IMPLICATIONS OF THE PRESIDENT'S STRATEGIC DEFENSE INITIATIVE AND ANTISATELLITE WEAPONS POLICY

HEARINGS

BEFORE THE

SUBCOMMITTEE ON ARMS CONTROL, INTERNATIONAL SECURITY AND SCIENCE

OF THE

COMMITTEE ON FOREIGN AFFAIRS HOUSE OF REPRESENTATIVES

NINETY-NINTH CONGRESS

FIRST SESSION

APRIL 24 AND MAY 1, 1985

Printed for the use of the Committee on Foreign Affairs

U.S. GOVERNMENT PRINTING OFFICE
52-921 O WASHINGTON : 1985

52-921 O—85——1

COMMITTEE ON FOREIGN AFFAIRS

DANTE B. FASCELL, Florida, *Chairman*

LEE H. HAMILTON, Indiana
GUS YATRON, Pennsylvania
STEPHEN J. SOLARZ, New York
DON BONKER, Washington
GERRY E. STUDDS, Massachusetts
DAN MICA, Florida
MICHAEL D. BARNES, Maryland
HOWARD WOLPE, Michigan
GEO. W. CROCKETT, JR., Michigan
SAM GEJDENSON, Connecticut
MERVYN M. DYMALLY, California
TOM LANTOS, California
PETER H. KOSTMAYER, Pennsylvania
ROBERT G. TORRICELLI, New Jersey
LAWRENCE J. SMITH, Florida
HOWARD L. BERMAN, California
HARRY REID, Nevada
MEL LEVINE, California
EDWARD F. FEIGHAN, Ohio
TED WEISS, New York
GARY L. ACKERMAN, New York
BUDDY MacKAY, Florida
MORRIS K. UDALL, Arizona
ROBERT GARCIA, New York

WILLIAM S. BROOMFIELD, Michigan
BENJAMIN A. GILMAN, New York
ROBERT J. LAGOMARSINO, California
JIM LEACH, Iowa
TOBY ROTH, Wisconsin
OLYMPIA J. SNOWE, Maine
HENRY J. HYDE, Illinois
GERALD B.H. SOLOMON, New York
DOUG BEREUTER, Nebraska
MARK D. SILJANDER, Michigan
ED ZSCHAU, California
ROBERT K. DORNAN, California
CHRISTOPHER H. SMITH, New Jersey
CONNIE MACK, Florida
MICHAEL DEWINE, Ohio
DAN BURTON, Indiana
JOHN McCAIN, Arizona

JOHN J. BRADY, JR., *Chief of Staff*
JOSEPHINE WEBER, *Staff Assistant*

SUBCOMMITTEE ON ARMS CONTROL, INTERNATIONAL SECURITY AND SCIENCE

DANTE B. FASCELL, Florida, *Chairman*

HOWARD L. BERMAN, California
MORRIS K. UDALL, Arizona
LEE H. HAMILTON, Indiana
STEPHEN J. SOLARZ, New York
GERRY E. STUDDS, Massachusetts
MICHAEL D. BARNES, Maryland
TOM LANTOS, California

WILLIAM S. BROOMFIELD, Michigan
HENRY J. HYDE, Illinois
JIM LEACH, Iowa
OLYMPIA J. SNOWE, Maine
ROBERT K. DORNAN, California

IVO J. SPALATIN, *Subcommittee Staff Director*
WILLIAM H. FITE, *Minority Staff Consultant*
TONI G. VERSTANDIG, *Subcommittee Staff Consultant*
JANEY WRIGHT-RUTAN, *Subcommittee Staff Consultant*

CONTENTS

WITNESSES

APPENDIXES

IMPLICATIONS OF THE PRESIDENT'S STRATEGIC DEFENSE INITIATIVE AND ANTISATELLITE WEAPONS POLICY

WEDNESDAY, APRIL 24, 1985

HOUSE OF REPRESENTATIVES, COMMITTEE ON FOREIGN AFFAIRS, SUBCOMMITTEE ON ARMS CONTROL, INTERNATIONAL SECURITY AND SCIENCE,

Washington, DC.

The subcommittee met at 10:15 a.m., in room 2172, Rayburn House Office Building, Hon. Dante B. Fascell (chairman of the subcommittee) presiding.

Chairman FASCELL. We meet today to continue our investigation into the arms control and budgetary implications of the administration's strategic defense initiative as part of this subcommittee's series of hearings on arms control in space.[1]

Over the last few years there has been growing concern in and out of Congress that the active pursuit of space defense programs by both the United States and the Soviets could lead to an abandonment of the ABM Treaty and the beginning of yet another arms race. And perhaps that unwittingly, behavior on both sides could lead to a dual arms race: continuation of the current arms race in offensive nuclear weapons and the beginning of an arms race in defensive weapons.

RECENT REPORTS ON SDI

Two recent reports are especially pertinent to these concerns: The Department of Defense's SDI "Report to Congress" and a report by private experts on the adverse arms control implications of United States and Soviet space defense efforts. In some respects, these two reports are complementary. They both describe the ballistic missile defense activities of the superpowers in great detail. In other respects, they are diametrically opposite. For example, the DOD report gets around the ABM prohibition on component testing by declaring that it will limit testing only to the subcomponents. In their report, however, the private experts argue that such testing culminates in a violation of the ABM Treaty.

My concern is that a pat interpretation or loose interpretation of the ABM Treaty would enable DOD to test what otherwise has been seen as being prohibited by the ABM Treaty. But the bottom line really is, whether or not the ABM Treaty and what it seeks to

[1] See hearings on "Arms Control in Outer Space."

do is in the best interests of the United States in the ultimate, and not whether we can finesse some kind of activity with respect to the treaty. If one is prohibited from testing components, do you get away with testing subcomponents? And if we are not supposed to test them in the field, is it okay if you test them on the shelf, or in a dark room? I mean the possibilities are limitless and it certainly, at a very minimum, seems that the way we are going right now would put in question our desire to adhere to the ABM Treaty. That is the way it seems to me.

SDI FUNDING

In the area of costs, the subcommittee has received information that the $3.7 billion figure requested for fiscal year 1986 is probably over $4 billion. We need to examine that very carefully, particularly in light of the fact that CBO advises us that DOD has spent less than 3 percent of the $1.4 billion that was made available last fiscal year, and they estimate that by the end of this fiscal year DOD will only be able to spend 50 percent of what was appropriated. I know we are all anxious to go forward with some research, but we have to take a long, hard look at whether or not we might be throwing too much money at a problem too fast in our anxiety to move forward with it—and that may not be the best way to approach this.

So, to answer some of these questions, or perhaps all of them, we have several experts here with us today. We will start off first with three of our colleagues who have been very, very active in this field. We are very proud that they are here and we anxious to hear their thoughts. But before I ask Mr. Brown to start off the testimony, I will ask Mr. Hyde if he has any comments.

Mr. HYDE. No, sir. I would not want to take one second away from this extraordinarily competent panel, so I anxiously await whatever they have to say.

Chairman FASCELL. I want you to know that he is serious when he makes that statement.

Our first witness is Congressman George E. Brown, Jr.

STATEMENT OF HON. GEORGE E. BROWN, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. BROWN. Thank you, Mr. Chairman, and may I again congratulate you and the members of the subcommittee for continuing this series of hearings on this important issue, and for elevating the priority of this whole issue of arms control and arms control in space to the level that you have through your committee activities.

Mr. Chairman, the development of space weapons, including the strategic defense systems and antisatellite weapons, threatens the framework for the control of nuclear weapons established in the 1972 Anti-Ballistic Missile Treaty, and thus also threatens the entire future of arms control.

LEGISLATION LIMITING SPACE WEAPONS

My concern leads me today to introduce legislation which calls on the President to negotiate a treaty providing for strict limitations on space weapons—space weapons of all kinds. The legislation

also calls on the President to reaffirm the commitment of the United States to the ABM Treaty, including restraint on programs which could undermine the treaty, and to seek an agreement with the Soviet Union for a mutual antisatellite [ASAT] moratorium on tests against objects in space.

My colleagues, Congressman Joe Moakley and Congressman Norm Dicks, who are here this morning, also, have joined me as original sponsors of this legislation. As authors of legislation in the last Congress addressing various aspects of arms control in space, we have combined our efforts in introducing this omnibus bill.

Congressman Moakley spearheaded efforts in support of arms control in space several years ago when he authored legislation calling for the negotiation of a treaty to ban weapons in space. Congressman Dicks was the author of legislation calling on the President to negotiate a treaty on antisatellite weapons. And finally, Mr. Chairman, as you know, I introduced legislation last year to reaffirm the commitment of the United States to the 1972 ABM Treaty. I am honored to be joined by my distinguished colleagues in introducing this omnibus legislation combining all of these major areas of concern regarding arms control in space.

I would now like to outline the major points of this bill for the committee, and I don't want to dignify it with too much time because it is really quite a short bill.

MAJOR PROVISIONS OF THE BILL

The first section calls for the President to seek the negotiation of a treaty between the United States and the Soviet Union providing for the strictest possible mutual and verifiable limitation on the testing, production, deployment and use of all space-directed or space-based weapons systems. The intent of this section is to indicate the strong support of Congress for the negotiations in Geneva and to indicate support for a treaty which would include limits on space weapons, including ASAT weapons and strategic defensive systems.

The second section of the bill calls on the President to seek an agreement with the Soviet Union for a moratorium on ASAT weapons tests against targets in space. As you know, we have already conducted tests against points in space. The intent of this section is to underscore the importance of a near term agreement to limit Asat tests in order to facilitate the eventual negotiation of a treaty providing for strict and verifiable limitations on antisatellite weapons.

The third section of the bill calls on the President to reaffirm the commitment of the United States to the ABM Treaty and to refrain from activities which could undermine the treaty. The intent of this section is consistent with stated administration policy.

PLANS TO TEST ASAT'S

I might point out in connection with your own earlier remarks, Mr. Chairman, that it is becoming quite obvious that one of the ways in which the administration hopes to be able to proceed with the testing of the SDI system, which would normally be interpreted as a violation of the ABM, is to use it in an ASAT mode; that is, to

use components to be considered as part of an antisatellite system instead of an antimissile system. But there is no difference between attacking, say, a hardened satellite and attacking a missile. And to test it and to claim that you are testing it in an antisatellite mode is merely another device or another way of circumventing the ABM Treaty; and as you pointed out so well, it becomes obvious that we are seeking to circumvent in a duplicitous way the clear intent of the ABM Treaty when we engage in these kinds of tactics. You mentioned testing of subcomponents. Testing a component in a Asat mode when it is really an antiballistic missile system does the same thing, and we should try and avoid that unless we are going to completely destroy confidence in the whole arms control process.

Mr. Chairman, I believe the President is sincere in his desire for world peace. However, the preponderance of evidence provided by opponents and acknowledged by proponents of the SDI indicate that there is no defensive system that we can currently conceive of which could protect the American people from Soviet nuclear missiles. The President's own advisers now speak of the enhanced deterrence which might be provided by an SDI system, whereas they once spoke of assured survival. To suggest that star wars could put the nuclear genie back in the bottle is to perpetrate a cruel hoax on the American people and to oversimplify the complex nature of our nuclear age.

ADMINISTRATION'S SDI REPORT

I would like to comment briefly on the administration's report to Congress on the SDI submitted, in its unclassified version, to the Congress last week. I note with grave concern the administration's stated intention to conduct the tests of ABM components which is outlawed by the ABM Treaty as Asat's in order to circumvent ABM Treaty restrictions, which I mentioned a moment ago. This is in blatant disregard of the spirit of the ABM Treaty and raises serious questions about the administration's intentions in the Geneva arms control talks. It also underscores the need for a treaty limiting the Asat weapons if we hope to preserve the treaty and prevent an arms race in space.

ASAT MORATORIUM AMENDMENT

In light of these concerns and of the threat posed to critical reconnaissance and early-warning systems by ASAT's, Congressman Coughlin and I intend to offer an amendment to the fiscal year 1986 defense authorization bill to establish what we had in effect up until the 1st of March, an Asat test moratorium. This moratorium would remain in effect the Soviet Union does not resume Asat testing. The House overwhelmingly supported a similar amendment last year. I will also be investigating the possibility of limiting other Asat systems, in addition to the F-15 ASAT, in order to protect the viability of the ABM Treaty and address the problems raised by the President's SDI report to Congress.

BMD AND ASAT WEAPONS RESEARCH

Mr. Chairman, research on ballistic missile defense systems and on antisatellite weapons has gone on for the past 20 years. I support continued research on defensive systems, on Earth and in space, at a prudent level. But this effort should be combined with a renewed commitment to observe the 1972 ABM Treaty and with a willingness to negotiate a further treaty prohibiting weapons of any kind in space. A treaty limiting Asat weapons should be included as a protocol to the ABM Treaty or negotiated as a separate treaty. In such an atmosphere, the arms control negotiations in Geneva would have a chance of succeeding in reducing all classes of nuclear weapons on Earth and of preventing an escalation of the arms race on Earth and in space. Without such a commitment, I am extremely skeptical of the outcome of the arms control negotiations in Geneva.

Thank you very much, Mr. Chairman.

Chairman FASCELL. Thank you very much, George.

Our next witness is our distinguished colleague Mr. Norm Dicks, who has just come back from a very interesting conference. I am sure we will hear a little bit about that, too.

STATEMENT OF HON. NORMAN D. DICKS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

Mr. DICKS. Thank you, Mr. Chairman. I want to compliment the chairman for the leadership that he has demonstrated not only in the public hearing process, but in the seminars that he has made available to all Members of Congress so that we can become better informed on the question of arms control issues facing the Congress and our country.

I also might say to the chairman that I am sure the report that he has received from the Congressional Budget Office will be put to good use by those of us who serve on the Defense Appropriations Committee and the House Armed Services Committee as we look at the SDI budget for fiscal year 1986. I think it is a very revealing document.

I have a longer statement that I would like to submit for the record.

Chairman FASCELL. Without objection, it will be included in the record.

Mr. DICKS. And I would like to make a briefer statement.

First, I want to commend my colleague, Congressman Brown, who has provided exceptional leadership on this issue and who I think in his statement today has presented in a crisp fashion the issues that the Congress is going to have to deal with as we face the upcoming talks in Geneva.

I might add that I was honored to be invited to participate in an arms control symposium at Emory University with former Presidents Carter and Ford along with the last five national security advisers. We had a chance to deal with the Soviets there and to get some ideas about how they are reacting not only to Geneva, but to the prospects of a strategic defense initiative.

KEY ROLE OF SPACE WEAPONS

I want to thank you again for the opportunity to testify on arms control in space, and commend the committee for its attention to this important issue. Space systems will play a key role in the shape of and prospects for positive developments in the arms control field. In the case of space weapons, we have an opportunity to agree to controls before we have made the financial and security investments that make cancellations nearly impossible. We have only tried this once before, but it produced what the Scowcroft Commission has called one of the most successful arms control agreements, the ABM Treaty. Space weapons are, also important, because I think there is a dilemma between the President's goal for star wars and deep reductions in offensive nuclear forces.

As McGeorge Bundy, George Kennan, Robert McNamara and Gerard Smith stated in their Foreign Affairs article, "The President's Choice: Star Wars or Arms Control," and I quote: "Star wars, in sum, is a prescription not for ending or limiting the threat of nuclear weapons, but one for a competition unlimited in expense, duration and danger." This committee's 1984 interim report reached the same very persuasive conclusion, and I hope that all members will read it with interest as I have.

For these reasons I have joined Congressman Brown and Moakley in introducing legislation calling on the President to negotiate the strictest possible mutual and verifiable limits on space weapons providing for a mutual antisatellite testing moratorium and reaffirming our commitment to the ABM Treaty.

FUNDING AND TECHNICAL QUESTIONS

Let me preface my remarks with two observations. First, SDI as envisioned by the President is a task of immense complexity and technological uncertainty. Former Under Secretary of Defense Richard DeLauer said it is equivalent to eight Manhattan Projects. Second, it is going to be very expensive: $33 billion between fiscal year 1986-90 just for an architectural study. No one knows the ultimate cost, but it is safe to say the sky is not the limit.

ARMS CONTROL IMPLICATION OF SDI

The President's course can be likened to a reverse of the advice of Teddy Roosevelt—speak loudly and research a big stick. Alexander Haig called the March 23, 1983 address by President Reagan the wrong speech at the wrong time. Since that time we have heard as many versions of what SDI is all about as there are high administration officials. It reminds one of the tale of the blind man and the elephant. Everyone feels what they want to feel, but no one really sees what is before them. The President sees SDI as a moral crusade to render nuclear weapons impotent and obsolete. Officially SDI is only a research program, so we shouldn't worry about it. A third group sees SDI as a stalking horse for a compromise in favor of point defense. Another view is that it is the ultimate bargaining chip in Geneva; if the President will give it up at the right time.

EXPECTED SOVIET RESPONSE

Our first priority must be to define exactly what SDI really is, so we can judge its real implications on the arms race. We can expect the Soviets to view SDI in a worst case light. This is how we view parallel Soviet efforts. We can also bet the farm that they are not going to wait and see what this $33 billion produces before they respond. They have already begun. This point really needs to be emphasized. The President tries to portray this as a $33 billion R&D program over the next 5 years, and then we will make a judgment about what we are going to do. The problem is, with this on the horizon, the Soviets are going to respond now with offensive measures and enhancing their own defensive technology. And so the spiral of the arms race starts instantly unless we can somehow bring a halt to it in the negotiations in Geneva.

First, the Soviets will aggressively pursue countermeasures to SDI. Ambassador Nitze has laid out very difficult criteria for judging the feasibility of star wars. They include that the system must be survivable and cost effective at the margin. And I must say, based on the scientific evidence I have seen, that is going to be a very difficult test for this administration to meet. The President's report on SDI provides one dangerous example of what they might do when it notes that without arms control constraints the Soviets could double their ballistic missile warheads without much increase in launchers; thus, SDI may undercut SALT II and the 10-warhead limit that has been so critical to that agreement.

We went down this path once before when we moved ahead with MIRV's in anticipation of ABM's being deployed. The problem was that even though we discovered that ABM systems would be ineffective and agreed to the ABM Treaty we still went ahead with MIRV's. Now, 15 years later, we very much regret that mistake. Let us not make the same one again.

The range of countermeasures to SDI is immense. They could include increased numbers of ICBM warheads, advanced antisatellite weapons or additional bombers and cruise missiles. While we are concerned about large ICBM's today, if all SDI does is, at a cost of hundreds of billions of dollars, lead to an era of reliance on stealthy supersonic, highly accurate air and sea-launch cruise missiles, it will have made the world much more dangerous.

The President's report does include a good description of the responsive Soviet threat, which provides some confidence that the Nitze criteria will be fairly and critically applied. I would be more confident with a dedicated red team as advocated by Senators Bumpers, Proxmire, Chafee, and Mathias.

The other course the Soviets will likely pursue is deployment of their own defense system, probably a near term primitive option that will nonetheless undermine stability.

None of these Soviet responses is likely to make the world a safer place for our children or grandchildren. While we know that a decision to proceed with development and deployment of SDI will require abandoning the ABM Treaty, the administration has pledged that the initial 5-year program will be in compliance with the treaty. But they reached this conclusion only through the most narrow interpretation of ABM restrictions. It is the ultimate in

strict constructionism. And I think the chairman's opening remarks about subcomponents is very pertinent on this point.

The March 1985 report, "The Impact of U.S. and Soviet Ballistic Missile Defense Programs on the ABM Treaty," which was authored by John Pike, who is also testifying this morning, provides an exeellent analysis of the areas of concern on both sides. I commend this report to the committee for its consideration as an appropriate counterpoint to the administration's report.

The administration's presumption when it comes to Star Wars and the ABM Treaty is if there is a loophole we can exploit, then do it. This is the very approach to arms control that we have citicized the Soviets for following over the last 20 years. It is an attitude that will inevitably lead to undermining the treaty. We should not follow it. Two wrongs do not make a right.

The presumption of the ABM Treaty was to place as strict controls on new types of strategic defenses as possible. The guidelines ought to be to control what we can verify by national technical means.

The administration has been critical of Soviet actions that bring into question their adherence to the ABM treaty. This is a legitimate concern. I joined the chairman and Congressman Solarz along with 20 of our colleagues in the House recently in sending a letter to Chairman Gorbachev expressing our concerns about the Krasnoyarsk radar, stating that failure to resolve them would erode support for arms control agreements. Yet, there are reports in the Washington Post stating, and I quote:

> One U.S. nongovernmental expert said yesterday that in one meeting the Soviets were told that if the United States takes them off the hook on the Krasnoyarsk violation, Reagan officials will want a quid pro quo. He said this might incluae a redefinition of ABM treaty provisions to permit some Star Wars tests to go beyond the laboratory without complaints.

This is the exact opposite of where we should go, but I fear that it will, in fact, reflect administration thinking.

ASAT TESTING

On antisatellite weapons, I testified at length last year on the strong arguments in support of a mutual moratorium on ASAT testing against objects in space while we seek negotiated controls on this class of weapon. Nothing has changed since then to change my view. The House last year voted to impose such a moratorium so long as the Soviets showed similar restraint. In conference, we compromised to allow up to three tests against an object in space, provided the President certified that such tests were required for national security, that he was seeking a negotiated agreement on ASAT's, and that such tests should not undermine arms control efforts.

I would encourage this committee to carefully review any such certification to determine if it truly meets the tests included in the Authorization Act.

The final point on ASAT's and their relationship to SDI which was mentioned by Congressman Brown. ASAT's are seen in some cases as a convenient way to develop the same kinds of technology that is being explored by SDI. At the same time, ASAT's are

among the most promising countermeasures to space-based defenses. Thus, without some control on ASAT's, star wars may be impossible. If there is such a limitation, then the end run around the ABM agreement can be better controlled.

OFFENSIVE SPACE WEAPONS

Another offshoot of SDI may be additional offensive weapons. And I might point out this is one of the things that the Soviets emphasize. They are worried about us spending $33 billion not just because we are exploring defensive technologies, but because of offensive implications. The possibility exists that if we can't put together the information networks necessary for a workable strategic defense we still might find weapons applications for lasers or other technologies in space against aircraft or ground targets. The Soviets realize this and it is a major part of their concern. We should realize it as well.

RECOMMENDATIONS

Now, my recommendations are as follow: We should restructure SDI to deemphasize near term demonstration projects that threaten the ABM Treaty. We should support an overall funding level no higher than the 35 percent growth ceiling recommended by former Secretary of Defense Schlesinger and probably a much lower growth rate. We should agree to a mutual testing moratorium on ASAT's. We should provide an independent oversight body to ensure star wars adherence to the ABM Treaty. We can't have the fox guarding the chicken coop. We must demonstrate willingness and flexibility at Geneva and in the SCC to strengthen the ABM Treaty, not undermine it.

Mr. Chairman, arms control in space provides difficult challenges. Our guideline should be to look before we leap. Too often in the past we have let the siren's song of new technology lead us down a path filled with danger and uncertainty. Mr. Chairman, I believe that we have the possibility, as McGeorge Bundy put it, "for a grand deal in Geneva." I hope the administration will not miss an opportunity to get a major new arms control agreement by being reluctant to limit its own Strategic Defense Initiative.

And I appreciate the opportunity to testify here today.

[Mr. Dicks' prepared statement follows:]

PREPARED STATEMENT OF HON. NORMAN DICKS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

I want to thank you for this opportunity to testify on an issue which I believe is critical to the future safety of the world, control of weapons in outer space. I commend the Committee for its attention to this issue.

Space systems will, in my judgment, play a key role in the shape of and prospects for developments in the arms control field. First, critics of arms control efforts to date have argued that they have not prevented the introduction of more and more weapons. This is at least in part due to the fact that we have taken a post facto approach. We have tried to control new weapons once the horse was already out of the barn. With major investments of funding and incorporation into both sides perceived security requirements, reductions, much less elimination of these weapons has proven difficult or impossible.

In the case of space weapons we have an opportunity to agree to controls before we have made this monetary and security investment. We have tried this approach only once before, with the ABM treaty, which was characterized by the Scowcroft Commission in its final report as, "one of our most successful arms control agreements.

The second reason I am convinced that space weapons are key to arms control is the dilemna between the President's twin goals, Star Wars and deep reductions in offensive forces. As McGeorge Bundy, George Kennan, Robert McNamara and Gerard Smith stated in their Foreign Affairs article, "The President's Choice: Star Wars or Arms Control", "There is simply no escape from the reality that Star Wars offers not the promise of greater safety, but the certainty of a large scale expansion of both offensive and defensive weapons on both sides. Star Wars, in sum, is a prescription not for ending or limiting the threat of nuclear weapons, but for a competition unlimited in expense, duration and danger."

In light of these conclusions, I am proud to join Congressman Brown and Congressman Moakley in introducing legislation today that calls on the President to negotiate for the strictest possible mutual and verifiable limitations on space weapons, to provide for an agreement with the Soviet Union for a moratorium on the testing of anti-satellite weapons, and to provide for the continued United States commitment to the ABM treaty.

FUNDING AND TECHNICAL QUESTIONS

I will not attempt in this testimony to go into a detailed discussion of the funding and technical questions surrounding the

Strategic Defense Initiative and other space weapons programs. I testified at some length on these questions, particularly as they relate to anti-satellite weapons, before this Subcommittee last year and the observations I made at that time have not changed.

But I do think it is important to preface my remarks with a few observations. First I would note that the SDI as envisioned by the President is a task of immense complexity and technological uncertainty. It was characterized by former Undersecretary of Defense Richard DeLauer as being equivalent to eight Manhattan projects. One comparison of the computer software challenge can be made by noting that for a launch of the shuttle, about 80,000 calculations have to be made in the last nine minutes before launch. For a comprehensive Star Wars system, over ten million calculations would have to be made in the same time frame. And it would have to work just right, the first time, without full scale testing.

Second, this effort is going to be prohibitively expensive. The Administration is seeking $33 billion between FY 86-90 just for research to decide if we want to go into the types of development it sees as beyond the terms of the ABM treaty. No one knows the ultimate cost, but it is safe to say the sky is not the limit.

STRATEGIC POLICY AND ARMS CONTROL IMPLICATIONS

The course taken thus far by the President can be likened to a reverse of the advice of Teddy Roosevelt. In this case we are speaking loudly and researching a big stick. We have gotten the cart before the course, reaching conclusions before even the most fundamental technical and policy questions are answered. As Alexander Haig stated about the President's March 23, 1983 address, "It was the wrong speech at the wrong time."

Since that speech we have heard as many versions of what the Strategic Defense Initiative is all about as there are high officials in this Administration. The situation is very much like the blind men and the elephant, everyone feels what they want to feel but no one really sees what is before them.

For the President and the "faithful" SDI is a moral crusadethat will make nuclear weapons "impotent and obsolete". Officially, SDI is simply a harmless research program. An adventure into the unknown, to see what we can see. It is no threat to the ABM treaty, it is only a hedge against Soviet actions that will let future Americans make the choice of moving to a better way of life. Unfortunately, the reality of what is sought in the funding levels and direction of the program is likely to create a momentum which will create a program with a life of its own.

A third group sees SDI as a convenient smoke screen behind which to hide the desire to deploy a less comprehensive point defense for nuclear weapons, especially land based ICBMs. Star Wars opponents will be glad to settle for point defense ABMs if they can avoid the full scale straw man program. This will also

help avoid critical debate on the merits of the point defense option.

Finally, there are those who argue that SDI is really the ultimate bargaining chip for Geneva. If we can make enough noise about what our superior technology can do, we can motivate the Soviets to make major concessions on offensive forces. We will force them to buy a pig in a poke. The problem is that this means that you have to think that Star Wars is not really on the level, and the President is still listening to the true believers. Our first priority must be to define exactly what we want to accomplish with the rush to space defense weapons, and then critically debate whether it can be accomplished, and if so what will be its real implications for world peace.

THE SOVIET RESPONSE

A central question to both the feasibility and advisability of strategic defenses is the likely Soviet response. While we can never be certain, we can make a pretty good guess.

To begin with, we can expect the Soviets to view these developments in a worst case light. This is just how we view the parallel Soviet effort. If anything they are even more fearful of the miracles of American technology than we are confident of them. They are not going to give much credence to reassuring statements that we do not intend to strike first, that we will share the technology with them (after we perfect it of course), and that we will "consult" with them before deployment. The consultation they have seen thus far is more like a lecture to a reluctant youngster on why this is good for them.

We can also bet the farm that they are not going to wait until sometime in the 1990s to see what this $33 billion produces before they decide how to respond. They have begun their response already.

First, they will aggressively pursue countermeasures to SDI. Ambassador Paul Nitze laid out the criteria he sees for a successful SDI in his speech before the World Affairs Council on February 20 of this year. He stated, "The criteria by which we judge the feasibility of such technologies will be demanding. The technologies must produce defensive systems that are survivable; if not, the defenses would themselves be tempting targets for a first strike. This would decrease rather than enhance stability. New defensive systems must also be cost effective at the margin--that is, they must be cheap enough to add additional defensive capability so that the other side has no incentive to add additional offensive capability to overcome the defense. If this criterion is not met, the defensive systems could encourage a proliferation of countermeasures and additional offensive weapons to overcome deployed defenses instead of a redirection of effort from offense to defense." The Soviets are already hedging their bets against these criteria, before we can even evaluate whether they can be met. This message has been made forcefully by everyone from Gorbachev to Scherbitsky. On my recent trip to Geneva as a

Congressional observer it was the recurring theme of Soviet statements.

The President's Report on SDI provides one dangerous example of what the Soviets might do when it notes, "If ballistic force levels with multiple independent reentry vehicles were no longer constrained by arms control agreements, the number of Soviet ballistic missile warheads could increase to at least twice their current levels with only a modest increase in the number of ballistic missile boosters.

This phenomenum, of a response to system even before it is deployed has occured once before. We began development of multiple independent reentry vehicles in anticipation of Soviet deployment of a primitive ABM system in the late 1960s. We avoided the ABM arms race by negotiated treaty, but we went ahead with MIRVs anyway. Today, 15 years too late, we have a consensus that MIRVs are bad for us, but we *are* still deploying them, and so are the Russians.

Let us hope that we have not started the world down the road to a new, and even more dangerous step in the arms race that may be uncontrollable, even if we do affirm the ABM treaty and decide not to deploy strategic defenses.

The range of countermeasures that are possible is immense. They could include increased numbers of ICBMs. They would certainly work against efforts to get the Soviets to reduce the throw weight of their missile force, it would come in handy for decoys, chaff, or increased warheads. They could include an accelerated effort to deploy even more advanced antisatellite weapons. They could shift their forces away from fixed land based missiles to rely more on bombers and cruise missiles which would not be covered by even the most ambitious vision of Star Wars.

Dr. George Keyworth has even welcomed this latter option stating, "Let the Soviets move to alternative weapons systems, to submarines, cruise missiles, advanced technology aircraft." But for those who want to make nuclear weapons "impotent and obsolete" this would require comprehensive air defenses as well. The Soviets have invested tens of billions in such systems, which we are able to penetrate for much lower investment. That was the pitch for the B-1 and even more so for the Advance Technology Bomber.

And there is no guaranteeing that this shift will be more stabilizing. For all the problems we see in large land based ICBMs, the prospect of encouraging the development of stealth, long range, highly accurate sea and air launched cruise missiles that will provide little or no warning time is even more frightening for this Member.

The President's just submitted report on SDI includes a very good description of what it terms the "Responsive Soviet Threat". This discussion provides some encouragement that the Nitze criteria will be fairly and critically applied. It is more comforting than premature claims from Administration officials

that we have already concluded that undefined defensive systems are cheaper than countermeasures. I would be even more comforted if a red team concept was applied as has been suggested by Senators Bumpers, Proxmire, Chaffee and Mathias.

The other course the Soviets will likely pursue is deployment of their own defensive system. If they act in character they will choose to move quickly, with a fairly primitive system that will none the less complicate our deterrence confidence and reduce strategic stability. Our task is to walk the fine line between the hedge against Soviet breakout and forcing them to play their hand early. In this context, the combination of moderate funding levels and sincere arms control efforts is necessary.

None of these Soviet responses is likely to make the world a more safe place for our children or grandchildren.

SPACE WEAPONS AND THE ABM TREATY

Everyone agrees that if we are to go ahead with Star Wars it means abandoning the ABM treaty. This would cause no grief to Secretary of Defense Caspar Weinberger who has testified that he has never been a supporter of the ABM treaty. But for otherinformed observers, the question of abandoning ABM is of far more serious consequence and should not be made lightly.

While we know that the ultimate objective of SDI is to end ABM arms control, the President has pledged that the program will remain compliant with the treaty during its five year exploration phase. This pledge is reaffirmed in the recent report to the Congress on SDI.

But the report reaches this conclusion only through the most narrow interpretation of ABM restrictions. Those who would call some of the activities contemplated for SDI in line with the ABM treaty would see a masked man at midnight stalking through an alley with a color TV under his arm as making a delivery. It is the ultimate in strict constructionalism.

The Administration Report identifies eight major experiments that fall into what it calls Category 2, "Field Testing" of Devices that Are Not ABM Components or Prototypes of ABM Components. It takes advantage of the lack of precise definition of components for unforseen technologies when the ABM treaty was drafted and asserts that these experiments are "sub-components" or of insufficient power or range to serve in an ABM mode. These are assertions that can not be verified by national technical means, and stretch the limits of semantics.

The March 1985 report, "The Impact of U.S. and Soviet Ballistic Missile Defense Programs on the ABM Treaty", which was co-authored by John Pike who will be testifying later this morning provides an excellent analysis of this issue, and anticipates the kind of word games the Administration is playing in order to keep the pretense of ABM compliance alive. I commend this report to the Committee for its consideration as an appropriate counterpoint to the Administration report.

The presumption of the Administration when it comes to Star Wars and the ABM treaty is that if there is a loophole you can exploit and still make a convoluted argument that you are in technical compliance with the treaty, then do it.

This is the very approach to arms control that we have consistently, and very legitimately over the last 20 years, criticized the Soviets for following. It is an attitude that will inevitably lead to undermining of the ABM treaty, as each side minimizes the implications of its own actions while maximizing that of the other. It is a sure fire prescription for creep out.

The presumption of the ABM treaty was to place a strict controls on strategic defenses as possible. It was forced to recognize the fact of life that limited primitive technology systems could not be stopped. It had to acknowledge that research in the laboratory was not verifiable and thus could not be prohibited. But it also recognized that testing was verifiable by national technical means. That is why it stated in Article V that "Each Party undertakes not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based or mobile land-based. The objective was to prohibit new ways to skin the cat before they came on line, not to create stimulating exercises for creative linguists.

It is interesting to note that on questions such as whether an experiment is of sufficient power to operate in an ABM mode, this is clearly not verifiable by national technical means. But then the Soviets can take our word for it, that should satisfy them.

The Administration has been critical of Soviet efforts that bring into question their adherence to the ABM treaty. While I disagree with the tactics and forums for expressing their disagreement, the Standing Consultative Commission is the proper channel, I do not fault them for being concerned. I recently joined the Chairman and 21 other House Democrats in writing to Chairman Gorbachev to express our concern on the question of the Krasnoyarsk radar and its apparent violation of the ABM treaty. We stated that without a satisfactory resolution of this question further arms control efforts and support for existing treaties in the United States would be eroded.

Yet, Admbassador Nitze and Secretary of State Schultz were recently quoted in the Washington Post as telling a newspaper editors meeting that Krasnoyarsk is an early warning radar. Later the article goes on to state that "One U.S. nongovernment expert said yesterday that in one meeting the Soviets were told that if the United States takes "them off the hook" on the Krasnoyarsk violation, Reagan officials will want a "quid pro quo." He said this might include a redefinition of "ABM treaty provisions to permit some Star Wars tests to go beyond the laboratory without complaints." This is the exact opposite of where we want to go. The resolution to Soviet compliance questions is to press for compliance, not to have two wrongs make a right. There are other

Soviet activities of concern described in the report co-authored by Mr. Pike that should be addressed in the SCC, and Geneva not used as an excuse for abandoning arms control.

ANTI-SATELLITE WEAPONS

I testified at length last year before this Subcommittee on the reasons I support a mutual moratorium on testing antisatellite weapons against an object in space by the United States and the Soviet Union. I believe the issues I raised then hold true today, that the security pluses in uncertainties and dangers avoided far outweigh whatever minuses are associated with not going forward with the miniature homing vehicle system.

Over the last year this program has proceeded on a less than successful course. It has encountered testing problems. The test against an object in space has been repeatedly delayed. The Congress voted to restrict its testing program. The House adopted by a substantial margin Congressman Brown's amendment on an ASAT testing moratorium. In conference we were forced to compromise to allow three tests against an object in space, after Presidential cerification that such testing was required for national security, that the Administration was striving to negotiate limits on ASATs, and that such testing would not undermine arms control efforts.

The Pentagon has stated it plans to conduct the first test against an object in space in late June or early July, if the required Presidential certification is forthcoming. It is unclear how this certification can be made, we don't even have an ASAT arms control position on the table. I would encourage this Committee to carefully review any such certification and consider legislative action to block testing if it concludes that the certification is not supported by an objective examination of the facts.

A final point on ASATs. This involves the relationship of it to SDI. On the one hand, it is seen as a convienent means to develop the same kinds of technology that is being explored for SDI. In fact, some of the experiements being questioned for their realtionship to the ABM treaty are being justified as ASAT or anti-ASAT efforts. At the same time, ASATs are among the most promising countermeasures to space based defenses. Thus without some controls on ASATs Star Wars may be impossible. And if there is such a limitation, then the end run around ABM can be controlled. These points only serve to reinforce the rationale for limitations on ASATs.

OFFENSIVE SPACE WEAPONS

Another offshoot of SDI may well be additional offensive weapons. One analyst stated, "If you solved the challenging problem of getting the energy from high powered lasers into space, but fell short of getting information systems necessary to hit ballistic missiles, then you might consider the possibility of using that energy beam on other targets where timing and accuracy were not so devilishly difficult to achieve."

These could include aircraft or targets on the ground. The implications of orbiting offensive lasers that could destroy at the speed of light with no warning would be the ultimate first strike weapon. The Soviets realize this and it is a major part of their concerns on space weapons. We should realize it as well and consider what implications it has for the Outer Space Treaty.

RECOMMENDATIONS

Having said all this, what would I recommend?

--A restructuring of the SDI funding program to deemphasize near term demonstration projects.

--An overall funding level not to exceed the 35% real growth rate recommended as a ceiling by former Secretary of Defense Schlesinger for any profitable expansion program. In reality it could be much lower rate of growth in light of our budget problems.

--A U.S. demonstration of willingness and flexibility at Geneva and in the SCC to pursue controls on space weapons in a way that will strengthen the ABM treaty, not undermine it.

--Agreement to a mutual ASAT moratorium on testing against objects in space and sincere efforts to negotiate strict limits on these systems

--An independent oversight body for determining adherence of the SDI with the ABM treaty. Letting the Defense Department be the sole monitor is like letting the fox guard the chicken coop.

Mr. Chairman, arms control in space will provide difficult challenges that must be intelligently addressed. Our guideline should be to look before we leap. So often in the past the sirens song of new technology has led down a path frought with danger and uncertainty. If this really is an effort to explore possibilities without pre-empting the choice to forego strategic defenses because they are in fact destabilizing and bankrupting then there are going to have to be a lot of changes made, and it is Congress that is going to make them.

Chairman FASCELL. Thank you very much.

Our next witness is our colleague, the Honorable Duncan Hunter.

STATEMENT OF HON. DUNCAN HUNTER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. HUNTER. Thank you, Mr. Chairman, and members of the committee. It is a pleasure to appear before you. And before I go into my statement, I would remind the committee and my colleagues that, at least according to most expert opinion, it was SDI that brought the Soviet Union to the bargaining table in Geneva. So, it would be indicated to me at least that this President is either very, very smart or—if, in fact, SDI is not meritorious, he has got to be a smart guy, or there is something to it. And I think that they give, perhaps, a little more credibility to the system than many of our experts in the United States.

In my view, Mr. Chairman, this area, arms control and space, is one of the most technologically complex, strategically important, and politically controversial areas with which we in the Congress have to struggle. It touches on a broad variety of considerations. They range from Soviet compliance with existing arms control agreements to possible changes in the fundamental strategic relationship between the United States and the Soviet Union. They include the hope of a potentially more secure future, free from the threat of nuclear weapons, for all nations.

In my remarks I would like to focus on two specific separate questions. The first is the President's Strategic Defense Initiative, which looks toward possible systems the United States might consider a decade from now. The second is its relationship to antisatellite arms control and the miniature vehicle program, which is currently in progress.

THE SDI PROGRAM

My understanding of the Strategic Defense Initiative is that it is a result of the fact that over the past 10 or 15 years progress in science and engineering has made the possibility of effective defenses against nuclear ballistic missiles more realistic than was the case in the 1960's. It used to be clear that defenses against ballistic missiles would be limited in their capabilities, would be vulnerable to saturation attacks, would be more expensive to build than the ballistic missiles they were to defend against, and would be vulnerable to suppression attack themselves. These assertions, Mr. Chairman, are no longer clear.

Progress in technology gives many experts reason to believe they are no longer true. For this reason, a national program to determine whether it is indeed possible to have large scale effective defenses against ballistic missiles would clearly seem to be in our interest. I believe there is now, 40 years after the first nuclear weapons, a technological and historical imperative to accept the challenge made by the President in his speech of March 23, 1983, and to proceed, with a sense of urgency, with a program to determine whether effective defenses could be built.

There is a second reason why the question of defenses has to be revisited: Soviet actions. The Soviets, since they signed the ABM Treaty, have not withdrawn from the field of strategic defense. They, unlike the United States, have built, maintained, and continued to improve the defenses against ballistic missiles allowed by the treaty. They, unlike the United States, have deployed and upgraded extensive air defense systems. They have built a large radar which can detect and track strategic ballistic missiles in violation of the ABM Treaty. They have an aggressive program of research into new technologies. Their overall spending on strategic defense, far larger than that of the United States, is about the same size as their spending on strategic offenses. SDI, the Strategic Defense Initiative, might better be called SDR, the "Strategic Defense Response" to the massive Soviet program.

SDI COMPLIANCE WITH ABM TREATY

Most of us are familiar with the U.S. SDI Research Program. It will be in full compliance with all U.S. treaty obligations, including the ABM Treaty. It will be conducted in close consultation with U.S. allies. It will allow a future Congress to make informed decisions on full-scale development of defenses, perhaps in the early 1990's. The program will seek to identify defensive systems that: will be effective as weapons against the large threats they may be called upon to face; will be survivable against weapons directed at the defenses themselves; and will be cost effective in the sense that adding to them to meet a greater offensive threat would be less expensive than the cost to the Soviets to buy back confidence in their war plans. These are very severe criteria. I don't believe that anyone can predict that we will be able to meet such criteria. However, if such defenses are feasible, it is clear that we would all benefit from making the transition to a strategic relationship that relied on them.

With regard to arms control, it seems to me that in the long term such defenses would greatly facilitate reduction and eventual elimination of nuclear ballistic missiles. In the short term, I think the challenge for space arms control is to ensure that it neither prejudges the results of the SDI Research Program nor creates restrictions that would prevent the necessary research.

THE PRESIDENT ASAT ARMS CONTROL STUDY

Now, the President has provided the Congress, about a year ago, with a detailed study of his ASAT arms control policy. That study reviewed the benefits and problems of ASAT arms control, the Soviet space threat and the U.S. Miniature Vehicle Program. Let me touch on what I consider are key points from it.

ASAT arms control is made difficult by problems of verification. In particular, the United States has a small number of high value, long lead-time satellites that are extremely important to the U.S. national security. Consequently, there would be a disproportionate risk from a small amount of cheating on an ASAT agreement.

ASAT arms control is made difficult by the wide variety of ways in which satellites can be attacked. In particular, systems permitted under the ABM Treaty, such as the Soviet ABM system around

Moscow, could attack low altitude satellites. Thus, while ASAT arms control agreements could potentially limit certain threats to U.S. satellites, we should be under no illusion that any agreement is possible that could provide any degree of confidence that no U.S. satellites could be successfully attacked by a determined adversary.

ASAT arms control is made difficult by the existence of Soviet targeting satellites. Such satellites, while not weapons themselves, can aid the Soviets in locating and directing weapons toward U.S. terrestrial forces. The same arms control agreement that might limit Soviet threats to U.S. satellites would place limits on U.S. capabilities to counter such Soviet satellites.

ASAT arms control is made difficult by the fact that the Soviets have an operational antisatellite interceptor system. No agreement could eliminate Soviet ability to reconstruct such a system in a relatively short time, even if a way could be found to provide assurance that it had been eliminated.

In view of these difficulties, particularly in view of the asymmetry in capabilities represented by the operational Soviet system and the United States capability need to counter Soviet targeting satellites, it seems to be that the United States Miniature Vehicle Program is a prudent, measured and necessary step.

SOVIET ASAT ARMS CONTROL PROPOSALS

With regard to antisatellite arms control, the Soviets have made sweeping proposals for broad agreements. I don't believe there can be any doubt that these proposals have been timed in an attempt to persuade the United States to abandon or reduce its efforts in the miniature vehicle and SDI programs. I think that the Soviets are well aware of the complexities of space arms control and that if they seriously sought meaningful agreements, they would be making specific proposals for limited practical steps. I would hope that this will be the tack they will take in the negotiations in Geneva. I would sincerely hope that this committee, in its consideration of this issue, would look carefully into limited practical steps that would take into account the difficulties of space arms control and the implications of p[o]tential measures for U.S. programs. And I would trust the administration, as it indicated in its report to Congress, is also following this approach. If we can all focus on such possibilities, there could be a chance for progress on space arms control. But if we aim for such unrealistic goals as eliminating all space weapons, there surely is not such a chance.

And, Mr. Chairman, let me make just a couple of remarks in response to my colleagues, whom I greatly respect, and some of the propositions that they put forward.

SOVIET OFFENSIVE SYSTEMS

No. 1, I think explicit in Mr. Dicks' statement and implicit in Mr. Brown's statement was the proposition that if we go out and build defensive systems, the Soviets are going to respond by putting a great deal of resources into offensive systems. Let me tell you, Mr. Chairman, that since we signed the ABM agreement, and I want you to remember the ABM agreement, at least our participation, was largely motivated by a U.S. concern that we could, in

fact, reduce or slow the arms race by signing the ABM. Because we figured if you are going to eliminate the need to saturate your adversary's territory because he is going to have an ABM system that works.

So, we said, "OK, we are not going to have to build as many missiles, or as many big missiles, if we have an ABM system." So, after we signed ABM, the Soviet Union has built and emplaced, and targeted at the United States or her allies, over 758 SS-17's, SS-18's, SS-19's.

My colleagues quoted Mr. Smith. Mr. Smith told the Soviet Union we expect the ABM agreement to result in a reduction of strategic missiles, and we reserve the right to pull out of this agreement if that doesn't happen. That is essentially what he said. Now, let me tell you we were afraid the Soviets would build big numbers of big missiles. We signed the agreement and, lo and behold, they built big numbers of big missiles anyway.

MONITORING AND VERIFICATION

Well, let me just talk a little bit about another problem. I think you hit the nail on the head when you said this is going to be a very complex thing, monitoring this type of an agreement. In my estimation, if we have an agreement to not proceed with technology, which is very, very to difficult to verify, you are going to have a United States which is essentially going to give full faith and credit to the agreement, as we generally do. And that full faith and credit is going to be scrutinized by this Congress and by other branches of the Government.

I think you are going to have a Soviet Union which does everything it can to proceed as far as they can without blatantly breaking the agreement. You know, I am reminded of what Arkady Shevchenko told us a couple of months ago when he testified before the Armed Services Committee. This was Mr. Gromyko's former deputy, who has come over to the United States. He said at the same time the Soviets were signing the 1972 agreement and protocol on banning chemical weapons a Soviet general told him: "We are proceeding full speed ahead with production." Basically, the heck with this agreement. I think you have that type of thinking built into the Soviet system that is going to result in the United States giving away one thing which it does very well, and that is develop technology.

Let me just point out, I would advise every member on this committee to get the classified briefing on Soviet production of strategic weapons right now. What are they producing in the way of cruise missiles, big missiles, intermediate range missiles. Let me tell you this without saying anything classified: You are going to be very disturbed. You look at the MX battle that we have had, it is very difficult, it is a major operation for this Nation to go forward with legislation that counts for the creation, the production of just a few missiles.

SOVIET INTENTION

The Soviets basically have found their Green Bay sweep; that is what I am telling you. Their Green Bay sweep is to build big num-

bers of big missiles. They know that our political system doesn't allow us to keep up with them, and I think that was obvious from the MX debate. The one thing that we can do is provide that flex defense, that technology, which is something that we do very well. The Soviets are very disturbed by that because they don't like that. They want to, basically, run their Green Bay sweep and let the United States try to match them. I don't think we have a political system that will allow us to match them.

I think we would be giving away, I think we would be doing a disservice to the American people if we refuse to even consider the possibility of defending them, defending the United States from nuclear attack. And that is basically what we are asking for here.

So, Mr. Chairman, I have to tell you that I disagree with my colleagues, whom I have a tremendous amount of respect for. But I think we have a duty to go forward and find out just how effective these defenses could be.

CAPABILITY OF A DEFENSIVE SYSTEM

And let me make one last statement with regard to the capability of a defensive system. We have had people say it is absolutely frivolous, it is nonmeritorious. I think those arguments have receded since the Soviets came to Geneva. But let me tell you, when you have a guy like Edward Teller, the father of the H bomb, tell you that he can make the H bomb obsolete, I think you at least need to listen to him. And I think we need to go ahead with this research, Mr. Chairman, and see if we have the potential of providing greater security to the people of the United States.

I thank you, and thank the members of the committee.

Chairman FASCELL. Thank you very much, gentlemen, for framing part of the issue. I am not sure yet where the difference is. I didn't know anybody had said anything about being against research. Did you?

Mr. DICKS. No; the point that I would make is that we are all for some research.

Chairman FASCELL. Mr. Brown, are you for research?

Mr. BROWN. Yes, sir. Prudent levels of research are essential.

Chairman FASCELL. OK. Well, we have got three people from opposite sides of the spectrum agreed on research. Shall we go from there or forget it?

Mr. HUNTER. Mr. Chairman, are we saying, basically, everybody is for the administration's projected budget for SDI?

Chairman FASCELL. We haven't said that. I am trying to explore the area of differences. If you are looking to pick a fight, it would be easy to do. If you want to find disagreement, you can do that easily. But I am also trying to find where you guys agree.

OFFENSIVE WEAPONS

Mr. DICKS. One point I would make is that Congressman Hunter points out that the Soviets have deployed a large number of land-based ICBM's. Well, that is correct. And if you will recall the history, we started MIRVing our land-based systems in order to overcome what we thought the Soviets and the Chinese at one point were going to do about defense.

Chairman FASCELL. We used our technology to get a jump, and while everybody at the time said the response would be predictable, we went right ahead and did it anyway.

Mr. DICKS. That is right.

And so we provoked the reaction. And now we are back again at another crossroads, and the question is will we provoke another reaction from the Soviets that we are not going to like; that is going to make the world more dangerous. And even though defense sounds good, I would caution Members of Congress that what it is going to provide is a major escalation on offensive arms, it is going to force the Soviets to do the same thing.

And I think there is some very good analysis, and Mr. Hunter wants us to read analysis. I would recommend that some of the work that has been done by the Rand group that indicates that when you look at defense, if both sides add defense at the same rate, the Soviets wind up getting the job done first and we wind up in a very dangerous position. So, you got to be careful about defense, too, because it can destabilize the relationship. And that has been mentioned by Mr. Nitze and others that this transition that they talk about from offense to defense is very tricky. I would suggest that the Rand analysis indicates it is exceedingly tricky and dangerous from our perspective.

Chairman FASCELL. Well, you know, we can get into all kinds of philosophical discussions about the logic of this issue and the scenarios that are involved. One of them, for example, is that the Soviets keep on building bigger and stronger and heavier and larger missiles, you know, and I say, "Great." The theory underlying the fear of that is, evidently, that somehow we would get blackmailed into something, I don't know exactly what that is and that we, as a nation, would be destroyed, we would have no retaliatory capability, and that somehow we are losing. You know, I don't follow that logic, but that is the logic as I understand it.

Mr. HUNTER. Mr. Chairman, let me speak to that, if I could.

Chairman FASCELL. These are the kind of things that we want to explore because they are fundamental.

SURVIVABILITY OF U.S. LAND-BASED DETERRENT

Mr. HUNTER. Let me speak to that, if I could, and speak to Mr. Brown's statement. You know we never imagined back in the early 1970's that we would be in a situation today in which the 308 SS-18's that the Soviets have the capability of essentially taking out our land-based missiles, our heavy missiles, which they have right now. So, we have lost, to a large degree we have lost, if you like the mutual assured destruction doctrine and the idea of deterrent, we have lost the survivability of our deterrent.

And, I think I have to give credit to my colleagues—

Chairman FASCELL. Excuse me. You can't just leave that like that, now. I mean that is a flat statement: Lost the survivability of the U.S. deterrent.

Mr. HUNTER. No, the land-based deterrent. Excuse me.

Chairman FASCELL. Oh, OK. All right.

Mr. HUNTER. Obviously, we have got the Triad and we have other strengths.

But I think Mr. Brown pointed out an idea that has to be pursued. And he said essentially, and I agree with him, there is a good chance what we are going to come up with when we finish this analysis is that we perhaps have the capability of upgrading the survivability of our deterrent force. In other words, maybe we will have come up with a system that will allow us to defend our land-based missiles, but not necessarily the population of the United States, and not necessarily have a leak-proof defense but something that would give us a certainty that a number of our missiles would be able to escape a Soviet first strike.

I agree that that is a possibility. I don't agree with the proposition that that is absolutely all wrong. I think that we are going to have a very difficult time in Geneva because I think that the Soviets, in order to have a—Mr. Solarz thinks he has heard enough already.

Mr. SOLARZ. If you could just speak a little bit quieter.

Mr. HUNTER. OK. Thank you, Mr. Solarz.

I think in order to have some success in Geneva, the Soviets will have to give the United States a path for retrieving some of the survivability of our land-based deterrent. This is one way. You know, back when we put the ABM Treaty together, and let me just propose something, or just mention something. When we put the ABM Treaty together, the Soviets, back in the early 1970's, the Soviets didn't have a great land-based missile force. Today, it is a centerpiece of their deterrent force.

Chairman FASCELL. Well, that is their mistake.

Mr. HUNTER. But the point is they may want to protect that force. They may want to make that force more survivable. And it wouldn't necessarily be a bad thing, if you want to go the deterrent route, to ensure the survivability of both deterrent forces, which could be a result of the research that Mr. Brown says could possibly lead us to that area. We can't protect entire populations, but we can protect our deterrent. That is not a bad thing.

Chairman FASCELL. Mr. Hyde.

Mr. HYDE. Thank you, Mr. Chairman.

ARMS CONTROL ACHIEVEMENTS

I am just trying to figure out what we have ever gotten out of arms control. As I understand it, SALT I, SALT II, ABM, hasn't inhibited a thing in terms of the Soviet Union proceeding ahead as far as it wants to go. And now we have a situation where the ABM Treaty has stimulated the proliferation of an awful lot of dangerous land-based missiles and we can't get the MX out of here. We have got 42 of them, and that was, indeed, through pulling teeth.

Now, I gather the chairman feels that we are somehow succeeding the more land-based missiles the Soviets develop. He thinks that is their mistake.

Mr. DICKS. Would the gentleman yield just for one point?

Mr. HYDE. Sure.

Mr. DICKS. I think one of the most significant things we have gotten out of arms control has been the limitation of 10 warheads on large ICBM's. Administration reports state the Soviets could have twice as many warheads, except that both sides are abiding

by the SALT II agreement, plus we have limited defenses to one defensive system around Moscow. Now, those are two significant achievements.

Mr. HYDE. Mr. Dicks, I am told there is a controversy in the intelligence community about how many warheads there are on the SS-18.

Mr. DICKS. Well, I think the major point is that the Soviets don't deploy systems where they haven't made the test, and they have never tested beyond, I think, 10 to 12 warheads. And we have no real intelligence that I know of that indicates that they aren't abiding by the SALT II.

Mr. HYDE. Well, the problem with a closed society that doesn't permit adequate verification is you just have to trust them. And I am just unwilling, on the historical record, to trust them.

Now, let me bring to your attention an article in the Boston Globe of March 26th. Are you all familiar with that?

Mr. HYDE. It caused a stir in the arms control community. It is by William Beecher, about a——

Mr. DICKS. A very distinguished reporter, and I think I have seen a copy of that.

Mr. HYDE. Yes—about a proposal by an undisclosed senior Soviet bloc diplomat, who is talking that Mr. Gorbachev may be interested in a compromise on advanced antimissile systems, as a part of a comprehensive arms control agreement.

I would ask my staff to let the Democrats look at this, then, if they are not familiar with it.

Mr. BROWN. Mr. Chairman.

Chairman FASCELL. Mr. Brown.

Mr. BROWN. Could I respond to the thrust of the gentleman's comment with regard to questioning the——

Chairman FASCELL. I am glad you figured it out.

Mr. BROWN [continuing]. Questioning the need or advisability of arms control in general. A number of people, including myself, have become very cynical about the arms control process because when arms control is treated as merely another adjunct to the arms race and each side seeks to gain superiority over the other through the arms control process, it is a worthless exercise. And in most cases, that has been the history of arms control for as long as I have known—30 or 40 years.

The intent of the SALT process was to engage in a continuing effort at dialogue with the Soviets which would build a structure in which both sides would gradually attain more confidence, so that it would finally achieve meaning. At each point where we begin to question whether that entire process should continue and seek ways to circumvent it, then we negate the effect of the whole thing, and we probably should scrap the whole thing. But if we are serious about arms control, we should look upon it as a continuing process of achieving mutual security through agreement to limit arms and not to seek advantage over the other through the arms control process. And carried on in that light it holds the promise, but not the guarantee, that it will achieve mutual security at a far cheaper cost than the continuation of the arms race, and it will bring about stability and security for the entire world. Treated cynically it isn't worth a tinker's damn and ought to be scrapped.

Mr. HYDE. Well, if I may comment. You talk about cynically. The opposite of that is naive. And the stakes are survival. And as I look at the suspected more or less violations of the treaties we have already entered into, look at any treaty of any kind, not just limited to arms control, and the Soviet Union has a dismal, dismal track record. Now, why should they change their characters when it comes to these weapons of massive destruction? I haven't figured that out.

Now, I am not trying to be cynical, and I am not trying to be naive, but I think this committee—and I am going to request it in writing shortly—ought to hold a series of hearings on the suspected, charged, alleged violations of those treaties which we have now.

The phrase "arms control" is neutral; it just sits there. We are all for peace, and we are all for controlling the arms race. But when you have an adversary that in my judgment has a long way to go to live up to their commitment to these treaties, to their intent to live up to them, then I question whether we ought to go and add another one and another one and another one. That doesn't divest me of any hope or trust in arms control, but I want to look at it carefully to see if it is so one-sided that it endangers, rather than stabilizes, the world situation. And that is my complaint, or my caution.

Mr. BROWN. The gentleman is quite correct; we should not be naive about these things. But let me point out to you, and I am sure the gentleman is realistic enough to know this; if you are interested in getting out of the arms control environment, the first thing you do is to attack the credibility of the other side and find every possible reason to cast doubt upon it. They do the same thing on their side.

KRASNOYARSK RADAR

You take that Krasnoyarsk radar, for example, which has been the subject of intense debate, claiming that it is a violation of the ABM Treaty. It may be a violation of the ABM Treaty. There is a mechanism set up to determine if it is a violation of the ABM Treaty. It is possible that that question can be resolved. But it has become almost an article of faith of those who are opposed to arms control that a structure which hasn't yet been completed, and which the other side asserts is for a legitimate purpose of checking on satellites, is, in fact, a fundamental violation of the ABM Treaty. Now, that is a subject which ought to be pursued aggressively, but not assumed to be in violation until it has been pursued aggressively.

Chairman FASCELL. Mr. Berman.

Mr. BERMAN. Thank you, Mr. Chairman.

