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Author(s): Abram Chayes, Antonia Handler Chayes and Eliot Spitzer

Source: *Daedalus*, Vol. 114, No. 3, Weapons in Space, Vol. II: Implications for Security (Summer, 1985), pp. 193-218

Published by: [The MIT Press](#) on behalf of [American Academy of Arts & Sciences](#)

Stable URL: <http://www.jstor.org/stable/20024990>

Accessed: 01-07-2015 19:26 UTC

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*Abram Chayes, Antonia Handler Chayes,
Eliot Spitzer*

Space Weapons: The Legal Context

SINCE THE BEGINNING OF THE SPACE AGE, political leaders and international lawyers have worked to establish a legal regime to govern activities in outer space. In the following three decades, a considerable, if by no means comprehensive, body of law has evolved. Elaborate conventions now regulate the placement of satellites in geostationary orbit, the allocation of frequencies for space communications, liability for space accidents, weather reporting networks, and many other specific activities in outer space.

This paper examines the bearing of this body of law on the use of outer space for ballistic missile defense and anti-satellite weapons. It begins with a brief examination of the general orientation of the Outer Space Treaty concerning military activities in space.¹ For the most part, this takes the form of general principles and guidelines, significant more for the broad attitudes and approach they express than for the setting down of positive legal rules. Detailed regulation of space-based ballistic missile defense systems is to be found not in those documents dealing with outer space generally, but, as is so often the case, in functionally specific agreements—agreements directed expressly at arms control, the provisions of which cover outer space as well as other environments. The most important of these is the Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM treaty), which the United States and the Soviet Union signed and ratified in 1972.²

Today, more than a dozen years later, the ABM treaty remains the only permanent and legally operative bilateral arms-control agree-

ment fully in effect between the two superpowers—a thin legacy of detente and its hope of attaining substantial reductions of strategic arms. This single document bears an extraordinarily heavy burden in U.S.-Soviet security relations. McGeorge Bundy, George Kennan, Robert McNamara, and Gerard Smith have argued that “the ABM treaty stands at the very center of the effort to limit the strategic arms race by international agreements.”³ It is a delicate only child. If it fails, the future of any negotiated treaty regime of arms control will be thrown into question. The implementation and effectiveness of the ABM treaty therefore merit special scrutiny.

The fundamental strategic assumption underlying the treaty is that the security of the United States is best guaranteed by a relationship of mutual deterrence between itself and the Soviet Union, and that the stability of this relationship would be threatened by the deployment of defensive systems that might call into question either side’s retaliatory capability. To this end, the basic provisions of the treaty sharply curtail for the indefinite future the development of such defensive systems, permitting only token deployment at a single site.

Those who drafted the treaty knew that technology would not stand still: its provisions therefore apply not only to system concepts that were current in the early 1970s, but to unforeseen “systems based on other physical principles” as well. But no treaty can anticipate every eventuality, and the ABM treaty, like any other legal instrument, is subject to varying interpretations, especially as technological change has altered the factual context. Unlike domestic legal systems, however, there is no impartial tribunal to give an authoritative or binding interpretation when disputes arise; the achievement of the treaty objective depends on the continued commitment of the two parties.

New developments have raised questions about the strength of that commitment on both sides. The president of the United States has announced an objective that is in fundamental opposition to the treaty goals: the creation of a defensive shield over the United States. He has established a powerful bureaucratic organization disposing of large resources to accomplish the strategic objective. Members of the Reagan administration, including the president himself, were opposed to the ABM treaty in 1972; the secretary of defense has, more recently, publicly questioned its utility. The Soviets are conducting their own extensive BMD research programs, though without the

same public scrutiny that exists in the United States as a result of the presidential initiative and congressional review. In addition, there is a strong conviction among U.S. government officials and large segments of the population that the Soviets are in fact violating the treaty, thus demonstrating the absence of any commitment to it.⁴

Moreover, deterioration in the political relationship between the two countries is taking its toll on this fragile treaty regime. Since behavior under the treaty can only be regulated by discussion between the parties themselves, a relationship marked by incivility and petulance, accusations and counter-charges, makes it next to impossible to resolve questions that inevitably arise concerning ambiguous activity, apparent violations, or differences in interpretation.

The altered technological and political setting since 1972 has thus brought the ABM treaty under heavy pressure. As we have noted, President Reagan has challenged the fundamental strategic assumption on which the treaty was based: that anti-missile systems erode rather than enhance national security. He has backed this challenge with a \$26 billion five-year research program, conceived as the first step in an effort to build and deploy a strategic defensive system. This raises the question of what will happen to the treaty in the interim. Can the treaty survive the SDI program and similar Soviet efforts? What sorts of political and legal pressures can the ABM treaty withstand?

THE OUTER SPACE TREATY

The first efforts in the field of space law reflected a spirit of international cooperation and a determination to depart sharply from previous treatment of new territories or common environments in international law. This cooperative spirit pervades the Outer Space Treaty, which was developed in the United Nations in 1967 to establish a general framework for activities in outer space, and now has approximately eighty signatories. The preamble of the Outer Space Treaty and the General Assembly resolutions leading up to it proclaim the lofty principle of "peaceful use." Unlike the continents newly discovered by Europeans from the 16th to 19th centuries, "outer space, including the moon and other celestial bodies, is not subject to national appropriation."⁵ And unlike the high seas, which

since Salamis and Actium have been the arena of decisive military engagements, the exploration and use of space is to be “for peaceful purposes.”⁶

The specific rules embodied in this treaty, however, are rather more guarded in their restraints on national military activities. Article IV, the key provision, states that “The moon and other celestial bodies shall be used . . . exclusively for peaceful purposes.” As for outer space generally, the only provision restricting activities forbids the placing “in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction . . . or station[ing] such weapons in outer space in any other manner.”⁷ The “peaceful purposes” rubric applied to the moon and other celestial bodies is never defined in the treaty, but presumably comprehends more than the simple prohibition applied to outer space generally.

