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**EXISTING AND PROSPECTIVE INTERNATIONAL LEGAL RESTRICTIONS
ON THE MILITARY USE OF OUTER SPACE**

by

Steven D. MacDonald

Thesis submitted to the School of Graduate Studies and Research
in partial fulfillment of the requirements for the
Masters degree in Law

Université d'Ottawa/University of Ottawa



Steven D. MacDonald, Ottawa, Canada, 1990



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ABSTRACT

The thesis seeks to ascertain the extent of international legal (primarily treaty) constraints on the military use of outer space. These are to be found for the most part in the multilateral 1963 Partial Test Ban and 1967 Outer Space Treaties and in the bilateral U.S.-Soviet 1972 ABM Treaty. The thesis assesses the compatibility of all feasible near- and mid-term military uses of outer space with these treaties. Alternative interpretations of various provisions are assessed. The thesis contains an especially long and detailed analysis of one particular interpretation dispute under the ABM Treaty – that which concerns the treaty's effect on the development and testing of mobile ABM systems and components based on exotic technologies such as laser and particle beams. Prior to, and in the course of, assessing the evidence bearing upon this issue, the thesis examines the international law that governs the interpretation of treaties generally and the ABM Treaty in particular. The applicability of the the 1969 Vienna Convention on the Law of Treaties and of the jurisprudence of the Permanent Court of International Justice and the International Court of Justice to the interpretation of the ABM Treaty is considered. The thesis concludes by assessing the desirability and feasibility of several proposed improvements to the international legal regime governing the military use of outer space.

EXISTING AND PROSPECTIVE INTERNATIONAL LEGAL CONSTRAINTS ON THE MILITARY USE OF OUTER SPACE

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LIST OF ACRONYMS AND ABBREVIATIONS

ABM	anti-ballistic missile
ABM Treaty	Anti-Ballistic Missile Treaty
ACDA	U.S. Arms Control and Disarmament Agency
ALCM	air-launched cruise missile
AOA/AOS	Airborne Optical Adjunct/System
ASAT	anti-satellite weapon
ASW	anti-submarine warfare
ATBM	anti-tactical ballistic missile
ATP	Acquisition, Tracking and Pointing Experiment (SDI)
AWST	Aviation Week and Space Technology
BMD	ballistic missile defence
BSTS	Boost Surveillance and Tracking System
comsat	communications satellite
COPUOS	United Nations Committee on the Peaceful Uses of Outer Space
DEW	directed energy weapon
DOT	Designating Optical Tracker
DMSP	Defense Meteorological Support Program (weather satellites)
DSAT	defence against anti-satellite weapons
ELINT	electronic intelligence (satellite)
EMP	electromagnetic pulse
EORSAT	electronic ocean reconnaissance satellite
ERIS	Exoatmospheric Re-entry Vehicle Interception System
FEL	free electron laser
FOBS	fractional orbital bombardment system
GSO	geostationary orbit
GSTS	Ground-Based Surveillance and Tracking

GSTS	Ground-Based Surveillance and Tracking
HEL	high-energy laser
HOE	Homing Overlay Experiment
ICBM	intercontinental ballistic missile
IR	infrared
IRBM	intermediate-range ballistic missile
LEO	low Earth orbit
LWIR	long wavelength infrared
JCS	U.S. Joint Chiefs of Staff
KEW	kinetic energy weapon
LoADS	Low-Altitude Defence System
LWIR	long-wave infrared
MeV	mega-electron volt
MIRV	multiple independently-targetable re-entry vehicle
MW	megawatt
MWIR	medium-wave infrared
NNK	non-nuclear kill
NPB	neutral particle beam
NTM	national technical means of verification
NUDETS	nuclear explosion detection satellite
OSD	U.S. Office of the Secretary of Defence
OTA	U.S. Congress Office of Technology Assessment
PBV	(ballistic missile) post-boost vehicle
R & D	research and development
RV	re-entry vehicle; ballistic missile warhead
SALT	Strategic Arms Limitation Talks
SAM	Surface-to-Air Missile

SDI	Strategic Defence Initiative
SDIO	Strategic Defence Initiative Organization
SPS	solar power satellite
SBKKV	space-based kinetic kill vehicle
SLBM	submarine-launched ballistic missile
SSBN	strategic ballistic missile submarine
SSTS	Space Surveillance and Tracking System
SWIR	short-wave infrared
TIR	Terminal Imaging Radar
U.N. NGO	United Nations Non-governmental Organizations
USGPO	United States Government Printing Office
UV	ultraviolet
WMD	weapons of mass destruction
XRL	X-ray laser

Chapter I

INTRODUCTION

By most accounts, the space age began on 4 October 1957 with the launching of *Sputnik I* by the Soviet Union. Notwithstanding the publicity that has accompanied the civilian applications of space technology by the two main space powers – the Soviet Union and the United States – since that day, the greater proportion of time, effort and money expended from that initial satellite flight forward has been spent exploring and exploiting space for military purposes.

As military space use expanded, States have recognized that certain activities tended to be detrimental to the maintenance of international peace and security. Obviously, aggression in or from space – the actual use of weapons in a hostile manner against the territory or space assets of other States – has received such recognition, just as terrestrial aggression has. This principle was given expression in treaty form in the Outer Space Treaty.¹ In addition, however, it has been acknowledged that some space activities short of aggression should be proscribed as well. These include the development, testing and deployment of various devices in space, on Earth or in its atmosphere for use in space. Consequently, several such non-hostile uses have been prohibited by a variety of international treaties, some multilateral, others exclusively between the two main space powers. Other activities, however, including some that many regard as equally undesirable, remain unconstrained.

¹ Article I(2) states that "outer space ... shall be free for exploration and use by all States ... in accordance with international law" Aggression by one State against a space object of another State that is using space in accordance with international law would violate that State's rights under Article I(2). Article III provides that "States Parties ... shall carry on activities in the exploration and use of outer space ... in accordance with international law, including the Charter of the United Nations"

It is the goal of this thesis to examine the international arms control regime pertaining to outer space, i.e. the extent to which international law restricts peacetime military activities involving outer space. These activities include research, development, testing and deployment of military systems that operate in, from or through outer space. The propriety of the actual *use* of military space systems in wartime – i.e. in a hostile manner, or in collective or individual self-defence – are not matters of arms control as such, and are thus outside the scope of this study.

In many cases, certainty as to the existence and scope of international legal restrictions is simply not possible. Many outer space arms control provisions are ambiguous, in some cases, it would appear, purposely so. In all cases of uncertainty, we will seek to arrive at a judgment as to the international legal status of these provisions, and suggest the most reasonable interpretation.

Many treatments of the existing substantive regime proceed in order through the provisions of relevant treaties, and move chronologically from one such agreement to the next. We shall not adopt this approach. Instead, we shall structure the legal analysis according to the type of activity, the technology involved, and the geographical location of the activity.

In Chapter 1, the law pertaining to non-weapon military support activities will be examined. These activities include such things as carrying out military reconnaissance, sending signals as aids to military navigation, intercepting radio transmissions and sending military communications. These non-weapon activities have thus far been carried out from satellites in Earth orbit. In the future, however, they could also take place in orbits around, or on the surface of, celestial bodies other than the Earth, including the moon. The most important international treaty relevant to the lawfulness of non-weapon military support activities in outer space is the multilateral *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies* of 1967,² commonly and hereinafter referred to as the "Outer Space

² Opened for signature, 27 January 1967; entered into force, 10 October 1967; 3 U.S.T. 2410, T.I.A.S.

Treaty." Those of its provisions that relate to the military use of outer space are reproduced in Appendix 4. The terms of another multilateral treaty currently in force, the *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies Within the Solar System Other Than the Earth* of 1979,³ commonly and hereinafter referred to as the "Moon Treaty," also apply to numerous military uses — including non-weapon uses — of outer space. However, the Moon Treaty has not been widely acceded to,⁴ and, in particular, is not in force with respect to either of the two military space powers, the U.S. and the U.S.S.R.,⁵ and seems unlikely to be. It is for this reason that the Moon Treaty is not treated by this thesis as existing treaty law, but merely as subsequent practice that establishes the agreement of the States Parties to the Outer Space Treaty. It is also for this reason that the provisions of the Moon Treaty relating to the military use of outer space are not reproduced in an appendix of their own but are merely quoted in the text as they arise.

In Chapter 2, we shall analyse the lawfulness of developing, testing and deploying nuclear and other weapons of mass destruction in the various parts of outer space. In addition to the Outer Space Treaty, the multilateral *Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space, and Under Water* of 1963,⁶ commonly and hereinafter referred to as the "Partial Test Ban Treaty," and the bilateral *Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems* of 1972,⁷ part of the SALT I accords, commonly and hereinafter referred to as the "ABM Treaty," are relevant here. The provi-

No. 6347, 610 U.N.T.S. 205.

³ Opened for signature, 18 December 1979; entered into force, 11 July 1984; U.N. Doc. A/Res./34/68 (1979).

⁴ As of 31 December 1988, the Moon Treaty had been signed and ratified, or acceded to, by only seven States and signed but not yet ratified by only five others. (*Multilateral Treaties Deposited with the Secretary-General*, Status as at 31 December 1988, U.N. Doc. St/Leg/SER.E/7, at 785-6)

⁵ Neither of the two military space powers has even signed the Moon Treaty. (*Ibid.*)

⁶ Opened for signature, 5 August 1963; entered into force, 10 October 1963; 14 U.S.T. 1313, T.I.A.S. No. 5433, 480 U.N.T.S. 43.

⁷ Signed, 26 May 1972; entered into force, 3 October 1972; T.I.A.S. No. 7503; reproduced 9 *I.L.M.* 784.

sions of these two treaties that relate to the military use of outer space are therefore reproduced in Appendixes 3 and 5, respectively.

Chapter 3 will consider the current state of international law as it pertains to outer space activities involving conventional weapons – those that destroy their targets with chemical explosives or by simply colliding with them.

Chapter 4 discusses the existing international legal constraints on the testing, development and deployment of directed energy weapons (DEWs). These include such means of destruction as high energy laser beams and particle beams. The majority of Chapter 4 is taken up with a highly detailed discussion of one particular interpretation dispute that has arisen under the ABM Treaty – whether Article V(1) of that Treaty prohibits the development and testing of DEWs (and other devices based on technologies not used in 1972-era ABM systems) capable of ballistic missile defence (BMD) that are based in mobile basing modes, such as aboard satellites in Earth orbit. More concisely, the dispute concerns the meaning of "ABM systems and components" within the meaning of the ABM Treaty. Because of the detail in which this issue is treated in this thesis, seven appendixes relate specifically to it. Some contain source materials relevant to the dispute. Others contain detailed analyses of some of these materials, or of other aspects of the dispute, that would constitute too much of a digression if included in the body of Chapter 4.

The first of these is Appendix 6. It reproduces those provisions of the *Vienna Convention on the Law of Treaties* of 1969,⁸ hereinafter referred to as the "Vienna Convention," that pertain to the interpretation of treaties. The Vienna Convention does not apply to disputes under the ABM Treaty as a matter of conventional law. Therefore, an analysis is made in Section A6.2 of Appendix 6 of whether the treaty interpretation provisions of the Vienna Convention have crystallized into custom-

⁸ Opened for signature, 23 May 1969; entered into force, 27 January 1980; 1155 U.N.T.S. 331; reproduced 8 *I.L.M.* 679.

ary international law.

Appendix 7 contains numerous official public statements made by or on behalf of the U.S. and Soviet governments between October 1972, when the ABM Treaty entered into force, and October 1985, when the interpretation dispute first publicly arose. Most of these are analyzed in the body of Chapter 4, specifically in Section 4.2.1.2.5. The remainder -- official statements made by U.S. and Soviet negotiators during the second strategic arms limitations negotiations, SALT II -- have, in the interest of brevity, been relegated to Appendix 8 for analysis.

Appendix 9 contains excerpts from the unilaterally maintained U.S. ABM Treaty negotiating records relevant to the dispute. Appendix 10 contains a detailed analysis of these records.

Appendix 11 contains excerpts from the U.S. and Soviet proceedings to consider ratification of the ABM Treaty. These consist overwhelmingly of statements, mostly oral, made to the U.S. Congress by the U.S. executive branch, or by witnesses representing it, concerning the meaning of the Treaty. In Appendix 12 there is a detailed analysis of these proceedings.

In Chapter 5, there will be a discussion of the international legal constraints on sensors used in weapon systems.

In Chapter 6, the findings of Chapters 1 through 5 will be summarized, resulting in a comprehensive statement of the existing international legal constraints on military space use.

In Chapter 7, suggestions will be offered as to which parts of the law need clarification, how such clarification could be achieved, and what would be useful directions for the future development of this body of international law.

A prerequisite to an understanding of how international law constrains the military use of outer space is a working knowledge of the types of military space activities that have gone on in the past, and are likely to be engaged in in the future. The body of the thesis assumes that the reader possesses this basic knowledge. Readers unfamiliar with some or all aspects of the space environment or military space technology are referred to Appendix 1, where these matters are discussed in great detail, but in a manner comprehensible to the scientific layperson. Outer space, especially orbits very close to the Earth, has been pressed into military service because of its unique ability to serve as a base or medium for certain military missions, and its ability to provide improved performance in the carrying out of others. Although intended mainly as a primer for the uninitiated, even those familiar with the militarization of space may find it useful to see the various motivations for military space activity set out and categorized explicitly in Section A1.1 of Appendix 1.

Section A1.2 of Appendix 1 catalogues the many existing and prospective military uses of outer space. In addition to technologies *dedicated* to military use, it will include a description of some of the *non*-military space technologies that may possess residual military capabilities.

This review of military space technology in Appendix 1, particularly insofar as it contemplates future uses, mentions many U.S. military programs by name. Likewise, when the law is applied to military space systems in the body of the thesis, many U.S. programs are singled out for legal analysis. This is in no way meant to convey the impression that the U.S. alone is involved in the military use of outer space and in the expansion of that involvement to include new uses, some of which are at odds with existing treaty law. The names of actual U.S. military programs are used as convenient examples only. Fewer Soviet programs – especially planned ones – are mentioned for the simple reason that the Soviet government is nowhere near as forthcoming about the military component of its space program as is the U.S. It is probably safe to assume that any military space activity under development in the U.S. is also being pursued in the U.S.S.R., even if this has not been publicly acknowledged.

Finally, a List of Acronyms and Abbreviations has been provided immediately after the Table of Contents in order to ease the reader's passage through the jargon-laden field of the military use of outer space.

CHAPTER 1

EXISTING INTERNATIONAL LEGAL CONSTRAINTS ON NON-WEAPON MILITARY SUPPORT ACTIVITIES

1.1 In Earth Orbit

The most widespread military use to which outer space has thus far been put is for the orbiting around the Earth of non-weapon satellites that enhance the performance of terrestrial military forces. If one were to argue that such use is not in compliance with existing international law, one would rely on one or more of the following provisions of the Outer Space Treaty: (a) the first sentence of Article IV(2), known as the "peaceful purposes" admonition, (b) Article I(1), known as the "common interests" provision, (c) Article III, and (d) Article IX.

1.1.1 The "Peaceful Purposes" Admonition in Article IV(2) of the Outer Space Treaty

It has been asserted that all military activity in outer space is banned by the first sentence of Article IV(2) of the Outer Space Treaty,⁹ which reads:

The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes.

In order for this provision to prohibit all military activities in outer space, including the orbiting of the Earth by non-weapon satellites, two things must be true:

1. the term "peaceful purposes" must, in the context of the provision in question, mean "non-military purposes" *and*
2. one must assume, contrary to the provision's express wording, that the drafters of the Treaty did not intend to limit the geographical scope of the provision to "the moon and other celestial bodies," but meant instead to ban non-peaceful activities throughout outer space, including in Earth orbit.

⁹ P. Magno ("How to Avoid the Militarization of Outer Space?", *Proc. 26th Colloq. L. Outer Space*, Budapest, Hungary, 10-15 October 1983, 221, at 222) notes that "some experts" maintain that Article IV(2) applies to all of outer space, without naming those experts.

The first of these two premises can be defended. An examination of all the evidence does reveal "non-military" to be a plausible meaning of "peaceful" in Article IV(2) of the Outer Space Treaty, rather than the "non-aggressive" interpretation advanced by many Western countries and scholars. This question shall be left for a subsequent issue, however, where it might be determinative,¹⁰ because the second premise is clearly untenable: leading space law experts agree, on the basis of the Treaty text and negotiating record, that the omission of the words "outer space, including"¹¹ from Article IV(2) was "clearly intentional."¹² The point that only the moon and other celestial bodies are governed by Article IV(2) was also emphatically made by U.S. Ambassador to the U.N. Arthur Goldberg during the U.S. hearings to consider ratification of the Outer Space Treaty.¹³ The "peaceful purposes" admonition, then, must be seen as governing activities on the moon and other celestial bodies only.

¹⁰ See *infra*, Section 1.2.2.

¹¹ This phrase is part of the highly inclusive phrase "outer space, including the moon and other celestial bodies" found frequently elsewhere in the Treaty.

¹² C.S. Christol, *The Modern International Law Of Outer Space* (New York: Pergammon, 1982), at 20 (hereinafter *Modern International Law*); see also S. Gorove, *Studies In Space Law: Its Challenges and Prospects* (Leiden: Sijthoff, 1977), at 88-9 (hereinafter *Studies in Space Law*):

Both the preparatory work and the negotiations leading up to the Treaty clearly indicate that the drafters did not intend to go beyond the textual stipulation and impose on outer space the requirement that it must be used exclusively for peaceful purposes.
[citations omitted]

The *travaux préparatoires* to the Outer Space Treaty show that several States argued that all of outer space, and not just celestial bodies, should be used exclusively for peaceful purposes and that the language of Article IV should reflect this. See the remarks of the representatives of the United Arab Republic (U.N. Doc. A/AC.105/C.2/SR.62 (1966), at 4), India, Austria, Japan, Brazil, Mexico and Iran (A/AC.105/C.2/SR.71 (1966), at 8-9, 10, 12, 17, 19-20 and 24-5 respectively), and India again (A/C.1/PV.1493 (1966), at 11), reproduced in N. Jasentuliyana and R.S.K. Lee (eds.), 3 *Manual on Space Law* (Dobbs Ferry, N.Y.: Oceana, 1979), at 55, 66, 67-8, 70, 74, 76, 80, and 96, respectively. See also remarks of the Indian representative in A/AC.105/C.2/SR.66 (1966), at 5-6.

Furthermore, other States referred to the "peaceful purposes" admonition, or to earlier drafts of it, as applicable to celestial bodies only. See the remarks of the representatives of the U.S. (A/AC.105/C.2/SR.65 (1966), at 9), U.S.S.R. (A/AC.105/C.2/SR.70 (1966), at 3), U.K. (A/AC.105/C.2/SR.71 (1966), at 5), U.S.S.R. again and France (A/C.1/PV.1492 (1966), at 27 and 36, respectively), reproduced in *id.*, at 59, 62, 63, 95 and 95, respectively.

¹³ United States, Congress, Senate, Committee on Foreign Relations, *Treaty on Outer Space*, Hearings, March-April 1967, 90th Cong., 1st Sess. (Washington, D.C.: USGPO, 1967), at 22; emphasis added (hereinafter *Outer Space Treaty Hearings*).

We must conclude, then, on the basis of the clear text, the negotiating record and the U.S. ratification record of the Outer Space Treaty, that if the placement of non-weapon military satellites in Earth orbit is unlawful, it is not because of the "peaceful purposes" admonition. Some confusion as to the geographic scope of the provision may have arisen because of the second preambular paragraph of the Outer Space Treaty, in which the Parties "recogniz[e] the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes" and because of similar wording in earlier United Nations General Assembly resolutions. However, these should be seen as exhortations or statements of goals at best, and not as evidence of a binding legal commitment to restrict activities in outer space to those undertaken for peaceful purposes.

1.1.2 Article I(1) of the Outer Space Treaty: The "Common Interests" Provision

It has also been argued that military activities in outer space undertaken by the defence establishments of individual States, or groups of States, necessarily run afoul of Article I(1) of the Outer Space Treaty,¹⁴ which states that:

The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

¹⁴ M.G. Marcoff, *Traité de Droit International Publique de l'Espace* (Fribourg: Éditions Universitaires Fribourg Suisse, 1973), at 357. "Implementing the Contractual Obligation of Article I, Paragraph 1 of the Outer Space Treaty of 1967", *Proc. 17th Colloq. L. Outer Space*, Amsterdam, The Netherlands, 1-4 October 1974, 136, at 136 (hereinafter "Implementing the Contractual Obligation"):

If several military uses of Outer Space are still not prohibited, it does not necessarily mean that they are legal under international space law.... All kinds of military uses of Outer Space, including the defense activities of States in peace time, are in conflict with the dispositive norm set forth in Art. I, par. 1 of the 1967 Treaty.

Elsewhere, it has been noted that "it is arguable" that reconnaissance satellites "could be" proscribed by Article I(1), without asserting that this is the case, and noting that the language of the provision is not clear. (J.M. Orr, "The Treaty on Outer Space: An Evaluation of the Arms Control Provisions" (1968), 7 *Columbia J. Transnat'l L.* 259, at 264 (hereinafter "The Treaty on Outer Space"))

Article I(2) states that outer space "shall be free for exploration and use by all States without discrimination of any kind," but provides that such activity must be "in accordance with international law" – including, it would seem, Article I(1). Thus, the meaning of Article I(1) would appear to be an important determinant of the lawfulness of various military uses of space.

It is submitted that the "common interests" provision should not be interpreted as prohibiting all military space activities, including non-weapon activities. This is because not only was it not intended to speak to the military use of outer space, but it was intended to state a goal rather than to lay down a binding legal norm.

This view is supported by (a) the text of Article I(1) and of the Outer Space Treaty as a whole, (b) practical considerations and (c) the subsequent practice of States Parties. In case any doubt as to the correctness of this view should remain after consultation of these materials, this conclusion is also supported by (d) the negotiating history of the Treaty and (e) representations to the U.S. Congress by the U.S. executive branch at the hearings leading up to its ratification by the U.S.

1.1.2.1 The "Common Interests" Provision: Meaning

On its face, Article I(1) does indeed appear to prohibit space activities that are not "for the benefit and in the interests of" every country in the world. However, if the provision literally required an analysis of an activity's impact on the interests of every country in the world,¹⁵ there would have been no reason to add the "irrespective of" language. The inclusion of this language suggests that the

¹⁵ Marcoff (*Traité de Droit International Publique de l'Espace*, *supra*, note 14, at 357; Marcoff, "Implementing the Contractual Obligation", *supra*, note 14, at 137 and 145) interprets the "common interests" provision as establishing a duty to refrain from activities that are detrimental to the internationally protected interests of each and every state, including those concerning national security.

See also D.D. Smith, *Space Stations: International Law and Policy* (Boulder, Colo.: Westview Press, 1979), at 93 (hereinafter *Space Stations*), where this interpretation is approved of as setting out the minimum content of the "common interests" provision.

main purpose of the provision was to give expression to the general principle or goal that data collected in and technologies developed for outer space should not be used in such a way as to widen the economic gap between developed and developing countries.¹⁶ This does not require a literal analysis of the interests of every country in the world, nor does it have anything to do with defensive military preparations.

By discrediting this most literal of the interpretations of the "common interests" provision, we also help to discredit the most extreme (and, it is submitted, the most untenable) view of its effect, namely that it prohibits *all* military activities in outer space. It has been argued that national military activities cannot possibly be "for the benefit and in the interests of all countries," because they are always directed towards at least one country, and frequently towards many.¹⁷ However, not only is it doubtful that Article I(1) prohibits space activities that are not in the interests of literally every country in the world, it may also be doubted whether all national military activities in outer space, including *non-weapon* uses, are necessarily contrary to the interests of the States against which they are directed.¹⁸

¹⁶ This conclusion is supported by a statement of the representative of Bulgaria that Article I(1) set out the principle that "the results achieved through space exploration and research were to benefit all mankind, not merely certain States or groups of States." (U.N. Doc. A/AC.105/C.2/SR.71 (1966), at 23, reproduced in 3 *Manual on Space Law*, *supra*, note 12, at 79)

¹⁷ M.G. Markov, "Disarmament and 'Peaceful Purposes' Provisions of the 1967 Outer Space Treaty" (1976), 4 *J. Space L.* 3, at 11 and 19 (hereinafter "Disarmament and 'Peaceful Purposes' Provisions"). For example, at 19:

All forms of military, and not only 'warlike,' uses of outer space, including defensive activities, are in conflict with the clearly established principle set forth in Article I(1) of the Space Treaty.

¹⁸ Each of the superpowers has an important stake in the reliable operation of various military satellites of the other. Without reliable photoreconnaissance, for example, there could be little confidence in judgments as to whether or not arms control obligations were being honoured. Similarly, each has an interest in the continued proper functioning of the other's early warning satellites, so as to have an adversary who is confident that no surprise attack is underway. Good communications to zones of potential conflict are also in the interest of all concerned. They result in the enhanced knowledge that facilitates more rational decision-making. A certain degree of navigational accuracy is also to be desired on the part of one's adversary so that, in the event of a crisis or low-level conflict, he can be presumed to have a minimal level of confidence in his sea-based nuclear deterrent forces. In short, many non-weapon military space activities are not, of necessity, contrary to the interests of at least one

One problem with regarding the "common interests" provision as requiring an assessment of the interests of literally every country in the world is that it is not clear whether the test would be subjective or objective. If subjective, the provision would give a veto to every nation in the world over the space activities of every other nation. This could paralyze national space use. If objective, as its wording suggests, it would present a space-faring nation – or a tribunal, in the event of a dispute – with the task of weighing and prioritizing, for every country in the world, every conceivable national interest – security, political, economic, status (at the domestic, regional and global levels and in the short, medium and long term) – affected by a given space activity. This would be an impossible task.

When one looks at other provisions of the Outer Space Treaty, it becomes even more doubtful that the Parties to the Outer Space Treaty ever intended to restrict non-weapon military space activities in Earth orbit. Indeed, Ambassador Goldberg argued before the U.S. Senate that it was only when Article I(1) was read in the context of the Treaty as a whole that its true meaning would be discerned.¹⁹ In particular, since Article IV(1) expressly prohibits the placement in Earth orbit of weapons of mass destruction, but of nothing else,²⁰ and the first sentence of Article IV(2) reserves only the moon and other celestial bodies – but not Earth orbit – for peaceful purposes, it follows, as a matter of textual interpretation, that non-weapon military activities in Earth orbit

country. Rather, one must apply the test of whether, in a particular instance, the activity contributes to or reduces the likelihood of war, in the case of peacetime, or escalation, in the case of low-level armed conflict.

¹⁹ *Outer Space Treaty Hearings*, *supra*, note 13, at 33. Similarly, Professor Goedhuis has observed that

a purely grammatical interpretation of this provision without considering its meaning in the context of the Treaty as a whole would lead to totally unacceptable consequences.

(D. Goedhuis, "What Additional Arms Control Measures Related to Outer Space Could Be Proposed?", in B. Jasani (ed.), *Outer Space: A New Dimension to the Arms Race* (London: Taylor and Francis, 1982), 297, at 300 (hereinafter "Additional Measures" and *New Dimension*, respectively))

²⁰ See Chapter 3, *infra*.

should, by implication, be regarded as permitted.²¹

Moreover, it is to be doubted whether the "common interests" rule should be taken literally as precluding, by means of a compulsory norm, any national space activity that fails to provide a direct benefit to every nation in the world. This is because many articles in the Outer Space Treaty clearly recognize the purely national interests of States Parties in the use of outer space.²²

For these reasons, some see the "common interests" provision as setting down lesser obligations than complete abstention from national military space activity. For instance, it has been suggested that, while it imposes no duty to directly share the benefits of space use, or to refrain from space activities directed against the military forces of one or more States, the provision creates a duty not to use outer space in such a way as to diminish its value to other space-faring nations.²³

²¹ In this connection, Professor Goedhuis has commented:

It is submitted that in a Treaty that allows – if only by implication – military uses of outer space, provisions of a general nature aimed at the use of outer space for the benefit of all States, are meaningless...

(D. Goedhuis, "An Evaluation of the Leading Principles of the Treaty on Outer Space" (1968), 15 *Neth. Int'l L. Rev.* 17, at 23 (hereinafter "Leading Principles of the Treaty on Outer Space"))

To hold otherwise is to believe that States

had agreed to an intrinsic alteration of universally acknowledged responsibilities in matters of defence and foreign affairs and consequently to a fundamental change in the political structure of international society.

(D. Goedhuis, "Legal Implications of the Present and Projected Military Uses of Outer Space", in N. Jasentuliyana (ed.), *Maintaining Outer Space for Peaceful Uses: Proceedings of a Symposium Held in The Hague, March, 1984* (Tokyo: U.N. University, 1984), 253, at 260-61 (hereinafter "Legal Implications of Military Uses" and *Maintaining Outer Space for Peaceful Uses*, respectively))

²² Goedhuis, "Legal Implications of Military Uses", *supra*, note 21, at 260-61. One such provision is Article XI, which calls for the international dissemination of information acquired in the course of exploring celestial bodies only "to the greatest extent feasible and practicable." In this regard, the Italian delegate noted that the Soviet delegation stated that States should have a certain freedom of decision with respect to the dissemination of information. (U.N. Doc. A/AC.105/C.2/SR.73 (1966), at 8, reproduced in 3 *Manual on Space Law*, *supra*, note 12, at 87)

²³ Marcoff, *Traité de Droit International Publique de l'Espace*, *supra*, note 14, at 333, cited in McGill University, Centre For Research of Air and Space Law, *Arms Control and Outer Space: A Study of the*

An alternative interpretation is that the "common interests" provision creates an obligation to *negotiate* further limitations on the military use of outer space.²⁴ There is nothing to suggest, however, that even this kind of obligation was intended.

It might be argued that the "common interests" provision requires space activities to be carried out for the benefit and in the interests of mankind or the global community as a whole. This interpretation would avoid a literal assessment of the interests of each individual country. It might well prohibit those military space activities that could clearly be shown to be detrimental to international security. However, such an interpretation is implicitly refuted by Article IX, which provides that

States Parties ... shall conduct all their activities in outer space ... with due regard to the corresponding interests of all other States Parties to the Treaty.... If a State Party to the Treaty has reason to believe that an activity or experiment planned by it ... would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space ... it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space ... may request consultation concerning the activity or experiment.

Issues from the Aspect of Existing Agreements and International Law, (n.p., 1983) [unpublished], at 84 (hereinafter *Arms Control and Outer Space*).

²⁴ G. Reijnen, "The Term 'Peaceful' in Space Law", *Proc. 25th Colloq. L. Outer Space*, Paris, France, 27 September - 2 October 1982, 136, at 147:

[W]e judge disarmament of and in outer space to be an obligation under Article I of the Space Treaty in general and of the common interest clause in particular.

(See also M.G. Markov, "The Future of Space Law and the Disarmament Problem", *Proc. 19th Colloq. L. Outer Space*, Anaheim, California, 12-15 October 1976, 75, at 77.)

If this were its intended effect, Article I(1) would be the kind of obligation contained in Article VI of the Non-Proliferation Treaty (*Treaty on the Non-Proliferation of Nuclear Weapons*, opened for signature, 5 March 1970, 21 U.S.T. 483, T.I.A.S. No. 6839, 729 U.N.T.S. 161), only less explicit.

Thus, States Parties are under a duty merely to act "with due regard" for any interests that other States Parties may have in the exploration and use of outer space, and to hold consultations when their own activities threaten to adversely affect these interests of others. There is no obligation to refrain from such activities. This casts doubt on the position that Article I(1) even limits the States Parties to actions that are in the interests of the international community as a whole.

The legality of non-weapon military activities in Earth orbit is also supported by State practice. While the U.S.S.R. made an effort in the early 1960s to have the international community declare military satellite reconnaissance illegal, this effort attracted little support. Since then, military reconnaissance satellites have operated freely without drawing protests from non-spacefaring States.²⁵ The superpowers have since formally recognized the lawfulness of each other's military reconnaissance satellites in Article XII of the ABM Treaty, which prohibits interference with verification of compliance with Treaty obligations by national technical means.²⁶

The history of the "common interests" provision certainly suggests that no literal accounting of interests on a country-by-country basis was intended. The provision had its genesis in the U.S. *National Aeronautics and Space Act (NASAct)* of 1958²⁷ and in the U.N. *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space* of 1963.²⁸ Principle 1 of the *Declaration* stated that the exploration and use of outer space "shall be carried on for the benefit and in the interests of all mankind."²⁹ Article 102(a) of the U.S. legislation also stated that "activities in space should be devoted to peaceful purposes for the benefit of all mankind." Nei-

²⁵ G.M. Steinberg, *Satellite Reconnaissance: The Role of Informal Bargaining* (New York: Praeger, 1983), at 64-7.

²⁶ For the complete text of Article XII, see Appendix 5.

²⁷ 72 Stat. 426, 42 U.S.C. 2451.

²⁸ UNGA Res. 1962 (XVIII), 13 December 1963.

²⁹ Emphasis added.

ther referred to the interests of all countries. Moreover, during the negotiation of the Outer Space Treaty, delegates spoke of the benefit of all "peoples."³⁰

It is also noteworthy that a proposal to have the Outer Space Treaty expressly prohibit "espionage" from outer space (i.e. satellite reconnaissance) was defeated during the course of the Treaty negotiations.³¹ Finally, the *NASA Act* clearly contemplated the possibility that military uses of space – involving both non-weapon devices and weapons – could be "for peaceful purposes for the benefit of all mankind."³² This strongly suggests that the operation of military reconnaissance satellites, and by implication all less provocative satellites such as those used for communications and navigation, must be regarded as permitted.

1.1.2.2 The "Common Interests" Provision: Legal Effect

It has been asserted that, during the negotiation of the Outer Space Treaty, the Indian delegate proposed moving the "common interests" provision from the body of the Treaty to the preamble, and that the fact that this proposal was rejected by the Legal Sub-Committee of COPUOS proves that the provision was intended to have binding legal force.³³

³⁰ See remarks of the representatives of the U.S.S.R. (U.N. Doc. A/AC.105/C.2/SR.57 (1966), at 11) and Romania (A/AC.105/C.2/SR.61 (1966) at 5), reproduced in 3 *Manual on Space Law*, *supra*, note 12, at 42 and 53, respectively. (Note that preambular paragraph 3 of the Outer Space Treaty also speaks of "the benefit of all peoples.") The Mongolian delegate, however, interpreted Articles I and II of the Soviet draft treaty (A/AC.105/C.2/L.13 (1966) – also issued as A/6352 (1966) – reproduced in *id.*, at 21) to mean that "all countries without distinction should benefit from the exploration of outer space." (A/AC.105/C.2/SR.62 (1966), at 9, reproduced in *id.*, at 59)

³¹ Chandrasekharan, M., "The Space Treaty" (1967), 7 *Indian Int'l L.J.* 61, at 66.

³² Section 102(a) stated that "it is the policy of the United States that activities in space shall be for peaceful purposes for the benefit of all mankind." Section 102(b) stated that NASA was charged with responsibility in respect of U.S. space activities, "except that activities peculiar to or primarily associated with the development of weapon systems, military operations, or the defense of the United States ... shall be the responsibility of ... the Department of Defense."

³³ Markov, "Disarmament and 'Peaceful Purposes' Provisions", *supra*, note 17, at 12, citing U.N. Doc. A/AC.105/C.2/SR.63 (1966).

In fact, however, moving the "common interests" provision into the preamble appears never to have been formally proposed. Moreover, the Summary Records of the 63rd and 64th meetings of COPUOS for 1966 show that those States that addressed the issue expressed doubts as to the legally binding nature of the provision. The Indian representative raised the subject in the 63rd meeting, saying that he "wondered whether the first sentence of article I of the USSR draft³⁴ might perhaps be transferred to the preamble, since it did not seem to lay down a legal obligation."³⁵ The Brazilian representative responded that he would not be able to support such an amendment.³⁶ The Indian representative then stated that he had not suggested that the sentence be transferred to the preamble but "merely expressed doubt as to whether it dealt with a specific legal obligation and, therefore, whether its inclusion in the body of the text was warranted."³⁷

At the 64th meeting, the Italian representative agreed that the sentence "would be better placed in the preamble. In that way, ... [it] would constitute an attempt to adapt international law to new realities and perhaps constitute a point of departure for future agreements."³⁸ France also expressly stated that "it would be better" to place the provision in the preamble.³⁹

Thus, it appears that a number of States Parties expressed – and others may have harboured – doubts about the binding legal force of the "common interests" provision, and accepted its being kept in the body of the Treaty on the understanding that despite that position it merely stated a goal and not a binding obligation.

³⁴ A/6352 (1966). That sentence read: "The exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind."

³⁵ U.N. Doc. A/AC.105/C.2/SR.63 (1966), at 7.

³⁶ *Id.*, at 9.

³⁷ *Id.*, at 11.

³⁸ U.N. Doc. A/AC.105/C.2/SR.64 (1966), at 5.

³⁹ *Id.*, at 6.

More light is shed on the meaning and binding legal effect of the "common interests" provision by the testimony of U.S. executive branch witnesses before Congress during the hearings to consider ratification of the Outer Space Treaty. The U.S. representative to the U.N., Ambassador Goldberg, made many references in his testimony before the U.S. Senate Foreign Relations Committee to what was, in his view, the non-binding nature of the provision. He claimed that it "states a general *concept* that the exploration and use of outer space shall be carried out *generally* for the benefit of all mankind,"⁴⁰ that it "does not create legal obligations"⁴¹ but is merely a "broad general declaration of purpose"⁴² and a "goal"⁴³ that is not self-executing but "subject to further implementation."⁴⁴ After much pressing, the ambassador finally admitted that the "common interests" provision was the international equivalent of a "stump speech,"⁴⁵ i.e. a vague promise or statement of principle one can safely make without committing oneself to any very specific obligation.

This view is supported by a written response to the committee by the Johnson Administration, which maintained that Article I(1) "serves as a guide for space powers"⁴⁶ and "is quite general in character,"⁴⁷ in contrast to "[t]he specific obligations regarding exploration and use of outer space... [that] are set forth in succeeding provisions."⁴⁸

⁴⁰ *Outer Space Treaty Hearings, supra*, note 13, at 10.

⁴¹ *Id.*, at 67.

⁴² *Id.*, at 12.

⁴³ *Ibid.*

⁴⁴ *Id.*, at 14.

⁴⁵ *Id.*, at 69.

⁴⁶ *Id.*, at 52-4.

⁴⁷ *Id.*, at 53.

⁴⁸ *Ibid.*

In effect, the U.S. ratified the Outer Space Treaty under the tacit interpretation that the "common interests" provision was non-compulsory.⁴⁹ Although one can argue that reservations not formulated in accordance with Article 23 of the Vienna Convention on the Law of Treaties are not valid in international law,⁵⁰ a formal reservation may not have been necessary. Ambassador Goldberg asserted that none was needed because the negotiating record supported his interpretation that the provision was not intended to have compulsory effect.

This view is supported by the remarks of the Soviet delegate, who defended keeping the sentence in an operative article on the grounds that

this was a way of stressing the principle of equality between space and non-space Powers ... and of showing clearly that the space achievements of the various countries were those of all mankind.⁵¹

Such symbolic functions as these do not involve the prohibition of all military uses of outer space.

Finally, there are numerous indications that non-aggressive military activity is permitted in Earth orbit, a conclusion inconsistent with the "common interests" provision having prohibited all military activity in outer space. Publicists, including some Soviet publicists,⁵² are all but unanimous

⁴⁹ Markov, "Disarmament and 'Peaceful Purposes' Provisions", *supra*, note 17, at 14.

⁵⁰ *Ibid.*

⁵¹ U.N. Doc. A/AC.105/C.2/SR.64 (1966), at 9.

⁵² See, e.g. Y. Kolossov, "Notions of 'Peaceful' and 'Military' Space Activities", *Proc. 25th Colloq. L. Outer Space*, *supra*, note 24, 117, at 118 (hereinafter "Notions"), who expressly acknowledged the permissibility of

the use of various space objects (communications, navigation, meteorological satellites, etc.) as support means for military training, manoeuvres and other activities of different branches of force in time of peace when they are not categorized as acts of aggression
....

Also G.P. Zhukov, "Fundamental Principles of Space Law", in B. Tunkin (ed.), *Contemporary International Law* (1969) 263, at 272 and 276-7:

The principle of non-aggression ... does not mean prohibition of the use of outer space for military aims in accordance with Article 51 of the U.N. Charter

that non-weapon activities are permitted. Moreover, the space powers employed non-weapon military satellites before the completion of the Outer Space Treaty, have continued to do so since, and have not drawn significant protest from the international community as a result.⁵³

In view of the fact that both [military space] powers are using outer space for military purposes, it is unlikely that they intended, through a principle as vague as the "common interests," to ban *all* military activity in space by signing the Outer Space Treaty.⁵⁴

In summary then, it seems best to regard the "common interests" provision as essentially a statement of goodwill that created no binding obligation on States Parties to the Outer Space Treaty. As such, it ought more properly to have been placed in the preamble and not in a nominally operative paragraph.⁵⁵ In particular, the U.S. appears to have ratified the Outer Space Treaty on the understanding that (a) the "common interests" provision created no legal obligations but merely stated a goal and (b) the goal it stated was the expansion of international co-operation in civilian space activities;⁵⁶ it had nothing to do with the military use of space. This being the case, one can-

If agreement on the complete demilitarization is reached in the future, the principle concerning the partial demilitarization of outer space and complete demilitarization of celestial bodies will be replaced by the principle governing the use of outer space exclusively for peaceful purposes.