SDI RESEARCH LEVELS

I have a couple of questions. The first one is to Mr. Dicks, and I ask with a little nervousness in that I am not trying to dwell on earlier debates, but I am interested. Some people supported the MX missile, as I understand it, primarily, in this most recent vote, because not to do so might have an adverse effect on our negotiat-

ing position in Geneva and our ability to pull a meaningful arms control agreement out of that whole process.

Now, SDI, if nothing else, seems to be something that makes the Soviets very nervous. And it also seems to be something that if we go along with the administration's significant levels of research, the real threat of testing and deployment will make it impossible to obtain any agreement for a significant reduction in offensive strategic weapons.

At the point where we are faced with moving from an administration budget of major proportions in the area of research, even though a huge amount of funds haven't even been spent for this fiscal year yet, to a reduction to that prudent research level, and the argument is made that that action on something as significant to the Soviets as this without containing concessions from the Soviets is going to be evidence of a lack of will.

Will we have the same argument on something that is really more important in a way and more of a chip than the MX? I mean how do we handle that particular issue? Because I think the administration's position could change if they thought it was necessary to save the research levels or pursuing SDI because it makes sense to. It is a bargaining chip.

Mr. DICKS. I am certain that some will try to make that argument. I would argue that we are already spending a very significant amount of money. At least we have given budget authority to spend, but they have not utilized much of the money yet. So, making a reduction in a budget request that goes from $1.4 billion to $4 billion, in my own judgment, is sound policy from our perspective. We don't want to throw money at this issue.

I would argue that the fact that we spent about $1.4 billion last year and the Russians are concerned about it doesn't mean that we have to go from there to $4 billion to keep their attention. I think their attention is already focused.

And I agree, I think this is something that has driven them. I don't think it is just because of the prospects of defense, however, as I said in my statement. I think they look at us spending $33 billion in this high technology area, and they are worried about the offensive spinoffs of this, too. You have a system in space that can lase a missile coming out of the silo, it can do a lot of other damage as well. And I think those kinds of things are also part of this.

My own view is that as long as we keep a prudent level of research going that we still will maintain the currency in the negotiations. And I, frankly, believe that there is chance, as McGeorge Bundy and other experts have said, to get a grand deal with the Soviets, as Mr. Hunter wants. It might make reductions in those heavy land-based ICBM's, put together a kind of a walk-in-the-woods package for the intermediate forces, and block off some deployment of SDI for space deployment as the currency to get the agreement.

Now, the question is, and what I hope this committee focuses on, and what we all have to focus on, is whether this administration is going to miss that opportunity because it is in Geneva to lecture the Soviets about the merits of SDI, while the Soviets are there to negotiate an agreement to block SDI.

Mr. BERMAN. Well, I agree with the gentleman. I think that is the question, and I would like to ask Mr. Hunter, at least from his perspective, do you——

Mr. DICKS. By the way, just one point further, I haven't supported, or the Congress hasn't supported the full request on MX, either. We have only built 40 or 50. I think that is going to be the end of it. You know, the 100 recommended by Scowcroft was only half of that recommended by Carter and Ford. So, you know, we have exercised some restraint there as well.

Mr. BERMAN. Mr. Scowcroft's comments on SDI are very interesting.

Mr. DICKS. Yes; he comes out flatly against it.

REDUCTIONS IN SOVIET OFFENSIVE WEAPONS

Mr. BERMAN. I would like to ask Mr. Hunter, do you have any hope in the world that if the administration is hellbent on researching, testing—or leaving the impression that they are hellbent on researching, testing and deploying a space-based system, that the Soviets will make any kind of verifiable agreement to reduce offensive weapons?

Mr. HUNTER. Well, of course, if SDI should prove to be much more promising than many people think it will be; that is, if it did render offensive weapons nearly obsolete or render them much less effective, at that point the incentive to go with big numbers of big missiles is greatly reduced for both sides. So, from a practical point of view, yes.

Mr. BERMAN. You expect that date to come while we are in Congress?

Mr. HUNTER. You have just hit the nail on the head. The point is this Congress—and what an amazing time this is. This Congress is going to have this enormous decision to make, or a Congress in the near future will have an enormous decision to make as to whether or not we do abandon, and let's face it, it would be an abandonment of mutual assured destruction, which is a policy we have maintained for a long time.

Mr. BERMAN. And it has worked.

Mr. HUNTER. My point is without going forward with this research this Congress cannot make a reasoned decision on whether it is worth it to go ahead. You can't sit down and say, well, this is the cost, this is the benefit, without going ahead with that research.

STRATEGIC PARITY

And to rebut to some degree the point that my friend, Mr. Dicks, has just made, you've got to remember that the Soviets, if the Soviets review their history, they won't get all that nervous. Because there was a time after World War II when the United States had a nuclear monopoly and we didn't use it against the Soviets. There was a time, when John Kennedy backed the Soviets down on Cuba, they had something like 70—their entire inventory consisted of 70 long range ballistic missiles that we could have taken out with B-52's before they launched.

So, the idea of strategic parity—let me finish. The idea of strategic parity, Mr. Berman, is something that has existed for only a very short period of time. We haven't lived, really, with mutual assured destruction. We lived first with an American monopoly. Then we lived for a long time with an American near monopoly that was almost the same, such as we had in 1962. And then we lived with a situation where they would take enormous losses compared to ours.

Only recently, I would say from the early 1970's—in fact, probably the mid-1970's on—have we really lived with mutual assured destruction. So it has worked for a while. But you have to look at other things that have happened. Soviet foreign policy has become much more aggressive during that period of time, too.

Mr. SOLARZ. Would Mr. Berman yield for just a second?

Mr. BERMAN. I would yield.

I don't feel that you did answer the precise question, but——

Mr. HUNTER. I am sorry, Mr. Berman. Is there something——

Mr. BERMAN. I will yield to the gentleman.

Well, let us do it later privately. We will keep on talking about it.

Mr. HUNTER. OK.

Chairman FASCELL. I appreciate that because we have four other witnesses.

Mr. Solarz, would you yield to Mr. Hyde for a brief question?

Mr. HYDE. I will be very brief. It is kind of a comment.

MUTUAL ASSURED DESTRUCTION

Mr. Brown said that mutual assured destruction has worked, and I guess it has. We haven't had a nuclear war, or bomb dropped since 1945. But I have a concern. The bishops' pastoral letter indicated a backing off from mutual assured destruction considerably, serious backing off. In other words, we can have them, maybe. We can own the missiles, but we really can't ever use them. To target them on population, which is what mutual assured destruction, is immoral. Now, OK, that was their opinion, and they are churchmen, and that hasn't dominated our strategic thinking.

But what if it does catch on? It is being taught in the schools, that pastoral, and at least in the Catholic schools with teacher materials that go far to the left of what that letter said. And we may well reach a point in our country where mutual assured destruction is so immoral, viewed as so immoral that that will be destabilizing. Then, if we don't have an SDI or any defenses, we are left disarmed.

Mr. BROWN. Mr. Hyde, nuclear war is immoral, mutual assured destruction is immoral. The President is quite right in pointing this out and saying we ought to look for something better. He has just found the wrong thing. Because the strategic defense initiative does not eliminate nuclear weapons or mutual assured destruction, Abrahamson will admit that. It enhances deterrence, as a matter of fact. Increases the validity of mutual assured destruction. It is not a defense against all nuclear weapons. It merely focuses the nuclear arms race onto aircraft and stealthy cruise missiles, and you will find a proliferation of those if you had a perfect SDI. And that is the thing that worries me.

It does not provide the defense which both you and Mr. Duncan have asserted several times; that this is a defense and that we ought to get to it to get away from that immoral MAD [mutual assured destruction]. It does not achieve that.

Chairman FASCELL. Mr. Solarz.

Mr. SOLARZ. Thank you very much.

THREAT TO U.S. AIR DEFENSE

Mr. Brown, on that point, I share your skepticism about the possibility of a truly effective SDI, which could provide a perfect population defense. But assume just for the purposes of discussion that such a system could be developed and deployed. If we have the technological capacity to develop and deploy such a system, why wouldn't we also have the capacity to develop and deploy add-on systems which would enable us to shoot down not only ICBM's, but planes and cruise missiles as well, which would appear to be in a certain sense less of a challenge than the ICBM?

Mr. BROWN. Well, the gentleman raises a very good point. You may know that Caspar Weinberger has already asked for an enhancement of the air defense budget: $50 billion, I think. Because he recognizes that the inevitable effect of SDI will be to focus more on air penetration both by plane and cruise missiles. So, his response is to ask for additional funds to try and build up that force, and maybe we will get a perfect defense someday.

Mr. SOLARZ. Yes.

Mr. DICKS. You still can't stop the man or woman with the suitcase.

Mr. SOLARZ. Yes, I quite agree. But in principle, if you could knock out all incoming ICBM's, you presumably in principle could knock out all incoming aircraft and cruise missiles. If you could do one, you probably could do the latter. I am very skeptical whether you could do the one.

Now, it is not clear to me, Mr. Dicks and Mr. Brown, what a treaty prohibiting space weapons would accomplish that the ABM Treaty does not. I mean, as a practical matter, what could be developed without a treaty prohibiting space weapons that the ABM Treaty doesn't already effectively preclude?

Mr. DICKS. Well, as I understand it, what the ABM Treaty does not preclude is the placing in space of a weapon, conventional in nature. That is technically possible. That kind of a conventional system is possible under ABM. What we would be talking about here would be blocking off that avenue so it would be an expansion, in a sense, of the ABM agreement.

Mr. BROWN. May I respond further to that?

Mr. SOLARZ. Yes.

Mr. BROWN. We get to a point where you place highly sophisticated weapons in space, and they can be lasers or kinetic energy weapons, those can be deployed and used against any target on earth even if they don't work as an anti-missile system.

POSSIBLE VIOLATION OF ABM TREATY

Mr. SOLARZ. Now, would an effective Asat system, the development of one, necessarily require a violation of the ABM Treaty, or

is it possible to develop Asat systems that are not in violation of the ABM Treaty?

Mr. DICKS. Yes; you can have Asat systems that do not violate the treaty. The question is, whether you would use the Asat system to test out technologies that you would use in your star wars system, your SDI system, as a subterfuge to get around the testing of components and things of that nature. That is why so many people are concerned about the Asat question.

But the Asat question is separate. It has been a subject of separate negotiations.

Mr. SOLARZ. I gather both of you believe that one of the most important objectives of arms control should be to stabilize the nuclear balance by, among other things, assuring an invulnerable second strike capacity on both sides. In those terms, what would you think of a possible agreed upon alteration of the ABM Treaty which would permit the deployment of a point defense?

In other words, if you take the position that a population defense is not practical, or feasible, or likable, but that given emerging technologies it is possible or may be possible to develop effective ABM systems solely for the purpose of protecting silos. Would it not enhance stability if the ABM Treaty were mutually amended to permit the deployment of such systems, thereby eliminating the existing capacity of the Soviet Union to launch an effective first strike against our land-based ICBM's?

Mr. BROWN. The gentleman has an interesting proposition, but let me assure you that there is a far cheaper way to do it. First, just reducing nuclear weapons; secondly, we are giving them the Trident submarines, which are invulnerable; and we are going to give them the SDI.

Mr. SOLARZ. If we can get the Soviet Union to agree to reduce the heavy missiles below the point which was necessary in order to have a first strike capacity against our land-based ICBM's, that would be a far better way to go.

Mr. DICKS. The gentleman makes a good point. See, this is the real problem with SDI: it has manifold explanations. You have people in this administration, and one is the President, as little as a couple of weeks ago again said I want to defend the population of this country. Then you have people, who are a little wiser, at the Defense Department saying, "Wait a minute. That's not possible. We know that's not possible. Let's try to protect the deterrent." So, this is kind of a crusade in search of a legitimate mission.

Now, yes, point defense, when combined with hardening of silos, gives a real increase in survivability of your land-based force. The question is, is it worth it to give the Soviets the same kind of thing? Are they going to move out of their land-based vulnerable missile silos anyway because of the prospect of MX and D5? I think they are. The SS-X-24 and the SS-X-25 are mobile systems that are more survivable. I think the survivability problem that they have today, which is severe—much more severe than ours—is going to change over time. The question is whether a point defense really is worth it in terms of the implications of the ABM agreement.

Mr. HUNTER. Let me speak to that briefly, if I could, Mr. Solarz. I think because of the fact the United States, regardless of what

our policy is, is not going to be inclined to take a first strike. I think it would be greatly in our interest to ensure the survivability of the Soviet deterrent force, and the survivability of the United States deterrent force if you put it in the context of what we have right now.

Mr. SOLARZ. Well, I was just putting that out to elicit some reaction.

I yield to my friend from California.

SURVIVABILITY OF SPACE-BASED SYSTEMS

Mr. BERMAN. What makes the space-based missile defense system, which is the point defense, or whatever, survivable?

Mr. DICKS. Wait a minute. You say what makes the space-based system survivable? Well, that is a major issue. That is what Nitze says: it has to be survivable before we are going to deploy it. There is no indication in my judgment yet, it is. But that is a major issue, is survivability of anything we put up there.

Mr. HUNTER. It is going to be very difficult to render survivable systems that are maintained in space. I think that is taken as a given, maintained in space.

ONSITE INSPECTION

Mr. SOLARZ. I see that my time has expired. I would just like to ask, if I could, one final question to Mr. Dicks. You made the point that you thought the administration was making a mistake in suggesting to the Soviets that if we let them off the hook on their violation of the ABM Treaty with the Krasnoyarsk radar, then they should let us off the hook in terms of some of our punitive violations with respect to SDI.

Mr. DICKS. Potential violations.

Mr. SOLARZ. I agree with that point. But supposing it turns out that we are unable to get the Soviets to agree to a satisfactory resolution of the Krasnoyarsk radar, and we come to the firm conclusion that it is a violation. Under those circumstances can you see any persuasive justification for maintaining unilateral U.S. adherence to the treaty simply for the sake of maintaining adherence to the treaty if we come to the conclusion the Soviets are in palpable violation?

Mr. DICKS. Well, as the gentleman knows, we agree on this. It puts the U.S. Government and the Congress in an extraordinarily difficult position, and that is why steps must be taken by the Soviets to answer this question.

I might say when I was at Emory University with former Presidents Carter and Ford, Ambassador Dobrynin said and suggested onsite inspections would be allowed by scientists in this country so that there would be a clarification, once the Krasnoyarsk radar was operational, about what its true mission is.

Now, I didn't notice that in Mr Gorbachev's statement that was sent to us in response to our letter. But we ought to take him up on that. We ought to insist onsite inspection. If the Soviets can show that it is a space radar, it isn't early warning or battle management, then it is a different matter.

Mr. SOLARZ. I must say I am not necessarily sure based on the briefings I have received what onsite inspection would do for us. Because even if we sent some inspectors there and they saw on that particular day that they were using it for space-tracking purposes, so long as the radar has the early-warning capacity, it would constitute an open and shut violation of the treaty because it is located in the interior, rather than the periphery, and it is not facing outward.

So, the question is not whether they intend to use it for space tracking, but whether it has an early-warning capacity. And if it does and our technical people say it does, then by virtue of its location it is a violation.

Chairman FASCELL. Thank you very much for your contributions to this discussion. And I gather from the interest that has been exhibited it could go on all day, but we have some other witnesses and we would like to hear from them, too. But we do thank you gentlemen for your prepared testimony, giving us your views, helping us frame the issues.

Mr. HUNTER. Thank you, Mr. Chairman, and members of the committee.

Chairman FASCELL. Our next witnesses are Mr. John B. Rhinelander, a member of the board, of the Arms Control Association and the former legal adviser to the SALT I delegation; Mr. Thomas K. Longstreth, the associate director of research and analysis, at the Arms Control Association; Mr. John E. Pike, the associate director for space policy, at the Federation of American Scientists, who has recently coauthored a report on "The Impact of U.S. and Soviet Ballistic Missile Defense Programs on the ABM Treaty"; and Mr. Keith B. Payne, the executive vice President, of the National Institute for Public Policy—all of whom are authors and experts.

Gentlemen, on behalf of the committee, let me express my appreciation to all of you for taking the time to present your testimony and to be here and to participate with us in this discussion. As you can see, it is a matter of intense interest. I am confident that any time we ever get to the floor on any part of this subject it will take a week to get any kind of understanding of definitions, much less a consensus on what it is that we are discussing. So we need all the help we can, and we are grateful to you for helping us with your testimony and your appearance.

We want to hear from Mr. Rhinelander. I know you have a prepared statement. Let us put it in the record, without objection, and then you may proceed any way you like, extemporaneously, or a short circuit, or a synopsis, or at length.

STATEMENT OF JOHN B. RHINELANDER, MEMBER OF THE BOARD, ARMS CONTROL ASSOCIATION (FORMER LEGAL ADVISER TO SALT I DELEGATION)

Mr. RHINELANDER. Thank you, Mr. Chairman. My name is John Rhinelander. I would like to request the committee also put in the record a copy of the Impact Report that we prepared.

Chairman FASCELL. Without objection.[1]

Mr. RHINELANDER. What I would like to do is summarize my statement, and add some comments which may respond to the colloquy you have had so far this morning. I make my comments as an individual and not as a representative of any organization.

I served for 10 years in the Federal Government in a variety of capacities, including the legal adviser to the SALT I delegation. In that role I drafted the original U.S. version of the ABM Treaty in the spring of 1971 and also the U.S. version of the interim agreement, which were tabled during the summer of 1971. I would have to say it is remarkable to me, having officially been out of this world for 12 years, that the debate hasn't changed at all. The issues which you are hearing today are the same issues which were debated publicly between 1965 and 1972, and which were, of course, debated within the Government.

MAJOR SALT I ISSUES

Let me just start by saying that during SALT I there were two major issues. As far as looking backward, and I think also contemporaneously, the first was the question whether we would try to reach agreement with the Russians to prohibit the competition on the defensive side from moving into space. That was a major issue within the U.S. Government. The SALT delegation was divided. President Nixon at the time made the decision that we would seek what we eventually were able to reach agreement with the Russians—Article V of the ABM agreement.

The other major issue was on MIRV's and, as you know, effectively, the decision was made within the U.S. Government not to seek a MIRV ban at that point prior to testing. It could have been significant if we had reached agreement with the Russians. Now, I don't want to suggest that we could have reached agreement, but clearly those were the two major issues.

TWO VERSIONS OF SDI PROPOSAL

Let me turn quickly to an overview of SDI. As we have heard this morning, there were really two, at least two, versions of SDI from the administration. The President's original version was the Astrodome, a people's defense. The goal of it would be to make nuclear weapons obsolete and impotent. I think it is the overwhelming consensus of experts that that goal cannot be achieved.

The other one, which is expressed by General Abramson, Paul Nitze, and others in the administration, is more modest. It would be to enhance the deterrence; it would not be to replace it. No one in the administration suggests that SDI would be effective against either bombers or cruise missiles, and I think that is important to note. Also, SDI does not presently include programs designed for and limited to hard site defense.

An obvious Soviet response to SDI would be to proliferate their offensive systems and to take various measures to be able to overwhelm any level of U.S. and allied defenses. I would point out that

[1] Excerpts from the report entitled "The Impact of U.S. and Soviet Ballistic Missile Defense Programs on the ABM Treaty" appear in appendix 2.

this was the response the United States took in the early 1970's with MIRV's, to respond to the original Soviet deployment of their ABM system around Moscow.

In my view, the basic choice is between arms control and a quest for defensive systems such as SDI. You cannot have both. SDI will be fundamentally inconsistent with the ABM Treaty in a few years. We—John Pike and Tom Longstreth, who are with me, who were the co-authors of the Impact Report—believe that could be as early as 1988. The administration report, which has been referred to today, suggests that will not be before 1990 or 1991, but there is no doubt that if, in fact, testing is conducted to prove out the kinds of systems which are incorporated with SDI it cannot be done consistent with the ABM Treaty.

ABM TREATY

Let me briefly review the ABM Treaty. First and foremost, it does not limit research. In fact, it does not refer to research. Necessarily, the term research is not defined. Under article V(1), neither the United States nor the Soviets may develop or test space-based, air-based, sea-based, and land-mobile ABM systems and components, whether they utilize the current technology of the 1960s or new technologies such as kinetic or directed energy systems. This was a major U.S. initiative during the SALT I negotiations. It is the critical section in the ABM Treaty.

Article III limits deployment to one fixed site in each country limited to the kind of technologies which was available in the 1960's; that is, ABM interceptors, ABM launchers and ABM radars. Pursuant to agreed statement D, article III, which is the article dealing with deployment, must be amended before fixed, land-based ABM systems based on new technologies, such as lasers, which substitute for current ABM components, are deployed.

Now, let me mention a few other articles. Article VI(a) prohibits the upgrade of non-ABM systems. Specifically that prohibits giving non-ABM systems, which could be SAMs or ASAT's, the capabilities to counter strategic ballistic missiles.

Article VI(b) limits phased-array radars for early warning of strategic ballistic missiles to locations on the periphery and oriented outward.

Current interpretation issues arise because there have been inadequate attempts in the Standing Consultative Commission or elsewhere to define key terms, including "develop," "test," "component," "adjunct," "capabilities," "substitute for," and even "early warning" or the term "strategic ballistic missiles" as is used in the ABM Treaty.

I cannot stress enough, Mr. Chairman, that for those who are interested in continuing the ABM Treaty it will be necessary to enhance it. Technology has moved. The treaty was written basically in the terms of technology of the 1960's.

The absence of an agreement on specific terms leads to difficult issues of interpretation as SDI is construed. I am not aware that the responsible legal officers in Defense, State and ACDA have prepared a comprehensive interagency analysis of SDI and the treaty.

The administration, as you know, claims SDI is a research program which is entirely consistent with the treaty. This is only partially accurate. True for the moment, but not true if the program continues as envisioned within DOD beginning in 1988 and thereafter.

SDI'S FOUR PHASES

Based on our analysis, SDI appears to involve four distinct time periods. The first, between now and, say, 1988, is largely consistent with the ABM Treaty. There is one test scheduled for 1988 which we believe would not be consistent.

The second period, though, is the critical period, and is partly covered by the current DOD 5-year plan. That second period is going to present to the Soviets, if we continue, the choice of either agreeing to amend the treaty or the United States will have to abrogate it if it goes forward with SDI. I will stress this second period is absolutely critical. If, in fact, the United States goes forward with the testing programs in the early 1990's which are envisaged now by SDI, you cannot put the ABM Treaty together again. The barrier on testing is critical——the same kind of barrier which we might have sought, but which we did not seek, in the 1970's with respect to MIRVs.

Since the beginning of the SALT process in 1967, the United States has recognized that limitations on strategic offensive and defensive systems are interrelated. Limitations on strategic defensive systems have been, and in our judgment remain, a precondition to limitations on offensive systems.

NEGOTIATING POLICY IN GENEVA

Now, deep reductions of United States and Soviet offensive nuclear systems, combined with some reshaping of those systems over time, should remain a basic objective of the United States in its arms control policy, its strategic policy, and its negotiating policy in Geneva. SDI will make this objective unachievable in a few years unless it is sharply curtailed. In addition, it could destabilize relations both with the Soviets and among our Allies.

SDI was probably an important factor in bringing the Soviets back to the negotiating table in Geneva starting on March 12. They were probably certain to come back there anyway. They shot themselves in the foot with their policy in 1983 and their walkout, and clearly there were going to be coming back if for no other reason than to appeal to European public opinion. The Soviets' propaganda, and apparently their negotiating strategy at Geneva, is focused entirely on opposing SDI. There is no reason to believe that the Soviet policy in this respect will change. What the Soviets don't know, what I don't know is whether the administration or the Congress, working either separately or together, will curtail SDI if over the next year or two the Soviets agree to mutually agreeable reductions on the offensive systems. Perhaps only the President knows the answer to this question.

The key to Geneva, I would suggest, is how it might be possible to reach an initial agreement, a Vladivostok-type agreement, where the basic cut is made between offensive and defensive forces. I be-

lieve the U.S. Alliance relationship is likely to deteriorate sharply over the next 4 years unless SDI is both clarified and limited to a prudent level of research before and after 1988.

As we all know, 60-day letters were delivered to our allies on March 26, which invited them to join in a joint cooperative research effort. A cooperative effort limited to research would not be inconsistent with the treaty in my judgment, but a cooperative effort which went further, which got into either development or testing, would be inconsistent with the treaty.

Assuming the best were to occur, and that means that the United States and the Soviets were to reaffirm the ABM Treaty, then the treaty must be enhanced through numerous agreed statements and common understandings. I would simply recall to you that when I drafted the ABM Treaty originally, in 1971, it was much more detailed than the agreement which was eventually signed. The Soviets at that time were unwilling to accept the kinds of detail which we thought were necessary.

GOALS AT ARMS TALKS

The task ahead at Geneva, if, in fact, a decision is made to enhance the ABM Treaty, is going to be very, very difficult. The goal should be achieving specific mutual and verifiable interpretations relevant to emerging technology. With one exception, the enhancements of the ABM Treaty which I am talking about can be entirely consistent with the treaty as amended by the 1974 protocol which reduced the authorized sites from 2 to 1. If an ASAT agreement is reached, then I think it will be necessary to amend the ABM Treaty to prohibit the testing of fixed, land-based exoatmospheric interceptors. This would be consistent with an ASAT agreement limiting developing and testing.

The three of us who wrote the impact report believe that both ABM's and ASAT's must be tightly constrained for either to be effectively limited over time, and we therefore support a separate treaty on ASAT's.

SUMMARY OF IMPACT REPORT

Now, briefly, let me summarize the impact report which we prepared. First, it summarizes the ABM Treaty and analyzes the most important areas of ambiguity, and there are many. The major challenges ahead include defining the term component with respect to emerging technology for space, air, sea, and land mobile systems. Second, the distinction between permitted research and prohibited develop and test must be defined for purposes of article V. The United States currently relies on a unilateral statement prepared for the Congressional Record in 1972 after review of the U.S. SALT reporting cables. The Russians have never publicly commented on that statement. They have never, on the other hand, stated a proposed verifiable standard of their own.

What is needed is a verifiable cutoff point, a prohibited develop tied into a definition of components. In addition, the whole question of dual-use systems must be addressed under article VI(a). That relates to SAM systems, antitactical ballistic missile systems and ASAT systems. While ASAT's are not prohibited by the ABM

Treaty, clearly an ASAT system which had the capability to counter ballistic missiles would be constrained. As I have said earlier, the term capability has not been defined.

There have to be effective constraints on large phased-array radars and space-based sensors. These are dual capable systems, and I would suggest that the problems we have now with large phased-array radars on the ground will be duplicated in the very near future by space-based sensors which could be used for early warning or could be used as substitutes for ABM radars. This will be a very difficult challenge.

Second, our impact report discusses the various program elements that make up the SDI and summarizes those that raise treaty issues. On page 51 we list those programs which we believe raise the most significant problems.

Third, our impact report reviews various Soviet programs, including their research efforts. Our general conclusion is the Soviets have maintained a large research program but are significantly behind the United States in the high-technology approach to ballistic missile defense. The Soviets have low-technology ABM capability and it is quite clear they could deploy a low-technology ABM system around the Soviet Union long before the United States could deploy Star Wars.

Fourth, our impact report reviews compliance by both the United States and the Soviets. Let me just mention a few of the issues. The first relates to the new U.S. Pave Paws radars which are under construction in Georgia and in Texas. They raise issues under article V(b) of the treaty. While they are pointed outwards, they are triangular in construction with two active faces, and they provide significant coverage of parts of the continental United States.

Now, the orientation of those two sites has been changed to reduce the coverage of the United States, but it doesn't eliminate the problem entirely. The United States is also constructing in Greenland and in the United Kingdom replacements for the mechanical scan radars which we have had there for a number of years. In my judgment, while it is a close question, the better interpretation of the treaty which grandfathered those two sites is that it permits the United States to upgrade or change the technology, the phased-array technology.

The Soviets have objected to these radars. It is not an easy question. Our impact report includes, on page 41, a statement for the record when Gerard Smith was testifying in 1972 which in no way resolves that issue.

Finally, on the U.S. side, of course, we have SDI. SDI will clearly be inconsistent with article V, as well as other articles in the treaty, when we move from the purely research stage into development and testing.

Now, let me turn to the Soviets, and first and foremost the radar at Krasnoyarsk which is under construction. From its location and the orientation and elevation of its one active face, it clearly appears to be for ballistic missile early warning. It, therefore, is inconsistent with article VI(b).

The Soviet SAM systems and ATBM systems clearly have more capability to counter strategic ballistic missiles, which is the test under the treaty, than comparable Soviet SAM systems in 1972,

and SAM's were a major concern of the United States during the negotiation of the SALT—during SALT I and the ABM Treaty in particular.

The treaty issue is whether the new Soviet systems have the capability to counter strategic ballistic missiles or whether they have been tested in an ABM mode. The Reagan administration may be as divided on this issue as the Nixon administration was during SALT I when concern over Soviet SAM's was countered with a desire not to impinge on the United States SAM-D, now the Patriot system. An allegation of Soviet violations relating to its new SA-12 system would implicitly brand proposed United States systems for consideration of deployment in Europe for antitactical ballistic missiles as contrary to the treaty.

The administration has apparently not yet made up its mind on this fundamental question, but cannot have it both ways under article VI(a). In our views, both the Soviet and the United States systems raise compliance questions under article VI(a), an issue, as I stated, which was not resolved during SALT I and remains on the table now.

In brief, colorable legal justifications can be made by each side for its programs, but there are reasons for concerns with activities of both. Each tends to interpret the treaty strictly with respect to programs of the other, but permissibly for its own.

Fifth, our impact report suggests various substantive approaches which could be considered by the United States and the Soviets to enhance those provisions of the treaty which need the most immediate attention. We have offered various approaches to reverse the erosion of the ABM Treaty which is the declaratory policy of the administration. The list is illustrative and not exhaustive, but we hope at least that it is a start to looking as to how the treaty might be enhanced.

Sixth, and finally, our impact report notes the critical lack of early interagency review of U.S. programs. During my Government days I served in the Pentagon, the State Department, and ACDA. And I noted, when I moved across the river, how difficult it was to get information from the Pentagon on U.S. programs. I think that problem still exists.

U.S. COOPERATION WITH ALLIES ON SDI

Let me make a few comments about U.S. cooperation with our allies in SDI. This is an issue which is very current, and I think it is going to be one which is going to become more important over the next few months.

Since the ABM Treaty does not constrain research, as I indicated earlier, cooperative efforts limited to research would not, in my judgment, be inconsistent with the treaty. That doesn't mean the Soviets will not object; they will for political reasons. But I think as a legal matter cooperative research is permitted.

However, under articles V, IX, and X of the treaty, when read together, along with agreed statement G, which talks about technical documents and blueprints, the treaty prohibits cooperative efforts involving any transfers or assistance from the United States to its allies at the point that research moves to advanced develop-

ment or testing. The treaty would prohibit any joint engineering development or joint production of ABM components even in cases where the United States may legally pursue development and testing components for fixed land-based systems. In other words, we can go further in one area, which is fixed land based, than we could with our allies.

ADMINISTRATION'S SDI REPORT

Let me turn briefly to the administration's SDI report. Appendix B of that report generally describes accurately what is prohibited and permitted under the ABM Treaty on pages B-1 to B-6. I agree with what they say with the exception of one sentence on page B-5: I would note, however, that appendix B admits that "development and deployment, given a decision to proceed, would almost certainly require modification to the treaty." Now, this key sentence is tentative where it should be and could be much clearer. No date is suggested. I understand the date which is considered in the Pentagon is a decision date somewhere around 1990 or 1991. They admit that integrated testing programs would not be consistent with the treaty as presently drawn.

Second, appendix B of the DOD report indicates that the Defense Department has restructured various program elements to provide colorable arguments of compliance in all cases. They use various terms, as you know, in terms of describing what they are doing. They are described, in the sensitive areas, as technology demonstrations.

In my judgment, if the administration policy is, in fact, to prevent the erosion of the ABM Treaty, then appendix B demonstrates what should not be done as a matter of U.S. national policy. Rather than seeking to exploit admittedly gray areas in the treaty, the administration should be trying to close them.

Assuming Congress were to decide that projects to be funded in fiscal year 1986 should be limited to those which are now and if carried to fruition will be strictly consistent with the ABM Treaty, Congress will have to specify the conditions. There is no reason to believe that the Congress' view of what is compliance with the treaty is necessarily that of DOD.

SDI FUNDING

In conclusion, let me just note that we would recommend that funding for SDI in fiscal year 1986 and thereafter should be curtailed to levels consistent with a prudent hedge against Soviet breakout. This could be in the $1.5 to $2 billion range for fiscal year 1986. In our view, this should deny funding to the demonstration projects—the key ones which raise questions under the treaty—while permitting perhaps a 30-percent real growth for the research projects. This would limit the SDI to projects that strictly comply with the treaty. This is the legal test that the administration holds the Soviets to in its compliance reports. We believe the Congress should hold the administration to that same standard at this juncture.

Thank you, Mr. Chairman.

Chairman FASCELL. Thank you very much, Mr. Rhinelander.

[Mr. Rhinelander's prepared statement follows:]

PREPARED STATEMENT OF JOHN B. RHINELANDER, MEMBER OF THE BOARD, ARMS CONTROL ASSOCIATION

Chairman Fascell and Members of the Subcommittee:

My name is John B. Rhinelander. I served ten years in various Departments of government between 1966 and 1977, including legal adviser to the SALT I delegation. Since 1977 I have been a partner of Shaw, Pittman, Potts & Trowbridge in private law practice in Washington, D.C. I serve as a member of the Board of Directors of the Arms Control Association (ACA) and as a member of the National Advisory Board of the Lawyers Alliance for Nuclear Arms Control, Inc. (LANAC).

ACA and LANAC are organizational sponsors of the National Campaign to Save the ABM Treaty, founded by Ambassador Gerard C. Smith and others. John Pike of the Federation of American Scientists, Tom Longstreth of the Arms Control Association, and I have prepared the third edition of the "Report on the Impact of U.S. and Soviet Missile Defense Programs on the ABM Treaty" (Impact Report) for the National Campaign to Save the ABM Treaty. Ambassador Smith joined us in releasing our Impact Report at a press conference on March 26. I ask that a copy of the Impact Report be made part of the record of this hearing.

John Pike, Tom Longstreth and I are pleased to accept your invitation to appear before the Subcommittee today to testify

on the Strategic Defense Initiative (SDI), anti-satellite systems (ASATs) and the ABM Treaty; summarize the Impact Report which we prepared; and analyze the Administration's Report to the Congress on the Strategic Defense Initiative (SDI Report) which was made available in unclassified form on April 18. John Pike and Tom Longstreth have prepared a separate, brief written analysis of the SDI Report, which I request be made part of the hearing record.

A. Overview of SDI

The President and members of his Administration have given two entirely different versions of SDI.

The President originally suggested SDI could be a perfect "astrodome" defense which would make nuclear weapons impotent and obsolete. It would be a "people" defense that would fundamentally change the offense-dominated, mutual deterrence relationship. Secretary Weinberger has indicated SDI would equally shield our Allies. During his 1984 campaign, the President stated the U.S. would be prepared to share SDI technology with the Soviets as both moved toward a defense-dominated relationship. The President's wish to make nuclear weapons impotent and obsolete clearly struck a responsive accord in many who are fearful of nuclear war and hope that nuclear weapons will one day be abolished. His vision has been viewed by most, however, as totally unachievable.

Others in the Administration, including General Abrahamson who is the Director of the SDI organization, have suggested that SDI would enhance the deterrence relationship with the Soviet Union, but not replace it. SDI, in this view, would provide a "thin" defense for people and a more capable defense of ICBM silos and other hardened military sites. SDI would complicate any Soviet consideration of a first strike and thus enhance deterrence in a world which would still be dominated by nuclear weapons.

No one in the Adminstration suggests SDI would be effective against bombers or cruise missiles. Further, SDI does not presently include programs designed for and limited to "hardsite" defense.

Paul Nitze in his now famous Philadelphia speech of February 20, 1985, repeated the four sentence Strategic Concept which he authored in December and which the President accepted in January as the basis for his negotiating position in Geneva, and then provided the most sophisticated and subtle SDI posture. In brief, Paul Nitze's concept is three-phased: deep cuts on offense and stabilization of the offense-defense relationship during a period of at least ten years while SDI is explored; a transition period including phased deployment of SDI-type defenses; and finally achievement of the ultimate goal of a nuclear-free world at some time in the future. His Philadelphia speech added two fundamental caveats: for SDI to be feasible, it must be survivable and cost-effective at the

margin over countermeasures. He added that transition from offense to defense could be "tricky".

In my judgment, SDI will never be able to satisfy Paul Nitze's criteria. Whether or not elements of SDI will ever be feasible in purely technical terms, it seems highly unlikely that a deployed system could ever be survivable and even less likely that any nationwide ABM system could be cost effective at the margin. Moreover, if SDI were pursued, it would be destabilizing and heighten the paradox that "defensive" weapons have the capability to be used offensively as part of a first strike strategy. "Offensive" weapons at present are in fact defensive.

One obvious Soviet response to SDI will be to proliferate offensive systems and to take other measures to be able to overwhelm any level of US and allied defenses. This was the US response with MIRVs in the late 60s and early 70s to the initial Soviet ABM efforts. It would be a US response now if the Soviets had announced SDI as its goal. It also reflects current US policy.

The US Air Force is pursuing systems designed to ensure that US strategic weapons can overwhelm any Soviet ABM or air defenses whatever their levels or sophistication. There is every reason to believe that the U.S. will maintain its current penetration capability, and that the Soviets will do likewise.

In my view, the choice is between arms control and a quest for defensive systems such as SDI. It cannot be both. SDI

will be fundamentally inconsistent with the ABM Treaty in a few years. If the ABM Treaty is repudiated, it is doubtful there will be any effective limitations on offensive nuclear arms. Other important agreements, such as the NPT, will also be threatened by unrestrained US-Soviet nuclear weapons competition.

B. ABM Treaty - The Need to Enhance It

The ABM Treaty does not limit "research".

Under Article V(1), neither the U.S. nor the Soviets may "develop" or "test" space-based, air-based, sea-based and land-mobile based ABM systems and components, whether utilizing "current" or new technologies such as kinetic or directed energy. None of the key terms in Article V are the subject of agreed interpretations with the Soviets. The U.S. has been following a unilateral statement on the dividing line between permitted "research" and prohibited "develop" and "test" since 1972. That statement is quoted in part in the Impact Report (p. 26).

Article III restricts deployment of fixed, land-based ABM systems or components to "current" components as defined in Article II and (as amended by the 1974 ABM Protocol) to one site in the U.S. and one site in the Soviet Union. ABM systems are defined in terms of countering strategic ballistic missiles. The negotiating history made clear that "adjuncts", such as a telescope used in conjunction with a permitted ABM radar, may be deployed as part of an Article III system.

Article IV limits the development and testing of "current" and new technologies for fixed, land-based ABM systems and components to agreed test ranges. Pursuant to Agreed Statement D, Article III must be amended before fixed, land-based ABM systems based on new technologies (such as lasers), which substitute for "current" ABM components, are deployed.

Article VI(a) prohibits the "upgrade" of non-ABM systems, such as surface-to-air missiles (SAMs), anti-tactical ballistic missiles (ATBMs) and anti-satellite systems (ASATs), by either giving them the "capabilities to counter strategic ballistic missiles" in flight trajectory or by "test[ing] them in an ABM mode". Article VI(b) limits large phased-array radars (LPARs) for early warning of strategic ballistic missiles to locations along the "periphery of its national territory" and "oriented outward".

Article IX prohibits deployment in, or transfer of ABM components or technology to, third countries. Article X prohibits circumvention of the Treaty by other international agreements.

Current interpretation issues arise because there have been inadequate attempts in the Standing Consultative Commission (SCC) or elsewhere to define key terms including "develop", "test", "component", "adjunct", "capabilities", "substitute for", "early warning", or even "strategic ballistic missiles", for the purposes of the ABM Treaty. Seven Agreed

Statements and five Common Understandings were reached during SALT I. The Common Understandings, which were culled from the negotiating record before the Treaty was submitted to the Senate, need to be reviewed, updated and formally adopted. The only terms subsequently defined in the SCC -- ABM test ranges and "test them in an ABM mode" -- were the subject of a 1978 agreed statement, which is still classified. Recent efforts to expand the definition of "test them in an ABM mode" have not been completed.

This absence of agreement on specific terms leads to difficult issues of interpretations as SDI is construed in the context of the ABM Treaty, which was written in terms of 1960s technology. I am not aware that the responsible legal officers in Defense, State and ACDA have prepared a comprehensive inter-agency analysis of SDI and the ABM Treaty. Certainly, no such document has been released in unclassified form. The SDI Report (B-3 to B-5) describes a compliance process within DOD with final decisions made by the Under Secretary for Research and Engineering with advice from the DOD General Counsel. The absence of a comprehensive legal analysis and compliance review chaired by State or ACDA casts doubt on the persuasiveness of the Administration's position that SDI and other US programs strictly comply with the ABM Treaty.

Administration spokesmen claim SDI is a "research" program which is entirely consistent with the ABM Treaty. This is only partially accurate -- true for the moment but not so beginning in 1988.

The SDI program as presently conceived cannot be carried out consistently with the ABM Treaty starting in 1988 when certain tests are scheduled to begin. Further, boost phase and post-boost phase intercepts, which are central to the SDI concept, are fundamentally inconsistent with the purpose and letter of the ABM Treaty, including Article I(2).

Based on our analysis, SDI currently involves four distinct time periods:

First, research and early development between 1985 and 1987;

Second, continued research and development, but also field testing of components and integrated systems, from 1988 until 1993 (some of which might be done jointly with our Allies) and possible deployment of ATBMs in Europe during this period;

Third, a possible deployment decision in 1993 with some ABM components deployed for defense of the U.S. from 1994 through 1997; and

Fourth, final deployment from 1998 through 2005.

Based on our analysis, the first period (1985-1987), which largely coincides with President Reagan's term in office, will be consistent with the ABM Treaty. There is, however, one test scheduled for 1988 on the Airborne Optical System (AOS), which is also referred to as the Airborne Optical Adjunct (AOA), which appears inconsistent with Article V(1).

The second period (1988-1993), which is covered in part by DOD's current five-year plan, would require either Soviet

agreement to amend the ABM Treaty or abrogation of the Treaty by the United States. The amendments would have to include Article V to delete the ban on "develop" and "test", and might have to include Article VI(a) to permit deployment of ATBMs with capabilities to counter strategic ballistic missiles; Article IX to permit deployment of such ATBMs outside the United States and transfer of ABM technology for joint development by some Allies; and Article I(2) to delete the ban on a "base" for a nationwide ABM system.

This second period (1988-1993) is critical. Whether the ABM Treaty were amended cooperatively with the Soviets or abrogated unilaterally, it probably could not be put back together again even if a later decision were made not to deploy SDI. The barrier against advanced development and testing is fundamental to a stable regime, as is the need to avoid deployment of ATBMs capable of countering strategic ballistic missiles. The barriers in Article V will, and in Articles I(2), VI(a) and IX might, have to be breached in the 1988-1993 period if SDI proceeds as planned.

If a decision to deploy were made in 1993, the third and fourth periods (1994-2005) would require scrapping the entire ABM Treaty as presently written unless deployment were limited to a fixed-land-based "hardpoint defense". Fundamentally, there is no place for the ABM Treaty if the U.S. seeks a defense-dominated relationship or even US defense superiority.

I cannot conceive of the Soviets agreeing to amend Articles I(2), V, VI(a) and IX to permit SDI to proceed consistent with a then-truncated ABM Treaty. In addition, no one has even suggested a conceptual approach to the offensive-defensive relationship and the role of any ABM Treaty during a "transition" period to defense-domination.

Since the beginning of the SALT process in 1967, the United States has recognized that limitations on stategic offensive and defensive systems are interrelated. Limitations on strategic defensive systems have been, and in our judgment remain, a pre-condition to limitations on offensive systems. No technological or other developments have changed this basic relationship. Whether SDI continues as presently conceived through the early 1990s -- "research" leading to development and testing of space-based components, both of which are inconsistent with the ABM Treaty -- SDI is <u>not</u>, in our judgment, in the best interests of US national security policy.

Deep reductions of U.S. and Soviet offensive nuclear systems, combined with some reshaping of those systems over time, should remain a basic objective of US security and arms control policies. SDI will make this objective unachievable in a few years if SDI is not sharply curtailed. Further, SDI could destabilize both US-Soviet and US-alliance relationships before then.

There is a fundamental difference between a SDI policy limited to "research", which is the current declaratory policy

of the Administration, and a massive research and development program funded by Congress which builds momentum toward the capability to begin to "breakout" of the Treaty in 1988-1993. This latter policy lies behind the current fiscal year's request for $3.7 billion in SDI funds and additional funds in DOE's budget.

The SDI time schedule will present an implicit ultimatum to the Soviets by 1988 -- either agree to amend Articles I(2), V, VI(2) and IX of the ABM Treaty to allow SDI to continue to develop and test ABM components in 1989-1993, to allow joint SDI research and development programs with our Allies and to allow deployment of ATBMs capable of countering strategic ballistic missiles in Europe, or the United States will abrogate the Treaty. SDI also contains an implicit threat by the U.S. to abrogate the Treaty in its entirety, if the Soviets do not agree to scrap it, in the mid-1990s if the U.S. decides to deploy an SDI defense.

SDI was probably an important factor in bringing the Soviets back to the negotiating table in Geneva on March 12, but the Soviets were certain to have returned anyway. The Soviet strategy focused on the 1983 INF deployment decisions had backfired on them. They would have returned after the President's re-election to appeal to European public opinion.

The Soviets undoubtedly understand the Hobson's choice which faces them. Their propaganda, and apparently their negotiating strategy at Geneva, is focused entirely on opposing

SDI. Further, there is no reason to believe Soviet policy in this respect will change. What the Soviets do not know is whether the Administration or the Congress, acting together or separately, will curtail SDI if over the next year or two the Soviets agree to mutually acceptable deep cuts on offensive nuclear systems. Perhaps only President Reagan knows the answer to this question. This, and the question how an over-arching agreement in principle might be negotiated, are the keys to Geneva.

In the meantime, the Soviets will undoubtedly react with programs of their own. In sum, SDI as declaratory policy might under the best of circumstances help achieve a treaty of indefinite duration on comprehensive limitations and reductions on offensive strategic systems -- a priority US objective since the SALT negotiations began in 1969. The quid pro quo would be a severe curtailment of SDI as currently envisaged for later years. On the other hand, SDI as an action policy annually funded by Congress at levels presently favored within DOD would lead to an increasingly destabilizing relationship with the Soviet Union over the next four years including a certain stalemate at Geneva.

US alliance relationships are likely to deteriorate sharply over the next four years unless SDI is both clarified and limited to a prudent level of "research" before and after 1988. The United Kingdom, France, Germany, and Canada, which publicly support SDI to the extent limited to "research", are

not the only Allies which will be fundamentally affected by the future shape of the program.

The 60-day letters delivered to our Allies on March 26, which invite them to join in the SDI efforts, should trigger an early and searching review of SDI and its consistency with the ABM Treaty. Cooperative efforts on "research" would not be inconsistent with the Treaty, but cooperative development or testing of ABM components would be. The suggestion by a DOD official that our Allies would "not be excluded" from production contracts to develop weapons appears to be directly contrary to Articles V, IX and X of the ABM Treaty. Any sharing with our Allies would be inconsistent with the Administration's efforts to tighten controls on the export from the U.S. of highly sensitive technology. An early test of our Allies' real views of SDI and the ABM Treaty may be at hand, starting with the scheduled April 22-23 meeting of the seven-nation Western European Union in Bonn. This will be followed by the Western economic summit meeting in early May and the Shultz-Gromyko meeting of May 14.

Assuming the best were to occur and that the U.S. and Soviets reaffirm the ABM Treaty, the Treaty must be enhanced through numerous agreed statements and common understandings. Because the ABM Treaty was written primarily in terms of 1960s technology -- that is, fixed land-based ABM systems and fixed land-based early warning radars -- there is an enormous and complex task for the defense/space working group in Geneva.

The goal should be achieving specific, mutual and verifiable interpretations relevant to emerging technology under the definitional (Article II) and each substantive article (Articles I(2), III, IV, V, VI and IX) of the Treaty. If such an effort is not undertaken or is not successful, the ABM Treaty will wither away even if not formally amended or abrogated. Technological changes will not sit still. This is a fundamental point which all those who support arms control must understand.

With one exception, enhancements of the ABM Treaty can be entirely consistent with the ABM Treaty as amended by the 1974 ABM Protocol. However, if an ASAT agreement is reached prohibiting, inter alia, development and testing of ASATs, then consideration should be given to an additional Protocol to the ABM Treaty. The purpose would be to prohibit the currently legal development and testing of fixed, ground based, exo-atmospheric ABM systems and components. The reasons are simple. Much ASAT and ABM technology is dual capable. Tests of "ASAT" systems provide some ABM applicability. Tests of fixed land-based exo-atmospheric "ABM" systems provide ASAT capabilities.

We believe that both ABMs and ASATs must be tightly constrained for either to be effectively limited over time. Therefore, we support a separate ASAT Treaty.

C. Our Impact Report

The current, or third, edition of the Impact Report analyzes US and Soviet programs and the impact of both on the ABM Treaty. The credit should largely go to Tom Longstreth and John Pike, the co-authors of the first two editions and still the principal authors of the third edition. Their research made possible the analysis contained in the third edition. We want to stress, however, that our Impact Report was written before the Administration's unclassified SDI Report was released.

Without covering the entire Impact Report, I will briefly list its basic scope, coverage and recommendations.

First: Our Impact Report summarizes the ABM Treaty (pp. 5-10) and analyzes the most important areas of ambiguities (pp. 23-31, 33-41). These ambiguities reflect a failure on the part of both the U.S. and Soviets to use the Standing Consultative Commission (SCC) to seek, let alone agree upon, specific agreed interpretations over the past twelve years so that the Treaty will remain current and relevant as new technology is pursued. The major challenges include:

- The term ABM "component" must be defined in terms of prohibited emerging technology for space-, air-, sea- and land-mobile ABM systems. Prohibited "components" limited by Article V must be distinguished from permitted subcomponents, "adjuncts" and non-ABM technology. Conclusive presumptions may have to be agreed upon by the U.S. and Soviets to prohibit

certain types of space-based, air-based, etc., kinetic and direct energy systems or components because of the dual uses of basic technologies.

- The distinction between permitted "research" and prohibited "develop" and "test" must be defined for purposes of Article V. The U.S. currently relies on the unilateral US statement prepared for the Congressional record in 1972 after reviews of the US SALT delegation reporting cables. The Russians have never publicly commented on it. Further, the Russian text of Article V uses a verb (sozdavat) which is best translated as "create" for the English word "develop". The Russian word apparently can mean simply putting pen to paper and suggests an earlier prohibition in the R&D cycle than the 1972 unilateral US interpretation. However, the Soviets have never publicly stated a proposed verifiable standard. A verifiable cutoff point of prohibited "develop" and "test" must be defined in conjunction with ABM "components". This is critical not only for US "research" efforts, and any joint "research" with our Allies, but also to have clear limits applicable to future Soviet efforts. Specific limitations applicable to the U.S. must be equally applicable to the Soviets.

- Limits on "non-ABM" dual capable systems and components limited by Article VI(a) must be defined for surface-to-air (SAM), anti-tactical ballistic missile (ATBM) and ASAT systems both in terms of "capabilities to counter strategic ballistic

missiles" and "testing in an ABM mode". The dual use prohibitions, which would effect all three US military services, will be extremely difficult to achieve because basic systems have tactical and theatre as well as potential strategic roles. A practical definition of "capabilities to counter" is fundamentally necessary.

- Effective constraints on large phased-array radars (LPARs), and on space-based sensors with ABM capabilities, must be reached. The dual capable problems of LPARs on earth will soon be duplicated by space-based sensors. The differentiation problem will become more difficult.

The full list is daunting, as is the challenge of negotiating and drafting. All interpretations must be specific and verifiable. The prohibitions must be clear and mutual. The failure to define key terms and concepts will lead to an ever escalating series of charges and counter-charges of non-compliance by both sides.

Second: Our Impact Report discusses the various program elements that make up the SDI (pp. 12-18) and summarizes those raising Treaty issues (pp. 42-51). This aspect of the Impact Report, together with the Administration's SDI Report, should provide Congress with initial information to consider in reviewing the present funding request for SDI and to consider appropriate limitations and conditions on funds which are appropriated for FY 1986 and later fiscal years.

Third: Our Impact Report reviews various Soviet programs including their "research" efforts (pp. 19-22). Our information on Soviet programs is not complete. Our general conclusion, nevertheless, is that the Soviets have maintained a large research program, but are significantly behind the U.S. in the "high tech" approach to ballistic missile defense. The Soviets have a "low tech" capability, both in their current ABM system around Moscow and ABM components being tested or deployed, which could be deployed long before any US "Star Wars" system. Current Soviet ABM technology which is deployed and being deployed does not appear to be as advanced as that of the US Safeguard site at Grand Forks, North Dakota, which was shut down in 1976.

Fourth: Our Impact Report reviews compliance by both the U.S. and the Soviets (pp. 52-61). I will summarize only the major issues.

The US PAVE PAWS large phased-array early warning radars (LPARs) designed for early warning of SLBMs and for space track, which are under construction in Georgia and Texas, raise compliance issues under Article VI(b) of the ABM Treaty. While pointed outwards, they could have some ABM battle management capability and they provide coverage of significant parts of the continental United States. The orientations of the sites have apparently been modified reducing this concern, but the 240 degree coverage of the two active faces at each site raises the legal and factual issues whether they are oriented

"outwards". More precise factual information is necessary for a judgment whether those sites are consistent with the Treaty.

The US early warning LPARs under construction in Greenland and the United Kingdom as replacements for mechanical-scan-type radars at those sites raise compliance issues based solely on a question of Treaty interpretation. In my judgment, the better interpretation of the Treaty, which grandfathered these two sites, is that Article VI(b) permits the U.S. to "upgrade" the radars with phased-array technology.

The US SDI programs will clearly be inconsistent with Article V if research leads to development and testing in 1988 and later years. Even now, a declared intent to pursue programs which will be prohibited by the ABM Treaty raises a fundamental issue. The analogy to an anticipatory breach of contract may be apt.

The Soviet large phased-array radar (LPAR) under construction near Krasnoyarsk raises an immediate compliance problem. From its location, and the orientation and elevation of its one active face, it clearly appears to be for ballistic missile early warning. Its construction is therefore inconsistent with Article VI(b). However, the Krasnoyarsk radar does not appear to be well sited or suited for a battle management radar and should not, in our judgment, be considered an ABM radar prohibited by Article III.

The new Soviet SAM and ATBM systems clearly have more capability to counter strategic ballistic missiles than

comparable Soviet SAM systems in 1972. The Article VI(a) issues are whether the new systems have the "capability to counter" strategic ballistic missiles or whether they have been "tested in an ABM mode". SAMs and ATBMs which can counter short-range ballistic missiles but do not have the capability to counter strategic ballistic missiles (and which also have not been "tested in an ABM mode") are permitted under the Treaty. If Soviet defensive systems are developed to counter medium- or intermediate-range ballistic missiles, such as the Pershing II, the distinction between the permitted and prohibited will become meaningless. These are among the most important near-term interpretation and compliance issues under the Treaty.

The Administration may be as divided on the SAM/ATBM issue as the Nixon Administration was in 1972 when concern over Soviet SAMs was countered with a desire not to impinge on the US SAM-D (now Patriot) system. An allegation of Soviet violations relating to its new SA-12, which has been tested against a short-range, tactical ballistic missile (the SS-12), would implicitly brand proposed US ATBM efforts under consideration for deployment in Western Europe as contrary to the Treaty. The Administation has apparently not yet made up its mind on this fundamental question, but cannot have it both ways under Article VI(a). In our view, both current Soviet and proposed US programs raise Article VI(a) compliance questions.

In brief and in summary, our Impact Report reviews US and Soviet programs which raise compliance issues. Colorable legal justifications can be made by each side for its programs, but there are reasons for concern with activities of both sides. Each tends to interpret the ABM Treaty strictly with respect to programs of the other, but permissibly for its own programs. Present actions of each, coupled with a failure to enhance the ABM Treaty, will serve to undermine the Treaty.

Fifth: Our Impact Report suggests (pp. 65-79) various substantive approaches which could be considered by the U.S. and the Soviets to enhance those provisions of the ABM Treaty which need the most immediate attention. Some, as with LPARs (pp. 67-74), are in the alternative. (We have included six maps (pp. 69-74) which illustrate present and future US and Soviet LPAR deployments.) This section of the Impact Report bears close scrutiny. We have offered various approaches to "reverse the erosion of the ABM Treaty", which is a declared objective of the Administration. The list is illustrative and not exhuastive, but we hope it will generate further discussions.

Sixth: Our Impact Report notes the critical lack of early inter-agency review in the U.S. for US programs (pp. 77-78). In some ways, the problem is similar to the notorious compartmentation in the Soviet Union. To the best of our knowledge, there has not been a full review of SDI by attorneys in the General Counsel's Office of ACDA or the Office of the Legal Adviser at State.

D. US-Allies Cooperation on SDI R&D

Our Impact Report (pp. 63-64) touches only lightly on US cooperative efforts with its Allies on joint research, joint development and possibly joint production.

Since the ABM Treaty does not constrain "research", it is our opinion that cooperative efforts limited to "research" would not be inconsistent with the Treaty. Nevertheless, the Soviets are certain to object strongly to any joint "research" among the U.S. and its Allies for political reasons, and the Soviets may rely on a broad definition of "create" in the Russian text of Article V, and Agreed Statement G to Article IX, to buttress their case.

When Articles V, IX and X are read together, along with Agreed Statement G, the Treaty prohibits cooperative efforts involving any transfers or assistance from the U.S. to its Allies at the point that research on ABM components moves to advanced development or testing. This would specifically preclude the U.S. providing technical descriptions and blueprints for advanced development of any type of ABM components. The Treaty would also prohibit any joint engineering development or joint production of ABM components, even in cases where the U.S. may legally pursue development and testing of programs such as components of a fixed, land-based ABM system.

While the U.S. provided 60-day letters to its Allies on March 26 inviting them to indicate whether they were interested

in joint "research" efforts, there is no public indication that this US offer made clear that cooperative efforts would conflict with the ABM Treaty if they moved beyond the "research" phase.

E. The Administration's SDI Report

The Administration's unclassified SDI Report due March 15, made available on on April 18, provides a comprehensive overview of SDI, but only a brief review in the nine-page Appendix B of the Administration's analysis of the relationship of SDI to the ABM Treaty. I will simply summarize my conclusions.

First, Appendix B of the Administration's SDI report in general accurately describes what is prohibited and permitted under the ABM Treaty (B-1 to B-6). Appendix B admits that, "Development and deployment, given a decision to proceed, would almost certainly require modifications to the ABM Treaty." (B-3) This key sentence is tentative when a frank admission is warranted. Further, no date is suggested.

Second, Appendix B indicates that DOD has restructured various program elements to provide colorable arguments of compliance in all cases. Many experiments are described as laboratory experiments, or if outside then in a fixed, land-based mode. Many are characterized as below the power or size of a weapon system, or otherwise do not represent an ABM component. Others are described as subcomponents, adjuncts or parts of anti-ASAT systems.

Third, if the Administration's policy is in fact to prevent the "erosion of the ABM Treaty", then Appendix B demonstrates what should not be done as a matter of US national policy. Rather than seeking to exploit admittedly gray areas in the Treaty, the Administration should be trying to close them.

The basic legal position of the Administration's SDI Report is that none of the "elements", "subsystems", or "experiments" of space-based projects which may be "demonstrated" through the early 1990s should be construed to be prohibited advanced development or testing of "ABM components". This position is factually suspect and legally questionable. If this represents the Administration's basic approach to preventing erosion of the ABM Treaty, it makes a mockery of Treaty compliance.

All should recognize that there are legitimate areas of ambiguity given the failure of the U.S. and Soviets to seek specific agreed interpretations. The SDI Report itself is a good road map of those areas in the Treaty which should be closed rather than exploited.