The reason for the different treatment of “celestial bodies” and “outer space” generally was to accommodate nuclear ballistic missiles, which were just entering the arsenals of the U.S. and the Soviet Union as the treaty was being negotiated. A major portion of the trajectory of such missiles is in outer space, but they do not go into orbit. The language of Article IV was carefully chosen to ensure that the general principle of “peaceful uses” would not interfere with the testing of these weapons.⁸

The treaty also remains silent on the use of military satellites for reconnaissance, surveillance, early warning, and communications. The United States has always taken the position that such “passive” military uses are compatible with a doctrine of peaceful purposes. The Soviets, at first, seemed to take the contrary view. An early Soviet draft of the proposed treaty, drawn up at a time when the United States had a monopoly on observation satellites, contained a provision expressly forbidding their use. The United States and its allies opposed this provision. They argued that international law did not forbid observation of a state from points outside its national territory, and that there was no sound justification for making an exception in the case of outer space. The Soviet Union eventually conceded on this point, but perhaps the change of position had as much to do with its acquisition of the relevant technology as with the force of the U.S. legal argument.

In any case, it is clear from this history that reconnaissance and other “passive” military satellites are not prohibited by the Outer

Space Treaty. This conclusion has since been confirmed by the provisions of the ABM treaty and other arms-control agreements in which the United States and the Soviet Union endorse the use of "national technical means of verification" to assure compliance, and agree not to interfere with them.

Although only a few provisions of the Outer Space Treaty deal specifically with military activities, and those that do leave much ground uncovered, the affirmation of the basic principles of peaceful purposes and international cooperation in exploration and use nevertheless remains important for the construction and application of more specific agreements governing outer space activities. The principles reflected widespread attitudes toward the new environment of space in the late 1960s, when the treaty was adopted, and there is little reason to suppose that those attitudes are different today. The principles of the treaty have remained largely intact throughout the past thirty years of outer space activity. During this time, there has been general agreement between the superpowers that the principle of peaceful use could accommodate passive military uses. And though both Soviet and U.S. military forces have increased the use of space for these purposes, and have even conducted research and development on programs that would go beyond those limits, the actual pursuit of military activities in outer space has so far all been of the passive variety. Ballistic missile defense (BMD) and anti-satellite (ASAT) systems could well represent the first significant challenge to the continued viability of the first and only international legal framework that has governed outer space.

THE ABM TREATY

The Treaty on the Limitation of Anti-Ballistic Missile Systems, which took effect in 1972, is the only bilateral agreement in full force between the United States and the Soviet Union limiting the armaments of the two countries. It is the linchpin of a thirty-year effort to limit the strategic weapons of the superpowers.

The chief purpose and effect of the treaty is to eliminate defensive—that is, anti-ballistic missile—systems from the arsenals of the two countries (with the exception of a single designated site on each side, sharply limited in area and armament). To that end, the first obligation undertaken by each government, as set forth in Article I of

the Treaty, is: "not to deploy ABM systems for the defense of the territory of its country. . . ."

It is clear that the task President Reagan has set before the American scientific community—to devise systems that will "interrupt and destroy strategic ballistic missiles before they reach our own soil"—is a task that, if accomplished, would flatly violate the solemn treaty obligations of the United States. (The express ban on deployment of ABM systems for defense of the territory of its country means that any ABM system designed to intercept missiles in the boost phase is necessarily barred by the treaty, because in that phase the targets of the incoming missiles cannot be determined.)

The plain meaning of Article I is fully corroborated by an analysis of the treaty's more detailed provisions. For example, under Article V, each country undertakes the comprehensive obligation "not to develop, test, or deploy any ABM systems or components that are sea-based, air-based, space-based, or mobile land-based." This sweeping prohibition is not limited to deployment, but expressly extends to development and testing as well; it applies not only to entire systems, but with equal force to components. The only exception to the prohibition is fixed land-based systems, and here what is permitted is highly circumscribed. Deployment is confined to a single limited site 150 kilometers in radius and with no more than one hundred launchers, as specified in Article III. Since, according to Article VII, it is permissible to modernize existing fixed land-based systems, development and testing of such systems are also allowed by the treaty. Such activities, however, can only occur on "current or additionally agreed test ranges." In the U.S., testing and development are confined to two test sites, located at White Sands, New Mexico, and at Kwajalein Atoll in the Pacific, the two sites identified by the U.S. delegation as already existing at the time the treaty was concluded. Similarly, the Soviet Union is limited to test ranges at Sary Shagan and Kamchatka. These are categorical limitations imposed by the agreement.

It has occasionally been suggested that the treaty does not apply to ABM systems based on exotic technologies such as lasers or particle beams, both of which are part of the Strategic Defense Initiative (an argument that has not, it should be said, been made by the administration). The suggestion seems to rest on the definition of ABM systems contained in Article II of the 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.

It is contended that exotic technologies do not use interceptor missiles or launchers or radars, and thus do not fall into the categories of ABM systems banned by the treaty. The argument proceeds with reference to Agreed Statement D:

In order to insure fulfillment of the obligation not to deploy ABM systems and their components except as permitted 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 [establishing a Standing Consultative Commission] and agreement in accordance with Article XIV [providing for possible amendment] of the Treaty.

From this it is argued that the only limitation on exotic systems is a requirement of consultation with the other party to the treaty.

This argument is specious. Article II cannot be read so narrowly. Mindful of potential advances in technology, the drafters defined ABM systems in the most general and comprehensive terms: "systems designed to counter strategic ballistic missiles or their elements in flight trajectory." The use of the word "currently" is a recognition that ABM systems might not always consist of the components enumerated, and indeed were not expected to. As Dr. Raymond Garthoff, a member of the U.S. negotiating team, stated: "The word 'currently' was deliberately inserted into a previously adopted text of Article II . . . in order to have the very effect of closing a loophole to the ban [on future ABM systems]."⁹

Nor does Agreed Statement D open the door for systems based on exotic principles. On the contrary, the language "to insure fulfillment of the obligation not to deploy ABM systems and their components

except as provided in Article III” makes it clear that the Statement applies only to those deployments permitted by Article III, that is, fixed land-based systems at a single designated site. Replacement of these by “systems based on other physical principles” is permitted, according to the Statement, only by amendment of the treaty after consultation between the parties. Nor does the Statement modify the prohibition in Article V against development, testing, or deployment of systems or components “which are sea-based, air-based, space-based, or mobile land-based.”¹⁰

This straightforward meaning of the language of the Treaty is fully supported by the legislative history—including the analysis and explanation in the president’s submission of the treaty to the Senate,¹¹ and the testimony in the Senate hearings preceding ratification. These are part and parcel of the ratification process and represent the understanding of the treaty obligations accepted by the president and by Congress. They confirm the interpretation that the treaty is broad in its prohibitions (not only against deployment, but extending to development and testing) and narrow and explicit in its exceptions for permitted activity. This view has been reinforced by executive and congressional commentary since ratification. Secretary of State Rogers during the preratification hearings before the Senate Committee on Foreign Relations confirmed that the treaty would extend even to exotic defense systems.