(quoted in I.I. Dore, "International Law and the Preservation of the Ocean Space and Outer Space as Zones of Peace: Progress and Problems" (1982), 15 *Cornell Int'l L.J.* 1, at 56, his note 263) (hereinafter "Ocean Space and Outer Space")) See also A.S. Piradov, *International Space Law* (Moscow: Profrers, 1976), at 91 (quoted in Goedhuis, "Additional Measures", *supra*, note 19, at 301) and G.P. Zhukov and Y. Kolossov, *International Space Law* (New York: Praeger, 1984), at 53 *et. seq.*

⁵³ Canada, *Terminology Relevant to Arms Control and Outer Space*, CD/716 (CD/OS/WP.15) (1986), at 11 (hereinafter *Terminology*), citing A.J. Butler, "Peaceful Use and Self-Defence in Outer Space" *Proc. 25th Colloq. L. Outer Space*, *supra*, note 24, 77, at 77)

⁵⁴ Dore, "Ocean Space and Outer Space" *supra*, note 52, at 57; emphasis in original.

⁵⁵ This is also the conclusion of Professor Goedhuis ("Leading Principles of the Treaty on Outer Space", *supra*, note 21, at 23). For a contrary view, see R. Zedalis and C.L. Wade, "ASAT Weapons and the Outer Space Treaty of 1967" (1978), 8 *Cal. W. Int'l L.J.* 455, at 478-81 (hereinafter "ASATs and the Outer Space Treaty"), where it is argued that the "common interests" provision is a "dispositive principle" and that although dispositive principles "[f]requently ... articulate aspirations, their violation is no less illegal."

⁵⁶ See generally *Outer Space Treaty Hearings*, *supra*, note 13, throughout which the concern about the

not give the provision any credit for forming part of the existing set of limitations on the military use of outer space, much less prohibiting the military use of space altogether, including non-weapon uses.

1.1.3 Articles III and IX of the Outer Space Treaty

It might also be argued that two other provisions of the Outer Space Treaty – Articles III and IX – constrain non-weapon military activities in outer space. Article III provides that States Parties

shall carry on activities in the exploration and use of outer space ... in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding.⁵⁷

However, there is no indication that non-weapon military support activities in space (or, for that matter, any military space activity short of aggression) breach any of these conditions. Ever since the U.S.S.R. stopped trying to have military reconnaissance declared illegal in the 1960s, it has not been seriously contended that non-weapon activities violate international law, including the Charter. In fact, an argument can be made that photoreconnaissance, electronic intelligence, navigation and military communications satellites do help to maintain international peace and security. Their ability to promote international co-operation and understanding is admittedly dubious, but few civilian – including scientific – space missions would meet this requirement, if strictly construed, either.⁵⁸

"common interests" provision was whether it compelled the U.S. to share civilian – particularly communications – satellites with other parties to the Treaty. The possibility that the provision would be interpreted to ban all military use of space was not even raised and clearly was not the U.S. interpretation. The hearings contained many references to non-weapon military space activities in Earth orbit. See, e.g. *id.*, at 21 and 65-6 (military reconnaissance), 58 (military communications) and 61-2 (U.S. having national security interest in giving less than full disclosure of space activities under Article XI). See also Ambassador Goldberg's statement, in the context of military satellites, that "observation satellites, navigational satellites, those are not covered by this treaty" and Secretary of Defense McNamara's prepared statement on behalf of the Department of Defense that "[m]ilitary space programs concerned with communications, navigation, or observation are permitted. These programs, too, are peaceful uses of outer space." (*Id.*, at 77 and 81, respectively)

⁵⁷ For the complete text of Article III, see Appendix 4, *infra*.

⁵⁸ For instance, what does a zero-gravity manufacturing facility, a nationally-operated space station, or even the landing of men on the moon do to promote international understanding? The same question has been asked in respect of the "common interests" provision:

Article IX provides that in the exploration and use of outer space, States Parties "shall be guided by the principle of co-operation and mutual assistance" and "shall conduct all their activities ... with due regard to the corresponding interests of all other States Parties." It also provides that if a State Party "has reason to believe that an activity or experiment planned by it ... would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space" the State Party contemplating the activity "shall undertake appropriate international consultations before proceeding with any such activity or experiment."⁵⁹ While few national military space activities are "guided by the principle of co-operation and mutual assistance," and not all are undertaken "with due regard to the corresponding interests of all other States Parties," as with Article III, the same is true of most civilian space activities.

Therefore, unless one is prepared to argue that Articles III and IX of the Outer Space Treaty prohibit almost all space activity under national auspices,⁶⁰ an argument refuted by subsequent State practice, one cannot regard these provisions as prohibiting or constraining non-weapon military space activity.

Thus, we can identify no international legal restrictions that prohibit or constrain non-weapon military space activities either in Earth orbit or in outer space as a whole. The fact that the Outer Space Treaty did not prohibit all military uses of outer space was made clear by then United

Whether activities such as the launching of the world's first Sputnik, or the manned and unmanned lunar and Martian landings, or the launching of dogs, rats and spiders in space "benefit" all countries and advance their "interests" is questionable.

(Dore, "Ocean Space and Outer Space", *supra*, note 52, at 54, his note 256.

⁵⁹ For the complete text of Article IX, see Appendix 4, *infra*.

⁶⁰ The only national space assets whose use would pass these tests, if strictly construed, would be such things as ocean reconnaissance satellites available for the rescue of distressed sailors of whatever nationality or communications and navigation satellites available for use by the nationals of all countries.

Nations Secretary-General U Thant on the occasion of the General Assembly's consideration of the Outer Space Treaty, when he stated:

While I am gratified by the progress made so far, I note with regret that the door is not yet barred against military activities in space. The crux of the difficulty is that space activity is already part of the arms race, a fact which we have to reckon with until humanity reaches the stage of an agreement on full and complete disarmament.

1.2 On the Surface of the Moon and Other Celestial Bodies

To date (as far as is publicly known) Earth orbit is the only part of outer space to have been put to military use. However, other areas of outer space could be used for military purposes in the future. These areas include the surface of the moon and other celestial bodies⁶¹ and orbits and trajectories around them.

Not all conceivable military uses of these areas of outer space are likely ever to occur, however, particularly in the foreseeable future. We shall therefore confine our inquiry, both here and in subsequent sections and chapters, to those activities that are likely to become possible in the near-to midterm future.⁶² Opinions differ, of course, on such speculative matters as whether the moon is likely to be used as a base for military reconnaissance. However, we will want to identify some reasonable motivation for each prospective use before investigating its present lawfulness and potential control.

⁶¹ In its scientific sense, the term "celestial bodies" includes the Earth. Within the meaning of the Outer Space Treaty, however, it excludes the Earth. This thesis adopts this more restrictive meaning of the term.

⁶² Futuristic scenarios 50 years hence in which States seek to "control the space lanes" of transportation from military bases in the various strategic locations of the Earth-Moon system, and even the Solar System, may well come to pass, but there are many more pressing matters in the regulation of military space activity. On the other hand, Professor Gorove's point is well taken that we have already had cause to lament lost opportunities to prohibit whole classes of seemingly unimportant potential military activity, only to see them take on greater significance at a later date. On this ground, he argues for a forward-looking approach to the regulation of space use that considers activities outside the small volume of space immediately surrounding the Earth. (S. Gorove, "Limiting the Use of Arms in Outer Space: Legal and Policy Issues", *Proc. 25th Colloq. L. Outer Space*, *supra*, note 24, 93, at 96 (hereinafter "Limiting the Use of Arms"))

Which of the various non-weapon military activities can one foresee taking place on the moon in the foreseeable future? This question arises because, unlike Earth orbit, celestial bodies have yet to be put to military use.

There has been little discussion of using the moon as a communications satellite or navigation beacon, and there seems to be little incentive to do so.

Lunar stations to carry out military reconnaissance, however, do seem to be under consideration. The moon would seem to be a very useful location from which to observe the volume of outer space between the moon and Earth. One might be able to build a full-sized observatory there more easily than in space and, unlike Earth-based observatories, it would not have to contend with the distorting effects of an atmosphere. In addition, because the same side of the moon points toward the Earth at all times, such a facility would be continuously pointed in the direction of interest.

Some observers also see lunar bases as ideal for observation of the surface and airspace of the Earth.⁶³ The benefits of this are less obvious.⁶⁴ In any event, military reconnaissance from the lunar surface must be regarded as a realistic possibility in the foreseeable future.

⁶³ Professor Matte quotes General Gallois as asking rhetorically what better place there could be than the moon for observing the Earth. ("Space Militarization and Space Law at a Time of Peaceful Coexistence" (1984), 9 *Annals Air & Space L.* 355, at 363)

⁶⁴ This would seem to require a telescope of immense size or an imaging radar with a huge power supply in order to match the performance of photoreconnaissance and radar imaging satellites in LEO, the resolution of which already approaches the limit theoretically attainable, given the distorting effect of the Earth's atmosphere. Thus, if lunar reconnaissance facilities are to be more advantageous locations from which to observe terrestrial activities, it will have to be for some reason other than improved resolution. For instance, they might prove to be less vulnerable to advanced anti-satellite weapons (ASATs) than satellites in low Earth orbit (LEO).

We shall focus, then, on the international law governing military reconnaissance from the moon. The starting point, as in the case of non-weapon activities in Earth orbit, is Article I(2) of the Outer Space Treaty. This states that all areas of celestial bodies shall be free to all States for use and exploration, subject only to the limitation that this be carried out without discrimination and in accordance with international law. What are the exceptions, if any, to this general rule? There are limitations that apply to the use of outer space generally, but none of these, as we have seen in Section 1.1, can be relied upon as the basis for prohibiting the non-weapon military use of outer space. We must look, then, to those limitations on free use that apply exclusively to celestial bodies.

The most important of these is found in Article IV(2) of the Outer Space Treaty. That provision's second sentence bans the "establishment of military bases, installations and fortifications" on celestial bodies.⁶⁵ Its first proclaims that the moon and other celestial bodies shall be used by

⁶⁵ The possibility has been raised that, because the specific demilitarization provisions of Article IV(2) apply "on celestial bodies," rather than "on the moon and other celestial bodies," they do not apply to the moon. See, e.g., remarks of the representative of Ceylon (U.N. Doc. A/PV.1499 (1966), at 68-71, reproduced in 3 *Manual on Space Law*, *supra*, note 12, at 100).

Three considerations preclude this interpretation, however. First, although the Outer Space Treaty does not define "celestial bodies," it contains numerous references to "the moon and other celestial bodies," including one in Article IV, and one in the title of the Treaty itself. Second, since the moon is, for the foreseeable future, the only celestial body able to be used for the specific military purposes prohibited in the second sentence of Article IV(2), it would be "manifestly absurd and unreasonable" to exclude it from the scope of this sentence. (D. Goedhuis, "Legal Aspects of the Utilization of Outer Space" (1970), 17 *Netherlands Int'l L.R.*, at 39) Third, the position that the moon should be considered a "celestial body" in this provision (and throughout the Outer Space Treaty) is supported by the subsequent practice of the States Parties, in particular during the negotiations leading up to the Moon Treaty. See, e.g., the unchallenged contention of the representative of Indonesia (A/AC.105/C.2/SR.272 (1977), at 5, reproduced in 4 *Manual on Space Law* (Dobbs Ferry, N.Y.: Oceana, 1979), at 100) that the Outer Space Treaty "made no distinction between the moon and other celestial bodies and referred to them together in several of its provisions." Also, Article 3(3) of the Moon Treaty expressly prohibits the establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres "on the moon." The application of this provision to the moon during the negotiation of the Moon Treaty appears to have been uncontroversial.

It has been claimed, however, that the negotiating history of the Outer Space Treaty shows that the exclusion of the moon from the second sentence of Article IV(2) was deliberate. The Soviets reportedly stated during the negotiations that they could not accept the U.S. draft of this sentence, saying:

For the sake of consistency it would be better to speak of "the Moon and other celestial bodies" rather than "celestial bodies."

It has been asserted that because no change was made it must be assumed that the U.S. persuaded the

States Parties "exclusively for peaceful purposes."

1.2.1 The Prohibition of "the Establishment of Military Bases, Installations and Fortifications"

Dealing with the more specific prohibition first, would a reconnaissance outpost, either manned or unmanned, on the surface of the moon be considered a military "base," "installation" or "fortification"? The last of these can probably be immediately excluded, if the surveillance equipment and/or personnel were not protected by any significant defensive structure other than that needed to withstand the natural elements. "Fortification," in its common usage, would seem to imply "a series of structures, walls or furnishings, which are used to strengthen a position against enemy attack."⁶⁶

The term "base," as commonly used, may not cover all reconnaissance activities either. It implies, arguably, the regular presence of human beings,⁶⁷ and might exclude unmanned reconnais-

U.S.S.R. to agree to the omission of any reference to the moon from this sentence. (J.E.S. Fawcett, "The Politics of the Moon" (1969), 25 *The World Today* 357, at 361) However, it is more likely that, far from making the case for excluding coverage of the moon, the U.S. reassured the Soviets that the sentence already applied to the moon and that this was sufficiently clear from the text.

One should not take too literally the differences among the four sentences of Article IV(2). To do so would lead to absurd results in respect of the third sentence, which says nothing about its sphere of application:

The use of military personnel for scientific research or for any other peaceful purpose shall not be prohibited.

An overly literal interpretation, and one that disregarded the context of Article IV(2), would regard this third sentence as applicable to outer space as a whole, since no restriction is indicated and since the Treaty's title suggests that its provisions apply to the whole of outer space unless otherwise stated. However, this would be illogical since it would make the permission to use military personnel for peaceful purposes applicable to an area (i.e. outer space other than the moon and other celestial bodies) where the parties are not expressly prohibited from engaging in activities for non-peaceful purposes. Clearly, then, it makes more sense to view the variations in the express geographical coverage of the four sentences of Article IV(2) as of no significance, and to regard the whole of Article IV(2) (and, indeed, the whole of Article IV) as applicable to celestial bodies including the moon.

⁶⁶ Gorove, *Studies in Space Law*, *supra*, note 12, at 92.

⁶⁷ Jasentuliyana seems to assume this when he notes (in respect of Article 3(3) of the Moon Treaty, which also prohibits the establishment of "military bases, installations and fortifications") that it is not clear how many personnel would be required before an operation is considered a base. ("The Moon Treaty", in N. Jasentuliyana (ed.), *Maintaining Outer Space for Peaceful Uses*, *supra*, note 21, 121, at

sance outposts on that ground. A *manned* reconnaissance outpost would satisfy this condition, but it still remains unclear whether it would be considered a "*military* base."

The more inclusive term "installation" is a more likely source of constraint on military reconnaissance activities on the moon. It was reportedly inserted at the behest of the Soviet delegate because the words "base" and "fortification," in their Russian translation, "do not adequately describe all of the possible structures that might be erected for military use on celestial bodies."⁶⁸ Thus, the Soviet Union would appear to have made it clear that it viewed the phrase "military bases, fortifications and installations" as including every structure one might conceivably erect for military use including, presumably, military reconnaissance.

Even this does not end the matter, though. If a spacecraft simply landed on the moon, and remained there without taking steps to make its presence more permanent, one could plausibly argue that it had not been "installed," and hence that it was not an "installation." A more useful permanent observatory, however, would probably be regarded as an "installation."

Even if we deem an observatory an "installation," this alone does not prohibit it; it must be a "military" installation. Does this mean that we must inquire into the identity of the ultimate user of the data collected (e.g. NASA vs. the U.S. Department of Defense)? Is a reconnaissance outpost that performs some military surveillance and some civilian surveillance "military," or must it perform

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⁶⁸ P.B. Dembling, "Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies", in N. Jasentuliyana and R.S.K. Lee (eds.), 1 *Manual on Space Law* (Dobbs Ferry, N.Y.: Oceana, 1979), at 14-15 (hereinafter "Principles Governing the Activities of States"), citing official statements by the Soviet (U.N. Doc. A/AC.105/C.2/SR.65, at 10) and Czech (A/AC.105/C.2/SR.66, at 3) delegates to COPUOS. In fact, the Soviet's remarks, as reported in the Summary Records, were ambiguous as to the inclusiveness of the word "installation." The Summary Records report that the Czech delegate complained that Article 9 of the U.S. draft treaty (A/AC.105/32 (1966)) "prohibited 'military bases and fortifications', whereas the expression 'military installations' would be more general," but do not indicate that he went so far as to say that "installation" encompassed all conceivable military structures.

military missions *exclusively* in order to qualify?

What of the requirement that the military installation be "established"? Is an installation "established" as soon as it begins to perform any function? Any *military* function? Can one avoid the stricture by leaving the installation incomplete?⁶⁹

All of these ambiguities combine to make it unclear whether and to what extent military reconnaissance is permitted from the surface of the moon. It seems likely that the prohibition of the "establishment of military bases, installations and fortifications" was intended to ban all military structures having a more permanent status than a spacecraft that has simply alighted there. Nevertheless, the absence of more precise definitions of these terms makes it impossible to say this with any certainty. Thus, if we wish to find a prohibition of military reconnaissance from the surface of the moon that operates in all cases we must look to the *first*, and not the second, sentence of Article IV(2) — the "peaceful purposes" admonition — if we are to find any unambiguous constraint on military reconnaissance from the moon.

1.2.2 The "Peaceful Purposes" Admonition

It will be recalled that the first sentence of Article IV(2) of the Outer Space Treaty states as follows:

The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes.

⁶⁹ See S. Gorove, "Arms Control Provisions in the Outer Space Treaty: A Scrutinizing Reappraisal" (1973), 3 *Georgia J. Int'l & Comp. L.* 114, at 120-1 (hereinafter "Scrutinizing Reappraisal") for further discussion of these and other questions concerning the meaning of the phrase "the establishment of military bases, fortifications and installations."

Here we run squarely into one of the most intractable questions of treaty interpretation in international space law. As is well known by students of the field, two conflicting interpretations of "peaceful" have been proposed: "non-aggressive" and "non-military." Respected legal scholars have weighed in on behalf of both interpretations.⁷⁰ If the former is correct, lunar reconnaissance would be prohibited only to the extent that it could be characterized as an established military installation. If the latter is what the States Parties meant, then any military reconnaissance from the surface of the moon would be prohibited.

There are textual arguments in favour of each interpretation. Proponents of the "non-military" interpretation note that if "peaceful" meant "non-aggressive," there would be no need for the "peaceful purposes" admonition at all, since Article III of the Treaty already prohibits aggression in relation to outer space by expressly applying the Charter of the United Nations to "outer space, including the moon and other celestial bodies." Article 2(4) of the Charter requires States "to refrain in their international relations from the threat or use of force." Moreover, there is little question but that Article 2(4) outlaws aggression against the space objects of other States, since it prohibits the threat or use of force not only "against the territorial integrity or political independence of any State," but also "in any other manner inconsistent with the Purposes of the United Nations."⁷¹ It has also been suggested that there is significance in the fact that the "peaceful purposes" admonition provides that the moon and other celestial bodies shall be used by all States Parties to the Treaty

⁷⁰ In favour of the "non-military" interpretation, see B. Cheng, "The Moon Treaty: Agreement Governing the Activities of States on the Moon and Other Celestial Bodies Within the Solar System Other Than the Earth, December 18, 1979" (1980), 33 *Current Legal Problems* 213, at 222; A.A. Cocca, "Satellite: Warring Weapon", *Proc. 25th Colloq. L. Outer Space*, *supra*, note 24, 69, at 69; Goedhuis, "Leading Principles of the Treaty on Outer Space", *supra*, note 21, at 25; M. Lachs, *The Law of Outer Space* (Leiden: Sijthoff, 1977), at 105-7; P. Magno, "Military Space Programmes", in *Proc. 25th Colloq. L. Outer Space*, *supra*, note 24, 127, at 129; Zedalis and Wade, "ASATs and the Outer Space Treaty", *supra*, note 55, at 474; see also the Soviet publicists cited *supra*, note 52.

In favour of the "non-aggressive" interpretation, see J.C. Cooper, "Self-Defense in Outer Space and the United Nations", in I.A. Vlasic (ed.), *Explorations in Aerospace Law -- Selected Essays by John Cobb Cooper 1946-1966* (Montreal: McGill University Press, 1968), 412, at 415 (first published (1962) 5 *Air Force and Space Digest* 51; Christol, *Modern International Law*, *supra*, note 12, at 22 (where it is asserted that the "non-aggressive" interpretation "has gained general acceptance") and 27-8.

⁷¹ Lachs, *id.*, at 106.

"exclusively" for peaceful purposes. The presence of the word "exclusively" favours the "non-military" interpretation because it suggests the prohibition of activities that further peaceful and non-peaceful ends simultaneously. It is far easier to conceive of activities that serve both military and non-military purposes than ones undertaken for both aggressive and non-aggressive purposes. Finally, it has been suggested that the fact that Article XII provides for national verification by means of inspection of "[a]ll stations, installations, equipment and space vehicles on the moon and other celestial bodies" is more consistent with complete non-militarization than with a mere prohibition against aggression.⁷²

In addition, Article IV(2) provides that

the use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited.

This supports the "non-military" interpretation since if activities undertaken for "peaceful purposes" included non-aggressive military activities, "the admissibility of employing military personnel, equipment, and devices ... would be quite obvious."⁷³

Proponents of the "non-aggressive" interpretation, on the other hand, can argue that if the "peaceful purposes" admonition was indeed intended to ban all military activities, it would not have been necessary to prohibit specific military activities in the remainder of the provision. Alternatively, if Article IV(2) were composed of a general prohibition against military use, followed by specific prohibitions listed by way of example, one would expect the latter to have commenced with language such as "Specifically, ..." or "In particular, without limiting the generality of the foregoing, ..." The fact that no such language was used, it can be argued, indicates that the "peaceful purposes" admonition should not be seen as a blanket non-militarization provision.

⁷² Dore, "Ocean Space and Outer Space", *supra*, note 52, at 46. For the full text of Article XII, see Appendix 4, *infra*.

⁷³ A. Gorbiel, "Some Observations on the Juridical Essence of the 1967 Treaty's Article IV", *Proc. 25th Colloq. L. Outer Space*, *supra*, note 24, 165, at 166.

Guidance as to the meaning of "peaceful" in the Outer Space Treaty could be sought in other international instruments. However, the word is not used consistently in other treaties. For instance, it seems to mean "non-military" in the *Statute of the International Atomic Energy Agency*⁷⁴ and in the *Antarctic Treaty*.⁷⁵ However, it has been pointed out, correctly it is submitted, that the "non-

⁷⁴ Opened for signature, 29 July 1957, 1 U.S.T. 1093, T.I.A.S. No. 3873, 276 U.N.T.S. 3. This conclusion is reached by M.S. McDougal, H.D. Lasswell & I.A. Vlasic, *Law and Public Order in Space* (New Haven, Conn. and London: Yale University Press, 1963), at 398. The following provisions of the IAEA Statute illustrate the apparent use of "peaceful" and "military" as antonyms:

Article II

The Agency shall seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world. It shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose.

Article III

A. The Agency is authorized:

1. to encourage and assist research on, and development and practical application of, atomic energy for peaceful uses throughout the world; to perform any operation or service useful in research on, or development or practical application of, atomic energy for peaceful purposes;
2. to make provision, in accordance with this Statute, for materials, services, equipment, and facilities to meet the needs of research on, and development and practical application of, atomic energy for peaceful purposes ...;
3. to foster the exchange of scientific and technical information on peaceful uses of atomic energy;
4. to encourage the exchange and training of scientists and experts in the field of peaceful uses of atomic energy;
5. to establish and administer safeguards designed to ensure that special fissionable and other materials ... [etc. associated with the Agency] are not used in such a way as to further any military purpose; ...

B. In carrying out its functions, the Agency shall:

2. establish control over the use of special fissionable materials received by the Agency, in order to ensure that these materials are used only for peaceful purposes;

⁷⁵ Opened for signature, 1 December 1959; entered into force, 23 June 1961; 12 U.S.T. 794, T.I.A.S. No. 4780, 402 U.N.T.S. 71. Article I reads, in part, as follows:

military" meaning of "peaceful" "is exceptional and arises [in these cases] as a result of the explicit agreement of the parties."⁷⁶

In the U.N. Charter system, however, "peaceful" is used in contradistinction to "aggressive."⁷⁷ The same is true in the Law of the Sea Convention.⁷⁸

The Moon Treaty limits activities on and around the moon and other celestial bodies to those undertaken for peaceful purposes. It does not define this term either, however. Arguments based on the text of the Moon Treaty can be mounted on behalf of both interpretations. For instance, the "non-aggressive" interpretation produces a textual conflict. Article 9 permits the establishment of manned and unmanned stations on celestial bodies. Article 3(4), like Article IV(2) of the Outer Space Treaty, expressly permits the use of military personnel for scientific research or any other peaceful purpose. If non-aggressive military activities — such as reconnaissance — are considered to further peaceful purposes, then such activities could presumably be lawfully carried out by military personnel in such stations. Yet Article 3(3) prohibits the establishment of military bases on celestial

1. Antarctica shall be used for peaceful purposes only. There shall be prohibited, *inter alia*, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any types of weapons.

2. The present Treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purpose.

The words "*inter alia*" would appear to make it clear that "measures of a military nature" is an example of a class of activity undertaken for a non-peaceful purpose.

⁷⁶ J.F. McMahon, "Legal Aspects of Outer Space" (1962), 38 *Brit. Yb. I.L.* 339, at 360.

⁷⁷ Canada, *Terminology*, *supra*, note 53, at 10, citing G. Gal, *Space Law* (Sijthoff: Leiden, 1969), at 180-1.

⁷⁸ *Convention on the Law of the Sea*, opened for signature 10 December 1982; A/CONF. 62/122 (1982). Article 88 states that the high seas are reserved for "peaceful purposes." "Since the Convention makes no attempt to ban military vessels from the high seas, it implicitly acknowledges that such a non-aggressive use of the high seas is a peaceful use. (M.L. Smith, "Legal Implications of a Space-Based Ballistic Missile Defense" (1985), 15 *Cal. W. Int'l L.J.* 52, at 72) (hereinafter "Legal Implications")

bodies.⁷⁹ If "peaceful purposes" meant non-military purposes, this conflict would not arise.

The negotiating record of the Outer Space Treaty indicates that the meaning of "peaceful" within the meaning of the Treaty was never agreed upon. Several countries made statements indicating, either expressly or by implication, that they regarded "peaceful" as meaning "non-military."⁸⁰ So, too, did United Nations Secretary-General U Thant on the occasion of the Treaty's consideration by the General Assembly, speaking of the genuine interests of nations lying "in peaceful rather than in military activities"⁸¹ On the other hand, the U.S. asserted before,⁸² appears to have

⁷⁹ Goedhuis, "Additional Measures", *supra*, note 19, at 300.

⁸⁰ See, e.g. remarks of the representative of Hungary (U.N. Doc. A/AC.105/C.2/SR.59 (1966), at 4), the United Arab Republic (A/AC.105/C.2/SR.62 (1966), at 4), Hungary again (A/AC.105/C.2/SR.71 (1966), at 22), India (A/C.1/PV.1493 (1966), at 11-12) and Ceylon (A/PV.1499 (1966), at 71), reproduced in 3 *Manual on Space Law*, *supra*, note 12, at 49, 55, 78, 96 and 100. Presumably, it is statements such as these that have prompted Professor Goedhuis to note that

from the deliberations in the United Nations, prior to the conclusion of the outer space treaty, the conclusion can be drawn that the great majority of delegates who gave attention to the problem considered that the term "peaceful" should be interpreted in the sense of "non-military."

("Legal Implications of Military Uses", *supra*, note 21, at 262)

⁸¹ Reproduced in 3 *Manual on Space Law*, *supra*, note 12, at 101.

⁸² See the meaning of "peaceful purposes" implicit in Section 102 of the 1958 *NASA Act*, quoted *supra*, note 32. For an express statement, see remarks of Senator Gore before the First Committee of the United Nations General Assembly on 2 December 1962 (reprinted 57 *A.J.I.L.* 428, at 428):

It is the view of the United States that outer space should only be used for peaceful – that is, non-aggressive and beneficial – purposes. The question of military activities in space cannot be divorced from the question of military activities on earth. To banish these activities in both environments we must continue our efforts for general and complete disarmament. Until this is achieved the test of any space activity must *not* be whether it is military or non-military, but whether or not it is consistent with the United Nations Charter and other obligations of international law. [Emphasis in original]

⁸³ See remarks of the representative of India at the end of the negotiations (U.N. Doc. A/C.1/PV.1493 (1966), at 12, reproduced in 3 *Manual on Space Law*, *supra*, note 12, at 96), to the effect that some unnamed country or countries (which almost certainly included the U.S.) "emphatically asserted that 'peaceful' does not mean 'non-military' but merely 'non-aggressive.'" Professor Christol (*Modern International Law*, *supra*, note 12, at 29) notes that "[a]s is well known the United States has consistently equated the concept of beneficial and peaceful uses to nonaggressive uses of the space environment.

asserted throughout,⁸³ and has asserted since,⁸⁴ that "peaceful" means "non-aggressive." Other Western countries have publicly supported the "non-aggressive" interpretation as well.⁸⁵

All of the foregoing suggests that the meaning of "peaceful" in Article IV of the Outer Space Treaty is ambiguous as a matter of textual interpretation, and that the negotiating record indicates that agreement was never reached on the matter. The space powers are unlikely to allow their military space programs to be constrained by such an uncertain provision as this, unless they should arrive at the conclusion that there is little military utility in carrying on those marginal military activities on celestial bodies not prohibited by the specific demilitarization prohibitions of Article IV((2).

Thus, we must conclude that there is no clear prohibition against military reconnaissance from the surface of celestial bodies in all cases. A loophole arguably exists where the construction of permanent structures (so as not to be a military "installation" or "base") and the regular presence of military personnel (so as not to be a military "base") is avoided. However, any established and openly military reconnaissance facility on celestial bodies would be prohibited as a "military installation." Fortunately, in view of the possible loopholes just discussed, military reconnaissance tends to be a stabilizing activity. Therefore, its prohibition is not desirable in any event.

Thus, it has consistently urged that a military use can in fact be peaceful and nonaggressive."

⁸⁴ See remarks of the U.S. delegate on the occasion of the adoption of the text of the Moon Treaty:

Article III of the draft [Moon Treaty] agreement is also noteworthy. It is a clear statement of the principle that the celestial bodies and those orbits around them are to be utilized only for peaceful – that is, non-aggressive – purposes.

(U.N. Doc. A/AC.105/PV.203 (1979), at 22, reproduced 4 *Manual on Space Law*, *supra*, note 65, at 162)

⁸⁵ See, e.g. Canada, *Terminology*, *supra*, note 53, at 14:

Canada believes ... that the restrictive [i.e. "non-aggressive"] interpretation is the most appropriate in view of the negotiating history of the *Outer Space Treaty*, its actual wording and state practice since its coming into force.

1.3 In Orbits Around the Moon and Other Celestial Bodies

The substantive legal regime governing non-weapon activities in orbits around celestial bodies is the same as that which applies to those undertaken in outer space *generally*. If the Moon Treaty were acceded to by the two military space powers – the U.S. and the U.S.S.R. – or its arms control provisions adopted in a separate treaty to which these two States became parties, many of the rules that now govern their activities "on celestial bodies" would become applicable to their activities in orbits and trajectories around celestial bodies as well.⁸⁶ We have just determined in the previous two sections that the only reasonably clear-cut constraints on present or foreseeable non-weapon military activities in outer space are limited to the prohibition in Article IV(2) of the Outer Space Treaty against the "establishment of military bases, installations and fortifications" on celestial bod-

⁸⁶ This would occur through the combined operation of Articles 1 and 3. Article 1 provides, in part, as follows:

1. The provisions of this Agreement relating to the moon shall also apply to other celestial bodies within the solar system, other than the earth, except in so far as specific legal norms enter into force with respect to any of these celestial bodies.
2. For the purposes of this Agreement reference to the moon shall include orbits around or other trajectories to or around it.

Article 3 provides as follows:

1. The moon shall be used by all States Parties exclusively for peaceful purposes.
2. Any threat or use of force or any other hostile act or threat of hostile act on the moon is prohibited. It is likewise prohibited to use the moon in order to commit any such act or to engage in any such threat in relation to the earth, the moon, spacecraft, the personnel of spacecraft or man-made space objects.
3. States Parties shall not place in orbit around or other trajectory to or around the moon objects carrying nuclear weapons or any other kinds of weapons of mass destruction or place or use such weapons on or in the moon.
4. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on the moon shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration and use of the moon shall also not be prohibited.

Article 3(1), (3) and (4) of the Moon Treaty essentially repeat the prohibitions of Article IV of the Outer Space Treaty. Article 1 expressly extends the scope of the Moon Treaty, including these prohibitions, to orbits around and trajectories to or around the moon and other celestial bodies.

ies. Therefore, we must conclude that the same is true for orbits and trajectories around celestial bodies, and that this would be the case even if the arms control provisions of the Moon Treaty were to enter into force for the space powers.

1.4 Conclusions

No international legal constraints on non-weapon military activities – e.g. reconnaissance, navigation, electronic intelligence, communications – can be identified that are applicable to outer space generally. In particular, none of Articles I(1), III, IV(2) or IX of the Outer Space Treaty prohibit such activities. The "peaceful purposes" admonition in Article IV(2) of the Outer Space Treaty applies to celestial bodies only, and not to outer space as a whole and, in any event, it is unclear whether it prohibits all military uses of celestial bodies or just aggressive uses.

On celestial bodies, including the moon, non-weapon military activities are restricted. Any such activity that involves the establishment of "military bases, installations ... [or] fortifications" is banned by Article IV(2) of the Outer Space Treaty. Although this provision arguably contains certain loopholes, it would nevertheless prohibit most military activities, including reconnaissance, on the moon and other celestial bodies. Some of these loopholes would be closed if the word "peaceful", in the first sentence of Article IV(2), were interpreted as "non-military." However, the "non-military" interpretation does not enjoy universal recognition and, in particular, has never been accepted by the U.S. and other Western States.

CHAPTER 2

EXISTING INTERNATIONAL LEGAL CONSTRAINTS
ON NUCLEAR AND OTHER WEAPONS OF MASS DESTRUCTION

2.1 Multilateral Treaty Constraints

2.1.1 Nuclear Explosive Devices

2.1.1.1 The Testing of Nuclear Explosive Devices

The testing of nuclear explosive devices anywhere in outer space is clearly prohibited by the multilateral Partial Test Ban Treaty of 1963. Article I of that Treaty provides as follows:

Each of the Parties to this Treaty undertakes to prohibit, to prevent, and not to carry out any nuclear weapon test explosion, or any other nuclear explosion, at any place under its jurisdiction or control: (a) in the atmosphere; beyond its limits, including outer space...

This wording makes it clear that *all* tests of nuclear explosive devices are prohibited, including those undertaken for peaceful purposes. It is not possible to argue that a particular test involves a device that is not a "weapon," since "any other nuclear explosion" is also prohibited.⁸⁷ Likewise, the geographical application of the provision is clear. Unlike some provisions of the Outer Space Treaty, which apply to the undefined realm of "outer space" and leave the status of sub-orbital vehicles unclear, the Partial Test Ban Treaty clearly applies to any test in the Earth's atmosphere or beyond.⁸⁸ Thus, the testing of nuclear explosive devices should be regarded as unequivocally prohibited throughout all of outer space. This includes tests on the surface of celestial bodies, as well as on space vehicles in sub-orbital trajectories around the Earth or moon.

⁸⁷ Partial Test Ban Treaty, Article I(2).

⁸⁸ N. Matte, "The Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water and the Peaceful Uses of Outer Space" (1984), 9 *Annals Air & Space L.* 391, at 402. Although the Partial Test Ban Treaty is silent as to whether "outer space" has an *outer* boundary, it would not be reasonable to infer one.

In the case of nuclear tests *on celestial bodies*, the Partial Test Ban Treaty prohibition against nuclear testing is buttressed by Article IV(2) of the Outer Space Treaty, which expressly bans, *inter alia*, "the testing of any type of weapons... on celestial bodies..." This prohibition is weaker than that of the Partial Test Ban Treaty, however, since it opens the door to the argument that a particular test device is not a "weapon." However, in the case of some spacefaring nuclear weapon States, this is the only limitation in existence: China and France have signed and ratified the Outer Space Treaty, but not the Partial Test Ban Treaty.⁸⁹ In this regard, one could view the prohibition against the testing of nuclear explosive devices as slightly stronger on celestial bodies than in the rest of outer space.⁹⁰

⁸⁹ United States, Arms Control and Disarmament Agency, *Arms Control and Disarmament Agreements* (New Brunswick, N.J.: Transaction, 1982), at 44-6 and 56-8. In contrast, the U.K., U.S.A. and U.S.S.R. are parties to both treaties.

⁹⁰ It is possible, however, that the norm prohibiting nuclear testing in outer space as a whole may have become part of customary international law. Support for this contention can be found in the fact that, although not parties to the Partial Test Ban Treaty, neither France nor China has tested nuclear explosive devices in space since that treaty came into force. They have only undertaken atmospheric tests. Thus, while State practice has not unanimously excluded atmospheric nuclear testing, it has excluded testing in outer space.

See McGill University, Centre For Research of Air and Space Law, *Arms Control and Outer Space*, *supra*, note 23, at 31, where it is claimed in the context of nuclear testing in outer space that despite the fact that neither France nor China is a party to the Partial Test Ban Treaty "the importance of this treaty should not be underestimated as there are sound arguments alleging its inestimable contribution to customary international law."

In respect of *atmospheric* tests, see A.A. D'Amato, "Legal Aspects of the French Nuclear Tests" (1967), 61 *A.J.I.L.* 66, at 76-7, where it is argued that the Partial Test Ban Treaty "may itself have started, or at least acknowledged, a general rule of customary international law dating approximately from 1963 to the effect that all atmospheric tests of nuclear weapons are illegal" and that "the treaty and subsequent practice under it (*i.e.*, restraint from conducting atmospheric tests and restraint from withdrawing from the treaty under its withdrawal clause) can be argued to be the equivalent of the practice and acquiescence of states to a rule banning atmospheric nuclear tests even in the absence of a treaty." This argument applies *a fortiori* to a possible customary rule against space testing today because the period of restraint (more than 15 years) has been much longer than it was in 1967 in respect of atmospheric testing.

2.1.1.2 The Deployment of Nuclear Explosive Devices

The existing prohibitions are not as comprehensive or clear-cut with respect to the *deployment* of nuclear explosive devices in space. First of all, it is clear that no limitations whatsoever have been placed on the firing of nuclear explosive devices, on offensive ballistic missiles, *through* outer space on sub-orbital trajectories from one point on the Earth's surface to another, at least in the positive law expressly governing nuclear weapons.⁹¹ Neither is there any limitation on the research, development, testing or deployment of ABM interceptors armed with nuclear warheads, as long as these comply, in the case of the superpowers, with the many ABM Treaty provisions that apply to ABM systems and components generally,⁹² and do not involve actual nuclear explosions in the atmosphere or in space, in violation of the Partial Test Ban Treaty.

The main provision governing the deployment of nuclear explosive devices in outer space is Article IV(1) of the Outer Space Treaty. It reads as follows:

States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.

2.1.1.2.1 Fractional Orbital Bombardment Systems (FOBS)

One weapon system that caused a brief compliance controversy involving this provision was the fractional orbital bombardment system (FOBS). This was being tested by the U.S.S.R. in the late 1960s. FOBS called for a nuclear explosive device to be lofted into LEO, but commanded to return to Earth before the completion of one orbit. The debate focussed on the issue of whether the FOBS

⁹¹ There may be limitations on the use of nuclear weapons through or within space imposed by the international law of armed conflict. That whole field, however, is outside the scope of this thesis, which is concerned with legal constraints on peacetime military uses, i.e. the research, development, testing and deployment, but not the *use*, of military systems in, from or through outer space.

⁹² These will be discussed in detail *infra*, in Section 2.2.

weapon was ever "in orbit around the Earth." The consensus of both the legal community⁹³ and of U.S. governments then and since,⁹⁴ is that Article IV(1) does not render FOBS testing or deployment unlawful, the reason being that one full orbit is necessary before an object is "in orbit."

The zeal with which the Johnson Administration defended the lawfulness of *Soviet* FOBS testing in 1967 can probably be attributed to a desire to make clear its understanding that the Outer Space Treaty did not prohibit the use in war of nuclear-armed ICBMs, SLBMs and ABMs, or their deployment in preparation for and deterrence of war. This conclusion stems from the realization that no issue of Article IV compliance really arose in connection with FOBS *testing* (as opposed to *use*), since real nuclear warheads were almost certainly not used in the tests, and the Treaty does not prohibit *developing techniques* to deploy nuclear weapons in contravention of Article IV(2).⁹⁵

The development, testing and deployment of FOBS was subsequently banned as between the superpowers by Article IX(1) of the SALT II Treaty.⁹⁶ Whether this provision is to be regarded as

⁹³ See, for example, N. Hosenball, "Present and Prospective Military Technologies and Space Law: Implications of the 1967 Outer Space Treaty", in U. Ra'anan and R. Pfaltzgraff (eds.), *International Security Dimensions of Space* (Medford, Mass.: Archon, 1984), 213, at 216 (hereinafter "Military Technologies and Space Law"); I.A. Vlasic, "Disarmament Decade, Outer Space and International Law" (1981), 26 *McGill L.J.* 135, at 151-2 (hereinafter "Disarmament Decade"), who may reserve the claim that FOBS violates the *spirit* of the Outer Space Treaty; R. Garthoff, "Banning the Bomb in Outer Space" (1981), 5:3 *International Security* 25, at 38 (hereinafter "Banning the Bomb"); Dembling, "Principles Governing the Activities of States", *supra*, note 68, at 13-14.

⁹⁴ For the position of the Johnson Administration in 1967, see Garthoff, *ibid.* To the author's knowledge, no subsequent U.S. administration has altered this position.

⁹⁵ Orr, "The Treaty on Outer Space", *supra*, note 14, at 273.

⁹⁶ Each Party undertakes not to develop, test, or deploy:

(c) systems for placing into Earth orbit nuclear weapons or any other kind of weapons of mass destruction, including fractional orbital missiles; ...

(Article IX(1), *Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Strategic Offensive Arms*, signed, 18 June 1979, Selected Documents No. 12A, U.S. Department of State, Bureau of Public Affairs)

currently in force depends on one's view of the status of the unratified SALT II agreement as a whole.⁹⁷ No other compliance issues have arisen under Article IV(1) with respect to activities actually carried out, since the FOBS dispute.⁹⁸

Having dealt with those weapon systems that involve the sending of nuclear explosive devices into sub-orbital trajectories or partial orbits, and noting that the development, testing and deployment of these is not prohibited by Article IV(1) of the Outer Space Treaty, or any other multilateral treaty provision, we shall move on to consider the extent to which nuclear explosive devices may otherwise be deployed in outer space.