Assuming Congress were to decide that projects to be funded in fiscal year 1986 should be limited to those which are now, and if carried through to fruition will be, stricty consistent with the ABM Treaty, Congress will have to specify the conditions. There is no basis for believing that Congress and DOD would necessarily interpret general statutory or report

language linked to compliance with the ABM Treaty in the same way.

More fundamental than Appendix B, the Administration's SDI Report does not attempt to address the transition problems from offense to defense domination. Discussion and broad agreement between Executive and Congress, among the U.S. and its Allies, and with the Soviets on how this could be accomplished should precede the kind of R&D program set forth in the SDI budget request.

E. Conclusion

Funding for SDI in fiscal year 1986 and thereafter should be curtailed to levels consistent with a prudent hedge against Soviet breakout. This could be in the $1.5 billion range for FY86. This would deny funding to the "demonstration projects" while permitting approximately 30% real growth for the research projects. It would limit funding to particular projects that "strictly comply" with the ABM Treaty. This is the legal test the Soviets are held to by the Administration in US compliance reports. Congress should hold the Administration to the legal standard of strict compliance on SDI at this juncture.

In Geneva, the U.S. should reaffirm the ABM Treaty, as presently written, as one fundamental of a long-term, stable relationship with the Soviets. The focus should be on enhancing the ABM Treaty through specific, mutual and verfiable agreed interpretations.

The basic challenge of Geneva and at a Summit should be to achieve a Vladivostok-type approach coupling deep cuts on offensive systems spanning INF and START with an enhanced ABM Treaty (including an ASAT Treaty). Years of detailed, hard bargaining will be necessary after such an umbrella agreement in principle is reached in order to produce agreement in detail.

Finally, neither the Administration nor Congress has addressed the non-proliferation implications of the failure of the Geneva talks which will surely occur if the U.S. insists on pursuing SDI as presently conceived in the DOD. In the final analysis, SDI raises the question whether US security would be enhanced in a world without arms control, including the NPT which will expire unless extended by a majority of the then parties in 1995. In my judgment, the answers are obvious:

- the U.S. cannot pursue SDI to the advanced development and test phases and expect to achieve reductions on offensive nuclear systems;

- without comprehensive limits on US and Soviet offensive and defensive stragetic systems, the survivability of the multilateral post-World War II arms control regimes is dubious, and new agreements such as a comprehensive test ban will not be achievable;

- without effective arms control agreements, the threat of continued proliferation and actual use of nuclear weapons in unstable areas of the world will increase.

In my own view of the future, there will never be a world without nuclear weapons as long as there is civilization on this earth. There will never be a perfect defense against nuclear weapons. The challenge, basically political, is to restrain technological changes and enhance stability of deployed weapons over time at reduced levels.

Whether there should ever be a role for defensive systems against ballistic missiles and other types of offensive delivery systems is unclear. The central questions are not technological since applied research will inevitably prove out the feasibility of some new systems in laboratory and controlled test settings. The more important questions relate to the inter-action between defensive systems, countermeasures on offensive weapons systems, and the basic stability of the balance. To date, analyses suggest that as between adversarial States such as the U.S. and Soviets, "defensive" systems deployed by one will be viewed in terms of their offensive capabilities by the other. In essence, the basic issues have not changed since the searching ABM debates of the 1960s that led to the ABM Treaty in 1972. The current fallacy is the belief that Star Wars technology might change the underlying fundamentals. It cannot.

Arms control in the nuclear age cannot assure either peace or security. The demise of arms control will, however, raise the threat of instability, increased proliferation and possible use of the types of weapons which have not been used in war since 1945. The ABM Treaty should be preserved and enhanced as part of a comprehensive process of stabilizing the basic deterrent relationship.

Chairman FASCELL. Mr. Longstreth.

STATEMENT OF THOMAS K. LONGSTRETH, ASSOCIATE DIRECTOR OF RESEARCH AND ANALYSIS, ARMS CONTROL ASSOCIATION

Mr. LONGSTRETH. Thank you, Mr. Chairman.

I should mention that I speak here today as an individual and not as an associate director of the Arms Control Association.

John Pike and I have prepared a joint statement, in addition to Mr. Rhinelander's, and we do request that it be inserted into the hearing record.

Chairman FASCELL. Without objection, we will put it in the record, and you may proceed.

Mr. LONGSTRETH. Our comments specifically address the DOD's report, both areas in which our own analysis disagrees with that report's findings and where we believe that the report has fallen short of fulfilling the congressional requirements set forth in the 1985 Authorization Act.

In the interest of time, I am going to cut short my own remarks and allow John to speak. I wanted to make a few quick points, however.

ADMINISTRATION'S SDI REPORT

We believe that despite its shortcomings the SDI report does provide the public with far more information than has previously been available on this subject. This type of information is essential for an informed and reasoned debate on the SDI, and we do strongly recommend that a similar reporting requirement be placed in this year's DOD Authorization Act.

As Mr. Rhinelander pointed out, the SDI report acknowledges that development and deployment, given the decision to proceed, would almost certainly require modifications to the ABM Treaty. It is difficult, in our view, to see how such modifications could be drawn up that would permit the development and deployment of the very weapons that the ABM Treaty is designed to prohibit.

Development and deployment of large-scale ballistic missile defenses would not require modifications of the ABM Treaty, but rather its renunciation. In asserting that the various planned demonstrations are fully in compliance, the DOD SDI report states that any field tests will demonstrate basically technologies applicable to the ABM mission and/or ABM subcomponents. It asserts that these tests will not demonstrate ABM capabilities or ABM prototypes or breadboard models in basing modes prohibited by article V of the treaty.

For example, in referring to several tests of space-based components—for example, the space-based kinetic kill vehicle and Sagittar Railgun experiments—it states that they will be tested against orbital targets simulating antisatellite weapons and will not be tested in an ABM mode, which is prohibited by article V, nor given the capability to intercept strategic ballistic missiles or their elements in flight trajectory, which is banned by article VI. The report implies that these components would demonstrate capabilities far below those required for strategic ballistic missile intercept.

Yet, any demonstration of a specific technology that would provide a sound basis for an informed judgment on the technical feasibility of an antimissile system would necessarily involve the demonstration of ABM capabilities prohibited by article VI. If the parameters of any such demonstration were established such that they fell short of demonstrating an ABM capability, it is difficult to see how they could form the basis for an informed judgment on the feasibility of antimissile systems. Moreover, such inadequate results would hardly justify the high costs associated with these demonstrations.

It is interesting here to note that when trying to promote the SDI program the administration has extolled the capabilities and exaggerated the significance of recent tests of ABM components. Such was the case with its announcement last June of the first successful test, in four attempts, of the homing overlay experiment. Alternatively, when it seeks to certify to the Congress the strict adherence of the SDI to the ABM Treaty, as in this latest report, the administration downplays the capabilities of sensors and interceptors far more capable than those aboard the homing overlay.

In summary, the thrust of the administration's argument, as indicated in its latest report, is that the United States should hold the Soviets to a strict standard of treaty compliance while allowing freedom of action for all its own ABM programs using untenable legal justifications. And it is a policy designed to erode and ultimately terminate the ABM Treaty.

Thank you.

[The prepared statement of Messrs. Pike and Longstreth follows:]

PREPARED STATEMENT OF JOHN PIKE, ASSOCIATE DIRECTOR FOR SPACE POLICY, FEDERATION OF AMERICAN SCIENTISTS AND THOMAS K. LONGSTRETH, ASSOCIATE DIRECTOR OF RESEARCH AND ANALYSIS, ARMS CONTROL ASSOCIATION

Chairman Fascell and Members of the Subcommittee:

We thank you for the opportunity to testify on this critical national security issue. Our comments specifically address the Administration's "Report to the Congress on the Strategic Defense Initiative," (hereafter referred to as the "SDI Report.") They deal mainly with areas in which our own analysis disagrees with the findings of the Administration's report or where we believe their report has fallen short of fulfilling the Congressional requirements set forth in Section 1102 of the Department of Defense Authorization Act for Fiscal Year 1985 (Public Law 98-525, October 19, 1984), and the Report on the Department of Defense Appropriations Act, Fiscal Year 1985, of the Committee on Appropriations, U.S. House of Representatives (House Report No. 98-1086, October 10, 1984.)

Despite its shortcomings, the SDI Report provides the public with far more information than has previously been available on this subject. This type of information is essential for an informed and reasoned debate.

The Department of Defense was required to provide "...the status, from the present year to completion, of each Program, Project and Task under the Strategic Defense Initiative and related programs with respect to compliance with the ABM Treaty."

Appendix B of the Administration's Report on the SDI is devoted to their analysis of the SDI and its compliance with the ABM Treaty. The SDI Report asserts, as have other senior Administration officials, that "the SDI research program is being conducted in a manner fully consistent with all U.S. Treaty obligations." (Page B-1) It is the conclusion of our own report, The Impact of U.S. and Soviet Ballistic Missile Defense Programs on the ABM Treaty (hereafter referred to as the "Impact Report") that, beginning in the late 1980s, various tests and demonstrations planned as part of the Strategic Defense Initiative will be inconsistent with the provisions of the ABM Treaty.

The SDI Report goes on to acknowledge that "development and deployment, given a decision to proceed, would almost certainly require modifications to the ABM Treaty." It is difficult, in our view, to see how such "modifications" could be drawn up that would permit the development and deployment of the very weapons that the ABM Treaty is designed to prohibit. Development and deployment of large-scale ballistic missile defenses would not require "modifications" of the ABM Treaty but rather its renunciation.

The core of the Administration's case with respect to the SDI and its compliance with the ABM Treaty, over the next 5-8 years, is contained in pages B-5 through B-9 of Appendix B in the SDI Report. In asserting that the various planned demonstrations are fully in compliance, the SDI Report makes several arguments. First, the SDI Report contends that any field tests will demonstrate basic

technologies applicable to the ABM mission and/or ABM sub-components. It asserts that these tests will not demonstrate ABM capabilities or ABM prototypes or breadboard models in basing modes prohibited by Article V of the Treaty.

For example, in referring to several tests of space-based components, (the space-based Kinetic Kill Vehicle and "Sagittar" Railgun Experiment), it states that they will be tested against orbital targets simulating anti-satellite (ASAT) weapons and will not be "tested in an ABM mode" which is prohibited by Article V, nor given "the capability to intercept strategic ballistic missiles or their elements in flight trajectory", which is banned by Article VI. The Report implies that these components would demonstrate capabilities far below those required for strategic ballistic missile intercept.

Yet, any demonstration of a specific technology that would provide a sound basis for an informed judgement on the technical feasibility of an anti-missile system would necessarily involve the demonstration of ABM capabilties prohibited by Article VI. If the parameters of any such demonstration were established such that they fell short of demonstrating an ABM capability, it is difficult to see how they could form the basis for an informed judgement on the feasibility of anti-missile systems. Moreover, such inadequate results would hardly justify the high costs associated with these demonstrations.

The Report also adopts a line of reasoning put forward in the past by certain Administration officials that a device would not be an ABM component unless it could perform the complete function of, or substitute for, an ABM component as defined in Article II of the ABM Treaty. Under this interpretation, if a device could only perform part of the function of an ABM radar, launcher, or interceptor, then it would not be considered an ABM component.

For instance, Administration officials have argued that the Airborne Optical System (which would provide initial target tracking data) is merely an adjunct to the Terminal Imaging Radar, which would provide direct guidance information to ground-based interceptors. In the Administration's view, the Airborne Optical System would have to perform all sensor and battle magaement functions in order to be a "component."

This line of reasoning ignores the history of the treaty negotiations, which clearly suggest that ABM sensors do not have to perform the full spectrum of battle management functions in order to be subject to the limitations of the Treaty. This line of reasoning also rests on an extremely limited conception of the nature of the components that constitute a hypothetical ABM system, suggesting that there is a single sensor, such a a radar, that performs all of the battle management functions for the interceptor.

In practice, most missile defense systems have more than one sensor component, each of which would take some part in ABM battle

management. The AOS performs a role similar to that of the Perimeter Acquisition Radar (PAR) that was part of the Safeguard/Sentinel ABM system. Radars such as PAR were clearly considered to be ABM components during the negotiation of the Treaty and subject to strict limitations.

It is interesting here to note that, when trying to promote the SDI program, the Administration has extolled the capabilities and exaggerated the significance of recent tests of ABM components. Such was the case with its annoucement last June of the first successful test (in four attempts) of the Homing Overlay Experiment (HOE).

Alternatively, when it seeks to certify to the Congress the strict adherence of the SDI to the ABM Treaty, as in this latest report, the Administration downplays the capabilities of sensors and interceptors far more capable than those aboard the HOE.

The thrust of the Administration's argument, as indicated in its latest report, is that the U.S. should hold the Soviets to a strict standard of treaty compliance while allowing freedom of action for all its own ABM programs using untenable legal justifications. It is a policy designed to erode and ultimately terminate the ABM Treaty.

The SDI Report states that there cannot be "a double standard of compliance" based on "subjective judgements as to intent." This is, indeed, true. Both sides should be held to the same standard of compliance. Yet, what the Administration appears to be doing is to seek to establish a less restrictive standard on the U.S.

Yet, just as we are not satisfied when the Soviets assert, without adequate collaborating data, that their radar under construction near Krasnoyarsk is for space tracking, the Soviets are unlikely to be assured when the U.S. states that all projects of the SDI are fully in compliance with the ABM Treaty and fails to provide an adequate rationale as to why this is the case. In trying to make its case, the SDI Report has failed to provide sufficient information on the relevant demonstrations to allow for an impartial assessment of the consistency of each demonstration with the ABM Treaty.

Below, we have extracted excerpts from the DoD SDI Report that provide their analysis of specific demonstrations (which they refer to as "experiments") and why each demonstration is treaty compliant. We have also taken excerpts from our own Impact Report (which in many cases agrees with DoD's interpretation) which assess those same demonstrations.

BOOST SURVEILLANCE AND TRACKING SYSTEM

DoD SDI Report:

"The Boost Surveillance and Tracking System (BSTS) Experiment is a space based exprerlment (which is not fully defined) to demonstrate technology capable of upgrading the current satellite early warning system. This experiment will if successful, also permit a decision to be made on the applicability of more advanced technology for ABM purposes. The BSTS experimental device will not be a prototype of an ABM component. The BSTS experimental device will be limited in capability so that it cannot substitute for an ABM component, but will be capable of performing early warning functions. For example, the experimental devices may measure the signatures of booster plumes, but not in real time. Other capabilities may be limited as well." (Page B-7)

Longstreth/Pike/Rhinelander Impact Report:

"The Boost Surveillance and Tracking System (BSTS), previously known as the Advanced Warning System or the Defense Support Program, is a follow-on to the present generation of early-warning satellites. Initial versions of this satellite are scheduled for testing in space in the early 1990s. BSTS incorporates greatly enhanced infrared sensors which provide high resolution and precision for tracking missiles in their boost-phase. The fact that MIRVed warheads are released and individually targeted in the post-boost phase limits the applicability of this system to the early warning mission, since its greater tracking precision does not translate into improved impact prediction or attack characterization. As part of a layered ABM system, however, BSTS could provide initial target tracking information which would be relayed for use by boost-phase interceptors. Although BSTS is not intrinsically ABM-related, its inclusion in the SDI does raise questions as to its consistency with the Article V(1) provisions banning development, testing or deployment of space-based ABM components." (Page 42)

SPACE SURVEILLANCE AND TRACKING SYSTEM EXPERIMENT

DoD SDI Report:

"The space-based Space Surveillance and Tracking System Experiment (which is not fully defined) is to demonstrate technology capable of upgrading the current space surveillance assets and will also permit a decision to be made on the applicability of more advanced technology for ABM purposes. This experiment will demonstrate the collection of tracking and signature data on a number of space objects. The capabilities of any demonstration satellites will be significantly less than those necessary to achieve ABM performance levels or substitute for an ABM component." (Page B-7)

Longstreth/Pike/Rhinelander Impact Report:

"The Space Surveillance and Tracking System (SSTS) will use cryogenically cooled infrared sensors to detect and track warheads and decoys during the mid-course of their flight. This system was pre-

viously under development as part of an upgrade to the ground-based Spacetrack satellite tracking network, and would have been used in support of the new air-launched antisatellite (ASAT) weapon. As with BSTS, initial versions of the SSTS will be tested in space in the early 1990s.

"In a layered defense, SSTS along with other sensors would provide target tracking and identification information which would be relayed for use by mid-course interceptors. If tested in an ABM mode, SSTS would be inconsistent with Article V(1) of the Treaty. Testing SSTS against satellite targets might give it an ABM capability, which is prohibited by Article VI(a)." (Page 42-3)

AIRBORNE OPTICAL SYSTEM/ADJUNCT

DoD SDI Report:

"The Airborne Optical Adjunct (AOA) Experiment will demonstrate the technical feasibility of using optical sensors on an airborne platform (late 1980s). The AOA experimental device (a passive sensor) will not be capable of substituting for an ABM component due to sensor and platform limitations. As part of the feasibility demonstration, the AOA experimental device is to observe ballistic missile tests at agreed ABM Test ranges." (Page B-7)

Longstreth/Pike/Rhinelander Impact Report:

"The Airborn Optical System (AOS), also known as the Airborne Optical Adjunct, has been under development for several years and the first flight of the AOS was scheduled for 1987, prior to the advent of the SDI. Upgrades to the performance requirements of the AOS appear to have delayed this test by one year. AOS has been redesigned to carry a laser range finder, as well as on-board battle-management computers.

AOS is an outgrowth of earlier work on range instrumentation aircraft, such as the C-135 Optical Aircraft Measurement Program (OAMP), and is intended soley for ABM-related applications. The advanced development and flight testing of AOS would be inconsistent with the provision in Article V(1) banning the development, testing or deployment of air-based ABM components. (Page 43)

TERMINAL IMAGING RADAR

DoD SDI Report:

"The Terminal Imaging Radar (TIR) will be an ABM radar "tested in the ABM mode" in full compliance with the terms of the ABM Treaty. It will be tested at a designated ABM test range from a fixed, land-based platform. TIR will be permanently installed in an existing radar building and will require this building for structural support. TIR will perform target pre-commit discrimination and handover to the interceptor missiles." (Page B-9)

Longstreth/Pike/Rhinelander Impact Report:

"The Terminal Imaging Radar (TIR) will be part of a ground-based terminal defense system to defend both cities and hardened military

targets. Like the Defense Unit radar of the earlier Low Altitude Defense System (LoADS), it would probably be deployed in a mobile mode to enhance its survivability. The advanced development or testing of the Terminal Imaging Radar in other than a fixed, ground-based mode would be inconsistent with Article (V)1, which bans the development, testing or deployment of mobile, ground-based ABM components." (Page 43)

HIGH ENDOATMOSPHERIC DEFENSE INTERCEPTOR

DoD SDI Report:

"The High Endoatmospheric Defense Interceptor (HEDI) project is to demonstrate the capability to intercept and negate strategic ballistic missile warheads within the atmosphere. This is an allowed test of a nonnuclear interceptor missile. Flight tests will be performed at agreed test ranges. All flight tests will be from fixed ground-based launchers without the capability of being reloaded or launching more than one interceptor missile. The interceptor missiles will not be capable of delivering more than one independently targetable warhead. All activity will be conducted in a manner permitted by the ABM Treaty." (Page B-8)

Longstreth/Pike/Rhinelander Impact Report:

"The High Endoatmospheric Defense Interceptor (HEDI) will use a heat-seeking hit-to-kill warhead to intercept targets as soon as they enter the atmosphere. HEDI will be used both as the terminal layer of a defense against ICBMs, and as a defense against short-range ballistic missiles. In this latter role, HEDI will be applicable to the anti-tactical ballistic missile defense of Europe against Soviet theater nuclear forces.

"Since HEDI will probably have both a tactical and strategic ABM capability, the transfer fo HEDI to Europe may be inconsistent with the undertaking by the U.S. in Article IX of the ABM Treaty "not to transfer to other states, and not to deploy outside its national territory, ABM systems or their components limited by this treaty." (Page 47)

EXOATMOSPHERIC REENTRY VEHICLE INTERCEPTOR SYSTEM

DoD SDI Report:

"The Exoatmospheric Reentry Vehicle (RV) Interceptor Subsystem (ERIS) is intended to engage incoming RV's above the atmosphere. This is an allowed test of a nonnuclear interceptor missile. All interceptor missile flight tests are to be conducted from fixed ground-based launchers at agreed test ranges. The planned flight tests include missile integrity launches and various homing and intercept flights with and without targets. Fixed groundbased launchers will be incapable of launching more than one interceptor missile and will not be rapidly reloadable. The ERIS interceptor will not be capable of delivering more than one independently targetable warhead." (Page B-8,9)

Longstreth/Pike/Rhinelander Impact Report:

"The Exoatmospheric Reentry Vehicle Interception System is an

advanced follow-on to the Homing Overlay Experiment (HOE). ERIS is presently in an early definitional phase, with tests slated to begin in the late 1980s. ERIS will use a much smaller interceptor kill vehicle than HOE, which would permit the use of multiple warheads on ERIS. When interceptors of this type were first evaluated in the late 1960s under the Homing Intercept Technology program, the use of multipe warheads on a single interceptor was found to enhance the performance of the defense under some circumstances. Thus, there may be some incentives to incorporate multiple warheads on ERIS.

"Use of multiple warheads could improve the utility of a mid-course ABM interceptor like ERIS. The coordination of the release of multiple warheads is a challenging task and, at some point in the testing of this procedure, it would have to be either tested or simulated. Any such testing of ERIS would be inconsistent with the undertaking in Agreed Statement E of the ABM Treaty "not to develop, test, or deploy ABM interceptor missiles for the delivery... of more than one independently-guided warhead." However, the Administration has indicated that there are presently no plans to develop a multiple warhead capability for ERIS. (Page 45-7)

INTEGRATED DEMONSTRATION

DoD SDI Report:

"The integrated demonstration will validate the integrated capability of the Terminal Imaging Radar, High Endoatmospheric Nonnuclear Interceptor, and associated Command, Control, and Communications systems to perform terminal defense engagements. In this demonstration, strategic ballistic missiles will be intercepted in flight. This is permitted under the Treaty provided that the "ABM components" are fixed, land-based and provided that multiple launch, rapidly reloadable and independently guided warhead restrictions are met. Flight tests of ABM interceptor missiles are to be conducted at agreed test ranges from fixed, ground-based launchers." (Page B-9)

Comment:

What the SDI report fails to note is that the Airborne Optical System (AOS) will also be a part of the integrated demonstration. Our report has concluded that AOS is an ABM component, therefore, given its inclusion, the integrated demonstration would be inconsistent with Article V(1) of the Treaty.

LONG WAVELENGTH INFRARED SENSORS

DoD SDI Report:

"The Long Wavelength Infrared (LWIR) Probe is planned to use a groundlaunched, LWIR sensor in a feasibility demonstration experiment. All tests will be conducted from a fixed, land-based launcher at an agreed test range. If LWIR Probe (after it is better defined) is considered an ABM component, it must be fixed, land-based and be tested only at agreed test ranges." (Page B-9)

Longstreth/Pike/Rhinelander Impact Report:

"This test will conducted using a new rocket test range is under

construction at Shemya Island, Alaska. It is part of an effort to develop long wavelength infrared sensors for mid-course and terminal phase interceptors. Rockets will be used to launch test vehicles from the Aleution Island site into outer space to observe Soviet ballistic missile tests. Tests will include at least two flights under the new Queen Match program, previously known as the Designated Optical Tracker (DOT), which incorporates a long wavelength infrared sensor similar to that used in the Homing Overlay Experiment. DOT has already been tested on several occasions at the Kwajalein Missile Range. In addition, the Optical Aircraft Measurement Program (OAMP) C-135, which is a predecessor of the Airborne Optical System, will be based at Shemya. These projects will obtain data on Soviet systems for use in designing U.S. missile defenses, as well as provide an opportunity to test sensor prototypes against realistic targets. Tests of DOT and OAMP are scheduled over the next several years.

" If the Shemya range is used to test ABM systems or components, it would become subject to the limits of Article IV, Common Understanding B, and the 1978 Agreed Statement. Article IV allows each party to maintain ABM components for development and testing purposes at "current or additionally agreed test ranges." Common Understanding B points out that the only current U.S. ABM test ranges are at Kwajalein and White Sands, New Mexico, and that ABM components cannot be located or tested at any other test ranges without prior agreement between the two governments. The 1978 Agreed Statement sets forth procedures of notifying the other party when a new test range is established." (Page 43-4)

SPACE-BASED KINETIC KILL VEHICLE

DoD SDI Report:

"The purpose of the space based Kinetic Kill Vehicle project (which is not fully defined) is to prove the feasibility of rocket propelled projectile launch and guidance. This experiment will, if successful, demonstrate a capability to defend against anti-satellite interceptors and will also permit a decision to be made on the applicability of more advanced technology for ABM purposes. The demonstration hardware will not be an ABM component, will not be "capable of substituting for an ABM component" and will not be "tested in an ABM mode." To ensure compliance with the ABM Treaty the performance of the demonstration hardware will be limited to the satellite defense mission. Intercepts of certain orbital targets simulating anti-satellite weapons can clearly be compatible with this criteria. Intercepts of strategic ballistic missiles or their elements in flight would clearly not be permitted." (Page B-8)

Longstreth/Pike/Rhinelander Impact Report:

"The Space-Based Kinetic Kill Vehicle project is a space-based rocket interceptor system of the type proposed by the High Frontier organization for boost phase and mid-course defense. A large number of satellites would be deployed in low earth orbits, with each satellite carrying a number of interceptor rockets similar to the American miniature homing vehicle anti-satellite system that is presently under development. Testing against orbiting satellite targets simulating missile components is scheduled for the early 1990s. Such

testing would demonstrate an ABM capability and would therefore appear to be inconsistent with Article VI(1).

"The advanced development or testing in space of this system would be also be inconsistent with Article V(1)." (Page 48)

RAILGUN EXPERIMENT/HYPERVELOCITY LAUNCHER

DoD SDI Report:

"The space-based Railgun Experiment (which is not fully defined) will demonstrate space-based operation of a railgun device. In addition to showing that devices of this type can operate in space, these experiments will demonstrate guidance and control of projectiles. This experiment will if successful, demonstrate a capability to defend against anti-satellite interceptors and will also permit a decision to be made on the applicability of more advanced technology for ABM purposes. Specific performance parameters for the experiments will be established to satisfy Treaty compliant guidelines." (Page B-8)

Longstreth/Pike/Rhinelander Impact Report:

"The Hypervelocity Launcher will use an electromagnetic accelerator, analogous in concept to a particle beam accelerator, to propel projectiles to very high velocities that may be significantly greater than those achieved by conventional rocket interceptors. These projectiles will be comparable in design to the hit-to-kill warheads used by rocket interceptors. These projectiles will be comparable in design to the hit-to-kill warheads used by rocket interceptors. The Hypervelocity Launcher offers the prospect of very high rates of fire and is, in a sense, an "anti-missile gatling gun."

"This concept is applicable to space-based boost-phase and mid-course defense, as well as to ground-based terminal defense. Initial demonstratrions will focus on ground-based systems, with space-based demonstrations against satellite targets simulating strategic missile components possible in the early 1990s.

"Although the advanced development or field testing of the Hypervelocity Launcher in other than a fixed, ground-based mode would appear to be inconsistent with Article V(1), testing of a space-based version is scheduled for the early 1990s. Testing against orbiting satellite targets would be inconsitent with the Treaty if it demonstrated ABM capabilities. Furthermore, the rapid rate of fire possible with this system(on the order of one shot per second) would appear to be inconsistent with undertaking in Article V(2) "not to develop, test, or deploy automatic or semi-automatic or other similar systems for rapid reload of ABM launchers." (Page 47-8)

TALON GOLD/ACQUISITION, TRACKING AND POINTING (ATP)

DoD SDI Report:

"The newly constituted Acquisition, Tracking and Pointing (ATP) demonstration program replacing Talon Gold will concentrate on a series of ground-based, laboratory-level experiments in the near term. In these experiments, brassboard hardware built under the Talon Gold project will demonstrate, with increasing degrees of difficulty,

technologies required for ATP of weapons and sensors for space- and ground-based applications. In the future, the measurement of booster plumes from space is a distinct possibility. The previously designed pointer may be built for use as a stable platform for such experiments with passive sensors in the Shuttle bay. If conducted these experiments will use technologies which are only part of the set of technologies ultimately required for an ABM component. These devices will also not be capable of achieving ABM performance levels. Follow-on experiments may make use of the shuttle to explore pointing and tracking technology. When they are defined, they will be reviewed to ensure they are in compliance." (Page B-6,7)

Longstreth/Pike/Rhinelander Impact Report:

"The large Talon Gold telescope would be attached to the space-based laser and used to insure that the laser was properly aimed at the target. The testing schedule for Talon Gold intially called for two in-space demonstrations of the system aboard the Space Shuttle in mid-1987 and mid-1988. With the initiation of the SDI these tests were delayed until 1988-89 to permit the inclusion of a second telescope to provide additional surveillance and target acquisition capabilities.

"As a result of Congressional budget cuts in 1984 and decisions by the SDI organization, the Talon Gold program has been further restructured. The initial tests of the Talon Gold hardware will be conducted on the ground. A new and more capable system will be developed, probably under a new program name, with the first flight test in space now apparently scheduled for 1989 or later. A full-scale integrated on-orbit demonstration of the entire triad is possible in the early 1990's.

"The advanced development or testing in space of Talon Gold or its follow-on would be inconsistent with the provision in Article V(1) banning the development, testing or deployment of space-based ABM components.

"Some Reagan Administration officials have argued that Talon Gold is only a generic experiment investigating certain pointing and tracking technologies applicable to many roles and will not be capable of substituting for an ABM component. Although the technology being demonstrated in Talon Gold is not applicable solely to missile defense, that is the main purpose for which it is intended, as evidenced by Talon Gold's inclusion in the SDI. While this argument might have had some merit when applied to the initial single-telescope Talon Gold configuration, the inclusion of the second telescope for target acquisition clearly increased the ABM capabilities of this component. It is clear, finally, that the follow-on to Talon Gold that will be demonstrated in space in the early 1990's will be ABM capable, and thus inconsistent with the Treaty." (Page 49)

In addition to our differences with the SDI Report concerning compliance with the ABM Treaty, we are also concerned with the apparent unwillingness, or inability, of the Administration to adequately address many of the other policy issues that were raised in the Congressional reporting requirements. In the following section, we review some of these requirements, and comment the Administration's responses to them.

REPORTING REQUIREMENT - "... the impact of possible deployment of Soviet missile defense on ... American policies and capabilities relative to our extended deterrence posture."

COMMENT - While this is one of the most significant and immediate issues raised by the SDI debate, the SDI Report is not responsive to this reporting requirement. In practice, flexible response proceeds on two levels: and use of advanced conventional weapons such as are envisioned in the Rogers Plan; and US extended deterrence guarantees to NATO through limited use of nuclear weapons. The SDI Report is altogether silent on the second point, and overlooks the first. One does not necessarily have to agree with the premises or details of either of these aspects of current US strategy to recognize that the SDI, and potential Soviet BMD deployments, would have significant implications for extended deterrence and flexible response that the Administration did not take this opportunity to address.

The Administration's report is refreshingly candid concerning the aspirations of the Strategic Defense Initiative. Although the SDI Report asserts that the goal of the SDI

> "has not changed but has, in fact, remained consistent with the direction outlined by the President," [page 7],

the SDI Report subsequently notes that:

> "the US goal has never been to eventually give up the policy of deterrence. With defenses, the US seeks not to replace deterrence, but to enhance it." [page 9]

Just what this would consist of is spelled out later in the SDI Report:

> "Defenses against ballistic missiles can have a highly beneficial effect on deterrence and stability in three quite specific ways. First...an effective defense can undermine a potential aggressor's confidence in his ability to predict the likely outcome of an attack on an opponent's military forces. ...Second...such defenses also can eliminate the potential threat of first-strike attacks. Third, by reducing

> or eliminating the utility of Soviet shorter-range ballistic missiles which threaten Europe, defenses can have a significant and specified impact on deterring Soviet aggression in Europe. ...Finally, in conjunction with air defenses, effective defenses against ballistic missiles could help reduce or eliminate the apparent military value of nuclear attack to an aggressor." [pages C-20 & C-21]

Although the technical challenges of erecting an "effective defense" are not trivial, these modest strategic goals for the SDI certainly fall far short of public expectations that the SDI will provide a permanent and perfect shield from the nuclear threat. The SDI now seems to be little more than an effort to perfect 'weapons to defend weapons' rather than 'weapons to defend people.' The question remains, however, whether the cure of defense will be preferable to the malady of vulnerability.

Although it is unlikely that any US anti-missile system could ever succeed in protecting the American population from Soviet attack, it is not difficult to imagine that the Soviets could deploy an anti-missile defense that would significantly degrade American extended deterrence and flexible response capabilities.

It would not be difficult for the Soviets to deploy a thin nationwide defense that would, at a minimum, force the United States to take actions to negate the defense (such as increasing the size of the attack to saturate the defense or using chaff and decoys to mask the attack). This would, moreover, reduce or entirely negate the strategic utility of Limited Nuclear Options (LNO's) or Selective Attack Options (SAO's). American and NATO nuclear flexible response strategy depends on the limited and selective application of force, yet the countermeasures required to overwhelm even a thin Soviet ABM system would result in an attack that was either too large to be regarded as limited, or too completely masked by chaff and decoys to be interpreted as selective.

As far as strikes using ballistic missiles armed with conventional warheads are concerned, the SDI Report argues that Western anti-missile systems could be effective in negating Soviet attacks. This fails to address the question that the Congress raised, of the impact of Soviet anti-missile systems on Western conventionally armed ballistic missiles. These systems are among the Emerging Technologies (ET) that are a key component of the current Rogers Plan for conventional deep strikes against Soviet forces, which would hopefully avoid escalation to nuclear exchanges. Many in the West have concluded that the success of such conventional strikes depend heavily on the use of advanced sensors and computers, technologies in which the West enjoys

a significant lead over the Soviets. This suggests that in the absence of countermeasures such as anti-missile systems, the West might continue to maintain an advantage over the Soviets in the resort to conventional ballistic missiles. At a minimum, the SDI Report should have addressed the relationship between ET and Star Wars.

REPORTING REQUIREMENT - "... the impact of possible deployment of Soviet missile defense on the viability of the independent nuclear forces of our Allies ..."

COMMENT - The SDI Report simply notes that "Soviet doctrine and ballistic missile defense activities will have a continuing impact on French and United Kingdom nuclear forces..." [page A-8] The military and strategic implications of this impact are left unstated. There is little reason to doubt, however, that even a thin nationwide Soviet anti-missile system could greatly reduce or eliminate the strategic significance of the French and British nuclear forces, although such a defense might be largely ineffective against the much larger and more sophisticated American strategic forces. This has long been recognized as an asymmetry of interests within the Alliance, but it goes unmentioned in the SDI Report.

The principal focus of this section of the SDI Report is the assertion that there is:

> "convincing evidence that the Soviets are positioning themselves to deploy wide-spread ballistic missile defenses, should they deem such defenses to be in their interest. This inclination exists independent of US ballistic missile defense activities and is largely unaffected by them." [page A-8]

This assertion of the majestic autonomy of the Soviet BMD effort is difficult to square with the next paragraph of the SDI Report, which asserts that:

> "the presence of an active US SDI program may reduce substantially any inclination [on the part of the Soviets] to break-out (or creep-out) of the ABM Treaty." [page A-8]

Certainly the SDI Report's analysis of the impact of the Soviet BMD program on the SDI suggests that, to the contrary, the SDI might provide further incentive to the Soviets to abrogate the Treaty.

REPORTING REQUIREMENT - "the relationship of other missile and space defense programs, and directed energy programs, that have not been included in the SDI, with the SDI program."

COMMENT - The SDI Report is not responsive to the Congressional requirement. Instead of providing an independent assessment of this issue, the Report simply reprints a short excerpt from a 1984 CBO study which addressed this issue, among others.

The Report does acknowledge the significance of this issue when it observes that:

> "ASAT research and development funds could be regarded as part of a comprehensive defense program to negate surveillance satellites. ASAT technology could be used in the development of a ballistic missile defense system... Other activities, such as Missile Surveillance Technology supports the Advanced Warning System, which could be part of a strategic defense system" [pages C-23 & C-24].

However, the SDI Report asserts that "it is unlikely that a strategic defensive system will utilize surface-based particle beam weapons" in explaining why the DARPA Particle Beam Technology Program (PE 62707E) was not included in the SDI. However, this seems to be inconsistent with current DARPA budget documents, which note that this technology is applicable to defense of hardened sites such as ICBM silos, one of the missions of the SDI.

The Report further notes that other programs "seem to be related to SDI technology efforts, but need to be checked out in Descriptive Summaries" [page C-24]. Of course, this is precisely the sort of check that the Report was required, but failed, to make.

REPORTING REQUIREMENT - "...the projected long term costs of strategic defenses, including research, testing, procurement and operations and maintenance costs on a year-by-year basis of the various systems and technologies currently in service and under study."

COMMENT - The SDI Report is not responsive to the Congressional requirement. The Report states that:

> "Until SDIO has a more complete picture of what an effective system might look like... it will not be possible to determine the full range of long-term costs that might be associated with a future strategic defense" [page C-24].

At a minimum, the SDI Report should have provided annual budget figures at the Program Element level on current strategic defense programs, and also at the Project and Task level for the SDI, through FY1990, the end of the current Five-Year Defense Program. In the absence of such numbers, which have been publicly released in the past for other programs, it is very difficult, if not impossible, to assess the long term implications of the FY1986 budget request for the SDI.

Cost is one of the most important factors at issue in the current SDI debate. These costs are important both from the standpoint of overall budget priorities, as well as from the relationship between the costs developing and deploying and anti-missile system as compared with the costs of the effort needed to overcome the defense. The SDI has incorporated efforts previously conducted in over thirty separate programs. Perhaps as many additional programs include efforts that are related to the SDI. Various unofficial estimates have suggested that these related efforts could add significantly to the overall cost of the SDI, as well as affect calculations of the relative costs of offense and defense. A definitive and well-informed official appraisal of this issue would mark a useful contribution to this debate, but it is absent from the Administration's report, despite the request of the Congress.

In addition to these immediate concerns, it is important to recognize the potential impact of the enormous expansion of the SDI budget on the ABM Treaty. The relationship between arms control and the budget was highlighted in the FY 1980 Arms Control Impact Statement, which noted that:

> "Any sudden and/or large increase in the scope of the [BMD] program which could be perceived by the Soviets as indicating a US move toward development and eventual deployment of a nationwide system could have adverse effects on arms control. Sudden and/or large growth of the Soviet program could have a similar effect here" [page 78].

REPORTING REQUIREMENT - "... the managerial and budgetary relationship among the various American strategic defense activities, including the impact of the Strategic Defense Initiative on the Air Defense Master Plan..."

COMMENT - The SDI Report is not responsive to the Congressional requirement. The Report should have made explicit the Administration's assumptions concerning the strategic and military interrelationship between the SDI and other strategic defense efforts, such as air defense, civil defense and strategic anti-submarine warfare (ASW), including those that were part of the President's

Strategic Modernization Program of October 1981. In the absence of a coordinated effort in all of these areas, the SDI will be like putting a roof on a house that lacks walls and doors.

In the past, this relationship was recognized to be of crucial importance. In the early 1960's, strenuous American continental air defense efforts were relaxed in the face of the ballistic missile threat, against which there seemed no prospect for an effective defense. In the mid-1960's, the level of effort in the area of BMD was explicitly linked to civil defense measures, which were regarded as providing a more cost-effective protection of the population.

Despite the Administration's plans for a massive outpouring of funds for the SDI, the rest of it's strategic defense effort is in disarray. After years of attempting to sell an elaborate civil defense program to the public and the Congress, the Administration this year has requested a no-growth budget for the Federal Emergency Management Agency. Moreover, the Administrations Air Defense Master Plan, which anticipated a significantly increased air defense effort, has not been fully supported in Administration budget requests. For example, the Administration has yet to come forth with a request to purchase the 12 additional E-3A AWACS radar warning aircraft that were originally projected under the Air Defense Master Plan.

These and other instances of inconsistent priorities in strategic defense programs suggest that the Administration does not have a well thought out and coherent strategy for moving toward further reliance on strategic defense. The brevity and generality of the SDI Report only serves to reconfirm this impression.

REPORTING REQUIREMENT - "... the managerial and budgetary relationship among the various American strategic defense activities, including ... the impact of the Strategic Defense Architecture Study on present and prospective strategic anti-submarine warfare programs."

COMMENT - The SDI Report is not responsive to the Congressional requirement. For the most part the Report discusses tactical anti-submarine warfare (ASW), in the context of protection of sea lines of communication, rather than the strategic ASW mission, namely countering Soviet strategic ballistic missile submarines. In its brief discussion of defending against sea-launched cruise missiles, the Report simply notes that:

> "The US is exploring measures which could become meaningful should it develop an effective defense against ballistic

missiles, including additional warning and defensive measures" (page C-22).

At a minimum, the SDI Report should have addressed the trade-off between maintaining the ability to destroy strategic missile launching submarines before the are able to launch their missiles (pre-boost phase interception), as opposed to attempting to destroy these missiles in the boost phase. The sensor and battlemanagement requirements identified by the Defensive Technologies Study Team for SLBM boost-phase engagement are similar to those for pre-boost phase engagement. The FY85 budget for the SDI included a project under the Kinetic Energy Weapons Program for SLBM Boost-phase engagement, but that project has been dropped from the FY86 request. This suggests that the US now intends to concentrate on using strategic ASW capabilities to destroy missile submarines before they can launch their missiles, rather than intercepting the missiles after they are launched.

In particular, the relationship between the Navy's new SSN-21 attack submarine and the strategic ASW mission was not examined in the SDI Report. The Chief of Naval Operations has referred to the SSN-21 as the Navy's version of Star Wars. One of the primary advantages cited for this new class of submarines is their ability to operate under the Arctic ice cap. The Soviets have sought to enhance the survivability of their retaliatory forces with their new Typhoon-class ballistic missile submarines, which will seek refuge under the Arctic ice cap. Will the SSN-21 be used to destroy the Typhoons before they can launch their missiles?

Such a strategy could have a number of undesirable consequences. It could provoke the Soviets into preemptive launch of their submarine based missiles, in the same way that the vulnerability of fixed ICBMs increases crisis instability. This could also provoke the Soviets into moving the Typhoons out of their bastions, which would no longer provide a safe haven. The Typhoons would then be free to move close to American shores, where they could launch attacks with little warning, barraging US bombers and other mobile systems. And the rest of the Soviet surface and submarine fleet, relieved on the need to provide cover to the ballistic missile submarines, would be free to roam the North Atlantic, and place our sea lines of communication at risk.

One searches in vain in the SDI Report for a discussion of these issues, or even an acknowledgement that these issues are recognized as such.

REPORTING REQUIREMENT - "The Department shall submit to the Congress by March 15, 1985 ... a report."

COMMENT - The unclassified version of the SDI Report was finally made available on April 18, 1985, over a month late. The eventual release of the Report came only after repeated Congressional inquiries. The tardiness of DoD in submitting this report necesitated the rescheduling of this hearing. Even after the hearing was rescheduled, due to the concern and consideration of the Chairman, only a few days were available to analyze the contents of the report. The lateness of this report has significantly reduced the potential impact of this document.

We can only hope that the requirements that led to this years report are made a part of the permanent law, and that next year's report is more responsive.

Chairman FASCELL. Mr. Pike.

STATEMENT OF JOHN E. PIKE, ASSOCIATE DIRECTOR FOR SPACE POLICY, FEDERATION OF AMERICAN SCIENTISTS

Mr. PIKE. Chairman Fascell, members of the subcommittee, I would like to thank you for the opportunity to testify today on this very critical national security issue. In addition to our differences with the administration's SDI report on compliance with the ABM Treaty, we are also concerned with the apparent unwillingness or inability of the administration to adequately address many of the other policy issues that were raised in the congressional reporting requirements.

In particular, the impact of possible deployment of Soviet missile defenses on American policies and capabilities relative to our extended deterrence posture is one of the most significant and immediate issues raised by the SDI debate, but the SDI report fails to adequately address this matter. In practice, a flexible response would proceed on two levels: the use of advanced conventional munitions such as envisioned in the Rogers plan, and U.S. extended deterrence guarantees to NATO through the limited use of nuclear weapons. The administration was requested to comment on these issues but, fundamentally, failed to do so.

TECHNICAL CHALLENGES AND STRATEGIC GOALS OF SDI

One does not necessarily have to agree with the premises or details of either of these aspects of current U.S. strategy to recognize that the SDI and potential Soviet BMD deployments could have significant and negative implications for extended deterrence and flexible response. Although the technical challenges of erecting an effective defense are not trivial, the increasingly modest strategic goals for the SDI certainly fall far short of public expectations that the SDI will provide a permanent and perfect shield from the nuclear threat. The SDI now seems to be little more than an effort to perfect weapons to defend weapons, rather than weapons to defend people. The question, of course, remains whether the cure of defense would be preferable to the malady of vulnerability or if other cures might not be preferable?

It is unlikely that any U.S. antimissile system could ever succeed in protecting the American population from a Soviet attack. It is not difficult, however, to imagine that the Soviets could deploy a thin antimissile defense that would significantly degrade, if not negate, American extended deterrence in flexible response capabilities. In addition, a number of budgetary concerns raised in the reporting requirements include the relationship of other missile and space defense programs and directed energy programs that have not been included in the SDI with the SDI program itself. However, instead of providing an independent assessment of this issue, the administration's SDI report simply reprints a short excerpt from a 1984 CBO study which addressed this issue among others.

LONG-TERM COSTS OF SDI

The administration's report also fails to address the projected long-term year-by-year costs of the various strategic defense sys-

tems and technologies currently in service and under study as required by last year's legislation. At a minimum, the SDI report should have provided annual budget figures at the program element level on current strategic defense programs and also at the project and task level for the SDI—all of these through at least fiscal year 1990, the end of the current 5-year defense program.

In the absence of such numbers, it is very difficult, if not impossible, to assess the long-term implications of the fiscal year 1986 budget request for the SDI. I would like to compliment the committee on its efforts to help clarify this issue, and clearly the information that has been made available today makes a major contribution in this area.

The administration's report also fails to adequately address the managerial and budgetary relationships among the various American strategic defense activities. The report should have made explicit that the administration's assumptions concerning the strategic and military interrelationship between the SDI and other strategic defense efforts, such as air defense, civil defense, internal defense, and strategic submarine warfare, such as those that were part of the President's Strategic Modernization Program of October 1981.

Despite the administration's plans for a massive outpouring of funds for the SDI, the rest of its strategic defense effort is today in disarray. In the absence of a coordinated effort in all these areas, the SDI will be like putting a roof on a house that lacks walls and doors.

Thank you.

Chairman FASCELL. Thank you very much, Mr. Pike.

We will take a short recess to make this rollcall. Then we will come right back and hear from Mr. Payne.

[Recess.]

Chairman FASCELL. The committee will resume its sitting.

Mr. Payne, you have been very patient, and I am sorry we had that interruption with the rollcall. But I think we are reasonably safe for a small time here, so we would be delighted to hear from you.

STATEMENT OF KEITH B. PAYNE, EXECUTIVE VICE PRESIDENT, NATIONAL INSTITUTE FOR PUBLIC POLICY

Mr. PAYNE. Thank you. It is a pleasure to be here.

I am going to summarize, if I might, my full statement, and ask that it be submitted for the record.

Chairman FASCELL. Without objection, your full statement, which is rather extensive, will be put in the record; and we would be delighted to have you summarize it.

Mr. PAYNE. What I would like to do in the next few minutes is to touch upon five issues that are pertinent to the SDI. Basically, is the SDI in the U.S. interest? What is the relationship between stability and the SDI? What is the relationship between arms control and the SDI, and arms control progress in particular? The ABM Treaty, is it in the U.S. interest? And fifth, what are the technical issues associated with the SDI?

IS SDI IN U.S. INTEREST

The first issue, is the SDI in the U.S. interest? I believe that it clearly is. There is a two-part rationale for the SDI: One, to ensure that the Soviet Union does not achieve any research and development breakthroughs of which we are ignorant; and two, to provide the research and development basis for a future President and future Congress to make an informed decision concerning whether BMD should be deployed or whether it should not be deployed.

The question is simple: Should the United States be ignorant of the potential research and development breakthroughs that the Soviet Union might achieve? Should the United States be ignorant of what might be the potential future of ballistic missile defense? The answer to those questions clearly is no, and that is why the strategic defense initiative is in the interest of the United States.

The controversy, as you mentioned, does not seem to be over whether research and development should be pursued or not. It seems to be over the scope of that research. Generally, the critics of the SDI have suggested that——

Chairman FASCELL. No, I think it goes beyond that. It is a question of ultimate deployment.

Mr. PAYNE. And ultimate deployment as well.

Critics of SDI generally have suggested that research is, indeed, rational and desirable, but that that research be "prudent." I agree with that. I think we would all agree to have prudent research as opposed to imprudent research.

RELATIONSHIP BETWEEN SDI AND STABILITY

The second issue I would like to look at very briefly is the relationship between SDI and stability. The SDI, if indeed it leads to a decision to deploy strategic defense, and that is a rather major "if," but if it does, deployed strategic defenses clearly can be stabilizing. They can enhance stability for at least two reasons.

First, a limited defensive capability, if that is what the SDI ultimately leads to, could enhance stability by defending U.S. retaliatory forces and C^3. And defending U.S. retaliatory forces and C^3—command control and communications—should be the best way of minimizing any Soviet incentives for striking first in the event of a crisis. In that way, strategic defense, if it is deployed, should enhance stability.

If strategic defense leads to a more comprehensive capability—what the President has talked about in his vision of the SDI, a system very capable of defending the American people—that also can be stabilizing. It should not be assumed, as it is often, that defense and deterrence are inconsistent. I do not believe that they are. Defense can, indeed, be stabilizing and be a means of deterrence. For example, there is a problem with the current approach to deterrence; it does not provide a credible deterrent threat for a major focus of the U.S. deterrent responsibility; that is, deterring attack on NATO allies. It lacks credibility because the American President would know that if he engaged and abided by U.S. commitments he could be starting a process that might lead to millions of American casualties and millions of American fatalities. We have to understand that in the current condition of mutual vulner-

ability, it is very difficult for the United States to provide a credible extended deterrent to NATO Europe.

One of the potential ways of solving that problem, if the technology proves feasible, is to limit the United States vulnerability to Soviet retaliation—thereby making more equivalent United States interests and United States commitments. In that case, if defense technology proves feasible to provide a very effective defense of the United States and the American people, it can indeed enhance deterrence and should not necessarily be assumed to be inconsistent with deterrence stability.

It is not just stability that is important. There is a deeper issue and probably a more important issue; it is that deterrence may fail, or deterrence may not apply. I heard it suggested several times this morning that we know that deterrence has worked because there has not been a conflict. That certainly is not the case. We do not know whether deterrence has ever worked in the past. We do not know whether deterrence is ever going to work in the future. We simply do not know because it is very difficult to prove through any scientific method what has led to the absence of conflict. It may have been deterrence. It may have been conventional forces. It may have been strategic forces and the threat that they pose. It may simply have been that neither side was highly interested in engaging in conflict at that time.

We do not know what causes the absence of war. Consequently we certainly do not know that deterrence has worked. The point is that we can not be confident that deterrence is going to work in the future. If that is the case, and indeed it is the case, defense is perhaps the only way of providing any type of safeguard or safety net in the instance of a failure of deterrence.

SDI'S CONTRIBUTION TO PROGRESS IN ARMS CONTROL

Third issue—will the SDI contribute to arms control and progress in arms control? It already has. We have seen that the Soviet Union came back from its November 1983 walkout of arms control negotiations for the expressed purpose of halting, stopping or otherwise degrading the U.S. SDI.

It often is alleged or that if the United States goes forth with the SDI it is going to lead to a continuation of the arms competition and an escalation of the arms competition. Some have claimed the ballistic missile defense will certainly lead to an increase in the arms race and, therefore, the SDI ought to be opposed on that basis.

History can be a guide on occasion, and I think it can be on this occasion. That same claim was made between 1969 and 1972 in the last great ABM debate, when we debated the Safeguard BMD system. That is, that this ballistic missile defense deployment would certainly lead to an arms race, and the capping of ballistic missile defense would certainly lead to a capping of the offensive arms race. That it became accepted wisdom at the time of the of the SALT negotiations and the signing of the SALT I agreement. That the ABM Treaty would facilitate and lead to a freeze in offensive forces.

What we have seen since 1972 is that this theory has been proven largely to be wrong. The Soviet Union pursued a massive increase in its offensive counterforce capabilities even in the context of the ABM Treaty and a cap on ballistic missile defense systems. The Soviet Union is indeed hard to understand. It is difficult to understand, but it is clear that ballistic missile defense is not the cause of Soviet arms racing. We have learned at least that much. Ballistic missile defense is not the cause of Soviet arms racing. SDI critics who still tie Soviet offensive arms racing to the presence or absence of a U.S. ballistic missile defense have learned little over the last 13 years about the dynamics of the arms competition.

The SDI, if it leads to deployment of defenses, could support arms control goals directly. This is a very important point. The deployment of strategic defenses could support arms control objectives directly. The classic goals of arms control have been to reduce the probability of war, and to reduce the destructiveness of war should it occur. In the last 13 years, arms control has not led us to those objectives by any stretch of the imagination.

Strategic defense may be able to help achieve both arms control objectives if the technology proves to be feasible. It could reduce the probability of war by being stabilizing in the ways that I have just discussed, and it certainly could, again if the technology proves feasible, reduce the destructiveness of war should it occur.

IS ABM TREATY IN THE U.S. INTEREST

Fourth issue—is the ABM Treaty in the U.S. interest? I would like to offer the general observation that there are larger issues than debating definitions of the ABM Treaty and interpretations of the ABM Treaty. We ought not to be coy. The ABM Treaty is a monument to a policy of mutual assured destruction, and saving the ABM Treaty is an attempt, more or less, to perpetuate a policy and a condition of mutual assured destruction. The question really is not whether the ABM Treaty is in the U.S. interest; it is, is the ABM Treaty in the U.S. interest as it facilitates, and is a monument to, a policy of mutual assured destruction?

The answer to that question can be yes only if there is no other alternative to mutual assured destruction. The expressed purpose of the SDI is to investigate that and see if there are alternatives.

Let me make a specific comment on the ABM Treaty. The United States certainly ought not to violate international law through treaty violations, and I do not believe the administration plans to do so. The ABM Treaty has largely failed, nevertheless, to obtain the objectives that the United States sought in SALT I.

We have to recall what the U.S. objectives were. The ABM Treaty was seen as a means of facilitating offensive limitations that would reduce the counterforce threat to U.S. retaliatory forces. It appeared obvious at the time that if we did not deploy ballistic missile defense the Soviet Union would not deploy the offensive forces necessary to penetrate our defenses. One of the primary objectives of the United States in the ABM Treaty was to provide the condition that would facilitate offensive force limitations, effective force limitations on Soviet counterforce weapons.

The United States established two conditions for judging the critical success of the ABM Treaty: (1) would that treaty be followed within five years by more comprehensive agreements? And (2) would those comprehensive agreements cap and reduce on a long-term basis the threat to retaliatory forces. Unilateral statement A, expressed by Ambassador Gerard Smith and attached to the ABM Treaty, suggests just those conditions for a continued uncritical endorsement of the ABM Treaty.

Let me suggest that neither of those conditions has been met. Not only did we not get a more comprehensive agreement within 5 years, the agreement that was finally signed; that is, SALT II, did not cap or reduce on a long-term basis the Soviet counter force threat to U.S. retaliatory forces. In fact, what SALT II did was legitimize the very large Soviet buildup of counter force capabilities between 1972 and 1979.

There are at least four alternatives for dealing with the ABM Treaty at this point. One would be to continue with "business as usual." Two would be for the United States to withdraw from or seek to void the ABM Treaty. Three would be to pursue selective noncompliance in accordance with international law, as a response to Soviet violations. And fourth would be to strengthen the ABM Treaty by trying to provide clear definitions of interpretations and terms.

Of those alternatives the first alternative, to continue with business as usual, is the worst option. It is the worst option. That would encourage future Soviet noncompliance and it would reduce the prospects for any future useful arms control negotiations.

Let me suggest if an effort is made to use the ABM Treaty to stop SDI testing. Then the ABM Treaty should be revised and the language clarified so that those particular tests really are prohibited. I think it is a poor choice to try and hamstring the United States unilaterally by stretching the ABM Treaty to restrict actions that really are not prohibited by the current understanding of the treaty.

Mr. BERMAN. Would you say that again?

Mr. PAYNE. Sure. I think it would be a major mistake to try and hamstring the United States, which would, in fact, be done unilaterally, by stretching the ABM Treaty to prohibit actions vis-a-vis the SDI that are not prohibited by the current understanding of the ABM Treaty.

TECHNICAL FEASIBILITY OF SDI

Let me summarize and come to my final point. The fifth issue is technical feasibility, and here is where a number of major issues are possible. I will go through it very, very quickly. The bottom line is that there are questions about technical feasibility. Of course there are. There are questions of whether boost phase intercept is possible. Questions of whether adequate midcourse discrimination is possible for effective midcourse intercept. Questions of whether endoatmospheric nonnuclear kill is possible. There are a number of very important questions associated with SDI R&D.

However, the fact that there are questions of this technology and there are uncertainties associated with this technology does not

discredit the SDI in any way. In fact, it points to the need for the SDI to examine the prospects for ballistic missile defense to see whether these types of technologies are going to be feasible and cost effective, if they are deployed.

Thank you.

[Mr. Payne's prepared statement follows:]

PREPARED STATEMENT OF KEITH B. PAYNE, EXECUTIVE VICE PRESIDENT, NATIONAL INSTITUTE FOR PUBLIC POLICY

Is the SDI In The U.S. Interest?

There are two rationales for the SDI. Each is in the interest of the United States: 1) to ensure that we are not surprised by new Soviet BMD developments; and 2) to provide a future president and congress with a deeper understanding of the technical prospects for BMD -- such as would be necessary to make an informed decision concerning future BMD deployment options. There appears to be little opposition to the pursuit of BMD R&D, the controversy seems to be over the scope and extent of that research, and the possibility that SDI research will lead to BMD deployment. Interestingly, many national opinion polls reveal overwhelming support by the American people -- regardless of political identification -- for the concept of strategic defense. (See Figures 1-3).

Can we accept the risk that the Soviet Union -- which spends more on strategic defense than we do on strategic offense -- might achieve significant R&D breakthroughs in defense technology of which we are ignorant? Should we, by our own choice, be ignorant of what the future possibilities might be for defending ourselves against the ballistic missile threat? It is clear that the answer to both those questions is no. That is why R&D on BMD is in the best interest of the United States.

What Will be the Impact of the SDI on Stability?

If the R&D of SDI indicates that strategic defense would be affordable, reliable, and cost-effective, then a decision

for deployment would be appropriate. The effect of deploying defensive forces could be stabilizing whether such deployment leads to limited defenses that would serve to protect some selected American and allied targets, or to more comprehensive defense coverage. There is no reason to believe, as many assure, that defenses are inconsistent with stability, and several powerful reasons why defenses would enhance stability.1

First, limited defenses could contribute to the survivability of the U.S. retaliatory deterrent. Enhancing the survivability of U.S. forces would reduce Soviet confidence in nuclear first-strike planning. Minimizing Soviet confidence in a first-strike will help ensure the maintenance of deterrence and stability. In a crisis, the Soviet leadership might be tempted to strike first if it thought it could destroy the American leadership and degrade the ability of the proper U.S. authorities to control and command the forces. In particular, increasing the survivability of critical command, control, communications and intelligence (C^3I) facilities would enhance stability. In short, even limited defenses would be stabilizing if they only increased Soviet uncertainties about the effectiveness of using long-range nuclear weapons in a first strike.