The treaty provides for other important qualitative limitations. The parties will undertake not to develop, test or deploy ABM systems or components which are sea-based, air-based, space-based or mobile land-based. . . . Perhaps of even greater importance as a qualitative limitation is that the parties have agreed that future exotic types of ABM systems, i.e., systems depending on such devices as lasers, may not be deployed, even in permitted areas.¹²

The absolute prohibition on any development, testing, or deployment of space-based ABM systems—including those dependent on exotic technology—was also explicitly recognized by Secretary of Defense Laird¹³ and Ambassador Gerard C. Smith, chief U.S. negotiator of the treaty and head of the Arms Control and Disarmament Agency (ACDA) at the time the treaty was concluded.¹⁴

The report of the Senate Committee on Foreign Relations, recommending that the Senate approve the treaty quoted from those

passages of Secretary of State Rogers's testimony stressing the absolute nature of the ban on space development, testing, and deployment.¹⁵ In the floor debate on the treaty, the absolute ban on space activities was accepted without question, as was the ban on deployment of "exotic" ABM systems, even at permissible fixed land-based ABM sites.¹⁶

The Arms Control Impact Statements, prepared annually by ACDA have uniformly adopted this same interpretation. The statement of fiscal year 1984—the most recent available—represents the official position of the present administration. It says:

The ABM Treaty bans the development, testing, and deployment of all ABM systems and components that are sea-based, air-based, space-based, or mobile land-based. In addition, although the Treaty allows the development and testing of fixed, land-based ABM systems and components based on other physical principles (such as lasers or particle beams) . . . the Treaty prohibits the deployment of such fixed, land-based systems and components unless the Parties consult and amend the Treaty.

The ABM Treaty prohibition on development, testing and deployment of space-based ABM systems, or components for such systems, applies to directed energy technology (or any other technology) used for this purpose. Thus, when such DE [directed energy] programs enter the field testing phase they become constrained by these ABM Treaty obligations.¹⁷

Recent congressional testimony by former government officials further demonstrates the uniform acceptance of this view.¹⁸

ISSUES OF TREATY INTERPRETATION

The legal defense of the Strategic Defense Initiative, however, has not relied on the general claim that its programs and activities are outside the purview of the ABM treaty. For the present, it rests primarily on the claim that these are *research* activities, and that the treaty places no strictures on "research," as it does on "development" and "testing." For the future, even the proponents and managers of the SDI recognize that the program, amounting to \$26 billion in the first five years, must ultimately come up against the treaty limits. Yet the likelihood of being able to negotiate satisfactory amendments or create a substitute treaty has not been seriously addressed in any public forum. Instead, the administration is relying on ambiguities in

the treaty language to provide a legal rationale for program developments as they arise. Three areas of ambiguity, in particular, lend themselves to such use:

(1) What is the line between *research*, which is not prohibited by the treaty, and *development* which, except for fixed, land-based systems, is barred for all types of ABM systems, including space-based?

(2) What is the difference between a *component*, which is subject to treaty limitation on development and testing, and parts or elements of a system, which might not be characterized as components?

(3) To what extent can dual or multi-purpose technology, which might be relevant to, or even intended for use in, ABM systems, be developed and tested in connection with other systems *not* covered by the treaty—such as anti-satellite (ASAT) systems or anti-tactical ballistic missile (ATBM) systems?

The 1985 Report to Congress on the Strategic Defense Initiative includes an Appendix entitled “Compliance of the Strategic Defense Initiative with the ABM Treaty.” It sets forth the legal justification for the fifteen presently programmed SDI tests and experiments. The analysis illustrates all three problems identified above. It establishes three categories of permitted experiments: (1) conceptual design or laboratory testing; (2) “field testing” of devices that are not ABM components or prototypes of ABM components; and (3) “field tests” of fixed land-based ABM components—presumably permitted under Articles III, IV, and VII of the treaty, dealing with modernization of fixed land-based systems. The difficulties raised under this framework will be touched on in the analysis below.

Development

ACDA Director Gerard C. Smith was questioned on this subject by Senator Henry Jackson during the Senate hearings on approval of the ABM treaty. A written response was prepared by the administration after a thorough review of the negotiating record. It states:

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.¹⁹

The definition of “development” as any work performed outside the laboratory remains the official United States position, and has been reiterated in Arms Control Impact Statements issued since the adoption of the treaty.²⁰

The line that is drawn is thus a functional one, related to the method accepted by both parties for verifying compliance with treaty provisions: “national technical means of verification” (NTM). It is fair to say that if an activity cannot be monitored by NTM, it is not prohibited by the treaty; the two parties, particularly the United States, have been unwilling to accept constraints that cannot be verified. Conversely, any test of a component is prohibited if it can be observed by national technical means (or could be observed if the country in question were complying with its treaty obligation not to use “deliberate concealment measures which impede verification by national technical means”). At least, there would be a heavy burden on it to establish that such activity was mere “research,” and did not amount to development or testing within the meaning of the treaty.²¹

The Compliance Appendix seems to adopt this view. It describes Category 1 experiments as preceding “field testing” and as not verifiable by NTM. The analysis relies on the quotation from Ambassador Smith’s testimony reproduced above. Two of the fifteen programmed experiments and part of a third are placed in this first category of “under-roof experiments.”

Components

As has been noted, Article II defines “current” components as ABM interceptor missiles, ABM launchers, and ABM radars. In addition, Agreed Statement D, dealing with exotic systems, refers to “components capable of substituting for” ABM interceptor missiles, ABM launchers, and ABM radars.