2.1.1.2.2 The Deployment of Nuclear Explosive Devices in Earth Orbit

First, let us look at their deployment in Earth orbit. In this class of weapon one finds the following:

1. nuclear orbital bombardment systems ("bombs in orbit"),
2. nuclear space mines and
3. nuclear explosive devices to "pump" X-ray lasers for ASAT or ballistic missile defence (BMD) purposes.

Deployment in Earth orbit of the first two of these is clearly prohibited by Article IV(1). This provision, as we have seen, applies to "nuclear weapons" expressly. An isotropic nuclear explosive device designed, tested and intended for use in war is the one clear-cut example of a "nuclear weapon"

⁹⁷ Immediately following signature, and pending ratification, SALT II will have created a binding obligation on the U.S. not to take any action that would undermine the treaty's provisions. However, by about 1980, it had become clear that U.S. ratification of SALT II was not forthcoming. At this time, a mutual pledge to abide by the Treaty's provisions was made, notwithstanding the absence of formal U.S. ratification. Since 1985, however, the U.S. government has alternately said that (a) the U.S. will cease to abide by SALT II at some future time unless her concerns over Soviet non-compliance are alleviated and (b) the U.S. already regards the Treaty as having no legal effect. Finally, in December of 1986, the U.S. exceeded the SALT II sub-limit on MIRVed strategic delivery vehicles. This being the case, it is difficult to state with much conviction that the SALT II limits on FOBS are still in force.

⁹⁸ Garthoff, "Banning the Bomb", *supra*, note 93, at 38, confirms this to be true up until 1981. The present author has heard of no other controversies in respect of actual activities. (Debate has gone on concerning *potential* activities, such as whether Article IV(1) bans the orbiting of DEWs.)

within the meaning of Article IV(1) of the Outer Space Treaty.

The X-ray laser, however, may not be subject to the same restriction. Actually *exploding* such a device in a test in Earth orbit would clearly violate Article I of the Partial Test Ban Treaty. That provision, it will be recalled, prohibits "any nuclear weapon test explosion, or any other nuclear explosion." However, it is possible to argue that an X-ray laser is not, and does not contain, a "nuclear weapon" within the meaning of Article IV(1) of the Outer Space Treaty. It is on this provision that reliance must be placed for any possible legal constraint on the *deployment* of X-ray lasers in Earth orbit for ASAT purposes.

If X-ray weapons are not "nuclear weapons" within the meaning of Article IV(1) of the Outer Space Treaty, it could only be for one of two reasons:

1. The term "nuclear weapons" should be understood to be limited to the kind of nuclear weapons that existed in 1967, i.e. nuclear explosive devices that disperse their energy isotropically, without the lasing of X-rays. X-ray lasers concentrate some of their energy in certain directions only. Moreover, they involve a very different physical process in that they induce the lasing of X-rays.
2. By referring to "nuclear weapons and other kinds of weapons of mass destruction," Article IV(1) may be taken to apply only to those "nuclear weapons" intended for use in the mass destruction of human society. X-ray lasers intended to destroy satellites or ballistic missiles would not be engaged in mass destruction.

On the first issue, Jasani claims that orbital X-ray laser deployments would "certainly" violate the Outer Space Treaty. In support of this contention, he relies upon statements by Dr. Edward Teller to the effect that X-ray lasers are "third-generation nuclear weapons."⁹⁹ With respect, it is submitted that little reliance should be placed on the remarks of individuals not representative of their governments, particularly when these may not have been made in the context of the interpretative dispute at issue.¹⁰⁰ More persuasive in establishing nuclear-pumped X-ray lasers as "nuclear

⁹⁹ B. Jasani, "Outer Space: Militarization Outpaces Legal Controls", in Jasentuliyana (ed.), *Maintaining Outer Space for Peaceful Uses*, *supra*, note 21, 221, at 244 (hereinafter "Militarization Outpaces Legal Controls").

weapons" is the common meaning approach taken by Professor Gorove, who suggests, without specifically considering X-ray lasers, that

the word "nuclear" in the given context refers to the use of nuclear energy manifesting itself in explosive power or also in lethal radiation emitted by radioactive materials.¹⁰¹

Isotropic versus directional energy dispersion should not form the basis for distinguishing between "nuclear weapons" and something new and different, and hence unregulated. Even if it did, it should be remembered that X-ray lasers cause less than one percent of the energy of their nuclear explosion to be directed along their lasing rods in the form of laser radiation. The bulk of the destructive energy is dispersed isotropically.

Lasing is indeed a very different phenomenon than the release of nuclear effects isotropically, but it is doubtful that the meaning of a treaty term should be frozen at the time of an agreement's entry into force. Instead, it should be capable of expansion based on the language used and the purpose of the provision. Professor Gorove's definition, it is submitted, properly defines in general terms the kind of device that should be considered a nuclear weapon, and that definition appears to include X-ray laser weapons.¹⁰²

As for the second issue, it is highly doubtful that Article IV(1) requires each nuclear weapon to be subjected to a test of whether it is capable of and intended for mass destruction. Testimony surrounding U.S. ratification of the Outer Space Treaty makes it clear that *all* nuclear weapons are

¹⁰⁰ International law accords weight to the opinions of respected legal commentators or "publicists" in the interpretation of customary and treaty law. Dr. Teller, however, is a physicist, not an international lawyer.

¹⁰¹ S. Gorove, "Arms Control in Space: Issues and Alternatives" 33 *Zeitschrift für Luft- und Weltraumrecht* 191, at 195 (hereinafter "Arms Control in Space").

¹⁰² One must also determine whether a given device is a "weapon." This should become apparent once testing has begun involving the destruction of targets. Prior to that time, however, one can never be certain whether something is a "weapon" or not.

covered by the provision.¹⁰³

The whole debate over the on-orbit stationing of X-ray lasers may be rendered somewhat moot, however, by the fact that they are more likely to be deployed on the Earth in a pop-up mode than stationed in Earth orbit. The Outer Space Treaty places no restrictions whatsoever on the deployment of nuclear weapons intended for use in outer space, as long as they remain on Earth.

This raises the question of whether an X-ray laser could lawfully be launched into space on a sub-orbital trajectory in time of crisis, but not detonated. The answer to this question hinges on the meaning of the phrases "in orbit around the Earth" and "station such weapons in outer space in any other manner." With respect to the first phrase, the issue is similar to that *debated* in respect of (if not actually raised by the events of) Soviet FOBS testing in 1967: is the deployment of nuclear weapons in sub-orbital trajectory governed by Article IV(1)? Unlike FOBS, an object on a sub-orbital trajectory is clearly never "in orbit around the Earth." Therefore, it clearly does not fall within the meaning of the first phrase.

It could, however, be regarded as being "station[ed] in outer space" during the upper portion of its flight. The problem here, though, is that it is unclear whether an object on a sub-orbital trajectory, even if it attains the altitude at which LEO satellites orbit, is in "outer space" within the meaning of the Outer Space Treaty. Since (a) the Outer Space Treaty does not define the term "outer space" and (b) to the extent that there is any generally accepted meaning of the term, it only extends to objects in *orbit* around the Earth, it is not possible to conclude that the kind of sub-orbital deployment postulated is unlawful, at least on the basis of the letter of the Outer Space

¹⁰³ *Science News* (17 June 1967, at 565-6) quotes Leonard C. Meeker, then Legal Advisor to the Secretary of State, as saying that "any nuclear weapon is forbidden in space... Even a small one is considered... to be a weapon of mass destruction." For a cryptic account of a debate within the U.S. executive branch concerning the scope of the term "weapons of mass destruction" (in particular, whether the term included small nuclear weapons in space such as those one might use for ASAT or BMD purposes) that took place on 8 October 1963, nine days before the adoption of UNGA Resolution 1884 (XVIII), see Garthoff, "Banning the Bomb", *supra*, note 93, at 35.

Treaty.¹⁰⁴

2.1.1.2.3 The Deployment of Nuclear Explosive Devices
On the Surface of Celestial Bodies

Moving on to other regions of outer space, it is clear that the "installation" of nuclear explosive devices on the surface of celestial bodies is prohibited. The application of this provision to the moon, however, is rendered less certain by an unfortunate choice of language in Article IV(1). This refers to "celestial bodies" only, rather than to "the moon and other celestial bodies," the phrase used frequently elsewhere in the Treaty. It would appear, however, that the term "celestial bodies" should be interpreted as including the moon, not only in Article IV(1) but throughout the Outer Space Treaty.¹⁰⁵

There is subsequent practice in support of this interpretation. In 1968, when Italy submitted a proposal for a draft protocol to the Outer Space Treaty, both space powers stated their understanding that the moon is included within the term "celestial body."¹⁰⁶

The negotiating record does contain one indication that the provision should be interpreted

¹⁰⁴ Note that if the X-ray laser could properly be characterized as an "ABM component," within the meaning of the ABM Treaty, any sub-orbital flight of the device might be banned by Article V(1) of that treaty on the grounds that this constituted development, testing or deployment of a mobile ABM component. Whether the device could be so characterized depends on the facts, and upon the outcome of a number of interpretation disputes arising in connection with the ABM Treaty, which will be discussed shortly.

¹⁰⁵ See, e.g. Gorove, "Scrutinizing Reappraisal", *supra*, note 69, at 116. See also C.Q. Christol, "Article Four of the 1967 Principles Treaty: Its Meaning and Prospects for Its Clarification", *Proc. 21st Colloq. L. Outer Space*, Dubrovnik, Yugoslavia, 1-8 October 1978, 192, at 192 (hereinafter "Article IV Clarification"), who says that "celestial bodies" includes the moon "by general consensus." N. Jasentuliyana ("The Moon Treaty", *supra*, note 67, at 126-7) concludes that the issue is an open one.

¹⁰⁶ Jasentuliyana, *id.*, at 137-8, his note 50.

¹⁰⁷ See remarks of the representative of Ceylon stating that he had requested from the space powers a clarification of the reason for the omission of the words "the moon" from Article IV(1) but had

as excluding the moon.¹⁰⁷ However, there are contrary indications in the record as well.¹⁰⁸

In addition, Ambassador Goldberg testified before the U.S. Congress that the Article IV(1) prohibition applied to celestial bodies, "which would include the Moon..."¹⁰⁹ It is also arguable that an interpretation that excluded the moon from the application of Article IV(1) would be absurd and unreasonable. After all, it would make little sense to permit the installation of nuclear weapons on the moon, yet prohibit it on other celestial bodies, when the former possibility looms in the much more immediate future.¹¹⁰

This is not the end of the matter, however. The Outer Space Treaty does not ban the "presence" of nuclear weapons and other kinds of weapons of mass destruction on celestial bodies. It prohibits their "installation." To at least one observer, this connotes something beyond mere "keeping" or "placing."¹¹¹ This creates uncertainty as to whether the Outer Space Treaty prohibits the deployment of nuclear weapons aboard spacecraft not permanently affixed to the lunar surface. However, it is submitted that the Outer Space Treaty would not permit this. First, even if this did not constitute "instal[ling]" nuclear weapons on a celestial body, it would appear to violate the undertaking not

received no response. (A/PV/1499 (1966), at 68-71, reproduced in 3 *Manual on Space Law*, *supra*, note 12, at 100)

¹⁰⁸ On 17 December 1966 U.S. Ambassador Goldberg stated before the First Committee of the United Nations General Assembly that

[Article IV] restricts military activities in two ways: First, it contains an understanding not to... install *on the moon* or any other celestial body... nuclear or any other weapons of mass destruction...

(reproduced in *Outer Space Treaty Hearings*, *supra*, note 13, at 115; emphasis added)

¹⁰⁹ *Id.*, at 22.

¹¹⁰ Gorove, *Studies in Space Law*, *supra*, note 12, at 87.

¹¹¹ S. Gorove, "Maintaining Outer Space for Peaceful Uses: Some Specific Proposals for a Modest Headway in Arms Control", *Proc. 28th Colloq. L. Outer Space*, Stockholm, Sweden, October 7-12, 1985, 27, at 27 (hereinafter "Specific Proposals for a Modest Headway"); Gorove, "Scrutinizing Reappraisal", *supra*, note 69, at 116-7.

to "station [weapons of mass destruction] in outer space in any other manner." Second, there were statements made during the negotiation of the Outer Space Treaty in which the terms "install" and "station" were used interchangeably.¹¹² This suggests that merely "station[ing]" a nuclear weapon on a celestial body would violate Article IV(1) of the Outer Space Treaty. The only uncertainty that would remain is whether "station[ing]" requires a stay of a certain minimum duration.

If the Moon Treaty were to enter into force for the two military space powers, it would more clearly prohibit their spacecraft from even alighting on celestial bodies if those spacecraft carried nuclear weapons. Article 3(3) provides as follows:

States Parties shall not place in orbit around or other trajectory to or around the moon objects carrying nuclear weapons or other kinds of weapons of mass destruction or place or use such weapons on or in the moon.

Article 1(1) deems all references to the moon to include all other celestial bodies within the solar system other than the earth. Although one might still argue that a nuclear weapon that remained on board an alighting spacecraft had not been "placed" on the celestial body in question, the prohibition against placing mass destruction weapons "in orbit around or other trajectory to or around" celestial bodies would make it impossible for the spacecraft to land without violating Article 3(3) at some point *en route*.

Similarly, there is some uncertainty as to whether the Outer Space Treaty prohibits the stationing of nuclear weapons aboard spacecraft that merely hover above the surface of a celestial body. One could argue that this does not involve stationing a weapon of mass destruction "on" a

¹¹² See, e.g. the U.S. delegate's description of UNGA Res. 1884 (XVIII) as recording the intention of the two space powers "not to orbit around the earth or otherwise station in outer space" weapons of mass destruction. No reference was made to the "install" language of Res. 1884. (U.N. Doc. A/AC.105/C.2/SR.57 (1966), at 5-6, reproduced in 3 *Manual on Space Law*, *supra*, note 12, at 37)

Similarly, the Austrian delegate is reported as noting that draft Article IV (Working Group L.4) involved an undertaking not to "station nuclear weapons in outer space or on celestial bodies." (A/AC.105/C.2/SR.71 (1966), at 10, reproduced in *id.*, at 67)

See also Ambassador Goldberg's statement before the U.N. First Committee on 17 December 1966, in which he described Article IV(1) as containing an undertaking not to "install on the moon or any other celestial body, or otherwise in outer space" weapons of mass destruction. (reproduced in *Outer Space Treaty Hearings*, *supra*, note 13, at 115)

celestial body. As with a nuclear weapon aboard an alighting spacecraft, however, such a device could be said to be "station[ed] in outer space." Its deployment would also be banned under Article 3 of the Moon Treaty.

2.1.1.2.4 The Deployment of Nuclear Explosive Devices In Orbits Around Celestial Bodies

Finally, there is the question of the lawfulness of deploying nuclear explosive devices as weapons in orbits around celestial bodies.¹¹³ In order to be prohibited by Article IV(1) of the Outer Space Treaty, such weapons would have to be "station[ed]... in outer space in any other manner." As with the term "install," "station" may connote permanence beyond mere presence. Professor Gorove has gone so far as to suggest that an object is not "stationed" in outer space unless it not only is in orbit around a celestial body, but is in *geostationary* orbit around that body. He does, however, acknowledge that the negotiating record of the Outer Space Treaty provides little guidance as to the drafters' intentions concerning this issue.

The matter is cleared up, however, by the subsequent practice of States. On 17 October 1968, in response to an Italian proposal to amend the Treaty to clarify this matter,¹¹⁴ the U.S., U.S.S.R. and U.K. representatives expressly acknowledged before the General Assembly that Article IV(1) prohibited the deployment of weapons of mass destruction in lunar orbit or aboard deep space probes.¹¹⁵ No State dissented from this view. Moreover, if uncontroversial provisions of the

¹¹³ This issue was raised by Ceylon during the Treaty's negotiation. (U.N. Doc. A/PV.1499 (1966), at 68-71, reproduced in 3 *Manual on Space Law*, *supra*, note 12, at 100)

¹¹⁴ U.N. Doc. A/7221 (1968).

¹¹⁵ U.N. Doc. A/Bur/SR.175, at 3:

6. Mr. BUFFUM (United States of America) said that his country ... believed, and considered it to be generally understood, that article IV of the [Outer Space] Treaty, which prohibited the stationing of weapons of mass destruction in outer space, clearly prohibited the deployment of such weapons aboard lunar orbital vehicles or in deep space probes.

Moon Treaty may be taken as evidence of subsequent practice under the Outer Space Treaty (which, it is submitted, they can), then Article 3(3) of the Moon Treaty supports this view as well.¹¹⁶

Further, it must be asked what logical reason there would be for banning the placement of weapons of mass destruction in all Earth orbits, but limiting the prohibition to GSO in the case of the moon and other celestial bodies. In addition, such an interpretation would seem to read the phrase "in any other manner" in an unduly restrictive fashion. Article IV(1) already expressly mentions placement in Earth orbit and installation on celestial bodies. What other manner of location in outer space can there possibly be except (a) non-orbital trajectories close to or between celestial bodies, including the Earth and (b) orbits around celestial bodies? To limit the clause's apparent catch-all effect to the GSOs of celestial bodies is to change its wording from "in any other manner" to "in one particular and very specific other manner." At the very least, it is submitted, the prohibition against deployment of weapons of mass destruction should be regarded as extending to objects in all orbits around celestial bodies.¹¹⁷

7. Mr. MALIK (Union of Soviet Socialist Republics) said that there was a general understanding that article IV of the Treaty clearly prohibited the deployment of nuclear or any other kinds of weapons around the moon or any other celestial body or aboard any space vehicle launched into outer space....

8. Mr. HILDYARD (United Kingdom) said that it was his Government's view that the stationing of nuclear weapons or any other kinds of weapons of mass destruction around the moon or other celestial bodies and the inclusion of such weapons in deep space probes were prohibited by the Treaty of 27 January 1967 [the Outer Space Treaty].

¹¹⁶ It will be recalled that Article 3(3) provides that:

States Parties shall not place in orbit around or other trajectory to or around the moon objects carrying nuclear weapons or any other weapons of mass destruction...

¹¹⁷ This is the conclusion reached by Professor Goedhuis as well. See "Leading Principles of the Treaty on Outer Space", *supra*, note 21, at 33-4:

From the discussions both in the Outer Space Committee [COPUOS] and in the First Committee of the United Nations, which led up to the adoption of this article, the conclusion can be drawn that it certainly was not the intention of the authors not to include in the prohibition the orbiting of [nuclear and other weapons of mass destruc-

2.1.2 Weapons Employing Non-Explosive Nuclear Power Sources

The very high power requirement of DEWs is likely to necessitate the use of non-explosive nuclear power sources in any space-based versions.¹¹⁸ This raises the question of whether a weapon with a nuclear power source (as distinct from a nuclear explosive device) should be considered a "nuclear weapon" within the meaning of Article IV(1) of the Outer Space Treaty, and hence banned from Earth orbit, and certain other locations in outer space.

On the face of it, such a device would appear to be both "nuclear" and a "weapon."¹¹⁹ On the other hand, perhaps the term "nuclear weapon" should not be stretched beyond its common meaning of nuclear *explosive* device intended for use in war.

Professor Gorove discussed the scope of the term "nuclear weapons" in the context of this provision on two occasions – once in 1973 and again in 1984. In neither case was the legal status of the deployment in space of DEWs powered by nuclear power sources expressly considered. Nonetheless, the overall definition given on the earlier occasion could be taken to include such weap-

tion] around the Moon or other celestial bodies.

Support for this position can also be found in the *Outer Space Treaty Hearings*, *supra*, note 13, at 22, where Ambassador Goldberg states that Article IV(1) "relates to outer space generally," and in a more conclusive exchange at 14:

Senator Case. There is a reference here to not using, not placing in orbit around the Earth, any object containing nuclear weapons or weapons of mass destruction. This is not meant to permit such weapons to be put in orbit around the moon, is it?

Ambassador Goldberg. No.

¹¹⁸ Since space-based weapon platforms are certain to be targets themselves, nuclear power sources will have the added advantage of being much less vulnerable to damage from various ASAT means than the solar energy collector arrays they replace.

¹¹⁹ Orr, "The Treaty on Outer Space", *supra*, note 14, at 276-7.

¹²⁰ Gorove, *Studies in Space Law*, *supra*, note 12, at 86:

ons,¹²⁰ while the more restrictive interpretation given on the latter almost certainly could not.¹²¹ It is submitted that this latter, more limited view of the meaning of the term "nuclear weapon" is the better one. In any case, there is enough doubt to prevent us from concluding that weapons powered by nuclear power sources are prohibited from deployment in Earth orbit by Article IV(1) of the Outer Space Treaty, at least on the ground that they are "nuclear weapons." As we shall see shortly, however, deployment of space-based DEWs may be prohibited by virtue of their being "other weapons of mass destruction."

2.1.3 "Other Weapons Of Mass Destruction"

2.1.3.1 The 1948 United Nations Definition

Article IV(2) of the Outer Space Treaty bans certain deployments not only of "nuclear weapons" but also of "other weapons of mass destruction." What devices other than nuclear explosive devices should be considered "other weapons of mass destruction" for purposes of Article IV(1) of the Outer Space Treaty? Unfortunately, the Treaty does not define the term and its meaning cannot be discerned from references to discussions that took place during the Treaty's negotiation.¹²² Therefore, it is necessary to look outside the Outer Space Treaty and its negotiating record. Important extrinsic evidence can be found in a resolution of the U.N. Commission for Conventional Armaments adopted on 2 August 1948,¹²³ which resolved the following with respect to the Commission's mandate:

It may be presumed that *all arms which utilize atomic energy in accomplishing their intended purpose*, irrespective of their size or destructive force, would be regarded as nuclear weapons. [Emphasis added]

¹²¹ Gorove, "Arms Control in Space", *supra*, note 101, at 195:

[I]t may be suggested that the word 'nuclear' in the given context refers to the use of nuclear energy *manifesting itself in explosive power or also in lethal radiation emitted by radioactive nuclear materials*. [Emphasis added]

¹²² This is the view of the head of the U.S. delegation to COPUOS during the negotiation of the Moon Treaty. See Hosenball, "Military Technologies and Space Law", *supra*, note 93, at 216.

¹²³ For a detailed discussion, see A.M., Jones Jr., "Implications of Arms Control Agreements and Negotiations For Space-Based BMD Lasers", in K.B. Payne (ed.), *Laser Weapons in Space -- Policy and*

The Commission for Conventional Armaments resolves to advise the Security Council: (1) that it considers that all armaments and armed forces, except atomic weapons and weapons of mass destruction, fall within its jurisdiction and that *weapons of mass destruction should be defined to include atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons, and any weapons developed in the future which have characteristics comparable in destructive effect to those of the atomic bomb or other weapons mentioned above.*¹²⁴

Although this resolution might be regarded as having moral weight with Western States (and does seem generally to be so regarded), the same cannot be said of the Soviet Union, over whose negative vote it was adopted. Soviet agreement to a similar definition was not obtained in any formal way until 1979, when the U.S. and Soviet Union introduced before the U.N. General Assembly a draft resolution regarding controls on radiological weapons. Since this latter document limited the meaning of "weapons of mass destruction" to nuclear, lethal chemical, biological and radiological weapons, it has been taken as evidence of a *de facto* U.S.-Soviet agreement that *only* these classes of weapons are to be considered "weapons of mass destruction."¹²⁵ However, it may be doubted

Doctrine (Boulder, Colo.: Westview Press, 1983), 36, at 73-85 (hereinafter "Space-Based BMD Lasers").

¹²⁴ *Resolution of the Commission for Conventional Armaments: Definition of Armaments*, U.S. Doc. S/C.3/30, 13 August 1948; emphasis added.

¹²⁵ Jones, "Space-Based BMD Lasers", *supra*, note 123, at 76; United States, Congress, Senate, Committee on Foreign Relations, *SALT II: Part 6 -- Markup*, Hearings, 96th Cong., 1st Sess. (Washington, D.C.: USGPO, 1980), at 208-9, where Ambassador Ralph Earle submitted a written response for the record as follows (in part):

On November 2, 1979, the United States and the Soviet Union tabled a joint draft resolution in the First Committee of the United Nations on the subject of concluding an international convention prohibiting the development, production, stockpiling and use of radiological weapons. This draft resolution (A/C.1/34/L.7) *has the effect of recording the endorsement by both the United States and the Soviet Union of the... [1948]... definition.* [Emphasis added]

In oral testimony, then-ACDA General Counsel Thomas Graham made the following statements (at 208):

Mr. Graham. There is a longstanding understanding about what "weapons of mass destruction" means. That phrase appears in earlier arms control agreements. *It means nuclear weapons, chemical weapons, radiological weapons and bacteriological weapons.*

...

That is the generally accepted international view as to what this phrase means. It appears in a number of arms control agreements.

that the door has been closed to new additions to the list, for the following reasons.

First, the 1948 definition itself allows for such new additions. Second, it is doubtful (a) whether the 1979 draft binds the Soviet Union to that document's definition of "weapons of mass destruction" *for Outer Space Treaty purposes* and (b) whether, in any case, the U.S. and Soviet Union alone can provide authoritative interpretation of the *multilateral* Outer Space Treaty.

To summarize, it is generally accepted that the four types of weapon specified in the 1948 definition – nuclear, lethal chemical, biological, and radiological – are "weapons of mass destruction" within the meaning of the Outer Space Treaty.¹²⁶ The last three are therefore "other weapons of mass destruction." It is submitted, however, that they do not comprise the entire list for all time. Other weapons could be added to the list. Candidates for that status *not* listed in the 1948 definition will be discussed below.

Senator Glenn. Have the Soviets agreed to that description?

Mr. Graham. I believe that they have, yes, sir.

[Emphasis added]

But see S. Gorove, "Limiting the Use of Arms", *supra*, note 62, at 93, who agrees that the 1948 resolution "clearly places the ABC [atomic, bacteriological, chemical] weapons in the banned category," but regards that category as open to new members.

See also C-G. Hasselman, "Weapons of Mass Destruction, Article IV Outer Space Treaty and the Relationship to General Disarmament", in *Proc. 25th Colloq. L. Outer Space*, *supra*, note 24, 99, at 106 (hereinafter "Weapons of Mass Destruction"), where it is noted that the 1948 definition was expressly reaffirmed by the United Nations General Assembly on 3 December 1977 (UNGA Res. 32/84B) and that the Soviet Union first accepted the definition as valid on 9 August 1977.

¹²⁶ Hasselman, "Weapons of Mass Destruction", *supra*, note 125, at 107. The 1982 *SIPRI Yearbook*, at 441, regards the term as including "at a minimum" nuclear, chemical and biological weapons.

2.1.3.2 Weapons of Mass Destruction Not Expressly Listed In The 1948 United Nations Definition

What might be included in the term "other weapons of mass destruction" aside from the weapons expressly listed in the 1948 definition? Let us start with the plain meaning of the term. One can ask what level of damage is meant by "destruction"¹²⁷ (although the "destruction" of a human being, in its ordinary meaning, would seem to require his death). If there is "destruction," what number of people and/or amount of property must be affected for it to be "mass" destruction?¹²⁸ The answers are far from clear.

One can find some guidance, however, in the 1948 definition. By its own language, it includes weapons beyond those enumerated that are "developed in the future" and "have characteristics comparable in destructive effect to those of the atomic bomb or other weapons mentioned above." The question then becomes which new weapon technologies meet this test, itself far from self-defining.¹²⁹

Another question that arises is whether a weapon of mass destruction is

1. of a type that must necessarily cause mass destruction *whenever and however used*,

¹²⁷ S. Gorove, "Arms Control in Space", *supra*, note 101, at 195 asks: "Does it mean death or serious injury in relation to the living, or complete devastation or heavy damage with respect to objects?"

¹²⁸ For Professor Gorove, *ibid.*, it is not clear whether "mass" refers to living entities, inanimate objects, or both. Assuming it involves people, it is not clear to him whether a particular number of people need be affected (*ibid.*), although he offers the view (*Studies in Space Law, supra*, note 12, at 86-7) that "a group of 20 to 30 people or less probably would not constitute such a mass." In the *Outer Space Treaty Hearings, supra*, note 13, at 80, then-Deputy Secretary of State Cyrus Vance testified that "[t]he provision... undertakes to preserve man from yet another series of weapons which could threaten whole populations." This would seem to set very high the number of people who must be at risk.

¹²⁹ U.S. Congressional testimony did not clarify what was meant by this second phrase. For instance, then-Deputy Secretary of State Vance referred, in the *Outer Space Treaty Hearings, supra*, note 13, at 216, to "any weapon which might be developed in the future which would have the capability of mass destruction such as that which would be wreaked by nuclear weapons" and to "a weapon of comparable capability of annihilation to a nuclear weapon bacteriologically. It does not relate to a conventional weapon." This latter statement could be taken to mean that it is the magnitude of the effect of nuclear weapons *on human beings* that is the test.

2. of a type that can *in some instances* cause mass destruction or whether
3. one must assess the capabilities of each individual weapon, rather than the class of weapons to which it belongs, in the particular circumstances in which it is deployed.

In the special case of *nuclear* weapons (special because of their express mention in Article IV(1) of the Outer Space Treaty), it seems clear that the second test applies: all nuclear weapons (meaning nuclear explosive devices) are included even if too small to actually cause mass destruction. It is less clear whether this is also true of the other kinds of weapons listed in the 1948 definition – lethal chemical, biological and radiological weapons. It is therefore not clear whether these may be deployed in quantities that would fall short of causing mass destruction. The nature of biological weapons is such that mass destruction is a possibility regardless of the quantity involved. These should therefore be regarded as prohibited in any quantity. So too, it is submitted, should radiological and lethal chemical weapons. It is highly doubtful that the parties to the Outer Space Treaty intended to allow even tiny quantities of these weapons to be introduced into outer space. In the case of possible types not mentioned in the 1948 definition, however, this test may not apply. It is into this category of non-enumerated types that DEWs might or might not fall. What, then, is the test applicable to them?

Professor Almond asserts that the primary purpose of outlawing weapons of mass destruction was to identify, and isolate for different treatment, weapons that produced massive and indiscriminate effects *whenever used*:

[Weapons of mass destruction] exceeded the needs of states in conducting hostilities in the attainment of their legitimate military objectives, and therefore arms control over *those that clearly could not satisfy these conditions under any circumstances* must be banned.¹³⁰

¹³⁰ H. Almond, "Arms Control Policy In Outer Space – Limitations on the Reach of Shared Policy and Shared Expectations", *Proc. 20th Colloq. L. Outer Space*, Prague, Czechoslovakia, 25 September - 1 October 1977, 117, at 125; emphasis added.

However, he also acknowledges that the lawfulness of possessing weapons that can be used lawfully in some instances but unlawfully in others is an issue still outstanding in international law, unresolved by the practice of States.¹³¹

Professor Gorove, in contrast, seems to adopt the third test – that of a *particular* device's capability. In the case of laser weapons in space, probably the most important technology with a potential claim to "weapon of mass destruction" status, he is of the view that a space-based laser *could* be considered a weapon of mass destruction, but that whether it should would depend on the circumstances in which it was to be used and upon the capabilities of the particular device in question.¹³² This seems to be the most restrictive interpretation one can reasonably place on Article IV(1) with respect to DEWs in space. Notwithstanding opinions to the contrary,¹³³ it is submitted that the Outer Space Treaty cannot be taken to outlaw the development, testing and deployment of lasers or other DEWs in Earth orbit or elsewhere in outer space *without regard to how they are configured and where they are located*.¹³⁴

¹³¹ *Ibid.*

¹³² Gorove, "Specific Proposals for a Modest Headway", *supra*, note 111, at 27:

One of the more significant issues arising from [Article IV of the Outer Space Treaty] and in need of authoritative clarification is whether weapons of mass destruction would include... particle beam weapons, laser or solar energy, *and if so, under what conditions*. [Emphasis added]

¹³³ E.g., C.L. Fern, "Antisatellite Weapons and the Question of Negotiated Arms Limitations" (1984), 14 *Cal. W. Int'l L.J.* 289, at 303-4:

It is a generally accepted principle that lasers are in fact weapons of mass destruction. Therefore, Article IV, paragraph 1 plainly prohibits lasers from orbiting the earth or from being stationed in outer space 'in any other manner.'

There is agreement with this view in Zedalis and Wade, "ASATs and the Outer Space Treaty", *supra*, note 55, at 465-6. Fern claims support as well from Professor Gorove, who does indeed say that "an orbiting missile killer or laser would be prohibited..." (*Studies in Space Law, supra*, note 12, at 76) It is submitted, however, that no thought was given in this passage to whether DEWs were mass destruction weapons *per se*. Rather, what was under consideration was the status of sub-orbital flight versus orbital flight in the context of FOBs. The word being stressed was "orbiting," and not "laser."

¹³⁴ That no prohibition of DEWs *per se* should be understood is also the opinion of former Assistant Director of the U.S. Arms Control and Disarmament Agency, Herbert Scoville:

Thus, only nuclear explosive devices, lethal chemical weapons, biological weapons and radiological weapons are clearly banned from placement in Earth and lunar orbit by Article IV(1) of the Outer Space Treaty. Although this should not be regarded as a closed list, no worthy candidate for *per se* "other weapons of mass destruction" status not expressly listed in the 1948 definition has as yet been revealed. In particular, it is incorrect to regard DEWs not pumped by nuclear explosive devices as weapons of mass destruction *per se*. Their status as weapons of mass destruction depends on the manner in which they are deployed.

2.2 ABM Treaty Restrictions on Nuclear Explosive Devices

In addition to multilateral treaty limits on activities involving nuclear weapons in space, the ABM Treaty imposes others on the U.S. and U.S.S.R. These are found in Articles III and V of that treaty. Article III limits the number of ABM launchers and interceptor missiles each side may deploy to 100. Thus, the number of nuclear explosive devices deployed for the ABM mission is also effectively limited to that number. In addition, it limits their deployment to one geographical area inside the territory of the parties.

Article V(1) prohibits the development, testing or deployment of ABM systems and components that are sea-, air-, space-, or mobile land-based. Unfortunately, the ABM Treaty fails to define many of its terms, so that unresolved issues of interpretation persist concerning exactly what the prohibition encompasses. Three such issues that apply to ABM systems, including those that employ nuclear explosive devices as the destruct mechanism, are:

The deployment of laser ABMs would not be a violation of the current Outer Space Treaty banning the stationing of weapons of mass destruction in outer space.

(H. Scoville, "The Arms Control Implications of New Ballistic Missile Defense Technologies", in *U.S. Arms Control Objectives and the Implications for Ballistic Missile Defence* (Boston: Center for Science and International Affairs, Harvard University, 1979), quoted in Jones, "Space-Based BMD Lasers", *supra*, note 123, at 75)

1. What is the meaning of the word "development," and what is the dividing line between research, which is permitted, and "development," which is not?
2. To what extent can a device be tested against targets other than strategic ballistic missiles or their elements in flight trajectory without being characterized as an "ABM component"?
3. In the case of components yet to be actually developed or tested in mobile basing modes, does the prohibition extend to the development and testing of ABM components that *could* be used in, and may even be *intended* for use in, *mobile* ABM systems, or only to those that are *uniquely* related thereto?
4. Can X-Ray lasers for BMD be lawfully deployed under the ABM Treaty as "ABM interceptor missiles," or would they form part of an ABM system "based on other physical principles," and hence be prohibited from deployment?

2.2.1 The Dividing Line Between "Research" and "Development"

Let us look first at the distinction between research and development. The ABM Treaty does not define either term. In fact, the word "research" does not appear in the Treaty at all. Nevertheless, the U.S. position on the issue has remained fairly clear and consistent since the Treaty was concluded. The definitive statement was made by Ambassador Gerard C. Smith, head of the U.S. SALT I delegation, in testimony before the Senate Armed Services Committee in 1972:

The obligation not to develop [ABM] systems, devices or warheads would be applicable to that stage of development which follows laboratory development and testing. The prohibitions on development contained in the ABM Treaty *would start at the 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 after a component moves from the laboratory development and 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 (NTM)] 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." *Consequently, there is adequate basis for the interpretation that development as used in Article V... places no constraints on research and on those aspects of exploratory and advanced development that precede field testing.* Engineering development would clearly be prohibited.¹³⁵

¹³⁵ United States, Congress, Senate, Committee on Armed Services, *Military Implications of the Treaty on the Limitation of Anti-Ballistic Missile Systems and the Interim Agreement on Limitation of Strategic Offensive Arms*, Hearings, June-July 1972, 92nd Cong., 2nd Sess. (Washington, D.C: USGPO, 1972), at 376-7; emphasis added (hereinafter *1972 Senate Armed Services Hearings*).

This statement was a written response of the executive branch after reviewing the SALT delegation's reporting cables to Washington¹³⁶ and as such may be regarded as an official statement of the Nixon Administration.¹³⁷ Subsequent U.S. administrations have all adopted this definition of "development" as well. It has, for example, been repeated in *Arms Control Impact Statements (ACIS)*.¹³⁸

Thus, the U.S. government position has always been that any work performed outside the laboratory – "field work" – is included in the term "development." This is because only work in the field (as opposed to experiments undertaken "under roof") is subject to monitoring by NTM. Thus, "[i]t is fair to say that if an activity cannot be monitored by NTM, it is not prohibited by the trea-

¹³⁶ T. Longstreth, et al., *The Impact of U.S. and Soviet Ballistic Missile Defense Programs on the ABM Treaty*, 3rd ed. (Washington, D.C.: National Campaign to Save the ABM Treaty, 1985), at 26 (hereinafter *The Impact of BMD Programs on the ABM Treaty*).

¹³⁷ Jones, "Space-Based BMD Lasers", *supra*, note 123, at 37. In fact,

[e]ven though he negotiated the treaty, Gerard Smith says that he is still unsure exactly what a 'breadboard model' is. The term apparently comes from the laboratory practice of attaching electrical and mechanical equipment to a slab of wood for experimental tests.

(R.J. Smith, "Star Wars Tests and the ABM Treaty", *Science*, 5 July 1985, at 30 (hereinafter "Star Wars Tests"))

Readers of the SALT I ratification hearings will note that the representatives of the armed services often showed a misunderstanding of the Treaty's special meaning for the word "development," using it to encompass some research as well. See, for example, the exchange between Senator Jackson and General Palmer in *1972 Senate Armed Services Hearings*, *supra*, note 135, at 443 (reproduced in Appendix 11(e), *infra*, as Passage #15) where the Senator was concerned that the ABM Treaty, by banning some ABM development, purported to limit activities that could not be monitored, and the General agreed, incorrectly, that this was indeed the case.

¹³⁸ A. Chayes, et al., "Space Weapons: The Legal Context" (1985), 114:3 *Proc. Amer. Academy Arts & Sci. (Daedalus)*, 193, at 203. Jones notes, for example, that the direct quotation in the FY82 *Arms Control Impact Statements* (Washington, D.C.: USGPO, 1981; at 195 of that document) of the first two sentences of Ambassador Smith's statement made them interagency consensus at the end of the Carter Administration. (Jones, "Space-Based BMD Lasers", *supra*, note 123, at 37)

¹³⁹ Chayes, et al., "Space Weapons: The Legal Context", *supra*, note 138, at 203. This is confirmed by Ambassador Smith's statement itself, and by another statement made by Dr. John Foster, Jr., (then-Director of Defense Research and Engineering) at the same hearings:

... Constraints imposed by the phrase "development and testing" would be applicable

ty."¹³⁹

If it is clear that the test adopted by the U.S. is verifiability by NTM, it is not as clear that the Soviets agreed. There has never been any official Soviet public adoption of this test – no article of the treaty, no official agreed statement or common understanding, nor unilateral Soviet statement confirms it.¹⁴⁰ The only evidence of Soviet agreement consists of testimony from U.S. SALT delegates that the (classified) negotiating record confirms Soviet acceptance of the U.S. interpretation of "development."¹⁴¹

In recent years, the Soviets have put forward a definition of "development" that includes all ABM activities taking place outside the laboratory, whether verifiable by NTM or not. It seems fairly clear, however, that this was not the definition agreed to by the Parties in 1972, nor is it one that is taken seriously by U.S. experts.¹⁴²

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... would begin only at the stage where laboratory testing ended on ABM components, on either a prototype or breadboard model.

(1972 Senate Armed Services Hearings, *supra*, note 135, at 275; emphasis added)

In a more recent affirmation of the test, Ambassador Smith stated that "[t]he first point in time we can see them doing something [with national technical means of verification] that is where the ban starts." (Address by Ambassador Gerard Smith, MIT-Harvard Summer Program on Nuclear Weapons and Arms Control, 27 June 1984, quoted in Smith, "Legal Implications", *supra*, note 78, at 67, his note 80)

¹⁴⁰ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 26.

¹⁴¹ See, for instance, the Smith statement itself, which states that the U.S. definition "was understood by both sides" and that "[e]xchanges with the Soviet delegation made it clear that [the U.S. definition] is also the Soviet interpretation..." See also United States, Congress, House, Committee on Foreign Affairs, Subcommittee on Arms Control, International Security and Science, *ABM Treaty Interpretation Dispute*, Hearings, October 1985, 99th Cong., 1st Sess. (Washington, D.C.: USGPO, 1986) at 350 (answers of Ambassador Nitze to additional questions submitted by Congressman Solarz) (hereinafter *ABM Treaty Interpretation Dispute Hearings*):

[D]uring the ABM Treaty negotiations the U.S. defined "development" to commence at that point where construction and field testing of a prototype of an ABM component begin. The ABM Treaty negotiating record indicates that this definition was also the Soviet interpretation of the term "development".