Second, deployment of more effective defenses could be stabilizing -- even assuming that the Soviet Union continues to expand its defense. For example, U.S. commitments and responsibilities include the deterrence of attack on allies

and friends. That nuclear commitment is the cornerstone of NATO policy, especially in the eyes of NATO-Europe. Yet, the credibility of the U.S. guarantee to NATO is subject to severe doubt because the U.S. leadership must be perceived by opponents as being most unlikely to engage in actions that could lead to the destruction of the United States. The nuclear guarantee to NATO, for example, lacks credibility because the Soviet nuclear threat to the American homeland would provide a powerful incentive for any American president to avoid actions increasing the nuclear risk -- such as coming to the aid of Western Europe. As Henry Kissinger concluded in 1979 when addressing this issue of the U.S. nuclear guarantee for NATO:

> If my analysis is correct we must face the fact that it is absurd to base the strategy of the west on the credibility of the threat of mutual suicide...and therefore I would say -- what I might not say in office -- that our European allies should not keep asking us to multiply strategic assurances that we cannot possibly mean or if we do mean, we should not want to execute because if we execute, we risk the destruction of civilization. Our strategic dilemma is not solved by verbal reassurances, it requires redesigning our forces and doctrine.[2]

Michael Howard, the prominent British strategic theorist, made the same observation in noting that, "Peoples who are not prepared to make the effort necessary for operational defense are even less likely to support a decision to initiate a nuclear exchange for which they will themselves suffer almost inconceivable destruction..."[3]

Soviet writers pour scorn on the credibility of the U.S. "extended deterrent" for NATO. This is a problem that has no solution other than to reduce the vulnerability of the American homeland so that the risks Americans run in defense of overseas commitments are more consistent with the value of U.S. interests at stake. The credibility of the U.S. deterrence guarantee to NATO should be much more credible in Soviet perspective if that guarantee were not suicidal for the United States. And it should not be forgotten that it is the credibility of the U.S. guarantee in Soviet perspective that is critical for deterrence. As alternatives some have suggested that the United States could reduce or eliminate its commitments to its allies; or it could try to deploy sufficient conventional forces to reduce its current reliance on nuclear threat. However both of these alternatives are unacceptable: the former because of its isolationist implications and the existence of genuine U.S. worldwide interests; the latter because neither the United States nor its allies are willing to pay the great expense necessary to provide sufficient conventional power to protect Western world-wide vital interests against the Soviet conventional threat. For reasons of politics and geography (i.e., Soviet military power is located much closer to U.S. vital interests than is U.S. military power) the United States and its allies are likely to remain reliant upon the nuclear deterrent -- strategic defense is the only means of making that threat appear credible to opponents.

Very effective defenses could also protect the capability of the U.S. to mobilize its vast military-industrial base -- a base that could now be crippled by a relatively small number of nuclear weapons. Defense of the U.S. ability to mobilize men and material and move them to Europe would contribute powerfully to the deterrence of the Soviet Union. The Soviet Union saw the results, in World War II, when U.S. military-industrial potential was mobilized. The prospect of unleashing that military-industrial potential and engaging a mobilized U.S. in war would be extremely effective in deterring attack both on NATO and the American homeland. Careful empirical study shows plainly the deterrent value of credibly threatening a long war (i.e., denying the potential for blitzkrieg success).[4] The inability of the United States now to protect its military-industrial base denies it the useful effect of that powerfully deterring factor. Strategic defenses could provide the coverage necessary to exploit this potential for the purposes of enhancing deterrence and stability.

Nevertheless all considerations of deterrence and stability should be recognized as speculative given the many uncertainties involved. Moreover, what is certain is that deterrence could fail despite our best efforts to maintain stability -- particularly when viewed in the long-term. In the event that deterrence fails, our current strategic policy, focused almost exclusively upon the threat of offensive nuclear forces, would likely ensure the destruction of the

United States, and possibly could lead to a global climatic catastrophe. Strategic defenses may be the only solution to this danger -- a danger that may encompass the entire planet.5 The R&D program that is SDI is vital if we are to find answers to the critical questions of the feasibility and cost of strategic defense.

In short, the R&D of the SDI may suggest to a future president that deployment of defenses is appropriate. If so, whether comprehensive or only limited defense options are available, their deployment could contribute significantly to stability. The stability of a defensive-oriented deterrent would be far safer than the stability provided by the current "balance of terror."

Some critics of strategic defense suggest that strategic defense must be "destabilizing." This opinion generally rests on the assumption that deterrence stability requires mutual vulnerability, and that deterrence and defense are incompatible. There is no reason to accept such an assumption. Deterrence can come from defense, as the prospect of protecting the U.S. military-industrial base or NATO's logistical infrastructure in Europe illustrate. An effective capability to defend territory and vital military installations, or a more limited defense capable of protecting only the latter should reduce an opponent's incentives to pursue what would be a useless attack. Indeed, deterrence stability was maintained from the 1950s through the early 1960s when then-existing U.S. strategic forces should

have functioned quite well to protect the United States in the event of war. Historically, deterrence has been based on a combined offensive-defensive capability. The notion that defense and deterrence are somehow inconsistent is supported neither by history nor logic.

Another critique of strategic defense is that even limited defenses would increase the probability of a Soviet first strike -- and therefore would be destabilizing. This view presumes that the Soviet Union would perceive some value in attacking defended U.S. forces. Yet Soviet doctrine is clear that the primary purpose of nuclear use would be to destroy U.S. retaliatory capabilities. If U.S. retaliatory forces are effectively defended, and therefore could survive a first-strike, virtually the entire rationale for Soviet strategic nuclear use would be negated. Rather than encouraging Soviet incentives to use nuclear weapons, defenses -- limited defenses -- would help to minimize Soviet first-strike incentives and thereby would enhance stability.

When critics of the SDI and BMD compare the current condition of U.S. vulnerability with a future condition of deployed defenses they often appear to assume that the current condition is highly stable. From that assumption it is easy to conclude that we ought not "rock the boat" with defensive deployments -- the old saying being "if it ain't broke, don't fix it." Yet, the current deterrence relationship entails severe elements of instability -- such as U.S. overreliance on an incredible nuclear deterrent for NATO. The absence of war

we have come to assume probably reflects the fact that nuclear deterrence has not undergone the severe test of an acute military crisis in over two decades. There is now little basis for confidently assuming that deterrence stability will survive the next acute military crisis -- whenever it may occur. Yet the SDI may hold the potential to enhance the stability of deterrence through strategic defense.

Will the SDI Contribute to Arms Control Progress and Success?

The SDI almost certainly already has contributed to movement in the arms control process. The Soviet Union walked out of negotiations in November 1983; yet it has returned to the negotiations for the expressed primary purpose of limiting or halting the U.S. SDI. American plans for offensive force modernization undoubtedly also play an important role in motivating the Soviet Union to negotiate. Nevertheless it appears that the SDI was the determining factor in the renewed Soviet willingness to return to negotiations.

Linkage of U.S. defensive programs with offensive-force reductions could become increasingly important. For example, the prospects for deep offensive force reductions are likely to be non-existent in the absence of U.S. and Soviet strategic defenses. This preliminary requirement for strategic defenses stems from two considerations.

First, Soviet strategic doctrine places great importance upon the capability to limit damage to the Soviet homeland in

the event of war. (See Chart 1 and Figure 4 comparing U.S. and Soviet defense programs). Under current conditions this "damage-limitation" mission would be carried out not only by the extensive Soviet air defense network and civil defenses, but also by initial Soviet offensive strikes on U.S. retaliatory forces. One of the primary rationales for the continuing modernization of the Soviet ICBM force has been to enhance its capability to destroy U.S. retaliatory forces. The Soviet Union has repeatedly been unwilling to accept effective limitations on the counterforce potential of its ICBMs -- illustrating how important the offensive damage-limitation mission is to the Soviet Union. It must be understood that the Soviet Union will not accept significant reductions in these offensive forces without acquiring some alternative method of achieving their damage-limitation mission. The deployment of BMD by the U.S. and Soviet Union would provide that alternative method and permit the Soviet Union to accept serious offensive reductions without giving up its priority objective of being able to limit damage in the event of war.

Second, defenses would allow the U.S. to maintain its commitment to verification as a critical principle of arms control even in the context of deep offensive force reductions. It is clear that the U.S. cannot agree in the future to strategic arms limitations that would entail an obviously high risk of Soviet non-compliance that could not be monitored. <u>At the current high levels of strategic offensive forces</u> the U.S.

can accept a degree of ambiguity in its capability to monitor compliance with treaty provisions, yet still maintain an acceptable level of verification because a significant change in the strategic balance would require treaty violations on a large (and presumably noticeable) scale. Consequently, some ambiguity in the data provided by our monitoring assets is considered acceptable because modest violations that might go unseen would be unlikely to be militarily significant in the context of high offensive force levels. Yet, deep reductions in offensive forces could easily render even modest violations militarily significant. As a result, deep force level reductions would require almost "perfect" verification capabilities -- something that will certainly remain beyond reach as forces become increasingly difficult to monitor. Strategic defense could provide the only solution to this otherwise intractable problem. Deployment of BMD by the U.S. and Soviet Union could establish the necessary condition wherein illegal deployment of offensive weapons on a large scale would be required before the strategic balance would be affected seriously. More modest covert deployment of offensive forces that could go undetected would be rendered less significant by strategic defenses.

In short, because of the Soviet commitment to damage-limitation, the growing U.S. sensitivity to the issue of compliance, and the trend toward the mobility of forces, it is extremely unlikely that deep offensive force reductions will ever take place in the absence of ballistic missile

defenses. To the extent that SDI research facilitates the U.S. ability to make an informed commitment to such defenses, it will enhance the prospects for deep reductions in offensive forces.

Critics of strategic defense insist that the deployment of BMD simply will cause the Soviet Union to expand its offensive forces -- thereby escalating the arms race. Exactly the same claim was made during the BMD debate of the late 1960s and early 1970s. Confident predictions were made that if the U.S. would negotiate strict limitations on BMD the Soviet Union would have no incentive to further buildup its offensive forces -- because there would be no U.S. BMD to penetrate. In 1972 the U.S. accepted strict limitations on BMD in the form of the SALT I Anti-Ballistic Missile (ABM) Treaty. On the basis of the argument that U.S. BMD must drive the Soviet strategic offensive arms buildup it was presumed that the 100 launcher/interceptor cap on BMD of the ABM Treaty would facilitate offensive force reductions. Critics of BMD repeatedly made the promise before congress of an offensive "freeze" or reductions as a result of the ABM Treaty; that strict limitations on BMD would produce the needed basis for achieving U.S. goals in offensive force limitations became accepted wisdom.

ABM limitation was presented to Congress as the measure which would end or reduce Soviet incentives to further build up its offensive forces on the grounds that the Soviet Union would not have to increase offensive forces to penetrate U.S.

defenses. Confident assertions were made that limiting BMD would stop the "spiraling arms race." For example, writing in support of an ABM Treaty in 1969, George Rathjens stated:

> Actually, with the right kind of ABM agreement incentives for either side to expand its offensive missile forces or to put MIRVs on them would be much reduced since, in the absence of concern about adversary ABM deployment, each side could be confident that it had an adequate deterrent...That of course is why an ABM agreement is so important.[6]

Herbert Scoville made the same point, claiming that in the absence of U.S. BMD the Soviet Union would have little incentive for a continued buildup of offensive forces because in such a condition of "frozen stable deterrence, they would not be needed."[7] Wolfgang Panofsky presented the same assumption as fact at SALT I hearings:

> The agreed level of ABM deployment which might arise from the SALT talks will control more than any other single factor the total level of strategic armament at which we might be able to freeze the weaponry of the world as a result of SALT.[8]

Many other current critics of BMD, including Sidney Drell (co-author of a recent report critical of the SDI) echoed assurances of this benign effect of halting BMD.[9]

The history of Soviet offensive deployments since 1972 illustrates clearly that the proponents of strict BMD limits were completely confused in their understanding of the driving force behind Soviet strategic arms racing. The Soviet offensive nuclear build-up increased dramatically <u>following the signing of the ABM Treaty</u>. In 1972 the Soviet Union

possessed 1,547 ICBM warheads, 497 SLBM warheads, and 145 long-range bombers. Those numbers in 1984 were, respectively 6,420, 1,957, and 260 and Soviet offensive production continues apace -- hardly the "freeze" in offensive weapons the ABM Treaty was expected to facilitate. (See Figures 5-9 for comparisons of U.S. and Soviet offensive deployments since 1972.)

Many aspects of Soviet activity are difficult to understand and predict. However, it is clear that numerous factors drive the continuing Soviet offensive arms build-up, and the absence of U.S. BMD did not have the benign effect on Soviet arms racing predicted by critics of BMD. Indeed, the certainty of having undefended U.S. ICBM silos to target may have spurred on the Soviet buildup of its "counter-silo" capable ICBMs after 1972 (SS-18 and SS-19 "hard-target killers" were tested and deployed after the signing of the ABM Treaty). BMD critics who still tie Soviet offensive arms racing to the presence or absence of U.S. BMD have learned little over the last 15 years about the dynamics of the arms competition. At a minimum what we now know is that the assumptions presented as facts during the earlier BMD debate concerning the reasons behind Soviet arms racing were mistaken. We should avoid being taken twice to the same dry well.

Finally, arms control does not exist as an end unto itself. Rather, it is intended to serve two primary objectives: 1) to reduce the probability of war; and 2) to minimize the level of destruction that would occur in the

event of war. These are the two classic goals of arms control. The SDI, and if appropriate, the deployment of strategic defenses, should help both to facilitate arms control negotiations and to support directly the goals of arms control.

Strategic defenses, whether ultimately partial or comprehensive, would contribute to the stability of deterrence and therefore would help reduce the probability of war occurring. In addition, if deterrence should fail despite our best efforts, strategic defense would provide perhaps the only feasible means of reducing the level of destruction. If defense proves to be feasible, it would seem to be the height of folly to remain vulnerable to attack -- even a modest defense would be likely to cope with a future limited, accidental, or Nth country attack. In the absence of defenses the accidental launch of even one missile could cause millions of casualties. Moreover strategic defense may be the only "solution" to the possibility of a planetary climatic disaster ("nuclear winter").

In short, the SDI and the subsequent possible deployment of strategic defense are supportive of arms control; both in providing the necessary encouragement for Soviet participation in negotiations, and directly in pursuit of limiting the probability and destructiveness of war.

Is the ABM Treaty in the U.S. Interest?

It is clear that the effect of the ABM Treaty, to date, has been far short of U.S. expectations. A review of U.S. perceptions of the treaty at the time of its negotiation, signing, and ratification illustrates the extent to which the treaty has failed to fulfill expectations.

At the time the ABM Treaty was signed the U.S. declared a critical linkage between limitations offensive and defensive arms. During the course of the negotiations the Soviet Union had given every indication that it sought primarily to constrain ballistic missile defense -- in particular and the U.S. Safeguard BMD program. In contrast, the U.S. sought constraints on offensive forces, particularly on the Soviet ICBM force which appeared to be developing a capability to threaten American ICBMs. Consequently, in the negotiations the United States consciously used the Soviet desire for BMD limitations as leverage for the purpose of achieving limitations on offensive force. The general basis for negotiating SALT I was the U.S. insistence on interim offensive limitations in return for the BMD limitations sought by the Soviet Union. It is clear that the then on-going U.S. BMD program provided the leverage necessary to gain Soviet agreement to offensive force limitations. As Henry Kissinger has observed:

> ...an American ABM program was essential to any hopes for Soviet acceptance of offensive limitations.[10]

This offense-defense linkage established by the United States made good sense as a negotiating strategy, given the differing objectives of the two sides. It also was sound as strategic logic. If the Soviet offensive threat to U.S. strategic forces could be reduced through arms control limitations, then the U.S. need for the Safeguard BMD system (intended primarily to defend U.S. strategic forces) would be reduced. Consequently, the U.S. reasonably could "give up" Safeguard if the Soviet Union would accept constraints on the counterforce potential of its most threatening offensive forces (ICBMs). Thus the basis for agreement was established, with the U.S. assuming that the five-year, interim offensive agreement of SALT I would be followed by more comprehensive offensive force limitations. It was thought at the time that these limitations on offensive "counterforce" capabilities would ensure the survivability of retaliatory forces -- thereby ensuring the stability of deterrence even in the absence of BMD coverage for U.S. strategic forces.

At the time of SALT I the United States considered critical this linkage between a reduction in the Soviet offensive counterforce threat and its own willingness to accept limitations on BMD coverage for U.S. retaliatory assets. The expectation that limitations on the defense would facilitate offensive limitations -- which in turn would help ensure the survivability of the U.S. retaliatory deterrent -- constituted the heart of the strategic rationale for the ABM Treaty. Indeed, U.S. Unilateral Statement A attached to the

ABM Treaty [see Appendix A] stated specifically that the failure to achieve more comprehensive offensive force limitations within five years could be grounds for withdrawal from the ABM Treaty. Unilateral Statement A also specifies the purpose of these anticipated "more complete" offensive limitations: to "constrain and reduce on a long-term basis threats to the survivability of our respective strategic retaliatory forces."

Thus in the process of negotiating and ratifying SALT I, U.S. arms control policy established several key requirements as the necessary basis for the ABM Treaty. First, it was to be accompanied by the Interim Offensive Agreement which was to cap the Soviet counterforce threat. Second, SALT I was to be followed, within five years, by more complete offensive limitations which would reduce the Soviet threat to the survivability of U.S. retaliatory forces. The acceptance of limitations on U.S. BMD coverage for U.S. strategic forces was reasonable, given these then-current U.S. expectations concerning the reduction in Soviet hard-target counterforce potential.

However, U.S. assumptions concerning the reduction of the Soviet offensive threat clearly have not been met. The Interim Offensive Agreement of SALT I did not diminish the Soviet threat to U.S. ICBMs assumed at the time SALT I was presented to Congress. The subsequent SALT II agreement (signed in 1979) was not achieved within five years, and in no way did it reduce the Soviet threat to U.S. retaliatory

forces: indeed it lent legitimacy to the amazing increase in the Soviet counterforce threat that evolved between 1972 and 1979 and licensed even additional Soviet counterforce capabilities.

In short, the limitations of the ABM Treaty have been quite effective in denying either side effective defenses against all types of ballistic missiles. But, the primary U.S. objective for SALT I and SALT II, i.e. to reduce the growth of the Soviet offensive threat to U.S. retaliatory forces (and thereby support the U.S. deterrence concept of retaliatory "assured destruction"), has not been achieved. The prudent linkage between offensive and defensive force limitations that constituted the rationale for SALT I, and the ABM Treaty in particular, has been completely unraveled in the thirteen years since the signing of SALT I. The conditions established by the United States concerning offensive force constraints reflected in Ambassador Smith's Unilateral Statement A have not been satisfied, and the U.S. has not abided by (and for the most part has ignored) the offensive-defensive linkage it considered vital at the time of SALT I. Some BMD critics stated at the time of SALT I that if arms control proved inadequate to cope with the Soviet offensive buildup -- as unfortunately has been the case since 1972 -- they would then support BMD deployment. For example, Wolfgang Panofsky stated that,

> ...my view is that if the Soviet number of missiles keeps increasing at a continuing fast rate, and if we do not succeed in achieving a negotiated

> limitation of the strategic force, then defense of hardened missile sites would indeed be an objective which I would support...we may need a really effective defense of our missiles...[11]

To a large extent SALT I did not effect the expected offensive limitations because the Soviet Union chose to ignore the key U.S. provision concerning the limitation on "heavy" ICBMs (HICBMs). The U.S. understanding of SALT I constraints (as expressed in U.S. Unilateral Statement D of the Interim Offensive Agreement -- see Appendix B) on heavy ICBMs would have permitted Soviet deployment of no more than 313 ICBM launchers significantly larger than the Soviet SS-11 launcher (the SS-11 throwweight reportedly is approximately 2,000 lbs.). Yet the Soviet Union has circumvented this essential constraint of SALT I and has deployed well over 650 heavy ICBMs since 1972. This has been accomplished by defining the SS-9 replacement, the SS-18 ICBM (reportedly 16,500 lbs. throwweight) as an HICBM and deploying 308 of these missiles; and by defining the SS-19 ICBM (reportedly 8,000 lbs. throwweight) as a light ICBM system -- unconstrained by SALT I. As a result of defining the SS-19 as a "light" ICBM, the Soviet Union has been able to deploy over 350 of these missiles. This amassing of SS-18 and SS-19 firepower has greatly increased the counterforce threat to the U.S. and undermined the very intent of SALT I as it was presented to Congress.

Indeed, the deployment of hundreds of SS-19s as light ICBMs vitiated the clear intent of SALT I and destroyed the

presumed linkage between offensive and defensive force limitations. The entire rationale for the ABM Treaty as developed during the negotiations and as presented to Congress has been undercut by the failure of SALT I to limit offensive forces in the manner assumed when it was presented to Congress, and the failure of SALT II to redress this inadequacy of SALT I.

It is important to note that Soviet actions regarding SS-19 deployment and the distinction between heavy and light ICBM launchers is not "just" Soviet noncompliance with a non-binding U.S. unilateral statement. For example, treaty circumvention that defeats the object and purpose of an agreement has been regarded by the World Court as a violation, and Soviet behavior involving SALT I and SS-19 deployment as a "light" ICBM appears to represent fraudulent treaty circumvention.

Soviet noncompliance with the U.S. definition of the heavy/light distinction is important given the negotiating record because it strongly suggests deliberate Soviet deception. During the negotiations the U.S. delegation argued that a clear dividing line be 70 cubic meters, and later proposed that the volume increase not be significantly greater than the Soviet SS-11 ICBM. Yet, according to Ambassador Smith the Soviet Union refused any definition, arguing that a clear definition was unnecessary because both sides knew what was meant by heavy and light ICBMs and could distinguish between the two.[12] During the negotiations the Soviet Union

clearly had the SS-18 and SS-19 in development and knew the U.S. understanding of heavy and light ICBMs. Nevertheless, the Soviet Union claimed that a specific definition was unnecessary because both sides knew the distinction. It certainly appears that the Soviet Union knew that it would violate the U.S. definition, yet told the United States "not to worry" about a definition because the distinction was obvious. As a result of the absence of a clear definition the Soviet Union has been able to circumvent the treaty through its deployment of our 300 SS-19s in excess of the SALT I ceiling. Soviet deployment of the SS-19 as a light ICBM appears to represent fraudulent behavior that destroyed a primary U.S. rationale for SALT.

Unfortunately, not only has the Soviet Union circumvented the clear intent of the SALT I offensive-defensive linkage, it also is in direct violation of the ABM Treaty. According to international law, Soviet noncompliance with the ABM Treaty relieves the United States of any obligation to abide by the treaty. Given Soviet noncompliance the United States has the prerogative to choose to void the treaty in toto, or to void those provisions violated by the Soviet Union or comparable provisions.

Soviet circumvention of SALT I offensive limitations and ABM Treaty violation could be extremely significant militarily. The combination of the vast counterforce capability of Soviet SS-18 and SS-19 ICBMs, and the potential -- stemming in part from Soviet noncompliance -- for a rapidly-deployable

nation-wide BMD system, creates an extremely dangerous and unstable condition. The question of interest is: given Soviet treaty circumvention and noncompliance, does the ABM Treaty remain in the U.S. interest?

There are four obvious alternatives for the United States vis-á-vis the ABM Treaty: 1) continue with "business as usual"; 2) withdraw from or void the ABM Treaty in accordance with international law and deploy defenses; 3) follow a policy of selective noncompliance as a response to Soviet treaty violation; or 4) attempt to strengthen the ABM Treaty in an effort to halt Soviet noncompliance and circumvention behavior which threatens deterrence stability. Of these options, carrying on with "business as usual" clearly is the most inconsistent with U.S. interests. It would virtually endorse Soviet treaty noncompliance and license, perhaps even encourage Soviet violations and fraud. Future prospects for useful arms control must be undercut were the U.S. to find the Soviet Union in violation and circumvention of treaties and then fail to take any corrective actions.

Unfortunately, attempting to strengthen the ABM Treaty by clarifying ambiguous terms and interpretations may require that the United States engage in reciprocity; that is, the United States may have to convince the Soviet Union that continued noncompliance will compel the United States to void treaty constraints it finds most binding. The Soviet Union understands politics, and is unlikely to change its behavior

unless the United States makes this issue of treaty noncompliance a matter of high politics.

Finally, with regard to the ABM Treaty it often is claimed that the Treaty has saved the United States vast amounts of money that otherwise would have been spent on the Safeguard BMD program. Even this contention may be false. Obviously the U.S. did not spend vast sums on the Safeguard BMD program -- yet the net effect may not have been savings. The Safeguard BMD system was intended to provide protection of U.S. retaliatory forces, including silo-housed ICBMs. In the absence of BMD the U.S. has been compelled to examine dozens of different concepts for protecting ICBMs from a Soviet first strike. The "solution" most favored of late is to develop and deploy a small mobile ICBM (SICBM). The cost to provide such a system could be between $45 and $60 billion. Although it is not clear, it may well be that deployment of ICBM defenses would constitute a less expensive, and possibly non-nuclear alternative in the effort to secure ICBM survivability.

Questions of Technical Feasibility

A BMD system capable of highly effective defense in each phase of an attack must perform some essential functions:

- global full-time surveillance for rapid and reliable attack warning;
- early boost-phase intercept to minimize the number of targets to be handled in later phases;
- rapid and effective discrimination of warheads from penetration aids or debris to eliminate the attacker's option to overwhelm and exhaust the defender's resources;

- warhead interception early in the terminal phase to avoid collateral damage from warheads "salvage-fused" to detonate when intercepted; and
- battle management, communications, and data processing via systems that are interconnected and survivable.[13]

There are a number of questions concerning defense technology:

- will it be possible to intercept missiles in their boost and post-boost phase?
- will mid-course discrimination become sufficiently precise to permit useful distinction between warheads and penetration aids?
- can defense systems be rendered sufficiently survivable to counter Soviet defense suppression tactics?
- will defenses be able to achieve a sufficiently favorable cost-exchange ratio against Soviet countermeasures?
- can a battle-management system be effective, survivable, and capable of rapid response?

These questions are fundamental, and the answers to these questions will determine the long-term future of strategic defense. However, recognizing that there are at present fundamental technical and tactical uncertainties related to the potential effectiveness of strategic defense does not reduce the value of the SDI; quite to the contrary -- the SDI is intended to address precisely these important technical issues. The fact that these questions exist and must be answered illustrates how cri''al the SDI is for the United States.

Summary and Conclusion

In summary, it is clear that SDI research is in the U.S. national interest. The R&D of the SDI will provide the U.S. with a hedge against the possibility of being surprised by a Soviet breakthrough in BMD technology. It will also address fundamental technology issues and provide a future president with the technical information necessary if he or she is to make an intelligent and reasoned decision concerning deployment. If SDI R&D leads to a decision for deployment in the 1990s, the result should be stabilizing whether the defenses provide limited or comprehensive coverage. Defenses for the U.S. retaliatory deterrent would increase Soviet uncertainties concerning the military effectiveness of a first strike; more comprehensive defenses would enhance the credibility in Soviet eyes of the U.S. military commitment to its allies and vital interests. Credibility should help deter conventional or nuclear attack on U.S. allies and friends.

Perhaps more importantly, given numerous historical precedents of both surprise and apparent irrationality in international politics, deterrence could fail during a future acute crisis. A wholly offensive-oriented deterrence policy virtually ensures a holocaust, perhaps even a global holocaust in the event that deterrence fails. Strategic defense might provide a means of transcending this dangerous condition.

The SDI should also support arms control; indeed it already appears to have motivated the Soviet Union to return to negotiations following its walkout in November 1983. This

should be no surprise. The history of SALT illustrates the essential role U.S. BMD programs have played in facilitating offensive arms control. In addition, strategic defense should support directly the traditional objectives of arms control: reducing the probability and the destructiveness of war.

The ABM Treaty has failed to produce the beneficial effect for offensive arms control confidently expected when the treaty was signed and ratified. Indeed, the failure of offensive arms control has undercut the clear rationale for the ABM Treaty. Soviet circumvention and violation of the U.S. understanding of SALT I has led to the possibility of very dangerous near-term instabilities. Among the options the U.S. could pursue vis-á-vis the ABM Treaty, to proceed with "business as usual" would be the height of folly.

Finally, there exists a variety of important technical issues concerning strategic defense. These issues must be addressed before any decision can be made regarding the deployment of defenses. Addressing those technical questions is the purpose of the SDI research; the critical importance of the prospective answers to those questions for the nation (and indeed the world) illustrates how vital the SDI is to U.S. national interests.

APPENDIX A

The following noteworthy unilateral statements were made during the negotiations by the United States Delegation:

A. Withdrawal from the ABM Treaty

On May 9, 1972, Ambassador Smith made the following statement:

> The U.S. Delegation has stressed the importance the U.S. Government attaches to achieving agreement on more complete limitations on strategic offensive arms, following agreement on an ABM Treaty and on an Interim Agreement on certain measures with respect to the limitation of strategic offensive arms. The U.S. Delegation believes that an objective of the follow-on negotiations should be to constrain and reduce on a long-term basis threats to the survivability of our respective strategic retaliatory forces. The U.S.S.R. Delegation has also indicated that the objectives of SALT would remain unfulfilled without the achievement of an agreement providing for more complete limitations on strategic offensive arms. Both sides recognize that the initial agreements would be steps toward the achievement of more complete limitations on strategic arms. If an agreement providing for more complete strategic offensive arms limitations were not achieved within five years, U.S. supreme interests could be jeopardized. Should that occur, it would constitute a basis for withdrawal from the ABM Treaty. The U.S. does not wish to see such a situation occur, nor do we believe that the U.S.S.R. does. It is because we wish to prevent such a situation that we emphasize the importance the U.S. Government attaches to achievement of more complete limitations on strategic offensive arms. The U.S. Executive will inform the Congress, in connection with Congressional consideration of the ABM Treaty and the Interim Agreement, of this statement of the U.S. position.

APPENDIX B

The U.S. Delegation made the following statement on May 26 1972:

> The U.S. Delegation regrets that the Soviet Delegation has not been willing to agree on a common definition of a heavy missile. Under these circumstances, the U.S. Delegation believes it necessary to state the following: The United States would consider any ICBM having a volume significantly greater than that of the largest light ICBM now operational on either side to be a heavy ICBM. The U.S. proceeds on the premise that the Soviet side will give due account to this consideration.

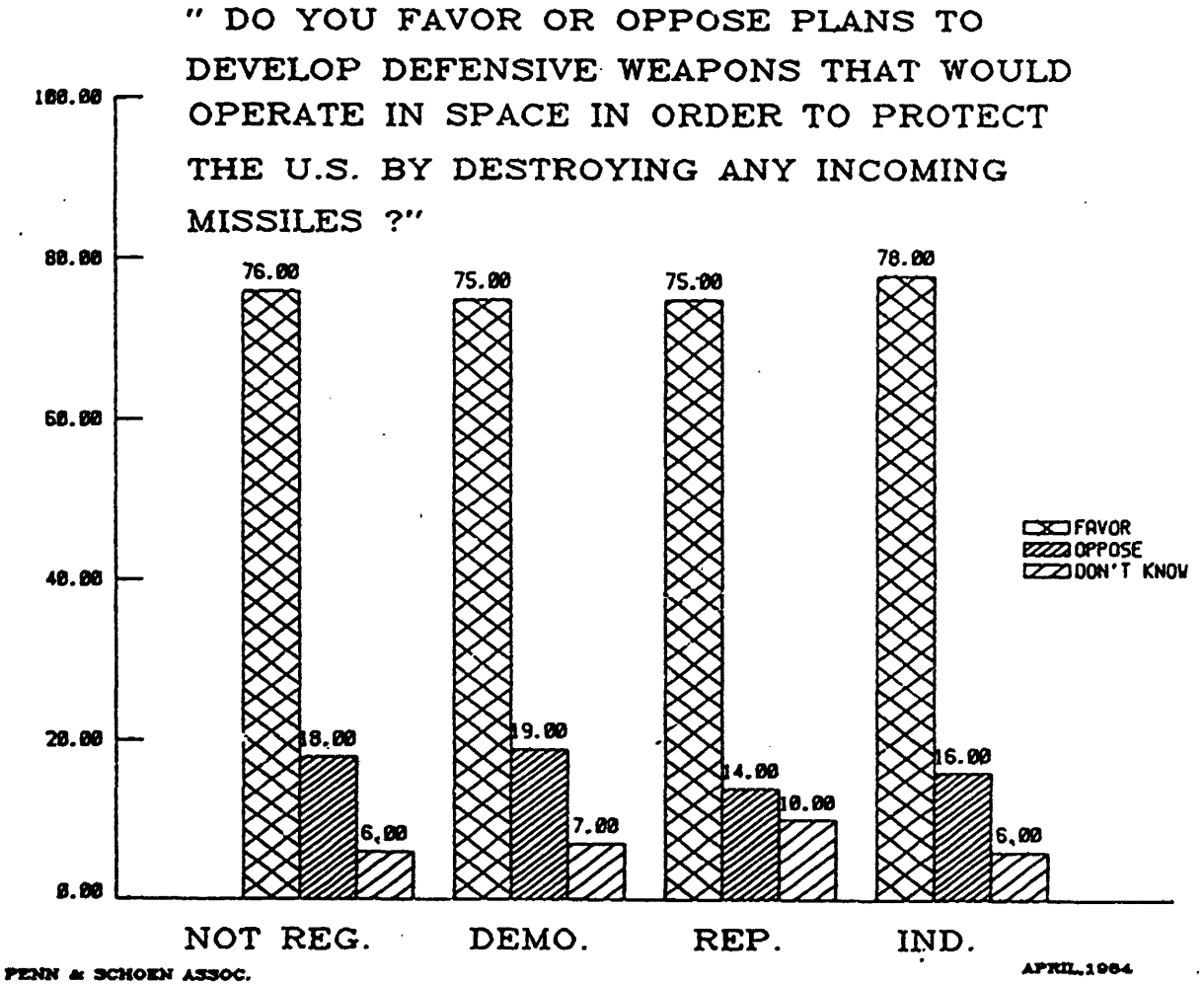
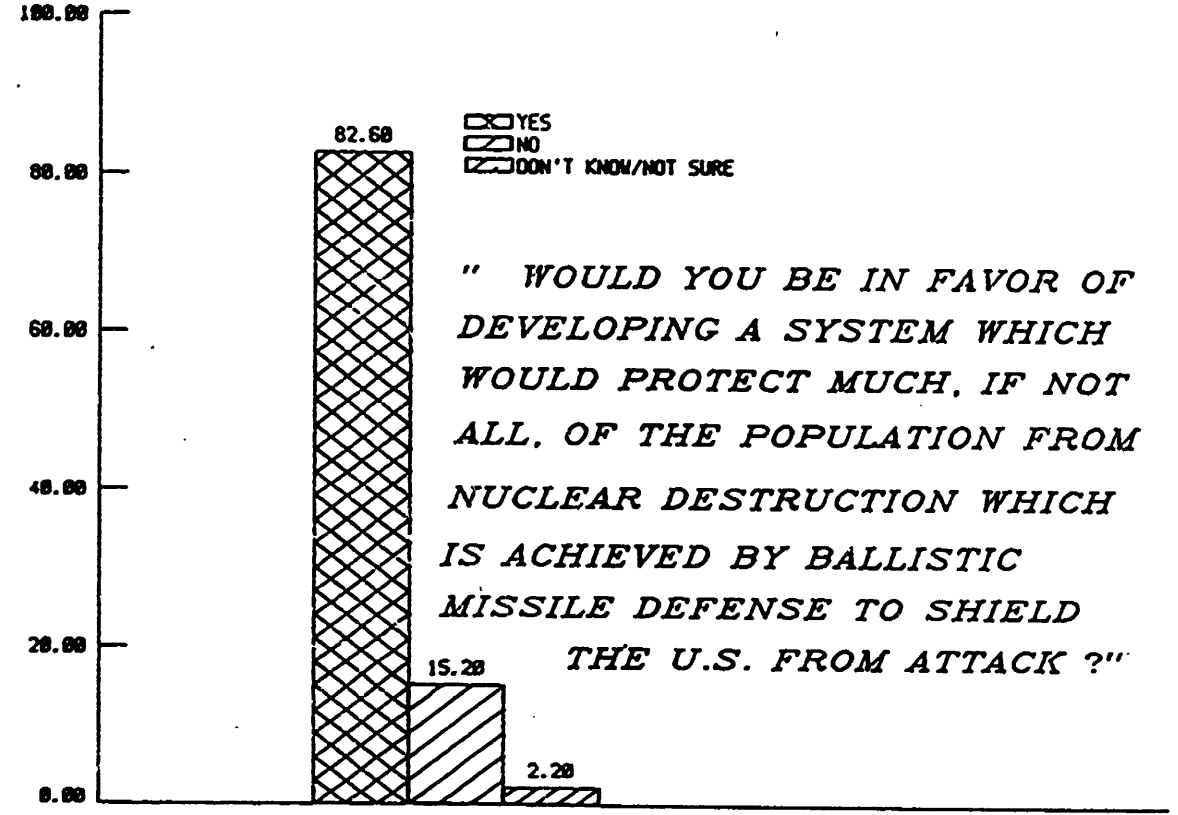

" DO YOU FAVOR OR OPPOSE PLANS TO DEVELOP DEFENSIVE WEAPONS THAT WOULD OPERATE IN SPACE IN ORDER TO PROTECT THE U.S. BY DESTROYING ANY INCOMING MISSILES ?"
100.00
80.00
60.00
40.00
20.00
0.00
76.00
18.00
6.00
75.00
19.00
7.00
75.00
14.00
10.00
78.00
16.00
6.00
NOT REG.
DEMO.
REP.
IND.
FAVOR
OPPOSE
DON'T KNOW
PENN & SCHOEN ASSOC.
APRIL,1984

FIGURE 1

SDI & PUBLIC OPINION

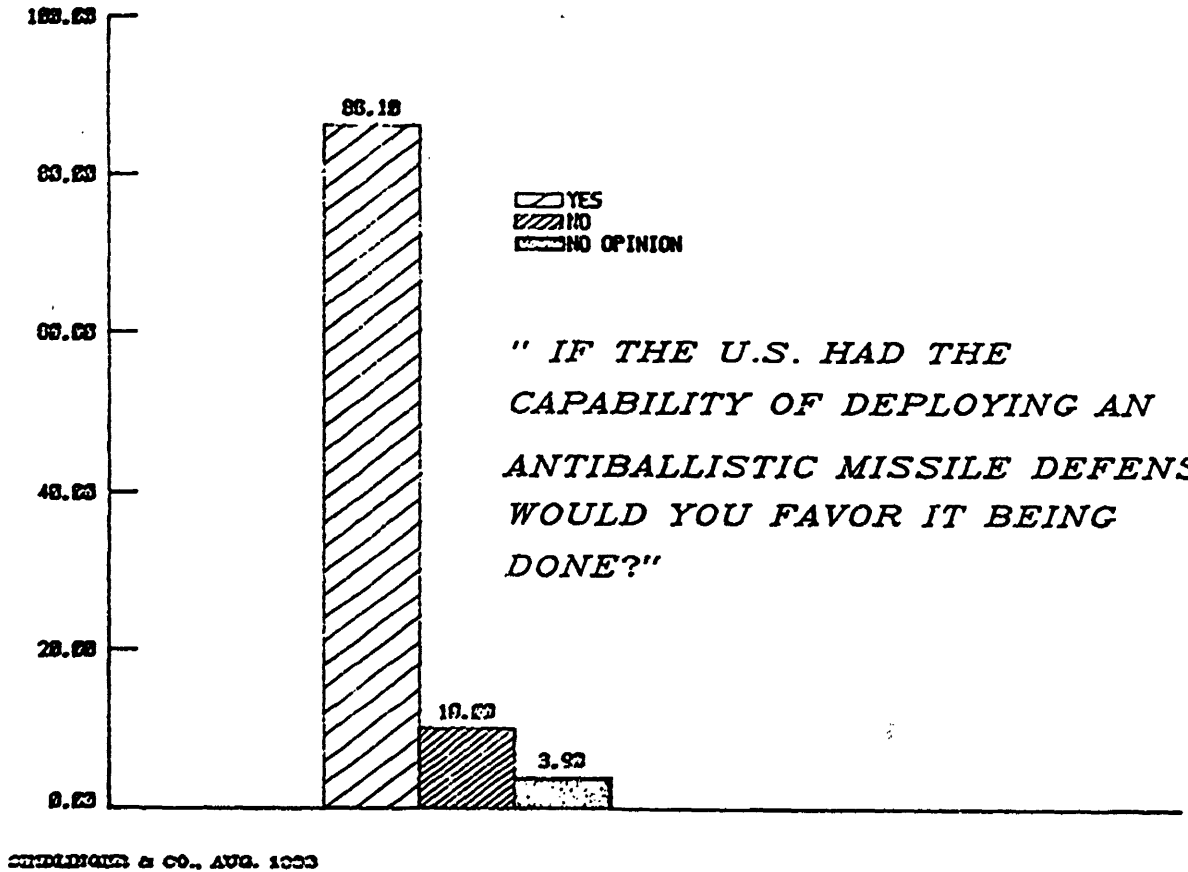


SINDLINGER & CO.

JULY,1984

FIGURE 2

SDI & PUBLIC OPINION



[illegible] & CO., AUG. 1985

FIGURE 3

52-921 O—85—5

U.S.S.R.—U.S. STRATEGIC DEFENSE PROGRAMS

	U.S.S.R.	U.S.
BMD LAUNCHERS	100	0
INTERCEPTORS	1200	279
STRATEGIC DEFENSE RADARS	~ 7000	~ 100
SAMs	10,000	0
HARDENED BUNKERS FOR POLITICAL LEADERSHIP	~1500 identified	<100
FULL—TIME CIVIL DEFENSE PERSONNEL	150,000+	~ 7000
CIVIL DEFENSE SPENDING PER YEAR	$3-4 BIL	$169 MIL

CHART 1

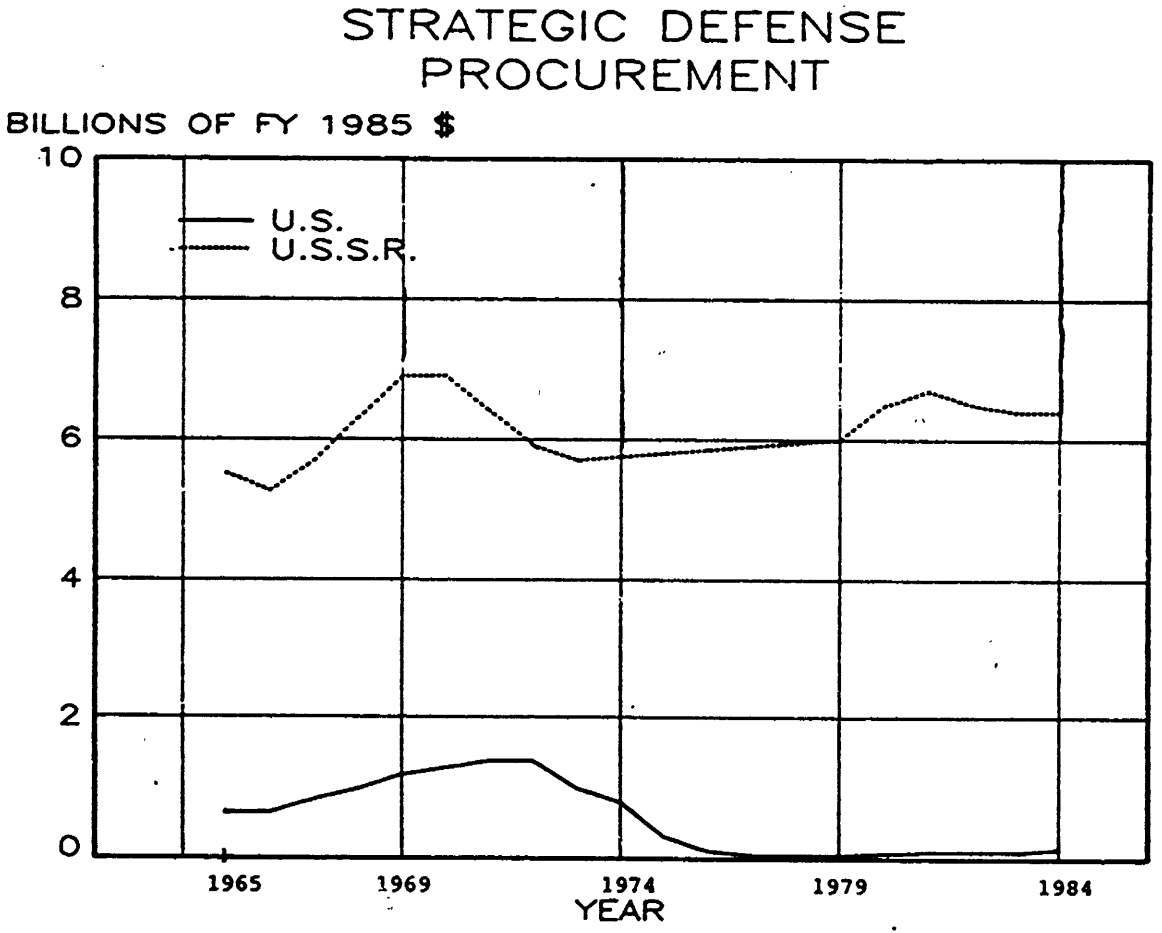

STRATEGIC DEFENSE
PROCUREMENT
BILLIONS OF FY 1985 $
10
8
6
4
2
0
U.S.
U.S.S.R.
1965
1969
1974
1979
1984
YEAR

FIGURE 4

INTERCONTINENTAL BALLISTIC MISSILES

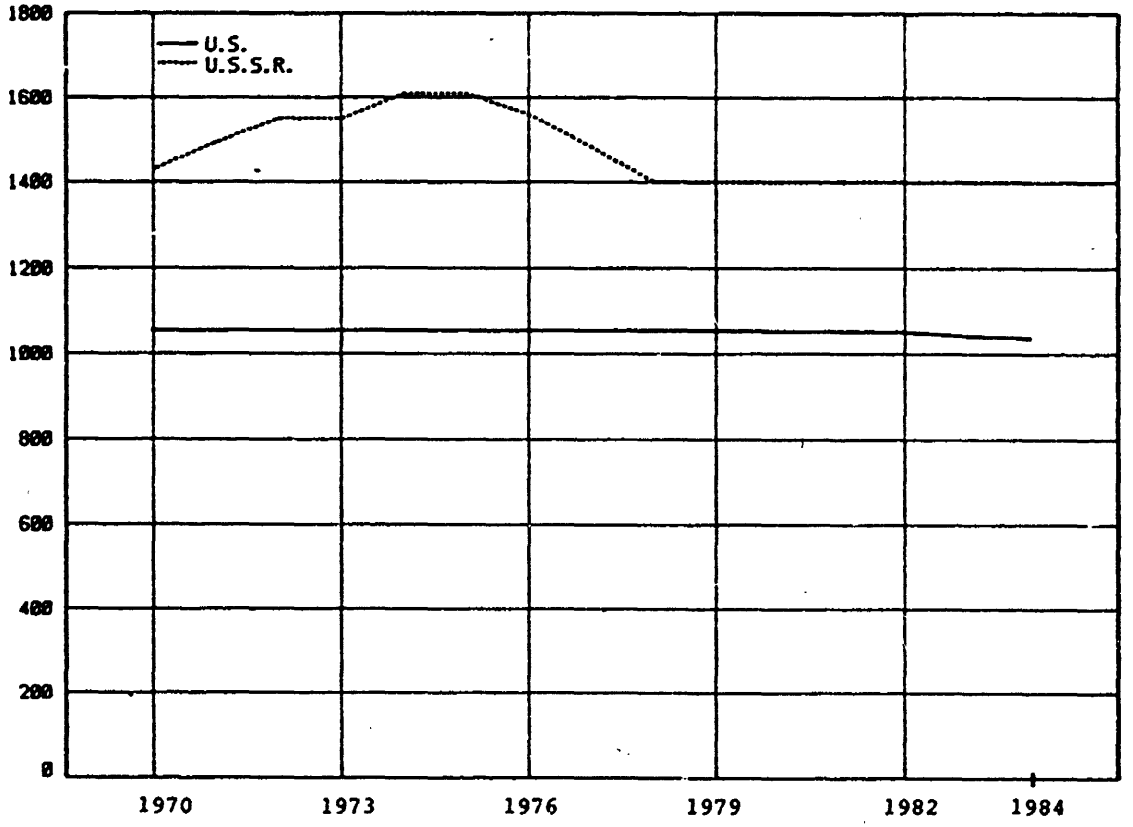


FIGURE 5

ICBM WARHEADS

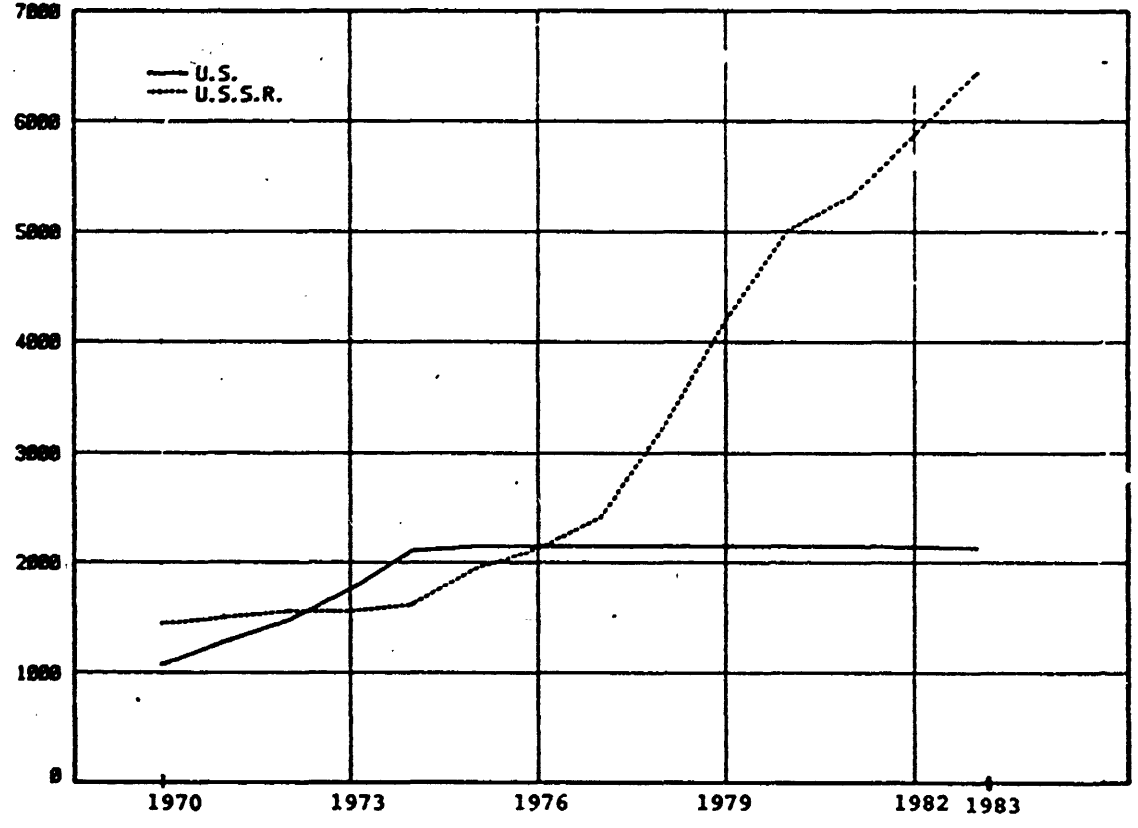


FIGURE 6

BALLISTIC MISSILE SUBMARINES

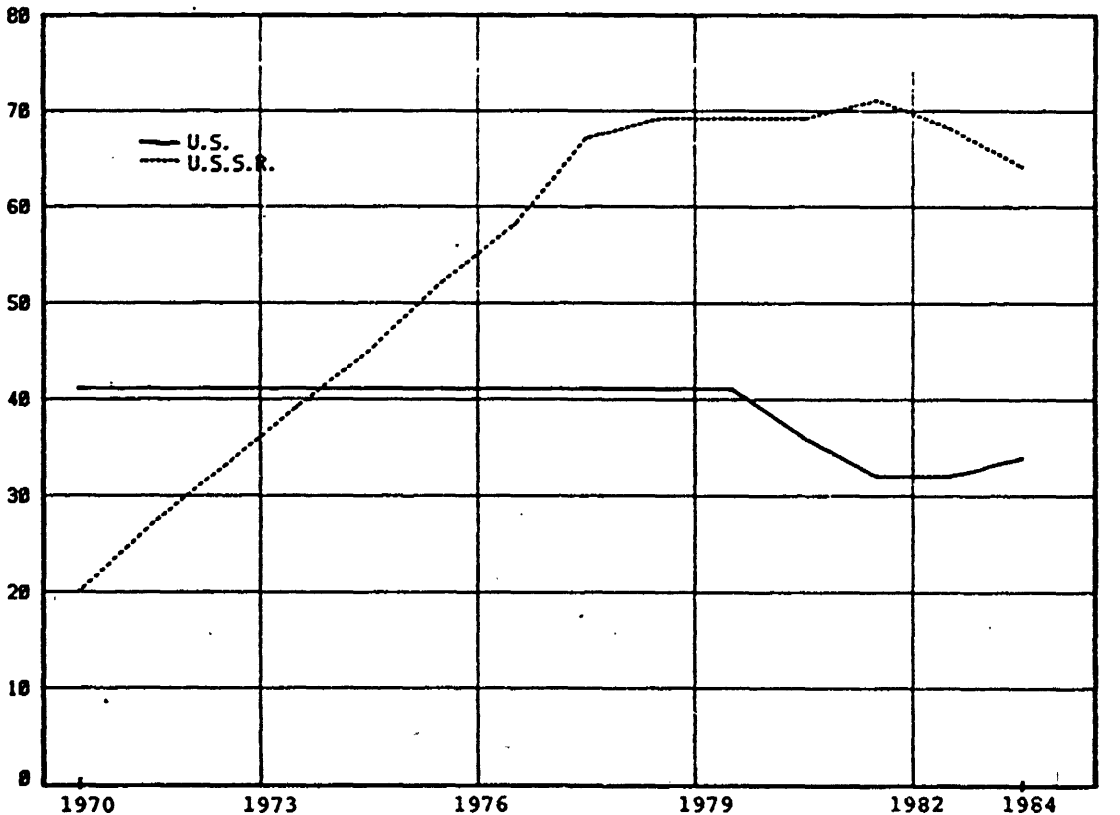


FIGURE 7

SLBM LAUNCHERS

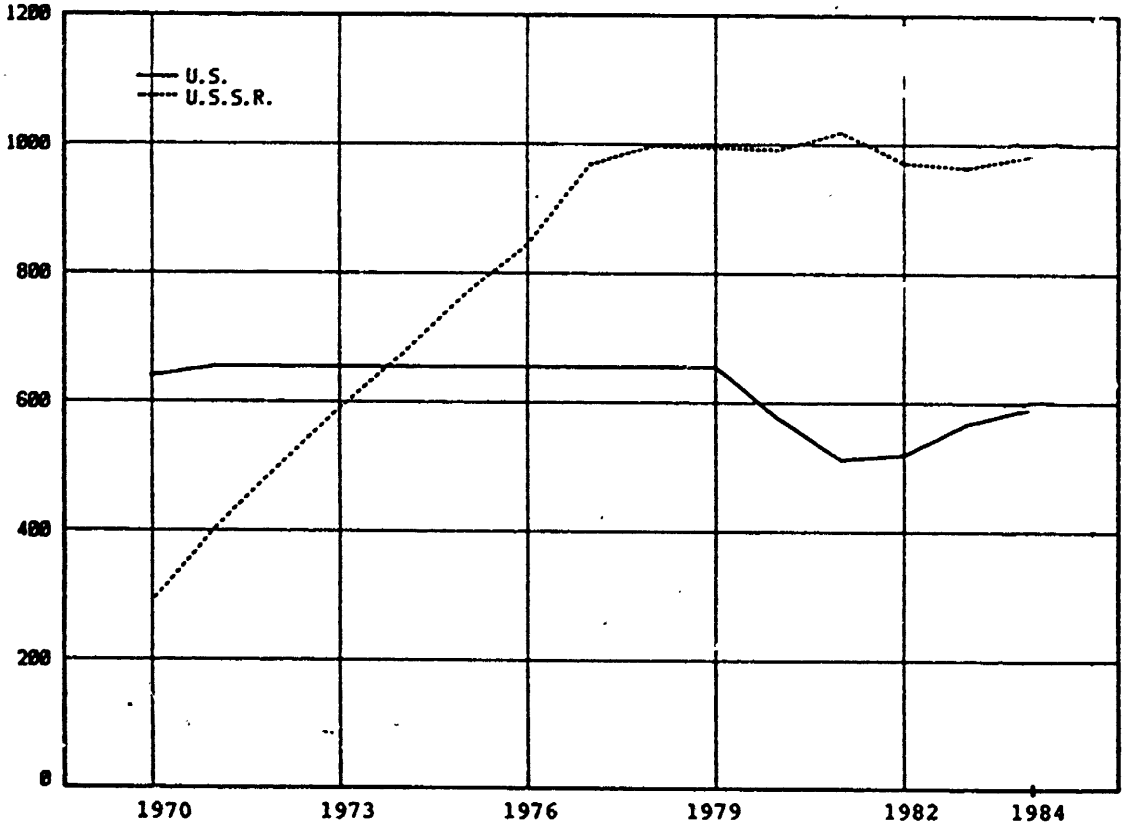


FIGURE 8

SLBM WARHEADS

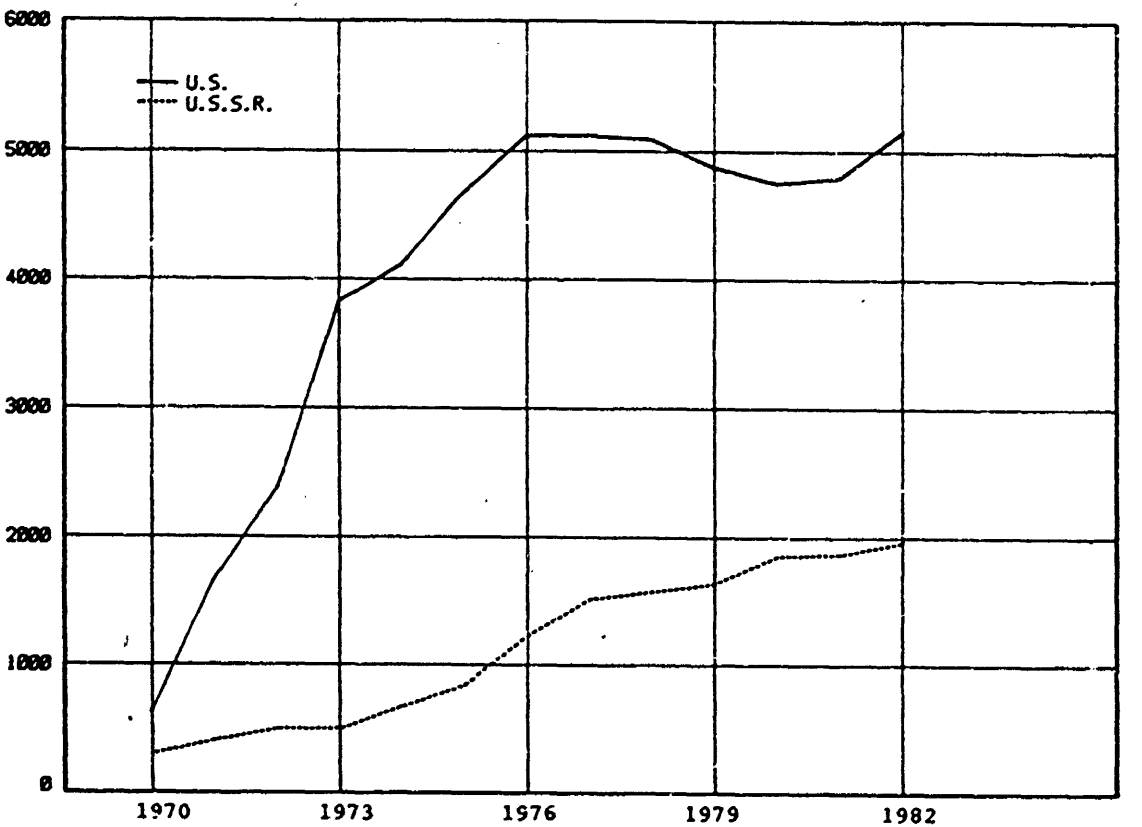


FIGURE 9

FOOTNOTES

1. For more detail see Keith B. Payne and Colin S. Gray, "Nuclear Policy and the Defensive Transition," Foreign Affairs, Vol. 62, No. 4 (Spring 1984), pp. 820-842; and Keith B. Payne, "Strategic Defense and Stability," Orbis (Summer 1984), pp. 215-227.