The Presidential Communication transmitting the treaty to the Senate develops this concept. It defines a component as “a device to perform the current functions of ABM launchers, interceptors, or radars.”²² It adds that devices other than these three “could be used as adjuncts to an ABM system, providing that such devices were not

capable of substituting for one or more of these components.” But as new technology and system concepts move further away from those that prevailed in the early 1970s, these notions of “substitution” or functional equivalence become increasingly less helpful in interpreting the treaty. Systems currently under consideration may have no direct analogues to the “missiles,” “launchers,” or “radars” of an earlier technology. The functions previously performed by these “components” may be redistributed among the elements of the system in different ways. It is possible that a complete ABM system could be made up of elements no one of which would perform the specific functions of a missile, launcher, or radar of earlier technology.

The prohibition in Section V on the testing and development of components was specifically designed to prevent circumvention of the limitations on testing and development of systems by disaggregation. It would be ironic if this prohibition could be evaded simply by disaggregating the system along different axes than those of the original system.

The Compliance Appendix graphically illustrates the problem. The TRIAD program, begun in the Carter administration, is to be carried forward under the SDI program. It now consists of the ALPHA laser (a chemical laser), LODE/LAMP, (a precision segmented mirror with associated optics) and an Acquisition Tracking and Pointing system (ATP) consisting of a telescope and sensors for identifying and tracking the target. The laser is to generate a beam to be projected against the mirror and pointed at the target by the telescope. According to the Compliance Appendix, the ALPHA and LODE/LAMP experiments will be under roof, and are thus permissible “research.” As for ATP, there “is a distinct possibility” of field tests in space in which the telescope and passive sensors, mounted in the space shuttle, would be used to measure booster plumes—i.e., would, in the language of the treaty, be “tested against ballistic missiles in flight trajectory” or “in an ABM mode.” (The Appendix notes that further compliance review will be had when the shuttle mission is more precisely defined.)

The Compliance Appendix takes the position that the space test is permissible because “the experiments will use technologies which are only a part of the set of technologies ultimately required for an ABM component.” Even ATP alone, however, would amount, if perfected,

to a very significant portion of an ABM system. No doubt it could not "substitute for" a traditional ABM missile, launcher, or radar. But if so, that is because the basic system concept is different. Moreover, the three technologies together certainly seem large enough to be a "component." And they have been linked from the beginning as parts of the same program. Can it be said that because they are tested separately the treaty remains inviolate? It would seem that this is just the kind of development and testing process that the "component" provisions of the treaty were designed to bring to a halt at an early stage. In any case, even if the new system concepts seem to provide some flexibility, as the technologies become promising enough to move out from "under-roof," it will be increasingly difficult to argue that a major element of an ABM system is something less than a component just because all the elements are not tested simultaneously or do not mature at the same rate.

For a number of the projected experiments, the Appendix advances a different argument to meet the prohibition against testing "components." It asserts that the tests will be conducted at power levels or with other parameters below what is required for an ABM weapon. For instance, the Boost Surveillance and Tracking System (BSTS) will be used to measure the signature of booster plumes, a necessary aspect of boost-phase target acquisition. But the tracking satellite will not be given the computational hardware necessary to do so "in real time." Similarly, the Space Surveillance and Tracking System (SSTS) will be capable of performing functions relevant to an ABM system, but its capabilities "will be significantly less than those necessary to achieve ABM performance levels." Certainly, more is needed to avoid the strictures against "testing" an ABM component than simply turning down the power or deliberately limiting some other parameter of the device being tested. But even if the failure to reach levels of performance required for ABM capability is due to insufficiently developed technology, it is hard to see how this can avoid the treaty prohibition on testing *and development* of ABM components. The whole purpose of experiments with immature technology, after all, is to *develop* a component capable of performing the ABM mission.

Dual-purpose technologies

In the case of the Triad, legal analysis is much assisted by relatively unambiguous indications, verbal and otherwise, of the ultimate

object of the exercise. But purpose or intention are subjective criteria, neither observable by national technical means, nor easy to prove persuasively by other means. Thus, in the case of dual-purpose technologies that *might* achieve, but do not yet have, ABM capability, the intention of the party conducting the development will always be in doubt. This is especially so for the USSR, where weapons decisions are not required to undergo public evaluation and justification. For this reason, dual-purpose technologies present the most difficult problem of treaty interpretation, and ultimately pose the most serious threat to the existing ABM treaty.

As is discussed by Ashton Carter elsewhere in this collection, the technology for ABM systems and ASAT systems may be closely interrelated. An ABM system designed to intercept ballistic missiles in outer space will almost necessarily have an ASAT capability at some altitudes and regions in space, since the task of locating, tracking, and destroying a single satellite in orbit is much less demanding than defending against multiple missiles. Likewise, much ASAT technology has ABM implications since the basic functions of tracking, pointing, and destroying objects in space are broadly similar. Yet there is no treaty banning the testing and development of anti-satellite weapons as such. While Article XII of the ABM treaty—as well as Article XV of SALT II—prohibits interference with the other party's national means of verification, it is a prohibition, not against the development and testing of ASATs, but only against their *use*, specifically, against satellites performing treaty verification functions.

Anti-tactical ballistic missile (ATBM) systems were also deliberately omitted from the ABM treaty at the instance of the United States, apparently to protect the SAM-D program then under way.²³ The definition of an ABM system in Article II only includes “systems to counter *strategic* ballistic missiles.” There are significant differences in trajectory, approach angle, and terminal velocity between tactical missiles (having less than intercontinental range) and ICBMs (and to a much lesser extent, SLBMs). Nevertheless, there is a good deal of overlap between the missions and functions of ABM and ATBM system components.