If this overinclusive definition of "development" should be rejected, so too should the view that the term only applies to actual testing. An identifiable prototype of an ABM component need only be *seen* outside a laboratory in order for ABM development to be taking place.¹⁴³ Even if Ambassador Smith's formulation is accepted, though, application in practice is sufficiently unclear that we must conclude, as John Rhinelander does, that the definition of "development" is an ambiguity in the ABM Treaty in need of clarification.¹⁴⁴

2.2.2 The Meaning of "Tested in an ABM Mode"

ABM Treaty limits on the development, testing and deployment of mobile devices for firing nuclear and other warheads, and the numerical and geographical deployment limits on such devices that are fixed and land-based, only apply when these devices are classified as "*ABM* interceptor missiles." Article II defines these as "interceptor missiles constructed and deployed for an ABM role, or of a

¹⁴² The Soviets are now saying -- though it's not clear whether they are talking about the treaty as it is, or as they would like it to be amended -- the dividing line is in the laboratory. Anything outside the laboratory is forbidden. That clearly was not the understanding reached at SALT I. The understanding at SALT I was purely a functional one. It was based on verification. The dividing line was at the beginning of the field testing stage. It only prohibited what we could verify by national technical means.

(Remarks of John B. Rhinelander, Legal Counsel to the U.S. SALT I delegation, at a news conference on 15 October 1986, quoted in *Arms Control Today* November 1986, at 3)

¹⁴³ Interpreted by one workshop panelist, "if I see one outside the laboratory -- a prototype, a bread-board model -- if I see one, it's a violation. I don't have to see it tested."

(United States, Congress, Office of Technology Assessment [OTA], *Arms Control In Space -- Workshop Proceedings* (Washington, D.C.: USGPO, 1984) [Publication No. OTA-BP-ISC-28, 98th Cong., 2nd Sess.], at 34 (hereinafter *OTA Workshop Report*))

Interestingly, III *Oxford English Dictionary* (1960), at 279-80 (quoted in Smith, "Legal Implications", *supra*, note 78, at 66) supports this view, giving as one of several definitions of "development" the following:

to exhibit or display in a well-formed condition or in active operation.

¹⁴⁴ *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 76 (testimony of John B. Rhinelander).

type tested in an ABM mode." Similarly, the Article VI(a) limitations on the development of interceptor missiles (including nuclear-armed interceptor missiles) only prohibit giving such missiles "capabilities to counter *strategic* ballistic missiles or their elements in flight trajectory"¹⁴⁵ or testing them "in an ABM mode." What exactly do these articles prohibit?

The ABM Treaty does not define the phrase "tested in an ABM mode." The U.S., however, made a unilateral statement concerning its meaning on 7 April 1972, during the ABM Treaty negotiations.¹⁴⁶ It stated that the purpose of Article VI, as understood by the U.S., was to (a) prohibit the testing of *non*-ABM components for ABM purposes, while (b) permitting the testing of ABM components for ABM purposes and of non-ABM components for non-ABM purposes. It went on to deem certain activities "testing in an ABM mode," including, *inter alia*:

1. launching an ABM interceptor missile from a *non*-ABM launcher,
2. flight testing a non-ABM interceptor against a target vehicle that has a flight trajectory with the characteristics of a *strategic* ballistic missile in flight,
3. flight testing a non-ABM interceptor missile "in conjunction with the test of an ABM interceptor missile or an ABM radar at the same test range," and
4. flight testing a non-ABM interceptor missile "to an altitude inconsistent with interception of targets against which air defences are deployed."

In 1978, the Parties agreed to an interpretative clarification of the meaning of "tested in an ABM mode." The exact wording and content of the agreement have not been made public.¹⁴⁷ It appears, however, that it adopted only that part of the U.S. unilateral statement that refers to testing against target vehicles exhibiting flight characteristics of strategic ballistic missiles or their elements in flight trajectory.¹⁴⁸

¹⁴⁵ Emphasis added. For the full text of ABM Treaty Articles II and VI, see Appendix 5, *infra*.

¹⁴⁶ For the full text of this statement, see Appendix 5, *infra*, at 375.

¹⁴⁷ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 24.

¹⁴⁸ That part of the U.S. unilateral statement that referred to the altitude at which air defence tests would be conducted is said not to have been included, as the Parties were unable to agree on the alti-

It is not clear which or how many characteristics a target ballistic missile must share with strategic ballistic missiles. As for *when* the comparison is to be made, one government publication maintains that this is "over the portions of the flight involved in testing."¹⁴⁹ Presumably this is more inclusive than if the similarity had to exist from a test flight's start to its finish. Also, since the comparison is of *flight* trajectories, it would seem that tests against intermediate-range ballistic missile (IRBM) boosters still on the ground would not qualify.

It has been reported that discussions have taken place in the Standing Consultative Commission since 1972 aimed at setting a more easily applied standard – based on warhead re-entry speed – for when a test against a target ballistic missile is "in an ABM mode." No confirmed report of such an agreement has been made public, however.¹⁵⁰

To summarize, it seems fairly clear that:

1. if a *previously untested interceptor missile* is tested against a target whose flight trajectory has the characteristics of that of a *strategic* ballistic missile element, that is permitted. However, the combined effect of Article II and the reported agreement on the meaning of "tested in an ABM mode" would result in such a device being classified an "ABM component." Testing would therefore have to comply with those conditions that govern the testing of ABM components, such as the non-encryption of telemetry, testing in agreed test ranges only, etc. Furthermore, Article V(1) would prohibit the development, testing or deployment of that device in any mobile basing mode, and

tude that would constitute the dividing line between tests of ABMs and tests of SAMs for air defence purposes. (*Ibid.*) Note that *this* part of the U.S. unilateral statement is very restrictive. Its language even seems to cover tests of anti-satellite weapons that use an interceptor, launcher or radar. This was almost certainly not the U.S. intention. Article VI(a), and the U.S. unilateral statement, were intended primarily to prevent the upgrading of SAMs to ABM capability. The statement should have been more carefully worded to make this clear.

¹⁴⁹ United States, Department of Defense, Strategic Defense Initiative Organization, *Report to the Congress on the Strategic Defence Initiative* (Washington, D.C.: USGPO, 1985) (hereinafter *1985 SDI Report*), Appendix "B" (commonly and hereinafter the *Compliance Appendix*), at B-5.

¹⁵⁰ *Military Space*, 25 November 1985, at 5.

2. if an interceptor missile has been tested only against targets *other than* those exhibiting the same flight characteristics as *strategic* ballistic missiles or their elements, it should probably be regarded as an interceptor missile "other than an ABM interceptor missile." If already *deployed* in that role, this characterization will clearly be correct. Thereafter, it is a violation of Article VI(a) to either give such an interceptor "capabilities to counter strategic ballistic missiles or their elements in flight trajectory" (the exact meaning of which is far from clear) or test it against a target with flight characteristics of a strategic ballistic missile.

In short, the development, testing and deployment of interceptor missiles (nuclear-armed or not) that (a) have not been tested against targets that fly like strategic ballistic missiles, and (b) do not have the capability to engage strategic ballistic missiles, are unaffected by the ABM Treaty. This could include interceptor missiles that have only been tested against satellites, aircraft or ballistic missiles other than *strategic* ones, depending on their capabilities.

Interceptor missiles used to counter ballistic missiles with shorter ranges and different flight trajectories than strategic ballistic missiles are called anti-tactical ballistic missiles (ATBMs). ATBMs form an unregulated class of weapon capable of operating in space against IRBMs. More importantly, ATBMs create problems for the ABM Treaty regime due to their probable additional capability to destroy *strategic* ballistic missile elements. Distinguishing between regulated ABMs and unregulated ATBMs is difficult, perhaps impossible for an adversary with nothing but NTM at his disposal. This is particularly true for systems that can counter ballistic missiles that have fairly long ranges, yet are not considered "strategic."¹⁵¹ Thus, as long as the targets used in testing an ATBM

¹⁵¹ G. Schneider, "The ABM Treaty Today", in A.B. Carter and D.N. Schwartz (eds.), *Ballistic Missile Defense* (Washington, D.C.: Brookings Institution, 1984), 221, at 246-7:

Drawing a technical distinction between an ATBM system and an ABM system would be difficult to do, and in fact may not be practical. It is hard to imagine an ATBM system that the Soviet Union might design and field to counter, say, the U.S. Pershing II tactical missile (which has a range of 1800 km.) that would not also have some capability to counter the shorter-range SLBMs (the Soviet SS-N-Mod I SLBM has a range of only 2400 km.). This is because the trajectories of the reentry vehicles in these two cases will be approximately the same, with relatively small differences in speed and radar cross section. Of course under SALT SLBMs are considered to be *strategic* ballistic missiles, and hence systems capable of countering them must be considered ABM systems. An even more difficult case would be a U.S. ATBM system designed to counter the 5000-km. Soviet [SS-20] IRBM! [Emphasis in original]

system are not strategic ballistic missiles, one Party might suspect that the system had been given a capability to counter strategic ballistic missiles, yet have no way of being sure, or of proving it. Therefore, although as a matter of law Article VI prohibits giving ATBM systems the capability of destroying strategic ballistic missiles, in practice it is not possible to verify compliance with that rule as long as no testing against actual strategic ballistic missiles is done.

The matter is made still less clear by the fact that the ABM Treaty does not define "strategic." The U.S. wanted to define the term in an absolute way – in terms of a missile's explosive yield and range; the Soviets wanted to define it in a relative way – in terms of whether or not a missile is deployed within range of the adversary's homeland. In the end, the Parties agreed to disagree, and papered over their differences on the issue.¹⁵² As a result, one side could level charges of non-compliance on the basis of its own interpretation of the word "strategic," which the accused Party would not regard as a violation under its interpretation.¹⁵³

Thus, only *ABM* systems, as defined by the ABM Treaty, are limited in any way. It is not clear what is and what is not an ABM system. In particular, the difference between ATBMs and ABMs is uncertain, and constitutes an ambiguity capable of undermining the Treaty's limits on ABMs.

The SS-20 is not considered "strategic."

¹⁵² Jones, "Space-Based BMD Lasers", *supra*, note 123, at 61.

¹⁵³ U.S. ATBM tests against Pershing IIs, should these occur, would be an example. The U.S. regards that missile as an IRBM, due to its relatively short range, yet the Soviets claim that it is capable of reaching the Soviet homeland from its bases in West Germany. (Whether it actually can is an open question.)

2.2.3 When are ABM Components Considered Mobile?

Another ambiguity arises in connection with ABM components generally, including nuclear-armed ABM interceptor missiles. This is the question of the lawfulness of developing, testing and deploying ABM systems or components that could be used in a *mobile* basing mode, and are, in fact intended to be so used, but that are never developed, tested or deployed in anything but a *fixed, land-based* mode. Are these ABM components governed by Article V(1) of the ABM Treaty?

The answer seems to be that an activity must be "uniquely associated with mobile ABM systems" in order to be prohibited by Article V(1).¹⁵⁴

2.2.4 Nuclear-Pumped X-Ray Laser Weapons for Ballistic Missile Defence: Deployable under the ABM Treaty?

Finally, there is the issue of whether nuclear-pumped X-ray laser BMD weapons should be considered "ABM interceptor missiles" or, instead, part of an ABM system "based on other physical principles." If the former, they could be lawfully deployed up to a maximum of 100; if the latter, they could not be deployed at all.

The answer is not at all clear. On the one hand, popped-up X-ray laser weapons would act very much like traditional ABM interceptor missiles with nuclear warheads. They would be fired into space by a chemical rocket and explode, destroying their targets. On the other hand, the presence of lasing and their consequent longer range makes them significantly different.

¹⁵⁴ Jones, "Space-Based BMD Lasers", *supra*, note 123, at 44-5.

Fortunately, the point is moot from a practical point of view. As long as the Partial Test Ban Treaty remains in effect, no full-scale testing of X-ray laser weapons can take place in space, and in the absence of such testing deployment is unlikely. Furthermore, even if there were deployment without full-scale testing in space, the deploying party need only claim that the devices are ASAT weapons with no ABM capability. Since space testing cannot lawfully be undertaken, the other Party would have no proof of ABM capability.

CHAPTER 3

EXISTING INTERNATIONAL LEGAL CONSTRAINTS ON CONVENTIONAL WEAPONS: KINETIC ENERGY WEAPONS AND CHEMICAL EXPLOSIVES

3.1 Multilateral Treaty Constraints on Conventional Weapons

3.1.1 In Outer Space Generally, Including in Earth Orbit

As with non-weapon uses of outer space, arguments in favour of the lawfulness of testing and deploying conventional weapons (i.e. any weapons that are not weapons of mass destruction) in, from or towards outer space rely upon Article I(2) of the Outer Space Treaty. These are, it is claimed, simply additional uses available to States Parties, for whom outer space "shall be free for exploration and use." Further, the fact that the Treaty expressly prohibits certain military uses of space (such as the orbiting of mass destruction weapons, the testing of weapons on celestial bodies etc.) has been taken to imply that it authorizes all military uses *not* expressly prohibited. In particular, the inference can be drawn from the express prohibition of the deployment of weapons of mass destruction in outer space that the deployment of conventional weapons is permitted.

Even more strenuously than in the case of non-weapon uses, some space law writers have disputed this inference.¹⁵⁵ They maintain that the Parties to the Outer Space Treaty never intended

¹⁵⁵ Vlasic, "Disarmament Decade", *supra*, note 93, at 170, notes that, while this interpretation is "not without some justification," it is not the most reasonable one if the Treaty is read as a whole:

While the document as a whole does not permit such an interpretation, the muddled text of Article IV can be used, and has been used, to undermine the legally and politically sounder interpretation.

See also McGill University, Centre For Research of Air and Space Law, *Arms Control and Outer Space*, *supra*, note 23, at 69, where this "legally and politically sounder interpretation" is described as the "complete demilitarization of outer space" (i.e., evidently, the prohibition of non-weapon military activities as well).

See also G. Gal, "Activities on Orbit and on Celestial Bodies – Two Notions of Peaceful Uses?", *Proc. 25th Colloq. L. Outer Space*, *supra*, note 24, 83, at 84, who asserts that the most one can say of the effect of the Outer Space Treaty on activities involving conventional weapons is that it does not

to authorize the testing or deployment of weapons in outer space, pointing to such provisions as the preamble¹⁵⁶ and Article I(1) (the "common interests" clause) to back up their case. They argue that the Parties intended to permit only those "essentially auxiliary, non-offensive" activities practised in 1967 – reconnaissance, communications, meteorology – and that if the non-space powers had known of the further, weapons-related military uses to which outer space would be put, the Treaty would never have been adopted in its present form.¹⁵⁷

There is considerable evidence, however, that military uses not expressly banned were intended to be permitted. First, there is the matter of Article III's express subjection of outer space to the Charter of the United Nations, including the inherent right of self-defence. If self-defence may be practised in space, it is argued, then the wherewithal to carry it out – the deployment of weapons – must also be permitted. More expressly, then U.N. Secretary-General U. Thant, in his speech to the General Assembly following the completion of negotiations on the Treaty, said that Article IV "left much to be desired as it would permit the conduct of certain military activities *and the placing of certain types of weapons* in outer space."¹⁵⁸ Likewise, during the U.S. Outer Space Treaty ratification hearings, then-Secretary of State Dean Rusk stated, without qualification according to basing mode, that "[t]he Treaty does not inhibit, of course, the development of an antisatellite capability in the event that this should become necessary."¹⁵⁹

regulate them *expressis verbis*.

¹⁵⁶ The preamble to the Outer Space Treaty contains phrases which leave no doubt that the parties intended to create a legal regime to make the space environment serve, pre-eminently and perpetually, the cause of peace, international co-operation and general well-being. If, during the negotiations of the Treaty, some of the parties harboured contrary ideas, their expectations were not reflected in the preamble.

(Vlasic, "Disarmament Decade", *supra*, note 93, at 169)

¹⁵⁷ *Id.*, at 174-75.

¹⁵⁸ Emphasis added.

¹⁵⁹ *Outer Space Treaty Hearings*, *supra*, note 13, at 26.

Although it is possible to argue that the Outer Space Treaty, read as a whole, effects a general prohibition against the placement of weapons in outer space,¹⁶⁰ the evidence suggests that weapons activities short of aggressive use were intended to be permitted, unless expressly ruled out.¹⁶¹ Thus, we must conclude that there is no existing prohibition against the testing and deployment of conventional weapons in outer space as a whole, including in Earth orbit.

3.1.2 On the Moon and Other Celestial Bodies

The treaty law is more clearly restrictive of activities involving conventional weapons when these are tested or deployed on celestial bodies. The testing of any type of weapon on celestial bodies is prohibited by Article IV(2) of the Outer Space Treaty. This includes, of course, conventional weapons. While this may seem straightforward, questions can arise as to what a "weapon" is¹⁶² as well as what constitutes "testing." Neither is it clear what the phrase "*on* celestial bodies" means. If inter-

¹⁶⁰ See, e.g. McGill University, Centre For Research of Air and Space Law, *Arms Control and Outer Space*, *supra*, note 23, at 193.

¹⁶¹ Canada has expressly taken this position. See *Terminology*, *supra*, note 53, at 15:

In the absence of an existing specific prohibition (such as, for example, the one against nuclear weapons) and on the assumption that the activity in question is not contrary to an existing principle of international law (such as non-use of force) the placement of weapons in orbit in space is not *per se* unlawful.

See also Soviet Foreign Minister Gromyko's letter of 10 August 1981 to the U.N. Secretary-General, which, after listing the Partial Test Ban Treaty, Outer Space Treaty and Moon Treaty, noted that "all these international instruments do not exclude the possibility of the stationing in outer space of those kinds of weapons which are not covered by the definition of weapons of mass destruction." (U.N. Doc. A/36/192 (1981), at 2)

See also Section 102 of the 1958 *NASAct*, quoted *supra*, note 32, in which "the development of weapon systems, military operations, [and] the defense of the United States" were implicitly compatible with carrying out space activities "for peaceful purposes for the benefit of all mankind."

In support of the lawfulness of placing in space weapons other than weapons of mass destruction, see also Christol, *Modern International Law*, *supra*, note 12, at 33-4, although he states that

if it is true that the development, testing and deployment of Asats have, in fact[,] been destabilizing, then it is necessary to ask if the general objectives of the ... [Outer Space Treaty] are being subverted.

¹⁶² For example, does the prohibition extend to *components* of weapons? If so, how significant does the component have to be?

preted restrictively, it could exclude spacecraft flying very low or hovering over a celestial body's surface, on the grounds that these were not "on" the celestial body but merely in outer space generally, to which the testing restriction does not apply. If interpreted expansively, "on" celestial bodies could include very low orbits around celestial bodies. There is no indication, however, that such an expansive reading is warranted. Consequently, the most that can be said of the prohibition is that it bans the "testing" of "weapons" — whatever those terms include — from or on vehicles or facilities in physical contact with the surface of the moon or other celestial body.

The "peaceful purposes" admonition could include a prohibition against the *deployment* of conventional weapons on the moon or other celestial bodies, but only if "peaceful" is interpreted as "non-military." However, as mentioned, the Western position has always been that "peaceful" means non-aggressive, and that no mere military preparation can ever be "aggressive." Therefore, the first sentence of Article IV(2) of the Outer Space Treaty cannot be relied upon to prohibit the deployment of conventional weapons on celestial bodies.

The second sentence of Article IV(2), however, appears to prohibit the deployment of most, if not all, weapons on celestial bodies. This is because the deployment of a weapon system would appear to constitute the establishment of a "military installation." Only those weapons "necessary for peaceful exploration" would be exempted, a test that might be met by small arms, but not by ASAT systems.

3.1.3 In Orbits Around the Moon and Other Celestial Bodies

Article IV(2) of the Outer Space Treaty prohibits the establishment of military installations and the testing of weapons "on" celestial bodies. Since the testing and deployment of conventional weapons in orbit around or trajectory to a celestial bodies would not take place "on" that body, such activities would appear not to be prohibited by the Outer Space Treaty. If the Moon Treaty, or its arms con-

trol provisions, were to come into force for the two military space powers, it would prohibit these activities.¹⁶³

¹⁶³ Moon Treaty, Article 1(2) and 3(3). For the text of these provisions, see *supra*, note 86.

3.2 ABM Treaty Constraints on Conventional Weapons

The number of military roles conventional weapons could conceivably play in relation to outer space is limited and can be quickly listed. They could be developed, tested or deployed

1. on the surface of the Earth, on or under bodies of water or on aircraft in its atmosphere, and directed towards space for the purpose of attacking (a) satellites or (b) ballistic missiles;
2. in space and directed at (a) targets on the Earth's surface or (b) aircraft and cruise missiles in its atmosphere or
3. in space for use against targets also in space – either against satellites (in which case the weapons would be conventional space mines) or against ballistic missiles or their elements.

Except for the regime governing celestial bodies, no multilateral treaty provision reliably prohibits or limits the development, testing or deployment of conventional weapons in *any* of these roles. The only nations for which limitations on these activities are now in effect are the U.S. and U.S.S.R. These limitations are all set out in the ABM Treaty.

3.2.1 Kinetic Energy Weapons for Ballistic Missile Defence: Traditional or Exotic ABMs?

An important interpretative issue concerning conventional weapons is the proper classification, under the ABM Treaty, of ABM interceptor missiles powered by chemical rockets that destroy their targets by colliding with them. These are known as kinetic energy weapons or KEWs. If given ABM capability, are KEWs "ABM interceptor missiles" within the meaning of Article II, or components of ABM "systems based on other physical principles" within the meaning of Agreed Statement D?¹⁶⁴

¹⁶⁴ It is conceivable, on the basis of the Treaty language, that a device could be *both* a traditional ABM component (such as an "ABM interceptor missile") *and* a component of a system "based on other physical principles." Nowhere does the Treaty *expressly* state that these classes of device are mutually exclusive. One could therefore argue that these definitions constitute two distinct and independent tests, and that a device whose fixed, land-based deployment was authorized by Article III by virtue of its being an "ABM interceptor missile" could still have its deployment prohibited by Agreed Statement D if it were *also* found to be a component of an ABM system "based on other physical principles" capable of substituting for an ABM interceptor missile. For this to be the case, Article III and Agreed Statement D together must be seen as capable of applying a more stringent restriction on deployment than Article III alone.

3.2.1.1 Consequences of Kinetic Energy Weapon Characterization

The significance of the KEW characterization issue depends upon whether one accepts the 'permissive' or 'restrictive' interpretation of the Treaty term "ABM systems and components" (and variations thereof). The permissive interpretation regards 'traditional' ABM components -- "ABM launchers," "ABM interceptor missiles" and "ABM radars" -- as the only ABM devices governed by the body of the ABM Treaty (as opposed to associated agreed statements). The restrictive interpretation, on the other hand, holds that the Treaty applies to *any* ABM-capable device, no matter what technology it employs, provided it performs enough of the ABM mission to avoid classification as a mere 'subcomponent' or 'adjunct'.¹⁶⁵ Because Article V(1) prohibits the development and testing of "ABM systems or their components" in mobile basing modes, a great deal is riding on the outcome of this debate: the lawfulness of developing and testing exotic ABM devices that are mobile land-, air-, sea- or space-based.

However, the author has seen no commentator, in or out of government, offer this interpretation. In fact, the most prominent proponents of the restrictive interpretation of the phrase "ABM systems and components" (see discussion of this issue, *infra*, in Section 4.2.1 of Chapter 4 entitled "The 1985 ABM Treaty Interpretation Dispute") including most of the U.S. SALT I negotiators, expressly negative the contention that Agreed Statement D has any independent substantive effect. Furthermore, the language of Agreed Statement D suggests that the terms "ABM interceptor missiles" and "[components of] ABM systems based on other physical principles" are mutually exclusive, since it foresees the latter substituting for the former. (It refers to "... ABM systems based on other physical principles and including components capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars...") If this is true, then a KEW must be one or the other, but cannot be both.

It has been contended by SDI supporters that because KEWs will have to be equipped with on-board optical -- particularly infrared -- sensors in order to have the necessary accuracy for BMD, and because such sensors were not used in 1972-era ABM systems, that KEWs must be considered components of "ABM systems based on other physical principles" and not "ABM interceptor missiles." It is the position of this study that KEWs powered by chemical rockets are "ABM interceptor missiles" within the meaning of the ABM Treaty regardless of the type of sensors used to guide them.

¹⁶⁵ For a detailed discussion of the definition of a "component" as opposed to an 'adjunct' or 'subcomponent,' see *infra*, Chapter 4, Section 4.2.2, entitled "When is an 'Exotic' ABM Device an 'ABM Component'?"

3.2.1.1.1 Activities Whose Lawfulness is Unaffected by the Characterization of KEW ABMs as Traditional or Exotic

The status of certain KEW activities is the same whether the permissive or restrictive interpretation is assumed and regardless of how KEWs are characterized. For instance, the *deployment* of KEW BMD systems that (a) are mobile, (b) involve launchers capable of firing more than one KEW at a time from each launcher, or that are fully or semi-automatic or otherwise rapidly reloadable or (c) involve KEW interceptors with more than one independently targetable warhead per missile is prohibited no matter how these disputes are resolved.¹⁶⁶

¹⁶⁶ *Deployment in Mobile Basing Modes:*

The Article V(1) ban on the deployment of mobile ABM systems and components governs ABM-capable KEWs under the *restrictive* interpretation whether one regards them as "ABM interceptor missiles" or components of ABM systems "based on other physical principles." This is because that prohibition applies to "ABM systems or their components," which, under the restrictive interpretation, includes all ABM-capable devices regardless of the technology they employ.

Under the *permissive* interpretation, a finding that a device is an "ABM interceptor missile" automatically makes it an "ABM component" as well, again bringing the Article V(1) ban on the deployment of mobile "ABM systems or their components" to bear on mobile KEW deployments. If, under the permissive interpretation, KEWs were instead characterized as components of systems "based on other physical principles," Article V(1) would not apply to them. However, the ban on their deployment in mobile basing modes would be maintained by Agreed Statement D which, under the permissive interpretation, prohibits the deployment of "systems based on other physical principles" and components thereof, however based.

Deployment of Multi-interceptor or Rapidly-Reloadable Launchers or MIRVed Interceptor Missiles:

As for the deployment of KEW systems with multi-interceptor or rapidly reloadable launchers or with MIRVed interceptor missiles, if KEWs are "ABM interceptor missiles," then Article V(2) and Agreed Statement E, by their terms, apply, and create a complete prohibition on deployment. This is true whether one assumes the restrictive or permissive interpretation. If, instead, they are viewed as components of ABM systems "based on other physical principles," their deployment with these capabilities would be prohibited by Article III under the restrictive interpretation (which bans the deployment of all ABM components other than the traditional three, including "ABM interceptor missiles") and by Agreed Statement D under the permissive interpretation (which bans deployment of ABM systems "based on other physical principles," and components thereof).

Only if KEWs are considered *neither* "ABM interceptor missiles *nor* components of systems "based on other physical principles" are these deployments permitted. However, if these terms are treated as mutually exclusive, such a result is precluded.

3.2.1.1.2 Activities Whose Lawfulness Depends Upon the Characterization of KEW ABMs as Traditional or Exotic

The lawfulness of many other activities does depend on KEW characterization, however. These include

1. development and testing in mobile basing modes,
2. development and testing in the fixed, land-based mode,
3. development and testing with multi-interceptor or rapidly reloadable launchers or with MIRVed interceptor missiles and
4. deployment in the fixed, land-based mode.

3.2.1.1.2.1 Development and Testing In Mobile Basing Modes

Under the *restrictive* interpretation, the KEW characterization issue has no bearing on the lawfulness of developing and testing KEWs in mobile basing modes. This is because Article V(1) bans the development and testing of mobile-based "ABM systems or their components" and, under the restrictive interpretation, a device need not be a traditional ABM component (such as an "ABM interceptor missile") in order to be an "ABM component."

Under the *permissive* interpretation, however, the KEW characterization issue is very important. If KEWs were found to be "ABM interceptor missiles" then it would follow, under that interpretation, that they were also "ABM components" and the Article V(1) ban on development and testing in mobile basing modes would apply. If, instead, they were deemed *not* to be "ABM interceptor missiles," then they could not, under the permissive interpretation, be "ABM components," and Article V(1) would not apply. Development and testing of KEW ABMs in mobile basing modes would be permitted. Furthermore, since the Article IV requirement that development and testing be restricted to agreed test ranges applies to "ABM systems or their components" (which, under the permissive interpretation, does not include components of systems "based on other physical princi-

ples"), such testing could take place outside agreed test ranges. In addition, Article IV's limitation on the number of prototypical devices each Party may deploy at any one time for development and testing purposes — "no more than a total of fifteen *ABM launchers*" — would not apply, since Article II(1)(b) defines "ABM launchers" as "launchers constructed and deployed for launching *ABM interceptor missiles*."

Therefore, a finding that KEWs are "ABM interceptor missiles" is critical to the prohibition of their development and testing in mobile basing modes under the permissive interpretation, but irrelevant to such a prohibition under the restrictive interpretation, where their development and testing in mobile basing modes is banned no matter how they are characterized.

3.2.1.1.2.2 Fixed, Land-Based Development and Testing

As for the development and testing of *fixed, land-based* KEWs for strategic BMD, the characterization issue is again irrelevant under the *restrictive* interpretation, which *permits* any ABM-capable device (other than MIRVed ABM interceptor missiles or rapidly-reloadable ABM launchers) to be developed and tested in a fixed land-based mode in agreed ABM test ranges (and prohibits any ABM component from being developed or tested outside such ranges). Under the restrictive interpretation, this permission is not dependent upon classification as a traditional ABM component.

Under the *permissive* interpretation, too, development and testing of fixed, land-based ABM-capable devices is permitted no matter how they are classified. However, a finding that KEWs were *not* "ABM interceptor missiles" would mean that they could be developed and tested in the fixed, land-based mode *without the geographical or quantitative limitations of Article IV*. This is because Article IV governs only "ABM systems and their components" and "ABM launchers." The former, under the permissive interpretation, includes only traditional ABM components; the latter does not, under either interpretation, include launchers of devices other than "ABM interceptor missiles."

Thus, while KEWs can be lawfully developed and tested in the fixed, land-based mode under either interpretation, regardless of how they are characterized, the important Article IV limitations on development and testing would be absent if the permissive interpretation were accepted and KEWs were not regarded as "ABM interceptor missiles".

3.2.1.1.2.3 Development and Testing of ABM Interceptor Missiles
With Multiple Independently-Targetable Warheads or
Of Rapidly-Reloadable ABM Launchers

The status of these activities is dependent on the KEW characterization issue and is the same under either the restrictive or permissive interpretation. This is because the prohibitions against them are found in Article V(2) and Agreed Statement E which, by their terms, apply to "ABM launchers" and "ABM interceptor missiles" only. Therefore, these qualitative limitations on development and testing only govern KEWs if these are characterized as "ABM interceptor missiles."

3.2.1.1.2.4 Fixed, Land-Based Deployment

As with the category just discussed, the regime governing the deployment of fixed, land-based KEWs depends on their characterization, but is the same under the restrictive and permissive interpretations.¹⁶⁷ Under either interpretation, if KEWs are "ABM interceptor missiles," then they are also "ABM components." Article III (as amended by the 1974 protocol, which reduced the number of permitted "ABM system deployment areas" from two to one) then limits their deployment to 100 devices located in geographically limited "ABM system deployment areas." If, however, KEWs are considered components of systems "based on other physical principles," then their deployment is prohibited altogether: the restrictive interpretation holds Article III to prohibit the deployment of ABM-capable devices other than traditional components; the permissive interpretation holds

¹⁶⁷ Again, this is only true if a device *must* be *either* a traditional ABM component *or* a component of an ABM system "based on other physical principles." If a device could somehow be *neither*, then, under the permissive interpretation, no restrictions whatsoever would apply to its *deployment*. However, it is assumed that such a result is impossible.

Agreed Statement D to prohibit the deployment of systems "based on other physical principles" or components thereof.

Thus, under either interpretation, fixed, land-based deployment of KEWs is limited to 100 units in one permitted ABM system deployment area if such devices are classified as "ABM interceptor missiles," and is prohibited altogether if they are considered components of systems "based on other physical principles."

Let us summarize the above, to better assess the differences between the four possible regimes. The most restrictive outcome would be achieved if KEWs were considered "ABM interceptor missiles," and *either* the restrictive or permissive interpretation were adopted:

1. The *development, testing and deployment* of ABM-capable KEWs in *mobile basing modes* would be *prohibited*.
2. The *development, testing and deployment* of ABM-capable KEWs as *part of an ABM system with multi-interceptor or rapidly-reloadable launchers, or with MIRVed interceptor missiles* would be *prohibited*.
3. *Fixed, land-based* KEW systems with *no multi-interceptor or rapidly reloadable launchers or MIRVed interceptor missiles* could be developed and tested in an ABM mode, but only in agreed test ranges. Each Party could *deploy* up to 100 interceptor missiles of such a system, together with up to 100 launchers,¹⁶⁸ but only in its designated "ABM system deployment area." Launchers and interceptor missiles kept in agreed test ranges for development and testing purposes would not count toward these totals, however no more than 15 launchers (including non-KEW "ABM launchers") could be kept there at one time.

Thus, if KEWs are considered "ABM interceptor missiles," the permissive interpretation is rendered much less permissive in its application to them.

The next most restrictive regime would occur if KEWs were deemed components of ABM systems "based on other physical principles" under the restrictive interpretation. This regime would differ from the most restrictive two regimes in two respects:

¹⁶⁸ This assumes that no *non-KEW* ABM interceptor missiles had been deployed as these, too, count against the ceiling of 100 "ABM missiles" and 100 "ABM launchers."

1. It would *permit* the *development and testing* of fixed, land-based ABM-capable KEW systems *with multi-interceptor or rapidly-reloadable launchers or with MIRVed interceptor missiles* and
2. It would prohibit the deployment of KEWs altogether, rather than permitting the deployment of 100 launchers and 100 interceptor missiles.¹⁶⁹

Finally, there is the most permissive of the four possible regimes – treatment of KEWs as components of systems “based on other physical principles” under the *permissive* interpretation of “ABM systems and components.” If KEWs were no longer considered “ABM interceptor missiles,” the permissive interpretation would become very permissive indeed with respect to their development and testing (although, like the previous regime, it would prohibit their deployment altogether). Short of deployment, anything and everything would be permitted. In this most permissive regime, development and testing of KEWs in an ABM mode could take place:

1. in any basing mode,
2. with MIRVed interceptors,
3. with launchers capable of firing more than one interceptor at a time,
4. with rapidly reloadable launchers,
5. with no numerical ceiling on launchers,
6. without geographical limitation to agreed test ranges or
7. *in any combination of the above.*

Although a formal ban on deployment would exist, it would be rendered meaningless by the fact that ABM-capable KEWs with all kinds of multi-interceptor, rapid-reload and MIRVed capabilities could be stationed anywhere in a Party's national territory, in the air, in or under the sea, or in space, without numerical restriction, *as long as they were ostensibly for development and test purposes.*

¹⁶⁹ While this second difference actually makes the regime *more* restrictive than the first two, its practical importance is marginal. The Article III numerical ceilings on ABM interceptor missile and ABM launcher deployments are too low (100) to permit a significant ABM capability to be mounted with 100 KEWs, at least as long as these are not MIRVed, which, under the most restrictive two regimes, they could not be.

3.2.1.2 Evidence Concerning Kinetic Energy Weapon Characterization

What evidence is there as to the proper classification of KEWs? Some U.S. Defense Department officials have reportedly been pushing for official government adoption of the position that KEWs are devices "based on other physical principles," both because of their infrared guidance system, and because of their kinetic kill mechanism.¹⁷⁰

Some official support for this position can be found. Ambassador Nitze has testified that such devices "clearly are systems based upon other technologies."¹⁷¹ However, it now seems highly doubtful that the mere use of kinetic destruction renders an ABM-capable KEW "based on other physical principles" and not an "ABM interceptor missile." John Pike maintains that, with the exception of their long-wavelength infrared (LWIR) sensors, space-based kinetic kill vehicles (SBKKVs) involve no technical breakthroughs and that land-based KEWs are merely upgraded, non-nuclear versions of the ABM systems developed during the 1960s.

SDI supporters endeavouring to characterize SBKKVs as devices "based on other physical principles" are now focussing on those that rely *exclusively* upon optical sensors for guidance.¹⁷²

¹⁷⁰ *Military Space*, 2 March 1987, at 3.

¹⁷¹ *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 47 (testimony of Paul Nitze). That what is meant by systems "based upon other technologies" is the treaty term ABM systems "based on other physical principles" is clear from the mention of Agreed Statement D in the exchange:

Mr. Solarz. Presumably, directed energy weapons and kinetic energy weapons have to be based somewhere... If they are going to be based in one of those categories, in what sense can they be developed and tested within the framework of the treaty?

Mr. Nitze. They clearly are systems based upon other technologies.

Mr. Solarz. And where is that provided for? Are you saying that is provided for in agreed Article (d)?

Mr. Nitze. Agreed statement (d).

¹⁷² General Abrahamson is reported to have testified in closed session at one point that up to 100 Exoat-

They claim that such devices should be accorded "other physical principles" status because the ABM Treaty negotiating record shows the Soviets to have specifically identified optical telescopes as devices "based on other physical principles." Thus, Ambassador Nitze has since made his characterization of SBKKVs conditional upon the guidance system employed.¹⁷³

One argument for the permissibility of orbital SBKKV tests against strategic ballistic missile targets where the interceptor is guided by an on-board IR homing sensor seems to be that the sensor, by using non-traditional sensing technology (i.e. anything other than a radar) makes the whole interceptor missile one "based on other physical principles" and therefore capable of lawful testing in any basing mode.

The U.S. Defense Department at first appeared to back away from this position when then-SDIO Director Abrahamson testified before the House Armed Services Committee that he did not consider KEWs to be based on other physical principles, since they do not involve any "dramatic breakthroughs of the kind that are entirely new science."¹⁷⁴ In later testimony, however, he was noncommittal.¹⁷⁵

mospheric Re-entry Vehicle Interception System (ERIS) interceptors could be lawfully deployed. Since these are KEWs with infrared terminal guidance, he was asked how it was that ERIS could be an "ABM interceptor missile" (which it would have to be in order to be deployable under either interpretation), while SBKKVs employing the same technologies were devices "based on other physical principles." He answered that while ERIS relies heavily upon ground-based *radars* for initial tracking co-ordinates, and only uses infrared (IR) sensing for the terminal portion of its flight, SBKKVs are expected to use IR-based tracking and guidance *throughout the engagement*. (*Military Space*, 13 April 1987, at 5)

¹⁷³ *Ibid.*

¹⁷⁴ *Military Space*, 2 March 1987, at 3.

¹⁷⁵ *Military Space* (13 April 1987, at 5) quotes General Abrahamson as responding to the SBKKV characterization issue at a hearing before the Subcommittee on Strategic and Theatre Nuclear Forces of the Senate Armed Services Committee on 1 April 1987 as follows: "I'm not in a position to say. That aspect is a legal judgment."

Non-governmental commentators maintain that KEWs are simply "ABM interceptor missiles." For example, Longstreth *et al.* treat KEWs as "ABM interceptor missiles," since they argue that MIRVed development and testing of ERIS would be prohibited.¹⁷⁶

Which regimes enjoy the support of which participants in the debate? The Administration, as reflected by General Abrahamson's testimony, seems to concede that radar-guided KEWs are "ABM interceptor missiles" but, based on Ambassador Nitze's remarks, may be poised to take the opposite position on those KEWs that rely exclusively upon IR sensing. Combined with its continued support for the permissive interpretation of "ABM systems and components," this would result in an official U.S. executive branch position in support of the most permissive possible treatment of such KEWs.

Many SDI critics, such as John Rhinelander, Gerard Smith, Thomas Longstreth and John Pike consider KEWs to be "ABM interceptor missiles," and consider the *restrictive* interpretation of "ABM systems and components" to be the correct one. This combination of views results in the most restrictive possible treatment of KEWs.

¹⁷⁶ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 46-7.

These authors do not treat the matter consistently, however. In an earlier passage (at 8), they state:

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)... is permitted... [Emphasis added]

Under either the permissive or restrictive interpretation, characterization as "ABM interceptor missiles" would seem to authorize the deployment of fixed, land-based KEWs as part of an Article III deployment.

Likewise, in Congressional testimony, John Rhinelander appears to err when, in criticizing the permissive interpretation of "ABM systems and components," he lists as one of its consequences that it would allow Homing Overlay Experiment (HOE) interceptors (which are KEWs) to be tested in a MIRVed configuration. (*ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 61-62 (testimony of John B. Rhinelander)) As we have just seen, HOE interceptors could be lawfully MIRVed under the permissive interpretation only if KEWs were *not* regarded as "ABM interceptor missiles."

The intermediate regime, represented by *non*-"ABM interceptor missile" status for KEWs under the *restrictive* interpretation, seems not to enjoy support from any commentator.

The correct position, it is submitted, is that KEWs are governed by Article V(1) no matter what guidance technology they use. Even under the permissive interpretation of "ABM systems and components," Article V(1) applies to "ABM interceptor missiles." These are defined by Article II(1)(a) as "interceptor missiles constructed and deployed for an ABM role, or of a type tested in an ABM mode." Thus, any "interceptor missile" is governed by Article V(1) once it has been tested in an ABM mode. "Interceptor missile" is not defined. However, any common sense meaning would surely include homing KEWs used to intercept flying objects, whether those targets are satellites or strategic ballistic missile warheads and regardless of the guidance technology used.¹⁷⁷

Those who would exclude IR-guided KEWs from Treaty coverage must therefore adopt the following position: any device that is an "interceptor missile" according to the common meaning of that term and, further, is an "ABM interceptor missile" pursuant to Article II(1)(a), should nevertheless *not* be considered an "ABM interceptor missile" for Treaty purposes *if it is part of an ABM system "based on other physical principles"*.