2. Reprinted in Henry Kissinger, "The Future of NATO," in NATO the Next Thirty Years, Kenneth Myers, ed. (Boulder, CO: Westview, 1978), p. 8.

3. "The Forgotten Dimensions of Strategy," Foreign Affairs, Vol. 57, No. 5 (Summer 1979), p. 983.

4. See the last chapter of, John Mearsheimer, Conventional Deterrence (Ithaca, N.Y.: Cornell University Press, 1983).

5. See Colin S. Gray "The Nuclear Winter Thesis and U.S. Strategic Policy," Washington Quarterly, Vol. 8, No. 2 (Spring 1985, forthcoming).

6. "A Breakthrough in Arms Control," Bulletin of the Atomic Scientist, Vol. 25, No. 1 (January 1969), p. 5.

7. "Next Steps in Limiting Strategic Arms," Science and Public Affairs (Bulletin of the Atomic Scientist), Vol. 28, No. 3 (March 1972), p. 11.

8. U.S. Senate, Committee on Foreign Relations, Subcommittee on Arms Control, International Law and Organization, ABM, MIRV, SALT, and the Nuclear Arms Race, Hearings, 92st Cong., 2nd sess. (Washington, DC: USGPO, 1970), p. 179.

9. Ibid., p. 579.

10. White House Years (Boston: Little, Brown & Co., 1979), p. 813.

11. U.S. Senate Committee on Foreign Relations, Strategic and Foreign Policy Implications of ABM Systems, Hearing, Par. 1, 91st Cong., 1st sess. (Washington: USGPO, 1969), p. 332.

12. See Ambassador Smith's statement in, U.S. Senate, Committee on Armed Services, Military Implications of the Treaty on the Limitations of Anti-Ballistic Missile Systems and the Interim Agreement on Limitation of Strategic Offensive Arms, Hearings, 92nd Cong., 2nd Sess. (Washington, D.C.: USGPO, 1972), pp. 289, 294, 363, 364.

13. Gen. Robert Rankine, "Research and Technology for Strategic Defense," Aerospace America (April 1984), p. 65.

NATIONAL INSTITUTE FOR PUBLIC POLICY

KEITH B. PAYNE
EXECUTIVE VICE PRESIDENT
DIRECTOR OF NATIONAL SECURITY STUDIES

Keith Payne is a policy analyst specializing in areas of U.S. and Soviet strategic and defense policy, international security affairs, and Soviet foreign policy.

Dr. Payne received an A.B. (honors) in political science and German from the University of California at Berkeley, and an M.A. and Ph.D. (with great distinction) in international relations from the University of Southern California.

Following the completion of his doctoral studies, Dr. Payne taught graduate and undergraduate courses at the University of Southern California. Prior to assuming the Directorship of National Security Studies at the National Institute, Dr. Payne was a member of the senior professional staff at Hudson Institute in New York. He participated in Hudson studies of ballistic missile defense issues, SALT issues, European security, and U.S. and Soviet defense and foreign policy.

Dr. Payne has written extensively on arms control issues, Soviet foreign policy and strategic doctrine, and U.S. defense policy. His articles have appeared in Air University Review, Foreign Affairs, Foreign Policy, Orbis, Washington Quarterly, Comparative Strategy, Air Force Magazine, Military Review, International Security Review, Parameters, Crossroads, Global Perspectives, The Wall Street Journal, The Christian Science Monitor, and USA Today. He is co-author of Nuclear Strategy: Flexibility and Stability (California Seminar on Arms Control, 1978), the author of Nuclear Deterrence in U.S.-Soviet Relations (westview Press, March, 1982), editor and contributor to Laser Weapons In Space (Westview Press, 1983), The Nuclear Freeze Controversy (University Press of America, 1984), and Missiles for the Nineties: ICBMs, and Strategic Policy (Westview Press, 1984).

Dr. Payne serves as Adjunct Professor at Georgetown University, and has lectured on defense and foreign policy issues at numerous colleges and universities, including the National Defense University, the Canadian Defense College and the Internation Institute for Strategic Studies in Bejing, PRC. At the National Institute, he directs and participates in studies on U.S. strategic nuclear employment policy and force posture issues, arms control policy, SALT, BMD, theater nuclear force issues, and Soviet foreign policy.

Chairman FASCELL. Thank you, Mr. Payne. Mr. Berman.

ENHANCING DETERRENCE

Mr. BERMAN. Mr. Payne, at one point you said you thought that deterrence would be enhanced by SDI in that the, in a sense, aggression in Europe by the Soviets could only be—I gather what you were saying was it would only be effectively deterred when we can feel essentially not vulnerable. Does that speak to the logic of the deployment in Europe now in the name of enhancing deterrence of aggression in Europe? In other words, what we have done with respect to the Pershings and the cruise missiles there really don't deal with the central problem of defending Europe, in that we are just as vulnerable with those deployed as not deployed, and therefore are going to have the same nervousness about utilizing those weapons?

And in a sense, is what you are saying, would that undercut the logic of the whole deployment decision in 1979 and implementing it since then?

Mr. PAYNE. No; it certainly doesn't undercut the logic. I believe you are speaking in terms of P-II deployment and GLCM deployment.

Mr. BERMAN. What am I speaking in terms of?

Mr. PAYNE. Pershing II deployment and ground launched cruise missile deployment. Excuse me.

There are a number of alternatives by which we are trying to enhance deterrence in NATO Europe. Deployment of intermediate range weapons is one of the steps in trying to enhance the deterrent. But the fundamental problem can not be solved by offensive capabilities, particularly if we are going to rely on the nuclear threat of escalation as the basis of preserving security for NATO Europe. If we are going to rely on the threat of nuclear escalation, which, in fact, we do now in the "flexible response" policy, then it has to be credible in Soviet eyes that under some conditions the United States actually would abide by its commitment. And it is important to understand that in Soviet eyes this credibility is important.

What I am suggesting is that in the Soviet perspective a defended America, again, if the technology proves to be feasible, undoubtedly is going to be seen as much more likely to abide by its treaty commitments and come to the aid of its allies than is an undefended America. A United States that is much less vulnerable to Soviet nuclear attack should be seen as much more likely to abide by its commitments. That is, the U.S. commitment should be much more credible, and that credibility should enhance stability.

Chairman FASCELL. Can I just interrupt right there?

Mr. BERMAN. Sure.

Chairman FASCELL. All of that logic is great, but it is based on the presumption that you can fight a nuclear war and win it.

Mr. PAYNE. Not at all. There is nothing in that logic that suggests that you would have to be able to win a nuclear war. The only logic associated there——

Chairman FASCELL. Well, it certainly doesn't suggest that you could lose one.

Mr. PAYNE. That is quite right. And there is a major distinction there. It suggests that the defense technology is feasible, and I am simply granting that as an assumption. I am not saying that I believe that is necessarily the case right now. I don't believe it is the case right now.

Chairman FASCELL. No, no, no.

Mr. PAYNE. If the defense technology does become feasible——

Chairman FASCELL. Well, for the purpose of the discussion, I would be willing to assume that it exists right now and is in place right now, and then ask yourself are you any better off.

Mr. PAYNE. In that case we certainly are much better off. Because as I mentioned, deterrence simply may fail in the next military crisis. If deterrence fails in the next military crisis, the only safety net that may exist will be the ability to limit damage to the American people.

Chairman FASCELL. Well, that assumes you can win a war, a nuclear war. Limit damage. What exactly are you talking about here?

Mr. PAYNE. Well, there is a major difference——

Chairman FASCELL. Excuse me. I realize there is a major difference. I just want to make it clear on the record the presumptions upon which you are traveling in support of your own logic, that is all. You are entitled to your opinion. I just want to get it clarified on the record.

Mr. PAYNE. Let me make clear that the presumption upon which I am traveling is not the winning of a nuclear war. That is not what I am saying. There can be a condition where both sides could be defended effectively.

Chairman FASCELL. Excuse me. Tell me what you mean by limiting damage to America, or the American people, or whatever that expression was you used.

Mr. PAYNE. The general phrase is "damage limitation," and that is——

Chairman FASCELL. Is that the people, land or armaments?

Mr. PAYNE. It could include all of the above.

Chairman FASCELL. I see. OK.

Mr. PAYNE. But that is a completely different concept—should be a completely different concept—than necessarily having the capability to win a nuclear war. In other words, there can be a condition on both sides——

Chairman FASCELL. Well, if you are going to limit damage, you have got to assume an attack.

Mr. PAYNE. There is a condition where both sides could limit damage to themselves, and that would not necessarily mean the United States could achieve a victory. The Soviet Union could achieve a damage limitation capability as well. We are talking about the condition of two Astrodomes, not just one Astrodome. And there certainly is not a condition of U.S. victory in that situation.

Chairman FASCELL. And that logic does not assume a limited nuclear war? It does not, or it does? I am just asking.

Mr. PAYNE. The logic in this case does not——

Chairman FASCELL. The logic of damage limitation on both sides, either rests on the presumption of a limited nuclear war possibility, or it doesn't?

Mr. PAYNE. It travels on the presumption that the United States would have deployed strategic defenses that in the event of war would limit damage to the United States. That is the assumption.

Chairman FASCELL. The assumption in every case is predicated on some kind of war, is it not?

Mr. PAYNE. Every approach to deterrence is predicated upon the possibility of some kind of war.

Chairman FASCELL. Thank you.

Mr. PAYNE. A deterrence policy of mutual assured destruction is predicated upon some concept of war.

Chairman FASCELL. I didn't say I was for either one of them.

Mr. PAYNE. Right.

Chairman FASCELL. I just want to find out what our logic is.

Mr. PAYNE. OK, that is the logic.

Chairman FASCELL. OK.

Mr. BERMAN. Is Europe really better off with an invulnerable Soviet Union?

Mr. PAYNE. The question cannot be answered with any certainty because, again, we do not know exactly what contributes to stability under every condition. Nevertheless, the argument can be made that the U.S. deterrent is much more credible if the United States is defended, even given that the Soviet Union also is defended. If the United States deterrent is much more credible, one would presume that the deterrent is more effective.

Chairman FASCELL. Now, you see we have moved in the right arena. The arena is not military hardware. It is in the mind of man, and the perception the individual has with respect to your credibility——

Mr. PAYNE. Right.

Chairman FASCELL [continuing]. To knock the hell out of him.

So, we ought to quit doing that and exchange films like they do in the National Football League, and then meet every Monday morning and see what our credibility is.

Mr. BERMAN. If a criticism of the ABM Treaty is that it was supposed to lead to limits or disincentives on more offensive missiles and didn't, isn't what we are now about to embark on in a major way going to even more so cause an increase in those offensive weapons?

Mr. PAYNE. It depends on how effective those defenses might be. What I was suggesting is that we heard exactly the same argument between 1969 and 1972. That is, that the U.S. Ballistic Missile Defense Program is going to cause the Soviets to arms race, and if we cap that missile defense program, the Soviets will not continue in their offensive buildup because their incentives will evaporate because of our cap on BMD. Yet what we saw was that that theory was particularly wrong. We capped the BMD and yet we still saw the Soviet buildup of offensive counter force weapons.

Mr. BERMAN. Of course I guess somebody could come back and say what might you have seen if we hadn't had the ABM systems?

Mr. PAYNE. Quite right. Of course.

Mr. PIKE. Because you recall at the time the projections were that the Soviets were going to be deploying somewhere in the vicinity of 400 or 500 SS-9 and SS-18 class heavy ICBM's whereas, in fact, they only deployed 308.

Chairman FASCELL. That is because of the limitation in SALT II?

Mr. PIKE. That is right. And I think that it is important to recognize that the administration itself continues to share this logic in its report, the declassified version, which was issued last week, on page 13. It lists a number of responses that the Soviets could make to the SDI, and the very first one is increasing missiles, warheads and penetrations aids in an attempt to saturate the defense. And both—the Hoffman panel that examined the strategic implications of the SDI came to the conclusion that the most likely response, Soviet response to the SDI, would be additional proliferation of warheads; and the President's Fletcher panel that examined the technology ran its notional strategic defense programs against a threat that consisted of 30,000 ballistic missile warheads, four times the current force.

So, I think that while one might imagine some idyllic time in the 22d century when you achieve defense dominance that precluded an offensive buildup, I think that everybody who is involved in this business, even the people who designed the strategic defense initiative itself, concluded that at least for the next several decades you would have a situation in which there was considerable intensification of the competition in offensive weapons. I think even the advocates of this program have at least tacitly admitted that.

Mr. BERMAN. I have a couple more questions, Mr. Chairman.

Chairman FASCELL. Go ahead.

Mr. BERMAN. All right. Thank you.

First to Mr. Payne, and then another question to the others.

SDI'S ROLE IN ARMS CONTROL PROCESS

I haven't read your prepared testimony, but I thought I heard you say that SDI is not an enemy of arms control. As you amplified it, what I really thought you were saying is SDI is a better alternative to peace and security than arms control; that SDI will achieve the goals that arms control has more effectively than arms control will.

Am I right? Is that observation——

Mr. PAYNE. I think your interpretation is correct. Let me clarify it, if it needs clarification. The SDI can both facilitate formal arms control negotiations and it can actually help facilitate, if the defense technology proves feasible, the attainment of the classic objectives of arms control outside of negotiations. It has the possibility of providing a dual means of achieving the objectives of arms control, objectives which we have not been able to achieve through our more or less offensive dominated perspective of the past.

Mr. BERMAN. I would be interested in the other witnesses' reaction to that.

Mr. RHINELANDER. Well, let me make a few comments. There are suggestions by the critics of arms control that the ABM Treaty has failed because we haven't had deep reductions on the offensive side. I don't think anybody claimed during the discussion of the SALT I agreements, in 1972, that deep reductions would necessarily follow. The basic point is that without limitations on the defensive side you will have no limitations. Without the limitations of the defenses you won't have them on the offense.

Put the question the other way: What would we do if the Soviets now had or were in the process of deploying a nationwide defense of the Soviet Union against ICBM's, against offensive missiles? We would be multiplying our offensive threat. There wouldn't be much debate about the MX missile. We would be going ahead with the MX. We would be moving forward on all fronts as fast as we could.

Chairman FASCELL. Or searching for a very cheap, effective alternative.

Mr. RHINELANDER. Or searching for the alternative, which really is to limit both. And I think that has to be the goal.

Mr. BERMAN. Or trying to get ready to knock out on a first strike their defense system.

Mr. RHINELANDER. Well, you certainly are going to build systems with various kinds of capabilities, but I don't think anybody is suggesting—I don't think Keith is suggesting—a preemptive strike strategy. But the fundamental point, I think, is that unless you have limits on the defensive systems you will not have them on the offense because we would be looking at the Soviet system in terms of what its capabilities would be. We would use our worst case analysis and we would want to make sure we had a significant diversity of systems to make sure that under all circumstances we could penetrate that Soviet defense. And the Soviets would be doing exactly the same thing.

Chairman FASCELL. And that is what they are doing.

Mr. RHINELANDER. And that is what they are doing. And we have programs underway right now on the offensive side in terms of our missiles, in terms of zig-zag and decoys, and a variety of other capabilities for those weapons, so that whatever the Soviets do we will be sure that our ballistic missiles will be able to penetrate. We are also enhancing the bombers, both in terms of penetration by the bombers themselves with the B-1 and the cruise missiles.

And let me make one point which I think is important, because during my active service years in the military I was with a Nike base. And as you will recall, in the 1950's, the United States put up around the country the first generation of SAM systems. They were designed to counter a threat that really didn't exist, the high-altitude Soviet bombers. We, basically, have taken that entire system down now.

Chairman FASCELL. Did that include SAGE—semiautomatic ground environment?

Mr. PIKE. Right.

Mr. RHINELANDER. That was later on. I was with the first generation of it. But the fact was—and our logic was, I think, correct—that if we couldn't defend ourselves against the Soviet ballistic missiles, we shouldn't waste the time and the money on our SAM's. Now, the Soviets have not followed that logic. You have to ask what they are doing. They have maintained their SAM systems. They have enhanced it. But if you cannot defend yourself against ballistic missiles, you have to ask yourself the question what do you do with it? Why are you putting up a SAM defense.

But to the contrary, if, in fact, we go forward with SDI, there is no doubt if the goal is to try to render weapons impotent that we

are going to have to try to defend ourselves against all reasonable threats, and that includes the bombers and the long range Soviet cruise missiles. We would have to go back and reintroduce the concept of continental defense against the bomber and now the cruise missile threat.

And with respect to the cruise missiles, the United States is very vulnerable; not just against the air-launched cruise missiles which could come over the Pole, but against cruise missiles coming from the seas. We have cur whole coastlines, both coastlines, exposed to that kind of threat. It would be a formidable task. Our systems, our forces are confident that we can penetrate defenses. I would suggest that with the same kind of technology—lagging, yes, and not as good as ours—the Soviets would go forward to make sure they had that kind of capability, too.

Mr. BERMAN. What does Mr. Payne say to that compelling analysis?

Mr. PAYNE. Well, it is not quite as compelling in my opinion, because in the long run what the Soviets do in response is going to depend largely upon what the cost exchange ratio is between the offense and the defense; that is, what does it cost the offense to try and beat the defense, or what does it cost the offense to add an increment of offense that can——

Chairman FASCELL. Supposing they don't care? They haven't seemed to worry about that up until now.

Mr. PAYNE. There certainly are limits to what even the Soviet Union can care about in terms of the costs it can afford.

Chairman FASCELL. Well, I think it is a mistake in logic to assume that the Soviets are either stupid or limited.

Mr. PAYNE. No, I certainly am not suggesting that the Soviets are either stupid or unlimited. What I am suggesting is that in the long term this cost exchange ratio is going to be very important. Because if the costs to the offense are three times or four times the cost to the defense, and at this point no one knows what that figure might be, it is going to be fruitless to try and pursue offenses to beat the defenses in that case.

In that case, the deployment of defenses certainly is not going to lead, in the long run, to the type of offensive countermeasures that are being suggested. We are talking about a very long term process here, and we do not know what the cost exchange ratio might be. But that is going to be a key variable in the Soviet decision, there is no doubt about it.

Chairman FASCELL. That may be, but human nature tells me, just based on common sense, that when this thing breaks, and I think it is broken, it will go in every direction all at once on both sides, and we haven't done a thing. That is my off-the-bottom judgment of this.

Mr. PIKE. I think that there is a tendency on the part of some analysts to attribute excessive elegance in practice to the way these cost exchange ratios are going to be figured out by decisionmakers sometime in the 21st century. And I guess I have a couple of points I hope that people will try to keep in mind when they hear these elegant arguments that the Soviets are going to see that the offense is more expensive than the defense, and that they are going to give up.

In World War II, with the shoe on the other foot, it has been calculated that the British RAF was spending five times as much on defense as the Germans were spending on the offense, but nonetheless, even in the face of that very unfavorable cost exchange ratio, they continued to fight the Battle of Britain. And given the difficulties that we have figuring out how much the Soviets are spending on their military forces, and even how much difficulty we have estimating how much our own military systems are going to cost, it seems to me to be very optimistic to assume that both sides are going to be able to sit down and agree what numbers need to be cranked into the equation to decide whether the offense or the defense is cheaper.

DEFENSE COSTS

And finally, I think it is a real question: You have to ask yourself, even if you do achieve a favorable cost exchange ratio, what sort of world are you in? Are you in a world in which the Soviets have deployed 100,000 nuclear warheads and we have tens of thousands of lasers flying around in space?

Chairman FASCELL. Not only that, I think the CEP [Circular Error Probable] ratio is a subjective judgment.

Mr. PIKE. Exactly.

Chairman FASCELL. Moreover I think it is an esoteric discussion for purposes of putting a handle on something so you can peddle it, that is all.

Mr. PAYNE. May I comment on that?

Chairman FASCELL. Yes.

Mr. PAYNE. First of all, I am not suggesting, and I am not even trying to suggest——

Chairman FASCELL. I wasn't being critical of you, by the way, or anybody here. I was just trying to get into a general philosophical discussion about this whole cotton-picking problem about how much money we spend and how much defense we have and how much offense we have, when none of it really means anything.

SOVIET OPTIONS

Mr. PAYNE. I am not suggesting that the Soviet Union will not respond with an offensive buildup to a deployment of American ballistic missile defense. I am not suggesting that we know that the Soviet Union will not do that. In fact, I suspect that during the intermediate period, if we do decide to deploy a ballistic missile defense, the Soviets will try and pursue programs to penetrate those defenses. I suspect they also will deploy their own ballistic missile defense program as we see it now. I suspect as well that they will try and pursue arms control negotiations to cap BMD. The Soviets will pursue a number of different options. But what can not be said now is that we confidently know how the Soviets will respond in the long term.

Chairman FASCELL. Excuse me for interrupting you, but I have to at this point. If it is reasonable to assume that the Soviets will deploy their own bullistic missile defense system in response to ours then why aggravate the problem we already have by deploying such a system. Why do we want to create another problem?

Mr. PAYNE. Right. We may be solving a deeper problem by pursuing the defense.

Chairman FASCELL. Oh, now, if I believed that——

Mr. PAYNE. Well, again the question is, is the technology going to prove feasible? And that is what the SDI is about—to see whether it will prove feasible or not.

Chairman FASCELL. For the purpose of this discussion, a long time ago I agreed, that if we had the technology and the systems in place it would improve anything one whit. Now, you can take it from there if you want to, but let us not go back. We want to run the logic all the way down to the end of the string if we are going to war game this.

Mr. BERMAN. I am sorry. That assumption, of course, is still—I mean a lot of people, including the people who testified before you, weren't willing to make that assumption.

Mr. PAYNE. I am not willing to make it, either.

Mr. BERMAN. I agree.

PROGRESS AT GENEVA TALKS

Just turning to the arms control talks, now, is there any reason to believe that anything productive in the area of negotiated reductions in offensive weapons will come without this administration giving up in some significant way its notion of deploying an SDI defense system?

Mr. RHINELANDER. Let me respond to that question. I don't believe there is going to be anything happening at Geneva unless and until the U.S. signals one way or another a willigness to curtail SDI—to keep it down to what you call the research. Keith, I think, agrees with me that we have got to enhance the ABM Treaty if we are going to maintain that as a major part of the U.S. strategic posture. I think we are going to just have public statements being made by both sides, sterile negotiations, unless and until there is a breakthrough. And that breakthrough has to be achieved at the highest levels. It would be similar to the Vladivostok-type agreement reached in 1974, although it would be more complicated. It has to deal with both the offense and the defense. But until that happens, nothing is going to be achieved at Geneva.

I wouldn't, personally, expect anything to happen in Geneva until sometime next year at the earliest. I think until then we are simply going to have statements and public postures. The Russians will be doing it both to influence the United States public policy and, more particularly, Europe. We will be countering. But there will be no real negotiations going on.

Mr. BERMAN. But then, does it follow that what the administration has done up till now, in fact, enhances—if they have the flexibility to take advantage of it—the possibility of a much better arms control agreement than we achieved with SALT II?

Mr. RHINELANDER. I have said many times that I think the opportunity is there for the most significant arms control agreements over the past 15 years or since the SALT process ever began.

Mr. BERMAN. Because of?

Mr. RHINELANDER. Partly because of SDI. I think SDI has clearly been a factor in catching the Russians' attention. They were not, as

you recall, at SALT I willing to negotiate significantly on the offensive side. I think SALT II was useful, but it was modest. It was very useful in terms of the comprehensiveness of the agreement, but it did not cap the race on the offensive side because of the very high limits on the MIRV's. Effectively, both sides were invited to build up to the levels in SALT II. And it is the ratio on the individual warheads on the ballistic missiles to the potential targets, which is the destabilizing factor which has everybody concerned.

Ideally, coming out of the next round of talks, would be an agreement for deep cuts on the offensive side coupled with enhancement of the ABM Treaty and I would say an ASAT agreement. I think you have to deal with both ASAT's and enhancement of the ABM at one and the same time on the defense; and then on the offense you have to deal with the deep cuts. That includes START and INF systems.

Now, recognize that we are talking about extraordinarily complex problems. On the ABM side you are getting down to the level—to dual use, weapons systems—which have tactical or shorter range capability on defense. They could be on ships. They could be on land. Very, very tough issues to deal with.

On the offensive side, too, when you get into INF, you have to deal with the shorter and shorter range. The Soviets have moved forward some shorter range systems into Eastern Europe targeting what they earlier could cover with the SS-20 from Russian territory itself. So, the challenge is going to be enormous, but we are not even going to move forward until there is a political agreement at the highest level dealing with both sides of the equation. Whether that will come, I don't know. If it doesn't come, nothing will come out of Geneva.

SOVIET NEGOTIATING POSITIONS

Mr. PAYNE. Well, the Soviet position certainly has been that the Soviet Union will require progress in all areas of arms control before it will agree to any particular area. That certainly has been what the Soviets have said. However, I am not sure whether that will prove to be the case. I think it remains to be seen. The only thing I can suggest is that the Soviets have modified their going-in arms control positions on other occasions. For example, prior to the announcement that NATO was going to deploy intermediate range nuclear forces the Soviet Union said it would never engage in negotiations if NATO agreed to do that. NATO agreed to do that, yet the Soviets engaged in negotiations. They have modified positions before, and I do not know that they would not do it this time.

Mr. RHINELANDER. Mr. Chairman, let me make a comment because the last thing I want to do is defend the Soviets. In their own way, though, they are basically consistent in terms of what they are doing. But the United States has made a major change in its policy. Starting, really, from 1967 on, the U.S. position up until the current administration has been that we had to have limits on defense. Now, recall at the beginning of SALT I, the Soviets were finally persuaded, after Kosygin at the Glassboro Summit, in 1967, said defense is good. They were finally persuaded that we had to have constraints on the defense and then move on to the offense.

Now, we got them at SALT I to agree to partial limits on the offense, but the focus clearly was on the defense. We have now changed over—a total reversal since the Johnson administration—saying, "No, we don't need constraints on defense; in fact, we shouldn't have them." The logic of the administration's position is that there should be no ABM treaty. That is very clear. The problem, of course, is transition. Nobody has suggested any way, theoretically, even assuming a perfect defense were possible, how we could move from an offense-dominated to a defense-dominated world.

But the point is that we have now totally reversed our negotiating position which started in 1967. I don't think there is any reason to believe the Soviets are going to join us in that total U-turn.

Mr. PAYNE. If I may comment on that. I do not think that the Soviet Union engaged in that U-turn away from defense in the first place. The Soviet Union, since 1972, and, indeed, before 1972, has shown great interest in strategic defense. In fact, they evidently spend more on strategic defense than we do on strategic offense. They have had a history of being very interested in strategic defensive forces, and I do not believe that the ABM Treaty reflects the fact that they decided that defense was bad at the time. Will the Soviet Union follow us or not? I think the fact is that we are more or less following them in our new interest in defense as opposed to trying to get them to come about to our particular position.

I think that that is a fundamental——

Mr. RHINELANDER. Let me make one point on that. It is very true historically, of course, before there was a revolution and since that time that the Russians have emphasized defense. But I don't think the Russians are under any illusion that their current systems are effective. We certainly don't believe that. We have absolute confidence that our offensive forces could overwhelm the Moscow ABM systems and our bombers can get through.

So, while the Russians, yes, have emphasized defense, I don't think there is anything to suggest they believe those defenses would be effective against the U.S. strategic forces. And certainly, we don't believe that.

Chairman FASCELL. Well, we wouldn't want to resurrect the Continental Air Defense Plan, would we?

Do you have some more questions, Howard?

Mr. BERMAN. No, no; I haven't. I could talk about this for a long time, but——

Chairman FASCELL. I want to thank all of you. It has been very encouraging and very stimulating to have this discussion with all of you. I appreciate that very much.

Sometimes, I am constrained to oversimplify the most technical and complex questions, and I guess that is a function of politics, if nothing else. But one thing did stick in my mind here in this discussion. It seems to me almost irrefutable. And that is, without the political will at the highest level at least conceptually to do something, I don't think much is going to get done. This hearing is just a small example of what happens in technical or logical discussions of the issue, which rests on the political desire to do something about having a peaceful world and a safe world and a secure world,

while understandably wanting to protect the sovereign integrity of your own country. I have no arguments with that, of course.

I guess we might as well go, though, to the ultimate; and that is to just put all of our eggs in the ultimate weapon. There are two ultimate weapons. One is a pill. A white pill that everybody could take and it would make them immune to radiology, so we wouldn't have to worry about fallout. Now, you might not be able to eat anything or do anything else, but at least radiation wouldn't burn you to death. And if you could escape the thermonuclear blast long enough, why you might find a genetic mutation of an earthworm, I suppose, that would keep you alive.

Mr. BERMAN. The other one is the Maginot Line.

Chairman FASCELL. No, no; the other one is not the Maginot Line. The other one is the exponential extension of outer space. When your opponent fires off his total preemptive strike, you just push the button, you see, and you send the whole fleet into a different dimension in space and you are protected. There is nothing to it. I see this every day on television, no sweat. The technology is here. I have heard scientists tell me it is just around the corner. As a matter of fact, when I was reading Buck Rogers when I was a kid they had all of that—and Flash Gordon, too. So, I have absolutely no apprehension.

Mr. RHINELANDER. Mr. Chairman, let me just make one comment. It is in my prepared statement, but I didn't mention it today and, really, nobody has touched on it today.

I think most people who have looked at the nuclear problems feel that the proliferation problem, the problem particularly in terms of the possible use of nuclear weapons some day, focus on what is called the third country, not any exchange between the United States and the Soviets. And it seems to me that all the discussions of star wars and the Soviet response, making weapons obsolete, et cetera, miss one of the major points. We are not talking about a world where there is probably going to be less threats in the future——

Chairman FASCELL. But more.

Mr. RHINELANDER [continuing]. Because I think the probability is high. Clearly, it has not come as fast as many people thought a number of years ago, but there will be more countries in the world which have nuclear weapons 20, 30 or 40 years from now. Pakistan right now is very close to that capability, as you know.

There is no easy escape from a nuclear dilemma. I, personally, don't think we will ever see a world without nuclear weapons. I think that is a dream world. I don't think we will ever see a world where you have technical defenses to it. It is going to be part of a difficult, unsatisfactory political process, trying to maintain a balance. You can never prove, of course, that deterrence works. I think everybody admits that. But it is going to be one where there are no easy, quick, fast answers, and that is going to be part of the frustration.

I felt during the negotiations in 1972 that during cycles, I didn't know whether it would be 10, 15, 20 years, we would have these great debates on defense because there certainly is a frustration we cannot defend ourselves. But I don't think there is any prospects that we are ever going to be able to do that. And we are, then,

going to have to figure out the best ways to try to cope with a weapon which was invented and will never be disinvented.

Chairman FASCELL. Well that is awful. You just shot down the most beautiful theory I ever concocted. Now, why would you want to do a thing like that? [Laughter.]

Thank you very much, though, for making the point.

Gentlemen, thank you very much.

[Whereupon, at 1:15 p.m., the subcommittee was adjourned, to reconvene at 10 a.m. on Wednesday, May 1, 1985.]

IMPLICATIONS OF THE PRESIDENT'S STRATEGIC DEFENSE INITIATIVE AND ANTISATELLITE WEAPONS POLICY

WEDNESDAY, MAY 1, 1985

HOUSE OF REPRESENTATIVES, COMMITTEE ON FOREIGN AFFAIRS, SUBCOMMITTEE ON ARMS CONTROL, INTERNATIONAL SECURITY AND SCIENCE,

Washington, DC.

The subcommittee met at 10:15 a.m., in room 2172, Rayburn House Office Building, Hon. Dante B. Fascell (chairman of the subcommittee) presiding.

Chairman FASCELL. We meet today to continue our examination of the administration's strategic defense initiative [SDI] and its antisatellite [ASAT] weapons policy.

This is the second in the series of hearings we have had in this session on the question of arms control in space. We are attempting to examine all avenues and parameters of the issues so that we will have a more complete and informed understanding of administration policy in this area. From the testimony and statements of a wide range of experts in the areas of arms control, national security, and defense, there is beginning to emerge a consensus that the ABM Treaty seems to be fundamental to helping us prevent an arms race in defensive systems and to averting an acceleration of the arms race in our offensive systems. However, there seems to be considerable disagreement in the administration and from those in the arms control and scientific community concerning the definition of terms in the ABM Treaty.

We now learn of—what I consider to be—a new definition coming out of the Pentagon regarding the ABM Treaty, and it seems rather clear that these differences of opinion will have to be resolved if we are to maintain the integrity of the treaty. As a matter of fact, we keep hearing rumblings that maybe the thing to do is just forget the treaty, or renegotiate the treaty.

We have gone into the question of cost, and there again, cost seems to be anybody's guess, but we know that the research progrm is a 6-year program with $33 billion, and deployment could cost—depending on who you talk to—up to a trillion dollars or more.

Finally, we looked at the question of how fast DOD can spend this money. We found out that so far, according to CBO, less than 3 percent of the money that has been appropriated has actually been spent, and that raises a question, because the administration has gone from a $1.4 billion request to about a $4 billion request in the second year—that's quite a jump given the fact that DOD is having

such difficulty spending the money it has already been appropriated. This will certainly be something we will further analyze.

Because these and other issues are emerging from our discussions we are particularly pleased to have with us today two former Secretaries of Defense—both experts and outstanding Americans. We invited all of the other Secretaries of Defense to testify before the committee. However, they could not be with us today because of scheduling conflicts. But we are working with them and as fast as we can clear their schedules, perhaps we will have the benefit of their advice in the future. Nevertheless, I am delighted to welcome both of you here. You have both given a great measure of service to this country. We appreciate the time and effort that you have undertaken to once again enlighten the Congress and the American people on an issue, it seems to me, of paramount importance.

Chairman FASCELL. With that, I would like to ask Mr. Broomfield, our ranking member, if he would like to make some comments.

Mr. BROOMFIELD. No, Mr. Chairman, but I would like to join you in extending a warm welcome to our two former Secretaries of Defense. I am anxious to hear their comments on this important subject.

Chairman FASCELL. Thank you very much.

Mr. McNamara, why don't you proceed.

STATEMENT OF HON. ROBERT S. McNAMARA, FORMER SECRETARY OF DEFENSE

Mr. MCNAMARA. Thank you, Mr. Chairman.

I have submitted a written statement to the committee, but I understand I may have perhaps 10 minutes to make an oral comment.

Chairman FASCELL. Without objection, your entire statement will be included in full in the record, and you may proceed.

Mr. MCNAMARA. Thank you, sir.

I am very gratefuly, indeed, for your invitation to appear before the subcommittee to testify on arms control and the administration's strategic defense initiative.

As you may know, Messrs. McGeorge Bundy, George Kennan, Gerard Smith and I published an article in the December issue of Foreign Affairs entitled "The President's Choice: Star Wars or Arms Control."

Chairman FASCELL. Without objection, let's make that article a part of the record.[1]

Mr. MCNAMARA. Thank you, sir.

In it we said, "We believe the President's initiative to be a classic case of good intentions that will have bad results because they do not respect reality."

That was my belief in December. It is my belief today. The President is attacking the right problem but I believe with the wrong solution. I will try to explain why.

Let me begin by describing the situation as it is today.

---

[1] See appendix 1.

ADEQUACY OF UNITED STATES AND SOVIET NUCLEAR ARSENALS

The arsenals of the United States and Soviet Union together contain something on the order of 50,000 nuclear weapons. Each, on average, is far more destructive than the bomb that obliterated Hiroshima. Just one of our 36 strategic submarines, for example, has more firepower than man has shot against man throughout history.

Thousands of nuclear weapons are ready for immediate use against targets close at hand or half a continent away, and as you know, just a few hundred of these exploded over our country would destroy it.

To deter war each side seeks to convince the other, and itself, that it is ready and able to wage a nuclear conflict having the military objectives of a bygone age. What is known of Soviet nuclear war plans is, I think, open to various interpretations, but they do appear to rely on tactics derived from Russia's prenuclear military experience.

And our own United States defense policy also calls for nuclear forces that are sufficient to support a "controlled and protracted" nuclear war that could eliminate the Soviet leadership, and that would even permit the United States to "prevail."

These nuclear "war-fighting" notions of each side lead to enormous target lists and huge forces. We have in our strategic nuclear force today about 11,000 nuclear warheads. These are directed against some 5,000 targets. And NATO's war plans in Europe are based on early first-use of some 6,000 tactical nuclear weapons in response to a Soviet conventional attack. Both NATO and the Warsaw Pact routinely train their forces for nuclear operations.

These armories and these war plans are more than symbols for bolstering self-confidence. Moscow and Washington both presume that nuclear weapons are likely to be used should hostilities break out. But neither knows how to control the escalation that would almost certainly follow. And surely it is reckless to stake a nation's survival on plans for something about which no one has any idea.

It would be ever more reckless to attempt a disarming first strike. Nevertheless, the arms race is driven by deep-seated fears held by each side that the other has, or is seeking, the ability to execute such a strike.

President Reagan has said repeatedly "a nuclear war cannot be won and must never be fought." His conviction that, therefore, we must change course is shared by groups and individuals as diverse as the freeze movement, the Catholic bishops, the bulk of the Nation's scientists, and the President's own chief arms control negotiator. All are saying, directly or by implication, that nuclear warheads serve no military purpose whatsoever. They are not weapons. They are totally useless, except only to deter one's opponent from using them.

But that being said, the consensus dissolves, for the changes of direction being advocated follow very different diagnoses of our predicament.

FEASIBILITY OF PRESIDENT'S SDI PROGRAM

The President's approach, as you know, has been to launch the strategic defense initiative to create an impenetrable shield that would protect the entire Nation against a missile attack, and which would, therefore, permit the destruction of all offensive nuclear weapons. The President and the Secretary of Defense remain convinced that this strategic revolution is attainable.

But virtually everyone else associated with the SDI now recognizes that such a leak-proof defense, should it ever prove feasible, is so far in the future it offers no solution to our present dilemma. These alternative systems, supported by others, range from defense of "hardened" missile sites to partial protection of our population.

For the sake of clarify, I would like to designate these alternative programs as Star Wars II, to distinguish them from the President's program which I am going to call Star Wars I.

It is essential to understand, and I cannot overemphasize this point—it is essential to understand that these two versions of Star Wars have diametrically opposite objectives. The President's program, Star Wars I, if achieved, would substitute defensive for offensive forces. In contrast, all other Star Wars programs, those I call Star Wars II, have one characteristic in common: They all would require that we continue with offensive forces, but add the defensive systems to them. That is exactly the opposite of what the President proposed and that, of course, is what causes the problem.

The President, in a little-remembered sentence in the speech in which he announced his Strategic Defense Initiative, March 23, 1983, said, "If paired with offensive systems, defensive systems can be viewed as fostering an aggressive policy, and no one wants that." But that is exactly what we are on the way to doing, and that's exactly how the Soviets are interpreting our program. And that's why they say, of course, that there will be no agreement on offensive weapons until we give up Star Wars.

Now, does that mean there is no hope at Geneva? Not necessarily. Paul Nitze faced the problem squarely in that speech he gave in Philelphia on February 20. He said a strategic defense system must meet three criteria before its deployment can be justified: it must be effective, survivable, and cost effective at the margin.

He went on to say that no system would meet these tests soon. Therefore, as far as the arms talks in Geneva are concerned, Mr. Nitze foresaw them dealing with three distinct time periods. The first phase, which he said would last at least 10 years, would be one in which no defensive system would be deployed and one in which we would, to use his words, "reverse the erosion of the ABM Treaty."

The second phase would be a transition period in which some form of Star Wars II might be deployed alongside of our offensive forces. "The second phase," he said, "would last for at least several decades." It might ultimately be followed by a third phase, if Star Wars I should ever prove practical.

But less than one month after Mr. Nitze spoke in Philadelphia, the administration appeared to be moving in ways inconsistent with his three-phase program. As you know, the ABM Treaty severely restricts the testing of components of ABM systems. But the

United States almost certainly will be violating that Treaty long before the end of Mr. Nitze's first phase if we place our research program on the time schedule implied by the statement made by the SDI Director, General Abrahamson, on March 15. On that date he said: A "reasonably confident decision" on whether to deploy Star Wars II could be made by the end of this decade or in the early 1990's.

If we are unwilling to refrain from the tests associated with such a schedule, the Soviets will, and I think with good reason, assume that we are preparing to deploy defenses. And the prospect for offensive arms agreements at Geneva will evaporate.

When Mr. Nitze discussed the second phase of his three-phase program—a phase in which the defensive systems would be deployed alongside the offensive—he acknowledged that the problems of how to write an arms control agreement which, during that transition, would limit offensive arms but permit deployment of defensive arms would be, in his words, "tricky." But, by implication, he was saying this was an issue for the future and need not prevent progress at Geneva.

Nitze did not address the issue of offensive arms limitations. This will prove to be a very complex problem, indeed. As I have said, each side fears the other has, or is seeking to attain, a first strike capability. At present, deterrence is unstable because of these fears.

The primary objective of offensive arms limitation, therefore, must be to increase the stability of deterrence by eliminating the perception of first-strike threats. Because of the asymmetry of forces, this will be very difficult to accomplish. It will require that each side reduce the ratio of the number of its warheads to the number of the other side's vulnerable missile launchers.

In other words, what are needed are deep cuts—on the order of 50 percent—in the number of nuclear strategic warheads, but cuts shaped to eliminate the fear of disarming strikes. That can be done. Will it be done? I can only hope so.

We are facing, I think, a plus-sum game from which both sides can emerge as winners. If we recognize this fact, we can, I believe, through the Geneva negotiations, take a giant step toward reducing the risk of nuclear war and laying the foundation for a more secure 21st century.

Thank you, Mr. Chairman.

[Mr. McNamara's prepared statement follows:]

Prepared Statement of Hon. Robert S. McNamara, Former Secretary of Defense

Mr. Chairman, I am grateful for your invitation to appear before the Subcommittee to testify on Arms Control and the Administration's Strategic Defense Initiative.

Messrs. McGeorge Bundy, George Kennan, Gerard Smith and I published an article in the December issue of Foreign Affairs magazine entitled "The President's Choice: Star Wars or Arms Control". In it we said: "We believe the President's initiative to be a classic case of good intentions that will have bad results because they do not respect reality".

That was my belief in December. It is my belief today. The President is attacking the right problem with the wrong solution. I will try to explain why.

Let me begin by describing the situation as it is today.

The arsenals of the U.S. and Soviet Union hold, in total, some 50,000 nuclear warheads. Each, on average, is far more destructive than the bomb that obliterated Hiroshima. Just one of our 36 strategic submarines has more firepower than man has shot against man throughout history. Thousands of nuclear weapons are ready for immediate use against targets close at hand or half a globe away, but just a few hundred warheads could utterly demolish the largest nation.

To deter war each side seeks to convince the other, and itself, that it is ready and able to wage a nuclear war having the military

objectives of a bygone age. What is known of Soviet nuclear war plans is open to various interpretations, but they appear to rely on tactics derived from Russia's pre-nuclear military experience. And current U.S. defense policy calls for nuclear forces that are sufficient to support a "controlled and protracted" nuclear war, that could eliminate the Soviet leadership, and that would even permit the U.S. to "prevail".

The nuclear "war-fighting" notions of each side lead to enormous target lists and huge forces. Our 11,000 strategic warheads (see Table I) are directed against some 5,000 targets! And NATO's war plans are based on early first-use of some 6,000 tactical nuclear weapons in response to a Soviet conventional attack. Both NATO and the Warsaw Pact routinely train their forces for nuclear operations. "War-fighting" doctrines create a desire for increasingly sophisticated nuclear weapons that technology always promises to satisfy but never does. Today both sides are committed to programs that will threaten a growing portion of the adversary's most vital military assets with increasingly swift destruction.

These armories and war plans are more than macabre symbols for bolstering self-confidence. Moscow and Washington both presume that nuclear weapons are likely to be used should hostilities break out. But neither knows how to control the escalation that would almost certainly follow. No one can tell in advance what response any nuclear attack might bring. No one knows who will still be able to communicate with whom, or what will be left to say, or whether it could possibly be believed. Surely it is reckless to stake a nation's survival on detailed plans for something about which no one has any idea.

It would be vastly more reckless to attempt a disarming first strike. Nevertheless, the arms race is driven by deep-seated fears held by each side that the other has, or is seeking, the ability to execute just such a strike.

The war-fighting mania and the fear of a first strike is eroding confidence in deterrence. Though both sides are aware that a nuclear war which engaged even a small fraction of their arsenals would be an unmitigated disaster, each is vigorously deploying and developing new weapons systems that it will view as highly threatening when the opponent also acquires them. Thus our newest submarines will soon carry missiles accurate enough to destroy Soviet missile silos. When the Soviets follow suit, as they always do, their off-shore submarines will, for the first time, pose a simultaneous threat to our command centers, bomber bases, and Minuteman ICBMs.

The President has said repeatedly "a nuclear war cannot be won and must never be fought". However, the absurd struggle to improve the ability to wage "the war that must never be fought" has shaken confidence in the ability to avert that war. The conviction that we must change course is shared by groups and individuals as diverse as the freeze movement, the President, the Catholic bishops, the bulk of the nation's scientists, and the President's chief arms control negotiator. All are saying, directly or by implication, that nuclear warheads serve no military purpose whatsover. They are not weapons. They are totally useless, except only to deter one's opponent from using them. But that being said, the consensus dissolves,

for the changes of direction being advocated follow from very different diagnoses of our predicament.

The President's approach has been to launch the Strategic Defense Initiative (SDI), a vast program for creating an impenetrable shield that would protect the entire nation against a missile attack, and which would, therefore, permit the destruction of all offensive nuclear weapons. The President and the Secretary of Defense remain convinced that this strategic revolution is attainable.

Virtually everyone else associated with the SDI now recognizes that such a leak-proof defense, should it ever prove feasible, is so far in the future that it offers no solution to our present dilemma. They therefore advocate other forms of ballistic missile defense. These alternative systems range from defense of "hardened" targets (e.g. missile silos or command centers) to partial protection of our population.

For the sake of clarity I shall call these alternative programs Star Wars II, to distinguish them from the President's original proposal, which I will label Star Wars I. It is essential to understand that these two versions of Star Wars have diametrically opposite objectives. The President's program, Star Wars I, if achieved, would substitute defensive for offensive forces. In contrast, all Star Wars II systems have one characteristic in common: they all would require that we continue with offensive forces, but add the defensive systems to them.

And that is what causes the problem. President Reagan, in a little-remembered sentence in the speech in which he announced his Strategic Defense Initiative on 3/23/83, said "If paired with offensive systems, [defensive systems] can be viewed as fostering an aggressive policy, and no one wants that". The President was concerned that the Soviets would regard a decision to supplement our offensive forces with defenses as an attempt to achieve a first strike capability. That is exactly how they are interpreting our program, that is why they say there will be no agreement on offensive weapons until we give up Star Wars.

Does that mean there is no hope at Geneva?

Not necessarily.

Paul Nitze, the Administration's senior arms advisor, faced the problem squarely in a remarkable speech in Philadelphia on February 20. He said a strategic defense system must meet three criteria before its deployment can be justified: it must be effective, survivable, and cost effective at the margin. He went on to say that no such system would meet these tests soon. Therefore, as far as the arms talks are concerned, Nitze foresaw them dealing with three periods. The first phase, which would last at least 10 years, would be one in which no defensive systems would be deployed and we would "reverse the erosion in the ABM Treaty". The second phase would be a transition period in which some form of Star Wars II might be deployed along side of our offensive weapons. The second phase would last for at least several decades. It might ultinately be followed by a third phase, if Star Wars I proved practical.

Why did Mr. Nitze place such emphasis on adherence to the ABM Treaty during the first phase? Because the Treaty formalizes the insight that not only the deployment, but even the development of strategic defenses would stimulate an offensive buildup. Were the Treaty to collapse we could not move towards our goal of reducing the offensive threat.

The Treaty severely restricts the testing of components of ABM systems. Within the near future, the U.S. probably will be violating these restrictions if we place our research program on the time schedule implied by the statement made by SDI Director General James Abrahamson on March 15 when he said: a "reasonably confident decision" on whether to deploy Star Wars II could be made by the end of the decade or in the early 1990's. If we are unwilling to refrain from the tests associated with such a schedule the Soviets will, with good reason, assume that we are preparing to deploy defenses. They will assidously develop their response, and the prospect for offensive arms agreements at Geneva will evaporate. The Treaty's central purpose is to give each nation confidence that the other is not readying a sudden deployment of defenses: we must demonstrate that we will adhere to the Treaty in that spirit.

The ABM Treaty does not forbid antisatellite weapons, and unless that loophole is closed we shall have an arms race in space long before we have any further understanding of what, if anything, space defence could accomplish. Hence a ban on the testing of

anti-satellite weapons, which is verifiable, should become a part of the ABM Treaty regime. Because we are much more dependent on satellites than are the Soviets such a ban would be very much in our interest.

When Mr. Nitze discussed the second phase of what would be a new arms control regime -- a phase in which a defensive system would be deployed along side the offensive systems -- he acknowledged that the problems of how to write an arms-control agreement which, during that transition period, would limit offensive arms but permit defensive arms, had not been solved. He said to write such an agreement "would be tricky." But, by implication, he was saying this was an issue for the future and need not prevent progress at Geneva.

Nitze did not address the issue of offensive arms limitations. This will prove to be a very complex problem. As I have said, each side fears the other has, or seeks to attain, a first strike capability. At present, deterrence is unstable because of these fears.

The primary objective of offensive arms negotiations, therefore, must be to increase the stability of deterrence by eliminating the perception of first-strike threats. Because of the asymetry of forces, this will be very difficult to accomplish. It will require that each side reduce the ratio of the number of its warheads to the number of the other sides vulnerable missile launchers. In other

words, what are needed are deep cuts -- on the order of 50% -- in the number of nuclear strategic warheads, but cuts shaped to eliminate the fear of disarming strikes. That can be done. Will it be? I can only hope so.

We are facing a plus-sum game from which both sides can emerge as winners. If we recognize this fact, we can, through the Geneva negotiations, take a giant step forward to reduce the risk of nuclear war and lay the foundation for a more secure 21st Century.

TABLE I

Nuclear Warheads in U.S. and Soviet Strategic Missile and Bomber Forces[a/]

	1960	1965	1970	1975	1980	1985	1990[b/]
U.S.	6,300	5,000	4,500	8,000	9,200	11,100	13,600
Soviet	200	600	1,800	2,700	6,000	8,500	13,000

a/ Excludes carrier-based and theater-based bomber forces.
b/ Projections for 1990 assume U.S. and Soviet forces are constrained by Salt II.

Source: DOD Annual Report for FY '82; JCS Posture Statement for FY '86; Congressional Research Service Report #84-174F, 10/5/84.

Chairman FASCELL. Thank you very much, Mr. Secretary.

Now we will hear from Secretary Clifford.

Mr. Secretary, would you pull that mike up closer to you so we can hear you better.

STATEMENT OF HON. CLARK M. CLIFFORD, FORMER SECRETARY OF DEFENSE

Mr. CLIFFORD. Thank you, Mr. Chairman.

I also have filed a statement with the committee, but I have a short statement here of less than 10 minutes, which I will read, with your permission.

Chairman FASCELL. Without objection, the entire statement will be put in the record, and you may proceed.

Mr. CLIFFORD. The Congress of the United States and the American public are faced today with a clear choice. Will we try to make our country secure by proceeding to test and deploy an attempted defense against nuclear weapons, or will we reach agreements to control and reduce those weapons? In my opinion, the two courses are incompatible. We will have Star Wars or arms control. We cannot have both.

DEFINITION OF CONCEPT OF SDI

Chairman Fascell's letter of invitation asks me to address certain questions about the administration's Strategic Defense Initiative. In doing so, I am hampered by the fact that there is no consistent definition of the concept. Our Government officials do not seem able to agree on what it means. This complicates both our negotiations with the Russians in Geneva and our relations with our allies.

The President portrays the Strategic Defense Initiative as a dramatic new approach to security in today's world. His objective is to find a substitute for deterrence, for the threat of mutual assured destruction.

His speech to the Nation in March of 1983 called for marshalling our scientific resources to render nuclear weapons impotent and obsolete. In a speech to the National Space Club late last month, the President said his dream system "could render obsolete the balance of terror."

This concept sounds bold and attractive. If a technology could be found that could give us confidence that nuclear missiles would be destroyed on lift-off or during flight, reliance on deterrence and arms control would no longer be necessary. But presently, there is no such technology and no reason to predict that one can be found in the foreseeable future. Although I doubt it, the day might come when scientific breakthroughs will make a perfect defense possible.

NEED TO LIMIT RESEARCH FUNDING

Accordingly, I favor continuing with an advanced research program, but I would limit our expenditures to last year's level of funding. A ban on research would be unverifiable as well as imprudent. Both sides will continue to probe the frontiers of science, if only to make sure that the other side doesn't sometime come up

with a rude surprise in the form of a hitherto unknown and unexpected technology.

The President has continued to insist that his proposal "is not, and should never be construed as, just another method of protecting missile silos." But defense of missile silos is exactly what his SDI planners have in mind. The President's chief arms control negotiator, Ambassador Max Kampelman, coauthored a New York Times magazine article earlier this year in which he recognized the impossibility of a perfect defense but advocated a defensive system for missiles as an improvement in deterrence.

Advocates of a massive and tremendously expensive program are planning to deploy a strategic defense using technology that is either currently available or can be readily developed. What they propose is no abandomment of the deterrence doctrine, no brave new nuclear-free world, but simply that they see as an improvement in deterrence by facing the Soviet Union with the possibility that fewer of their warheads can strike their targets.

BALLISTIC MISSILE DEFENSE

Proponents of a ballistic missile defense argue that by protecting our missiles we protect deterrence. This, they contend, will create additional uncertainty and thus, discourage any Soviet consideration of a preemptive first strike. Moreover, they contend that our Strategic Defense Initiative Program is what brought the Russians back to the bargaining table and that it will persuade them to accept significant reductions in their strategic missiles, particularly their very large land-based ICBM's. Here, their position and that of the President converge.

In his National Space Club speech, the President claimed: "By making missiles less effective, we make those weapons more negotiable."

I am sorry to say that I consider this to be a tragically dangerous misconception. If we make it clear that we plan to develop and deploy the kind of defensive system that is now conceivable, this will effectively and perhaps permanently prevent control and reduction of Soviet offensive missile systems.

Their reaction inescapably will be to match us in a defensive systems race, to increase their nuclear missiles and nuclear warheads and to develop decoys, chaff and other techniques to make sure that they can overwhelm any U.S. defense.

SLCM'S

Warheads on nonballistic missile delivery systems—such as sea-launched cruise missiles—will increase exponentially. Accordingly, an imperfect defense—the only kind that we can now put in place—is not an acceptable alternative to arms control. It will drive both sides to seek security in unilateral action, rather than negotiation.

I think the Russians believe that adding defensive systems to the strategic arms competition will mean a less secure world for them along with everyone else. I think we persuaded them back in the late 1960's and early 1970's that this was true. Soviet officials argued at that time that we were wrong to worry about strategic

defense, that defense was good, and that only offensive nuclear weapons were bad, and should be controlled and reduced. We convinced them, however, that a competition in defensive systems would only mean an intensified arms race in offensive nuclear weapons.

SOVIET REACTION TO SDI

It is ironic to hear today the same false arguments made by Americans that were then made by the Russians. The Russians were wrong then, and those who advocate development and deployment of strategic defensive systems are wrong today.

There appears to be some official recognition of these facts. In Geneva in January, Secretary of State Shultz said after his meetings with Foreign Minister Gromyko that the SDI was only a research program and would be nothing more for at least several years.

In testimony last February before the Senate Foreign Relations Committee, as Mr. McNamara has stated, Ambassador Paul Nitze, Secretary Shultz's principal arms control advisor, took a couple of cautious steps away from the Star Wars enthusiasts. He stated that "for at least the next 10 years, we will continue to base deterrence on the ultimate threat of nuclear war. Today's technology provides no alternative."

Moreover, Mr. Nitze also told the committee that the feasibility of new technologies would be judged by demanding criteria. The defensive systems produced must, under these criteria, "be reasonably survivable" and "cost effective at the margin." This, he explained, means that they must be effective enough and cheap enough so that the other side is discouraged from any proliferation of offensive weapons to overcome the deployed defenses.

I believe that if these criteria of Mr. Nitze are, in fact, applied, the Strategic Defense Initiative will remain a research program and we will continue to base our security on deterrence for many more than the next 10 years.

It would be budgetary and strategic folly to spend hundreds of billions of dollars, or even tens of billions, on the vain hope of a miraculous solution. The technological problems are compounded, moreover, by the fact that all the complex gadgetry that could be assembled could never really be tested. A true test would come only in the event of an all-out nuclear war. This is a test that we and the rest of the world cannot afford.

This does not mean, however, that we cannot aspire to a better situation than exists today. I believe that it is entirely feasible to bring about very significant reductions in the present nuclear arsenals rather than to continue indefinitely to expand them.

Moreover, I think that through negotiated measures of arms control, we can begin to cut back particularly on the more destablilizing systems and create force structures so that neither side will ever have to worry about the other side's having an incentive to start a nuclear war.

We can, indeed, create a situation which logically derives from President Reagan's own characterization of nuclear weapons in his State of the Union Address in January 1984. In that speech, the

President said that the only purpose of either country having nuclear weapons is to see to it that they are never used. What this recognition should lead to is the creation of a situation of mutual deterrence at the lowest possible level in numbers and risk.

The result will not be a perfect world. It will not be a world free of nuclear arms. But it will be a much better world than if we allow dreams of a perfect defense to lead to a competition in imperfect defenses that will be accompanied by massive arms increases rather than arms control and reduction.

Thank you, Mr. Chairman.

[Mr. Clifford's prepared statement follows:]

PREPARED STATEMENT OF HON. CLARK M. CLIFFORD, FORMER SECRETARY OF DEFENSE

The Congress of the United States and the American public are faced today with a clear choice. Will we try to make our country secure by proceeding to test and deploy an attempted defense against nuclear weapons or will we reach agreements to control and reduce those weapons? In my opinion, the two courses are incompatible. We will have "Star Wars" or arms control. We can't have both.

Chairman Pascell's letter of invitation asks me to address certain questions about the administration's Strategic Defense Initiative. In doing so, I am hampered by the fact that there is no consistent definition of the concept. Our government officials don't seem able to agree on what it means. This complicates both our negotiations with the Russians in Geneva and our relations with our allies.

The President portrays the Strategic Defense Initiative as a dramatic new approach to security in today's world. His objective is to find a substitute for deterrence, for the

threat of mutual assured destruction. His speech to the nation in March of 1983 called for marshalling our scientific resources to render nuclear weapons impotent and obsolete. In a speech to the National Space Club late last month, the President said his dream system "could render obsolete the balance of terror."

This concept sounds bold and attractive. If a technology could be found that could give us confidence that nuclear missiles would be destroyed on lift-off or during flight, reliance on deterrence and arms control would no longer be necessary. But presently there is no such technology, and no reason to predict that one can be found in the foreseeable future. Although I doubt it, the day may come when scientific breakthroughs will make a perfect defense possible. Accordingly, I favor continuing with an advanced research program but I would limit our expenditures to last year's level of funding. A ban on research would be unverifiable as well as imprudent. Both sides will continue to probe the frontiers of science, if only to make sure that the other side doesn't sometime come up with a rude surprise in the form of a hitherto unknown and unexpected technology.

