chemical was so obviously superior as a nerve agent to anything that was in our arsenal at that time, it seemed perfectly logical to replace our mustard and phosgene stocks with the more toxic nerve agent.
Following the stockpiling of nerve agent in the 1950's there was a reduction in activity. Then the late 1950's and early 1960's brought on renewed Army activity for more diversified and sophisticated weapons for disseminating the nerve agent, and an attempt to get the other armed services involved in chemical warfare programs. This renewed activity seems to have been the result of justifications presented to the Congress that the Soviet Union had an enormous and significant capability in chemical warfare which could only be countered by increasing the chemical weapons in our own inventory. Even a reluctant Navy became involved in the chemical warfare program for a short time.

The background of information I collected can probably be summarized quickly by the general observation that the justification for maintaining a stockpile of nerve agent weapons is based on an estimate that a potential enemy maintains a stockpile of nerve agent weapons. This fits into the general military philosophy that each weapon must be countered by a similar weapon.

HOW RELIABLE IS U.S. INTELLIGENCE

The obvious questions which must be asked about this philosophy are the hardest to get answered. How reliable is the intelligence that the Soviets or any other potential aggressor intend to use the chemical agents—first—in any future war? And what are the exact situations in which such an attack can best be prevented by the threat to retaliate if such weapons were used? Does our intelligence about Soviet chemical warfare order of battle indicate that they fully intend to utilize nerve agents as a part of their offensive effort or are they developing the same posture we have enunciated because they know we have these weapons in our inventory? One of the most important is: Does the threat to retaliate with nerve agent weapons if chemicals are used against our forces in war really constitute the best deterrent to the initiation of the use of chemical weapons in any future war? How effective would a nerve agent attack in retaliation be against an enemy with a superior capability to defend and fight in a toxic environment? Wouldn't the use of nerve agents against a nuclear armed force actually trigger the necessity for a nuclear response if the attacked forces were to effectively resist such an attack?

These questions have been discussed with many individuals: Active duty military officers, retired military officers, and civilian experts. I have observed many interesting reactions. In one instance, a military officer—Carl Cunningham, former Chemical Corps officer, now with Midwest Research Institute in Kansas City, and has been involved in studying arms control and disarmaments—who was strongly in favor of the need for a retaliatory capability before retirement, became convinced after studying the problem in retirement that such a capability really does not constitute an effective deterrence among nuclear armed forces.

ARMY CHEMICAL CORPS STRONG BACKER OF CW

The strongest proponents for maintaining chemical weapons are to be found in the specialty Army Chemical Corps. These individuals must obviously support an established doctrine. Yet a considerable
amount of indifference can easily be identified in the military among other branches of the services. Discussions about the intelligence indicates that we really do not know very much about the Soviet's offensive capability, and that we have placed a great deal of emphasis on our knowledge of their defensive capability.

I do not pretend to have gained all of the information which may be available on this subject. I have not been able to talk with individuals who have played the war games in which retaliation with chemical weapons has been one of the integers in the equations. I doubt that these games prove a great deal in any event. Certainly, some sort of evaluation about the effectiveness of herbicides in Vietnam must have been completed in order for our commanders to be convinced of the need for such use. And yet, I am certain that those evaluations did not predict the end result of such use. At least I hope that no decisions were made to use herbicides with a full understanding of the end results as we now know them to be. If that should be the case, then we are in trouble.

DOES STOCKPILING CW SERVE AS A DETERRENT?

The net result of my effort over the last 9 months is to leave me still in doubt about whether this Nation should, in today's political and military environment, continue the same 50-year-old doctrine of maintaining a chemical warfare stockpile as a deterrence to the use of chemicals.

What particularly disturbs me in this evaluation is that the United States does not seem to come out well in the equation. We do not seem to have the capability in place in Europe to effectively and immediately offer the same level of retaliatory capability which a potential enemy probably could offer if the enemy actually did plan a first strike with chemical weapons. The logistics of shipment and maintenance of such a capability would be quite complicated. This seems to indicate that the retaliatory threat is miniscule in comparison with the first strike threat.