¹⁷⁷ Sam Nunn also contends that a strong case can be made that KEWs are "interceptor missiles." (*Military Space*, 2 March 1987, at 3)

3.2.2 ABM Components in Sub-Orbital Trajectory: Article V(1) Status

Another important ABM Treaty issue affecting the lawfulness of conventional weapons deployed as AEM devices is the meaning of "space-based" in Article V(1). Specifically, is an interceptor missile based on a platform *in sub-orbital trajectory* "space-based" and, if not, is its development, testing and deployment otherwise prohibited by Article V(1)? Here is a description of the activity that raises this question in respect of conventional weapons:

1. The U.S. or U.S.S.R. decides to perform tests to determine the utility of SBKKVs in an ABM role. If deployed, SBKKV weapon systems would consist, in relevant part, of satellites orbiting the Earth, each with several chemical-rocket-propelled KEWs on board.
2. If stationed on platforms in Earth orbit these devices would clearly be "space-based."
3. However, development and testing is to occur without placement into *orbit*. A platform is to be launched into a *sub-orbital* trajectory, and the single KEW on board is to be test-fired at an ABM target while the platform is well above the Earth's atmosphere.

It is clear that the U.S. is considering testing SBKKVs on sub-orbital trajectories in the event that the testing of orbital devices is considered prohibited by the ABM Treaty¹⁷⁸ and that SDIO considers such testing to be permitted even under the restrictive interpretation of "ABM systems and components."¹⁷⁹ What is not clear is whether KEWs would be launched (a) from *platforms* in sub-orbital trajectory, or (b) without benefit of a platform, after some minutes of unpowered ballistic flight following launching by a separate large land-based rocket. At least one trade publication has referred to future sub-orbital SBKKV tests as involving a "test *platform*."¹⁸⁰

¹⁷⁸ *Military Space*, 16 February 1987, at 2, and 17 August 1987, at 3, where it is reported the preliminary environmental impact statements for the two Space-Based Interceptor (SBI) tests to be held before 1992 will involve interceptors launched from the ground.

¹⁷⁹ *Military Space*, 16 February 1987, at 4.

¹⁸⁰ *Id.*, at 2; emphasis added.

The two announced U.S. Space-Based Interceptor (SBI) tests are to use *sounding rockets* as targets.¹⁸¹ If so, the KEWs would not be "tested in an ABM mode" since the flight trajectory of a sounding rocket is very dissimilar to that of a strategic ballistic missile. Assuming, however, that a test *did* involve a target that caused it to be "in an ABM mode," would this activity constitute development and testing of a "space-based" ABM component? If not, would it be *otherwise* banned by Article V(1)?

The first question is fairly easily answered. We cannot say with any confidence that sub-orbital projectiles even *enter* "space," within the meaning of the ABM Treaty, let alone affirm that they are *based* there. The Treaty defines neither "space" nor "space-based." Neither did the issue of their meaning arise in any of the Congressional ratification hearings in 1972.¹⁸²

If one looks for a definition of "outer space" in international law generally, one finds that no agreement exists beyond the notion that objects are in "outer space" when they are *in orbit* around the Earth. No international agreement has yet been forged acknowledging that objects in sub-orbital trajectories are in outer space, even when they attain the altitude at which satellites orbit.¹⁸³

If not "space-based," are ABM components operating in sub-orbital trajectories *otherwise* banned by Article V(1)? This is a question that analysts of the ABM Treaty consistently fail to address, concluding that Article V(1) does not come into play once it is shown that "*space-based*"

¹⁸¹ *Military Space*, 17 August 1987, at 3.

¹⁸² Jones, "Space-Based BMD Lasers", *supra*, note 123, at 57, concurs with this judgment, and maintains that the absence of a definition of "space-based" or "space" was the result of substantive disagreement between the Parties that was never resolved.

¹⁸³ In fact, it has been suggested that one of the reasons the U.S. has consistently opposed efforts of the international community to define the Earthward side of "outer space" in terms of a specified altitude above the Earth's surface is to avoid the application of any such definition to the meaning of "space-based" in Article V(1) of the ABM Treaty, thus preserving the option of developing, testing and deploying "pop-up" ABM components intended for exoatmospheric use, but which are not *orbited*. (*Id.*, at 57-59)

status cannot be proven.¹⁸⁴ But Article V(1) not only prohibits *space*-basing; it prohibits *other* types of mobile basing as well:

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 first issue we must deal with in deciding whether KEWs in sub-orbital trajectory are governed by Article V(1) even though not demonstrably "space-based" is whether it is proper to characterize such devices as *fixed, land-based*. If properly so characterized, their development, testing and deployment would be permitted.

Is a fixed, land-based characterization warranted? Let us look closely at what would happen during the testing of such a device where a launch platform was used. A KEW with its own small rocket would be attached to a platform. The platform would in turn be attached to a much larger rocket. This larger rocket would be attached to an immobile launch facility on the surface of the Earth. When the test commenced, the large rocket would be fired, placing the platform, with KEW attached, into a sub-orbital trajectory. Sometime during the course of this sub-orbital flight, separate satellite-based sensors would track the target and relay information about its location, direction and velocity to the platform. The small rocket on the KEW would then be fired. This would cause the KEW to move away from the platform, along a *different* sub-orbital trajectory. This second trajectory could be perpendicular to the first, or even send the KEW back in the direction from which it had come. In short, it could take the KEW in a radically different direction than that of the platform.

The question then becomes this: is this KEW, which follows two distinct trajectories powered by two distinct power sources "based," within the meaning of Article V(1), (a) on the fixed, land-based launch pad where its journey begins, or (b) on a mobile launch platform in sub-orbital trajectory, where it resides when its target comes into view, and from whence it commences its final

¹⁸⁴ E.g. Jones, "Space-Based BMD Lasers", *supra*, note 123, at 56-7; Smith, "Legal Implications", *supra*, note 78, at 63-5.

approach to target? In more general terms, can an ABM component ever be "based" anywhere other than where it resides prior to a test, and where deployed pop-up devices would be stationed during peacetime prior to warning of missile attack?

In the case of *sensors* tested in sub-orbital trajectories, the weight of opinion supports the contention that these can be considered fixed, land-based if launched from fixed, land-based launchers.¹⁸⁵ Nevertheless, it is submitted that this interpretation is not correct in the case of KEWs fired in a significantly different direction from the sub-orbital platforms on which they reside. In that case, while the *launch pad* and *platform* can properly be described as fixed and land-based, the KEW interceptor missile cannot. This becomes clearer when one considers the following examples:

1. A KEW is attached to a railway car. The railway car sits on a rail line that runs down a mountainside. Prior to the test, the railway car remains clamped to a fixed location, poised at the top of the mountain. When the test begins, the rail car is given an initial impetus, and is then permitted to roll down the mountainside. It travels for several miles with no impetus other than that initial thrust and the force of gravity. Halfway through its journey, the KEW is propelled by its own rocket towards a strategic ballistic missile target in flight, colliding with and destroying it.
2. A KEW is attached to a large square-rigged sailing barge. Prior to the test, the barge sits on a beach, moored to several posts, which prevent it from moving. When a strong offshore wind comes up, the barge is pushed off the beach onto the ocean. It blows several miles out to sea. During this journey, the KEW uses its own rocket engine to launch itself into the air and out of the Earth's atmosphere, where it collides with and destroys a strategic ballistic missile warhead.
3. A glider aircraft carrying a KEW is stationed on a mountaintop. Prior to the test, it remains bolted in place. At the start of the test, the glider is given an initial thrust out off the mountaintop. It glides slowly down to rest in a nearby valley. During the flight, the KEW interceptor uses its own rocket engine to separate itself from the glider and propel itself onto a collision course with a strategic ballistic missile warhead.
4. A satellite carrying a KEW is attached to a rocket. Prior to the test, the rocket is firmly attached to a fixed, land-based launch pad. The rocket is fired, placing the satellite into orbit. After several orbits, the KEW uses its own separate rocket engine to propel itself away from the satellite to intercept a strategic ballistic missile warhead in flight.

¹⁸⁵ See Chapter 5 for a detailed treatment of this issue in the context of ABM system sensors.

Can there be any doubt that these examples describe the testing of mobile land-based, sea-based, air-based, and space-based ABM components, respectively? Can it be seriously contended that they are all "fixed, land-based" just because that term describes their initial resting place? What about air-launched cruise missiles (ALCMs) and the U.S. Miniature Homing Vehicle (MHV) ASAT? Are these to be characterized as fixed, land-based weapon systems just because they reside under the wing of an aircraft in a hangar when not in use? In what respect does any of these examples differ from a KEW launched from a platform in sub-orbital trajectory?

One difference is that aircraft, railcars and ships are reusable vehicles, unlike the expendable rockets most likely to be used as test platforms for KEWs. Attaching a weapon to an expendable vehicle, and then refraining from test-firing the weapon, entails a cost (represented by the loss of both vehicle and weapon) not incurred with reusable test platforms. But what about an aborted test of a weapon stationed on a reusable space vehicle, such as the Space Shuttle, if that vehicle only completes a fraction of an orbit before re-entering? If the reusable/expendable distinction governed, this would not constitute the testing of a "fixed, land-based" weapon, while carrying the identical weapon in the identical trajectory on an expendable launch vehicle would. There would thus be different legal characterizations of essentially the same activity.

It is submitted that a weapon system component is "based," as a matter of textual interpretation, not where it is kept prior to use, but where it last resides prior to its final approach to target. An ALCM attached to the wing of a B-52 bomber aircraft should be, and is, considered air-based because the aircraft can be sent aloft without committing the missile to attack. Likewise, it is submitted, an ABM interceptor missile attached to a platform launched into sub-orbital trajectory, *when it has the capability to be fired on a separate and distinct attack trajectory or withheld and allowed to re-enter with the platform*, should not be considered fixed, land-based.¹⁸⁶

¹⁸⁶ It should be noted that this position is at odds with that of most commentators, some of whom attribute to the term "based" a sense of *permanency*. See, e.g. Smith, "Legal Implications", *supra*, note 78, at 64:

If not fixed and land-based, does that necessarily mean that their development, testing and deployment are prohibited by Article V(1)? That depends upon the answers to the following questions:

1. Is the list of basing modes in Article V(1), when augmented by "fixed, land-based," an *exhaustive* list of possible basing modes, or do components in sub-orbital trajectories constitute an unconstrained category of mobile basing *between* air-based and space-based?
2. If the list *is* exhaustive, and we regard the KEW as being "based" on the platform in sub-orbital trajectory, then it must either be (a) "air-based," (b) "space-based" or (c) "air-based" at the beginning of its journey and "space-based" in the middle of its journey. Is the application of Article V(1) negated either because (a) it is not possible to specify with certainty which of the listed basing modes is in use or because (b) a device employs one basing mode in one portion of its mission, and a different basing mode in another portion?
3. If KEWs on platforms in sub-orbital trajectory are regarded as space-based, air-based or a combination of the two, how do we distinguish them from KEWs launched from ground-based multi-stage rockets, which would appear to be clearly fixed, land-based?

On the issue of whether a special class of exempt basing mode exists between air- and space-basing, it is true that sub-orbital platforms cannot clearly be said to have entered "space," as understood in international law generally, yet they attain altitudes at which no aerodynamic lift occurs and at which traces of air are negligible. Therefore, it is not possible to state unequivocally either that they are "space-based" or "air-based." Still, there is no logical reason why a loophole should exist for devices based on platforms in sub-orbital trajectories. After all, one cannot develop, test or deploy ABM components on trucks or trains on the Earth's surface, on ships or subma-

... [T]he term "based" is capable of definition. The ordinary meaning includes the concept of permanency; it also relates to the concept of a place from which operations commence. For example, although ICBMs travel through space on the way to accomplishing their mission, they are considered land-based because the launchers from which operations commence are permanently located on the land.

It is submitted that, when interceptor missiles have autonomous rockets capable of carrying them away from their host sub-orbital platform on distinct attack trajectories of their own, the "launcher from which operations commence" is not the fixed, land-based launcher, but the sub-orbital platform. If the concept of permanency were to be insisted upon, ALCMs and MHV ASATs would also have to be considered "fixed, land-based" weapons since their host aircraft spend more time on the ground than aloft.

rines on or under the surface of the ocean, on aircraft in the atmosphere, or on satellites in Earth orbit. It seems unlikely that a component in sub-orbital trajectory escapes the prohibition against mobility, when

1. Article V(1) is often referred to as the "mobile ban," "the ban on mobile ABMs" and so forth, such expressions being inaccurate were one or more mobile basing modes exempt; and
2. such activity could form the basis for breakout to a nationwide ABM deployment – the contingency against which Article V(1) was specifically created to guard.

These factors strongly suggest that Article V(1) applies to ABM components in *all* mobile basing modes, and that devices in sub-orbital trajectory enjoy no special treatment, but must establish themselves as fixed and land-based in order to escape regulation.

If this is the case, and if KEWs launched from platforms on sub-orbital trajectories should not be regarded as fixed, land-based, then it follows that they are either air-based, space-based or a combination thereof. Does the uncertainty as to *which* preclude the application of Article V(1)? It is submitted that it does not. Consider an ABM component based on a hovercraft operating over land and sea. Surely this is caught by the ban on mobile ABMs even though one cannot say for certain whether it is air-based, sea-based or mobile land-based.

Finally, if we characterize KEWs on sub-orbital platforms as space-based, air-based or some combination of the two whenever a separate powered flight takes place after the platform has left the ground, how do we distinguish this from a KEW launched from a multi-stage ground-based rocket? The answer is that mobile-based status should be limited to devices whose air- or space-launched powered flight *can take them in a significantly different direction from their sub-orbital platforms*. The various stages of a multi-stage rocket typically all propel the payload along the same trajectory.

In conclusion, then, the test-firing of a KEW or other "ABM interceptor missile" at strategic ballistic missile targets carried out from a platform in sub-orbital trajectory should, *as a matter of*

textual interpretation, be regarded as a violation of Article V(1) of the ABM Treaty on the grounds that it constitutes the testing of an ABM component that is either (a) air-based, (b) space-based or (c) alternately air- and space-based, whenever the interceptor missile possesses its own rocket engine that propels it along a trajectory significantly different from that followed by the platform, so as to distinguish the test from that of a ground-based ABM interceptor missile powered by a fixed, land-based multi-stage rocket. However, the subsequent practice of the two parties to the ABM Treaty suggest that they do not interpret Article V(1) in this way.

CHAPTER 4

EXISTING INTERNATIONAL LEGAL CONSTRAINTS ON DIRECTED ENERGY WEAPONS

4.1 Multilateral Treaty Constraints on Directed Energy Weapons

As we saw in Chapter 3, certain provisions of multilateral treaties constrain activities involving DEWs. For instance, X-ray laser weapons pumped by nuclear explosive devices may not be tested in space by parties to the Partial Test Ban Treaty. This is true whether they are detonated in orbit or on platforms in sub-orbital trajectory, since that Treaty's prohibition applies in the Earth's atmosphere as well as to outer space. Parties to the Outer Space Treaty could not lawfully deploy X-ray laser weapons pumped by nuclear explosive devices in Earth orbit, on the Moon, or, it is submitted, in lunar orbit.

It is also clear that DEW testing on the lunar surface would be prohibited by Article IV(2) of the Outer Space Treaty, which bans the testing of *any* kind of weapon there.

Some commentators have claimed that laser weapons *not* pumped by a nuclear explosive charge are nevertheless "weapons of mass destruction" within the meaning of Article IV(1) of the Outer Space Treaty, and are thus prohibited by that provision from being placed in Earth orbit, on the Moon or in lunar orbit. It is submitted, however, that laser weapons cannot be considered weapons of mass destruction *per se*, and that the most that can be said is that a particular laser weapon with particular capabilities *could* be considered a weapon of mass destruction if deployed in a certain way.

DEWs are also subject to the debate over the lawfulness of space weapon testing and deployment generally – whether the Outer Space Treaty authorized by implication all activities not expressly proscribed, or whether States Parties never acceded to the development of military space technology beyond non-weapon applications.

4.2 ABM Treaty Constraints on Directed Energy Weapons

Of greater significance in the limitation of activities involving DEWs is the bilateral U.S.-Soviet ABM Treaty. In the fall of 1985 a serious dispute over that Treaty's interpretation arose, the outcome of which will have a critical impact on the extent to which DEWs are limited by the Treaty. It is discussed below.

4.2.1 The ABM Treaty Interpretation Dispute Concerning The Meaning of "ABM Systems and Components"

4.2.1.1 Introduction

A dispute has arisen concerning which devices may be developed and tested in sea-, air-, space- or mobile land-based basing modes against strategic ballistic missiles or their elements in flight trajectory. Until October of 1985, there had never been much public dispute about this in U.S. government and non-government arms control circles.¹⁸⁷ The ABM Treaty had been regarded as prohibiting the development and testing of *all* mobile weapon systems and their components capable of countering strategic ballistic missiles or their elements in flight trajectory, *regardless of the technology employed*.¹⁸⁸ This included DEWs employed as destruct mechanisms. At that time, however, the Reagan Administration introduced an interpretation under which the Treaty proper (as opposed to an agreed statement concluded in connection with the treaty – Agreed Statement D) would place no constraints on ABM devices based on physical principles other than those underlying 1972-era ABM systems. Under this interpretation, the only limitation on such "exotic" ABM systems would be found in Agreed Statement D, which would ban only their deployment.¹⁸⁹

This interpretation has been called the "new" interpretation or "reinterpretation" by its detractors. Its proponents object to this label on the grounds that their interpretation has always been the proper one, and represents the official U.S. government position in the years immediately following the signing of the Treaty in 1972. They refer to it instead as the "broad" or even "legally

¹⁸⁷ There had been some discussion both within the academic community and within the U.S. government.

¹⁸⁸ See Section 4.2.1.2.5, *infra*, where the official government statements of the two parties prior to October 1985 are reviewed in detail.

¹⁸⁹ The Reagan Administration made it clear that, although as a matter of legal interpretation it embraced this interpretation, its *policy* was to continue to restrict the U.S. BMD effort in general, and SDI in particular, to the more restrictive interpretation. See, for example, the testimony of Reagan's Legal Advisor to the State Department, Judge Abraham Sofaer in *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 45 and 49 and that of President Reagan's Arms Control Advisor, Paul Nitze, *id.* at 3 and 19.

correct" interpretation.

The interpretation that holds the development and testing of mobile ABM systems and components to be prohibited regardless of the technology employed has been referred to as the "old" or "traditional" interpretation.

We will not adopt any of these labels, with their connotations of legitimacy and illegitimacy, but will instead use the neutral terms "permissive" and "restrictive" interpretations.

We shall now look in detail at the merits of these two competing interpretations. In so doing, we will apply the following standards:

1. We will seek the most persuasive interpretation under international law. We will not address questions of U.S. constitutional law, such as the role of the Senate in treaty-making and interpretation.
2. We will apply the procedure set out in the Vienna Convention.¹⁹⁰ That Convention does not apply to the instant case as a matter of conventional law.¹⁹¹ Nor can it be said with certainty that its interpretation provisions – Articles 31 to 33 – either (a) codified customary international law as it existed in 1969 or (b) have crystallized into customary international law since then.¹⁹² It seems reasonable to suppose (although, to the author's knowledge, no international tribunal has expressly stated as much), that an interpreter is bound to apply only those legal rules of interpretation in force at the time of a disputed treaty's negotiation. It thus seems likely that if interpretation of the ABM Treaty is to be governed by Vienna Convention Articles 31-33 as a matter of customary international law, such cus-

¹⁹⁰ *Vienna Convention on the Law of Treaties*, cited *supra*, note 8.

¹⁹¹ Article 4 of the Vienna Convention stipulates that "[t]he Convention applies only to treaties which are concluded by States after the entry into force of the present Convention with regard to such States." The ABM Treaty was concluded in 1972. The Vienna Convention did not enter into force for any State until 1980, did not enter into force for the U.S.S.R. until 1986 and has yet to enter into force for the U.S., whose Senate has yet to ratify it.

¹⁹² A survey and analysis of the evidence of these provisions having become customary international law – as reflected in the judgments of international tribunals and in the pronouncements of States involved in international adjudications and arbitrations – is undertaken in Appendix 6. It concludes that, although there is considerable evidence that the interpretation provisions of the Vienna Convention are now in the process of becoming customary international law, this has not yet occurred. For a similar conclusion, see M. Villiger, *Customary International Law and Treaties -- A Study of their Interactions and Interrelations with Special Consideration of the 1969 Vienna Convention on the Law of Treaties* (Dordrecht: Martinus Nijhoff, 1985), at 327 ff (Case Study II) (hereinafter *Customary International Law and Treaties*).

tomary law would have to have crystallized by October 1972, when the ABM Treaty was signed. If it is indeed correct that customary interpretation rules must have crystallized prior to the conclusion of a disputed treaty in order to be applicable to that treaty, it becomes that much clearer that the Vienna Convention rules do not govern the interpretation of the ABM Treaty as a matter of customary international law.

Notwithstanding the fact that an interpreter is not required by law – either conventional or customary – to apply Articles 31-33 of the Vienna Convention to disputes over the ABM Treaty, this is the procedure we shall follow. The evidence must be evaluated within some framework of interpretation, and that of the Convention combines the 'textual', 'intentions' and 'teleological' approaches in a manner acceptable to the great majority of States.¹⁹³

The Vienna Convention procedure will be modified, however, in the following way: we shall not apply any of its rules that have the effect of excluding evidence. Thus, if it should turn out that the Convention's conditions for compulsory recourse to supplementary means are not met – i.e. if the application of Article 31 yields an interpretation that is not ambiguous or obscure and that does not lead to a manifestly absurd or unreasonable result – we shall not consider ourselves free to ignore supplementary means of interpretation.

3. In seeking to fill any gaps in the interpretation procedure set out by the Vienna Convention, we shall look to the jurisprudence of international tribunals, particularly that of the International Court of Justice (ICJ) and of its predecessor, the Permanent Court of International Justice (PCIJ).

4.2.1.1.1 The ABM Treaty Provisions Involved

First, we should be clear about which provisions of the ABM Treaty apply *directly* to the issue.¹⁹⁴

¹⁹³ At the Vienna Conference, Article 31 was approved by a vote of 97 to 0, Article 32 by a vote of 101 to 0. (A/CONF.39/11 Add. 1, at 57-8) As of 31 December 1988, the Convention as a whole had been ratified or acceded to by 58 States and signed but not ratified by 23 others. (*Multilateral Treaties Deposited, supra*, note 4, at 785-6)

¹⁹⁴ Some other provisions can be looked to for inferences in the course of our textual analysis; these will be raised along the way.

These are:

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 inter- ceptor missiles...; (b) ABM launchers...; and (c) ABM radars...

and

Article V(1). Each Party undertakes not to develop, test or deploy ABM systems or their components which are sea-based, air-based, space-based or mobile land-based.

In addition, an agreed statement – Agreed Statement D – is a critical element in the dispute:¹⁹⁵

Agreed Statement 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.

4.2.1.1.2 The Restrictive Interpretation Described

Article V(1) clearly prohibits the development, testing or deployment of "ABM systems or components" that are not fixed and land-based. This much is common to both interpretations. What is in dispute is the object of that clear prohibition – what is *included* in the term "ABM systems or components" and variations thereof. Under the restrictive interpretation, the answer is to be found in Article II. Article II(1) expressly defines the term "ABM system" "for the purpose of this Treaty" as

a system to counter strategic ballistic missiles or their elements in flight trajectory, *currently consisting of* (a) ABM interceptor missiles...; (b) ABM launchers...; and (c) ABM radars...¹⁹⁶

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Agreed Statement D is one of a set of Agreed Statements initialled by the heads of the two delegations and appended to the Treaty. The statements were used as a drafting device to clarify specific points or remove possible ambiguities in more general language in the body of the Treaty. They were transmitted to the Senate as part of the Treaty.

(A. Chayes and A.H. Chayes, "Testing and Development of 'Exotic' Systems Under the ABM Treaty: The Great Reinterpretation Caper" (1986), 99 *Harv. L. Rev.* 1956, at 1961-62 (hereinafter "The Great Reinterpretation Caper"))

Under the restrictive interpretation, only the first part of this definition is essential. Any system "to counter strategic ballistic missiles in flight trajectory" is an "ABM system" for the purpose of the Treaty, including Article V(1). The restrictive interpretation sets out a single test for "ABM systems" – a functional test.

The ABM Treaty does not define "*ABM components*," however. According to the restrictive interpretation, an "ABM component" is an ABM interceptor missile, ABM launcher or ABM radar, or any other device – regardless of the technology it employs – that is capable of substituting for one of those three ABM components. ABM interceptor missiles, ABM launchers and ABM radars (hereinafter referred to collectively as "*traditional ABM components*") are regarded as ABM components because they are listed in Article II(1), and because Article II(2) refers to "[t]he ABM system components listed in" Article II(1). The restrictive interpretation infers an intent to include devices other than traditional ABM components in the term "ABM components" from the fact that Article II(1) describes "ABM systems" as "*currently consisting of*"¹⁹⁷ traditional ABM components. The words "currently consisting of," according to the restrictive interpretation, make it clear that the listing of traditional components after the functional definition is illustrative rather than exhaustive.

If the restrictive interpretation correctly states the meaning of "ABM system" and "ABM component," then Article V(1), which applies to "ABM systems or components," must be regarded as prohibiting the development, testing and deployment of mobile ABM systems, and components thereof, regardless of the technology used. Thus, developing or testing DEWs as destruct mechanisms against strategic ballistic missiles or their elements in flight trajectory should be restricted to fixed, land-based systems and components. Furthermore, pursuant to Article IV, it should be

¹⁹⁶ Emphasis added.

¹⁹⁷ Emphasis added.

restricted to agreed ABM test ranges.¹⁹⁸

4.2.1.1.3 The Permissive Interpretation Described

How does the *permissive* interpretation define these same terms? It considers all references to "ABM systems and components" in the Treaty proper to apply to systems and devices based on the technologies employed in 1972-era ABM systems only. This is the line of argument embodied in the permissive interpretation:

4.2.1.1.3.1 The Central Argument

1. Agreed Statement D is the only provision that mentions ABM systems "based on other physical principles."
2. Although Agreed Statement D prohibits the deployment of such systems and components, it expressly contemplates their "creation."
3. "Creation" means "development and testing."
4. In contemplating the "creation" (development and testing) of ABM systems "based on other physical principles," Agreed Statement D makes no mention of basing mode. In particular, it does not limit its application to fixed, land-based systems.
5. Since there is no express limitation to fixed, land-based systems, Agreed Statement D should be regarded as contemplating the development and testing of ABM systems based on other physical principles in all basing modes, including mobile ones.
6. If Agreed Statement D contemplates the development and testing of ABM systems based on other physical principles in mobile basing modes, the Treaty must permit that activity.

¹⁹⁸ Article IV reads:

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.

4.2.1.1.4.3 Squaring the Central Argument with the Treaty Provisions

7. Article V(1) prohibits the development and testing of "ABM systems and components" in mobile basing modes.
8. Since the language of Agreed Statement D demonstrates that the Treaty permits the development and testing of ABM systems based on other physical principles in mobile basing modes, Article V(1) must not apply to such exotic systems and components, otherwise its terms would prohibit this activity.¹⁹⁹
9. In order for Article V(1) not to apply to ABM systems and components based on other physical principles, the term "ABM systems and components" in Article V(1) must not extend to such systems and components.
10. Article II(1) defines "ABM system" "[f]or the purpose of this Treaty."
11. Therefore, since Article V(1) is clearly part of the Treaty, the Article II(1) definition of "ABM systems" must not include ABM systems based on other physical principles, otherwise it would cause Article V(1) to prohibit the development and testing of such systems in mobile basing modes.

4.2.1.1.3.3 The Exact Meaning of "ABM Systems" and "ABM Components"

12. An "ABM system," within the meaning of Article II(1) and the rest of the Treaty proper, including Article V(1), is a combination of ABM interceptor missiles, ABM launchers and ABM radars. It may also include devices other than these three traditional ABM components, but only if those devices are incapable of substituting for one or more traditional ABM components.
13. "ABM components," within the meaning of Article II(1) and the rest of the Treaty proper, including Article V(1), are ABM interceptor missiles, ABM launchers and ABM radars, and nothing else.²⁰⁰

¹⁹⁹ Judge Sofaer maintains that Agreed Statement D "implicitly excludes from any argument about article V any system or component based on other physical principles." (United States, Congress, Senate, Committee on Armed Services, Subcommittee on Strategic and Theater Nuclear Forces, *Strategic Defense Initiative*, Hearings, October-November-December 1985, 99th Cong., 1st Sess. (Washington, D.C.: USGPO, 1987), at 183 (hereinafter *1985 SDI Hearings*))

²⁰⁰ This view is not compelled by the assertion that the Treaty proper governs devices based on 1972-era ABM technology only. A device could conceivably be developed that (a) did not meet the definition of any of the three traditional ABM components and (b) was capable of substituting for a traditional ABM component but (c) was based on physical principles underlying 1972-era ABM systems. Indeed, many remarks of permissive interpretation proponents are consistent with the view that limiting the application of the Treaty proper to 1972-era ABM systems and components need not limit its application to devices that met the definition of a traditional ABM component. Under such an interpretation, there could be

(a) an ABM-capable weapon system that included devices incapable of meeting the

14. An "ABM system based on other physical principles" is a combination of devices that (a) acting in concert, is capable of countering strategic ballistic missiles or their elements in flight trajectory *and* (b) at least one of which is a device other than an ABM interceptor missile, ABM launcher or ABM radar capable of substituting for one or more of these three traditional ABM components.
15. Components of "ABM systems based on other physical principles" can be ABM interceptor missiles, ABM launchers or ABM radars, or any devices capable of substituting for one of these three traditional ABM components.²⁰¹

definition of a traditional ABM component as set out in Article II(1), which devices were capable of substituting for traditional ABM components, yet which nonetheless was not an "ABM system based on other physical principles," because it relied exclusively upon the same physical principles that underlay ABM systems comprised solely of 1972-era traditional ABM components or

(b) an ABM-capable weapon system that consisted solely of traditional ABM components and adjuncts (i.e. devices not capable of substituting for traditional ABM components) yet which was nonetheless an "ABM system based on other physical principles," because one of the new types of ABM interceptor missile, launcher or radar, or one of the adjuncts, relied on a physical principle that did not underlie systems comprised solely of 1972-era traditional ABM components.

Proponents of the permissive interpretation have never expressly put this theory forward; on the contrary, they have, on occasion, expressly stated that the definition of "ABM components" in the Treaty proper only extends to traditional ABM components. For example, when asked for the Reagan Administration's definition of "component," Ambassador Nitze responded in writing for the record that "'ABM components' are ABM interceptor missiles, ABM launchers and ABM radars and are described in Article II of the ABM Treaty..." (*ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 351)

Were the permissive interpretation to incorporate this different view, it could more easily overcome certain textual weaknesses, such as (a) the fact that Article II(1) seems to contemplate the existence of "ABM components" other than the traditional three, by describing ABM systems as "*currently* consisting of" traditional components and (b) the fact that Agreed Statement D refers to "ABM systems based on other physical principles *and* including components capable of substituting for [traditional components]" (emphasis added), thus appearing to contemplate the possibility of an "ABM system based on other physical principles" that did *not* include such substitute devices.

²⁰¹ Devices capable of substituting for one or more traditional ABM components are frequently referred to, particularly by advocates of the permissive interpretation, as "devices based on other physical principles," "OPP devices" or "ABM components based on other physical principles." These expressions, however, all misstate the terms of Agreed Statement D, which applies the adjective phrase "based on other physical principles" to the term "ABM systems" only, but clearly does not apply it to "components." Under Agreed Statement D, therefore, it is *ABM systems*, and not *individual devices* that may or may not be "based on other physical principles."

4.2.1.1.3.4 Necessary Consequences of the Article II(1) Definition
Of "ABM Systems" Extending Only to Systems
Comprised Exclusively of Traditional ABM Components

16. In Article I(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...

Since "ABM systems" consist solely of systems comprised exclusively of traditional ABM components and non-substitutable adjuncts, it is permissible to deploy ABM-capable weapon systems so as to give regional or nationwide coverage, as long as one type of traditional ABM component in that system has been replaced by a class of device that does not meet the Article II(1) definition of that traditional ABM component.

17. In Article III, each Party undertakes "not to deploy ABM systems or their components except that [traditional ABM components may be deployed in specified numbers and locations]." Since "ABM components" means traditional ABM components only, Article III does not constrain the deployment of devices other than traditional ABM components, even those capable of substituting for one or more traditional ABM components. (Agreed Statement D, however, prohibits their deployment absolutely.)

18. Article IV exempts "ABM systems or their components" from the numerical and geographic restrictions of Article III, when they are being "used for development or testing, and [are] located within current or additionally agreed test ranges." Since neither "ABM systems based on other physical principles" nor components thereof are "ABM systems" within the meaning of Article II, it follows that such systems and components may be developed and tested anywhere – either inside or outside agreed test ranges.

19. In Article IX, each Party undertakes not to transfer to other States, and not to deploy outside its national territory, "ABM systems and components limited by this Treaty." Agreed Statement G expressly extends the first of these undertakings to the transfer of "technical descriptions or blue prints." Since devices other than traditional ABM components that are capable of substituting for a traditional ABM component are not "ABM components" within the meaning of the Treaty proper, these devices (and/or technical descriptions or blue-prints therefor) may be freely transferred to other States, and the devices may be deployed outside national territory including, presumably, on the territory of an ally.

4.2.1.2 General Rule of Interpretation

The Vienna Convention on the Law of Treaties provides the following with regard to interpretation:

Article 31 General Rule of Interpretation

1. A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.
2. The context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes:
 - (a) any agreement relating to the treaty which was made between all the parties in connexion with the conclusion of the treaty;
 - (b) any instrument which was made by one or more parties in connexion with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty.
3. There shall be taken into account, together with the context:
 - (a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions;
 - (b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation;
 - (c) any relevant rules of international law applicable in the relations between the parties.
4. A special meaning shall be given to a term if it is established that the parties so intended.

Article 32 Supplementary Means of Interpretation

Recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to confirm the meaning resulting from the application of article 31, or to determine the meaning when the interpretation according to article 31:

- (a) leaves the meaning ambiguous or obscure; or
- (b) leads to a result which is manifestly absurd or unreasonable.

It is now well settled that these two articles set out a two-stage process. The interpreter is to make an initial judgment relying *solely* on those means of interpretation listed in Article 31. Only then may reliance be placed on the supplementary means mentioned in Article 32, and then only (a)

for the purpose of *confirming* the interpretation reached on the basis of the Article 31 materials or (b) in the event that the interpretation reached after the application of Article 31 is ambiguous or obscure or leads to an absurd or unreasonable result.

There is an important distinction between *recourse* and *reliance*. The former involves access to evidence. The latter involves taking evidence into consideration in arriving at a decision. Clearly, the Vienna Convention envisages *recourse* to supplementary means from the outset of an interpretation, placing no temporal restriction upon it.²⁰² However, *reliance* may not be placed upon supplementary means, except for the purpose of confirming a clear meaning, until the Article 31 materials alone disclose ambiguity or manifest absurdity.

First, then, we must examine the Treaty text, as well as those of the Agreed Statements and Common Understandings concluded in connection with the Treaty that are relevant. (The latter are "agreement[s] relating to the treaty... made between all the parties in connection with the conclusion of the treaty" within the meaning of Article 31(2)(a) of the Vienna Convention.)

In the case of the ABM Treaty, there would not appear to be any "instrument[s]... made by one or more parties in connection with the conclusion of the treaty and accepted by the other part[y] as an instrument related to the treaty" within the meaning of Article 31(2)(b). The U.S. made several unilateral statements at the time the ABM Treaty was concluded, but these seem never to have

²⁰² See Para. 18, ILC Commentary to the 1966 Draft Convention on the Law of Treaties:

[The ILC] felt that it would be unrealistic and inappropriate to lay down in the draft articles that no recourse whatever may be had to extrinsic means of interpretation, such as *travaux préparatoires*, until after the application of the rules contained in article 27 [now 31] has disclosed no clear or reasonable meaning. [in reference to recourse for the purpose of confirmation]

See also H.W. Briggs, "The *Travaux Préparatoires* of the Vienna Convention on the Law of Treaties" (1971), 65 *A.J.I.L.* 705, at 709 and I. Sinclair, *The Vienna Convention on the Law of Treaties*, 2nd ed. (Manchester: Manchester University Press, 1984), at 116 (hereinafter *The Vienna Convention*).

been recognized by the U.S.S.R. as instruments relating to the Treaty.²⁰³

Next we will examine the Treaty's object and purpose, and the two competing interpretations' consistency therewith.

We will then proceed to determine whether there is any subsequent agreement between the parties regarding the interpretation or application of the Treaty or subsequent practice that establishes the agreement of the Parties as to its proper interpretation.

After these materials have been examined, we will make a judgment as to which of the competing interpretations of the ABM Treaty – the permissive or the restrictive – is the more persuasive. We will also decide whether the more persuasive interpretation is so clearly and unambiguously correct – and free from manifestly absurd or unreasonable consequences – as to preclude recourse to the supplementary means of interpretation discussed in Article 32, except for the purpose of confirming that interpretation. Then we shall consider supplementary means of interpretation, even if the Article 31 materials yield an interpretation free from ambiguity and manifest absurdity.

In the instant case, the supplementary means are comprised primarily of

1. internal U.S. SALT I delegation records of the 1971-2 phase of the ABM Treaty negotiations;
2. current recollections of U.S. SALT I delegates of the negotiations;
3. 1972 U.S. Congressional hearings to consider the ratification of the ABM Treaty; and
4. the few excerpts of the 1972 Soviet ABM Treaty ratification debates that found their way into the Western press.

²⁰³ It can be argued, however, that unilateral statements of interpretation made at the time a treaty is signed may be considered under Article 32 as part of the circumstances of a treaty's conclusion.

4.2.1.2.1 Textual Arguments in Favour of the Permissive Interpretation

A number of textual arguments can and have been made in support of the permissive interpretation. Most are made in Part I of a 1987 report²⁰⁴ prepared by the office of then-State Department Legal Advisor Judge Abraham Sofaer²⁰⁵ on the dispute over the meaning of "ABM systems and components" in the ABM Treaty. Some are made by other proponents of the permissive interpretation. Still others are introduced by the author. They are set out and assessed below.

In general, proponents of the permissive interpretation argue that the ABM Treaty "is permeated with references to, and concern about" traditional ABM systems and components and that its provisions – other than Agreed Statement D – "consistently" use the terms "ABM system" and "component" in contexts that reflect that the Parties were referring to traditional ABM systems and components only.²⁰⁶ They conclude from this that the Parties must have intended the Treaty proper to apply to traditional ABM systems and components only. Provisions cited as having this effect include Articles II(2), III and IV. These provisions, it is argued, make more sense under the permissive interpretation (which regards the Treaty proper as applying to traditional ABM systems and components only and Agreed Statement D as the only provision governing exotic ABMs), which, it is claimed, "harmonizes all relevant provisions of the Treaty."²⁰⁷

These claims will be considered below.

204 United States, Department of State, Office of the Legal Advisor, *The ABM Treaty -- Part I: Treaty Language and Negotiating History* (n.p., 11 May 1987) [unpublished] (hereinafter *1987 Legal Advisor's Report*, Part I).

205 Hereinafter, either "Judge Sofaer" or "the Legal Advisor."

206 *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 8.

207 *Id.*, at 4.

4.2.1.2.1.1 Avoiding the Superfluity of Agreed Statement D

The most important textual argument in favour of the permissive interpretation is the fact that Agreed Statement D has a significant, nonredundant substantive effect under the permissive interpretation – prohibiting the deployment of ABM-capable weapon systems “based on other physical principles” that have components capable of substituting for traditional components – but is superfluous under the restrictive interpretation. Proponents of the permissive interpretation apply to this state of affairs the rule of interpretation that a treaty should be read in such a way as to give every provision meaning. They conclude that this aspect of the restrictive interpretation prevents it from being judged the unambiguously correct reading, on the ground that no interpretation of a treaty that treats a provision as superfluous can be said to result from an unambiguous treaty.²⁰⁸ If this is correct, it follows that no conclusion in favour of the restrictive interpretation may be reached without recourse to supplementary means of interpretation.

In order to resolve the issues raised by the possible superfluity of Agreed Statement D, the following questions must be addressed:

1. Is Agreed Statement D in fact superfluous under the restrictive interpretation or can some independent effect be attributed to it?
2. If Agreed Statement D is superfluous under the restrictive interpretation, are there any indications in the text that this either was or was not the negotiators’ intended result?
3. If Agreed Statement D is superfluous under the restrictive interpretation, does this fact, in and of itself, prevent the restrictive interpretation from being regarded as so unambiguously correct as to preclude resort to supplementary means for purposes other than confirmation?

As to the first of these questions, Agreed Statement D does, in fact, appear to be superfluous under the restrictive interpretation. Its one apparent²⁰⁹ undertaking – not to deploy ABM sys-

²⁰⁸ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 9. See also A.D. Sofaer, “The ABM Treaty and the Strategic Defense Initiative” (1986), 99 *Harv. L. Rev.* 1972, at 1976 (hereinafter “The ABM Treaty and SDI”).

²⁰⁹ As will be shown in Section 4.2.1.2.2.4, *infra*, it is unclear from the language of Agreed Statement D whether that provision sets out a prohibition on the deployment of exotic ABMs at all.

tems "based on other physical principles and including components capable of substituting for [traditional ABM components]" -- is accomplished under the restrictive interpretation by the combined effect of Article II (which defines "ABM systems" to include exotic ABM systems) and Article III (which prohibits the deployment of "ABM systems or their components" except for traditional ABM components in specified numbers and locations).

It has been suggested that Agreed Statement D serves another purpose -- making it clear that the test of whether an ABM-capable device is a regulated "ABM component" or an unregulated adjunct is whether the device is capable of substituting for a traditional ABM component.²¹⁰ However, it is submitted that Agreed Statement D cannot be said to lay down such a test in anything like an authoritative manner. Thus, it must be regarded as doing no more than making express the implicit prohibition in Article III against the deployment of exotic ABM systems and components, and hence as redundant.²¹¹

In answer to the second question, proponents of the permissive interpretation find a number of textual indices that Agreed Statement D was meant to have substantive rather than interpretive effect:

1. No other agreed statements are redundant;²¹²
2. While Agreed Statements A, B, C, E and G begin with the words "The Parties *understand* that ...," Agreed Statement D states instead that "the Parties *agree* that ...," showing that while the former may be interpretive, the latter is substantive. It is also claimed that

²¹⁰ See, e.g. United States, House, Committee on Foreign Affairs, Subcommittee on Arms Control, International Security and Science, *Review of ABM Treaty Interpretation Dispute and SDI*, Hearings, February 1987, 100th Cong., 1st Sess. (Washington, D.C.: USGPO, 1987), at 32-3 (prepared statement of John B. Rhinelander) (hereinafter *Review Hearings*).