The President has continued to insist that his proposal "is not, and should never be misconstrued as, just another method of protecting missile silos." But defense of missile silos is exactly what his SDI planners have in mind. The

President's chief arms control negotiator, Ambassador Max Kampelman, co-authored a New York Times Magazine article earlier this year in which he recognized the impossibility of a perfect defense but advocated a defensive system for missiles as an improvement in deterrence. Advocates of a massive and tremendously expensive program are planning to deploy a strategic defense using technology that is either currently available or can be readily developed. What they propose is no abandonment of the deterrence doctrine, no brave new nuclear-free world, but simply what they see as an improvement in deterrence by facing the Soviet Union with the possibility that fewer of their warheads can strike their targets.

Proponents of a ballistic missile defense argue that by protecting our missiles we protect deterrence. This, they contend, will create additional uncertainty and thus discourage any Soviet consideration of a preemptive first strike. Moreover, they contend that our Strategic Defense Initiative program is what brought the Russians back to the bargaining table and that it will persuade them to accept significant reductions in their strategic missiles, particularly their very large land-based ICBMs. Here their position and that of the President converge. In his National Space Club speech, he claimed that: "By making missiles less effective, we make those weapons more negotiable."

I am sorry to say that I consider this to be a tragically dangerous misconception. If we make it clear that we plan to develop and deploy the kind of defensive system that is now conceivable, this will effectively and perhaps permanently prevent control and reduction of Soviet offensive missile systems. Their reaction inescapably will be to match us in a defensive systems race, to increase their nuclear missiles and nuclear warheads and to develop decoys, chaff and other techniques to make sure they can overwhelm any U.S. defense. Warheads on non-ballistic missile delivery systems -- such as sea-launched cruise missiles -- will increase exponentially. Accordingly an imperfect defense -- the only kind we can now put in place -- is not an acceptable alternative to arms control. It will drive both sides to seek security in unilateral action, rather than negotiation.

The argument made by Lt. Gen. James A. Abrahamson, the Director of the Strategic Defense Initiatiave program, is the following: "Remember that the Russians are afraid of our technology. That is what all this business is about. When they see that we have embarked on a long-term effort to achieve an extremely effective defense, supported by a strong national will, then they will give up on the development of offensive missiles and move in the same direction." This argument reflects a lack of both strategic logic and an understanding of the Soviet leadership and its security concerns. No one should

expect that the Soviets will cooperate with us to give us a plausible first strike potential. For them to reduce their offensive missiles because we are deploying a defense that will make it hard for their missiles to get through would do exactly that.

Let's look at the situation from the Soviet standpoint. Between 75% and 80% of their strategic retaliatory capability is in the warheads carried on their land-based fixed-target ICBMs. The Congress has, unwisely in my opinion, recently voted to go ahead with the MX program without conditions. If completed, this would give us 100 MXs carrying a total of 1,000 super-accurate warheads. The Soviet Union presently has about 1400 ICBMs. How, consistent with their own security, could they reduce the number of ICBM silos against which these MX warheads are targeted at the same time that we are developing and deploying a defensive system to reduce the Soviet warheads that can get through in a retaliatory second strike? Anyone who thinks they would react in this manner is living in a dream world. Instead they will take whatever steps are necessary to ensure that we cannot face them with the threat of a first strike that would so reduce their retaliatory force as to leave them shorn of any deterrent.

The question often asked is why, if any strategic defense we can now build can be easily overwhelmed, the Soviet Union should be so concerned about it and so anxious to prevent us

from proceeding. I think the answer is a simple one. If we build any kind of strategic defense, they will be compelled to match it at great expense, to take steps to counter it and overwhelm it, and the net result will be more nuclear missiles on both sides, less stability and a greater risk of nuclear war. The accumulation of offensive and defensive systems in an unrestricted race could create a dangerous situation in which some advantage could be seen in striking first, in starting a nuclear war. And this is the way a nuclear war would start -- as a result of panic, desperation, and the conclusion that you cannot wait and take the chance that the other side may strike first.

I think the Russians believe that adding defensive systems to the strategic arms competition will mean a less secure world -- for them along with everyone else. I think we persuaded them back in the late 1960's and early 1970's that this was true. Soviet officials argued at that time that we were wrong to worry about strategic defense, that defense was good and that only offensive nuclear weapons were bad and should be controlled and reduced. We convinced them, however, that a competition in defensive systems would only mean an intensified arms race in offensive nuclear weapons. It is ironic to hear today the same false arguments made by Americans that were then made by Russians. The Russians were wrong then and those who advocate development and deployment of strategic defensive systems are wrong today.

The Soviet Union does, of course, have one deployed ABM system -- the "Galosh" system near Moscow. They have been making some changes in it recently. But this one ABM site is permitted by the treaty and, with fewer than 100 anti-missile missiles, could provide no protection against the 10,000 or more strategic warheads in our arsenal. The present Soviet strategic defense program provides no rationale for a trillion dollar investment in folly on our part.

There appears to be some official recognition of these facts. In Geneva in January, Secretary of State Shultz said after his meetings with Foreign Minister Gromyko that the SDI was only a research program and would be nothing more for at least several years. In testimony last February before the Senate Foreign Relations Committee, Ambassador Paul Nitze, Secretary Shultz's principal arms control advisor, took a couple of cautious steps away from the Star Wars enthusiasts. He stated that for "at least the next 10 years, we will continue to base deterrence on the ultimate threat of nuclear war. Today's technology provides no alternative." Moreover, Mr. Nitze also told the Committee that the feasibility of new

technologies would be judged by demanding criteria. The defensive systems produced must, under these criteria, "be reasonably survivable" and "cost effective at the margin." This, he explained, means that they must be effective enough and cheap enough so that the other side is discouraged from any proliferation of offensive weapons to overcome the deployed defenses.

I believe that, if these criteria are in fact applied, the Strategic Defense Initiative will remain a research program and we will continue to base our security on deterrence for many more than the next 10 years. It would be budgetary and strategic folly to spend hundreds of billions of dollars, or even tens of billions, on the vain hope of a miraculous solution. The technological problems are compounded, moreover, by the fact that all the complex gadgetry that could be assembled could never really be tested. A true test would come only in the event of an all-out nuclear war. This is a test that we and the rest of the world cannot afford.

This does not mean, however, that we cannot aspire to a better situation than exists today. I believe that it is entirely feasible to bring about very significant reductions in the present nuclear arsenals rather than to continue indefinitely to expand them. Moreover, I think that through negotiated measures of arms control, we can begin to cut back

particularly on the more destabilizing systems and create force structures so that neither side will ever have to worry about the other side's having an incentive to start a nuclear war. We can, indeed, create a situation which logically derives from President Reagan's own characterization of nuclear weapons in his State of the Union Address in January 1984. In that speech, the President said that the only purpose of either country having nuclear weapons is to see to it that they are never used. What this recognition should lead to is the creation of a situation of mutual deterrence at the lowest possible level in numbers and risk.

The result will not be a perfect world. It will not be a world free of nuclear arms. But it will be a much better world than if we allow dreams of a perfect defense to lead to a competition in imperfect defenses that will be accompanied by massive arms increases rather than arms control and reduction.

Chairman FASCELL. Thank you very much, Mr. Secretary.

SOVIET RESPONSE TO SDI

I want to ask Secretary McNamara, if you agree as to the prospects of a Soviet response as we continue with the strategic defense initiative even at the research stage; and that is, the Soviets have announced that they will increase their offensive system to overwhelm the defensive system—and my guess is—that they would also go ahead with their own defensive research at an accelerated rate in order to posit a defensive system along with an offensive increase?

Mr. MCNAMARA. Mr. Chairman, let me answer the question, I hope directly, but first state that I don't believe it would be possible to negotiate a verifiable agreement to limit research and, hence, I don't believe——

Chairman FASCELL. I didn't say that.

Mr. MCNAMARA. I know you didn't imply that. I just wanted to make that point clear to start with, because that really isn't the issue. I understand that the administration says its program is a research program, but that's not the issue. We can't have a verifiable agreement to limit research. We won't negotiate one. We shouldn't negotiate one. We will continue to carry on defense research as the Soviets have for years, and as we have for years.

The problem is that we are giving the appearance to the Soviets of intending to go far beyond a research program. Our statements are pointing in that direction. Some of those that I quoted and Secretary Clifford quoted, and many, many others' point in that direction. That is almost certainly going to move the Soviets, as it would move us, to strengthen our offensive force.

In 1967, when President Johnson met with Prime Minister Kosygin at Glassboro, the Soviets were then embarked upon the initial stages of the deployment of a defensive system. And we told them—I told Kosygin directly—our response would be an expansion of our offensive system. That was the correct answer then. It is the correct answer today. It is the answer we would give if they were to move in that direction. It's the answer they will give if we move in that direction.

NUCLEAR DETERRENCE CONCEPT

Chairman FASCELL. Let me ask both of you: In considering the nuclear deterrence concept under which we have been operating, I gather that both of you feel that part of the military concept is that our planning, our strategic thinking involves having to use weapons, but the ultimate deterrent would be, not to use weapons and, therefore, it led to somebody's comment that they were useless.

But I just wondered, what emphasis in this strategic planning is given to a factor that I will mention in a moment—that becomes important in the definitional difficulty with respect to the strategic defense initiative and that is whether or not the SDI is a total population saver, or is it simply going after military targets, which gets us into the whole question of hard kill capability, et cetera? It seems to me, in testimony before one of our committees about 30

years ago on this issue, that it was not the thermonuclear blast or the fireball or any of the direct activities of an explosion that would really do the major damage to a population, rather it was radioactive fallout. And during the Eisenhower administration, I recall a test, a simulation—I don't recall the name of it right now—in which 50 million Americans would be killed, and the question was what would our response be on the ground, et cetera.

We went through the whole exercise. It was a very serious undertaking.

Scientists testified that it would take *X* number of bombs of *X* tonnage—because of radioactive fallout—to ultimately destroy the world. And that both sides had that capability, even then. That may be an exaggeration, maybe my recollection of the testimony is not accurate. But what is accurate was the concept of the testimony, and that is: It takes *X* number of bombs of a certain size to produce enough radioactive fallout to destroy every living thing in the world. And once you get above that number, it really is immaterial as to what else you have done in terms of your deterrence.

If that is any kind of a factor in our thinking, then no defense is perfect, because we have nothing to defend against radioactive fallout. And one could extend that even further in saying that you really do not need a delivery system. So all of the arguments about counterforce, and accuracy, and modernization, really kind of fall by the wayside, and we have been engaged in just a great, big game of modernization and increasing our nuclear capability with no real ultimate solution to anything.

Now, what is your reaction to that kind of logic?

Mr. CLIFFORD. I will take a first cut at it, Mr. Chairman.

There is no way that the human mind can grasp that ultimate tragedy. We have never had it. We can't really conceive of it, although we talk about it. Do any of you remember a novel that was written as much as maybe 15 years or so ago by an Australian, about the ultimate result of dropping nuclear devices, and the nuclear cloud that was gradually spreading over the world? And you could figure the rate at which it was proceeding. And as it proceeded each country died, and then the next country died, and ultimately it reached Australia and it died.

There's a substantial scientific justification for that. Recently, you have all heard and read of the concept of the nuclear winter that would be created. And even though the bombs might not land in a certain place, yet, the disturbance to our atmosphere would be such the sun couldn't get through, our foliage would die, and so would we.

So what we are ultimately faced with is the knowledge that neither side can win a nuclear war. That should it start, then both sides would be destroyed. And interestingly enough, that's where the safety of the world rests—in that concept.

Now, for someone to come along and say that that concept no longer is valid, is extraordinarily dangerous. If you want proof as to whether the theory of deterrence has been valuable, it has helped keep the peace for a great many years. And in my opinion, would continue to keep the peace should we continue to depend upon deterrence.

I think that perhaps the most dangerous course of action that I can think of, as far as the future of the world is concerned, is to inform the people of this country and the people of other countries that what we seek is a complete and total defense against nuclear weapons; to suggest, in effect, that nuclear weapons will no longer exist. It is not feasible. It is not realizable. If we go down that route, we incalcuably increase the danger that exists to the world.

I am sure Mr. McNamara has something to add.

Mr. MCNAMARA. Mr. Chairman, I believe that the basic thrust of the proposition you put forward is correct. Whether the destruction is solely the result of radioactive effects or a combination of effects, it is very clear—and I don't think the experts would dispute this point—that, if the Soviet Union in 1990, when they will have, it is indicated, about 13,000 strategic warheads, were to launch those against this country and if we had a 90-percent effective defense—and I know of no expert, including General Abrahamson, who would state that it is feasible anytime in the next several decades to have a 90-percent effective defense—the remaining 1,300 warheads that would land on our territory would utterly destroy this Nation. That is very clear.

Chairman FASCELL. Mr. Broomfield.

Mr. BROOMFIELD. Mr. Chairman, I respectfully disagree with both of you. I can't see how on one hand it is all right for the Soviet Union to develop their own Star Wars and they have been doing it, even during the period that both of you were Secretaries of Defense, and the fact that we are now looking into a defensive mode is wrong. The Soviets continue to modernize their ABM systems. They add new ABM systems and radars. How do you account for that?

In other words, it seems to be all right for the Soviets to do it but not for the United States.

Mr. CLIFFORD. Certainly I do not agree to that, sir. We have been doing it, too. We have been improving our ABM system. We are considering new efforts in that regard. We are engaged in research. The Soviets are engaged in research.

There is a good deal of difference of opinion as to how far the Soviets have gone. Some statements have been made, and others say those statements are not true, as to how far they have gone.

What I am recommending in my statement is that we continue to engage in our research. We must continue to explore it. What I think would be a mistake would be to go beyond the area of exploration and actually begin to create an ABM system. I am a firm believer in the value and importance of the ABM agreement. I would like to do all in my power to see that it is protected and that it is continued. We should watch the Soviets with great care. As you know, we have any number of means by which we can keep up with developments that take place in the Soviet Union. We should continue on with our research.

So, I am not willing to retire from the field. What I suggest is we watch them and continue to keep our own powder dry.

PROSPECT FOR AGREEMENT WITH SOVIETS

Mr. BROOMFIELD. Wouldn't you also agree that the President's program for SDI has really brought the Soviets to the conference table? I don't know what that really means, because I am certainly not optimistic that they want to negotiate in food faith. But wouldn't you agree that it at least brought them to the table for negotiations?

Mr. CLIFFORD. I think it helped bring them to the table. My own view is they were prepared to return to the table anyway. It is my belief, that I have held for a great many years, that the Soviets would like to enter into an arms control agreement. I actually believe they would.

Mr. BROOMFIELD. You really believe that they would?

Mr. CLIFFORD. I believe it implicitly. It is a deep conviction of mine. They entered into SALT I, which I happen to believe was a forward step. They entered into SALT II, which I think was a further forward step. And I wish that we had ratified it.

I think now that they would like to go on and make other progress in that regard. I think that they would be willing to cut back on their missiles.

There was a haunting expression of Winston Churchill some years ago. He was told that each side had 5,000 nuclear weapons. And he said, "is that not enough?" and somebody said, "well, they're building more." He said, "all they are going to do is make the rubble bounce." And I believe that's true.

I would like to see an agreement that would stop the building of further nuclear weapons. I would like to see an agreement that would cut them back. And if we approach it correctly, I believe we will find that the Soviets are ready to do that also.

Mr. BROOMFIELD. Well, I think the President has offered a number of alternatives to be discussed over there that would sharply reduce our nuclear missile stockpile. In fact, he, as you know, wants zero. I don't know that it is very obtainable.

I am not optimistic about it. I can't help it. I just believe that the Soviets are not sincere. I think they are more interested in stopping SDI than actually reducing the nuclear stockpile.

Mr. CLIFFORD. The Russians are no more interested in stopping SDI than I am. I think it is one of the most dangerous decisions that our country could make. I would want to do everything in my power to stop that program if it gets to the point where it begins to affect adversely the ABM agreement.

Mr. BROOMFIELD. Well, I would have to say that I agree to the point that we ought to continue research to see whether or not the Soviets are willing to negotiate in good faith. Whether we get into the deployment, obviously, is down the road quite a ways. But I certainly support the strong research and development program that we are presently doing. Then we can make the decision to deploy when we find out whether the Soviets are actually sincere or not in reducing the stockpiles.

Mr. CLIFFORD. My support of the research program, however, applies only to the area of research. If we get to the point where we begin to test and violate the agreement, then I think we have gone too far.

Chairman FASCELL. Mr. Berman.

Mr. BERMAN. Thank you, Mr. Chairman.

I assume from your testimony that both of you would agree that there is literally no chance of obtaining a meaningful arms control agreement which would result in a significant reduction of strategic offensive weapons while we hold out the possibility—not merely the possibility but the very serious likelihood that we are researching in order to eventually test and deploy a strategic defense space-based system. Is it a fair conclusion that there is no chance of success at Geneva while the option of deployment is held out?

Mr. CLIFFORD. I would generally accept that.

Mr. MCNAMARA. Mr. Berman, I don't believe we would agree to a limit on offensive arms if the Soviets were speaking and acting as we are today with respect to defensive arms.

I want to go back for just a moment to Mr. Broomfield's point. If the Soviets were deploying an ABM system, an effective ABM system, we would not and should not agree to offensive arms limits. That's not what they are doing. They have been engaged in a research program. On that, I think it is important to recognize what General Abrahamson said in Science magazine on August 10, 1984. He said, "In the key technologies needed for a broader defense, we are far, far ahead of the Soviets."

What they see today, therefore, is a massive acceleration of a research program in the context of intent to as quickly as possible translate that into deployment. As General Abrahamson said on March 15, we can, in his words, "with reasonable confidence" make a deployment decision within a few years before the end of the 1980's or no later than the early 1990's. Now, faced with that apparent policy on the part of the U.S. Government, they will not enter into offensive arms limitations, nor would we.

SDI FUNDING

Mr. BERMAN. That leads me into the point that I wanted to see if you agreed with, which is in direct contrast to Mr. Broomfield's comment. Is there really an option at this point, given the rhetoric that has already taken place, of a significant increase in funds for research on SDI? Left with the President's earlier speeches about our intent, can we really sit at Geneva without any willingness to link an agreement not to deploy and determine whether in fact the Soviets are negotiating in good faith, which was, I think, the point that Mr. Broomfield was making? Is that really a credible option for us?

Mr. CLIFFORD. Sure.

Mr. MCNAMARA. I believe it is possible for the Congress to pass authorizing and appropriating legislation supporting a strategic defense research program. I won't argue, for the minute, the nature of the program or the level of the appropriation.

I don't think the action appropriating the funds is the important point. The important point is that we indicate to the Soviets that we are prepared, as Nitze indicated we were prepared, to strictly adhere to the ABM Treaty and, as a matter of fact, to, in his words, "prevent the erosion and reverse the erosion of that treaty."

There are ambiguities in the treaty. It is in connection with those ambiguities that the Soviets would fear that our research program would translate into a deployment advantage. Those will have to be cleared up. But there is no need to compromise the research program in order to ensure adherence to the ABM Treaty and lay the foundation for an offensive arms limitation agreement.

We are not now, however, talking that way or proceeding that way.

Mr. BERMAN. Right. And I think you also indicate in your testimony we probably have to plug up the exemption for antisatellite testing.

Mr. MCNAMARA. Yes, that is correct.

Mr. CLIFFORD. If you were to put it in a more general category, if the Congress and the administration make the decision to go down the Star Wars route that has been suggested by the administration, it is my opinion that we have no chance to reach agreement in Geneva.

Mr. BERMAN. Thank you, Mr. Chairman.

Chairman FASCELL. Mr. Hyde.

Mr. HYDE. Thank you, Mr. Chairman.

Secretary McNamara, I perhaps misunderstood you. You mentioned the SDI, which you call Star Wars. You mentioned that as a few years. Isn't that almost a 10-year research program? When you include the research, development, and prototyping of certain systems for eventual deployment? You are saying six. Now, is it 6 or is it 10?

I must withdraw the question because the staff has not provided me all the information I wanted.

MUTUAL ASSURED DESTRUCTION

Let me ask you this. How are we going to deal with the Catholic bishops, who have come out with a pastoral letter? When I read it, with all of its nuances and its penumbra and whatever else you want to add into it, it really says you can't morally target civilians, innocent, noncombatant civilians. You can't take these nuclear weapons and aim them at innocent civilians. Now, isn't that MAD, isn't that mutual assured destruction?

Now, I agree they tried to nuance it, but 130 pages after you get through with it, you are made to feel pretty immoral if you are in the military aiming nuclear weapons at the Soviet Union. Yet, that is really what—pardon?

We have got a chorus back here that is more than a little distracting.

Anyway, what is your comment on that, either one of you? Mr. McNamara perhaps?

Mr. MCNAMARA. On March 28, that is to say, less than 40 days ago, Secretary Shultz, speaking before the Council on Foreign Relations in Austin, TX, said, for years to come we will have to continue to base deterrence on the ultimate threat of nuclear retaliation.

He was absolutely correct. That has been our policy for 20 or 30 years. It is going to have to continue to be our policy for 20 or 30 years in the future. He has said it as clearly as I could.

Mr. HYDE. Well, I happen to agree with him. But I am trying to get at the bishops' pastoral, which is being taught in the schools. I am wondering if there is an erosion, a gradual erosion that sets in that might concern you, if it has to become our policy, that we are immoral if we target civilians through mutual assured destruction.

Mr. MCNAMARA. I don't have the letters of the bishops in front of me, but my recollection of it is that they supported the present policy of deterrence. I think they will continue to support it in the future.

Mr. HYDE. Well, we perhaps read it differently. It's hard to tell what they supported, but they didn't have many kind words to say about deterrence. And they did say, we say no to nuclear war. They said that several times. Of course, everybody says no nuclear war. The question is, how do you prevent one?

Mr. MCNAMARA. Yes, and I think what I have suggested is the way to prevent it, as Secretary Clifford said as well. The way to prevent it is by removing the instability that affects our deterrent relationships at the present time, to increase the stability of deterrence, and to do so at lower and lower levels of warheads.

SOVIET OFFENSIVE FORCE EXPANSION

Mr. HYDE. What is your comment on the fact that the Soviet Union, despite SALT I, despite SALT II, which, while not ratified, has been observed, despite the ABM Treaty, seems to be moving right ahead unrestrainedly in their offensive capabilities and also their strategic defense capabilities: Golash, SA-12, ABM, X-3, the Siberian radar. Meanwhile, as I say, they have got the SS-24, the SS-25, plus 308 SS-18's, which are twice as big as our piddling little 21 MX's, and maybe we'll get 21 more.

What have these treaties done except given a green light to the Soviet Union while we tread water, barely getting into a modernized ICBM?

Mr. MCNAMARA. The treaties have very clearly limited, and I believe will continue to limit, the Soviet offensive force expansion.

You asked my comment on what they have done. My comment is I am amazed they took so long to do it.

Let me stress this point, because there is a lot of misunderstanding among the members of the public and perhaps even among the Members of Congress on what has been done. The fact is that in 1960 we had 6,300 strategic warheards and the Soviets had 200: 6,300 to 200. In 1970, a decade later, we had 4,500 and they had 1,800. Early in the 1970s we MIRV-ed our force. We moved very quickly from 4,500 in 1970 to 8,000 in 1975. The Soviets only had 2,700 in 1975. Of course they would be expanding their force. It is remarkable they haven't done so more rapidly.

We still, by the way, have a substantial lead: 11,000 to 8,000, something on that order.

Chairman FASCELL. I am going to go until the second bell, gentlemen, because once the voting starts on the floor, I don't think we will get the chance to come back. Let's go with one question apiece until the bells ring again.

Mr. Lantos.

Mr. LANTOS. Thank you, Mr. Chairman.

First let me say I was very much impressed by both of your testimonies and by your public record and history of your public service to this country.

ADEQUACY OF OUR NATIONAL DEFENSE

I would like to move the discussion to the political arena. As I understand technological issues as a layman, what you are saying to us is that 100 percent defense seems wholly unrealistic, that anything less than 100 percent is unacceptable, that even if 100 percent defense were attained they would move into other arenas like sea-launched cruise missiles, bombers, and what not. Therefore, we have got to move in the political round of reaching some accommodations.

With this as your basic assumption, if I read it correctly, I wonder if you would characterize yourselves today, being out of office, on the political spectrum in the defense arena. I think there is a tremendous danger that the President's SDI will be perceived as the strong defense option, and the critics of the SDI will be viewed as the weaklings and the people who really don't understand the Russians or naively trust the Russians.

So, I am really asking you an embarrassing question, because I am asking you personally to define yourselves in the political spectrum, both with respect to your view of the Soviet Union and your view in terms of the need for a strong and adequate national defense.

Mr. CLIFFORD. It is a very interesting question. I am not sure that I agree with your premise that those who favor the SDI will have a popular political posture and that those who oppose it are in an unpopular political position. I have a good deal of confidence in the basic common sense of the American people. I think that as time goes on, they will begin to understand it more and more.

Now the question was raised that the Catholic bishops are opposed to nuclear weapons. We are all opposed to nuclear weapons. The American people are opposed to nuclear weapons. And when the President says that this bold concept will rid us of the fear of nuclear weapons, that is enormously appealing. The only trouble with it is, it is not true. We are not going to live in your lifetime or mine ever without nuclear weapons. They are going to be here. We just must be sure that they are never used.

I believe if we proceed as intelligently as we can to demonstrate the error that is being committed, that is, that we can rid the world of nuclear weapons by this absolutely perfect defense system, the people will begin to understand it. Whether they understand it or not, I have a duty, and perhaps all others publicly situated have a duty, to continue to tell this story. If we go down the SDI road, we are going down a tragic road, I think, ultimately to a nuclear war.

Mr. MCNAMARA. May I respond by saying that I also question the premise. I don't believe that the American people will support—I am going to call it a partial defense; I call it Star Wars II. What the American people were quite willing to support, if it proved feasible, was an elimination of nuclear weapons. I would be in favor of that if I knew how to do it; I don't. That's not what is

being proposed. Secretary Shultz said very clearly 40 days ago that that is not being proposed. For decades, he said, we must depend on deterrence, meaning the retaliatory power of our offensive force. That is the truth, that is the fact. If the American people understand that and then understand that the actions we are taking to prepare for the deployment of defensive forces, in combination with the offensive forces, will lead to an escalation of the arms race, as it surely will, they will not support it; nor would I.

Now, you asked specifically how I characterize myself in regard to the Soviets. I don't believe the Soviets want large-scale war, for a variety of reasons: economic, political, and strategic.

I do believe they will probe for weakness. I believe they will take advantage of weakness when they find it. Therefore, it is important for us to maintain a strong defense. I believed that when I was Secretary. I believe it today.

But to oppose star wars in its present form, is not to suggest that we support a weakened defense, not at all. It is suggesting how we can achieve a strengthened defense and do so at lesser financial cost and lesser political cost, lesser political cost in relation to the Soviets and lesser political cost in relation to our allies.

Mr. LANTOS. Thank you, Mr. Chairman.

Chairman FASCELL. Mr. Dornan wants to ask a question for the record in order to elicit a written response, if that is agreeable to either one of you.

Mr. MCNAMARA. Yes.

NUCLEAR STALEMATE

Mr. DORNAN. Gentlemen, this is a fascinating day in history to have you both here, because Soviet-made weaponry is being paraded across the city squares of every Communist-oppressed city in the world. I have before me the entire 8 years of defense of the Kennedy-Johnson years, a period when Defense tended to swallow State, the State Department.

Next January will have been a quarter of a century since you both took up your service under President Kennedy. The major defense we have, Mr. McNamara, today was put in place by you generally: the B-52 force level, the whole Minuteman concept, the Titans that we are now dismantling. This committee has been rightly renamed in its preface the Arms Control Committee.

Could I ask you that, irrespective of what happens with arms control, with nuclear weapons, and Star Peace—is the way I refer to Star Wars I, II, or if III comes along—biochemical warfare, I think, is going to do a reverse of what happened in my father's war. He won three Purple Hearts, two for poison gas. I think that we have already reached a mutually assured destructive stalemate. I totally accept what you gentlemen have been brilliantly putting forth about nuclear winter. I am not going to argue about it. I tend to believe it is going to be proven conclusively soon.

What do you believe will happen—and here's the written response I would like, from the best team minds you can assemble under your names, which command public attention—what will happen if we reach total stalemate where both sides agree it is mutual suicide and the Soviet Union has a commanding lead,

which I am told in top secret briefings, commanding lead—and I am given details—in biochemical warfare and we are left with nothing? The World War II reversal, I should have said, where gas is out but other insane weapons are acceptable.

Thank you, gentlemen.

Mr. LEVINE [presiding]. Gentlemen, I have been asked to assume the chair just for a final question or two. If there is a chance to respond to one of these within a minute or 2, I would appreciate it. If not, I would like a written response as well.

TECHNICAL UNCERTAINTIES OF SDI

The proponents of the SDI concept talk a great deal about the limitless possibilities of the human mind and analogize the technical or technological uncertainty at this point to a technological uncertainty that we may have had on prior issues at a different time in our history. I have been informed by scientists that we are talking about technological uncertainties of an entirely different magnitude than the ones, for example, that attended the space program or even the Manhattan Project.

I guess my questions are the following. No. 1, how would you characterize the technical or technological uncertainty with regard to the SDI project or concept in comparison to, say, the space program, on the one hand, or the Manhattan Project, on the other hand?

No. 2, if in fact one can overcome the technological or technical uncertainties, at that point how do you feel about the wisdom of the project with regard to strategic or defense concerns?

Either or both of you.

Mr. MCNAMARA. The former Undersecretary of Defense in charge of research and engineering, Mr. DeLauer, stated that he could state categorically the Soviets could penetrate whatever defense was technically feasible if they chose to make the effort to do so. That same statement has been made by other experts. Mr. Cooper, the director of the research program in the Defense Department has said substantially the same thing.

There is no group of reputable scientists in the country, I believe, who would say otherwise.

With respect to your second point, if we could overcome it and could achieve a leak-proof defense, technically leak-proof, what would be my view, it would almost surely be destabilizing to try to introduce that other than following a negotiated agreement that would put some specified limit on offense, lay out the transition period by which a less than perfect defense would be put in place, leading to the ultimate substitution of the perfect defense for the offense.

No human being has shown how to write such an agreement or negotiate such agreement. Certainly I do not think that is feasible.

Mr. CLIFFORD. Can I make this addition? You compare this possibility to our effort to put a man on the moon and to the Manhattan Project. In the Manhattan Project, when the scientists came to President Roosevelt, they were able to demonstrate that we had enough knowledge in that area that they could move from A to B and from B to C and from C to the creation of the bomb. They

could demonstrate that to him. When we decided to go forward with the plan to put the man on the moon, we had the expertise. The state of the art was such that we could plan the various steps.

We do not have that today in the Star Wars concept. No one has demonstrated to me what the plan would be. I hear them talk about different levels, and there's a stage one, two, three, four, and so forth. But it is all in an area that we have never explored before. So, I think we have to take that into consideration.

Mr. LEVINE. Thank you both very much. On behalf of the chairman and the other members of the subcommittee and the full committee members who are present here, we are all very grateful to you for the time and the testimony that you have provided today. It has been extremely helpful. We thank you very much.

Mr. MCNAMARA. It was our pleasure.

Mr. CLIFFORD. Thank you.

Mr. LEVINE. With that, the subcommittee will stand adjourned.

[Whereupon, at 12:20 p.m., the subcommittee was adjourned, subject to the call of the Chair.]

APPENDIX 1

"THE PRESIDENT'S CHOICE: STAR WARS OR ARMS CONTROL," SUBMITTED BY MCGEORGE BUNDY, GEORGE F. KENNAN, ROBERT S. MCNAMARA, AND GERARD SMITH (FOREIGN AFFAIRS, WINTER 1984-85)

The reelection of Ronald Reagan makes the future of his Strategic Defense Initiative the most important question of nuclear arms competition and arms control on the national agenda since 1972. The President is strongly committed to this program, and senior officials, including Secretary of Defense Caspar W. Weinberger, have made it clear that he plans to intensify this effort in his second term. Sharing the gravest reservations about this undertaking, and believing that unless it is radically constrained during the next four years it will bring vast new costs and dangers to our country and to mankind, we think it urgent to offer an assessment of the nature and hazards of this initiative, to call for the closest vigilance by Congress and the public, and even to invite the victorious President to reconsider. While we write only after obtaining the best technical advice we could find, our central concerns are political. We believe the President's initiative to be a classic case of good intentions that will have bad results because they do not respect reality.

This new initiative was launched by the President on March 23, 1983, in a surprising and quite personal passage at the end of a speech in praise of his other military programs. In that passage he called on our scientists to find means of rendering nuclear weapons "impotent and obsolete." In the briefings that surrounded the speech. Administration spokesmen made it clear that the primary objective was the development of ways and means of destroying hostile missiles—meaning in the main Soviet missiles—by a series of attacks all along their flight path, from their boost phase after launch to their entry into the atmosphere above the United States. Because of the central position the Administration itself gave to this objective, the program promptly acquired the name Star Wars, and the President's Science Advisor, George Keyworth, has admitted that this name is now indelible. We find it more accurately descriptive than the official "Strategic Defense Initiative." [1]

II

What is centrally and fundamentally wrong with the President's objective is that it cannot be achieved. The overwhelming consensus of the nation's technical community is that in fact there is no prospect whatever that science and technology can, at any time in the next several decades, make nuclear weapons "impotent and obsolete." The program developed over the last 18 months, ambitious as it is, offers no prospect for a leak-proof defense against strategic ballistic missiles alone, and it entirely excludes from its range any effort to limit the effectiveness of other systems—bomber aircraft, cruise missiles, and smuggled warheads.

The President's hopes are entirely understandable. There must be very few Americans who have never shared them. All four of us, like Mr. Reagan, grew up in a world without nuclear weapons, and we believe with passion that the world would be a much safer place without them. Americans should be constantly on the alert for any possibilities that can help to reduce the nuclear peril in which we all live, and it is entirely natural that a hope of safety like the one the President held out should stir a warmly affirmative first response. But false hope, however strong and understandable, is a bad guide to action.

---

[1] There has been an outpouring of technical comment on this subject, and even in a year and a half the arguments have evolved considerably. Two recent independent analyses on which we have drawn with confidence are *The Reagan Strategic Defense Initiative: A Technical, Political, and Arms Control Assessment*, by Sidney D. Drell, Philip J. Farley and David Holloway, A Special Report of the Center for International Security and Arms Control. July 1984, Stanford: Stanford University, 1984: and *The Fallacy of Star Wars* (based on studies conducted by the Union of Concerned Scientists and co-chaired by Richard L. Garwin, Kurt Gottfried, and Henry W. Kendall). John Tirman, ed., New York: Vintage, 1984.

The notion that nuclear weapons, or even ballistic missiles alone, can be rendered impotent by science and technology is an illusion. It reflects not only technological hubris in the face of the very nature of nuclear weapons, but also a complete misreading of the relation between threat and response in the nuclear decisions of the superpowers.

The first and greatest obstacle is quite simply that these weapons are destructive to a degree that makes them entirely different from any other weapon in history. The President frequently observes that over the centuries every new weapon has produced some countervailing weapon, and up to Hiroshima he is right. But conventional weapons can be neutralized by a relatively low rate of kill, provided that the rate is sustained over time. The classic modern example is defense against nonnuclear bombing. If you lose one bomber in every ten sorties, your force will soon be destroyed. A pilot assigned to fly 30 missions will face a 95-percent prospect of being shot down. A ten-percent rate of kill is highly effective.

With nuclear weapons the calculation is totally different. Both Mr. Reagan's dream and his historical argument completely neglect the decisive fact that a very few nuclear weapons, exploding on or near population centers, would be hideously too many. At today's levels of superpower deployment—about 10,000 strategic warheads on each side—even a 95-percent kill rate would be insufficient to save either society from disintegration in the event of general nuclear war. Not one of Mr. Reagan's technical advisers claims that any such level of protection is attainable. They know better. In the words of the officer in charge of the program. Lieutenant General James Abrahamson, "a perfect defense is not a realistic thing." In response to searching questions from Senator Sam Nunn of Georgia, the senior technical official of the Defense Department. Under Secretary Richard DeLauer, made it plain that he could not foresee any level of defense that would make our own offensive systems unnecessary.

Among all the dozens of spokesmen for the Administration, there is not one with any significant technical qualifications who has been willing to question Dr. DeLauer's explicit statement that "There's no way an enemy can't overwhelm your defenses if he wants to badly enough." The only senior official who continues to share the President's dream and assert his belief that it can come true is Caspar Weinberger, whose zealous professions of confidence are not accompanied by technical support.

The terrible power of nuclear weapons has a second meaning that decisively undermines the possibility of an effective Star Wars defense of populations. Not only is their destructive power so great that only a kill rate closely approaching 100 percent can give protection, but precisely because the weapons are so terrible neither of the two superpowers can tolerate the notion of "impotence" in the face of the arsenal of the opponent. Thus any prospect of a significantly improved American defense is absolutely certain to stimulate the most energetic Soviet efforts to ensure the continued ability of Soviet warheads to get through. Ever since Hiroshima it has been a cardinal principle of Soviet policy that the Soviet Union must have a match for any American nuclear capability. It is fanciful in the extreme to suppose that the prospect of any new American deployment which could undermine the effectiveness of Soviet missile forces will not be met by a most determined and sustained response.

This inevitable Soviet reaction is studiously neglected by Secretary Weinberger when he argues in defense of Star Wars that today's skeptics are as wrong as those who said we could never get to the moon. The effort to get to the moon was not complicated by the presence of an adversary. A platoon of hostile moon-men with axes could have made it a disaster. No one should understand the irrelevance of his analogy better than Mr. Weinberger himself. As secretary of defense he is bound to be familiar with the intensity of our own American efforts to ensure that our own nuclear weapons, whether on missiles or aircraft, will always be able to get through to Soviet targets in adequate numbers.

The technical analyses so far available are necessarily incomplete, primarily because of the very large distance between the President's proposal and any clearly defined system of defense. There is some truth in Mr. Weinberger's repeated assertion that one cannot fully refute a proposal that as yet has no real content. But already important and enduring obstacles have been identified. Two are systemic and ineradicable. First, a Star Wars defense must work perfectly the very first time, since it can never be tested in advance as a full system. Second, it must be triggered almost instantly, because the crucial boost phase of Soviet missiles lasts less than five minutes from the moment of launch. In that five minutes (which new launch technology can probably reduce to about 60 seconds), there must be detection, decision, aim, attack and kill. It is hard to imagine a scheme further removed from the

kind of tested reliability and clear presidential control that we have hitherto required of systems involving nuclear danger.

There are other more general difficulties with the President's dream. Any remotely leak-proof defense against strategic missiles will require extensive deployments of many parts of the system in space, both for detection of any Soviet launch and, in most schemes, for transmission of the attack on the missile in its boost phase. Yet no one has been able to offer any hope that it will ever be easier and cheaper to deploy and defend large systems in space than for someone else to destroy them. The balance of technical judgment is that the advantage in any unconstrained contest in space will be with the side that aims to attack the other side's satellites. In and of itself this advantage constitutes a compelling argument against space-based defense.

Finally, as we have already noted, the President's program offers no promise of effective defense against anything but ballistic missiles. Even if we assume, against all the evidence, that a leak-proof defense could be achieved against these particular weapons, there would remain the difficulty of defense against cruise missiles, against bomber aircraft, and against the clandestine introduction of warheads. It is important to remember here that every small risks of these catastrophic events will be enough to force upon us the continuing need for our own deterrent weapons. We think it is interesting that among the strong supporters of the Star Wars scheme are some of the same people who were concerned about the danger of the strategic threat of the Soviet Backfire bomber only a few years ago. Is it likely that in the light of these other threats they will find even the best possible defense against missiles a reason for declaring our own nuclear weapons obsolete?

Inadvertent but persuasive proof of this failing has been given by the President's science adviser. Last February, in a speech in Washington, Mr. Keyworth recognized that the Soviet response to a truly successful Star Wars program would be to "shift their strategic resources to other weapons systems," and he made no effort to suggest that such a shift could be prevented or countered, saying: "*Let* the Soviets move to alternate weapons systems, to submarines, cruise missiles, advanced technology aircraft. Even the critics of the President's defense initiative agree that *those* weapons systems are far more stable deterrents than are ICBMs [land-based missiles]." Mr. Keyworth, in short, is willing to accept all these other means of warhead delivery, and he appears to be entirely unaware that by this acceptance he is conceding that even if Star Wars should succeed far beyond what any present technical consensus can allow us to believe, it would fail by the President's own standard.

The inescapable reality is that there is literally no hope that Star Wars can make nuclear weapons obsolete. Perhaps the first and most important political task for those who wish to save the country from the expensive and dangerous pursuit of a mirage is to make this basic proposition clear. As long as the American people believe that Star Wars offers real hope of reaching the President's asserted goal, it will have a level of political support unrelated to reality. The American people, properly and sensibly, would like nothing better than to make nuclear weapons "impotent and obsolete," but the last thing they want or need is to pay an astronomic bill for a vastly intensified nuclear competition sold to them under a false label. Yet that is what Star Wars will bring us, as a closer look will show.

III

The second line of defense for the Star Wars program, and the one which represents the real hopes and convictions of both military men and civilians at the levels below the optimistic President and his enthusiastic secretary of defense, is not that it will ever be able to defend *all our people*, but rather that it will allow us to defend *some of our weapons and other military assets*, and so, somehow, restrain the arms race.

This objective is very different from the one the President has held out to the country, but it is equally unattainable. The Star Wars program is bound to exacerbate the competition between the superpowers in three major ways. It will destroy the Anti-Ballistic Missile (ABM) Treaty, our most important arms control agreement; it will directly stimulate both offensive and defensive systems on the Soviet side; and as long as it continues it will darken the prospect for significant improvement in the currently frigid relations between Moscow and Washington. It will thus sharpen the very anxieties the President wants to reduce.

As presented to Congress last March, the Star Wars program calls for a five-year effort of research and development at a total cost of $26 billion. The Administration insists that no decision has been made to develop or deploy any component of the potential system, but a number of hardware demonstrations are planned, and it is

hoped that there can be an affirmative decision on full-scale system development in the early 1990s. By its very nature, then, the program is both enormous and very slow. This first $26 billion, only for research and development, is not much less than the full procurement cost of the new B-1 bomber force, and the timetable is such that Mr. Reagan's second term will end long before any deployment decision is made. Both the size and the slowness of the undertaking reinforce the certainty that it will stimulate the strongest possible Soviet response. Its size makes it look highly threatening, while its slowness gives plenty of time for countermeasures.

Meanwhile, extensive American production of offensive nuclear weapons will continue. The Administration has been at pains to insist that the Star Wars program in no way reduces the need for six new offensive systems. There are now two new land-based missiles, two new strategic bombers, and two different submarine systems under various stages of development. The Soviets regularly list several other planned American deployments as strategic because the weapons can reach the Soviet homeland. Mr. Reagan recognized at the very outset that "if paired with offensive systems," any defensive systems "can be viewed as fostering an aggressive policy, and no one wants that." But that is exactly how his new program, with its proclaimed emphasis on both offense and defense, is understood in Moscow.

We have been left in no doubt as to the Soviet opinion of Star Wars. Only four days after the President's speech, Yuri Andropov gave the Soviet reply:

"On the face of it, laymen may find it even attractive as the President speaks about what seem to be defensive measures. But this may seem to be so only on the face of it and only to those who are not conversant with these matters. In fact the strategic offensive forces of the United States will continue to be developed and upgraded at full tilt and along quite a definite line at that, namely that of acquiring a first nuclear strike capability. Under these conditions the intention to secure itself the possibility of destroying with the help of the ABM defenses the corresponding strategic systems of the other side, that is of rendering it unable of dealing a retaliatory strike, is a bid to disarm the Soviet Union in the face of the U.S. nuclear threat.[2]

The only remarkable elements in this response are its clarity and rapidity. Andropov's assessment is precisely what we should expect. Our government, of course, does not intend a first strike, but we are building systems which do have what is called in our own jargon a prompt hard-target kill capability, and the primary purpose of these systems is to put Soviet missiles at risk of quick destruction. Soviet leaders are bound to see such weapons as a first-strike threat. This is precisely the view that our own planners take of Soviet missiles with a similar capability. When the President launches a defensive program openly aimed at making Soviet missiles "impotent," while at the same time our own hard-target killers multiply, we cannot be surprised that a man like Andropov saw a threat "to disarm the Soviet Union." [3] Given Andropov's assessment, the Soviet response to Star Wars is certain to be an intensification of both its offensive and defensive strategic efforts.

Perhaps the easiest way to understand this political reality is to consider our own reaction to any similar Soviet announcement of intent. The very thought that the Soviet Union might plan to deploy effective strategic defenses would certainly produce a most energetic American response, and the first and most important element of that response would be a determination to ensure that a sufficient number of our own missiles would always get through.

Administration spokesmen continue to talk as if somehow the prospect of American defensive systems will in and of itself lead the Soviet government to move away from strategic missiles. This is a vain hope. Such a result might indeed be conceivable if Mr. Reagan's original dream were real—if we could somehow ever deploy a *perfect* defense. But in the real world no system will ever be leak-proof; no new system of any sort is in prospect for a decade and only a fragmentary capability for years thereafter; numerous powerful countermeasures are readily available in the meantime, and what is at stake from the Russian standpoint is the deterrent value of their largest and strongest offensive forces.

In this real world it is preposterous to suppose that Star Wars can produce anything but the most determined Soviet effort to make it fruitless. Dr. James Fletcher, chairman of an Administration panel that reviewed the technical prospects after the President's speech, has testified that "the ultimate utility . . . of this system will depend not only on the technology itself, but on the extent to which the Soviet

---

[2] Cited in Sidney Drell *et al., op. cit.*, p 105.

[3] Richard Nixon has analyzed the possible impact of new defensive systems in even more striking terms: "Such systems would be destabilizing if they provided a shield so that you could use the sword." *Los Angeles Times*, July 1, 1984.

Union agrees to mutual defense arrangements and offense limitations." The plain implication is that the Soviet Union can reduce the "utility" of Star Wars by refusing just such concessions. That is what we would do, and that is what they will do.

Some apologists for Star Wars, although not the President, now defend it on the still more limited ground that it can deny the Soviets a first-strike capability. That is conceivable, in that the indefinite proliferation of systems and countersystems would certainly create fearful uncertainties of all sorts on both sides. But as the Scowcroft Commission correctly concluded, the Soviets have no first-strike capability today, given our survivable forces and the ample existing uncertainties in any surprise attack. We believe there are much better ways than strategic defense to ensure that this situation is maintained. Even a tightly limited and partially effective local defense of missile fields—itself something vastly different from Star Wars—would require radical amendment or repudiation of the ABM Treaty and would create such interacting fears of expanding defenses that we strongly believe it should be avoided.

The President seems aware of the difficulty of making the Soviet Union accept his vision, and he has repeatedly proposed a solution that combines surface plausibility and intrinsic absurdity in a way that tells a lot about what is wrong with Star Wars itself. Mr. Reagan says we should give the Russians the secret of defense, once we find it, in return for their agreement to get rid of nuclear weapons. But the only kind of secret that could be used this way is one that exists only in Mr. Reagan's mind: a single magic formula that would make each side durably invulnerable. In the real world any defensive system will be an imperfect complex of technological and operational capabilities, full understanding of which would at once enable any adversary to improve his own methods of penetration. To share this kind of secret is to destroy its own effectiveness. Mr. Reagan's solution is as unreal as his original dream, and it rests on the same failure of understanding.

There is simply no escape from the reality that Star Wars offers not the promise of greater safety, but the certainty of a large-scale expansion of both offensive and defensive systems on both sides. We are not here examining the dismayed reaction of our allies in Europe, but it is precisely this prospect that they foresee, in addition to the special worries created by their recognition that the Star Wars program as it stands has nothing in it for them. Star Wars, in sum, is a prescription not for ending or limiting the threat of nuclear weapons, but for a competition unlimited in expense, duration and danger.

We have come this way before, following false hopes and finding our danger greater in the upshot. We did it when our government responded to the first Soviet atomic test by a decision to get hydrogen bombs if we could, never stopping to consider in any serious way whether both sides would be better off not to test such a weapon. We did it again, this time in the face of strong and sustained warning, when we were the first to deploy the multiple warheads MIRVs that now face us in such excessive numbers on Soviet missiles. Today, 15 years too late, we have a consensus that MIRVs are bad for us, but we are still deploying them, and so are the Russians.

IV

So far we have been addressing the question of new efforts for strategic defense with only marginal attention to their intimate connection with the future of the most important single arms control agreement that we and the Soviet Union share, the Anti-Ballistic Missile Treaty of 1972. The President's program, because of the inevitable Soviet reaction to it, has already had a heavily damaging impact on prospects for any early progress in strategic arms control. It has thrown a wild card into a game already impacted by mutual suspicion and by a search on both sides for unattainable unilateral advantage. It will soon threaten the very existence of the ABM Treaty.

That treaty outlaws any Star Wars defense. Research is permitted, but the development of space-based systems cannot go beyond the laboratory stage without breaking the Treaty. That would be a most fateful step. We strongly agree with the finding of the Scowcroft Commission, in its final report of March 1984, that "the strategic implications of ballistic missile defense and the criticality of the ABM Treaty to further arms control agreements dictate extreme caution in proceeding to engineering development in this sensitive area."

The ABM Treaty stands at the very center of the effort to limit the strategic arms race by international agreements. It became possible when the two sides recognized that the pursuit of defensive systems would inevitably lead to an expanded competition and to greater insecurity for both. In its underlying meaning, the Treaty is a

safeguard less against defense as such than against unbridled competition. The continuing and excessive competition that still exists in offensive weapons would have been even worse without the ABM Treaty, which removed from the calculations of both sides any fear of an early and destabilizing defensive deployment. The consequence over the following decade was profoundly constructive. Neither side attempted a defensive deployment that predictably would have given much more fear to the adversary than comfort to the possessor. The ABM Treaty, in short, reflected a common understanding of exactly the kinds of danger with which Star Wars now confronts the world. To lose the Treaty in pursuit of the Star Wars mirage would be an act of folly.

The defense of the ABM Treaty is thus a first requirement for all who wish to limit the damage done by the Star Wars program. Fortunately the Treaty has wide public support, and the Administration has stated that it plans to do nothing in its five-year program that violates any Treaty clause. Yet by its very existence the Star Wars effort is a threat to the future of the ABM Treaty, and some parts of the announced five-year program raise questions of Treaty compliance. The current program envisions a series of hardware demonstrations, and one of them is described as "an advanced boost-phase detection and tracking system." But the ABM Treaty specifically forbids both the development and the testing of any "spaced-based" components of an anti-ballistic missile system. We find it hard to see how a boost-phase detection system could be anything but space-based, and we are not impressed by the Administration's claim that such a system is not sufficiently significant to be called "a component."

We make this point not so much to dispute the detailed shape of the current program as to emphasize the strong need for close attention in Congress to the protection of the ABM Treaty. The Treaty has few defenders in the Administration—the President thought it wrong in 1972, and Mr. Weinberger thinks so still. The managers of the program are under more pressure for quick results than for proposals respectful of the Treaty. In this situation a heavy responsibility falls on Congress, which has already shown this year that it has serious reservations about the President's dream. Interested members of Congress are well placed to ensure that funds are not provided for activities that would violate the Treaty. In meeting this responsibility, and indeed in monitoring the Star Wars program as a whole. Congress can readily get the help of advisers drawn from among the many outstanding experts whose judgment has not been silenced or muted by co-option. Such use of independent counselors is one means of repairing the damage done by the President's unfortunate decision to launch his initiative without the benefit of any serious and unprejudiced scientific assessment.

The Congress should also encourage the Administration toward a new and more vigorous effort to insist on respect for the ABM Treaty by the Soviet government as well. Sweeping charges of Soviet cheating on arms control agreements are clearly overdone. It is deeply unimpressive, for example, to catalogue asserted violations of agreements which we ourselves have refused to ratify. But there is one quite clear instance of large-scale construction that does not appear to be consistent with the ABM Treaty—a large radar in central Siberia near the city of Krasnoyarsk. This radar is not yet in operation, but the weight of technical judgment is that it is designed for the detection of incoming missiles, and the ABM Treaty, in order to forestall effective missile defense systems, forbade the erection of such early warning radars except along the borders of each nation. A single highly vulnerable radar installation is of only marginal importance in relation to any large-scale breakout from the ABM Treaty, but it does raise exactly the kinds of questions of intentional violation which are highly destructive in this country to public confidence in arms control.

On the basis of informed technical advice, we think the most likely purpose of the Krasnoyarsk radar is to give early warning of any attack by submarine-based U.S. missiles on Soviet missile fields. Soviet military men, like some of their counterparts in our own country, appear to believe that the right answer to the threat of surprise attack on missiles is a policy of launch-under-attack, and in that context the Krasnoyarsk radar, which fills an important gap in Soviet warning systems, becomes understandable. Such understanding does not make the radar anything else but a violation of the express language of the Treaty, but it does make it a matter which can be discussed and resolved without any paralyzing fear that it is a clear first signal of massive violations yet to come. Such direct and serious discussion with the Soviets might even allow the two sides to consider together the intrinsic perils in a common policy of launch-under-attack. But no such sensitive discussions will be possible while Star Wars remains a non-negotiable centerpiece of American strategic policy.

Equal in importance to defending the ABM Treaty is preventing hasty overcommitment of financial and scientific resources to totally unproven schemes overflowing with unknowns. The President's men seem determined to encourage an atmosphere of crisis commitment to just such a manner of work, and repeated comparisons to the Manhattan Project of 1942-45, small in size and crystal-clear in purpose by comparison, are not comforting. On the shared basis of conviction that the President's dream is unreal, members of Congress can and should devote themselves with energy to the prevention of the kind of vested interest in very large-scale ongoing expenditures which has so often kept alive other programs that were truly impotent, in terms of their own announced objectives. We believe that there is not much chance that deployments remotely like those currently sketched in the Star Wars program will ever in fact occur. The mere prospect of them will surely provoke the Russians to action, but it is much less likely that paying for them will in the end make sense to the American people. The larger likelihood is that on their way to oblivion these schemes will simply cost us tens and even hundreds of billions of wasted dollars.[4]

In watching over the Star Wars budget the Congress may find it helpful to remember the summary judgment that Senator Arthur Vandenberg used to offer on programs he found wanting: "The end is unattainable, the means hare-brained, and the cost staggering." But at the same time we believe strongly in the continuation of the long-standing policy of maintaining a prudent level of research on the scientific possibilities for defense. Research at a level ample for insurance against some Soviet surprise can be continued at a fraction of the cost of the present Star Wars program. Such a change of course would have the great advantage of preventing what would otherwise be a grave distortion of priorities not only in defense research but in the whole national scientific effort.

V

This has not been a cheerful analysis, or one that we find pleasant to present. If the President makes no major change of course in his second term, we see no alternative to a long, hard, damage-limiting effort by Congress. But we choose to end on a quite different note. We believe that any American president who has won reelection in this nuclear age is bound to ask himself with the greatest seriousness just what he wants to accomplish in his second term. We have no doubt of the deep sincerity of President Reagan's desire for good arms control agreements with the Soviet Union, and we believe his election night assertion that what he wants most in foreign affairs is to reach just such agreements. We are also convinced that if he asks serious and independent advisers what changes in current American policy will help most to make such agreements possible in the next four years, he will learn that it is possible to reach good agreements, or possible to insist on the Star Wars program as it stands, but wholly impossible to do both. At exactly that point, we believe, Mr. Reagan could, should, and possibly would encourage the serious analysis of his negotiating options that did not occur in his first term.

We do not here explore these possibilities in detail. They would certainly include a reaffirmation of the ABM Treaty, and an effort to improve it by broadening its coverage and tightening some of its language. There should also be a further exploration of the possibility of an agreement that would safeguard the peaceful uses of space, uses that have much greater value to us than to the Soviets. We still need and lack a reliable cap on strategic warheads, and while Mr. Reagan has asked too much for too little in the past, he is right to want reductions. He currently has some advisers who fear all forms of arms control, but advisers can be changed. We are not suggesting that the President will change his course lightly. We simply believe that he does truly want real progress on arms control in his second term, and that if he ever comes to understand that he must choose between the two, he will choose the pursuit of agreement over the demands of Star Wars.

We have one final deep and strong belief. We think that if there is to be a real step away from nuclear danger in the next four years, it will have to begin at the level of high politics, with a kind of communication between Moscow and Washington that we have not seen for more than a decade. One of the most unfortunate aspects of the Star Wars initiative is that it was launched without any attempt to

---

[4] The Russians have their own program, of course. But they are not about to turn our technological flank in the technologies crucial for ABM systems. "According to the U.S. Department of Defense, the United States has a lead in computers, optics, automated control, electro-optical sensors, propulsion, radar, software, telecommunications, and guidance systems." Drell *et al., op. cit.* p. 21.

discuss it seriously, in advance, with the Soviet government. It represented an explicit expression of the President's belief that we should abandon the shared view of nuclear defense that underlies not only the ABM Treaty but all our later negotiations on strategic weapons. To make a public announcement of a change of this magnitude without any effort to discuss it with the Soviets was to ensure increased Soviet suspicion. This error, too, we have made in earlier decades. If we are now to have renewed hope of arms control, we must sharply elevate our attention to the whole process of communication with Moscow.

Such newly serious communication should begin with frank and explicit recognition by both sides that the problem of nuclear danger is in its basic reality a *common* problem, not just for the two of us, but for all the world—and one that we shall never resolve if we cannot transcend negotiating procedures that give a veto to those in each country who insist on the relentlessly competitive maintenance and enlargement of what are already, on both sides, exorbitantly excessive forces.

If it can ever be understood and accepted, as a starting point for negotiation, that our community of interest in the problem of nuclear danger is greater than all our various competitive concerns put together, there can truly be a renewal of hope, and a new prospect of a shared decision to change course together. Alone among the presidents of the last 12 years, Ronald Reagan has the political strength to lead our country in this new direction if he so decides. The renewal of hope cannot be left to await another president without an appeal to the President and his more sober advisers to take a fresh hard look at Star Wars, and then to seek arms control instead.

APPENDIX 2

EXCERPTS FROM THE IMPACT OF U.S. AND SOVIET BALLISTIC MISSILE DEFENSE PROGRAMS ON THE ABM TREATY (A REPORT FOR THE NATIONAL CAMPAIGN TO SAVE THE ABM TREATY), BY THOMAS K. LONGSTRETH, JOHN E. PIKE, JOHN B. RHINELANDER

EXECUTIVE SUMMARY

- The Reagan Administration has launched a major program aimed at establishing defenses against the threat of nuclear attack. The Strategic Defense Initiative (SDI), as it is known, offers a superficially appealing solution to the nuclear dilemma but, in fact, threatens to spur the arms race forward, destroy existing arms agreements and eliminate any chance for future arms control.
- The Anti-Ballistic Missile (ABM) Treaty of 1972 bans systems for nationwide defense of territory against ballistic missile attack. For over a decade, the ABM Treaty has enhanced our national security by preventing a costly and dangerous arms race in anti-missile weapons. Abandoning its prohibitions on large ABM systems would eliminate any possibility of significant limits on offensive nuclear forces, as each side would instead increase its offensive forces in order to preserve its ability to penetrate the other's defense and retaliate against nuclear attack.
- Present and future U.S. and Soviet anti-missile systems threaten the continued viability of the ABM Treaty. The development and testing of ABM components could violate the ABM Treaty well before the U.S. and the U.S.S.R. decide whether to initiate deployment of extensive missile defense systems. In the near term, the U.S. and the U.S.S.R. may not take the provocative step of formally abrogating the ABM Treaty, but each may simply undertake activities that undermine the agreement, steadily eroding its restrictions until the Treaty has lost much of its significance.
- Also of concern are devices or systems that, although ostensibly designed for other purposes, could be used in an ABM role. Chief among these are large phased-array radars, anti-tactical ballistic missiles, and anti-satellite (ASAT) systems. In particular, negotiation of a well-crafted ASAT agreement could prevent further development, testing, and deployment of ASAT systems that would seriously undermine the ABM Treaty.
- Beginning in 1988-89, field tests under various elements of the SDI, if funded by Congress, would appear to be inconsistent with the ABM Treaty. In *1985-87* the SDI will be limited to research and preliminary development. In *1988-90* continued development and the beginning

of tests of ABM components are planned. In *1991-93*, testing of integrated anti-missile systems is contemplated, as is the possible deployment of anti-tactical ballistic missiles (ATBMs) in Europe. This initial ten year development phase from 1984 through 1993 is intended to support a deployment decision in 1993. In *1994-96*, limited deployment of systems to defend ICBM silos could begin as development of advanced systems continues, and in *1997-2005*, the full layered defense envisioned by SDI might be deployed.