To the extent that these non-ABM systems pursue traditional configurations, Article VI of the treaty provides some constraints. It prevents giving “missiles, launchers or radars other than ABM missiles, launchers or radars capabilities to counter strategic ballistic

missiles or their elements in flight trajectory.” The United States insisted on including this provision because of concern over the possible upgrading of the Soviet SAM-5 air defense system to ABM levels.²⁴ The U.S. Homing Overlay Experiment (HOE) of June 1984 raised questions under this provision. The test was criticized both by the Soviets and within the United States for using a Minuteman ICBM (“a missile other than an ABM interceptor missile”) to bring down a reentry vehicle from another Minuteman (“to counter [a] strategic ballistic missile . . . in flight trajectory”); the experiment may also have violated the Article VI prohibition against testing non-ABM components in an ABM mode.

Defenders of the experiment argue that it was permissible under Article IV of the treaty: the system was land-based; the test was conducted at Kwajalein, a designated test site; and the interceptor was a specially modified missile using two stages of the Minuteman I plus a new third stage. Nevertheless, since Minuteman I had never been regarded as an ABM interceptor, it was not unreasonable to claim that it fell within the definition of a missile “other than an ABM interceptor missile” set forth in Article VI.

Several of the most problematic experiments in the current SDI program are rationalized on the basis that the device in question will be tested against satellites rather than ballistic missiles. Among these are the Space Surveillance and Tracking System experiment discussed above, as well as the Kinetic Kill Vehicle (a rocket-propelled projectile launched from space) and the space-based Railgun Experiment.

The basic purpose of Article VI—to prevent the upgrading of non-ABM systems—could arguably cover “exotic” as well as conventional systems. The application of the Article to systems incorporating exotic technologies is problematic, however, because its express language deals only with familiar elements (missiles, launchers, and radars) and does not use the general term “components” found elsewhere in the treaty. Even if we were to accept such an inferential extension of Article VI to newer technologies, it would prohibit only the final act of “upgrading”—giving the system “capabilities to counter strategic ballistic missiles . . . in flight trajectory.” Development, testing, and even deployment of such sub-ABM systems would not be barred so long as they do not possess the prohibited capabilities. SDI program experiments conducted against satellites with power levels or other performance criteria below that required for

ABM missions are apparently justified on this basis. Nevertheless, if such a system were deployed, the potential for upgrade might make or appear to make a sudden breakout from treaty limitations feasible, and even, in certain political circumstances, more likely.

A useful litmus test in these cases of exotic dual-purpose technologies would be whether the United States would consider the Soviets in violation if they conducted the same experiments. It seems likely that, in the past, the United States would have raised serious questions as to the compliance of such activities with the treaty. Thus, it has taken a "strict constructionist" position in suggesting that the Soviet SAM-12 might have or easily be given ABM capability, or that certain radars were "mobile" because of the short installation time. In the context of the current SDI program, however, the United States might be willing to accede to a broader range of Soviet experiments as a way of validating its own. That would come close, in effect, to a tacit amendment of the treaty to eliminate the prohibition against the development of ABM systems—an amendment that would be operative *before* there was a basis for deciding whether the new systems would ultimately provide more security than the existing treaty.

It should be noted here that there is one particular exotic technology not subject to these vagaries of interpretation: that is a space-based X-ray laser powered by a nuclear explosion. The nuclear component of such a system would run into legal constraints quite apart from the ABM treaty. Testing of the system in space would be prohibited by the Limited Test Ban Treaty.²⁵ Article I of that treaty prohibits "any nuclear weapons test explosion, or *any other nuclear explosion* . . . in . . . outer space. . . ." The testing prohibition applies regardless of whether the nuclear component is characterized as a "weapon." Moreover, if it *is* regarded as a "weapon" and is to remain stationed in space for a period before it is used, it would also run afoul of the Outer Space Treaty's undertaking "not to place in orbit around the Earth any objects carrying nuclear weapons."²⁶

As for ATBM systems, there would be room for doubt about the true purpose of a U.S. program justified under that rubric. There is no military threat to the United States from tactical ballistic missiles; ATBM systems would only be developed for use in defense of Western Europe. Since no such program could be seriously undertaken without extensive consultation and advance agreement from the NATO allies—something that has not yet taken place—any extensive

U.S. ATBM activity undertaken *without* NATO approval would most likely be a subterfuge for ABM work.

The Soviet situation is different. The Pershing II deployment in Western Europe furnishes the Soviets with a military justification for ATBM development. On this analysis, Soviet ATBM activity would not be prohibited so long as it did not achieve the capability to intercept strategic ballistic missiles in flight trajectory. Nevertheless, it hardly needs saying that the United States is unlikely to accept a reading of the treaty in which ATBM development is forbidden to the United States but not the Soviet Union.

Issues of treaty interpretation—such as those discussed above—can never be resolved definitively. No court or other third party tribunal sits with jurisdiction to answer such questions authoritatively. At the same time, the interpretation of treaties, like other legal instruments, consists of more than playing games with words to see what stretched constructions they can be made to bear. The enterprise is subject to the universal maxim that cases of genuine doubt are to be resolved so as to further, not frustrate, the basic purposes of the instrument. In the case of the ABM treaty, the basic purpose is clear and appears in the opening words: “Each party undertakes to limit anti-ballistic missile systems. . . .” In light of this fundamental objective, there is little doubt how the questions that have been raised about the coverage of the treaty should be answered.

Yet neither the United States nor the Soviet Union seems to have adopted a strict constructionist approach to questions that arise under the treaty. Instead, each seems to be embarking unilaterally on an expanding series of programs, more or less defensible on technical legal grounds. Individually and cumulatively, however, such activities may have considerable ABM potential. The likely outcome of this behavior is that even without unequivocal treaty violations, both parties will be deprived of the assurance they had sought from the ABM treaty: that the other party would not prepare a “break-out” from the basic prohibition against deployment of ABM systems. The resulting insecurity will itself contribute to the erosion of the treaty, and to the deterioration of the relationship between the parties.

It would clarify the existing legal and political situation if the two nations were to negotiate new agreements specifically addressed to ASAT and ATBM systems. The agreements might prohibit outright the development, testing, and deployment of such systems. At the

very least, they could define with greater precision the scope and capabilities of ASAT and ATBM programs and deployments both sides are willing to live with. It may not be too much to say that only such a clarifying agreement can save the ABM treaty from eroding away as a result of gradual encroachments on the part of the two countries.