²¹¹ The purpose of setting out the component/adjunct test in the context of exotic ABM devices does explain in part why the U.S. SALT I delegation did not seek the removal of Agreed Statement D after Article III was revised so as to ban the deployment of fixed, land-based exotic ABMs. This, however, is a matter for consideration in Section 4.2.1.3, *infra*, and Appendix 10, *infra*, where the negotiating record is considered under supplementary means of interpretation.

²¹² 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 9.

"agree" is more akin to "undertake" used in the Treaty proper than to "understand";²¹³

3. The introductory clause is very similar to those of Articles VI, IX, XII(1) and XIII(1). Those provisions have substantive effect.²¹⁴

An examination of all other agreed statements does indeed show them to have independent, substantive effect. However, this does not mean that the same must be true of Agreed Statement D. Agreed statements are negotiated at different stages of negotiations and for different reasons.

The other textual arguments presented here are also unpersuasive. For instance, use of the word "agree" in Agreed Statement D is no more indicative of independent, substantive effect than of an interpretive role. In addition, the first two textual arguments are contradictory: it is claimed that the other agreed statements cited have independent, substantive effect, yet the use of the verb "to understand" in those provisions is pointed to as evidence of mere interpretive effect. One cannot have it both ways. Either these other agreed statements have non-redundant, substantive effect (which, it is submitted, they do), in which case their use of "to understand" is of no significance *or* this language is indicative of an interpretive role only, in which case it is entirely possible that Agreed Statement D is merely interpretive as well.

Of great importance in understanding the role of Agreed Statement D is its introductory or inducing clause, which sets out the statement's purpose:

In order to insure fulfillment of the obligation not to deploy ABM systems and their components except as provided in Article III...

Judge Sofaer has characterized this as meaning "to ensure attainment of an *objective* of article III that article III does not bring about."²¹⁵ Presumably, this objective is the prevention of the deployment of nationwide BMD systems based on any technologies, and Agreed Statement D helps attain

²¹³ *Id.*, at 9-10.

²¹⁴ *Ibid.*

²¹⁵ Sofaer, "The ABM Treaty and SDI", *supra*, note 208, at 1977; emphasis added.

it by prohibiting the deployment of exotic ABM systems and components.

By describing Agreed Statement D as assuring the attainment of an unrealized "objective" of Article III, Judge Sofaer makes it reasonable to regard Agreed Statement D as a provision with independent, substantive effect. However, such a description requires a misreading of the agreed statement, which refers not to an unrealized "objective" but to an existing "*obligation*." This obligation must be created elsewhere than in Agreed Statement D. This is the unavoidable grammatical consequence of preceding the word "obligation" with the word "the."

Where, other than in Agreed Statement D, can an obligation not to deploy ABM systems and components except as allowed in Article III be found? It can be found only in Article III itself, which states that "[e]ach Party undertakes not to deploy ABM systems or their components except that [specified numbers of traditional ABM components may be deployed in specified locations]."

Thus, by citing its purpose as insuring the fulfillment of an obligation -- one undertaken elsewhere -- not to deploy ABM systems or components except as allowed by Article III, Agreed Statement D strongly supports the restrictive interpretation, in which the exotic ABM deployment ban is created by Article III. Similarly, it refutes the permissive interpretation, which credits Agreed Statement D with prohibiting the deployment of exotic ABMs.

It is also of interest to compare the introductory clause of Agreed Statement D with those of Articles VI and IX. While Agreed Statement D is intended to "*insure fulfillment*" of "the obligation" referred to above, Articles VI and IX seek the much more modest goal of "enhanc[ing] assurance of the *effectiveness* of" the Treaty limitations on ABM systems and components by placing limitations on *non*-ABM devices (Article VI) and "assur[ing] the *viability* and *effectiveness*" of the Treaty by prohibiting otherwise permitted transfers of ABM components to allies (Article IX).²¹⁶

²¹⁶ All emphasis added.

To "insure fulfillment" is to issue a *guarantee*. Its use is therefore only appropriate when one provision reinforces another by overlapping it – by covering the same ground, but more explicitly. To "enhance assurance of" or even to "assure" another provision's *effectiveness* is very different. Phrases such as these are a guarantee not of compliance, but of efficacy. Their use is appropriate when one provision is calculated to reduce the likelihood that the objective of another provision will be frustrated through an otherwise legal circumvention. This is because, upon the exercise of such a lawful circumvention, a provision could be complied with, yet not be effective in achieving its goal.

Thus, the guarantory language should be used only when there is a single obligation created in one provision that is repeated and clarified in another. The anti-circumvention language, on the other hand, should be used only when there are two distinct and complementary obligations or groups of obligations.

In each of Articles VI and IX, there are clearly two distinct sets of limitations being discussed. In Article VI, these are (a) those that apply to ABM systems and components and (b) those that apply to *non*-ABM systems and components. In Article IX, they are (a) all Treaty obligations other than those of Article IX and (b) the Article IX obligations not to deploy ABM components outside one's national territory or to transfer them to allies.

Article VI is thus meant to prevent the circumvention of the rest of the Treaty's limitations on ABM systems and components through the development and testing of *non*-ABM systems and components in an ABM mode (Article VI(a)) or the deployment of early warning radars in locations useful for BMD (Article VI(b)). Article IX is meant to prevent the circumvention of the rest of the Treaty by adding limitations on transfers of ABM components to other states.²¹⁷

²¹⁷ Admittedly, the Article IX prohibition against the deployment of ABMs outside one's national territory is not as clear an example of a new obligation, since the Parties were limited to two ABM

In contrast, the language of Agreed Statement D – “to insure fulfillment” of an obligation – is consistent with *one* obligation only, and not with two complementary ones. Thus, it is not proper, as Judge Sofaer has done, to treat Agreed Statement D as an anti-circumvention measure – a provision that complements Article III by covering different subject matter.²¹⁸ A complementary provision dealing with different subject matter can never “insure” compliance. For example, if the Article VI limitations on *non*-ABM systems and components were complied with, this would not “insure” compliance with the Treaty’s other limitations on *ABM* systems and components. If the permissive interpretation sees “the obligation” mentioned in Agreed Statement D as referring to Article III’s limiting effect on *traditional* ABMs only, and Agreed Statement D as banning the deployment of exotic ABMs so as to prevent the circumvention of Article III, then the purpose of Agreed Statement D would be better reflected in the wording used in Article VI – to “enhance assurance of the *effectiveness*” of the Article III limitations on traditional ABMs – than by the guarantory language “to insure fulfillment” that Agreed Statement D actually uses. This guarantory language is consistent with the restrictive interpretation, however, which sees the existing obligation (created in Article III) not to deploy ABM systems and components except as allowed by Article III as *including* the ban on exotic ABM deployment, which Agreed Statement D appears to set out. Under the restrictive

deployment areas – one around the national capital and another to protect ICBM silos. Since ICBMs were likely to be deployed on a Party’s national territory, the Treaty already prohibited deployment outside national territories as a practical matter.

However, as a matter of strict legal construction, the ABM deployment area around ICBMs could be located on land other than that of one of the Parties, as long as its centre was at least 1300 miles from that of the area around the national capital (Agreed Statement C). Only with Common Understanding A did the U.S. designate Grand Forks as the centre of its ICBM defence ABM deployment area. The Soviets did not make a similar declaration. Therefore, strictly speaking, the Article IX obligation not to deploy ABMs outside one’s national territory is an obligation not found elsewhere in the Treaty proper.

²¹⁸ See 1985 SDI Hearings, *supra*, note 199, at 183 (testimony of Judge Sofaer), where Agreed Statement D is described as preventing the Article III limitations from being “rendered meaningless.” See also *id.*, at 268 (answers of Judge Sofaer to additional questions of Senator Levin):

In short, Agreed Statement D strives to prevent the article III deployment ban *from being circumvented* by the creation of new defensive technologies... The provisions [Article III and Agreed Statement D] are complementary. [Emphasis added]

interpretation, if Agreed Statement D is complied with, and exotic ABMs are not deployed, this would indeed "insure" fulfillment of part of the obligation referred to – that part dealing with exotic ABMs – since it would be the same obligation.²¹⁹

Judge Sofaer does not address this important difference between guarantory and anti-circumvention inducing language. He notes only (and, it is submitted, incorrectly) that the phrase used in Agreed Statement D "is close to the analogous phrases in Articles VI... IX, XII(1) and XIII(1)."²²⁰

If, as we have just conceded, Agreed Statement D is superfluous under the restrictive interpretation, does this fact alone prevent us from accepting the restrictive interpretation as unambiguously correct on the basis of the general rule of interpretation? It is submitted that it does not.

On this question, we must first ask whether it is even significant that an agreed statement should lack independent substantive effect and merely state expressly what the Treaty proper provides implicitly. While Judge Sofaer maintains that the restrictive interpretation renders "a portion

²¹⁹ On the other hand, Agreed Statement D cannot "insure" compliance with that part of the Article III prohibition against the deployment of *traditional* ABMs in prohibited locations or in excess of permitted numbers. Thus, it must be acknowledged that Agreed Statement D's guarantory wording is not a perfect fit with the restrictive interpretation either.

²²⁰ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 10.

Article XII(1) states that "[f]or the purpose of providing assurance of compliance with the provisions of this Treaty" each Party shall use national technical means of verification (NTM) in a manner consistent with international law. Although this looks like the phrase "in order to insure fulfillment" in Agreed Statement D, it is in fact quite different. "Providing assurance of compliance" is not the same as "ensuring compliance." It should be taken to mean, particularly in the context of verification, "providing *evidence* of compliance," since verification can never assure compliance, but can only assure a Party whether the other is or is not complying.

The introductory clause of Article XIII(1), on the other hand, is more akin to the "enhance effectiveness" language of Article VI than to the "insure fulfillment of the obligation" wording of Agreed Statement D. It states that the Parties will create and operate a Standing Consultative Commission "[t]o promote the objectives and implementation of the provisions of this Treaty." This is appropriate since recourse to the SCC does not automatically bring about compliance with any substantive obligation. The most it can do is facilitate better compliance.

of a treaty" superfluous,²²¹ the agreed statements are not, in fact, "portions" of the Treaty, but part of its *context* only. Thus, while this requires their consideration in the first phase of interpretation under Article 31 of the Vienna Convention, their redundancy should not be cause for much concern.²²²

Even the superfluity of a Treaty *article*, however, would not be determinative of a dispute in and of itself. It would only be one textual element to be weighed against others together with the Treaty's context in the light of its object and purpose. Furthermore, these are not the only materials to be considered under Article 31. The subsequent practice must also be considered. Thus, the superfluity of a treaty provision — much less an agreed statement — under a particular interpretation does not, in and of itself, prevent that interpretation from being unambiguous under Article 32 of the Vienna Convention so as to preclude recourse to supplementary means of interpretation for purposes other than confirmation.

Finally, it is doubtful as a practical matter that such an important prohibition as the ban on the deployment of exotic ABMs would have been left to an agreed statement appended to the Treaty.²²³

²²¹ *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 14 (testimony of Judge Sofaer).

²²² This view is held by at least one other commentator:

It is incorrect to think that such agreed statements... could require that the treaty provisions be read in a particular way merely to prevent an agreed statement from becoming superfluous.

(A.B. Sherr, "Sound Legal Reasoning or Policy Expedient? The 'New Interpretation' of the ABM Treaty" (1986), 11:3 *Int'l Security* 71, at 78, his n. 12) (hereinafter "New Interpretation")

²²³ This conclusion is shared by the majority of the Senate Foreign Relations Committee. See United States, Congress, Senate, Committee on Foreign Relations, *The ABM Treaty Interpretation Resolution [S. Res. 167]: Report of the Senate Foreign Relations Committee Together With Additional Views* (Washington, D.C.: USGPO, 1987) [S. Rep. No. 164, 100th Cong., 1st Sess], at 30 (hereinafter *1987 Senate Foreign Relations Committee Report*).

All that remains for proponents of the restrictive interpretation to do is explain why Agreed Statement D appears in the Treaty at all, since they give it no credit for doing anything not already done by Article III. Their answer is that it was included in order to *reinforce* the bans in Article I(2) (on nationwide ABM deployments) and Article III.²²⁴ John Rhinelander has testified that he did not then, and does not now, think that any supplementary interpretation of what he considers the clear meaning of Articles I(2) and III was technically necessary in order to effect the exotic ABM deployment ban.²²⁵ Thus, the proponents of the restrictive interpretation do not deny the superfluity of Agreed Statement D. They acknowledge it, but maintain that this was acceptable, since the provision played a supporting role only.

²²⁴ *ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 73 and 91 (testimony of John B. Rhinelander) and 29 (testimony of Gerard C. Smith). Chayes and Chayes ("The Great Reinterpretation Caper", *supra*, note 195, at 1963) agree, stating that "[a]s suggested in the inducing clause, [Agreed Statement D] clarifies and strengthens the obligations of Article III." In particular, they say, it *makes explicit the implicit limitation of Article III that only traditional components can be deployed*, "by stating expressly that deployment of traditional systems based on exotic technology is prohibited by the obligations undertaken in article III."

The authors state a "further special reason" why a statement emphasizing the total ban on fixed, land-based exotics was needed. The numerical limitations on permitted Article III deployments, considered sufficiently low to prevent breakout to a nationwide ABM deployment using traditional ABM devices, might not be low enough to provide the same assurance with respect to exotic systems. Thus, it was thought desirable to stress that these quantitative ceilings were not applicable to exotic ABM devices, for which new and probably lower ceilings would have to be arrived at, if deployment of exotic ABMs was to be permitted in the future:

These quantitative restrictions *would have no meaning* in relation to systems "based on other physical principles." If such systems were "created in the future," therefore, the parties would have to discuss how *or even whether* comparable restrictions on firepower and capability of the new technology could be devised.

(*Ibid.*; emphasis added)

²²⁵ *ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 71 (testimony of John B. Rhinelander).

4.2.1.2.1.2 The Alleged Superfluity of Article V(1)

Charges of superfluity have also been levelled at the restrictive interpretation in respect of Article V(1), which bans the development, testing and deployment of "ABM systems or components" that are not fixed, land-based. In November 1985, Judge Sofaer testified that, under the restrictive interpretation, deployment limitations in Article III would "eliminate all need" for Article V.²²⁶ Subsequent formulations of this argument show this presentation to have overstated the case in three respects:

1. The argument only applies to Article V(1), and not to all of Article V;
2. It only applies to the *deployment* prohibition in Article V(1), and not to that provision's limitations on development and testing and
3. It is no longer alleged that the restrictive interpretation would "eliminate all need" for the deployment limitation in Article V(1), only that it would render it "largely" or "essentially" unnecessary.

Thus amended, the argument has since been put in these terms:

...[R]eading the Treaty's definition of ABM systems as encompassing both present and future systems and components essentially would render unnecessary article V's ban on deployment of other than fixed land-based systems. Article III, by specifically limiting the deployment of "ABM systems and their components" to launchers, interceptor missiles and radars at "launch sites," can be read as allowing deployment of only fixed land-based systems; this is how advocates of the restrictive interpretation read article III. But if "ABM systems or their components" encompassed devices based on other physical principles, article III itself would preclude deployment of all such systems based in other than the fixed-land mode.²²⁷

Reading Article II(1) to apply to present and future substitute systems and components would render largely unnecessary even Article V(1)'s ban on deployment of other than fixed land-based systems. Article III, by specifying that launchers and interceptor missiles are to be located at "launch sites," can be read as allowing deployment only of fixed land-based systems. If it is so read, and if the definition of "ABM system" covered all future substitute devices, then Article III would itself preclude deployment of all such devices other than those of a fixed land-based mode.²²⁸

²²⁶ 1985 SDI Hearings, *supra*, note 199, at 180.

²²⁷ Sofaer, "The ABM Treaty and SDI", *supra*, note 208, at 1974-5.

²²⁸ 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 9, their note 2.

Judge Sofaer's argument can be summarized as follows:

1. Article III states that "the Parties undertake not to deploy ABM systems or their components except that" in each of two "ABM system deployment areas"²²⁹ the Parties may deploy "no more than one hundred ABM launchers and no more than one hundred ABM interceptor missiles *at launch sites*"²³⁰ together with a specified number of ABM radars.
2. Allowing deployments "at launch sites" *can* be construed as limiting them to the fixed, land-based mode.
3. Proponents of the restrictive interpretation *do* so interpret the phrase "at launch sites."
4. Under the restrictive interpretation, therefore, as stated by its proponents, "essentially" all of the activities prohibited by the deployment portion of Article V(1) are already banned by Article III. This significant level of superfluity is pointed to as another textual strike against the restrictive interpretation.

There are several errors in this analysis. First, it is doubtful that the phrase "at launch sites" means "fixed, land-based."²³¹ While this interpretation is possible, it is unlikely. Preventing the deployment of nationwide ABM systems is indisputably the central goal of the ABM Treaty. The prohibition against the development, testing and deployment of traditional ABM components in mobile basing modes is one of the most important means of achieving that goal. That being the case, it is extremely doubtful that the negotiators would seek to effect that prohibition in the ambiguous and offhand manner of merely including the phrase "at launch sites" in Article III.²³²

Second, Judge Sofaer associates the position that "at launch sites" means "fixed, land-based" exclusively with the restrictive interpretation. So encumbered, that interpretation is then compared to the permissive interpretation *without* saddling the latter with the same view. Under these unequal circumstances, the restrictive interpretation compares unfavourably with the permissive interpreta-

²²⁹ A 1974 Protocol reduced the number of permitted ABM system deployment areas from two to one.

²³⁰ Emphasis added.

²³¹ In neither of the formulations quoted above does Judge Sofaer claim that "at launch sites" *should* be interpreted as "fixed, land-based, only that it *can* be so interpreted and that proponents of the restrictive interpretation *do* so interpret it.

²³² Compare Article III to the unequivocal manner in which Article V(1) bans the deployment of mobile ABM systems and components.

tion in the degree to which it renders the Article V(1) deployment ban superfluous.

However, there is no reason to attribute this view of "at launch sites" to the restrictive interpretation only. The reason given by Judge Sofaer for doing so – that proponents of the permissive interpretation take that view – is not borne out by the evidence. The most visible and authoritative proponents of the restrictive interpretation – Gerard Smith and John Rhinelander – do not in fact appear to regard "at launch sites" as limiting permitted deployments to the fixed, land-based mode.²³³ Nor is this view of "at launch sites" a necessary element of the restrictive interpretation. Consequently, there is no reason to make this unequal comparison.

A proper comparison of the two interpretations would be to examine their effect (a) with both treating "at launch sites" as meaning "fixed, land-based" and (b) with neither regarding it as having that meaning.

If "at launch sites" does mean "fixed, land-based" (which we have seen is highly unlikely), the Article V(1) deployment ban is almost as superfluous under the permissive interpretation as under the restrictive one. Under the permissive interpretation, Article III would ban the deployment of mobile ABM interceptor missiles (and presumably ABM launchers as well)²³⁴ but not mobile ABM

²³³ In Congressional testimony on 21 November 1985, John Rhinelander made it clear that he regarded Article V(1) rather than Article III as the sole source of the ban on the deployment of mobile ABM systems and components:

[A]rticle III deals with fixed land based, because that is all that is left over... [T]he only thing you can deploy is fixed land based because all the other basing modes have been locked by article V.

(1985 SDI Hearings, *supra*, note 199, at 180)

Ambassador Smith was a witness at the hearing and did not dissent from this view.

One critic of the permissive interpretation (Sherr, "New Interpretation", *supra*, note 222, at 75, his note 8), though, does seem to concede the point (or, at least, does not dispute it), but his view is not as authoritative as that of Messrs. Smith and Rhinelander.

²³⁴ The clause "a Party may deploy... no more than one hundred ABM launchers and no more than one hundred ABM interceptor missiles at launch sites" can be seen as applying the phrase "at launch sites"

radars.²³⁵ Article V(1) would prohibit the deployment of all three traditional ABM components in mobile basing modes. Thus, it would be superfluous in respect of interceptor missiles and launchers.

Under the restrictive interpretation the same would hold true. In addition, however, there would be superfluity in respect of *exotic* ABM systems and components, whose deployment in mobile basing modes would be prohibited by both Article III and Article V(1).

If "at launch sites" does *not* mean "fixed, land-based" (as we have determined it should not), then Article III applies no restrictions to the deployment of ABM launchers and interceptor missiles under either interpretation. In this case, the permissive interpretation involves *no* superfluity of the Article V(1) deployment ban, and that which occurs under the restrictive interpretation is limited to exotic ABM systems and components.²³⁶

Assuming that "at launch sites" does not mean "fixed, land-based," how significant, then, is the degree of Article V(1) redundancy under the restrictive interpretation? It is submitted that, when one recalls that (a) in a provision that governs development, testing and deployment, only the *deployment* prohibition involves redundancy, and that (b) in a provision that governs both tradition-

to "ABM launchers," but can also be read as applying it to "ABM interceptors" only.

²³⁵ Article III does not apply the phrase "at launch sites" to ABM *radars*. Consequently, it leaves plenty of leeway for the deployment of mobile ABM radars. Pursuant to Article III(a), the ABM radars deployed in the ABM system deployment area centred on the national capital need only be within one of six "ABM radar complexes," which are to be circular and no more than three kilometers in diameter. Furthermore, Article III(b)(3) permits the deployment of 18 small ABM radars anywhere within the one ABM system deployment area containing ICBM silos. That deployment area may be a circle with a radius of up to 150 km. In both these provisions, and especially in the latter, there is ample opportunity for the lawful deployment of mobile, land-based ABM radars within the ABM system deployment areas.

²³⁶ Under the restrictive interpretation, Article III bans the deployment of exotic ABM systems and components in *all* basing modes by prohibiting the deployment of "ABM systems and their components" – which under the restrictive interpretation includes exotic ABM systems and components – "except that [certain deployments of *traditional* components are permitted]." As a result, it bans mobile exotic ABM systems and components whether "at launch sites" means "fixed, land-based" or not.

al and exotic ABM systems and components, there is only redundancy in respect of the latter, the degree of superfluity in Article V(1) under the restrictive interpretation appears minimal indeed.

However, before much significance is accorded even this minimal level of redundancy, we should ask how the Treaty negotiators could have worded Article V(1) so as to avoid it. They would have had to substitute for the concise wording "develop, test or deploy ABM systems or their components..." the more complicated "develop or test ABM systems or their components or deploy ABM systems, ABM interceptor missiles, ABM launchers or ABM radars..." In view of this, a certain degree of overlap between Articles III and V(1) may well have been viewed as an acceptable price to pay for greater simplicity.

To summarize, a textual analysis that takes into account the ABM Treaty's central object and purpose strongly supports the view that the phrase "at launch sites" in Article III does not mean "fixed, land-based," but that Article V(1) is the only provision that prohibits activities involving mobile ABM systems and components. There is no reason to associate the position that "at launch sites" means "fixed, land-based" with the restrictive interpretation. That position is neither a necessary element of the restrictive interpretation nor the view of the most authoritative proponents of that interpretation. A proper comparison of the permissive and restrictive interpretations reveals the latter to involve a greater degree of Article V(1) superfluity only in respect of the deployment of exotics. While even this degree of redundancy would be avoided in a perfectly-drafted agreement, it involves only a small fraction of what Article V(1) does, and, given the way the Treaty structure evolved, could only have been avoided by greatly complicating that provision's language.

4.2.1.2.1.3 Article II(2)

Article II(2) provides as follows:

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.

The following arguments have been made on behalf of the permissive interpretation in respect of Article II(2):

1. The word "include" must be taken to precede an *exhaustive* listing. Even if unclear from the English text, a bilingual textual analysis favours this view since the word used in the Russian text means "refers to."²³⁷
2. The Article II(2) list pertains to the "ABM components" governed by Article II(1), and therefore by the Treaty as a whole.
3. The Article II(2) list, which exhaustively enumerates the "ABM components" governed by the Treaty, fails to expressly mention exotic systems, thus showing that the drafters did not consider the term "ABM components" to include them.²³⁸
4. Article II(2) is therefore one of a number of provisions that uses "'ABM system' and 'components' in contexts that reflect that the parties were referring in the Treaty text to systems and components based on physical principles then in use."²³⁹

²³⁷ See the analysis of S. Fred Singer, reproduced in United States, Senate, Committee on Foreign Relations and Committee of the Judiciary, *ABM Treaty and the Constitution*, Hearings, March-April 1987, 100th Cong., 1st Sess. (Washington, D.C.: USGPO, 1987), at 426-7 (hereinafter *Constitution Hearings*).

²³⁸ Had the negotiators tried to bring future technologies within the purview of article II(1), they could have added 'undergoing research' or 'developed in the future' to the litany of components in article II(2).

(Sofaer, "The ABM Treaty and SDI", *supra*, note 208, at 1974-75)

²³⁹ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 8.

There are two reasons why this line of argument should be rejected. First, the terms used in Article II(2) refer to the status of hardware that is physically in existence, either in the form of raw materials ("under construction"), a prototype ("undergoing testing"), a fully tested weapon on station ("operational") or a fully tested weapon *not* on station ("undergoing overhaul, repair or conversion" or "mothballed"). The additional terms suggested by Judge Sofaer – "undergoing research" and "developed in the future" – are not of the same type, since they refer to devices not yet physically in existence. Proposing them shows a misunderstanding of how the provision operates.²⁴⁰

Second, Article II(2) applies only to "[t]he ABM system components *listed in paragraph 1 of this Article*," i.e. to *traditional* ABM components. It would not make sense to refer to exotic devices in a provision which deals exclusively with traditional ones. Nor is there anything illogical about Article II(1) defining "ABM components" *generally* and Article II(2) going on to state that the Treaty covers *some* ABM components – the traditional three – in a variety of specified degrees of physical intactness.²⁴¹

²⁴⁰ Article II(2) does *not* purport to describe the status of every conceivable traditional ABM component that might ever be built (such as "on a drawing board somewhere," "germinating in a scientist's brain," and so on) *as of 1972*. Instead, it sets out the test for determining in, say, 1990 whether a piece of hardware in physical existence in 1990 is a traditional ABM component. This test is to be applied to the condition in which that piece of hardware finds itself, not in 1972, but in 1990! It simply says that if a device qualifies as, say, an "ABM interceptor missile" under Article II(1), it does not cease to be an "ABM interceptor missile" (and, hence, must still count towards the 100 interceptor deployment maximum in Article III) simply because it is at less than full operational capability. The only times such a device will not be deemed by Article II(2) to be an "ABM interceptor missile" are (a) before construction has begun and (b) after it has been dismantled in accordance with agreed dismantling procedures.

²⁴¹ How, [Judge Sofaer] asks, could the term "components" in the definitional part of Article II [paragraph 1]... include futuristic devices when paragraph two refers clearly to existing devices? But there is nothing illogical about saying that X is made up of A and B, and, further, that A includes A1, A2, etc. That is, ABM systems are made up not only of components that exist now but also those that may be available later and that those that exist now can be specifically pinpointed to include those that are being repaired, are mothballed, and so on.

(Sherr, "New Interpretation", *supra*, note 222, at 75, his note 8)

One may, however, ask why it was considered necessary to describe traditional components, but not exotic ones, in this way. The answer is that only traditional ABM components are subject to numerical deployment restrictions under the ABM Treaty.²⁴² The purpose of Article II(2) is to prevent the circumvention of these numerical limitations by specifying that components in a host of operational states are to be counted towards them.

4.2.1.2.1.4 Article IV: Why Limitations on Numbers of ABM Launchers Only?

This leads us to the second provision cited in support of the permissive interpretation -- Article IV. If the Treaty applies to traditional and exotic ABMs alike, why does Article IV limit only the number of "ABM launchers" permitted for development and testing?²⁴³ One possible answer is that only launchers more or less similar to 1972-era ABM launchers were known to be subject to numerical limitations that could be reliably *verified*. Undertakings to limit the number of *exotic* ABM devices could not be given since it was not known what such devices would look like, let alone whether their numbers could be reliably monitored by NTM.

A second reason may be that, until the nature of a device is known, one cannot be certain how high to set the numerical ceiling in order to prevent a significant ABM capability from being built up in agreed test ranges. In the case of "ABM launchers," it was felt that a limit of 15 achieved that purpose. However, there was no way of knowing how many exotic devices -- the nature of which was not yet known -- could be safely permitted. Consequently, no limitations were set on them. Agreed Statement D, though, envisions amendment of the Treaty to impose such limitations, once the nature and capabilities of exotic devices are known.

²⁴² Article III limits the number of "ABM launchers," "ABM interceptor missiles," "large, phased-array ABM radars" and smaller "ABM radars" each Party may deploy, while Article IV limits to 15 the number of additional "ABM launchers" that may be located at any one time in agreed test ranges for purposes of development and testing.

²⁴³ Sofaer, "The ABM Treaty and SDI", *supra*, note 208, at 1974-75.

4.2.1.2.1.5 Article V(2)

Article V(2) is also cited in support of the permissive interpretation, for two reasons: (a) it, too, applies to specified traditional components only – “ABM interceptor missiles” and “ABM launchers” – and (b) it does so in the same article as Article V(1), where the ban on mobiles is found.²⁴⁴

The latter concern is, it is submitted, of no consequence. The mere fact that paragraphs 1 and 2 of Article V appear in the same article is no reason to conclude that the term “ABM systems or their components” in the former extends no farther than the traditional ABM components governed by the latter. The two paragraphs appear in the same article because they represent the Treaty’s two *qualitative* limitations on the development, testing and deployment of ABM components. (While Article VI also sets out qualitative limitations, it does so not on ABM devices, but on nominally *non*-ABM devices, with a view to preventing them from being given an ABM capability.)²⁴⁵

As with Article IV, the more serious question is why Article V(2) refers to “ABM interceptor missiles” and “ABM launchers” only, and not to “ABM systems and their components.” If it is necessary to ensure that each “ABM launcher” can counter no more than one strategic offensive reentry vehicle (RV),²⁴⁶ proponents of the restrictive interpretation must explain why the same is not true of an analogous component of an ABM system based on exotic technology that cannot be

²⁴⁴ *Ibid.*

²⁴⁵ Article VI(a) applies to “missiles, launchers or radars, other than ABM interceptor missiles, ABM launchers, or ABM radars.” Article VI(b) applies to “radars for early warning of strategic ballistic missile attack.”

²⁴⁶ Article V(2) prohibits the development, testing or deployment of ABM interceptor missiles with multiple independently-targetable warheads or of ABM launchers with the ability to fire more than one interceptor missile at a time or in rapid succession. Taken together, these should give a Treaty Party reasonable confidence that each ABM launcher deployed by its adversary can counter no more than one offensive RV within the timespan of an attack.

considered an "ABM launcher," such as a high energy laser. Part of the answer may lie in the fact that many exotic ABM devices — lasers were expressly contemplated in 1972 — were expected to possess an *inherent* multi-shot capability. If these were ever to prove more efficient than traditional ABM launchers and interceptor missiles, this would be the principal reason why. Another reason for applying these qualitative limitations to traditional devices only is that only those devices may be lawfully *deployed*. A multi-shot capability is much more likely to raise the spectre of a breakout to nationwide ABM deployment when it resides in a class of device whose deployment is permitted.

4.2.1.2.1.6 Article IX

Another provision that may be seen as supporting the permissive interpretation is Article IX, which prohibits the transfer to other States, or deployment outside a Party's national territory, of "ABM systems or their components limited by this Treaty." If it is necessary to refer to ABM systems and components "limited by this Treaty," then it would seem to follow that certain others are *not* limited by the Treaty. Yet, according to the restrictive interpretation, there *are* no kinds of ABM systems or components that are not limited by the Treaty in one way or another.

On the other hand, Article IX does not fully support the permissive interpretation either. If "ABM systems and their components limited by this Treaty" means *traditional* ABM components, as the permissive interpretation would presumably have it mean, then those devices *not* limited by the Treaty have still been referred to as "ABM systems and components." Yet, the permissive interpretation does not regard them as such within the Treaty proper. One is forced to conclude then, that Article IX support neither the permissive nor the restrictive interpretation.

4.2.1.2.1.7 Agreed Statement D: Contemplating The "Creation" of Exotic ABM Systems

Finally, the language of Agreed Statement D is pointed to in support of the permissive interpretation because it expressly contemplates the "creation" of ABM systems based on other physical principles. "Creation," in this view, means "development and testing." It is then argued that because the creation of OPP ABMs is contemplated, their development and testing must be completely unregulated.

However, contemplation of the development and testing of exotic ABMs in no way invalidates the restrictive interpretation. That interpretation does not *prohibit* the development and testing of such ABM systems; it just insists that it be limited to the fixed, land-based mode, and that the work be done in agreed test ranges. Proponents of the permissive interpretation, though, argue that if Agreed Statement D contemplated the creation of ABM systems based on other physical principles only when these were fixed, land-based, it should have said so expressly. Because it does not, they say, Agreed Statement D implies that the Treaty places no restrictions on the "creation" (development and testing) of exotic ABMs regardless of the basing mode employed.²⁴⁷

Proponents of the restrictive interpretation counter that, while it is true that their view would be aided by an express limitation of Agreed Statement D to fixed, land-based systems, the provision's purpose is stated in its opening clause to be "[i]n order to insure fulfillment of the obligation not to deploy ABM systems and their components except as provided in Article III of the Treaty." Under the restrictive interpretation only fixed, land-based systems may be deployed. Consequently, it is argued, a limitation to such systems can be inferred from this opening clause.²⁴⁸

²⁴⁷ E.g., Sofaer, "The ABM Treaty and SDI", *supra*, note 208, at 1975.

²⁴⁸ Chayes and Chayes, in response to Judge Sofaer's claim that there is nothing in Agreed Statement D that limits its application to fixed, land-based ABM devices, maintain that

...the Agreed Statement *does* indicate that it is confined to land-based systems. The inducing clause recites that its purpose is to "insure the fulfillment of the obligation

Proponents of the permissive interpretation respond that, to argue that Agreed Statement D applies to fixed, land-based components only, on the ground that these are the only ones permitted by Article III, is to give too literal a meaning to the word "substitute," reading it to connote physical substitution only. They argue that Agreed Statement D should be read to contemplate functional substitution, whereby fixed, land-based components could be replaced by mobile ones.²⁴⁹

It is submitted that this is the correct view on this issue. There is no indication in Agreed Statement D that the substitution contemplated is so literal that it only extends to the replacement of one type of fixed, land-based component by another. Therefore, there is no indication in the language of the agreed statement, or elsewhere, that it only applies to exotic ABM devices that are fixed and land-based.

However, the contemplation of the creation of exotic ABM systems still lends little support to the permissive interpretation. There is a world of difference between contemplating a class of activity and expressly authorizing it. Express authorization carries the clear message that *all* activities in the class are permitted. Mere contemplation of a class of activities tells us no more than that at least *some portion* of that class is permitted. The provision does not say: "The creation of ABM systems based on other physical principles is permitted." Moreover, since Article II(1) defines "ABM systems" in such a way as to include those "based on other physical principles,"²⁵⁰ and Arti-

not to deploy ABM systems or their components except as provided by Article III of the Treaty." As we have seen, the deployments permitted under Article III are fixed, land-based systems using 1970s-type technology."

("The Great Reinterpretation Caper", *supra*, note 195, at 1962; emphasis in original)

See also *Constitution Hearings*, *supra*, note 237, at 381 (prepared statement of Abram Chayes), where Professor Chayes maintains that the inducing clause "tells us" that Agreed Statement D "is directed toward deployment of fixed land-based systems, the subject matter of Article III."

²⁴⁹ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 9.

cle V bans the development and testing of "ABM systems or components," any express authorization of the development and testing of exotic ABM devices in *all* basing modes would have to apply "notwithstanding Article V(1) ..." Agreed Statement D contains no such overriding clause.

4.2.1.2.2 Textual Arguments in Favour of The Restrictive Interpretation

As with the permissive interpretation, textual arguments can be made in support of the restrictive interpretation. These are discussed below.

4.2.1.2.2.1 Article II(1): Effect of the Word "Currently"

An important question is how the permissive interpretation can hold that the term "ABM system" is defined by an exhaustive list of components. Standing squarely in the way of such a view is the word "currently." How do proponents of the permissive interpretation avoid the conclusion that the traditional ABM components listed form not the whole of the set of "ABM components," but a sub-set consisting of those which happen to have comprised 1972 ABM systems?

Judge Sofaer has claimed that this could be done without dispensing with the word "currently." In his article "The ABM Treaty and SDI," he maintained that Article II(1) defines an ABM system as "one that serves the functions described *and* that consists of the type of components that existed 'currently.'"²⁵¹ This result, however, can only be obtained by making "currently" modify "to exist" rather than "to consist of." This distorts the language of Article II(1), in which the adverb "currently" clearly modifies the verb "to consist of" and no form of the verb "to exist" even appears.

Another explanation that purports to incorporate "currently" into the permissive interpretation is that

[t]he Soviets refused... to regulate in the Treaty itself... any ABM system other than ones currently consisting of ABM missiles, launchers and radars.²⁵²

²⁵¹ *Supra*, note 208, at 1974 (emphasis in original).

²⁵² 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 6. See also *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 13 (prepared statement of Judge Sofaer), where it is claimed that Article II(1) "can more reasonably be read to mean that the systems contemplated by the treaty are those that serve the functions described *and* that currently consist of the listed components." (emphasis in

Presumably, what is meant by this is that there are two classes of ABM system – those based on 1972-era ABM technologies and those based on "other physical principles," and that systems of the former class consisted of traditional ABM components in 1972 ("currently") but could consist of other things in the future. This argument would be more convincing if the distinction between traditional and exotic technologies were made a prominent part of the text of Article II(1). It is not mentioned there, however, but is made only in Agreed Statement D. For this reason, and because the structure of Article II(1) appears to use "currently" to initiate an illustrative clause, that distinction is not supported by the Treaty text as part of the definition of "ABM system."

It is submitted, therefore, that there is no reasonable way to read Article II(1) so as to sustain the permissive interpretation short of reading the word "currently" out of the provision.²⁵³ In fact, in one Congressional hearing Judge Sofaer does precisely that, speaking of

a "functional" definition that is qualified further by the definition of what a system is, composed of these three components.²⁵⁴

If one were setting out to draft Article II(1) so as to encompass traditional ABM components only, it would make far more sense to omit the word "currently" altogether.²⁵⁵

original)

²⁵³ This seems to have been acknowledged by another of that interpretation's proponents in a 1977 letter to the journal *International Security* ((1977), 2:1, at 107), in which it was maintained that a Raymond Garthoff article ("Negotiating With The Russians: Some Lessons From SALT" (1977), 1:4 *Int'l Security* 3, at 18) was wrong to conclude that the *deployment* of exotic ABM systems was banned. The correspondent claimed that the only thing that prevented the Treaty language from supporting the permissive interpretation was the presence of a single word – "currently" – and that the removal of that word was all that was needed to change the provision's meaning. Garthoff's response was that the same could be said of each of the Ten Commandments. In other words, it is not proper to simply read a word out of the Treaty.

²⁵⁴ 1985 *SDI Hearings*, *supra*, note 199, at 179 (testimony of Judge Sofaer).

²⁵⁵ Chayes and Chayes, "The Great Reinterpretation Caper", *supra*, note 195, at 1959.

In addition to the presence of the word "currently," the punctuation of Article II(1) supports the restrictive interpretation. Specifically, the comma that precedes "currently" must be taken to indicate that everything that follows it is "parenthetical, and therefore subject to deletion,"²⁵⁶ and "illustrative only."²⁵⁷ This makes the only indispensable part of the definition of "ABM system" that which precedes the comma: "a system to counter strategic ballistic missiles or their elements in flight trajectory." This can be called a "functional" definition in that the only test it applies is whether the system in question carries out the ABM function of countering strategic ballistic missiles or their elements in flight trajectory.

4.2.1.2.2.2 Article II(2)

Further support for the restrictive interpretation can be found in Article II(2).²⁵⁸ Its reference to "[t]he ABM system components listed in paragraph 1 of this Article,"²⁵⁹ meaning traditional ABM components, suggests that the components so listed are not the *only* devices that can properly be referred to as "ABM components." Otherwise, Article II(2) need only have said "ABM system components (governed by this Treaty) include those that are (a) operational, (b) under construction, etc."

²⁵⁶ *ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 51 (testimony of Ralph Earle, former Director, U.S. Arms Control and Disarmament Agency):

If there were no comma I could understand his [Judge Sofaer's] point about ambiguities, but there is a comma, which makes everything that follows parenthetical, and therefore subject to deletion. I think you have to read Article 2 as if it ended where the comma appears after "in flight trajectory."

²⁵⁷ *Id.*, at 90 (testimony of John B. Rhinelander).

²⁵⁸ The full text of Article II(2) is reproduced *supra*, in Section 4.2.1.2.1.3.

²⁵⁹ Emphasis added.

4.2.1.2.2.3 Agreed Statement D: Treatment of Exotic Systems as "ABM Systems"

Support for the restrictive interpretation can also be found in the wording of Agreed Statement D. A number of points can be made about its language. First, it refers to "*ABM systems* based on other physical principles..."²⁶⁰ Thus, it acknowledges implicitly that weapon systems "based on other physical principles" can be "ABM systems." Yet, under the permissive interpretation, this cannot be so, since systems consisting solely of traditional components are not "ABM systems" under that interpretation.

One way in which proponents of the permissive interpretation deal with this argument is to use different terms than the Treaty uses. Thus, Judge Sofaer once testified that the Treaty clearly contemplated research, development and testing "not only of ABM systems and components, but also of OPP [exotic] systems and components."²⁶¹ This terminology masks the fact that Agreed Statement D refers to exotic BMD systems as "ABM systems."