Second, either quantitatively and/or qualitatively, however we interpret General Abram's recent statements about the Soviet defense equipment captured in the recent Mideast war, we are well behind the Soviets in our own defensive capability. If an enemy should utilize chemical agents against our forces, it would be under circumstances which would require the most effective and immediate response which we are capable of delivering. This would mean immediate escalation to the use of tactical and strategic nuclear weapons in order to prevent defeat. What, then, is the basis for maintaining a stockpile of chemicals for retaliation only?

DANGER OF INTERNATIONAL PROLIFERATION

These preceding comments bring me to a matter of immediate concern. Several nations in the world already have a nuclear capability. It is only the expense of the technology which has prevented other nations from achieving a similar capability. We have been fortunate thus far that more nations have not developed the capability to manufacture and deliver nerve agent munitions. The Army proposal to
adopt binary munitions as a system of weapons to replace our current nerve agent munitions offers the potential risk that more nations may decide to develop chemical weapons. If the limited monopoly on nerve agent weapons is lost, we may see greater use of such weapons to the overall detriment of world peace.

Some of the limited uses of chemical weapons since World War II, such as the reported use in Yemen and Iraq, against countries with no capability of defense, and fortunately only on a limited use basis, might expand, and we might see a new and terrifying weapons escalation. Since the binary offers the prospect of manufacturing and handling nerve agents without as great a risk as is associated with current weapons, the reduction of the danger, as well as the practical elimination of detection of manufacture, may be the very incentive needed to induce proliferation of chemical weapons among smaller aggressive nations.

We have an opportunity, it seems to me, in the current negotiations on arms control at Geneva, to exploit more intensively the only avenue currently available to limit the development and manufacture of chemical weapons. It appears to be in our best interest to encourage such an arms control treaty to which all nations would be required to adhere. If, by our example, we indicate that our intentions are to update and modernize our own stockpiles at the very time such negotiations are going on, it seems to me that we are not supplying the leadership example of which we are capable.

**THE BINARY WEAPON: A TACTICAL ADVANTAGE?**

One of the responses given to me when I suggested that we might profit from delaying the development of the binary weapon was that we should not weaken our chemical weapons posture before any treaty is negotiated. The principle inherent in such a comment is that the binary weapon is in some way so tactically superior to existing chemical weapons that we should offer the elimination of the binary system as an incentive in negotiations. This is not necessarily the position in which we find ourselves. At least one prominent analyst—Julian Perry Robinson—who will be testifying before you during your hearings, has completed an analysis which indicates that the binary weapon may not be as effective a chemical weapon as is the current system it is designed to replace.

The real advantage to the binary weapon seems to be safety in shipment and storage, not its tactical advantage. Therefore, the suggestion that we may be negotiating from a position of weakness if we delay the binary does not appear to be valid. In fact, from a negotiating viewpoint, it appears to me that it would be more of an expression of good will and serious intent if we were to indicate that we were postponing modernization of our stockpiles until we learned just how serious other nations were about reaching treaty terms which are acceptable to us—including the need for acceptable verification.

Another argument about adoption of the binary, which has been offered as further support of the need for maintaining a stockpile, is that it really is a small price to pay for a weapon which just might come in handy some day. I suppose in terms of the massive total Department of Defense budget, this year's request for $5.8 million to
begin procurement of the binary is small. But small budgets have the potential to grow into larger budgets.

COST OF CW PROGRAMS

Six months ago I requested from DOD, within the limitations of security and available information, a summary of data on what we have spent on our lethal chemical weapons programs to date. I am providing the results which arrived just recently as enclosures for your use, if you desire to include these data in the record of hearings. The review supplies all of the cost information which I was able to obtain from the Department of Defense on the lethal chemical programs.

Mr. ZABLOCKI. Without objection.

[The information referred to can be found in the appendix.]

Mr. OWENS. I think that you should keep in mind when you have had an opportunity to examine these data, that information on non-lethal systems such as herbicides, riot control agents, incapacitating agents, et cetera, have not been included in these estimates. I have had a summary of these data prepared in tabular form which may be of greater interest to you, and these tables are also included for your examination. A few specific comments may be appropriate at this time.