COMPLIANCE

Although no courts have jurisdiction over the interpretation or enforcement of the ABM treaty, and no formal sanctions exist for breach, the treaty does contain an important innovation in the area of compliance. Article XIII establishes a Standing Consultative Commission (SCC) "to promote the objectives and implementation of the provisions of this treaty. . . ." The principal function of the commission is "to consider questions concerning compliance with the obligations assumed and related situations which may be considered ambiguous"; the SALT I interim agreement, SALT II, and the 1971 Accident Measures Agreement give the SCC similar functions with respect to their provisions.

The Standing Consultative Commission consists of a commissioner and deputy commissioner from each side, supported by appropriate staff and advisory personnel. It meets twice a year, and its proceedings are confidential. It has no permanent secretariat or offices and no independent authority to make decisions or treaty interpretations. Commissioners act only on instructions from their governments. On important matters, the U.S. commissioner's instructions are approved by the president.

The commission is essentially a continuing and expert body for regular and confidential consultation between the parties. Issues concerning compliance and interpretation that may arise under the treaties may be referred to the commission, which attempts to clarify uncertainties and ambiguities and thus to maintain the confidence of the parties in the continued integrity of the agreement. Although discussion of compliance issues presumably generates pressure for adherence to treaty requirements, the commission is not, strictly speaking, an enforcement agency. It is not well-suited to deal with accusation or confrontation. It operates in a setting where each side, through NTM and other intelligence, possesses extensive but incom-

plete information about the other, but neither knows exactly what the other knows. The commission is thus an agency through which a party, by providing "on a voluntary basis such information as either party considers necessary to assure confidence in compliance,"²⁷ can persuasively assure the other that it is in fact carrying out its obligations.

The experience with the SCC may be roughly divided into two periods, the first lasting from 1972, when the commission was organized, until 1980; the second, from 1980 to the present. Public information about the first period is derived primarily from accounts published by the State Department in 1979 in connection with Senate consideration of SALT II.²⁸ During that period, eight compliance-related issues were raised by the United States, five by the Soviet Union. Only a few of these involved the ABM treaty.

For the most part, the issues were minor, turning on technical questions of treaty interpretation or minor uncertainties about the factual situation observed. The most important question raised by the United States was whether a Soviet SA-5 air defense radar had been "tested in an ABM mode"—by being used to track an incoming missile during a test flight—in violation of Article VI of the ABM treaty. The United States acknowledged that the activity was ambiguous and the Soviet Union maintained that it had not violated the treaty. Nevertheless, according to the State Department report, shortly after the issue was raised the Soviets stopped this tracking activity, although subsequently the United States has complained of sporadic resumption. Discussion in the SCC over a period of several years has resulted in some clarification concerning the meaning of "testing in an ABM mode"—a clarification that the U.S. had sought since the initial negotiation of the treaty. Other complaints by the United States in this period were, on the whole, resolved satisfactorily, either by cessation of the questionable activity or by the supply of information that, in connection with NTM, satisfied the United States that the activity was not prohibited by the treaty.

The most serious Soviet complaint against the U.S. concerned the use, beginning in 1973, of 2700-square-foot environmental shelters to shield Minuteman silos that were being hardened at Malmstrom Air Force Base. The Soviets claimed that this practice violated the obligation of Article V of the Interim Agreement "not to use deliberate concealment measures which impede verification by na-

tional technical means. . . .” In 1977, the United States reduced the size of these shelters, but they were not completely removed until the conclusion of the SALT II negotiations in 1979. The United States has maintained that other actions questioned by the Soviets were in compliance with the treaty, and therefore did not require modification of conduct.

The experience during the second period of the SCC’s history is far less satisfactory. On February 1, 1985 a White House Compliance Report to Congress stated: “The U.S. Government judges . . . that the new large phased-array radar under construction at Krasnoyarsk constitutes a violation of legal obligations under the Anti-Ballistic Missile Treaty of 1972.”²⁹ The report also cited, with varying degrees of certainty, Soviet violation of a number of other treaties and commitments in the security field. The USSR has responded in kind, making similar wide-ranging accusations against the United States, including the charge that U.S. radar deployments were in violation of commitments under the ABM treaty. Some of these charges reopened issues the United States thought had been settled in the earlier period. The most recent barrage of accusations has continued for more than a year now, with most of the conflicts having been formally raised within the commission before being publicly aired.

Unlike the complaints brought before the SCC in the earlier period, current charges raise questions of compliance with major substantive obligations under the treaty. Since much of the supporting evidence is classified, it is difficult to make a judgment on the merits of the claims. As to the charges made by the United States, it is undisputed that the Soviet Union is constructing a large phased-array radar near Krasnoyarsk in Siberia. Since it is sited more than 700 kilometers from the nearest frontier and oriented northeast, it cannot be said to be located “along the periphery of its national territory and oriented outward,” as is required for early-warning radars under Article VI. Agreed Statement F prohibits large phased-array radars in other locations “except for the purposes of tracking objects in outer space or for use as national technical means of verification.” The Soviets claim that the radar is for space tracking, but the United States says its technical features are not consistent with a space-track mission. The Soviets have countered that once the radar is completed it will be apparent that it is designed to track objects in outer space. The great weight of expert opinion in and out of government at this writing is

that the device at Krasnoyarsk is an early-warning radar not distinguishable from other early-warning radars. Its position and orientation has very limited utility for satellite tracking. There has been some suggestion that the radar may be designed for use in conjunction with the Soviet ASAT program.³⁰ If so, it might be characterized as a space-tracking radar and therefore be permitted by the treaty. In that case, since the radar would also have early-warning capability, this would be another illustration of the problems raised by overlapping and multiple purpose technologies.

The Soviet Union, for its part, challenges U.S. phased-array radar deployments, which it says can be used as a basis for a nationwide ABM defense, thus violating Article I of the treaty.³¹ In addition to installations in Massachusetts and California, examples that had previously been raised in the SCC, the Soviets pointed to new U.S. deployments "in a southern direction." This presumably is a reference to large phased-array radars now being constructed in Georgia and Texas. These are perhaps close enough to the continental boundary to be "on the periphery" of the United States, but since their angle of coverage is said to be 240 degrees, they are at least arguably not "oriented outward."