When the question is answered head on, however, the explanation offered is that the term "ABM systems," when used in Article II(1), does not include exotic ABM systems but when used in Agreed Statement D does include them.²⁶²

²⁶⁰ Emphasis added.

²⁶¹ *Constitution Hearings, supra*, note 237, at 338 (answers of Judge Sofaer to additional questions from Senators Biden and Pell).

²⁶² See, e.g., *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 4, where it is maintained that the permissive interpretation

views the definition [of "ABM system"] as applicable in the Treaty text, *as opposed to separate agreed statements*, only to systems that use [traditional ABM components] based on the same physical principles. [Emphasis added]

See also *id.*, at 10:

The difficulties of construction created by the restrictive interpretation are avoided if one reads Article II(1) as referring *in the Treaty text only*, to ABM systems and components based on physical principles underlying conventional systems then in exis-

In a written response to a question in Congressional testimony in 1987, Judge Sofaer made this clear, saying:

Agreed Statement D uses the terms "ABM systems" and "components," but qualifies both those terms in such a manner as to imply for them a different meaning than the meaning they have in the provisions within the Treaty proper, i.e., the systems and components currently in use.²⁶³

In fact, the permissive interpretation position is more complicated than this. Agreed Statement D uses the term "ABM systems" twice — once in the introductory clause and again in the main part of the agreed statement. The introductory clause refers to "the obligation not to deploy ABM systems and their components except as provided in Article III of the Treaty." This wording makes it clear that the obligation referred to is incurred elsewhere than in Agreed Statement D. Therefore, it does not make sense under the permissive interpretation for "ABM systems," when used in the introductory clause, to include exotic systems. Under that interpretation there *are* no constraints on exotic ABM systems outside of Agreed Statement D. Therefore, as used in the introductory clause of Agreed Statement D, "ABM systems" must, under the permissive interpretation, be confined to systems comprised exclusively of traditional ABM components — the same meaning as that interpretation gives the term in the Treaty proper.²⁶⁴

The second occurrence of the term, however, must extend to exotic systems. Thus, the true permissive interpretation position is not that "ABM systems" has one meaning in the Treaty proper and a different meaning consistently throughout the agreed statements. The permissive interpreta-

tence. [Emphasis added]

²⁶³ *Constitution Hearings, supra*, note 237, at 334-5 (answers of Judge Sofaer to additional questions from Senators Biden and Pell).

²⁶⁴ Judge Sofaer has conceded that the first occurrence of "ABM systems" in Agreed Statement D has the same meaning as the term has in the Treaty proper. (1985 *SDI Hearings, supra*, note 199, at 186-7)

tion really holds that "ABM systems" excludes exotic ABM systems when used in the Treaty proper and in the introductory clause of Agreed Statement D, and includes exotic ABM systems when used in the main body of Agreed Statement D. It thus holds the same term to mean different things in two parts of the same agreed statement. While such a result is not inconceivable, it would require an express indication that the term was changing meanings. No such indication appears in the Treaty text or in Agreed Statement D. Judge Sofaer claims that this is implied by the manner in which the terms are qualified in Agreed Statement D, but does not explain how this is so.

Thus, there is no reason to reject the straightforward, common meanings the terms receive under the restrictive interpretation: "ABM systems" include all systems that can perform the ABM function; when exotic ABM systems are referred to -- in Agreed Statement D -- the term "ABM systems based on other physical principles" is used; and the former term includes the latter.

4.2.1.2.2.4 Agreed Statement D: The Absence of a Clear Deployment Ban

If Agreed Statement D were the only provision to contribute to the prohibition against the deployment of exotic ABM systems and components, as the permissive interpretation says is the case, one would expect it to be worded in such a way as to make that prohibition clear. Its language is ambiguous, however, in two respects:

1. it fails to make it clear that it is creating a prohibition rather than merely setting out a consultation procedure for the negotiation of additional restrictions in the future, and perhaps a duty to consult prior to deployment;²⁶⁵ and
2. it fails to make it clear that the prohibition it is creating applies to deployment, and not to development and testing.

²⁶⁵ The relevant language of the provision is as follows:

[T]he 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.* [Emphasis added]

By simply stating that "specific limitations" on exotic systems would be "subject to discussion... and agreement," Agreed Statement D left it far from certain that it was creating a prohibition. This has given rise to arguments in favour of an ultra-permissive interpretation in which there is no ban on the deployment of exotic ABMs even in Agreed Statement D, but only a duty to consult prior to deployment.²⁶⁶ When asked about this, Judge Sofaer could point to nothing in the text of Agreed Statement D that made it clear that that provision was meant to bring about a deployment prohibition on exotic ABMs. He could only cite the Treaty's negotiating history in support of that contention.²⁶⁷

Agreed Statement D also fails to make it clear that the prohibition it creates applies to deployment, rather than to some other stage of a weapon's life cycle. In particular, one would at least expect to see the word "deployment" in the operative part of the provision. Yet that portion of the agreed statement refers only to "specific limitations on such systems," leaving it unclear which activities the provision governs. This contrasts with several provisions of the Treaty proper, and with three other agreed statements that bring about deployment limitations – Articles I(2), II(1), III, V(1), V(2), VI(b) and IX, and Agreed Statements A, E and F – all of which contain the word "deployment."

Judge Sofaer has subsequently argued that the exotic deployment ban is to be divined from the *spirit* of the introductory clause of Agreed Statement D:

Senator Levin. You get that [the exotic deployment ban in Agreed Statement D] from the first sentence in agreed statement D which states "In order to ensure [sic] fulfillment of the obligation not to deploy"?

²⁶⁶ E.g., W.R. Harris and E.C. River, "Development Rights and Duties Relating to ABM Systems Based on 'Other Physical Principles' ...," Memorandum to T.K Jones, 6 February 1985, reproduced as Enclosure 2 to Appendix 4 of *Review Hearings*, *supra*, note 210.

²⁶⁷ 1985 SDI Hearings, *supra*, note 199, at 187 (testimony of Judge Sofaer).

Judge Sofaer. From the spirit of the first phrase. Indeed, "in order to ensure [sic] the fulfillment," from that phrase, from the purpose of that phrase.²⁶⁸

No further explanation of this claim is given. Presumably, the argument is that, in order to insure fulfillment of a deployment prohibition, Agreed Statement D would have to contain a deployment prohibition itself. While this may or may not be true, it is no substitute for clear wording that a prohibition is being created, and that this prohibition applies to deployment.

To summarize, proponents of the permissive interpretation stress the great importance of the exotic ABM deployment ban in ensuring attainment of the Treaty's central purpose of preventing the deployment of nationwide ABM systems. They regard Agreed Statement D as the sole source of that ban. Yet the language used in Agreed Statement D to effect this ban fails to make it clear that it is creating a prohibition, or that it governs deployment. This constitutes a glaring textual deficiency under the permissive interpretation. It is of little consequence, however, under the restrictive interpretation, where Agreed Statement D merely repeats the exotic ABM deployment ban created by Article III.

4.2.1.2.2.5 Agreed Statement D: Contemplation of "Specific Limitations"

Because Agreed Statement D contemplates the future creation of "specific" limitations on exotic ABM systems, it could be inferred that *general* limitations on those systems exist elsewhere in the Treaty. In fact, this is exactly what the restrictive interpretation says. It considers exotic ABM systems to be governed by a number of other provisions, none of which applies to exotics *specifically*. Chief among these is Article III, which prohibits (except for a specified number of traditional components in specified locations) the deployment of "ABM systems and their components" and Article V(1), which prohibits the development, testing and deployment of "ABM systems or components" in a mobile basing mode.²⁶⁹

²⁶⁸ *Ibid.* (testimony of Judge Sofaer).

²⁶⁹ Smith ("Legal Implications", *supra*, note 78, at 62) reaches a similar conclusion concerning the significance of the word "specific" in Agreed Statement D:

4.2.1.2.2.6 Agreed Statement D: The Indefiniteness of "Based on Other Physical Principles"

Under the permissive interpretation, the test of whether an ABM system is exempt from the Treaty proper, and hence from development and testing limitations, is whether it is "based on other physical principles." Nowhere in the Treaty or agreed statements is this term defined. Nor is it self-explanatory. This uncertainty is a serious textual weakness of the permissive interpretation. Under the restrictive interpretation, however, it is of little significance, since Agreed Statement D is superfluous and the issue of whether a system is "based on other physical principles" is therefore irrelevant.

The first question raised by the phrase "based on other physical principles" is "other than what?." Although proponents of the permissive interpretation are quick to answer "other than those used for ABM components in 1972,"²⁷⁰ and even to assert that the answer "seems clear,"²⁷¹ in fact, as a matter of textual analysis, the answer is far from clear.

Even if one accepts that the physical principles involved are those other than the ones used in 1972-era ABM systems, a number of questions remain: Must those principles have underlain a system that had been *deployed* in 1972, or just one that was undergoing *testing*? What about systems

While [Agreed Statement D] is somewhat ambiguous, the provision for discussion on "specific limitations" on such systems implies an intention to include them within the general treaty limitations on ABM systems and their components. If the Parties had intended for no limitations to apply to such systems they would not have needed to use the word "specific."

²⁷⁰ P. Nitze, "Permitted and Prohibited Activities Under the ABM Treaty", *Dep't State Bull.*, January 1987, 39, at 39.

²⁷¹ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 8, where the "clear" answer is described as "other than those used in conventional ABM systems, and capable of substituting for the ABM systems and components listed in Article II(1)."

that had not yet been tested but for which working prototypes existed? What about those still being researched for which no prototype yet existed? The agreed statement provides no indication of how far advanced a system had to have been in 1972 in order for the physical principles upon which it relied to be excluded from the phrase "other physical principles."

The *1987 Legal Advisor's Report*²⁷² suggests that systems had to have reached at least the prototype stage in 1972 in order to avoid classification as exotic systems, stating that a system would not be considered exotic if it were "based on physical principles underlying conventional systems then *in existence*."²⁷³ This formulation, however, in addition to having no basis in the text, remains vague as to whether a system must have been deployed, tested or merely developed. Judge Sofaer has described exotic ABMs in terms that suggest *deployment* to be the test, referring to "systems or components 'based on other physical principles' than those used in the ABM system *in use* in 1972."²⁷⁴ Yet elsewhere a different test has been suggested: that a system is not exotic if it is based on physical principles "known" at the time.²⁷⁵

The exchange in which this last test appears demonstrates the great uncertainty that attends the "other physical principles" test:

Judge Sofaer. ... There could be a new ABM system, or a new radar or a new missile or a new launcher that was devised and would come under the total ban of Article V that was based on the physical principles known to the parties at the time.

Senator Warner. Known by whom?

²⁷² Part I, *supra*, note 204, at 10.

²⁷³ In a similarly vague formulation, the same report refers to "physical principles used to create the systems and components *extant* in 1972." (emphasis added)

²⁷⁴ *Constitution Hearings*, *supra*, note 237, at 351 (answers of Judge Sofaer to additional questions from Senator Thurmond; emphasis added). See also Sofaer, "The ABM Treaty and SDI", *supra*, note 208, at 1972, where the test given is whether the physical principles were "in use." This article also identifies the exact time a physical principle must be in use as "when the Treaty was signed." Yet, in another hearing, Judge Sofaer gave the time as "when the Treaty was negotiated." (*ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 9 (testimony of Judge Sofaer))

²⁷⁵ *1985 SDI Hearings*, *supra*, note 199, at 186 (testimony of Abraham Sofaer).

Judge Sofaer. Known by the parties, the scientists that represent —

Senator Warner. On both sides?

Judge Sofaer. Yes, on both sides. The kind of physics they were using for ABM systems at the time.²⁷⁶

Here, in addition to the test of what was "known," we are offered the very different test of what "they were *using* for ABM systems."

Elsewhere, the physical principles that underlie exotic systems are characterized as the ones "other than those *understood* in 1972."²⁷⁷

Even if one accepts that Agreed Statement D somehow implies that, say, deployed 1972-era systems are the yardstick, it is still difficult to precisely identify which physical principles those systems relied upon. For instance, does sending out and collecting radio waves, as is done in radar tracking, utilize a different physical principle than sending out and collecting light for the same purpose, as is done in ladar tracking? Do X-ray lasers rely on different physical principles than nuclear warheads? Do kinetic energy warheads utilize different physical principles than nuclear warheads?²⁷⁸ Does it make a difference whether they are propelled by chemical rockets or electromagnetic railguns?

²⁷⁶ *Ibid.*

²⁷⁷ *ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 4 (testimony of Judge Sofaer; emphasis added). See also at 9 and 10, the latter using the "understood" test in Judge Sofaer's prepared statement.

²⁷⁸ Reagan Administration officials showed uncertainty as to whether ABM systems using kinetic energy interceptors as the kill mechanism are "based on other physical principles" *per se*, or achieve that status only when guided exclusively by non-radar sensors. (E.g., *ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 47, where Ambassador Paul Nitze stated that kinetic energy weapons are "clearly" based on other physical principles." See also the testimony of Ambassador Nitze before the Senate Foreign Relations Committee in February 1985, reproduced in United States, Department of State, Office of the Legal Advisor, *The ABM Treaty -- Part III: Subsequent Practice* (n.p., 9 September 1987) [unpublished], at 82 (hereinafter *1987 Legal Advisor's Report*, Part III).

Although some of these questions have been resolved through subsequent practice,²⁷⁹ many have not. Most importantly, however, in neither case are the answers made clear by the text. Agreed Statement D neither answers these questions nor provides a general rule of sufficient precision to be very useful in determining the answers.

Another problem inherent in the permissive interpretation is that not only must one determine what "other physical principles" are, but also whether a given BMD system is "based" on them. Agreed Statement D applies this test to "systems" and not to individual "components," yet the test is more easily applied to the latter. Proponents of the permissive interpretation seek to get around this problem by simply applying the test to individual devices despite what the agreed statement actually says.²⁸⁰ This is improper. Agreed Statement D applies the test to "systems" only. The fact that this is not easily done is another textual strike against Agreed Statement D's exotic deployment ban, and hence against the permissive interpretation.

It may be possible to arrive at a meaning of "based on other physical principles" either by inferring it from the language of Agreed Statement D or finding it in the negotiating record. Nevertheless, the fact remains that, by establishing a failure to be "based" on "other physical principles" as the criterion for coverage by the Treaty, the permissive interpretation assigns a crucial role to a phrase whose meaning has been left nebulous by the text of the Treaty and the agreed statements. The fact that this meaning is in some cases discernable from the negotiating record and in others may have been clarified somewhat by subsequent practice does not remedy this weakness of the permissive interpretation.

²⁷⁹ There seems to be general agreement, for example, that all DEWs (including XRLs) and non-radar sensors (including ladars) are based on other physical principles.

²⁸⁰ See e.g. Judge Sofaer's first comment in his exchange with Senator Warner quoted above.

While the meaning of "based on other physical principles" is no clearer under the restrictive interpretation, this is of little importance since that interpretation treats Agreed Statement D as superfluous.

4.2.1.2.2.7 Agreed Statement D: The Indefiniteness of "Created"

Another textual weakness of the permissive interpretation involves the use of the word "created." "Created" is used in Agreed Statement D, where it is not defined, and its meaning is unclear. The permissive interpretation assigns a precise meaning and a crucial role to the word. It considers "created" to be the exact equivalent of "developed and tested" and uses the fact that Agreed Statement D contemplates the "creation" of exotic ABMs as justification for qualifying the development and testing limitations of Article V(1) so not to apply to such exotics.

Yet Agreed Statement D is the only place in the Treaty and agreed statements where the word "created" is used. In every other Treaty provision that refers to both development and testing, the expression "development and (or) testing" is used.²⁸¹ This raises the following question: If the negotiators had a crucial role in mind for Agreed Statement D and for the verb for which "created" was used, why would they not have used the phrase "developed and tested," used several times elsewhere in the Treaty, for greater certainty? The meaning of that phrase is not clear from the text either, but at least, with the exception of Agreed Statement D, it is used consistently. The fact that the permissive interpretation accords a critical role to an undefined word used nowhere else in the Treaty, and relies upon its meaning the same thing as a phrase otherwise used consistently throughout the Treaty and agreed statements casts doubt on that interpretation.

²⁸¹ See Article IV ("The limitations provided for in Article III shall not apply to ABM systems or their components used for development or testing..."), Article V(1) and V(2) (twice) ("Each Party undertakes not to develop, test, or deploy..."), and Agreed Statement E ("The Parties understand that Article V of the Treaty includes obligations not to develop, test or deploy...").

One way in which proponents of the permissive interpretation try to disguise this fact is to use "created" in discussions about the Treaty in places where others have always said "developed and tested," and to make the interchangeable use of the two terms sound like the most natural and obvious thing in the world.²⁸² In fact, it is far from clear from the language of the Treaty or agreed statements what "created" means. The term is not defined anywhere in the Treaty text or agreed statements.

When pressed, Judge Sofaer has offered the following explanation as to why Agreed Statement D uses the word "created" while all other provisions use "developed and tested":

...[W]hen the negotiators dealt with future concepts they weren't even willing to use the words "deployment [sic — development] and testing." They used the word "creation."²⁸³

This was because

they wanted to stress the fact that they might be talking about something completely different from what they were talking about [in] the Treaty [i.e. traditional ABM components, according to the permissive interpretation].²⁸⁴

²⁸² 1987 *Legal Advisor's Report*, Part I, *supra*, note 204:

Under [the restrictive] interpretation, the Treaty allows creation (i.e. development and testing) of substitute OPP devices only if they are fixed land-based. [at 3]

An alternative reading of the Treaty [i.e. the permissive interpretation] is that it allows creation of all ABM systems and components "based on other physical principles." It sees Agreed Statement D as governing the creation and deployment of all OPP devices which can serve as substitutes for conventional ABM systems and components. [at 4]

[Read in accordance with the permissive interpretation,] the Treaty establishes a coherent, non-redundant scheme that:

— permits the creation of substitute ABM systems and components based on OPP...
[at 11]

²⁸³ *ABM Treaty Dispute Hearings*, *supra*, note 141, at 44 (testimony of Judge Sofaer).

²⁸⁴ 1985 *SDI Hearings*, *supra*, note 199, at 183 (testimony of Judge Sofaer).

If by this it is suggested that it is improper to speak of the "development and testing" of exotic ABMs, it is submitted that this is nonsense. These terms are used to describe exotics all the time in Congressional hearings, in arms control literature and in U.S. government reports. If it is merely claimed that the word "created" was chosen so as to reinforce the fact that Agreed Statement D dealt with exotic technologies, the argument is only slightly more plausible. For one thing, it is not clear why it should have this effect. Furthermore, if it was important to make it clear what systems Agreed Statement D applied to, the imprecise term "based on other physical principles" should have been defined or at least clarified. The replacement of "developed and tested" with "created" is a very poor substitute for more direct clarification of the subject matter of Agreed Statement D.²⁸⁵

²⁸⁵ It should be noted that there is some support in the ratification debates for regarding "created" to mean "developed." Dr. John Foster once noted in his 1972 testimony in respect of "development" that "the Russian word is 'creation.'" (quoted in S. Nunn, *Interpretation of the ABM Treaty*, (n.p., 19 May 1987) [unpublished] (reproduced in *Constitution Hearings, supra*, note 237, at 553) at 32 (hereinafter *Nunn Report*))

4.2.1.2.3 The Object and Purpose of the ABM Treaty

Article 31 of the Vienna Convention calls not for a strict grammatical interpretation of the text, but for one performed in light of the Treaty's object and purpose. There is considerable authority for the use of the text itself – and, in particular, its preamble – as a source of a treaty's object and purpose, including the ILC Commentary on the Vienna Convention.²⁸⁶

Preambular paragraphs 3 and 4 of the ABM Treaty state that the Treaty's substantive provisions flow from a shared belief that the limitation of ABM systems "would be a substantial factor in curbing the race in strategic offensive arms" and "would contribute to the creation of more favourable conditions for further negotiations on limiting strategic arms."²⁸⁷ If traditional systems and components were the only ones whose development and testing was regulated, as proponents of the permissive interpretation maintain, it is difficult to see how the Treaty could possibly accomplish these goals. There is no logical reason – either in 1972 or today – why offensive force reductions should be facilitated by an ABM Treaty that permits unlimited development and testing of mobile exotic ABM systems and components.²⁸⁸

²⁸⁶ Sinclair, *The Vienna Convention*, *supra*, note 202, at 118, citing F.G. Jacobs, "Varieties of Approach to Treaty Interpretation: With Special Reference to the Draft Convention on the Law of Treaties Before the Vienna Diplomatic Conference" (1969), 18 *I.C.L.Q.* 318, at 337.

²⁸⁷ See Appendix 5 for the full text of the preamble.

²⁸⁸ Gerard Smith has stated that the permissive interpretation "seems to rest on the absurd theory that while low technology is to remain controlled, high technology is left uncontrolled. This interpretation would undermine the Treaty's basic purpose – to prevent either side from deploying a nationwide defense or from preparing a base for such a defense ..." (*Constitution Hearings*, *supra*, note 237, at 481 (prepared statement of Ambassador Gerard Smith)).

Professor Tribe maintains that the purpose of the ABM Treaty is to preserve the vulnerability of the Parties' national territories to the strategic nuclear forces of the other side, and that this purpose "would be so radically undermined by the [permissive interpretation]... that one would start legally with a very strong presumption against that view." (*Id.*, at 83-4 (testimony of Laurence H. Tribe, Professor of U.S. Constitutional Law, Harvard University))

Indeed, it is not clear if *any* useful purpose would be served by agreeing to curb the development and testing of 1972-era ABM technology in mobile basing modes but not that of exotic technologies developed after the Treaty's entry into force. For one thing, given the ineffectiveness of 1972-era ABM technology, such an agreement would not have accomplished much.²⁸⁹

Proponents of the permissive interpretation characterize the Treaty's "express and fundamental purpose" as being to "prevent *deployment* of '[ABM] systems and components' other than as specified by Article III."²⁹⁰ They describe the Treaty's "central feature" as "the Parties' commitment not to *deploy* a territorial ABM defense."²⁹¹ They argue that the permissive interpretation is just as likely to achieve these goals as the restrictive interpretation.

The error of the permissive view of the Treaty's object and purpose is its unwarranted focus on *deployment* limitations. These are only a means to an end. The Treaty concerns itself not only with deployment limitations, but with constraints on development and testing as well. Complete prohibitions on development and testing keep the Parties as far from deployment as verification by NTM will allow. Geographical restrictions on development and testing ensure that deployment limitations are not circumvented by the fielding of devices ostensibly undergoing testing. Without constraints on development and testing, including a ban on the development and testing of mobile systems and components of whatever technology, the Treaty's deployment limitations would not give

²⁸⁹ *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 90 (testimony of John B. Rhinelander):

If the treaty had been limited to the current kinds of technology, it wouldn't have done very much. We knew, and the Soviets knew, that the kind of ABM technology each had at the time was very ineffective.

²⁹⁰ *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 11; emphasis added.

²⁹¹ *Id.*, at 6; emphasis added. See also *Constitution Hearings*, *supra*, note 237, at 338 (answers of Judge Sofaer to additional questions submitted by Senators Biden and Pell):

The basic purpose of the Treaty... was to prevent deployment of ABM systems beyond the limited numbers of conventional systems described in Article [III].

confidence that no nationwide deployment of ABM systems was underway.

It is interesting that, in disputing the ultra-permissive interpretation (whereby exotic ABM deployment is not banned, even by Agreed Statement D), the *1987 Legal Advisor's Report*²⁹² argues that

[t]o read Articles II(1) and V(1) to apply only to current [traditional] systems and components [as both the permissive and ultra-permissive interpretations do] and to read Agreed Statement D to require only discussion prior to deployment of OPP devices [as only the ultra-permissive interpretation does], would leave a substantial gap in the Treaty's coverage and thereby potentially undermine its most fundamental purpose... [which is] to prevent deployment of systems that can serve the function defined in Article II(1), other than as provided in Article III.

It is submitted that, in fact, adoption of the first position (that "Articles II(1) and V(1)... apply only to current systems and components," a position shared by the permissive and ultra-permissive interpretations) is sufficient in and of itself to undermine the Treaty's purpose. The added liberality of the ultra-permissive interpretation is not needed. By allowing the "testing" of exotic ABM systems and components in all basing modes, and without restriction to agreed test ranges, the permissive interpretation, as a practical matter, leaves just as much room for the deployment of exotic ABMs as the ultra-permissive interpretation does by openly declaring exotic ABM deployment to be lawful. The permissive and ultra-permissive interpretations would only differ significantly in this respect if it were always feasible to reliably distinguish between deployed devices and those that were merely undergoing testing. However, such is not the case.

4.2.1.2.4 Does Either Interpretation Lead to Absurd Results?

Let us now look to see if either interpretation leads to results that are absurd or illogical. A number of such considerations favour the restrictive interpretation.

²⁹² Part I, *supra*, note 204, at 11.

For instance, one might ask why the U.S. sought and obtained such tight restrictions on the upgrading of surface-to-air missiles (SAMs) to ABM capability if the testing and development of mobile ABMs based on OPP was left unconstrained.²⁹³ It is more likely that exotic systems – potentially better suited to mobile basing than traditional ones – were the primary target of the Article V(1) ban on mobile ABM activities beyond research.

Logical problems arise as well when one applies the permissive interpretation's definition of "ABM system" and "ABM component" to provisions other than Article V. For instance, Article IV provides that "ABM systems and their components" may be developed and tested only at agreed test ranges. If exotic ABM devices were not "ABM components" (as the permissive interpretation says they are not), then not only could mobile exotic ABM devices be tested, but they could be tested *without geographical restriction*. Any number of mobile, land-based laser ABM devices, for instance, could be deployed anywhere on a Party's national territory as long as they were ostensibly "for test purposes."²⁹⁴ This would render meaningless both the Article III numerical limitations on deployed *traditional* ABM components and the prohibition on deployment of *exotic* ABM components.²⁹⁵ The illogic of the permissive interpretation in this respect is that it would prohibit the *deployment* of something – exotic ABM systems – whose development and testing remained unregulated. The restrictive interpretation does not have this flaw, since it considers Article IV to govern *all* ABM technology, and therefore to require the development and testing of exotic and traditional

²⁹³ G.C. Smith, *Doubletalk* (Garden City, N.Y.: Doubleday and Co., 1980), at 264.

²⁹⁴ *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 63 (testimony of John Rhinelander); also J. Rhinelander, "Reagan's 'Exotic' Interpretation of the ABM Treaty – Legally, Historically and Factually Wrong", *Arms Control Today* October 1985, at 4 (hereinafter "Reagan's 'Exotic' Interpretation"):

A full-scale, operational system, including large numbers of satellite battle stations and related sensors, together with fixed, ground-based lasers apparently not limited to existing test ranges, could now be 'legally' put in place as an extensive 'test program' to prove out the new technology in a system configuration.

²⁹⁵ Both interpretations agree that the Treaty bans the *deployment* of exotic ABM systems. However, while the restrictive interpretation sees that prohibition as flowing primarily from Article III, the permissive interpretation finds it only in Agreed Statement D.

ABM components alike to take place in agreed test ranges.²⁹⁶

Proponents of the permissive interpretation respond to this criticism in three ways. They claim that

1. the problem exists under the restrictive interpretation as well;
2. a Party suspicious that "test" devices were in fact part of a nationwide deployment could raise the matter in the SCC and, if still dissatisfied, withdraw from the Treaty upon the giving of six months' notice; and
3. the problem is adequately covered by Agreed Statement D's contemplation of further agreement between the Parties to impose more stringent restrictions on exotic ABM systems, including limitations on their development and testing.²⁹⁷

These responses do little to blunt the significance of this logical defect in the permissive interpretation. As to the first, there is a huge difference between the potential for the abuse of testing privileges under the two interpretations. Under the permissive interpretation, exotic ABM components could be lawfully tested in space, on aircraft, on ships and on mobile land vehicles anywhere in the world. Under these conditions, a nationwide ABM defence could easily be achieved under the guise of a test program. By contrast, under the restrictive interpretation, exotic ABMs may only be tested in agreed test ranges and if they are fixed and land-based. It is highly unlikely that nationwide coverage could be achieved with fixed, land-based devices located exclusively in agreed test ranges (unless the number of such ranges were greatly increased). Such devices might be suitable for immediate mobile deployment after such a fixed, land-based testing program. However, while the very first such device detected in a mobile basing mode could be immediately and confi-

²⁹⁶ The weakness of the permissive interpretation's effect on Article IV is shown by a response of then-Undersecretary of Defense for International Security, Richard Perle, to Congressional questioning about the matter. After confirming that the permissive interpretation would indeed place no geographic or numerical limitations on the testing of ABM devices based on other physical principles, Perle went on to say that "we would take a dim view of many such systems represented as a test program." (1985 SDI Hearings, *supra*, note 199, at 95) When potentially destabilizing ABM activities are occurring, one should be in a position to do more than "take a dim view" of them; one should be able to point to clear, binding restrictions. The permissive interpretation does not put the Parties in such a position.

²⁹⁷ 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 11.

dently identified as a violation under the restrictive interpretation (which bans development and testing), no clearcut violation would occur under the permissive interpretation no matter how many mobile devices were fielded, as long as these were ostensibly undergoing testing.

The second and third responses are even less persuasive. Obviously, the remedies of consultation, amendment and withdrawal are available for the resolution of *any* dispute. However, if their availability alone were wholly satisfactory, there would be no point in closing any loopholes in the Treaty language. The fact is that taking this particular issue to the SCC would be difficult since it would not involve a violation. Likewise, the prospect of amendment is no substitute for closing a loophole at the time a treaty is negotiated. Finally, while withdrawal is always possible, it is absurd to cite the availability of such a drastic remedy as significantly mitigating the presence of a glaring textual deficiency. In short, there is no satisfactory explanation for the failure of the permissive interpretation to prevent the achievement of a nationwide exotic ABM deployment in the guise of a test program.

A similar problem arises with Article IX, which prohibits the Parties from circumventing the Treaty's limitations on deployment by transferring "ABM systems or their components" to allies or deploying them outside their national territories.²⁹⁸ Under the restrictive interpretation, this provision would apply to all ABM systems. Under the permissive interpretation, however, the Parties would be free to transfer exotic ABM systems, even those which are operational, to other countries since these would not be considered "ABM systems."²⁹⁹ This would permit a Party to transfer to any number of allies devices that it could not, under either interpretation, deploy itself. These allies could then deploy as many of the imported exotic ABM devices as they wished.

²⁹⁸ 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.

²⁹⁹ *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 54 (testimony of John B. Rhinelander).

If one imagines sea- or space-based ABM devices deployed by European nations, or mobile land-based devices deployed by Canada on her territory, it is not hard to see that this interpretation would permit the U.S. to circumvent the prohibition against the deployment of exotic ABMs, and effectively deploy such devices in defence of her national territory, by simply transferring technology. The same is true of the Soviet Union.

It does not reflect well on the permissive interpretation that it permits simple and obvious avenues of circumvention like this. Perhaps the negotiators could have tolerated such avenues, based as they were on then-future technologies, in a treaty of a few years' duration, but the ABM Treaty is of unlimited duration.

Finally, the permissive interpretation is logically suspect because of its minimal effect on the technologically superior U.S. ABM program, which is being focussed more and more on exotic technologies, and its highly restrictive effect on the traditional ABM devices upon which any Soviet ABM breakout is likely to be based. By tightly constraining activities involving traditional ABM components, yet leaving unfettered the development and testing of exotic ABM technologies, the permissive interpretation would put the U.S. in the "most one-sided [in her favour] treaty relationship imaginable."³⁰⁰

One argument is raised that alleges that the restrictive interpretation would lead to an absurd result. The *1987 Legal Advisor's Report* maintains that the restrictive interpretation would bring about a "scientific and practical incongruity":

It would permit development and testing of devices that could substitute for ABM systems and components, so long as they were devices that were aspects of fixed land-based systems. It would prohibit development and testing of such devices if they were aspects of mobile systems. Yet the devices sought thus to be regulated would not necessarily be related to one type of system or another. A laser device, for example,

³⁰⁰ *Id.*, at 62-63 (testimony of John B. Rhinelander).

might be deployable at a land-based site, or be made part of a space-based or other mobile system. A distinction among devices drawn on the basis of deployment location would make unverifiable any ban on deployment and testing of OPP [exotic ABM systems], because one might not be able to know that such devices were intended only to be used in the fixed, land-based mode. This verification problem is avoided if the Treaty is read to restrict only the deployment of OPP [exotic ABM] systems. In this respect, the Treaty's purpose is clear and enforceable: to allow *deployments*, only at certain fixed land-based areas. This purpose is protected under the [permissive] as well as the restrictive interpretation.³⁰¹

There is some validity to this point. Just because a laser device has been developed and tested as part of an ABM system in which all of the components were fixed and land-based, does not prevent such a device from then being deployed on a truck or railway car. If the fixed, land-based testing had been sufficiently successful, the laser device could be deployed in a mobile basing mode with some confidence that it would work. In this way, a mobile component could be readied for deployment strictly through permitted fixed, land-based testing.

The existence of this possibility for the circumvention of the prohibition on development and testing in mobile basing modes, however, does not favour the permissive interpretation. First, it could happen under that interpretation too, but in respect of traditional rather than exotic ABM components. Just as a laser device could be tested in a fixed, land-based mode in preparation for mobile deployment, so too could an ABM radar. The possibility is therefore a deficiency of the permissive and restrictive interpretations alike in respect of traditional ABM components.

Common Understanding C arguably makes this occurrence less likely in respect of traditional components because of its recognition that in order not to be considered mobile, an ABM launcher or radar would have to be of a "permanent fixed type." However, this phrase is not defined, and therefore does not fully solve the problem. Furthermore, Common Understanding C arguably applies the "permanent fixed type" test to *deployment* only.

³⁰¹ Part I, *supra*, note 204, at 10; emphasis in original.

It might at least be argued that the permissive interpretation is less problematic since it involves this problem only in respect of traditional ABMs, whereas under the restrictive interpretation the problem exists for both traditional and exotic ABMs. However, it should be borne in mind that, while the permissive interpretation is free of *this* verification problem concerning exotic ABMs, it creates another – the fact that one cannot possibly tell whether the exotic devices it allows to orbit the earth, fly on an airplane or crisscross the country on a railcar for test purposes is really part of a deployment. As has already been discussed, this problem exists under the permissive interpretation only, a result of its failure to restrict the testing of exotic ABMs to agreed test ranges. This verification problem is more serious than the one solved by the adoption of the permissive interpretation.

It is therefore improper to regard the problem of verifying whether a device tested in the fixed, land-based mode is intended for mobile deployment as leading the restrictive interpretation to a “manifestly absurd or unreasonable” result. This is because the alternative interpretation – the permissive one – involves (a) the same defect in respect of traditional systems and (b) a more serious defect in respect of exotic systems.

4.2.1.2.5 Subsequent Practice

4.2.1.2.5.1 Introduction

Article 31(3)(b) of the Vienna Convention recognizes as a source of evidence under the general rule of interpretation "any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation." Subsequent practice had been relied upon by international tribunals as a reliable indicator of the meaning of treaties long before the arrival of the Convention. However, the two international courts had most often restricted reliance upon it to situations where it had decided that the text was ambiguous.³⁰² The Convention elevated some subsequent practice -- that which "establishes the agreement of the parties" -- to a more prominent position than it had enjoyed in international jurisprudence, treating it as evidence that must be considered in the first instance, without a finding of ambiguity. Subsequent practice that does not establish the agreement of the parties -- such as the practice of one party of which other parties were not aware -- may be considered as a supplementary means of interpretation.³⁰³ This differential treatment was presumably justified by Lord McNair's reasoning that

[f]or obvious reasons evidence that both parties adopted the same meaning of a treaty provision before a dispute arises is of higher probative value than evidence as to the view of one party only.³⁰⁴

In order to be considered under Article 31(3)(b), subsequent practice must be "concordant ... [and] common to all the parties."³⁰⁵ Furthermore, it must occur over an extended period of time.

³⁰² This was not always the case, however. In its Advisory Opinion on the *Jurisdiction of the Courts of Danzig* ([1928] P.C.I.J., Series B, No. 15, at 18), the Permanent Court stated that

[t]he intention of the Parties, which is to be ascertained from the contents of the Agreement, taking into consideration the manner in which the agreement has been applied, is decisive.

³⁰³ Commentary to the 1964 ILC Draft Convention on the Law of Treaties, Para. 13; Sinclair, *The Vienna Convention*, *supra*, note 202, at 138, who in turn cites M. Yasseen, "L'Interprétation des Traités d'après la Convention de Vienne sur le Droit des Traités" (1976), 151 *Recueil des Cours* 1, at 52.

³⁰⁴ A.D. McNair, *The Law of Treaties* (Oxford: Clarendon, 1961), at 427.

³⁰⁵ Sinclair, *The Vienna Convention*, *supra*, note 202, at 138.

"A 'practice' is a sequence of facts or acts and cannot in general be established by one isolated fact or act or even by several individual applications."³⁰⁶

The *1987 Legal Advisor's Report*, Part III, sets out the view of ABM Treaty subsequent practice held by many proponents of the permissive interpretation. No comprehensive study has been released by any proponent of the restrictive interpretation, but the author will examine the arguments made and conclusions drawn by proponents of the permissive interpretation, as set out principally in the *1987 Legal Advisor's Report*, taking issue with these where appropriate. Issue will be taken both with (a) conclusions as to the international law pertaining to the use of subsequent practice in treaty interpretation and (b) the characterization of certain acts and statements as supportive of the permissive interpretation.

The author's conclusions as to the significance of the subsequent practice will then be presented. It should be noted that there is probably a great deal of relevant subsequent practice – statements made by the parties to one another in SALT, START, INF and space arms talks, or during summits, foreign ministerial meetings or other diplomatic exchanges – that has not yet been discovered, or if known, remains classified.³⁰⁷ Nevertheless, we shall examine the considerable body of relevant subsequent practice now in the public domain.

Let us first address the elements of subsequent practice about which there is little disagreement. First, there is no dispute that the period of time during which practice can qualify as subsequent practice runs from October 1972, when the ABM Treaty came into force, until October 1985, when the U.S. first officially and publicly advocated the permissive interpretation, and the Soviets

³⁰⁶ *Id.*, at 137.

³⁰⁷ 133 Cong. Rec. 39, 1 (daily ed. March 12, 1987) (prepared statement of Sen. Nunn, "Interpretation of ABM Treaty – Part Two: Subsequent Practice Under the ABM Treaty") (hereinafter Nunn Floor Speech on Subsequent Practice).

officially and publicly protested that view.³⁰⁸

Another point of agreement is that some subsequent practice that fails to meet the tests under Article 31(3)(b) for consideration under the general rule of interpretation may be considered under Article 32 as supplementary means of interpretation.³⁰⁹

The author also agrees with the Legal Advisor as to the manner in which *some* official statements bear upon the issue. Otherwise, however, it is submitted that the Legal Advisor has distorted both the law of subsequent practice and the practice in the instant case in order to advocate the permissive interpretation. This will be shown below, where his arguments, as well those of other proponents of the permissive interpretation, will be listed numerically and analyzed either singly or in related groups.

³⁰⁸ See *Constitution Hearings*, *supra*, note 237, at 193 (testimony of Arthur W. Rovine, former Assistant Legal Advisor for Treaty Affairs, U.S. Department of State). The *1987 Legal Advisor's Report*, Part III, *supra*, note 278, is full of references to October of 1985 being the cut-off point for evidence of subsequent practice. The *1987 Senate Foreign Relations Committee Report*, *supra*, note 223, at 27, cites 11 October 1985 as the date on which the Reagan Administration adopted the permissive interpretation. On 19 October 1985, Marshall Akhromeyev delivered the first formal Soviet rebuttal of the permissive interpretation, calling its adoption a

deliberate deceit.... Article V of the Treaty absolutely unambiguously bans the development, testing and deployment of ABM systems or components of space or mobile land basing ... regardless of whether these systems are based on existing or "future" technologies.

(*1987 Senate Foreign Relations Committee Report*, *supra*, note 223, at 27)

³⁰⁹ *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 105.

4.2.1.2.5.2 Subsequent Practice As Seen By Proponents of the Permissive Interpretation: Description and Rebuttal

The 1987 *Legal Advisor's Report* concludes that there is no concordant, common and consistent subsequent practice establishing the agreement of the Parties concerning the permissibility under the ABM Treaty of the development and testing of exotic ABM systems and their components in mobile basing modes.³¹⁰ The following arguments are put forward in support of this conclusion.

4.2.1.2.5.2.1 Legal Issue: The Relative Value of Physical Acts, Planning, and Verbal Acts

1. *Physical acts are the most probative form of subsequent practice.*³¹¹
2. *Planning for physical acts is less probative than the physical acts themselves, but more probative than mere verbal acts alone.*³¹²
3. *Mere verbal acts, such as official statements concerning the meaning of a treaty, are the least probative form of subsequent practice and are entitled to much less weight than physical acts.*³¹³

³¹⁰ Part III, *supra*, note 278, at 2: "... [T]here is little evidence of a pattern of conduct based on a consistent, common understanding of treaty obligations." See also *id.*, at 9 and 105. At the latter, the conclusion is offered that "[t]he record of subsequent conduct of the parties... fails to resolve definitively the meaning of the Treaty" (emphasis added) on the question.

³¹¹ *Id.*, at 2 and 9.

³¹² *Id.*, at 84.

³¹³ *Id.*, at 2. On the same page, and in keeping with the *Report's* attempt to disparage the value of official statements, it is implied that the probative value of such statements is zero: "Most of the evidence examined in this study consists of statements, usually unconnected with any action having probative worth." The position of the Legal Advisor seems to be, however, that the value of verbal acts is much less than that of physical acts, but greater than zero.