- The near term issue presented by SDI is *not* whether the United States should progress from *research* (which is permitted under the ABM Treaty) to *deployment* of space-based ABM systems (which is prohibited). Rather, it is whether the United States should structure its research to lead to *advanced development* and *testing* of space-based systems (which is prohibited). This is the crucial issue the Executive and Congress must first address. If the collective decision is to proceed, then the United States will either have to *abrogate* the ABM Treaty or gain Soviet approval to *amend* it by 1988-89.
- In addressing the problems related to preserving and enhancing the Treaty, the U.S. and the U.S.S.R. should concentrate on the key issue of whether particular prohibitions are in the net interest of the two countries. Prohibitions that limit Soviet activities must also limit analogous U.S. activities—such is the nature of arms agreements. If the U.S. demands freedom of action, equal freedom will fall to the Soviets. The same holds true at a more general level.
- The present approach of the Reagan Administration is to loudly insist on strict Soviet compliance with the Treaty, while strenuously avoiding resolution of matters that might impinge upon U.S. programs. Instead, discussions should be undertaken within appropriate diplomatic channels (e.g., the Standing Consultative Commission) to clarify and reinforce existing ABM Treaty restrictions on ambiguous or "gray area" activities. However, caution should be exercised in initiating formal or informal amendments to the Treaty itself. While some additional clarifications may be needed, attempts to strengthen the Treaty through amendments carry the risk of opening up the ABM Treaty to wholesale and destructive revisions.

I. Defense in The Nuclear Era

The pursuit of an impenetrable defense which would protect against the threat from nuclear weapons is not a new phenomenon. Both the United States and the Soviet Union have had active missile defense research programs for decades.*

The advent of bombers in the 1950s capable of delivering nuclear weapons to targets located continents away created a situation of mutual vulnerability unprecedented in the history of warfare. This sense of vulnerability led both nations to seek means of protecting themselves from nuclear attack, hence, the construction of air defense networks in the 1950s consisting of early-warning radars, interceptor aircraft, and first generation surface-to-air (SAM) missiles. These air defenses were given the task of destroying high-altitude, long-range bombers before they could drop nuclear weapons on their targets, but neither side ever achieved a truly effective system.

By the late 1950s, both sides began perfecting other nuclear delivery systems that could penetrate any air defense system. These were the land-based intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs) that provide the backbone of today's nuclear arsenals. Simultaneous with the development of more capable *offensive* nuclear delivery systems, each side sought ways of achieving more reliable and effective *defensive* systems.

The major problem in designing such defenses, and the principal advantage accorded to offensive nuclear systems, is the vast destructive power of nuclear weapons. Any defensive system designed to protect a nation's population from nuclear attack must prevent virtually all nuclear weapons from reaching their targets because the detonation of only a few nuclear weapons would be an unprecedented catastrophe.

Creating such a defense was difficult enough in the era of heavy, subsonic bombers. The introduction of ICBMs and SLBMs, which deliver nuclear weapons to their targets at velocities of thousands of miles per hour, made

* This report does not provide an analysis of missile defense technology. Readers interested in gaining a better understanding of current ABM technology and concepts should consult the bibliography at the back of this report.

it necessary to design an entirely new type of defensive system capable of locating, tracking and intercepting objects moving at such high speeds.

During the 1960s, the U.S. and the U.S.S.R. each moved steadily forward on anti-missile technology, though neither reached the stage where it considered such systems ready for large-scale deployment.* In the U.S., advanced development of the Nike-X ABM system progressed to the point where some civilian and military advocates were lobbying for construction of a U.S. ABM system. Knowledge that the Soviets were moving forward on their *Galosh* ABM system bolstered the case of proponents.

By the late 1960s, the debate over whether to deploy a large ABM system had become the dominant strategic issue. ABM proponents and opponents in the late 1960s made many of the same claims and counterclaims that are being made today in discussing the President's Star Wars plan.

While most experts doubted any ABM system's ability to protect populations, some nevertheless favored deployment of a limited missile defense to protect U.S. land-based missiles in the face of their impending vulnerability. Such a "thin" defense was also seen as providing a defense against accidental missile launches or an attack from a small nuclear power.

* Each side was also moving forward on new technologies for more capable offensive systems. Among these advances in offensive weapons were multiple independently targetable reentry vehicles (MIRVs) which were developed to saturate an ABM system, and air-launched cruise missiles (ALCMs) which gave bombers the ability to saturate air defenses.

II. Evolution of the ABM Treaty

Concurrent with the debate over the merits of anti-ballistic missiles, the U.S. and U.S.S.R. agreed to enter into negotiations seeking to limit their strategic nuclear forces. The process was delayed due to the Soviet invasion of Czechoslovakia in the summer of 1968, but negotiations finally began under the Nixon Administration in Helsinki, Finland, in November 1969.

In the initial sessions of the first Strategic Arms Limitation Talks (SALT I), negotiators undertook wide-ranging discussions about the interaction between offensive and defensive systems. Was it more important to limit defensive systems first, as the U.S. had originally proposed during the Johnson Administration, or offensive and defensive systems simultaneously, as urged by the Nixon Administration? Each side searched for a better understanding of how the other perceived the offense-defense relationship.

With the completion of the ABM Treaty and the Interim Agreement on offensive nuclear forces in May 1972, the superpowers implicitly acknowledged the overwhelming strategic reality: however seductive in theory, nationwide defenses against missile attack were not feasible because the destructiveness of nuclear weapons gave offensive systems an insurmountable advantage.

In addition, the deployment of large scale missile defenses would lessen the stability of the strategic balance. A competition in building ABM systems would inevitably instigate an uncontrolled build-up in offensive nuclear forces, as each sought to ensure its ability to penetrate its opponent's defensive shield. Conversely, as later summarized in the Preamble to the ABM Treaty, "The limitation of anti-ballistic missile systems . . . would contribute to the creation of more favorable conditions for further negotiations on limiting strategic arms."

It was recognized that such an unregulated offensive-defensive arms competition could also have adverse consequences on "crisis stability," and therefore increase the risk of nuclear war. Crisis stability exists when each side is secure in the knowledge that it possesses the capacity to threaten the other side with devastating retaliation even if struck first with nuclear weapons. Both superpowers spend considerable funds and effort to maintain this "second-strike" capability.

The projected cost of an unregulated offensive-defensive competition was also an inducement for controls. It was well understood that the dual pursuit of both nationwide ABM systems and new technologies for offensive systems to penetrate defenses would be prohibitively expensive.

For all of the above reasons, the U.S. and the U.S.S.R. decided at the SALT I negotiations to conclude an agreement of unlimited duration banning the large-scale deployment of ABM systems, and placing strict limitations on the development of ABM capabilities. They also reached a five-year interim agreement limiting ICBM and SLBM launchers and agreed to continue negotiations toward greater curbs on offensive weapons. The SALT II Treaty (signed in June 1979 for a term through December 31, 1985 but never ratified) represented the first comprehensive agreement limiting strategic ballistic missile launchers and heavy bombers, and requiring some reductions in offensive systems.

The SALT I and SALT II negotiations were premised on the assumption that limitations on strategic offensive forces would not be possible without extensive constraints on strategic defenses. The collapse in November 1983 of the Strategic Arms Reduction Talks (START) and negotiations to reduce intermediate-range nuclear forces (INF), coupled with renewed official interest in strategic defenses, has resurrected the same fundamental issues that defined the strategic debate in the late 1960s, and that many believed had been resolved with the signing of the ABM Treaty in 1972.

This was reflected in the framework for arms control negotiations which resumed in Geneva this year. In 1967, the United States proposed negotiations on ABM systems, while then Soviet Premier Kosygin resisted. Now, in 1985, this situation has reversed, with President Reagan arguing that defensive systems would be both "moral" and "stabilizing" and the Soviet leaders countering that they would lead to a dangerous escalation of the arms race. It is too early to tell whether the public postures of early 1985 will change over time so that negotiations to preserve the ABM Treaty and to reduce offensive arms can achieve results.

III. The ABM Treaty

The ABM Treaty bans the deployment of nationwide systems to defend against ballistic missile attack. The explicit purpose of the ABM Treaty is to preclude the type of advanced nationwide missile defense system that President Reagan envisions and the less sophisticated one that some claim the Soviet Union is developing. Deployment of such systems would clearly violate the basic objective and explicit terms of the Treaty.

Provisions of the Treaty

As amended by the 1974 Protocol, the ABM Treaty limits the U.S. and the U.S.S.R. to one ABM site of 100 interceptors and 100 launchers either around the national capital or an intercontinental ballistic missile field. The Treaty also places strict limits on the number of ABM radars at the permitted ABM site. It allows research on all types of ABM systems and components. Advanced development, testing and deployment of certain types of ABM systems and their components are banned. This ban on advanced development of specific types of ABM systems and components is particularly relevant to the early stages of the President's Strategic Defense Initiative, as outlined in the following section.

The ABM Treaty consists of a Preamble and sixteen Articles. In the course of the negotiations, agreement was reached on some interpretations related to the Treaty. These "agreed statements" and "common understandings" are an integral part of the Treaty and help to clarify some elements of its text. Additional protocols and agreed statements were later reached in the Standing Consultative Commission (SCC) established by the Treaty as the forum to discuss treaty-related issues. Some key definitions and concepts used in the Treaty were not clarified by agreed interpretations during or subsequent to SALT I.

The Preamble sets forth the common premises and objectives of the U.S. and the Soviet Union which are the basis for entering into the ABM Treaty. Most other provisions of the Treaty are summarized below. (For the complete text of the ABM Treaty and Protocols, see Appendix.)

Article I: bans the deployment of ABM systems which would provide a defense for the entire territory or a base for such a defense. It also bans

the defense of individual regions except as permitted by Article III.

Article II: defines an ABM system as one designed to counter strategic ballistic missiles or their elements in flight. Current types of components are described as ABM missiles, ABM launchers, and ABM radars.

Article III: (as amended by the 1974 Protocol) allows one fixed, land-based ABM site in each country, of a radius of 150 kilometers, either to defend the national capital or one ICBM field. Each site is limited to no more than 100 ABM launchers and missiles. Each site has limits on ABM radars which are somewhat different. A site to defend ICBM silos may have no more than two large ABM radars and eighteen smaller ABM radars. A site to defend the national capital is permitted no more than six radar complexes, each complex having a radius of no more than three kilometers.

Article IV: permits development and testing of ABM systems and components at mutually agreed upon test ranges, which may have no more than 15 ABM launchers.

Article V(1): bans the development, testing, or deployment of ABM systems or components which are sea-based, air-based, space-based, mobile land-based, or not of a permanent fixed type. **Article V(2)** bans the development, testing or deployment of ABM launchers for multiple launch or rapid reload of ABM interceptors.

Article VI(a): bans giving non-ABM systems ABM capabilities (i.e., capabilities to counter strategic ballistic missiles in their flight trajectory), or testing such non-ABM systems "in an ABM mode." Although these non-ABM systems are not defined by the Treaty, they could include air defense or anti-tactical ballistic missiles, strategic offensive missiles, or anti-satellite weapons. **Article VI(b)** requires that ballistic missile early-warning radars be located along the periphery of the national territory and oriented outward.

Article VII: permits modernization and replacement of ABM system and components subject to other Treaty provisions.

Article VIII: directs that excess or banned ABM systems or components be dismantled within the shortest possible time.

Article IX: prohibits the transfer to other states, and the deployment outside each party's national territory, of ABM systems or their components.

Article XIII: establishes the Standing Consultative Commission (SCC) as the forum for discussion of future ABM Treaty issues.

Article XIV: establishes that each Party may propose amendments to the Treaty.

Article XV: provides that the Treaty is of unlimited duration, but permits either side to withdraw on six months notice if its supreme interests are jeopardized.

Agreed Statements

D: establishes that future ABM systems based on other physical principles will be subject to discussion. Their deployment in a fixed land-based mode requires Treaty amendment.

E: bans the development, testing, or deployment of MIRVed ABM interceptors.

F: exempts LPARs used for tracking objects in outer space or for verification from other restrictions on LPARs.

G: specifies that Article IX's prohibition on the transfer of ABM systems or components to other states includes technical descriptions and blueprints.

Common Understandings

B: specifies that non-phased-array radars for range safety and instrumentation are permitted outside of ABM test ranges. The Soviets further elaborated that such radars are not limited by the Treaty.

C: specifies that "mobile" ABM systems and components include those that are "not permanent fixed types."

1974 ABM Protocol

In 1974, the United States and the Soviet Union signed a protocol that reduced the allowed number of ABM sites on each side from two to one. The protocol also allows each side to change its original choice of an ABM site (defending either its national capital or an ICBM field) but it can do so only once and advance notice must be given.

Additional Protocols and Agreed Statements

A number of confidential agreed statements and protocols have been reached within the Standing Consultative Commission by the U.S. and the U.S.S.R.

1974 Protocol on Procedures for ABM systems: establishes procedures for replacement and dismantling of ABM systems.

1976 Supplementary Protocol on ABM Procedures: establishes additional procedures for replacement and dismantling of ABM systems.

1978 Agreed Statement: defines test ranges for ABMs and identifies current ranges; specifies criteria for the Article VI term "tested in an ABM mode;" and refines criteria for permitted and prohibited activities of air defense components at ABM test ranges.

Activities Permitted and Prohibited by the ABM Treaty

The basic approach of the ABM Treaty is that anything which is not prohibited is permitted. Research on all types of ABM systems and com-

ponents is permitted. The following section outlines specific permitted and prohibited activities.

Fixed, Land-Based ABM Systems and Components

Research, development, testing, and deployment of fixed, land-based ABM systems and components is permitted, provided such activity meets the geographic, quantitative, and qualitative constraints of Article III (as modified by the 1974 Protocol) and utilizes "current components," namely: ABM missiles, ABM launchers and ABM radars as outlined in Article II.

Fixed, land-based systems are limited, however, by Article V(2) and Agreed Statement E. Article V(2) bans the development, testing or deployment of "ABM launchers for launching more than one ABM interceptor missile at a time." It also bans the development, testing or deployment of systems for "rapid reload" of ABM launchers. Agreed Statement E clarifies that the provisions of Article V(2) prohibit the development, testing or deployment of more than one independently guided warhead on each ABM interceptor missile.

Research, development, and testing (but not deployment) of fixed, land-based components utilizing kinetic-energy (which destroy their targets by high speed impact or with shrapnel explosives) and directed-energy systems (such as lasers or particle beams), is permitted (see Article III and Agreed Statement D). However, testing of such systems and their components must be conducted at designated ABM test ranges (see Article IV).

Space, Air, Sea and Mobile Land-Based ABM Systems and Components

Research and preliminary development of space-based, air-based, sea-based or mobile land-based (including transportable or otherwise not of a permanent, fixed type) ABM systems and components is permitted. Research, development, testing and deployment of anti-satellite weapons is not prohibited by the Treaty, but such weapons may not be given the capability to intercept strategic ballistic missiles or tested in an ABM mode [Article VI(a)].

Radars

The deployment of ballistic missile early-warning radars is permitted but limited to those "at locations along the periphery" of the national territory and "oriented outward" [Article VI(b)]. This restriction limits the ability of early-warning radars to function as ABM radars by reducing their proximity to missile fields that they could be used to protect. Further insurance is provided by the fact that radars located at the periphery are also, themselves, quite vulnerable to direct attack.

Space-tracking radars, as well as radars used for arms control treaty verification (national technical means), are not limited by the ABM Treaty (see Agreed Statement F). Therefore, deployment of large phased-array

radars (LPARs) without regard for location or orientation for these purposes is permitted. Non-ABM radars for test instrumentation or range safety purposes are permitted outside of agreed ABM test ranges (see Common Understanding B). There is no agreed statement distinguishing by technical characteristics an ABM radar from a non-ABM radar or one type of radar from another (e.g., an early-warning from a spacetrack radar).

Lasers and Directed-Energy Weapons

The development, testing and deployment of any type of space-based, air-based, or mobile ground-based ABM system or component, whether based on present or future (e.g., one utilizing kinetic-energy or directed-energy weapons) technologies, is banned by Article V of the ABM Treaty. The American negotiators were aware of the problem of technological innovation, and finally achieved Soviet agreement to provisions which severely constrain the development and testing of these future types of technologies.

Each year, the Director of the Arms Control and Disarmament Agency (ACDA) submits a report to Congress, on behalf of the President, assessing the arms control impact of various weapon programs. The 1984 Arms Control Impact Statement (ACIS) stated, "The ABM Treaty prohibition on development . . . applies to directed energy technology . . . When such directed energy weapons enter the field testing phase, they become constrained by these ABM Treaty obligations." This statement correctly reflects the definition of "develop" prepared by the United States during the ratification of SALT I.

Agreed Statement D, which supplements Article III of the Treaty, covers future fixed, ground-based ABM systems based on other physical principles (e.g. lasers and particle beam weapons) and including components "capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars. . . ." Agreed Statement D, in conjunction with Articles III and XIV, requires prior consultation and an amendment to the ABM Treaty before a fixed, ground-based directed-energy or kinetic-energy ABM system can be deployed.

In summary, while Article V severely limits the development and testing of ABM systems and components, directed-energy or otherwise, the development and testing of *fixed, land-based* directed-energy systems or components is permitted. However, as stated in the 1984 ACIS, "although the Treaty allows the development and testing of fixed, land-based ABM systems and components based on other physical principles . . . the Treaty prohibits the deployment of such fixed, land-based systems and components unless the parties consult and amend the Treaty."

VI. Critical Definitional Issues

Both the U.S. and the U.S.S.R. are involved in many military development efforts with potential application to an ABM role. Over the next several years, the SDI program as presently structured will focus on developing and testing the necessary technologies and components for a modern ABM system. Such tests are a critical prerequisite to any decision on deployment.

President Reagan has stated that all research and development programs will be "carried out in a manner consistent with our obligations under the ABM Treaty." Secretary of State Shultz, likewise, has insisted to Soviet Foreign Minister Gromyko in their talks last January that "SDI is a research program, fully consistent with the ABM Treaty." This point was further emphasized in the White House report "The President's Strategic Defense Initiative," released in January 1985.

It is probably true that the first four years of the SDI will be generally consistent with the ABM Treaty, at least through 1988. This policy was determined in NSDD 119 of January 1984. However, starting in 1988, this situation will change. A close look at what is now known about the SDI indicates that beginning in 1988 the program as presently planned will come into conflict with the Treaty's limits. Because the SDI research, development and testing effort are scheduled to be carried out from now through the early 1990s, compliance with the ABM Treaty will be affected well before any decision is taken to deploy a layered strategic anti-missile system.

Supposed imprecision in Treaty language does not provide any basis for claiming adherence to the Treaty's terms by the SDI after 1988. A careful examination of the Treaty and its negotiating history indicates that many of the demonstrations planned under the Strategic Defense Initiative starting in 1988 are almost certainly inconsistent with the terms of the Treaty.

Some of the current uncertainty with regard to permitted and prohibited activities under the ABM Treaty stem from the different possible interpretations of certain Treaty terms. During the SALT I negotiations, the two Parties did not reach an agreed interpretation of the term "develop," although there were numerous exchanges on its meaning. The term "ABM

component" was defined with respect to current technologies but not future technologies. The phrase "tested in an ABM mode" was not defined at all, although the U.S. did issue a unilateral statement on the matter.

While this lack of agreement has led to some differing interpretations of certain activities that occurred after the Treaty was ratified, some terms and phrases were further clarified following the signing of the Treaty. The following sections provide a detailed examination of how the ABM Treaty defines prohibited activities related to missile defense and outlines the negotiating history that led to these provisions.

Definitions of Treaty Terms

Definition of "Test in an ABM Mode"

While no agreement was reached with the Soviets in 1972 on a definition for "test in an ABM mode," in 1978 the U.S. and the U.S.S.R. reached an Agreed Statement in the SCC specifying the criteria for applying the term as it is used in the Treaty to refer to missiles, launchers and radars.

Although the exact text of the 1978 Agreed Statement remains classified, it is apparently similar to, with one significant change, the U.S. unilateral statement attached to the Treaty which provides the U.S. interpretation of the definition. In this statement, the U.S. indicated that it would regard a missile to be "tested in an ABM mode" if the missile were:

> . . . flight tested against a target vehicle which has a flight trajectory with characteristics of a strategic ballistic missile flight trajectory . . . or is flight tested to an altitude inconsistent with interception of targets against which air defenses are deployed. . .

The parties were unable to agree to a precise definition of the altitude that marks the difference between air defense and missile defense interceptions, and this part of the definition was not adopted. However, lack of a common understanding on the definition of a "strategic ballistic missile" is relevant to several current compliance issues, particularly the controversy over Soviet testing of their new *SA-12* air defense missile against a target based on the *SS-12* tactical ballistic missile (see section on "Compliance Issues Related to Soviet Missile Defense Activities").

Definition of "Component"

The Treaty defined ABM components as "currently consisting of . . . interceptor missiles constructed and deployed for an ABM role, or . . . tested in an ABM mode; . . . launchers constructed and deployed for launching ABM interceptor missiles; . . . and radars constructed and deployed for an ABM role or . . . tested in an ABM mode."

During the course of the negotiations, discussions were held on the difference between a "component", which would be limited by the Treaty, and an "adjunct" which would not be limited by the Treaty. One example of an "adjunct" which was mentioned during these discussions was a small

optical telescope that might be used in conjunction with an ABM radar, perhaps to provide assistance in calibrating the radar. Since such an adjunct would not have meaningful ABM capabilities, these discussions suggested that "adjuncts" would not be subject to Treaty limitations. However, a precise definition of the distinction between a "component" and an "adjunct" was never formally sought in the negotiations. There has not been an authoritative statement on this subject by American officials (as was the case with the definition of the term "develop"). There has also been no agreed definition reached in the SCC.

Definition of "Develop"

Certain provisions of the ABM Treaty deal primarily with development and testing, as separate from deployment, of ABM systems and components. Article IV allows the development and testing of fixed, land-based ABM systems and components at agreed test ranges. Article V prohibits either side from undertaking "to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based or mobile land-based." Also banned by Article V is the development, testing, or deployment of multiple independently guided warheads for ABM interceptor missiles, systems for launching more than one ABM interceptor missile at a time from each launcher, or automatic, semi-automatic, or similar systems for rapid reload of ABM launchers. Article VI prohibits either party from giving non-ABM (e.g., air defense, strategic offensive, or anti-satellite) missiles, launchers, or radars "capabilities to counter" strategic ballistic missiles or from testing such systems "in an ABM mode."

The ABM Treaty language does not provide a definition of the term "development" (as used in Article IV) or "develop" (as used in Article V). The meaning of "development" and "develop," however, was discussed between the American and Soviet delegates during the SALT I negotiations.

American negotiators apparently proposed to Soviet negotiators that development is that stage which follows research and that research includes the conceptual design and laboratory testing which precedes field testing. While development often overlaps with research, it is usually associated with the construction and testing of one or more prototypes of a weapon system or its major components. It therefore made sense for the Treaty to ban development of those systems where testing and deployment were prohibited.

Article V of the Russian text of the Treaty uses the verb "to create" for the English word "develop." In response to the proposed U.S. definition of "develop," a Soviet negotiator apparently indicated that there was little difference between "develop" and "test" as proposed by the U.S. and that the dividing line should be where national technical means could identify specific systems as ABM-related.

The most explicit and authoritative American formulation on this matter was in response to a question from Senator Henry Jackson to Ambassador

Gerard C. Smith (chief negotiator of the ABM Treaty) during Smith's testimony before the Senate Armed Services Committee on July 18, 1972. This written submission for the record, which was prepared by the executive branch after reviewing the SALT delegation's reporting cables to Washington, states:

> The obligation not to develop such systems, devices, or warheads would be applicable only to that stage of development which follows laboratory development and testing. The prohibitions on development contained in the ABM Treaty would start at that part of the development process where field testing is initiated on either a prototype or breadboard model. It was understood by both sides that the prohibition on 'development' applies to activities involved after a component moves from the laboratory development and testing stage to the field testing stage, wherever performed. The fact that early stages of the development process, such as laboratory testing, would pose problems for verification by national technical means is an important consideration in reaching this definition. Exchanges with the Soviet Delegation made clear that this definition is also the Soviet interpretation of the term 'development.'

The submission went on to state:

> . . . . Article V . . . places no constraints on research and on those aspects of exploratory and advanced development which precede field testing. Engineering development would clearly be prohibited.

However, this sensitive and now critical unilateral definition, which appears to be drafted in terms of the DoD categorization of the research and development process (see below), was never reduced to an agreed statement during the negotiations or subsequently under the auspices of the Standing Consultative Commission. No Soviet official has publicly stated whether they agree with the definition prepared during the ratification process. Privately, the Soviets have indicated they are under no obligation to comment on documents prepared for U.S. ratification purposes.

Recently, some Soviets have asserted that, as to development, the Treaty bans even the earliest stages of research conducted for the purpose of creating systems or components limited by Article V. It is not known whether this is the official Soviet view.

In other 1972 testimony before the Senate Armed Services Committee, then Director of Defense Research and Engineering, Dr. John Foster, Jr., elaborated on Ambassador Smith's submission. Dr. Foster's submission stated that:

> Constraints imposed by the phrase 'development and testing' would be applicable only to that portion of the 'advanced development stage' following laboratory testing, i.e., that stage which is verifiable by national means. Therefore, a prohibition on development—the Russian word is 'creation'—would begin only at the stage where laboratory testing ended on ABM components, on either a prototype or a bread-board model.

For the purpose of categorizing programs in the defense budget, the Pentagon both in 1972 and now divides the research and development process into five stages. They are:

6.1 Basic Research: efforts directed toward the expansion of specific knowledge of natural phenomena, but not tied to a specific program.

6.2 Exploratory Development: efforts directed toward the expansion of technological knowledge and the development of materials and components with potential application to new military weapons and equipment. Emphasis on exploring the feasibility of various approaches to military probiems up to the point of breadboard and prototype fabrication.

6.3 Advanced Development: efforts directed toward the development of experimental hardware for technical or operational testing of its suitability for military use.

6.4 Engineering Development: efforts directed toward the development of a particular system engineered for service use, but which has not yet been approved for production and deployment.

6.5 Operational Systems Development: efforts directed toward the continued test, development, evaluation and design improvement of projects which have already entered (or have been approved for) the production-deployment stage.

A careful reading of Ambassador Smith's submitted statement and the DoD categorization of the research and development process suggests that the Article V limitations on space-based and other mobile systems and components would permit basic research (6.1) and those aspects of exploratory (6.2) and advanced (6.3) development which preceded field testing. Article V would ban field testing as part of exploratory (6.2) and advanced (6.3) development, as well as engineering (6.4) and operational (6.5) systems development. The Strategic Defense Initiative is funded under the 6.3 advanced development budget category.

Current plans of the Administration for the Strategic Defense Initiative, if carried through during the 1988-1993 time period, would be inconsistent with the limits of Article V of the Treaty as explained in the 1972 Senate Armed Services Committee hearings. The *1984-88 Five-Year Defense Guidance*, signed by Secretary of Defense Caspar Weinberger, states that the U.S. plans to initiate "the prototype development of space-based weapons systems . . . so that we will be prepared to deploy fully developed and operationally ready systems. . . ."

Administration Interpretation of Treaty Terms

During the early days of the Strategic Defense Initiative, there were some within the Administration who argued that the ABM Treaty would permit all the planned SDI test programs to go forward to the 1993 deployment decision point. However, this interpretation was difficult to reconcile with a careful examination of the Treaty, or with the actual characteristics of the demonstrations planned under the SDI, some of which would have come into conflict with the Treaty as early as 1987.

In NSDD 85 (dated March 1983) and NSDD 119 (dated January 1984), President Reagan directed that, during the 1984-88 period, the SDI would

remain in compliance with the ABM Treaty. However, testing of the *Airborne Optical System*, scheduled for 1988, would be inconsistent with the ABM Treaty. Some Administration officials now appear to accept that the Treaty would have to be amended or abrogated in order for many of the demonstrations planned from 1991-1993 to take place. In testimony before the House Armed Services Committee on February 27, 1985, General Abrahamson stated that while the U.S. can currently test SDI-related components in the laboratory, "at some point, however, we would have to depart from the Treaty." He also went on to say that that would be necessary "about the turn of the next decade." Consequently, an affirmative decision would be required to restructure (or cancel) these demonstrations in order to remain compliant with existing Treaty provisions.

Interpretation of "Component"

Many in the Administration have argued that a device would not be an ABM component unless it could perform the complete function of, or substitute on a "stand alone" basis for, an ABM component as defined in Article II of the Treaty. If a device could only perform part of the function of an ABM radar, launcher, or interceptor, then it would not be constrained as an ABM component under their interpretation.

These same Administration officials have maintained that the technology which will be demonstrated in many of the planned tests is not sufficiently mature to be integrated into a workable ABM system. Therefore, they argued, these experiments would not violate Article V of the ABM Treaty because ABM systems or components will not be developed or tested. A violation would only occur, according to these officials, when and if technical experiments become part of a total system through integration, at the testing stage, with command and control elements, interceptors, and the other necessary elements of an ABM system.

This position was outlined by presidential science adviser Dr. George Keyworth II in a speech delivered February 29, 1984. According to Dr. Keyworth:

> As it's emerging, the Strategic Defense Initiative would move towards a series of progressive demonstrations of evolving subsystems. Each of these demonstrations would test out a piece of militarily meaningful technology. These would be building blocks from which an eventual system could be designed, but in and of themselves would not constitute a weapons system. Such activity would be fully within the provisions of existing treaty limitations.

Other official documents suggest a similar interpretation of permitted activities.

The summary of the SDI program released by the Department of Defense in April 1984 states that the SDI program involves "several component technology development programs which culminate in hardware demonstrations." Another DoD report, released in March 1984, mentions "near-

term feasibility demonstrations that could be developed into elements of a total ballistic missile defense system."

Under this interpretation, the Treaty was understood to permit development and testing of assemblies and sub-assemblies for space-based, air-based and mobile land-based systems which do not constitute full ABM "components." For instance, the Administration argues that the *Airborne Optical System* (which would provide initial target tracking data) is merely an adjunct to the *Terminal Imaging Radar*, which would provide direct guidance information to ground based interceptors. In this view, the *Airborne Optical System* would have to perform all sensor and battle management functions in order to be a "component". This would require this single sensor to search for attacking warheads, acquire (identify) individual warheads, discriminate these warheads from decoys and other objects, track the warhead, assign an interceptor to the warhead, track the interceptor during its flight and provide updated guidance information to it, assess whether the interception was successful, and to repeat the process if needed.

This line of reasoning ignores the history of the Treaty negotiations, which clearly suggest that ABM sensors do not have to perform the full spectrum of ABM battle management functions in order to be subject to the limitations of the Treaty. This line of reasoning also seems to rest on an extremely limited conception of the nature of the components that constitute an ABM system, in which there is a single sensor, such as a radar, that performs all of the tracking and battle managment functions for the interceptor.

Although there are some missile defense systems with a single sensor (e.g. the previously proposed *Site Defense* system) they are the exception, rather than the rule. In practice, most missile defense systems have more than one sensor component, each of which plays some role in the management of the battle.

For example, the early *Nike-Zeus* system had not one or two, but *four* sepgrate types of radars, for target acquisition, decoy discrimination, target tracking and interceptor tracking. Under this interpretation of the difference between a "component" and an "adjunct," all of these radars would be considered to be adjuncts to one another, and none of them would be considered to be a component.

Yet, the *Airborne Optical System* performs a role similar to that of the *Perimeter Acquisition Radar* (PAR) in the *Sentinel/Safeguard* system. Radars such as the PAR were clearly considered to be ABM components, and subjected to strict limitations in the Treaty. The United States went so far as to make a unilateral statement concerning the limitations on the Soviet's *Hen House* radars, even though these radars could play even less of a role in ABM battle management than that played by the PAR.

One danger in adopting the Administration's logic is that the distinction between a component and an adjunct would be impossible to achieve within current verification capabilities. A very detailed understanding of the performance capabilities of components, and of the complex inter-

action of components with each other, would be required to determine whether a particular activity was fully in compliance with Article V. This would clearly be beyond the capabilities of existing national technical means of verification.

For example, in the case of the *Airborne Optical System*, national technical means could observe that a large infrared telescope was mounted on an aircraft which was being used in conjunction with strategic missile testing. This activity would, on a *prima facie* basis, raise questions of compliance with Article V. Distinguishable and observable external characteristics, such as the performance of the aircraft, and particularly the aperture of the telescope, would indicate the suitability of the sensor for the ABM role, making a more definitive determination possible. Indeed, one of the enunciated rationales for U.S. ABM research is to provide the technical data needed for making such assessments about Soviet systems on the basis of information derived from national technical means of verification.

Some in the Administration would add the further criterion that the detailed characteristics of the sensor hardware and the computer software of the device be sufficiently capable that they could effectively perform the ABM mission in practice. This would, of course, be impossible to determine by national technical means, and it is difficult to imagine any means to make such a determination short of observing the successful operation of the system as a whole.

By that time, the component would be perfected, the development process completed, and the Treaty circumvented. The clear intention of Article V was to limit the development of new types of ABM technology at the earliest possible stage, that is, at the time that they would become detectable by national technical means.

Modifications to planned demonstrations under the SDI have further reduced the applicability of this interpretation of the Treaty put forward by the Reagan Administration. In particular, the demonstrations of the *Airborne Optical System* and the *Talon Gold* pointing and tracking experiment, which were scheduled for 1987 prior to the initiation of the SDI, have been restructured in order to enhance the ABM capabilities of the demonstrated technologies. In the case of the *Airborne Optical System*, this includes the addition of a laser range finder and on-board computers that will enable *AOS* to perform virtually the entire range of ABM battle management functions. This has resulted in a delay of over one year in the AOS demonstration, as well as a decision that the parts of *Talon Gold* will initially be demonstrated on the ground.

The Reagan Administration and the ABM Treaty

In seeking to justify U.S. programs as lawful under the ABM Treaty, senior Administration officials do not appear to be concerned that these types of ABM development efforts fundamentally compromise U.S. compliance with the ABM Treaty. On April 8, 1984, Defense Secretary Caspar Wein-

berger stated that "I've never been a proponent of the ABM Treaty." Weinberger has also made many erroneous statements regarding the Treaty. For example, on April 13, 1981, Weinberger mistakenly told an interviewer, "The treaty limiting anti-ballistic missiles expires in 1982." (The ABM Treaty is of unlimited duration.) On March 24, 1983, he stated, "The treaty only goes to block deployment."

Assistant Secretary of Defense Richard Perle, a chief architect of Reagan arms control policy, voiced the opinion of many Reagan officials in 1982 testimony before Congress. Stated Perle, "I believe that this review in 1982 of the ABM Treaty is an appropriate occasion to raise some questions about the underlying logic of that treaty because the preclusion of strategic defense as that treaty entails is, in my judgement, destabilizing. It was a mistake in 1972 and the sooner we face up to the implications of recognizing that mistake the better."

In January 1984 the Reagan Administration publicly accused the Soviet Union of "almost certainly" violating the ABM Treaty. In its February 1985 *Report on Soviet Noncompliance with Arms Control Agreements* the Administration "determined that the U.S.S.R. has violated the ABM Treaty." The Soviets are constructing a large, phased-array radar in central Siberia, near the city of Krasnoyarsk, The U.S. claims that the radar is primarily for the purpose of early warning with the capability for ABM battle management, and, at its present locations is in violation of ABM Treaty provisions limiting the location and orientation of early warning radars. The Soviets claim the radar (which will not become operational until 1988 or 1989) is for space tracking and therefore permitted by the Treaty (see Chapters on "Compliance Questions Related to Soviet Missile Defense Activities" and "Gray Area Weapon Developments").

Some in the Reagan Administration have focused on the Krasnoyarsk radar as a means to justify U.S. "breakout" of the Treaty's provisions. In testimony before the Senate Armed Services Committee in March 1984, Richard Perle said that one of the responses the Reagan Administration was considering as a result of the Soviet radar was to deem ourselves no longer bound by the ABM Treaty. Other Presidential advisers share Perle's feelings about the ABM Treaty and would like to abrogate it whenever it becomes politically convenient to do so.

VIII. Compliance Questions Related to U.S. Strategic Defense Initiative

From what is publicly known, the following activities within the SDI related to sensor and interceptor development create the greatest cause for concern and necessity for clarification regarding their consistency with the ABM Treaty.

Sensors

The SDI includes work on sensors that would be capable of detecting and tracking ballistic missiles in the initial, boost, mid-course, and terminal phases of flight. Sensors under development for each of these phases raise compliance concerns.

The *Boost Surveillance and Tracking System* (BSTS), previously known as the *Advanced Warning System* (AWS) or the *Defense Support Program*, is a follow-on to the present generation of early warning satellites. Initial versions of this satellite are scheduled for testing in space in the early 1990s. *BSTS* incorporates greatly enhanced infrared sensors which provide high resolution and precision for tracking missiles in their boost phase. The fact that MIRVed warheads are released and individually targeted in the post-boost phase limits the applicability of this system to the early warning mission, since its greater tracking precision does not translate into improved impact prediction or attack characterization. As part of a layered ABM system, however, *BSTS* could provide initial target tracking information which would be relayed for use by boost-phase interceptors. Although the *BSTS* is not intrinsically ABM-related, its inclusion in the SDI does raise questions as to its consistency with the Article V(1) provisions banning the development, testing or deployment of space-based ABM components.

The *Space Surveillance and Tracking System* (SSTS) will use cryogenically cooled infrared sensors to detect and track warheads and decoys during the mid-course of their flight. This system was previously under development as part of an upgrade to the ground-based *Spacetrack* satellite tracking network, and would have been used in support of the new air-launched anti-satellite (ASAT) weapon. As with the *BSTS*, initial versions of the *SSTS* will be tested in space in the early 1990s.

In a layered defense, *SSTS* along with other sensors would provide target tracking and identification information which would be relayed for use by

mid-course interceptors. If tested in an ABM mode, *SSTS* would be inconsistent with Article V(1). Testing SSTS against satellite targets might give it an ABM capability, which is prohibited by Article VI(a).

The *Airborne Optical System* (AOS), also known as the *Airborne Optical Adjunct*, has been under development for several years and the first flight of AOS was scheduled for 1987, prior to the advent of SDI. Upgrades to the performance requirements for *AOS* appear to have delayed this test by one year. *AOS* has been redesigned to carry a laser range finder, as well as on-board battle-management computers.

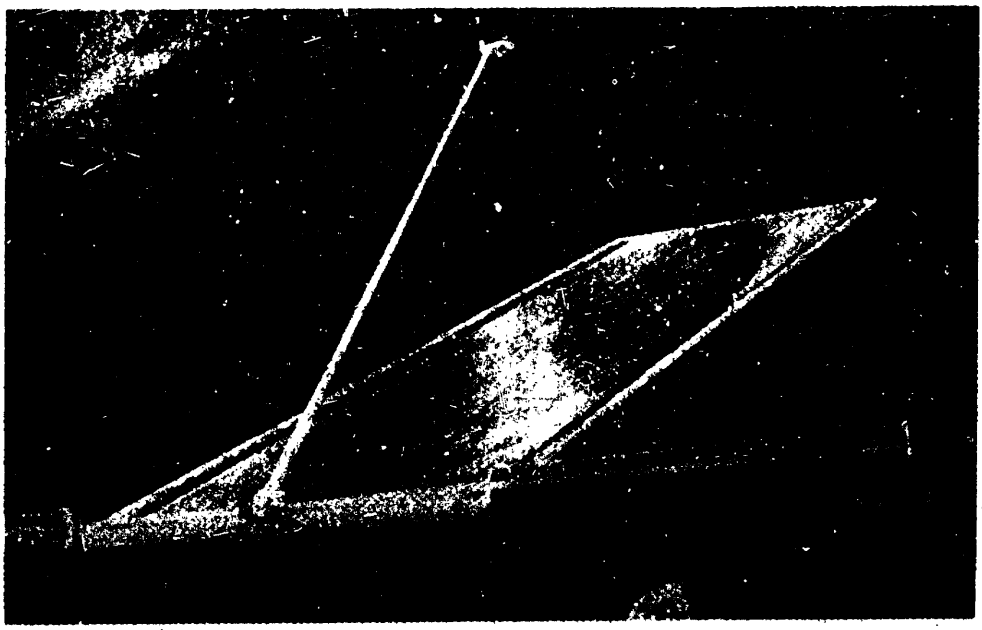
AOS is an outgrowth of earlier work on range instrumentation aircraft, such as the C-135 *Optical Aircraft Measurement Program* (OAMP), and is intended solely for ABM-related applications. The advanced development and flight testing of *AOS* would be inconsistent with the provision in Article V(1) banning the development, testing or deployment of air-based ABM components.

The *Terminal Imaging Radar* (TIR) will be part of a ground-based terminal defense system to defend both cities and hardened military targets. Like the *Defense Unit* radar of the earlier *Low Altitude Defense System* (LoADS), it would probably be deployed in a mobile mode to enhance its survivability. The advanced development or testing of the *Terminal Imaging Radar* in other than a fixed, ground-based mode would be inconsistent with Article V(1), which bans the development, testing or deployment of mobile, ground-based ABM components.

The *Space-Based Imaging Radar* and *Imaging Laser* are relatively new initiatives that provide a greatly improved ability to distinguish actual reentry vehicles from decoys. These technologies were previously under development for missions other than missile defense, and under the SDI they would be used for air-based and space-based applications. The Space Shuttle will be used for a late 1980s flight demonstration of some components of a space-based radar. In the early 1990s, either the *imaging radar* or *imaging laser* will be selected for a full-scale demonstration in space.

The advanced development or testing of either of these sensors in other than a fixed, ground-based mode would raise questions as to their consistency with Article V(1).

A new rocket test range is under construction at Shemya Island. It is part of an effort to develop infrared sensors for mid-course and terminal phase interceptors. Rockets will be used to launch test vehicles from the Aleutian Island site into outer space to observe Soviet ballistic missile tests. Tests will include at least two flights under the new *Queen Match* program, previously known as the *Designating Optical Tracker* (DOT), which incorporates an infrared sensor similar to that used in the *Homing Overlay Experiment*. DOT has already been tested on several occasions at the Kwajalein Missile Range. In addition, the *Optical Aircraft Measurement Program* (OAMP) C-135, which is a predecessor of the *Airborne Optical System*, will be based at Shemya. These projects will obtain data on Soviet systems for



Space-Based Radar
This artist's conception depicts a space-based radar similar to the type radar that will be developed under the SDI. The large antenna (60 meters by 20 meters) is mounted on a thin flexible film, and would be unrolled like a window-shade when operational. Such a radar, which could be deployed by the Shuttle, would have a power-aperture product similar to that of ground-based phased-array radars.—*Grumman Photo*

use in designing U.S. missile defenses, as well as provide an opportunity to test sensor prototypes against realistic targets. Tests of DOT and OAMP are scheduled over the next several years.

It is not clear whether the *Designating Optical Tracker* or the *Optical Aircraft Measurement Program* should be considered ABM components. If the Shemya range is used to test ABM systems or components, it would become subject to the limits of Article IV, Common Understanding B, and the 1978 Agreed Statement. Article IV allows each party to maintain ABM components for development and testing purposes at "current or additionally agreed test ranges." Common Understanding B points out that the only current U.S. ABM test ranges are at Kwajalein Atoll and White Sands, New Mexico, and that ABM components cannot be located or tested at any other test ranges without prior agreement between the two governments. The 1978 Agreed Statement sets forth procedures of notifying the other party when a new test range is established. The Administration has not indicated an intention to seek agreement that Shemya now be considered an ABM test range.

Interceptors

Interceptors that will be developed and tested under the SDI fall into three general categories: ground-based rockets; space-based and other mobile kinetic-energy weapons; and directed-energy weapons.

Ground-based Rockets

SDI work on rocket interceptors will build on the *Homing Overlay Experiment* (HOE), which was initiated in 1977 and completed in June 1984. *HOE* consisted of four tests of a ground-based, exoatmospheric non-nuclear kill vehicle. The *HOE* was designed to deploy its kill vehicle—a large aluminum net carrying metal weights—when it detected, located and converged on its target. The kill vehicle destroyed an incoming warhead by colliding with it at high speed and disintegrating it. The kill vehicle was equipped with sensors to detect the long-wavelength infrared emissions given off by missile warheads as they travel through space prior to reentry.

In the first three tests, all conducted in 1983, the kill vehicle failed to intercept the target warhead. In the fourth test in June 1984, the *HOE* successfully locked onto and destroyed a target warhead that had been launched aboard a *Minuteman* ICBM from Vandenberg Air Force Base. With the completion of the fourth test, the *HOE* series will now be folded into the *ERIS* project, described below.

The *HOE* payload, including the kill vehicle, sensor and signal processor, is carried aboard a modified *Minuteman I* ICBM. This may be inconsistent with the undertaking in Article VI(a) "not to give missiles . . . other than ABM interceptor missiles, . . . capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode."

In January 1984, the Soviets protested that using *Minuteman* to test *HOE* gave it an ABM capability. The Soviet allegation was contained in an aide memoire they presented to the U.S. which listed several dozen alleged U.S. violations of arms agreements.

In response to the Soviet charge, a bulletin published by the Arms Control and Disarmament Agency (ACDA) stated that, "The test missile in question was observably different from *Minuteman I*, as were its performance characteristics. In any case, the *Minuteman I* is no longer deployed by the U.S."

Another compliance issue pertains to the fact that, although the *HOE* experiments have been conducted using a single intercept vehicle per launcher, the program was originally designed to investigate the use of multiple kill vehicles on each launcher. (The *Minuteman* ICBM used in the tests could certainly accommodate such a payload.) The Soviets protested that *HOE* was inconsistent with the undertaking in Agreed Statement E to the ABM Treaty "not to develop, test, or deploy ABM interceptor missiles for the delivery of more than one independently-guided warhead." The ACDA Bulletin responded that "the U.S. is not developing ABM interceptors with multiple warheads and has never pursued such a program.

The *Exoatmospheric Reentry Vehicle Interception System* (ERIS) is an advanced follow-on to *HOE*. *ERIS* is presently in an early definitional phase, with tests slated to begin in the late 1980s. *ERIS* will use a much smaller interceptor kill vehicle than *HOE*, which would permit the use of multiple warheads on *ERIS*. When interceptors of this type were first evaluated in

The fourth and last flight of the *Homing Overlay Experiment* (HOE) lifts off from Kwajalein Missile Range on June 10, 1984. Less than ten minutes later, the HOE vehicle's third stage successfully collided with a reentry vehicle, the first success in the four tests.—*U.S. Army Photo*

the late 1960s under the *Homing Intercept Technology* program, the use of multiple warheads on a single interceptor was found to enhance the performance of the defense under some circumstances. Thus there may be some incentives to incorporate multiple warheads on *ERIS*.

Use of multiple warheads could improve the utility of a mid-course ABM interceptor like *ERIS*. The coordination of the release of multiple warheads is a challenging task and, at some point in the testing program of this procedure, it would have to be either tested or simulated. Any such testing of *ERIS* would be inconsistent with the undertaking in Agreed Statement E of the ABM Treaty "not to develop, test, or deploy ABM interceptor missiles

for the delivery . . . of more than one independently-guided warhead." However, the Administration has indicated that there are presently no plans to develop a multiple warhead capability for *ERIS*.

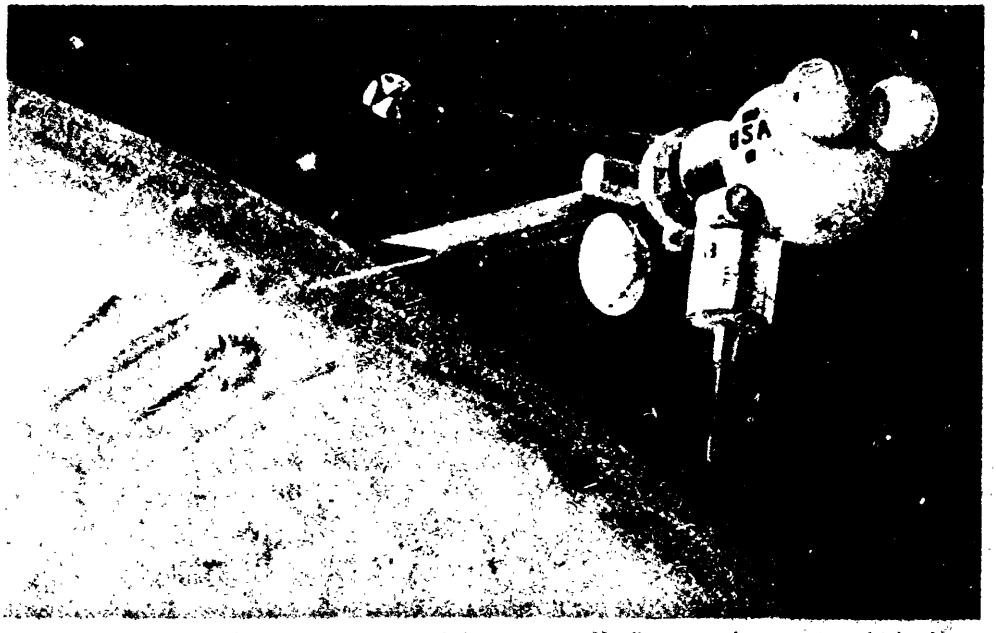
The *High Endoatmospheric Defense Interceptor* (HEDI) will use a heat seeking hit-to-kill warhead to intercept targets as soon as they enter the atmosphere. *HEDI* will be used both as the terminal layer of a defense against ICBMs, and as a defense against short-range ballistic missiles. In this latter role, *HEDI* will be applicable to the anti-tactical ballistic missile (ATBM) defense of Europe against Soviet theater nuclear forces.

Since *HEDI* will probably have both a tactical and strategic ABM capability, the transfer of *HEDI* to Europe may be inconsistent with the undertaking by the U.S. in Article IX of the ABM Treaty "not to transfer to other states, and not to deploy outside its national territory, ABM systems or their components limited by this treaty."

Advanced Kinetic-Energy Weapons

The SDI also includes work on a variety of more advanced kinetic-energy weapons. The *Hypervelocity Launcher* will use an electromagnetic accelerator, analogous in concept to a particle beam accelerator, to propel projectiles to very high velocities that may be significantly greater than those achieved by conventional rocket interceptors. These projectiles will be comparable in design to the hit-to-kill warheads used by rocket interceptors. The *Hypervelocity Launcher* offers the prospect of very high rates of fire and is, in a sense, an "anti-missile gatling gun."

This concept is applicable to space-based boost-phase and mid-course defense, as well as to ground-based terminal defense. Initial demonstra-



Artist's conception of the interception and destruction of ballistic missile reentry vehicles by a space-based, electromagnetic railgun.—*LTV Aerospace*.

tions will focus on ground-based systems, with space-based demonstrations against satellite targets simulating strategic missile components possible in the early 1990s.

Although the advanced development or field testing of the *Hypervelocity Launcher* in other than a fixed, ground-based mode would appear to be inconsistent with Article V(1), testing of a space-based version is scheduled for the early 1990s. Testing against orbiting satellite targets would be inconsistent with the Treaty if it demonstrated ABM capabilities. Furthermore, the rapid rate of fire possible with this system (on the order of one shot per second) would appear to be inconsistent with the undertaking in Article V(2) "not to develop, test, or deploy automatic or semi-automatic or other similar systems for rapid reload of ABM launchers."

The United States presently has a cooperative program with Australia for the development of hypervelocity launcher technology. At some point this program may be regarded as inconsistent with the undertaking by the U.S. in Article IX of the ABM Treaty "not to transfer to other states, and not to deploy outside its national territory, ABM systems or their components limited by this treaty;" and with Agreed Statement G which prohibits the transfer of "technical descriptions or blueprints specially worked out for the construction of ABM systems and their components."

The *SLBM Boost Phase Engagement Project* will develop and test a sea-based or air-based system for intercepting SLBMs during their boost phase. The potentially short flight times of SLBMs make them more difficult to engage with space-based defense systems. However, sea-based or air-based ABM launcher platforms could move to within a few miles of ballistic missile submarine patrol areas. These systems could intercept SLBMs inside or just above the atmosphere during their boost phase. In this way SLBMs may prove easier to intercept in boost phase than ICBMs.

Testing of components of this system could be inconsistent with the provision in Article V(1) banning the development, testing or deployment of sea-based and air-based ABM systems and components.

The *Space-Based Kinetic Kill Vehicle* project is a space-based rocket interceptor system of the type proposed by the High Frontier organization for boost phase and mid-course defense. A large number of satellites would be deployed in low Earth orbits, with each satellite carrying a number of interceptor rockets similar to the American miniature homing vehicle anti-satellite system that is presently under development. Testing against orbiting satellite targets simulating missile components is scheduled for the early 1990s. Such testing would demonstrate an ABM capability and would therefore appear to be inconsistent with Article V(a).

The advanced development or testing in space of this system would also be inconsistent with Article V(1).

Directed-Energy Weapons

The Defense Advanced Research Projects Agency (DARPA) has conducted work on space-based laser development for several years under

the so-called laser "*Triad*" program, which has been incorporated into the *Space-Based Laser* Project of the SDI. Although the revised schedule for this project has not been made public, it can be assumed to parallel that of the *Triad* program, which called for an integrated, on-orbit demonstration of a space-based laser by 1992-93.

The *Space-Based Laser* project consists of the *Talon Gold* pointing and tracking component, *Large Optics Demonstration Experiment* (LODE) mirror system, and the *ALPHA* hydrogen-fluoride chemical infrared laser.

The large *Talon Gold* telescope would be attached to the space-based laser and used to insure that the laser was properly aimed at the target. The testing schedule for *Talon Gold* initially called for two in-space demonstrations of the system aboard the Space Shuttle in mid-1987 and mid-1988. With the initiation of the SDI these tests were delayed until 1988-89 to permit the inclusion of a second telescope to provide additional surveillance and target acquisition capabilities.

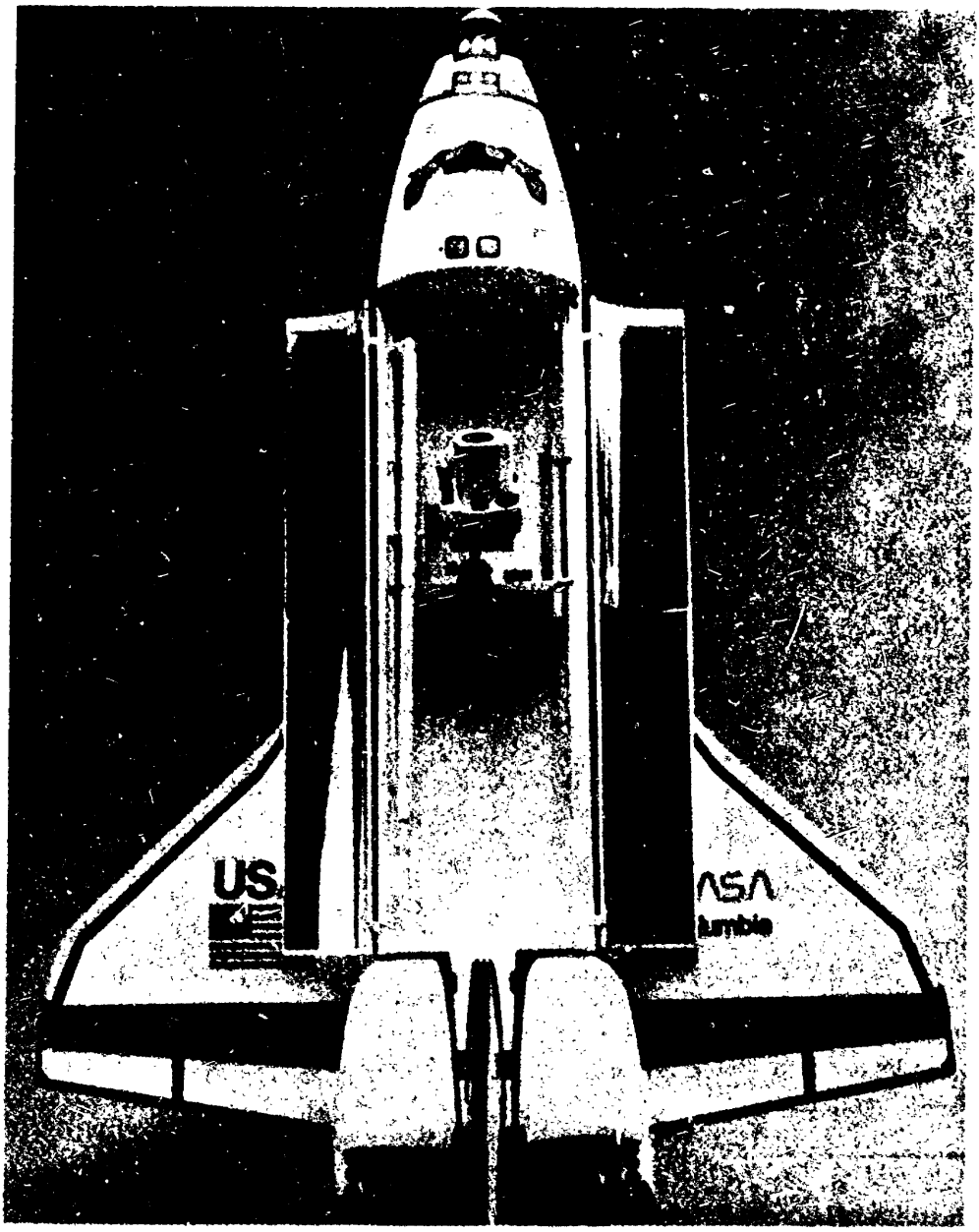
As a result of Congressional budget cuts in 1984 and decisions by the SDI Organization, the *Talon Gold* program has been further restructured. The initial tests of the *Talon Gold* hardware will be conducted on the ground. A new and more capable system will be developed, probably under a new program name, with the first flight test in space now apparently scheduled for 1989 or later. A full-scale integrated on-orbit demonstration of the entire triad is possible in the early 1990s.

The advanced development or testing in space of *Talon Gold* or its follow-on would be inconsistent with the provision in Article V(1) banning the development, testing or deployment of space-based ABM components.

Some Reagan Administration officials have argued that *Talon Gold* is only a generic experiment investigating certain pointing and tracking technologies applicable to many roles and will not be capable of substituting for an ABM component. Although the technology being demonstrated in *Talon Gold* is not applicable solely to missile defense, that is the main purpose for which it is intended, as evidenced by *Talon Gold*'s inclusion in the SDI. While this argument might have had some merit when applied to the initial single-telescope *Talon Gold* configuration, the inclusion of the second telescope for target acquisition clearly increased the ABM capabilities of this component. It is clear, finally, that the follow-on to *Talon Gold* that will be demonstrated in space in the early 1990s will be ABM capable, and thus inconsistent with the Treaty.

Ground-Based Lasers under development by the SDI would consist of a large ground-based laser that would direct their beam of energy to a target by means of a series of space-based mirrors. Testing of these ground-based lasers at agreed ranges would not be inconsistent with the provisions of the Treaty. However, the inclusion of space-based mirrors could raise concerns about compliance with Article V(1).

The Directed-Energy Program of the SDI also includes work on *Space-Based Neutral Particle Beam Weapon*. The present status and future potential of this effort is the subject of some controversy, with some public sources



The *Talon Gold* missile pointing and tracking device mounted in the payload bay of the U.S. space shuttle.—*Lockheed Photo*

claiming that this technology is competitive with lasers and others maintaining that severe technical difficulties preclude near-term demonstrations. During the 1980s, work in this area will focus on laboratory demonstrations which are permitted by the Treaty. If space-based demonstrations do become feasible, then advanced development or testing under this project would face the restrictions contained in Article V(1).