Despite charges by both superpowers of serious breaches of the treaty, neither party has yet withdrawn from the treaty or indicated any intention of doing so. Perhaps this reticence reflects the remaining uncertainties in the parties' knowledge of the facts. But it is also surely a recognition of the huge political costs, both domestic and international, that would be involved in formal abrogation of the treaty.

The resulting situation is very unsatisfactory: the charges made by both sides remain on the record, and provide a basis for deprecating the importance of complying with the treaty in discussions of the SDI and other programs. Meanwhile, both the United States and the Soviet Union are proceeding with programs, particularly in the ASAT and ATBM area, that are of dubious validity under the treaty, and are justifying them with increasingly casuistic arguments. All of this combines to erode confidence in the treaty, and may perhaps reach a point where the political costs of withdrawal would become acceptable.

This is not the process contemplated by the treaty. Questions of compliance and disputes about treaty interpretation were to be taken

to the SCC and discussed there in good faith, in confidence, and with a view to resolving them on a mutually agreeable basis. It is hard to be satisfied today that either party is following this injunction, or availing itself of the opportunity provided in the SCC to resolve ambiguities and provide assurance of compliance with treaty obligations. Instead, the dominant political tone of confrontation between the United States and the Soviet Union has saturated the proceedings of the SCC and reduced its utility for the central questions on its agenda.

SUMMARY AND CONCLUSIONS

There is a framework of legal principles and treaty obligations—fragmentary and incomplete, perhaps—governing military activities in outer space. As we have seen, the Outer Space Treaty enunciates principles of international cooperation and the use of space for peaceful purposes. We have also seen that, from the beginning, this goal was broadly understood to accommodate passive military uses such as reconnaissance and communications. The positive rules of law laid down by the Outer Space Treaty, on the other hand, are much narrower in scope. One of them prohibits nuclear weapons in orbit. This, taken together with the ban in the Limited Test Ban Treaty on nuclear explosions in outer space, has a decisive bearing on a narrow range of ABM and ASAT technology, specifically, the use of nuclear explosions in space as a power source for lasers.

The principal legal rules relevant to SDI activities are articulated in the amended ABM treaty. These rules call for:

- (1) prohibition of the development, testing, and deployment of space-based ABMs and ABM components, whether dependent on existing or exotic technologies. This prohibition also applies to air-based, sea-based, and mobile land-based ABMs and ABM components, that is, to everything but fixed land-based systems and components;
- (2) prohibition on the deployment of fixed, land-based ABM systems and components, except at a single designated site not more than 150 kilometers in radius, centered on the national capitol or a missile silo field, and containing not more than one hundred launchers;

- (3) no prohibition on the development and testing of fixed, land-based ABMs and ABM components of traditional technologies at existing test ranges;
- (4) prohibition of deployment of exotic ABM technologies even if fixed and land-based, and even at the existing test ranges, except after discussion and agreement with the other party;
- (5) prohibition on upgrading non-ABM missiles, launchers, and radars to an ABM capability, or on testing them in an ABM mode, and, arguably, by inference, restriction of upgrading components (that are not missiles, launchers, or radars) of sub-ABM systems to ABM capability;
- (6) no prohibition against research.

It is apparent that the SDI enterprise as a whole, its objectives and philosophy, are simply at odds with the purposes and objectives of this treaty. Moreover, whatever the exact technical limits on testing and development may be—the difference between “research” and “development,” between a “component” and something else—it is inevitable that under the current presidential mandate and Defense Department response, these limits will be breached and the treaty violated outright within a period of time that is relatively short compared to the time it would take to develop, evaluate, and deploy SDI technologies and systems. Attempts to develop ABM technologies under the label of ASAT or ATBM programs would be legally disingenuous, technically costly, and in any event could only extend arguably permissible development a few years. Meanwhile, the interrelation of ASAT and ABM technology will continue to generate disputes over the legality of particular actions under the treaty. While these issues could be addressed and perhaps resolved ad hoc by a well-functioning SCC, it would be far better—indeed, it may be essential to the continued viability of the treaty—to eliminate the source of these disputes by calling a prompt mutual moratorium on ASAT testing, followed by serious negotiation of a treaty to define the limits of ASAT activity. The successful conclusion of such a treaty would have intrinsic merit apart from its clarifying impact on the ABM treaty.

The ABM treaty is not the embodiment of ultimate truth. It represents a judgment, at least by the United States, that its security is enhanced and the stability of the strategic balance strengthened if

both sides forswear defensive systems. Like other legal arrangements, this treaty may be subject to revision in the light of changing technology or reconsideration of the values at stake. It has been suggested, for example, that even within the general framework of deterrence theory, point defense of silos might be an effective way of protecting ICBMs during a period of strategic arms reduction. This would be permissible to a limited extent under the current ABM treaty. The scope of permitted terminal defenses could be extended by relatively modest amendments to the treaty (subject, of course, to Senate approval).

The SDI embodies a much more far-reaching, indeed, a fundamental challenge to the policy assumptions of the treaty. It may be that the government and people of the United States will decide to make such a drastic change in direction. If so, the way to do it is not by nibbling away at the ABM treaty. By engaging in legalistic—not to say sophistic—interpretations that bend the treaty's language and torture its basic meaning, we do not "preserve" or "comply with" a treaty. And in the process, we are not only undermining the ABM treaty, we are severely compromising the possibility of confident reliance on all present or future arms-control regimes. It would be more straightforward to invoke the process prescribed by the treaty to amend it or withdraw from it in accordance with its terms. Until this is done, however, the United States is bound by the treaty as it stands, and thus not only by constraints under international law, but by obligations that are, under the Constitution, "the supreme law of the land."

ENDNOTES

¹*Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, January 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 (hereafter cited as Outer Space Treaty).

²*Treaty Between the United States and the U.S.S.R. on the Limitation of Anti-Ballistic Missile Systems*, October 3, 1972, 23 U.S.T. 3435, T.I.A.S. No. 7503 (hereafter cited as ABM treaty).

³McGeorge Bundy, George Kennan, Robert McNamara, Gerard Smith, "The President's Choice: Star Wars or Arms Control," *Foreign Affairs*, Winter 1984-85.