It appears to be definite that $5.8 million has been requested in the fiscal year 1975 budget to begin procurement actions for the binary system. I cannot ascertain whether any separate funds have been requested under military construction funds to modify the facilities at Pine Bluff to incorporate a production line for the 155 millimeter shell. Of particular interest are the current and anticipated costs totaling $9.115 million for fiscal year 1974, and $24.139 million for fiscal year 1975. (The $5.8 million for procurement of the binary is included in the total for fiscal year 1975).

Looking back at these small costs, we find that our lethal chemical warfare programs have cost us $132.641 million to date for R.D.T. & E.; $158.149 million for facilities; $214.137 million for procurement; $4.190 million for a special transportation of weapons for Okinawa to Johnston Island; and operating costs of $18.959 million. These estimated costs give us a total of more than $528.076 million, just for our lethal agent programs.

EARLY CW PROGRAM COSTS UNAVAILABLE

Please keep in mind that it is probable that substantial costs for programs prior to fiscal year 1964 are not available, classification prevents the inclusion of other cost estimates, and the nonlethal chemical agent and all biological programs have been left out of these estimates. I believe it is safe, therefore, to assume that the cost of our chemical weapons program has not been insignificant.

In addition to our investment to date, we will be asked to spend an additional $1 to $2 billion for the total replacement of present stockpiles with the binary system. There are estimated costs available which indicate that it will cost $200 million just to buy artillery shells to replace approximately 20 percent of current stockpiles. The total replacement of all munitions with the binary munitions could cost five
times that much, or $1 billion. Add to that the costs of demilitariza-
tion and detoxification of existing stockpiles and weapons research
and development and the figure could reach as much as $2 billion.

Accordingly, I do not believe that we can consider the chemical
deterrence policy as not warranting comprehensive examination be-
cause it costs the Nation so little to maintain a "just in case" weapons
system.

CONCERN FOR U.S. DEFENSIVE CAPABILITY

One final observation which I would like to make before my summa-
tion. I am quite concerned about our defensive capability. Even if we
are successful in negotiating a treaty on arms control, I do not believe
that it will be absolutely safe to assume that we may never be attacked
with chemical agents. Even if we reach the conclusion that the use of
chemical warfare agents is not the best deterrence posture—that is,
other weapons may be just as or more effective for retaliation—we
must still insure that our forces are provided with the best defensive
capability possible. I feel very strongly that such a defensive capability
in itself constitutes an effective deterrence to interest in a first
strike chemical attack.

But we must assure ourselves that the Department of Defense has
indeed assigned a sufficiently high priority to development and main-
tenance of a defensive capability that it is effective. I have already
written a letter to the Secretary of Defense about my concern in this
area, and I have asked him to insure that our military forces are
being provided with the very best of defensive equipment and that
training in the use of chemical defense equipment provides a realistic
and high state of readiness. This posture should not be neglected
whatever decisions are eventually reached about overt chemical war-
fare policies. For your information, I am also enclosing a copy of
the letter which I sent to the Secretary of Defense on this matter,
which I ask be made a part of the record.

Mr. ZABLOKI. Without objection, it will be made part of the record.

[The letter referred to follows:]

April 29, 1974.

Hon. James R. Schlesinger,
Secretary of Defense,
The Pentagon, Washington, D.C.

Dear Mr. Secretary: The issue of arms control for chemical weapons has
been reopened for negotiation at Geneva. It is my understanding that the United
States is still committed to the task of achieving an effective chemical arms
control policy. As I am sure you are aware, I view the adoption of binary chemi-
cal weapons by the United States Army as a contradictory position with regard
to announced U.S. arms control efforts. This chemical warfare issue has been
examined briefly by the House Armed Services Committee and will receive an
even more intensive examination during the hearings before the House Foreign
Affairs Subcommittee on National Security Policy and Scientific Developments
which are scheduled to begin May 1. During this same period, the House Appropria-
tions Committee is being asked to approve funds to begin production of the
binarychemical system.

This letter is intended, however, to discuss with you another issue of concern
which I have about our chemical warfare posture. When I first became involved
in this problem last year, as a result of the munitions destruction controversy
in the Denver area, I began my examination by asking DOD as well as other
appropriate agency personnel to explain the rationale in support of the U.S.
position of retaliation with chemical weapons as a deterrent policy. I found
it difficult then, as I still do, to see the justification for such a policy. Since the
possible eventual abandonment of a chemical warfare offensive capability does