Strategic Defense Initiative Compliance Issues

Some of the scheduled tests and demonstrations within these SDI projects would raise questions of compliance with the ABM Treaty.

Project	Testing Mode	Testing Period	Treaty Article Affected
Sensors			
Boost Surveillance and Tracking System (BSTS)	space-based	early 1990s	Article V(1)
Space Surveillance and Tracking System (SSTS)	space-based	early 1990s	Article V(1) Article VI(a)
Airborne Optical System (AOS)	air-based	late 1980s	Article V(1)
Terminal Imaging Radar (TIR)	ground-based (mobile?)	late 1980s	Article V(1)
Imaging Radar or Laser Demonstration	space-based	mid 1990s	Article V(1)
Directed Energy Weapons			
Space-Based Laser	space-based	late 1980s (flight test) early 1990s (integrated demonstration)	Article V(1)
Ground-Based Laser	space-based (some aspects)	early 1990s	Article V(1)
Space-Based Particle Beam	space-based	early 1990s	Article V(1)
Nuclear-Driven Directed Energy	space-based	early 1990s	Article V(1)
Kinetic Energy Weapons			
Hypervelocity Launcher	ground-based	late 1980s	Article V(2)
SLBM Boost Phase Engagement	air/sea-based	early 1990s?	Article V(1)
Space-Based Hypervelocity Launcher	space-based	early 1990s	Article V(1)
Kinetic Kill Vehicle	space-based	early 1990s	Article V(1)

XI Recommendations

The ABM Treaty stands as the principal accomplishment of strategic arms control. It serves our national security interests in many ways. The ABM Treaty has made the strategic arms competition more predictable. The restraints on offensive weapons which have been achieved were only possible because of the restraints on defensive systems agreed to in the ABM Treaty. The absence of a large Soviet ABM system throughout the 1970s gave us confidence in our ability to retaliate and reduced our need for more strategic nuclear weapons. Furthermore, any future limits on nuclear forces which may be attainable will require maintaining the ABM Treaty regime.

The ABM Treaty curtailed what otherwise would have been a prohibitively expensive race in anti-missile weapons and a more rapid qualitative and quantitative build-up in offensive weapons in the 1970s. The end result of the race would have been billions of dollars thrown away on an ABM system that even missile defense proponents now admit was technologically inadequate to defend against a sophisticated and determined adversary.

The ABM Treaty has enhanced strategic and crisis stability. The Treaty limits Soviet and U.S. ballistic missile defenses to such low levels that both nations are unable to protect themselves against missile attack. Thus, each nation could not contemplate launching a first strike with the hope that it could survive a retaliatory attack.

The ABM Treaty is now threatened by near-term and far-term U.S. and Soviet missile defense programs. Any decision to abandon its comprehensive limits on ABM systems invites a number of unfavorable consequences.

The possibility of reductions in strategic offensive nuclear forces will become far more remote. Attempts to achieve such reductions through the SALT process have been difficult enough in the absence of large ABM deployments on each side. In fact, the main impediment to large reductions in offensive weapons during the SALT process has been the presence of MIRVs. The decision in the late 1960s to forge ahead with the development of MIRVs was based on the perceived need to penetrate ABM systems then under development. A decision today to build an ABM system would result

in a similar scramble by the superpowers to develop additional techniques to penetrate it.

As the White House publication *The President's Strategic Defense Initiative* noted in January 1985, the SDI program will not eliminate the need for offensive forces. But contrary to that report's suggestion, the SDI will only reduce confidence that our present retaliatory forces are adequate to penetrate enemy defenses and will drive the need for more offensive weapons.

Preserving the ABM Treaty will require political decisions during this decade by both governments recognizing the importance of this objective. The U.S. and the U.S.S.R. have failed to make a collective and concerted effort to this end. Instead, each has spent its energies proceeding with new anti-missile weapons and generating rationalizations for why these programs are consistent with the Treaty.

The Standing Consultative Commission

The Standing Consultative Commission (SCC) was established by the ABM Treaty. It was intended to be, and could still become, the main avenue for resolving compliance issues in order to preserve and strengthen the Treaty. Both President Reagan and Secretary of State Shultz have emphasized the need to "reverse the erosion of the ABM Treaty." If this is a sincere U.S. objective, reversing Treaty erosion should take place in the SCC—the forum established specifically for that purpose. Instead, the Reagan Administration has taken actions that impair the usefulness of the SCC.

In addressing the problems related to maintaining the integrity of the Treaty, it should be understood that if either side erodes the Treaty by pressing its limits or seeking freedom of action, the other side will seek equal rights. The present approach of the Reagan Administration is to insist on strict Soviet compliance with the Treaty while strenuously avoiding resolution of matters that might impinge upon U.S. programs.

Agreed interpretations of the ABM Treaty reached in the SCC may be needed to provide greater clarity and to prevent exploitation of perceived ambiguities which could undermine the Treaty. It is useful, in this respect, to compare the ABM Treaty with SALT II. Whereas the ABM Treaty has only 12 Agreed Statements and Common Understandings, SALT II includes 98. The degree of detail in SALT II's clarifying terms and limits was not possible when the ABM Treaty was signed in 1972, but may be possible today. The mechanism for "updating" the ABM Treaty is the SCC. Any agreed interpretations, however, should focus on preserving and strengthening the Treaty, not abandoning it.

Definitional Issues

Definition of ABM Development and Testing

The parties could reach an agreed statement in the SCC on an explicit definition of development and testing which would clarify that the Article

V restrictions on ABM system or component development and testing are applicable to that stage of development which follows laboratory testing. These restrictions would apply to that part of the development process where field testing is initiated on either a prototype or breadboard model of a system or its components.

Definition of ABM Components

The parties could reach an agreed statement in the SCC on an explicit definition of ABM components which would clarify that the Treaty restrictions on components include restrictions on those devices that are capable of working in conjunction with or substituting for existing types of ABM systems and components. The SALT II numerical limits on the characteristics of permitted tests may serve as a precedent for such a definition. The definition might also specify that prior notification and data exchanges would be required on any testing of a component judged to be similar to but outside of the agreed parameters of an ABM component.

In addition to the SDI, the most important issue that should be addressed in the near future is the problem of "gray-area" weapon systems and technologies, such as LPARs, ASATs, and ATBMs.

Restrictions on Large Phased-Array Radars

There are several approaches to resolving the LPAR issue that might be included in a new Protocol to the Treaty. The following options could be considered together, or separately.

Stand-Still at the Present Situation

The parties could agree not to construct any new LPAR for any purpose, without prior consultation and agreement with the other Party. The stand-still could either permit or prohibit the completion of radars currently under construction, such as the Soviet Krasnoyarsk and other *Pechora-type* radars, and the American *Pave Paws* and *BMEWS* radars. This consultation process could be extended to include an agreement similar to that covering ABM test ranges, so that the location of new LPARs would require the agreement of both parties.

Numerical Limits on Deployed Radars

The parties could agree that each country would be permitted no more than a certain number of large phased-array radar transmitter faces. Alternatively, this limit could be figured by aggregating the potential power/aperture product (the product of mean emitted power in watts and antenna area in square meters) of each of these radars. This limit could perhaps take into account ABM test range radars and the "small" radars at the one permitted ABM site.

The current situation is one that may favor the Soviets slightly, although this will change in coming years. At present, the United States has seven

such faces operational (one *PARCS*, one *FPS-85*, one *Cobra Dane* and four *Pave Paws*), and an additional nine under construction (four *Pave Paws* and five *BMEWS*), for a total eventual deployment of fifteen faces (the *FPS-85* radar will be replaced by a *Pave Paws* radar). The Soviets, in contrast, have six currently operational faces (1 *Dog House*, 1 *Cat House*, and perhaps 4 *Pechora-type*), with another 1 or 2 *Pechora-type* radars and the Pushkino LPAR with four faces under construction, for a total ultimate deployment of perhaps 11 or 12 faces. (*Hen House* radars are not modern phased-array radars and would therefore not count toward these limits.) However, Soviet radars typically have a potential that is several times larger than that of comparable American radars although the technology of U.S. LPARs is more advanced.

A More Restrictive Type Rule for Permitted Radars

The parties could agree not to deploy in the future any additional LPARs, except as permitted early warning or ABM radars. No new deployments would be permitted for the purposes of space tracking or as national technical means of verification, except to the extent that such deployments were consistent with the limitations on early warning and ABM radars.

Clarification of Permitted Deployments

The parties could agree not to deploy in the future any LPARs:

(a) except at locations along the periphery of its national territory that are less than, for example, 150 kilometers from its border, and;

(b) except oriented outward, with not more than five, for example, percent of the total coverage of the radar (the area described by a section sixty degrees to either side of the bore-sight of each radar face to a range of 2500 kilometers) covering its national territory;

(c) including any radar that may be used for early warning, for tracking of space objects, or as a national technical means of verification;

(d) except for radars located at previously designated ABM test ranges.

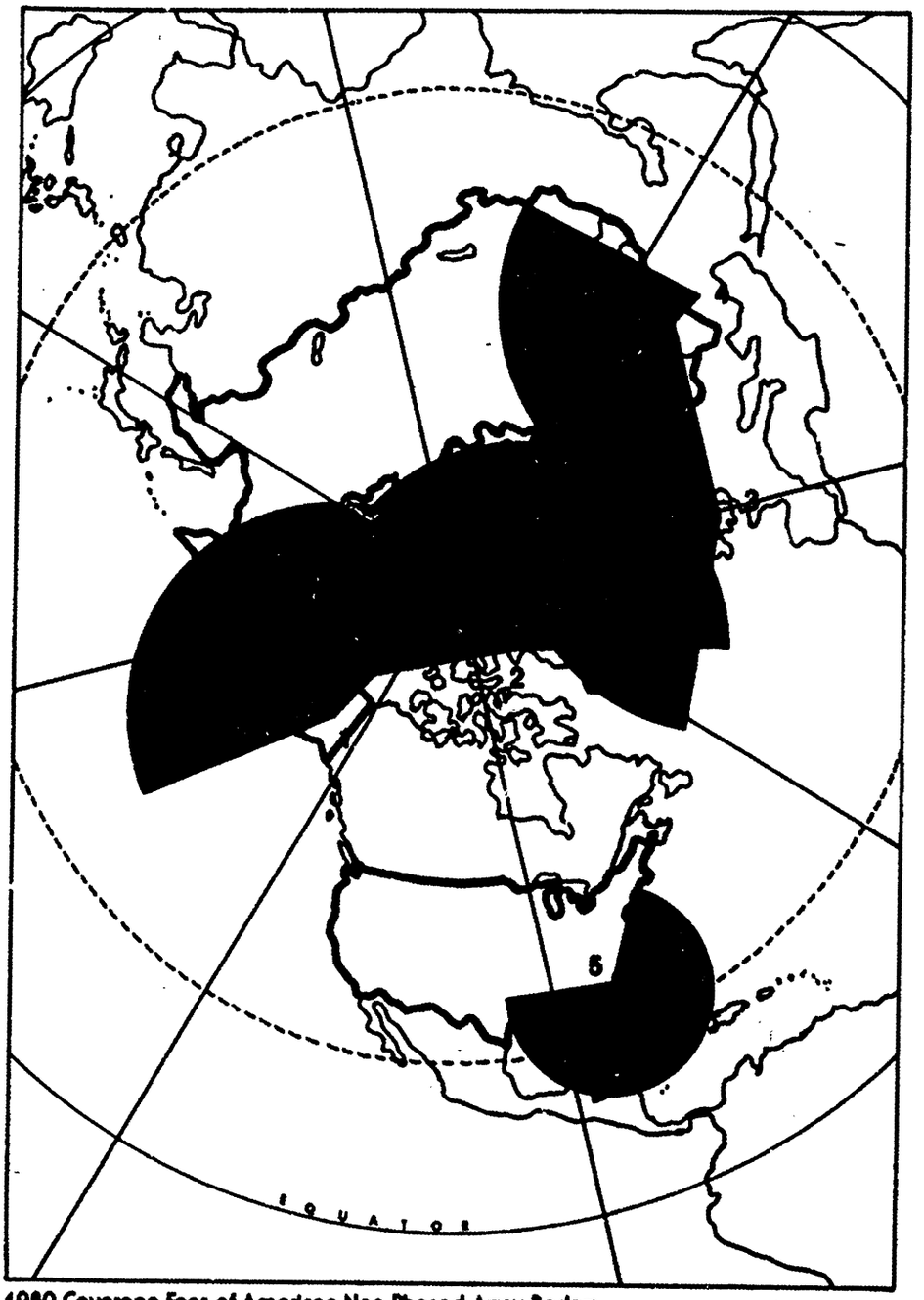
Implementation of Type Rule

The parties could further agree to dismantle or modify the construction of any existing radar that is not:

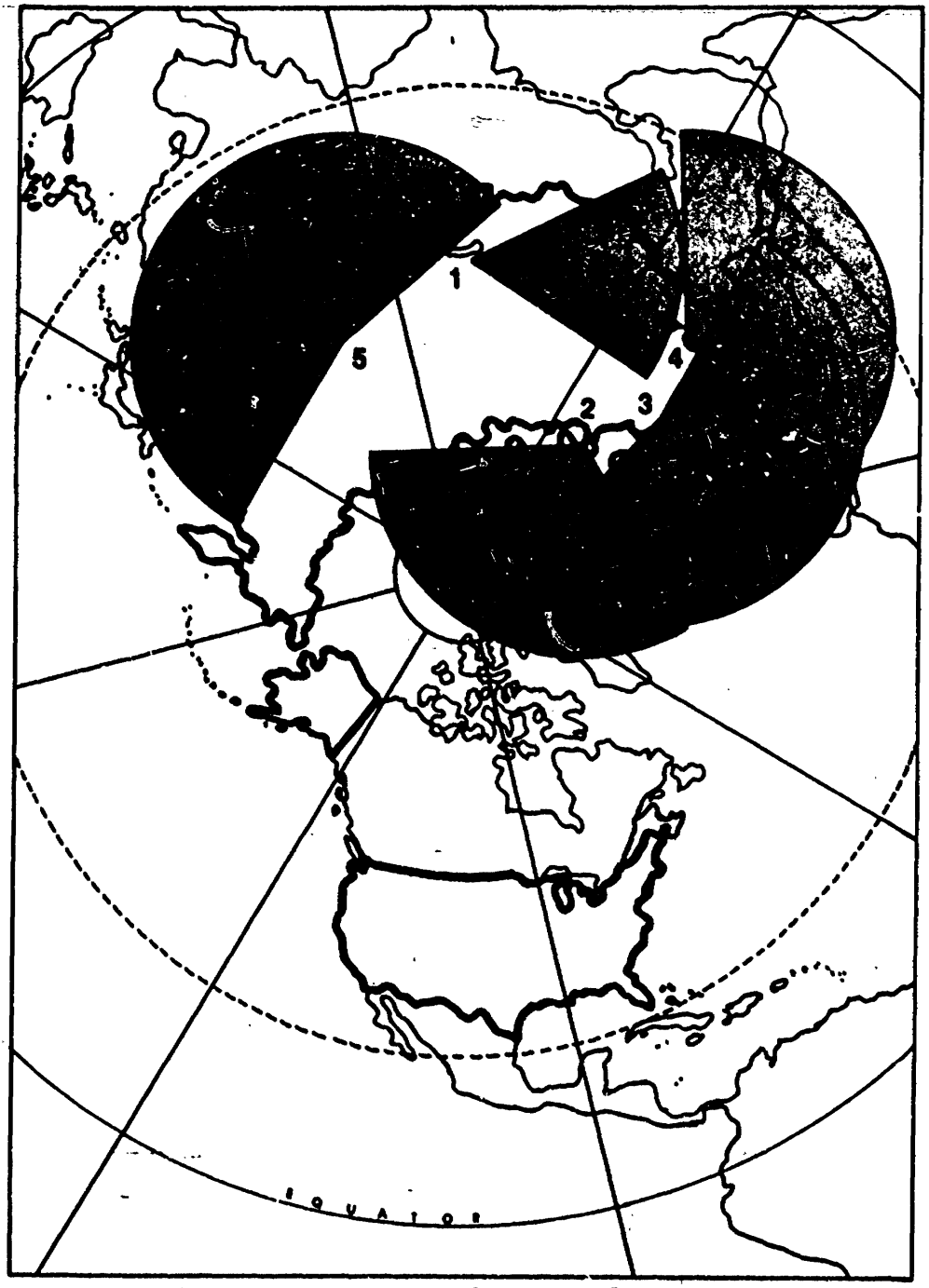
(a) located within and along the periphery of its national territory and less than, for example, 150 kilometers from its border, and;

(b) oriented outward, with not more than five percent of the total coverage of the radar (the area described by a section sixty degrees to either side of the bore-sight of each radar face to a range of 2500 kilometers) covering its national territory;

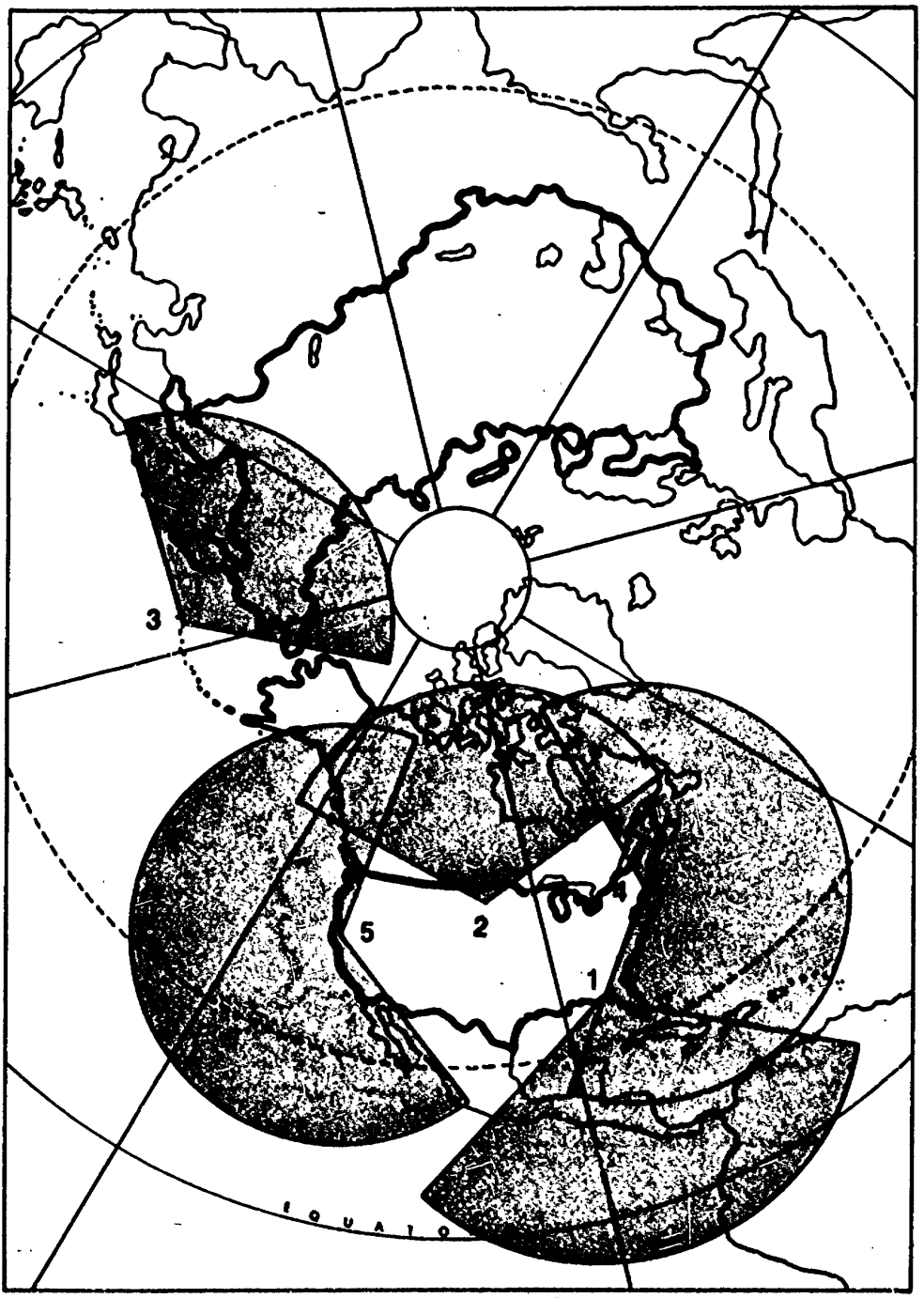
(c) except for existing radars located at previously designated ABM test ranges.



1980 Coverage Fans of American Non-Phased-Array Radars
The three sites of the Ballistic Missile Early Warning System (BMEWS) include both the mechanically steered FPS-49 and FPS-92 radars, and the electronically scanned FPS-50 radar, which is similar to the Soviet Hen House. Clear, Alaska (1) has 1 FPS-92 and 3 FPS-50; Thule, Greenland (2) has 1 FPS-49 and 4 FPS-50; and Fylingdales Moor, United Kingdom (3) has 3 FPS-49. The two FPS-17 radars at Diyarbakir, Turkey (4) are similar to the electronically scanned FPS-50, though smaller. The one remaining FSS-7 at McDill AFB, Florida (5) provides SLBM attack warning. The area of the fans corresponds to the maximum distance at which an object at an altitude of 500 miles can be detected, or maximum range in the case of the FSS-7.

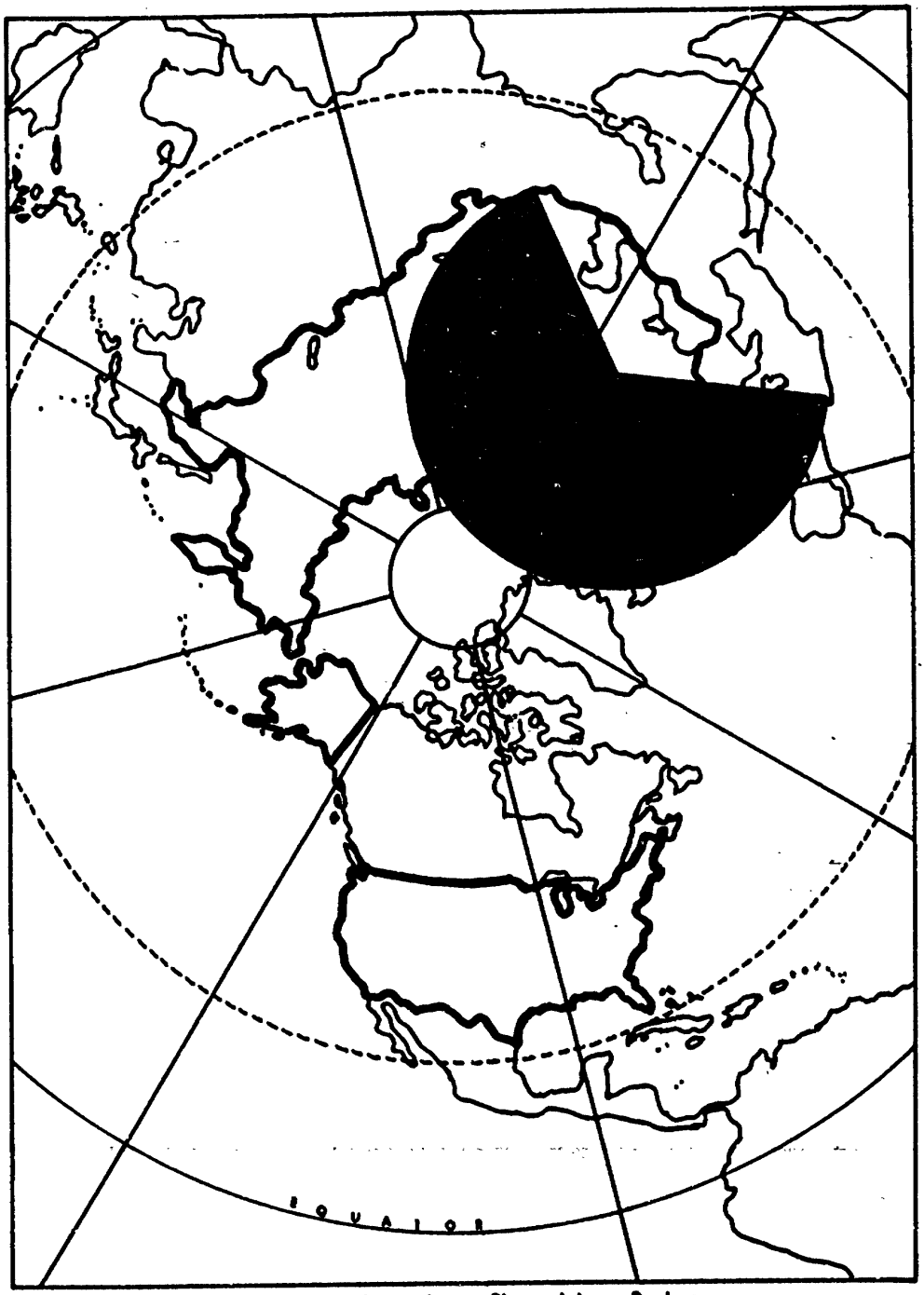


Estimated 1980 Coverage Fans of Soviet Non-Phased-Array Radars
The Hen House electronically scanned radars, similar to the American *FPS-50* BMEWS radars, provide early warning of missile attack. As many as fifteen of these radars are located at at least five sites: Sary Shagan (1); Olenogorsk (2); Skrudna (3); Nikolayev (4); Angarsk (5). The area of the fans corresponds to the maximum distance at which an object at an altitude of 500 miles can be detected.

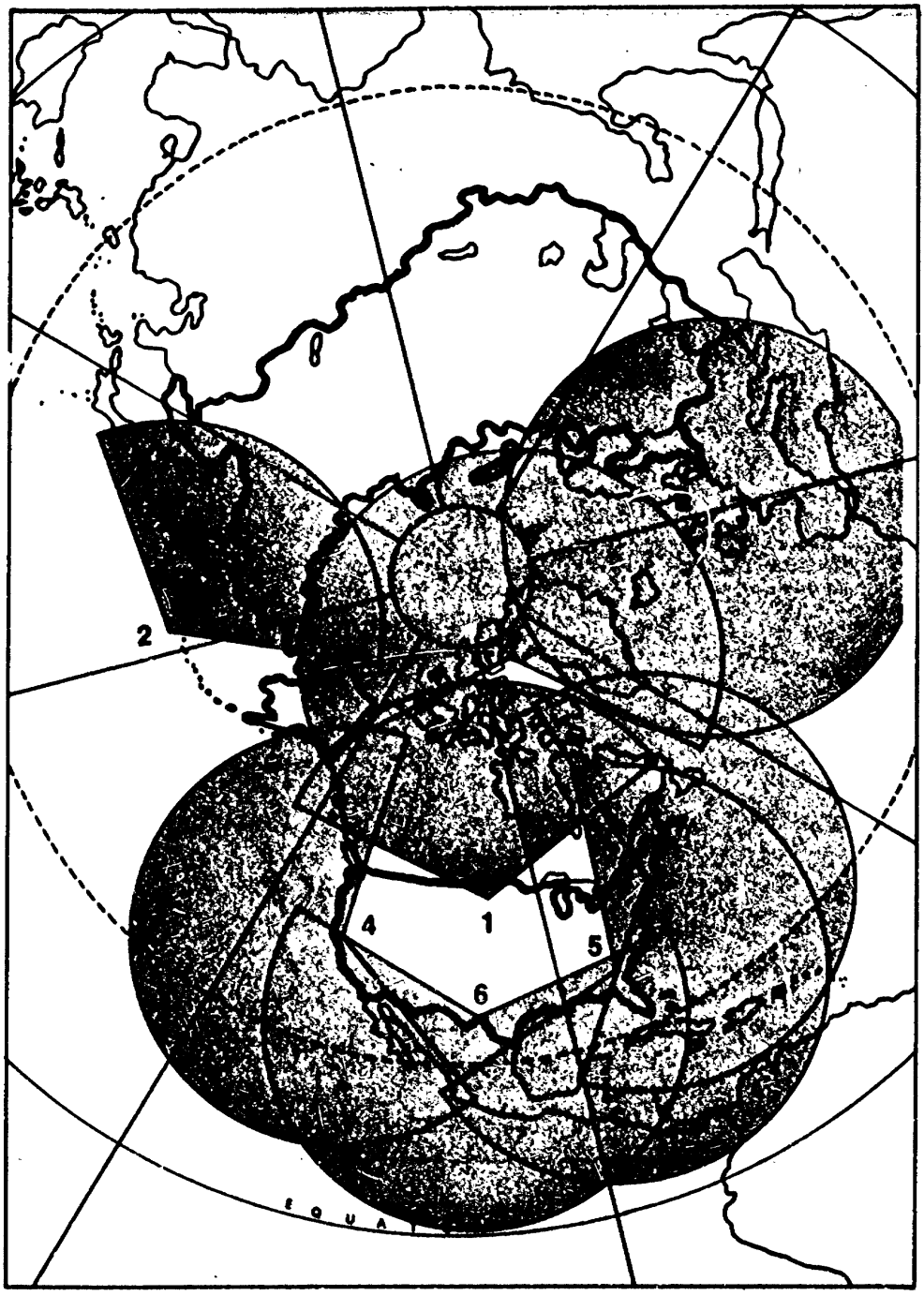


1980 Coverage Fans of American Large Phased-Array Radars

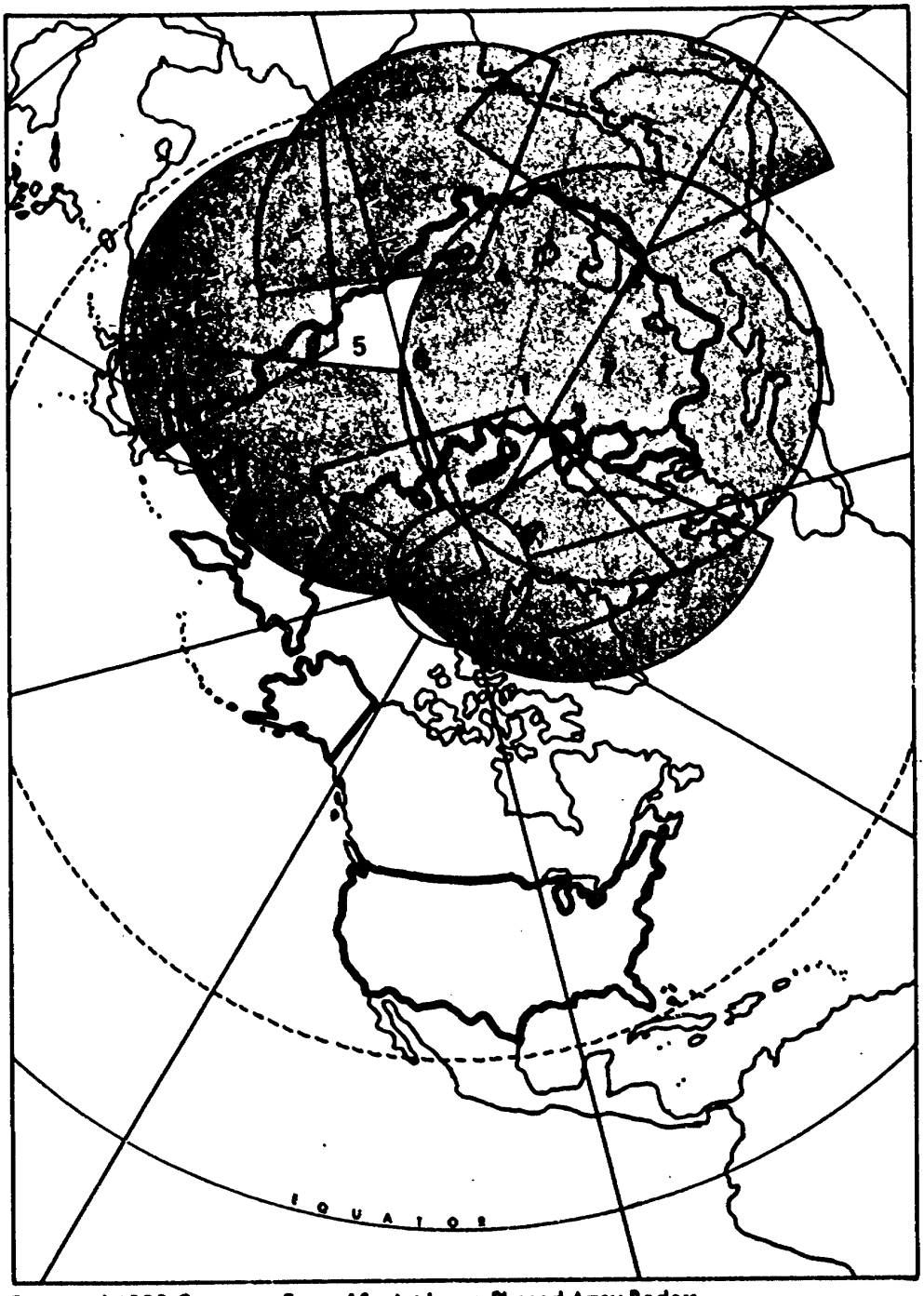
The *FPS-85* radar at Eglin AFB, Florida (1) was activated in 1964 to track satellites. The *Perimeter Acquisition Radar Attack Characterization System* (PARCS) in North Dakota (2) was originally part of the *Safeguard* ABM system. The *Cobra Dane* radar on Shemya Island, Alaska (3) is primarily intended to monitor Soviet missile tests. The *PAVE PAWS* radars at Otis Air National Guard Base (ANGB), Massachusetts (4) and Beale AFB, California (5) are located to provide warning of SLBM attack. All of these radars are also used to track satellites. The area of the fans corresponds to the maximum distance at which an object at an altitude of 500 miles can be detected.



Estimated 1980 Coverage Fans of Soviet Large Phased-Array Radars
The Dog House (1) *and Cat House* (2) large phased-array radars of the Moscow ABM system provide initial target tracking data. The area of the fans corresponds to the maximum distance at which an object at an altitude of 500 miles can be detected.



1990 Coverage Fans of American Large Phased-Array Radars
The *Perimeter Acquisition Radar Attack Characterization System* (PARCS) in North Dakota (1) was originally part of the *Safeguard* ABM system. The *Cobra Dane* radar on Shemya Island, Alaska (2) is primarily intended to monitor Soviet missile tests. The *PAVE PAWS* radars at Otis ANGB, Massachusetts (3), Beale AFB, California (4), Robins AFB, Georgia (5) and Goodfellow AFB, Texas (6) are located to provide warning of SLBM attack. The mechanically-steered radars at Thule, Greenland (7) and Fylingdales Moor, United Kingdom (8) will be replaced by phased-array radars. All of these radars are also used to track satellites. The area of the fans corresponds to the maximum distance at which an object at an altitude of 500 miles can be detected.



Estimated 1990 Coverage Fans of Soviet Large Phased-Array Radars
A number of radars of the so-called "Pechora" type are currently operational or under construction at or near: Pechora (1); Lyaki (2); Olenogorsk (3); Sary Shagan (4); Mishelevka (5); Krasnoyarsk (6). These radars each have a single transmitter face which provides 120 degrees of coverage. The single ABM radar at Pushkino (7), near Moscow, has four transmitters that together provide a full 360 degree coverage. The area of the fans corresponds to the maximum distance at which an object at an altitude of 500 miles can be detected.

Anti-Tactical Ballistic Missiles

Limit on Testing

The parties could agree, the other provisions of the ABM Treaty notwithstanding, not to test interceptor missiles of any type at altitudes above, for example, 40 kilometers and at velocities in excess of, for example, 2 kilometers per second.

Ban on Large Mobile Radars

The parties could agree not to deploy land-based mobile radars or radars with a potential (the product of mean emitted power in watts and antenna area in square meters) in excess of one million for any purposes or to test such radars against targets which have the characteristics of strategic ballistic missile targets or their components in flight trajectory.

Treaty Limiting Anti-Satellite Weapons

Unless ASAT negotiations are undertaken and are successful in concluding an agreement, the further development, testing, and deployment of ASAT systems will seriously undermine the ABM Treaty. Because directed- and kinetic-energy weapons now under development by both parties could be used for both ASAT and ABM purposes, they should be subjected to stringent limitations.

An agreement on anti-satellite weapons would avert an arms competition that would result in a mutual lessening of the national security of states. Such a treaty would enhance international security by preserving outer space for civilian applications and military activities such as reconnaissance and early warning.

An ASAT treaty could also help resolve some of the ambiguities that have arisen under the ABM Treaty in the area of large radars. For instance, the Soviet "space-track" radar near Krasnoyarsk might be dismantled as part of an ASAT agreement limiting ASAT battle management capabilities.

To the extent that limits on ABM-capable, space-based sensors, such as advanced early warning satellites with missile and warhead tracking capability, could be verified, clear differentiation between permitted early-warning sensors and prohibited battle management sensors are needed. In addition, and in parallel with an ASAT treaty, a protocol to the ABM Treaty should be agreed on to prohibit the advanced development and testing of fixed, ground-based, exoatmospheric interceptors using kinetic- or directed-energy weapons. Otherwise, programs that were labeled as ABM could undermine the ASAT treaty regime, as ASAT activities could today be used to undermine the ABM Treaty.

Ban on ASAT Development and Testing

The most important limitation in an ASAT treaty would be a prohibition on advanced development and testing of anti-satellite weapons or their

components by destroying, damaging, disturbing the normal functioning or changing the normal flight trajectory of objects in space. This prohibition could apply either to all types of ASATs, or just to new types, beyond existing systems, and could be formulated in parallel with the provisions of Article V of the ABM Treaty pertaining to limits on space-based and other mobile systems and components.

Ban on ASAT Deployment

A prohibition on the deployment of any dedicated system which has been tested by destroying, damaging, disturbing the normal functioning or changing the normal flight trajectory satellites would provide further confidence in the limitation of these capabilities. While such an agreement might pose verification difficulties, it is in the net security interests of the U.S. Moreover, both sides would retain residual capabilities against satellites, and the U.S. would be in a position to recover a dedicated ASAT capability quickly in the event of a Soviet "breakout."

Far-Term Anti-Ballistic Missile Issues

The SDI contemplates a number of activities that pose challenges to the ABM Treaty in the late 1980s and early 1990s, particularly space-based anti-missile systems and related technologies. Other issues of this type would include possible additional restrictions on the testing of long-range exoatmospheric interceptors and of sensors other than radars.

Ban on Testing of Exoatmospheric Interceptors

The parties could agree not to test ABM interceptors or their components against strategic ballistic missiles or their elements in flight trajectory at an altitude in excess of 30 kilometers. This would effectively preclude the further advanced development by either side of exoatmospheric heat-seeking interceptors.

The testing and limited deployment of fixed long-range exoatmospheric interceptors is presently permitted under the ABM Treaty. However these interceptors are an essential component of a large-scale ballistic missile defense system. They could constitute, along with other programs, a "base for the defense of territory" which Article I of the ABM Treaty prohibits.

To the extent that limits on certain ABM-capable sensors, such as advanced early-warning satellites, are becoming infeasible due to the blurring between their permitted early warning and prohibited ABM functions, more stringent restraints on other ABM systems and components are called for. In contrast, short-range endoatmospheric interceptors are primarily of interest for defense of single hard targets, such as missile silos or command centers. Such interceptors pose less serious threats to stability.

Ban on the Development of Mobile Sensor Components

The parties could agree that the ban on mobile ABM systems and components includes a prohibition on components based on new physical

principles that are capable of being used in conjunction with or substituting for ABM systems of an existing type.

In recent years there have been a number of advances made in the development of new types of laser and infrared sensors that are capable of substituting for or acting in conjunction with ABM radars. In some instances these systems are air-based or mobile land-based. There may be some ambiguity as to whether these systems are "components" which are limited by the Treaty, or whether they are permitted "adjuncts" to components.

Limitation on Space-Based Particle Beam Devices

The parties could agree to ban or severely limit the testing and deployment in space of particle beam accelerators.

Limitation on Space-Based Lasers

The parties could agree to prohibit or severely limit the placing into space of any directed-energy system which has an aggregate mirror aperture in excess of, for example, five square meters.

Limitation on Ground-Based Lasers

The parties could agree to prohibit testing against objects in space or to deploy any ground-based, sea-based or air-based directed-energy system which has an aggregate mirror aperture in excess of, for example, five square meters.

General Limitation on the Brightness of Directed-Energy Systems

"Brightness" is a generic figure of merit that is used to measure the weapons capabilities of all types of directed-energy systems. It is analogous in concept to the "power-aperture product" that is used to define radars in the ABM Treaty. A brightness of 10^{19} is a useful threshold for significant military capability, and brightness levels of over 10^{21} is the long-term goal of the SDI.

The parties could agree to prohibit the testing of any directed-energy device, regardless of whether it is a laser or particle beam weapon, and regardless of where or how it is based, if the device has a potential brightness, measured in watts per steradian, in excess of 10^{19}. This would preclude the testing of lasers significantly brighter than the DARPA space laser triad. Potential brightness can be calculated based on the observable wavelength of a laser and the diameter of the beam director mirror, along with estimates of the maximum power of the laser based on the size of the mirror.

Improving The Decision-Making Process

Finally, special attention needs to be given to the organization of the Soviet and American policy processes in dealing with these issues.

Although the details of the Soviet decision-making process in this field are obscure, General Brent Scowcroft has offered the observation that over-compartmentalization and the lack of early and effective civilian review are at least in part responsible for the difficulties that the Soviets have experienced in achieving a completely satisfactory record of compliance. While the U.S. cannot have any direct influence on the Soviet arms control decision-making process, a thorough understanding of that process is useful in formulating our future arms control positions and strengthening and preserving existing agreements.

Unfortunately, the American process continues to need improvement as well. While some individuals have been assigned the task, there is no permanent body within the U.S. government advising decision-makers authoritatively on how military programs affect treaty obligations. Nowhere is this more evident than with respect to the SDI.

Only an internal Defense Department review team, coordinated from within the office of the Undersecretary of Defense for Research and Engineering, appears to have access to information allowing informed judgment as to the exact nature of individual SDI programs. But this group has little interaction with other government agencies assigned principal responsibility for arms control oversight, particularly ACDA and the Department of State. Nor do senior level inter-agency groups responsible for overseeing arms control impact questions have the time or resources to allow adequate examination of these matters.

ACDA would seem to be the appropriate location for coordinating this review process but, especially in the case of the SDI, ACDA is woefully uninformed about the details of individual programs. The General Counsel offices at ACDA and DoD and the Legal Adviser's office at the State Department should play important roles in the early review of U.S. research and development programs. It may also be necessary and useful to establish a working group within the National Security Council (NSC) with representatives from the appropriate governmental bodies to coordinate this ongoing compliance review process.

The Congress has become increasingly attentive to reviewing the SDI program and, with its control and oversight of the budget, could limit research and development efforts to what is prudent and necessary, and restrict or deny funding to those projects which would undercut the ABM Treaty.

An important corollary to this is increasing the amount of publicly available information on these issues. Although missile defense has traditionally been regarded as a sensitive area, the currently available public information on the SDI is at a historic low. Protection of certain information about our military programs is essential, but a delicate balance must be struck.

Recent moves by the Reagan Administration have drastically reduced the level of detail that is available on the Strategic Defense Initiative, as well as the Defense Department budget as a whole. This has the effect

APPENDIX 3

TEXT OF TREATY BETWEEN THE UNITED STATES OF AMERICA AND THE UNION OF SOVIET SOCIALIST REPUBLICS ON THE LIMITATION OF ANTI-BALLISTIC MISSILE SYSTEMS

Signed at Moscow May 26, 1972
Ratification advised by U.S. Senate August 3, 1972
Ratified by U.S. President September 30, 1972
Proclaimed by U.S. President October 3, 1972
Instruments of ratification exchanged October 3, 1972
Entered into force October 3, 1972

The United States of America and the Union of Soviet Socialist Republics, hereinafter referred to as the Parties,

Proceeding from the premise that nuclear war would have devastating consequences for all mankind,

Considering that effective measures to limit anti-ballistic missile systems would be a substantial factor in curbing the race in strategic offensive arms and would lead to a decrease in the risk of outbreak of war involving nuclear weapons,

Proceeding from the premise that the limitation of anti-ballistic missile systems, as well as certain agreed measures with respect to the limitation of strategic offensive arms, would contribute to the creation of more favorable conditions for further negotiations on limiting strategic arms,

Mindful of their obligations under Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to take effective measures toward reductions in strategic arms, nuclear disarmament, and general and complete disarmament,

Desiring to contribute to the relaxation of international tension and the strengthening of trust between States,

Have agreed as follows:

Article I

1. Each party undertakes to limit anti-ballistic missile (ABM) systems and to adopt other measures in accordance with the provisions of this Treaty.

2. Each Party undertakes not to deploy ABM systems for a defense of the territory of its country and not to provide a base for such a defense, and not to deploy ABM systems for defense of an individual region except as provided for in Article III of this Treaty.

Article II

1. For the purpose of this Treaty an ABM system is a system to counter strategic ballistic missiles or their elements in flight trajectory, currently consisting of:

(a) ABM interceptor missiles, which are interceptor missiles constructed and deployed for an ABM role, or of a type tested in an ABM mode;

(b) ABM launchers, which are launchers constructed and deployed for launching ABM interceptor missiles; and

(c) ABM radars, which are radars constructed and deployed for an ABM role, or of a type tested in an ABM mode.

2. The ABM system components listed in paragraph 1 of this Article include those which are:

(a) operational;
(b) under construction;
(c) undergoing testing;
(d) undergoing overhaul, repair or conversion; or
(e) mothballed.

Article III

Each Party undertakes not to deploy ABM systems or their components except that:

(a) within one ABM system deployment area having a radius of one hundred and fifty kilometers and centered on the Party's national capital, a Party may deploy: (1) no more than one hundred ABM launchers and no more than one hundred ABM interceptor missiles at launch sites, and (2) ABM radars within no more than six ABM radar complexes, the area of each complex being circular and having a diameter of no more than three kilometers; and

(b) within one ABM system deployment area having a radius of one hundred and fifty kilometers and containing ICBM silo launchers, a Party may deploy: (1) no more than one hundred ABM launchers and no more than one hundred ABM interceptor missiles at launch sites, (2) two large phased-array ABM radars comparable in potential to corresponding ABM radars operational or under construction on the date of signature of the Treaty in an ABM system deployment area containing ICBM silo launchers, and (3) no more than eighteen ABM radars each having a potential less than the potential of the smaller of the above-mentioned two large phased-array ABM radars.

Article IV

The limitations provided for in Article III shall not apply to ABM systems or their components used for development or testing, and located within current or additionally agreed test ranges. Each Party may have no more than a total of fifteen ABM launchers at test ranges.

Article V

1. Each Party undertakes not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based, or mobile land-based.

2. Each Party undertakes not to develop, test, or deploy ABM launchers for launching more than one ABM interceptor missile at a time from each launcher, not to modify deployed launchers to provide them with such a capability, not to develop, test, or deploy automatic or semi-automatic or other similar systems for rapid reload of ABM launchers.

Article VI

To enhance assurance of the effectiveness of the limitations on ABM systems and their components provided by the Treaty, each Party undertakes:

(a) not to give missiles, launchers, or radars, other than ABM interceptor missiles, ABM launchers, or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode; and

(b) not to deploy in the future radars for early warning of strategic ballistic missile attack except at locations along the periphery of its national territory and oriented outward.

Article VII

Subject to the provisions of this Treaty, modernization and replacement of ABM systems or their components may be carried out.

Article VIII

ABM systems or their components in excess of the numbers or outside the areas specified in this Treaty, as well as ABM systems or their components prohibited by this Treaty, shall be destroyed or dismantled under agreed procedures within the shortest possible agreed period of time.

Article IX

To assure the viability and effectiveness of this Treaty, each Party undertakes not to transfer to other States, and not to deploy outside its national territory, ABM systems or their components limited by this Treaty.

Article X

Each Party undertakes not to assume any international obligations which would conflict with this Treaty.

Article XI

The Parties undertake to continue active negotiations for limitations on strategic offensive arms.

Article XII

1. For the purpose of providing assurance of compliance with the provisions of this Treaty, each Party shall use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.

2. Each Party undertakes not to interfere with the national technical means of verification of the other Party operating in accordance with paragraph 1 of this Article.

3. Each Party undertakes not to use deliberate concealment measures which impede verification by national technical means of compliance with the provisions of this Treaty. This obligation shall not require changes in current construction, assembly, conversion, or overhaul practices.

Article XIII

1. To promote the objectives and implementation of the provisions of this Treaty, the Parties shall establish promptly a Standing Consultative Commission, within the framework of which they will:

(a) consider questions concerning compliance with the obligations assumed and related situations which may be considered ambiguous;

(b) provide on a voluntary basis such information as either Party considers necessary to assure confidence in compliance with the obligations assumed;

(c) consider questions involving unintended interference with national technical means of verification;

(d) consider possible changes in the strategic situation which have a bearing on the provisions of this Treaty;

(e) agree upon procedures and dates for destruction or dismantling of ABM systems or their components in cases provided for by the provisions of this Treaty;

(f) consider, as appropriate, possible proposals for further increasing the viability of this Treaty, including proposals for amendments in accordance with the provisions of this Treaty;

(g) consider, as appropriate, proposals for further measures aimed at limiting strategic arms.

2. The Parties through consultation shall establish, and may amend as appropriate, Regulations for the Standing Consultative Commission governing procedures, composition and other relevant matters.

Article XIV

1. Each Party may propose amendments to this Treaty. Agreed amendments shall enter into force in accordance with the procedures governing the entry into force of this Treaty.

2. Five years after entry into force of this Treaty, and at five-year intervals thereafter, the Parties shall together conduct a review of this Treaty.

Article XV

1. This Treaty shall be of unlimited duration.

2. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from the Treaty. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.

Article XVI

1. This Treaty shall be subject to ratification in accordance with the constitutional procedures of each Party. The Treaty shall enter into force on the day of the exchange of instruments of ratification.

2. This Treaty shall be registered pursuant to Article 102 of the Charter of the United Nations.

DONE at Moscow on May 26, 1972, in two copies, each in the English and Russian languages, both texts being equally authentic.

FOR THE UNITED STATES OF AMERICA

President of the United States of America

FOR THE UNION OF SOVIET SOCIALIST REPUBLICS

General Secretary of the Central Committee of the CPSU

Agreed Statements, Common Understandings, and Unilateral Statements Regarding the Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missiles

1. Agreed Statements

The document set forth below was agreed upon and initialed by the Heads of the Delegations on May 26, 1972 (letter designations added):

AGREED STATEMENTS REGARDING THE TREATY BETWEEN THE UNITED STATES OF AMERICA AND THE UNION OF SOVIET SOCIALIST REPUBLICS ON THE LIMITATION OF ANTI-BALLISTIC MISSILE SYTEMS

[A]

The Parties understand that, in addition to the ABM radars which may be deployed in accordance with subparagraph (a) of Article III of the Treaty, those non-phased-array ABM radars operational on the date of signature of the Treaty within the ABM system deployment area for defense of the national capital may be retained.

[B]

The Parties understand that the potential (the product of mean emitted power in watts and antenna area in square meters) of the smaller of the two large phased-array ABM radars referred to in subparagraph (b) of Article III of the Treaty is considered for purposes of the Treaty to be three million.

[C]

The Parties understand that the center of the ABM system deployment area centered on the national capital and the center of the ABM system deployment area containing ICBM silo launchers for each Party shall be separated by no less than thirteen hundred kilometers.

[D]

In order to insure fulfillment of the obligation not to deploy ABM systems and their components except as provided in Article III of the Treaty, the Parties agree that in the event ABM systems based on other physical principles and including components capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars are created in the future, specific limitations on such systems and their components would be subject to discussion in accordance with Article XIII and agreement in accordance with Article XIV of the Treaty.

[E]

The Parties understand that Article V of the Treaty includes obligations not to develop, test or deploy ABM interceptor missiles for the delivery by each ABM interceptor missile of more than one independently guided warhead.

[F]

The Parties agree not to deploy phased-array radars having a potential (the product of mean emitted power in watts and antenna area in square meters) exceeding three million, except as provided for in Articles III, IV and VI of the Treaty, or except for the purposes of tracking objects in outer space or for use as national technical means of verification.

[G]

The Parties understand that Article IX of the Treaty includes the obligation of the US and the USSR not to provide to other States technical descriptions or blue prints specially worked out for the construction of ABM systems and their components limited by the Treaty.

2. Common Understandings

Common understanding of the Parties on the following matters was reached during the negotiations:

A. Location of ICBM Defenses

The U.S. Delegation made the following statement on May 26, 1972:

Article III of the ABM Treaty provides for each side one ABM system deployment area centered on its national capital and one ABM system deployment area containing ICBM silo launchers. The two sides have registered agreement on the following statement: "The Parties understand that the center of the ABM system deployment area centered on the national capital and the center of the ABM system deployment area containing ICBM silo launchers for each Party shall be separated by no less than thirteen hundred kilometers." In this connection, the U.S. side notes that its ABM system deployment area for defense of ICBM silo launchers, located west of the Mississippi River, will be centered in the Grand Forks ICBM silo launcher deployment area. (See Agreed Statement [C].)

B. ABM Test Ranges

The U.S. Delegation made the following statement on April 26, 1972:

Article IV of the ABM Treaty provides that "the limitations provided for in Article III shall not apply to ABM systems or their components used for development or testing, and located within current or additionally agreed test ranges." We believe it would be useful to assure that there is no misunderstanding as to current ABM test ranges. It is our understanding that ABM test ranges encompass the area within which ABM components are located for test purposes. The current U.S. ABM test ranges are at White Sands, New Mexico, and at Kwajalein Atoll, and the current Soviet ABM test range is near Sary Shagan in Kazakhstan. We consider that non-phased array radars of types used for range safety or instrumentation purposes may be located outside of ABM test ranges. We interpret the reference in Article IV to "additionally agreed test

ranges" to mean that ABM components will not be located at any other test ranges without prior agreement between our Governments that there will be such additional ABM test ranges.

On May 5, 1972, the Soviet Delegation stated that there was a common understanding on what ABM test ranges were, that the use of the types of non-ABM radars for range safety or instrumentation was not limited under the Treaty, that the reference in Article IV to "additionally agreed" test ranges was sufficiently clear, and that national means permitted identifying current test ranges.

C. Mobile ABM Systems

On January 29, 1972, the U.S. Delegation made the following statement:

Article V(1) of the Joint Draft Text of the ABM Treaty includes an undertaking not to develop, test, or deploy mobile land-based ABM systems and their components. On May 5, 1971, the U.S. side indicated that, in its view, a prohibition on deployment of mobile ABM systems and components would rule out the deployment of ABM launchers and radars which were not permanent fixed types. At that time, we asked for the Soviet view of this interpretation. Does the Soviet side agree with the U.S. side's interpretation put forward on May 5, 1971?

On April 13, 1972, the Soviet Delegation said there is a general common understanding on this matter.

D. Standing Consultative Commission

Ambassador Smith made the following statement on May 22, 1972:

The United States proposes that the sides agree that, with regard to initial implementation of the ABM Treaty's Article XIII on the Standing Consultative Commission (SCC) and of the consultation Articles to the Interim Agreement on offensive arms and the Accidents Agreement,[1] agreement establishing the SCC will be worked out early in the follow-on SALT negotiations; until that is completed, the following arrangements will prevail: when SALT is in session, any consultation desired by either side under these Articles can be carried out by the two SALT Delegations; when SALT is not in session, *ad hoc* arrangements for any desired consultations under these Articles may be made through diplomatic channels.

Minister Semenov replied that, on an *ad referendum* basis, he could agree that the U.S. statement corresponded to the Soviet understanding.

E. Standstill

On May 6, 1972, Minister Semenov made the following statement:

In an effort to accommodate the wishes of the U.S. side, the Soviet Delegation is prepared to proceed on the basis that the two sides will in fact observe the obligations of both the Interim Agreement and the ABM Treaty beginning from the date of signature of these two documents.

In reply, the U.S. Delegation made the following statement on May 20, 1972:

---

[1]See Article 7 of Agreement to Reduce the Risk of Outbreak of Nuclear War Between the United States of America and the Union of Soviet Socialist Republics, signed Sept. 30, 1971.

The U.S. agrees in principle with the Soviet statement made on May 6 concerning observance of obligations beginning from date of signature but we would like to make clear our understanding that this means that, pending ratification and acceptance, neither side would take any action prohibited by the agreements after they had entered into force. This understanding would continue to apply in the absence of notification by either signatory of its intention not to proceed with ratification or approval.

The Soviet Delegation indicated agreement with the U.S. statement.

3. Unilateral Statements

The following noteworthy unilateral statements were made during the negotiations by the United States Delegation:

A. Withdrawal from the ABM Treaty

On May 9, 1972, Ambassador Smith made the following statement:

The U.S. Delegation has stressed the importance the U.S. Government attaches to achieving agreement on more complete limitations on strategic offensive arms, following agreement on an ABM Treaty and on an Interim Agreement on certain measures with respect to the limitation of strategic offensive arms. The U.S. Delegation believes that an objective of the follow-on negotiations should be to constrain and reduce on a long-term basis threats to the survivability of our respective strategic retaliatory forces. The USSR Delegation has also indicated that the objectives of SALT would remain unfulfilled without the achievement of an agreement providing for more complete limitations on strategic offensive arms. Both sides recognize that the initial agreements would be steps toward the achievement of more complete limitations on strategic arms. If an agreement providing for more complete strategic offensive arms limitations were not achieved within five years, U.S. supreme interests could be jeopardized. Should that occur, it would constitute a basis for withdrawal from the ABM Treaty. The U.S. does not wish to see such a situation occur, nor do we believe that the USSR does. It is because we wish to prevent such a situation that we emphasize the importance the U.S. Government attaches to achievement of more complete limitations on strategic offensive arms. The U.S. Executive will inform the Congress, in connection with Congressional consideration of the ABM Treaty and the Interim Agreement, of this statement of the U.S. position.

B. Tested in ABM Mode

On April 7, 1972, the U.S. Delegation made the following statement:

Article II of the Joint Text Draft uses the term "tested in an ABM mode," in defining ABM components, and Article VI includes certain obligations concerning such testing. We believe that the sides should have a common understanding of this phrase. First, we would note that the testing provisions of the ABM Treaty are intended to apply to testing which occurs after the date of signature of the Treaty, and not to any testing which may have occurred in the past. Next, we would amplify the remarks we have made on this subject during the previous Helsinki phase by setting forth the objectives which govern the U.S. view on the subject, namely, while prohibiting testing of non-ABM components for ABM purposes: not to prevent testing of ABM components, and not to prevent testing of non-ABM components for

non-ABM purposes. To clarify our interpretation of "tested in an ABM mode," we note that we would consider a launcher, missile or radar to be "tested in an ABM mode" if, for example, any of the following events occur: (1) a launcher is used to launch an ABM interceptor missile, (2) an interceptor missile is flight tested against a target vehicle which has a flight trajectory with characteristics of a strategic ballistic missile flight trajectory, or is flight tested in conjunction with the test of an ABM interceptor missile or an ABM radar at the same test range, or is flight tested to an altitude inconsistent with interception of targets against which air defenses are deployed, (3) a radar makes measurements on a cooperative target vehicle of the kind referred to in item (2) above during the reentry portion of its trajectory or makes measurements in conjunction with the test of an ABM interceptor missile or an ABM radar at the same test range. Radars used for purposes such as range safety or instrumentation would be exempt from application of these criteria.

C. No-Transfer Article of ABM Treaty

On April 18, 1972, the U.S. Delegation made the following statement:

In regard to this Article [IX], I have a brief and I believe self-explanatory statement to make. The U.S. side wishes to make clear that the provisions of this Article do not set a precedent for whatever provision may be considered for a Treaty on Limiting Strategic Offensive Arms. The question of transfer of strategic offensive arms is a far more complex issue, which may require a different solution.

D. No Increase in Defense of Early Warning Radars

On July 28, 1970, the U.S. Delegation made the following statement:

Since Hen House radars [Soviet ballistic missile early warning radars] can detect and track ballistic missile warheads at great distances, they have a significant ABM potential. Accordingly, the U.S. would regard any increase in the defenses of such radars by surface-to-air missiles as inconsistent with an agreement.

O