⁴*Soviet Compliance with Arms Control Agreements*, State Department Special Report no. 122, Feb. 1, 1985.

⁵Outer Space Treaty, Article II.

⁶Outer Space Treaty, Preamble, Article IV.

⁷Outer Space Treaty, Article IV.

⁸Article IX of the SALT II accords did forbid the development, testing, or deployment of fractional orbital missiles (FOBS). FOBS must be distinguished from ICBMs, however, because ordinary ICBMs are not considered to be in orbit.

⁹Raymond Garthoff, correspondence in *International Security*, Summer 1977, pp. 107–09.

¹⁰ABM Treaty, Article V (1).

¹¹The Communication of the President transmitting the treaty and recommending that the Senate advise and consent to ratification, explains the interaction of the clauses of the treaty:

Future ABM Systems

A potential problem dealt with by the Treaty is that which would be created if an ABM system were developed in the future which did not consist of interceptor missiles, launchers, and radars. The treaty would not permit the deployment of such a system or of components thereof capable of substituting for ABM interceptor missiles, launchers or radars: Article II (1) defines an ABM system in terms of its function as “a system to counter strategic ballistic missiles or their elements in flight trajectory,” noting that such systems “currently” consist of ABM interceptor missiles, ABM launchers, and ABM radars. Article III contains a prohibition on the deployment of ABM systems or their components except as specified therein, and it permits deployment only of ABM interceptor missiles, ABM launchers, and ABM radars. . . .

The presidential statement makes it clear that development of even these components is forbidden for any other than fixed land-based systems:

Development, Testing, and Other Limitations

Article V limits development and testing, as well as deployment of certain types of ABM systems and components. Paragraph V (1) limits such activities to fixed, land-based ABM systems and components by prohibiting the development, testing, or deployment of ABM systems or components which are sea-based, air-based, or mobile land-based. . . .

See the *Communication from the President of the United States, Transmitting Copies of the Treaty on the Limitation of Anti-Ballistic Missile Systems and the Interim Agreement on Certain Measures with Respect to the Limitation of Strategic Offensive Arms*, 92nd Congress, 2nd sess., 1972, House Doc. 311, pp. 9–10.

¹²*Strategic Arms Limitation Agreements, Hearings Before the Senate Committee on Foreign Relations on Executive L. 92–2*, pp. 5–6 (testimony of Secy. of State Rogers); see also, *Agreement on Limitation of Strategic Offensive Weapons, Hearing Before the House Committee on Foreign Affairs*, 92nd Congress, 2nd sess., 1972, p. 5 (statement of Secy. of State Rogers, reemphasizing the absolute ban on development, testing, and deployment of space-based systems and the ban on deployment of “exotic” ABM systems even on fixed, land-based sites).

¹³*Military Implications of the Treaty on Limitation of Anti-Ballistic Missile Systems and the Interim Agreement on Limitation of Strategic Offensive Arms, Hearing before the Senate Committee on Armed Services*, 92nd Congress, 2nd sess., 1972,

pp. 40–41 (answers to prepared questions supplied by Secy. of Defense Laird): “There is, however, a prohibition on the development, testing, or deployment of ABM systems which are space-based. . . . There are no restrictions on the development of lasers for fixed, land-based ABM systems. The sides have agreed, however, that deployment of such systems which would be capable of substituting for current ABM components . . . shall be subject to discussion. . . .”

¹⁴*United States-Soviet Relations, Hearings before the Senate Committee on Foreign Relations*, 98th Congress, 1st sess., 1983, p. 180 (prepared statement by Hon. Gerard Smith): “Very briefly, my understanding of the ABM Treaty is that . . . [d]evelopment, testing, and deployment of sea, air, space, or mobile land-based systems was banned; [i]f land-based systems are developed using so-called ‘exotic’ components—lasers, particle accelerators, etc.—they could not be deployed unless the treaty was amended.”

¹⁵See *Treaty on Limitation of Anti-Ballistic Missile Systems, Report of the Senate Committee on Foreign Relations*, 92nd Congress, 2nd sess., 1972, p. 3.

¹⁶See *Congressional Record*, August 3, 1972, 92nd Congress, 2nd sess., S. 26703 (statement of Sen. Buckley asserting that the treaty banned all space development of laser ABMs).

¹⁷*Fiscal Year 1984 Control Impact Statements*, 98th Congress, 1st sess., 1983, pp. 266–67, as well as the relevant sections of the Arms Control Impact Statements for fiscal years 1979 through 1983.

¹⁸See, e.g., *Controlling Space Weapons, Hearings before the Senate Committee on Foreign Relations*, 98th Congress, 1st sess., 1983; *United States-Soviet Relations*, loc. cit. (testimony of Hon. Gerard Smith).

¹⁹*Military Implications of the Treaty on the Limitations of Anti-Ballistic Missile Systems*, op. cit., p. 377.

²⁰*Fiscal Year 1984 Arms Control Impact Statements*, op. cit.

²¹The Russian text of Article V uses the word *sozdavat*, which translates more nearly as “create” rather than “develop.” This may lay the basis for an even narrower reading of permitted research.

²²*Communication from the President*, op. cit.

²³Interview with Dean Albert Carnesale, John F. Kennedy School of Government, Harvard University, formerly Senior Advisor to Head of SALT I delegation.

²⁴*Ibid.*

²⁵*Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water*, Oct. 10, 1963, 14 U.S.T. 1313, T.I.A.S. No. 5433, 480 U.N.T.S. 43.

²⁶Outer Space Treaty, Article IV, op. cit.

²⁷ABM treaty, Article XIII, op. cit.

²⁸See, e.g., *Compliance with I Agreements*, U.S. Dept. of State, Special Report no. 55, July 1979.

²⁹*Soviet Non-Compliance with Arms Control Agreements*, op. cit.

³⁰*Arms Control Treaty Compliance*, Federation of American Scientists Public Interest Report, *Journal of the Federation of American Scientists*, March 1984.

³¹USSR Aide Memoire to the U.S. on Arms Violations, *Foreign Broadcast Information Service: Soviet Union*, Jan. 30, 1984, pp. AA1–AA5.