A more radical argument still is advanced in a minority report of the Senate Foreign Relations Committee (but not by the Legal Advisor), namely that official statements as to the permissibility of a certain activity cannot form part of the subsequent practice if made before a party is capable of engaging in that activity. See "Additional Views of Senators Helms, Pressler, and Tribble", 1987 *Senate Foreign Relations Report*, *supra*, note 223, (hereinafter *1987 Senate Foreign Relations Committee Report -- Minority*), at 99:

Excepting official statements proximate to ABM Treaty ratification, which provide supplemental evidence consistent with the permissive interpretation of the treaty, subsequent abstract statements that precede the actual "creation" of new ABM systems or components lack the practical foundation by which to infer practical construction of the treaty. [Emphasis added]

Clearly, physical acts taken by agents of the parties on behalf of the State can constitute the type of activity of which subsequent practice consists. Logically, however, such acts must not be clandestine in order to be considered under Article 31(3)(b). The physical acts of one party show the agreement of others only if the latter can be taken to have acquiesced in the activity, and acquiescence requires knowledge.

What is the status, though, of verbal acts such as statements by government representatives? Do these form part of subsequent practice, and, if so, should they be accorded less weight than physical acts? It is important, in the instant case, to clarify the legitimacy and weight of verbal acts not objected to by treaty partners. This is because many official U.S. government statements during the relevant period adopted the restrictive interpretation, often expressly, and were not, as far as is known, objected to by Soviet officials.

The 1987 *Legal Advisor's Report* concedes the propriety of counting verbal acts among subsequent practice for purposes of Article 31(3)(b) but maintains that verbal acts are entitled to much less weight than physical acts.³¹⁴ The *Report's* characterization of international jurisprudence softens this position considerably, however, noting only that "[a]nother general principle that is reflected in the decisions is that acts *may be* more significant than words."³¹⁵

In the only decision of an international tribunal cited in support of this proposition, the *Russian Indemnity Case*,³¹⁶ the Permanent Court of Arbitration did indeed accord physical acts deci-

³¹⁴ Part III, *supra*, note 278, at 2:

In general, actual conduct by the parties reflecting a common understanding of treaty obligations is entitled to much more weight than mere statements separated from actual conduct.

³¹⁵ *Id.*, at 104; emphasis added.

³¹⁶ *The Russian Indemnity Case (Russia v. Turkey)* (1912), Hague Ct. Rep. (Scott) 1.

sively greater weight than verbal acts. In that case, however, this was entirely appropriate, since the two were at odds with one another – the diplomatic correspondence clearly supported one interpretation while the parties' actual conduct clearly supported the other. In such a case, where a consistent body of verbal acts is contradicted by a consistent body of physical ones within the same period of time, the latter should govern, on the grounds that actions speak louder than words. However, the ABM Treaty interpretation dispute is not such a case. As we shall see, it involves a history of physical acts within the bounds of the restrictive interpretation, and a substantial body of verbal acts – particularly official U.S. government public statements – that espouse the restrictive interpretation. Under these circumstances, it is proper to give significant weight to verbal acts of the parties as elements of subsequent practice under Article 31(3)(b).

Support for regarding unchallenged official statements as subsequent practice can be found in Lord McNair's *Law of Treaties*, where it is claimed that whenever one party discovers that another party is interpreting a treaty in a manner that it believes to be incorrect, it "should" notify that other party of its dissent,³¹⁷ and that any such dissent is relevant, though not conclusive, evidence.³¹⁸ Lord McNair did not say, however, that the *failure* to dissent would be relevant evidence. In particular, he did not claim that a clear official public statement against which no dissent was registered constituted subsequent practice evidencing the agreement of the parties. It has been argued that Lord McNair saw dissenting from interpretations with which one disagreed as "political prudence" rather than a legal obligation.³¹⁹ However, it is submitted that if physical acts not protested against can establish subsequent practice showing the agreement of the parties, the same should be true of official statements not dissented from.

³¹⁷ McNair, *Law of Treaties*, *supra*, note 304, at 429.

³¹⁸ *Id.*, at 431.

³¹⁹ United States, Department of State, Office of the Legal Advisor, *The ABM Treaty -- Part II: Ratification Process* (n.p., 11 May 1987) [unpublished], at 38 (hereinafter *1987 Legal Advisor's Report*, Part II)

The ICJ gave precedence to verbal acts over physical acts, when these differed, in the *Temple of Preah Vihear Case*.³²⁰ There, the Parties' statements concerning a map that showed the disputed territory as being in Cambodia were accorded much greater significance than physical acts "on the ground" by Thai authorities that could have been construed as the exercise of Thai sovereignty.

In the 1950 *Advisory Opinion on the International Status of South-West Africa*, the ICJ ruled that

[i]nterpretations placed upon legal instruments by the parties to them, though not conclusive as to their meaning, have considerable probative value when they contain recognition by a party of its own obligations under an instrument.³²¹

The Court was talking about interpretations embodied in public statements of South African officials acknowledging their country's continued status as Trustee over Namibia even after the demise of the League of Nations. This case would provide clear support for according public statements by the U.S. government, and its officials and agencies, in support of the restrictive interpretation "considerable probative value" in any case in which the U.S. government argued in favour of the permissive interpretation, as the Reagan and Bush Administrations have done.

Another case that supports reliance upon the parties' verbal acts is the *Corfu Channel Case*, where the ICJ took note of the "subsequent attitude" of the parties on the issue of whether the special agreement submitting the dispute to the Court provided for the determination by the Court of the amount of compensation.³²² The parties' "attitude" can only have been gleaned from written and oral representations to the Court – verbal acts – since no physical acts could have shed light on this procedural matter. Later, in connection with a substantive issue, the Court relied on "statements" of the parties concerning a Security Council order.³²³

³²⁰ *Judgment on Case Concerning the Temple of Preah Vihear (Cambodia v. Thailand)* (Merits), [1962] I.C.J. Rep. 6.

³²¹ *Advisory Opinion on the International Status of South-West Africa*, [1950] I.C.J. Rep. 127, at 135-6.

³²² *The Corfu Channel Case (United Kingdom v. Albania)*, [1949] I.C.J. Rep. 1 (Merits), at 25.

In addition to the international jurisprudence, support for the inclusion of verbal statements in subsequent practice can be found in the wording of Article 31 of the Vienna Convention itself. It refers to subsequent "practice," and does not limit itself to physical acts, as might have been inferred had the word "conduct" been used. Moreover, "any" subsequent practice that establishes the agreement of the parties may be considered.

4.2.1.2.5.2.2 The ABM Treaty: Evidence of Planning For Physical Acts

The evidence of planning of U.S. BMD activities also supports the restrictive interpretation. While secret planning cannot constitute evidence of agreement between the parties, some U.S. planning has been publicized, with the restrictive interpretation cited as a reason why various BMD experiments will comply with the ABM Treaty. The Legal Advisor admits that the planning of some SDI activities was affected by the restrictive interpretation prior to October 1985,³²⁴ although the evidence he cites is largely of secret planning for the Delta 180 and AOS/AOA tests.³²⁵

The main evidence of public planning of BMD experiments appears in a 1985 report produced by the Strategic Defense Initiative Organization.³²⁶ There, the restrictive interpretation is offered as one reason specified SDI tests (SSTS, BSTS, AOS/AOA and LWIR Probe, all involving non-radar sensors) and "major technology experiments" (read "tests") generally would be in compliance with the Treaty.³²⁷

³²³ *Id.*, at 26.

³²⁴ 1987 *Legal Advisor's Report*, Part III, *supra*, note 278, at 7 and 84.

³²⁵ *Id.*, at 85-7.

³²⁶ 1985 *SDI Report*, *supra*, note 149.

³²⁷ See Appendix 7(a) for relevant excerpts from this report.

The *1987 Legal Advisor's Report* attempts to downplay the extent to which a desire to comply with the restrictive interpretation influenced the planning of SDI tests prior to October 1985. These efforts are unpersuasive. The *Report* claims that SDI managers have found that in respect of SDI tests planned prior to October 1985 (a) no Treaty-related adjustments were required because the devices involved either were of a type that did not require exceeding the restrictive interpretation or were not ABM components, (b) SDI program objectives could be met without exceeding the restrictive interpretation and (c) in any event, the U.S. was not technically capable at that time of changing the test program in ways that would exceed the restrictive interpretation *and* offer "significant program advantages."³²⁸ Speaking of "adjustments" to and "changing" the tests skirts the issue of whether these tests were designed to comply with the restrictive interpretation in their initial planning stages. It may be that the reason no Treaty-related *adjustments* needed to be made is because the tests were planned to comply with the restrictive interpretation from the outset. The inability to gain significant program advantages from *changes* that would make tests exceed the restrictive interpretation is not the same as the inability to gain such advantages if the tests had been unfettered from the start.³²⁹ Nor is it relevant that SDI program objectives could be accomplished within the restrictive interpretation. While this may be true, it hardly seems desirable, given the long line of Reagan Administration witnesses who argued (since the unveiling of the permissive interpretation) that allowing SDI to exceed the restrictive interpretation would (a) save the program a great deal of money and (b) permit the kinds of realistic tests that could provide more convincing evidence to a future Congress and President of the feasibility of using various technologies for nation-wide BMD. In any event, when the U.S. announced her intention to conduct specified tests, and publicly justi-

³²⁸ *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 84.

³²⁹ This seems to be acknowledged by the Legal Advisor at 6 and 84 of Part III of the *Report*, where he states that from March 1983 to October 1985, the U.S. stated (publicly) that its BMD development and testing activities had been *designed* to be consistent with the restrictive interpretation. If something is designed to comply with a certain interpretation, it would seem to follow that exceeding that interpretation is possible.

fied them by asserting that they would comply with the restrictive interpretation (as she did in the 1985 SDI Report) it is hard to see how she can now claim that public planning for these tests was unaffected by a desire to comply with that interpretation.

4.2.1.2.5.2.3 The ABM Treaty: Evidence of Physical Acts

4. *Although the U.S. has limited her BMD activities to the restrictive interpretation, it is not clear whether the Soviets have done so.*³³⁰
5. *U.S. research on ABM systems based on other physical principles, and components thereof, has only recently approached the point where it is possible and useful for the parties to develop or test them in mobile basing modes.*³³¹ *It is unclear whether Soviet research has reached that stage even now.*³³² *Therefore, for most of the Treaty's duration, no significance can be attached to the apparent limitation of the parties' physical acts within the bounds of the restrictive interpretation.*
6. *Even if the parties (a) have had the capability to exceed the restrictive interpretation and (b) have refrained from doing so, this would only be probative evidence of subsequent practice in favour of that interpretation if such restraint was motivated by a belief that the Treaty proscribed such activity. It cannot be proven that this is the case.*

Let us look at the actual physical acts engaged in by the defence establishments of the two parties. Can these be used as the basis for arguing the existence of a "common, concordant and consistent" subsequent practice in favour of either interpretation?

³³⁰ *Id.*, at 12: "[W]e have insufficient evidence... to judge whether Soviet behaviour was in fact consistent with the restrictive interpretation."

³³¹ *Id.*, at 84:

Only since the advent of the SDI program has technology begun to reach the point where the United States might test possible mobile ABM systems based on OPP including components capable of substituting for the conventional ABM system components.

³³² *Id.*, at 8:

Existing evidence does not convincingly establish that the Soviets have advanced to the development stage with respect to mobile OPP ABM systems; but in light of existing limitations, a confident judgment on this issue is presently impossible.

No allegation has ever been publicly made by either side of activities that violate the restrictive interpretation but comply with the permissive one. For example, no such allegations appear in the compilations of alleged Soviet violations of arms control agreements periodically produced by the U.S. government. Alleged Soviet violations of the ABM Treaty include prohibited SAM upgrade and phased array radar deployment, but nothing involving exotic ABM devices.³³³

Proponents of the permissive interpretation seek to place in question the certainty of the parties' compliance with the restrictive interpretation by raising the possibility of clandestine Soviet violation. This should not be permitted, for two reasons. First, proponents of the restrictive interpretation cannot be expected to prove a negative — that the Soviets did not exceed the restrictive interpretation. According to all public accounts from U.S. intelligence sources, no such activity is known to have occurred. This is sufficient for us to assume compliance with the restrictive interpretation. Second, and more importantly, clandestine activity can never be part of the subsequent practice establishing the agreement of the parties. By definition, such practice consists of joint activity and unilateral activity that is acquiesced in. Even if undetected clandestine tests occurred, they could not be acquiesced in. Thus, we can assume, for the purpose of subsequent practice under Article 31, that neither side has engaged in activity that exceeded the restrictive interpretation but complied with the permissive interpretation.³³⁴

This fact alone, though, does not have great significance if the other contention of the Legal Advisor is correct, namely that most of this compliance with the restrictive interpretation was compelled not by an awareness of Treaty constraint but by an inability to exceed it. Clearly, if a party is

³³³ See, e.g., United States, Office of the President, *The President's Unclassified Report on Soviet Non-compliance With Arms Control Agreements* (Washington, D.C.: USGPO, 1985), at 3 and 6-8.

³³⁴ This fact is supported by a statement of six former U.S. Secretaries of Defense to the effect that the restrictive interpretation "has been observed by both sides since the Treaty was signed in 1972." See Statement of Harold Brown, Melvin R. Laird, Elliot L. Richardson, Clark M. Clifford, Robert S. McNamara and James R. Schlesinger, 9 March 1987, reproduced in *Constitution Hearings, supra*, note 237, at 409.

physically incapable of engaging in certain conduct then no value can attach, as a matter of subsequent practice, to a failure to do so. However, the *1987 Legal Advisor's Report* introduces a second element, which does not have the same legitimacy in this regard – the absence of "programmatic need." Nowhere in the *Report* is it alleged simply that the two sides were physically incapable of developing and testing mobile exotic ABM systems and components. Rather, it is always claimed that at all times *either* there was no capability *or* no "programmatic need" or significant advantage to exceeding the restrictive interpretation.³³⁵

The inability to *change* a test program, or to gain advantage from such a change can be the direct result of years of belief that there was no point in evolving towards mobile BMD development, because it was prohibited. When the *Report* does restrict itself to the question of capability, it is only able to claim, in the U.S. case, that conflicts between BMD activity and the restrictive interpretation were impossible for *most* of the period for which subsequent practice is relevant.³³⁶ The *Report* is, understandably, unable to conclude whether the Soviets were capable of exceeding the restrictive interpretation prior to October 1985.

³³⁵ *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 2:

[T]he parties have not had the programmatic need or technological capacity for very long to develop and test OPP systems or components that are ABM-capable.

See also *id.*, at 6-7:

Those involved in the management of SDI programs found [that prior to October 1985]... the U.S. was not technically capable of changing the [SDI] test program in ways which would go beyond the restrictive interpretation *and at the same time offer significant program advantages* [Emphasis added].

³³⁶ *Id.*, at 108:

For *most* of the period under study BMD development and testing had not yet reached a stage at which practical conflicts with the restrictive view could have occurred. [Emphasis added]

Thus, in summary,

- (a) we can assume that both sides complied with the restrictive interpretation during the relevant period since there is no evidence to the contrary in the public domain;
- (b) the U.S. was capable of exceeding the restrictive interpretation during the latter stages of that period; and
- (c) it is unclear whether the U.S.S.R. was capable of doing so as well.

Under these circumstances, there is no support for the permissive interpretation in the parties' physical acts (as proponents of that view acknowledge). The restrictive interpretation does, however, derive support from the U.S. ability to exceed it and her refraining from doing so during some portion of the 1980s. One can never be certain, when a party constrains its behaviour to the more restrictive of two treaty interpretations, whether such restraint is motivated by a desire to respect that interpretation as a treaty obligation, or by some other self-interested consideration. However, when that restraint is accompanied by official statements that that interpretation is the correct one, and the State has justified its activities as treaty-compliant by referring to that interpretation – as the U.S. has done in the instant case – it is reasonable to assume that party's restraint to have been motivated by a desire to comply with its obligations under the treaty, and to treat the behaviour as subsequent practice. However, unless both parties to a bilateral treaty have behaved in this manner, such restraint by one alone should not be regarded as subsequent practice *establishing the agreement of the parties* since there is no way for the other party to object to restraint in physical activity.

4.2.1.2.5.2.4 The ABM Treaty: Early U.S. Official Statements: 1972-1978

7. From 1972 until the submittal of the FY79 ACIS³³⁷ in 1978, no official U.S. statement to Congress supported the restrictive interpretation.³³⁸
8. The overall record of official U.S. government statements is mixed, but the majority of the earlier statements -- from 1973 to 1978 -- support the permissive interpretation.³³⁹

The Legal Advisor regards official U.S. statements in the period following the entry into force of the Treaty -- from 1972 to 1978 -- as favouring the permissive interpretation and argues that this evidence is entitled to greater weight than later official statements -- such as the *Arms Control Impact Statements* -- that adopt the restrictive view.

First of all, it is not correct that early U.S. statements support the permissive interpretation. The statements cited as having this effect are all consistent with either interpretation. For example, passages in the 1975, 1977, 1980 and 1982 editions of the ACDA's *Arms Control and Disarmament Agreements -- Texts and Histories of Negotiations* so cited³⁴⁰ fall far short of espousing the permissive interpretation.³⁴¹ In any event, this publication (a) does not and has never accurately reflected

³³⁷ FY79 *Arms Control Impact Statements* (Washington, D.C.: USGPO, 1978).

³³⁸ 1987 *Legal Advisor's Report*, Part III, *supra*, note 278, at 106.

³³⁹ A.D. Sofaer, "Analysis of U.S. and Soviet Post-Negotiation Public Statements Interpreting the ABM Treaty's Application to Future Systems", reproduced in *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, 200, at 200-1 (hereinafter "Post-Negotiation Public Statements"). See also Sofaer, "The ABM Treaty and SDI", *supra*, note 208, at 1983.

³⁴⁰ Sofaer, "Post-Negotiation Public Statements", *supra*, note 339, at 200, quotes from the 1982 edition, at 138:

Further, to decrease the pressures of technological change and its unsettling impact on the strategic balance, both sides agreed to prohibit development, testing, or deployment of sea-based, air-based, or space-based ABM systems and their components, along with mobile land-based ABM systems. Should future technology bring forth new ABM systems "based on other physical principles" than those employed in current systems, it was agreed that limiting such systems would be discussed, in accordance with the treaty's provisions for consultation and amendment.

³⁴¹ For example, the passage from the 1982 version

the official U.S. position and (b) skims and omits issues in seeking to compress the material.³⁴²

There are also early U.S. official statements in the *1972 ACDA Annual Report*³⁴³ and by then-U.N. Ambassador George Bush³⁴⁴ in the same vein. Neither, however, provides more than a general, ambiguous description of the Treaty.

The *1972 ACDA Annual Report* is touted as being supportive of the permissive interpretation because it treats limits on future ABMs as separate from Article V(1), "suggesting that Agreed Statement D was considered a significant and distinct part of the Treaty."³⁴⁵ It seems obvious,

(1) acknowledges a desire to "decrease the pressures of technological change and its unsettling impact on the strategic balance," something that would not be significantly accomplished with an agreement which permitted the development and testing of mobile exotic ABM systems;

(2) refers to "*new ABM systems 'based on other physical principles' than those employed in current systems*" (emphasis added) and

(3) although not dealing specifically with ABM devices that are both exotic *and* mobile, does list the two restrictions separately, and says nothing that is inconsistent with the restrictive interpretation.

³⁴² *ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 371 (answers of John B. Rhinelander to additional questions submitted by Congressman Fascell). This is confirmed by Sam Nunn, who notes that the ACDA histories are prepared by the ACDA only, without interagency approval, and, in their preface, claim only to provide a "brief narrative discussion." (Nunn Floor Speech on Subsequent Practice, *supra*, note 307, at 3-4).

³⁴³ United States, Arms Control and Disarmament Agency, *Annual Report*, 31 January 1973 (hereinafter *1972 ACDA Annual Report*), reproduced in *1972 Documents on Disarmament* 875, cited in Sofaer, "Post-Negotiation Public Statements", *supra*, note 339, at 209:

Another important element is the agreement that if *future types of ABM systems or components based on physical principles different from present technology* become feasible, specific limitations thereon will be a subject of discussion and agreement...
[Emphasis added]

³⁴⁴ On 23 October 1972, shortly after the ABM Treaty was ratified, then-Ambassador Bush used the following terms to describe the Treaty's provisions:

... [The parties] have also decided not to deploy new ABM systems based on other physical principles such as those which employ laser beams, for example, without discussion and agreement on their limitation.

(Quoted in Sofaer, "Post-Negotiation Public Statements", *supra*, note 339, at 209)

³⁴⁵ *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 17.

however, that the *Report* merely paraphrases the Treaty provisions. Therefore, since Agreed Statement D is the only provision to expressly mention exotic systems, it had to draw from the wording of Agreed Statement D in order to describe the Treaty's effect on such systems.

Of the future deployment ban, the *1972 ACDA Annual Report* notes that

if future types of ABM systems or components based on physical principles different from present technology become feasible, specific limitations thereon will be a subject of discussion and agreement...

This description leaves matters just as unclear as Agreed Statement D as to which part of the process – development, testing or deployment – is being constrained, as well as whether that process is permitted or prohibited pending agreement. In short, to rely on the *1972 ACDA Annual Report* is to rely on an ambiguous and superficial description.

Finally, treating the exotic deployment ban as separate from Article V(1) is not inconsistent with the restrictive interpretation. They are separate prohibitions that happen to overlap in the case of the deployment of ABM systems and components that are both mobile and exotic.

The Bush statement is no less ambiguous. While it makes it clear that the deployment of exotic ABMs is prohibited pending agreement, it does not address the issue of the development and testing of exotics.

Also cited is the *1973 Foreign Policy Report* of Secretary Rogers, which stated that:

the treaty also provides an important qualitative limitation on ABMs, including an agreement that ABM systems based on other physical principles different from those of existing systems should not be deployed under the treaty in its present form.

In addition to passage's separate treatment of the exotic deployment ban and the Article V(1) ban on mobiles, the Legal Advisor finds significance in the fact that the only limitation specifically recognized as affecting exotic ABMs was the exotic deployment ban.³⁴⁶ However, since the restrictive

³⁴⁶ *Ibid.*

interpretation finds the development and testing ban on mobile exotics in Article V(1), it would be unnecessary for the *Report* to have repeated the application of Article V(1) to exotic ABMs when describing the exotic deployment ban.

One other early U.S. source relied upon is 1973 testimony from JCS Chairman Admiral Moorer in which he stated that the development and testing of exotic ABM devices is permitted.³⁴⁷ The Legal Advisor claims that this testimony was "in terms which could be construed as supportive of" the permissive interpretation.³⁴⁸ Senator Hollings has cited this testimony and Admiral Moorer's later *FY75 Posture Statement* as important support for the permissive interpretation.³⁴⁹

In his 1973 testimony, Admiral Moorer noted that the U.S. planned to continue "new technological approaches to even more advanced ABM systems," and that it was only prudent that "we continue our efforts to advance our ABM technology to the full extent permitted by the Treaty." He also urged "full support of a 'vigorous research and development program.'"

In his *FY75 Posture Statement*, Admiral Moorer is said to have repeated his 1973 testimony, then added that the U.S. should

retain the option to deploy a more advanced ABM system for the defense of the National Command Authority or to deploy a more extensive system should the ABM Treaty be abrogated for any reason.³⁵⁰

Senator Hollings finds it "hard to imagine" how the objectives set out in these passages could be achieved under the restrictive interpretation.

³⁴⁷ For these quotations, see Appendix 7(a).

³⁴⁸ *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 16.

³⁴⁹ *Constitution Hearings*, *supra*, note 237, at 461.

³⁵⁰ *Ibid.*

In fact, all of the goals are perfectly attainable under the restrictive interpretation. A "vigorous research and development" program including plans "to continue... new technological approaches to even more advanced ABM systems" and to "continue our efforts to advance our BMD technology" is compatible with the restrictive interpretation. Under that interpretation, the development and testing of exotic ABM devices is permitted as long as it is limited to the fixed, land-based mode and takes place in agreed test ranges.

The U.S. would still "retain the option to deploy a more advanced ABM system for the defence of the National Command Authority... should the ABM Treaty be abrogated..." because the development and testing of exotic ABM devices could still go on under the restrictive interpretation. Deployment of reliable, tested exotic ABMs immediately following abrogation would not be impossible under the restrictive interpretation. It would simply be restricted to fixed, land-based components.

Senator Hollings maintains that the Admiral, in the *FY75 Posture Statement*, "was speaking of advanced technologies, vigorous research and development, clearly linked finally to the option to deploy an extensive system."³⁵¹ Nowhere, however, did Admiral Moorer speak of a capability to deploy exotic ABMs upon abrogation more extensively than in defence of the National Command Authority. In the quoted passage of the FY75 statement, the "more extensive system" referred to in the second clause need not necessarily be comprised of the "more advanced ABM system[s]" mentioned in the first. In fact, it is not even clear whether those "more advanced" systems mentioned would be comprised of devices capable of substituting for traditional ABM components or would merely consist of improved interceptor missiles, launchers and radars. In any event, even if the Admiral was advocating maintenance of the capacity to quickly deploy exotic ABMs on a nationwide basis upon abrogation, this could be achieved under the restrictive interpretation with fixed, land-based components.

³⁵¹ *Ibid.*

Two elements of Admiral Moorer's 1973 testimony in fact support the *restrictive* interpretation. First, he calls for BMD technology to be advanced "to the full extent permitted by the Treaty." If this comment extends to exotic ABMs (which seems probable since these are prime examples of the fruits of advancing technology), then it makes no sense under the permissive interpretation. This is because under that interpretation there *are* no limitations on the advancement of exotic technologies.

Second, in a portion of his 1973 testimony quoted by neither Senator Hollings nor the Legal Advisor, the Admiral stated that the Treaty "limits both parties to a relatively small, but equal, number of ABM launchers, *and, to some extent, constrains the development of new ABM systems.*"³⁵² If by "new ABM systems" the Admiral meant exotic ABM systems (as the contrast with "ABM launchers" suggests it does), then this passage is also inconsistent with the permissive interpretation due to its recognition of the existence of limitations on the development of exotic ABMs. Again, under the permissive interpretation, there are no such limitations.

4.2.1.2.5.2.5 The ABM Treaty: Early Soviet Official Statements: 1972-1979

9. *At no time during the period from 1972 to 1979 did the Soviets indicate agreement with the restrictive interpretation.*³⁵³
10. *Early Soviet statements -- immediately following the signing of the ABM Treaty -- support the permissive interpretation.*³⁵⁴

³⁵² Emphasis added.

³⁵³ 1987 Legal Advisor's Report, Part III, *supra*, note 278, at 10.

³⁵⁴ *Ibid.* See also 1985 SDI Hearings, *supra*, note 199, at 37 (testimony of Fred Iklé, Undersecretary of Policy, U.S. Department of Defence): "There are also Soviet statements around 1972, after the treaty was signed, saying that such testing and development [of non-traditional ABM systems and components in mobile basing modes] was not prohibited."

11. *This position that Article II(1), and the Treaty as a whole, only applied to traditional ABM components was "repeatedly indicated" by Soviet delegates during the negotiation of clarifying interpretations and at other times between 1972 and 1979.*³⁵⁵
12. *On at least two occasions during the period 1972 to 1979, the Soviets failed to respond to opportunities to confirm even that the deployment of exotic systems and components was prohibited.*³⁵⁶

The claim that there are early Soviet public statements in the nature of subsequent practice that support the permissive interpretation is, according to available evidence, false. Much of the discussion of early Soviet statements actually centres around a statement of Defence Minister Grechko made at the Soviet ratification debates. This is not, therefore, a part of the subsequent practice.³⁵⁷

The only early Soviet statement that deals with the issue at all is a passage from a 1972 article allegedly written under a pseudonym by Victor Viktorovitch Shustov of the Soviet Ministry of Foreign Affairs:

The significance of the Soviet-U.S. SALT accords signed in Moscow is exceptionally great. These documents are primarily an expression of the sides' intention to avoid a new round in the nuclear missile arms race. Consistent implementation of these accords will prevent the emergence of new deployed ABM systems. This in turn will considerably reduce the incentive to develop more sophisticated types of offensive weapons. These would inevitably appear if ABM systems developed without restriction since the desire constantly to improve ABM defense would lead to a situation in which the arms race process would continue to gather momentum uncontrollably.³⁵⁸

It has been claimed that by referring to "the emergence [poiavlenid] of new deployed ABM systems" rather than "the emergence of new ABM systems," the inference may be drawn that new systems could lawfully "emerge" until the deployment stage.³⁵⁹ This is a very weak inference indeed, since

³⁵⁵ 1987 *Legal Advisor's Report*, Part III, *supra*, note 278, at 9, 10, 21, and 107.

³⁵⁶ *Id.*, at 10 and 107.

³⁵⁷ In any event, as will be shown presently when supplementary means are discussed, the famed Grechko statement, pointed to on several occasions as proof that the Soviets never accepted the restrictive interpretation, is ambiguous on the point, as has been admitted by both Ambassador Nitze and Judge Sofaer.

³⁵⁸ V. Victorov, "Agreements of Historic Importance" (1972), 7 *Int'l Affairs* (Moscow), at 18-27.

³⁵⁹ *Review Hearings*, *supra*, note 210, at 125 (responses of William Harris to additional questions).

there is no mention of basing mode, and the restrictive interpretation permits development and testing of any kind of ABM system or component as long as it is fixed and land-based. The passage therefore sheds no light on the issue. It is ambiguous.³⁶⁰

Since this is the only early Soviet official public statement offered, it is incorrect to claim that such statements, as a whole, support the permissive interpretation. In 1985 Congressional testimony, Judge Sofaer admitted as much, acknowledging that he could not point to any public statements by Soviet officials in the entire 1972-1985 period that expressly espoused the permissive interpretation (although he claims to know of one non-public statement, which was not identified).³⁶¹

As to the Soviets failing, in response to questioning, to confirm that the deployment of exotic ABMs was prohibited, it is highly doubtful that such conduct constitutes subsequent practice establishing the Soviet position, let alone agreement of the parties, for the simple reason that failing to answer a question does not constitute the making of a statement. Consequently, these non-exchanges can have no bearing on the state of the subsequent practice.

On the topic of Soviet treatment of the term "ABM systems" as including traditional ABM components only during the negotiation of clarifying interpretations of certain Treaty terms, the Legal Advisor makes an important admission:

The significance of this Soviet position is limited by the fact that the Treaty articles in question during the discussion were written to constrain only the three conventional types of components.³⁶²

³⁶⁰ In fact, Dr. Harris merely claims that such an inference "would be compatible with" the permissive interpretation. He does not claim *incompatibility* with the restrictive interpretation.

³⁶¹ *1985 SDI Hearings*, *supra*, note 199, at 268 (answers of Judge Sofaer to additional questions submitted by Senator Nunn).

³⁶² *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 21.

Thus, for example, when the Legal Advisor refers to undisclosed Soviet statements made during negotiation of the agreed interpretations concerning the meaning of "tested in an ABM mode," one must bear in mind that the Treaty only applies this phrase to traditional ABM components. The Soviets may only have been confining the discussion to these components for this reason, and not because they believed the Treaty proper as a whole to be inapplicable to exotic ABMs.

4.2.1.2.5.2.6 Legal Issue: The Relative Value of Earlier
Versus Later Practice

13. *The closer in time practice is to the entry into force of the agreement being interpreted, the greater the weight it tends to be accorded. This is because subsequent practice is to be used to ascertain the intention of the parties at the time a treaty is concluded and "the passage of time brings with it intervening events that may affect or radically alter the positions taken by a party."*³⁶³

Contrary to the Legal Advisor's claim, earlier evidence is not entitled to greater weight than later evidence. That argument is based on a misunderstanding of a related set of principles:

1. If a consistent body of subsequent practice of sufficient duration immediately follows a treaty's entry into force and is then followed by a period of different practice, then the former would take precedence as a matter of subsequent interpretation. The latter could only prevail as a subsequent *modification*. If the actions and statements from the later period were made by sufficiently low levels of government, most publicists would not recognize the modification as legally binding, on the grounds that a subsequent modification – as opposed to subsequent practice as an aid to interpretation – can only be effected by express agreement or, at most, inferred from actions taken by the highest levels of government.
2. When interpreting a treaty, one must seek to determine the parties' intentions at the time of the conclusion of the agreement, and not at some later date. *Some* practice that occurs many years after the entry into force of the treaty – particularly if it represents a change in earlier practice – *may* not represent the parties' intentions at the time the agreement was entered into.

Neither of these principles accords less weight to subsequent practice occurring many years after the agreement is concluded merely because of the passage of time. This is so even if that practice *begins* several years after the treaty is concluded. Later practice should only be accorded less

³⁶³ *Id.*, at 9 and 104-5.

weight if it follows a period of common, concordant and consistent practice that supports a different interpretation. In such a case, the later practice could only constitute a modification and not subsequent practice evidencing the intentions of the parties at the time the treaty was entered into.

Two publicists *appear* to support the Legal Advisor's position on the relative value of earlier and later practice. One is Professor Hyde, who states that

The Permanent Court of International Justice appears to be quite aware of the fact that the action of the parties long subsequent to the negotiation of a treaty is not necessarily probative of the sense in which the terms were used at the time when the agreement was made; and that if such action is to be respected it is attributable to reasons that do not grow out of the requirements of interpretation. The Court may find convenient confirmation of its conclusions in the actions of the parties, and it may even regard itself in a particular case as obliged to defer thereto. Such deference, save when the action of the parties is contemporaneous with the consummation of their agreement, marks an avoidance of the task of interpretation.³⁶⁴

Professor Haraszti also appears to support this view, maintaining that judicial practice has "emphasized repeatedly that ... only the practice developed in the period directly following upon the conclusion of a treaty may be taken into consideration."³⁶⁵

However, it seems doubtful that such a broad rule as this exists. It is more likely that the rule only serves to exclude from subsequent practice a history of actions and statements that begins well after the conclusion of the treaty, *when it constitutes an about-face from an earlier settled practice*. In other words, all these publicists are saying is that a subsequent agreement of the parties – implicit in their behaviour – that constitutes a *modification* of the treaty terms and earlier practice (if any) should not be mistaken for subsequent practice. Professor McDougal *et al* agree; they interpret Professor Hyde and other writers to be saying no more than that

³⁶⁴ C.C. Hyde, *2 International Law Chiefly as Interpreted and Applied by the United States*, 2nd rev. ed. (Boston: Little, Brown and Co., 1945), at 1496-7 (hereinafter *International Law*).

³⁶⁵ G. Haraszti, *Some Fundamental Problems of the Law of Treaties* (Budapest: Akademiai Kiado, 1973), at 143 (hereinafter *Fundamental Problems*).

... some reluctance should be shown by international tribunals in inferring "revisions" of treaties from implicit courses of conduct (i.e. conduct that does not clearly and explicitly indicate that a revision was intended to be made).³⁶⁶

A close look at the passage from Professor Hyde's book reveals that he saw the P.C.I.J. as regarding later practice as "not necessarily probative" of the parties' intentions at the time of the treaty's conclusion. They did not regard such practice as "necessarily not probative" or even "necessarily less probative."

That Professor Haraszti is really only asserting that subsequent practice should be used to discern the parties' intentions at the time the treaty was concluded is strongly suggested by the claim that his proposition has been "emphasized repeatedly" in judicial practice. International tribunals have explicitly restricted themselves on many occasions to evidence that reflects the Parties' intentions at that time. However, the author is unable to find, and the Legal Advisor is unable to cite, a single instance of an international tribunal according less weight to subsequent practice solely on the ground that it has occurred a considerable time after a treaty's conclusion.

In addition to the dubious support he claims from Professors Hyde and Haraszti, the Legal Advisor also relies upon the P.C.I.J. and Lord McNair in support of his position on later practice. This reliance is clearly misplaced. He claims that Professor Haraszti cites a 1925 P.J.I.C. case³⁶⁷ in support of the proposition that earlier practice is entitled to greater weight than later practice.³⁶⁸ In fact, the case is authority for nothing more than the general proposition that subsequent practice – whether it immediately follows the conclusion of the treaty or occurs years later – should be taken into consideration only if it is "calculated to throw light on the intention of the parties at the time of

³⁶⁶ M. McDougal, et al., *The Interpretation of Agreements and World Public Order* (New Haven, Conn.: Yale University Press, 1967), at 142, their note 78.

³⁶⁷ *Article 3, Paragraph 2, of the Treaty of Lausanne (Frontier between Turkey and Iraq)*, [1925] P.C.I.J. 6, Series B, No. 12, at 24.

³⁶⁸ *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 104 (his note 15).

the conclusion of that Treaty." Professor Haraszti, for his part, cites it for this purpose only, and not in support of the proposition that earlier practice is entitled to greater weight.

Lord McNair³⁶⁹ is cited in apparent support of the contention that the supposed rule in favour of earlier practice is based on the principle that subsequent practice should only be admitted for the purpose of shedding light on the parties' intentions at the time the treaty was concluded.³⁷⁰ In fact, no hint of a preference for early practice appears on the cited page. All that appears is the following:

In some cases the interpretation placed upon a treaty provision *at the time of the conclusion* has been found to be important.³⁷¹

The I.C.J. took into account fifty years of subsequent practice in the *Temple of Preah Vihear* case.³⁷² In endeavouring to ascertain the boundary provided for in a 1904 treaty, as clarified by a 1909 settlement, the Court considered, *inter alia*, the failure of Thailand to question Cambodia's view of the agreed boundary (a) after she conducted her own survey of the disputed region in 1934-5,³⁷³ (b) during negotiation of the 1925 and 1937 Treaties of Friendship, Commerce and Navigation between France (on behalf of Cambodia) and Siam,³⁷⁴ (c) after clear assertions of French sovereignty during a 1930 visit of the Prince of Siam to the disputed region³⁷⁵ and (d) following her receipt of French assertions of sovereignty in diplomatic correspondence in 1949 and 1950.³⁷⁶

³⁶⁹ *The Law of Treaties*, *supra*, note 304, at 431.

³⁷⁰ *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 104 (his note 16).

³⁷¹ Emphasis added.

³⁷² 1962 I.C.J. 6.

³⁷³ *Id.*, at 27.

³⁷⁴ *Ibid.*.

³⁷⁵ *Id.*, at 30.

³⁷⁶ *Id.*, at 31.

Nowhere does the Court suggest that the evidentiary value of these events as subsequent practice decreased from the first to the last. The entire set of subsequent acts and statements were relied upon without distinction as to date.³⁷⁷ In any event, the earliest of these events occurred over fifteen years after the 1909 settlement. By way of comparison, the lengthy series of official U.S. government statements supporting the restrictive interpretation of the ABM Treaty (many expressly) began only six years after that treaty's entry into force. It is thus highly doubtful that the Legal Advisor's contention finds support in international jurisprudence.

Thus, only if the consistent body of post-1977 official statements supporting the restrictive interpretation of the ABM Treaty were preceded by five years of common, concordant and consistent practice in support of the *permissive* interpretation would it fail to carry as much weight for subsequent practice purposes as the pre-1978 practice. Only then would the post-1977 statements be relegated to the status of evidence of a possible modification. However, as we have seen, the evidence from the 1972-1978 period does not support the permissive interpretation. The parties' statements commencing in the late 1970s that explicitly support the restrictive interpretation do not therefore constitute a modification of either the Treaty's terms or the early practice. The Treaty text emphatically supports the restrictive interpretation. The early practice, while not as supportive of the restrictive interpretation as the more explicit and more numerous endorsements of that view in the post-1977 period, is nonetheless perfectly compatible with the restrictive interpretation as well.

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The Court however considers that Thailand in 1908-9 did accept the Annex I map as representing the outcome of the work of delimitation, and hence recognized the line on that map as being the frontier line... The Court considers further that, looked at as a whole, Thailand's subsequent conduct confirms and bears out her original acceptance, and that Thailand's acts on the ground do not suffice to negative this...

(*Id.*, at 32-3)

4.2.1.2.5.2.7 The SALT II Negotiations as Subsequent
Practice in Respect of the ABM Treaty

14. *Exchanges between U.S. and Soviet negotiators at the SALT II negotiations on*

*(a) heavy bombers,*³⁷⁸

*(b) exotic strategic offensive weapons*³⁷⁹ *and*

*(c) MIRVed strategic ballistic missiles*³⁸⁰

raise doubts about whether the Soviets agreed with the restrictive interpretation at that time.

The exchanges from the SALT II negotiations relied upon by the Legal Advisor are ultimately ambiguous on the issue of the meaning of "ABM systems and components" in the ABM Treaty. In most cases, the ABM Treaty was not even under discussion. Where it was, neither party endorsed the permissive interpretation, either expressly or by necessary implication. While some Soviet statements are ambiguous and can be taken to support the permissive interpretation, none is inconsistent with the restrictive interpretation. The U.S. espoused the restrictive interpretation throughout. This consistent U.S. practice means that there can be no question of "subsequent practice establishing the agreement of the parties" in favour of the permissive interpretation. Nor does any Soviet statement favour the permissive interpretation enough to allow it to be regarded as the practice of one party in support of that interpretation. Consequently, the SALT II negotiations do not provide any support for the permissive interpretation in the area of subsequent practice, particularly consensual subsequent practice.³⁸¹

³⁷⁸ 1987 Legal Advisor's Report, Part III, *supra*, note 278, at 22-23.

³⁷⁹ *Id.*, at 30-36.

³⁸⁰ *Id.*, at 23-30.

³⁸¹ For a much more detailed analysis of the SALT II negotiations as subsequent practice concerning the meaning of the term "ABM systems and components" in the ABM Treaty, see Appendix 8, *infra*.

4.2.1.2.5.2.8 The U.S. Arms Control Impact Statements: Treatment Of the ABM Treaty and Related Legal Issues

15. *The Arms Control Impact Statements were produced primarily by the ACDA beginning with the FY79 ACIS.*³⁸² *Implication: the ACDA inserted the restrictive interpretation into that document without the agreement of the other agencies of the executive branch; therefore, the ACIS do not represent U.S. policy.*³⁸³

Two points need to be made here. First, the ACIS, while drafted by ACDA, are circulated throughout the executive branch for comment and approval, and, when cleared for submittal to Congress, must have gained the approval of all pertinent agencies and offices. Even if there has been disagreement with some of their contents at lower levels of the Defense or State Departments, for example, the heads of those departments must agree with those contents before release is possible.³⁸⁴

Second, even if this were not the case, and ACDA were the only agency that supported a particular point, the ACIS are formally submitted to Congress by the President, and not by ACDA. Consequently, they would represent official U.S. government policy for purposes of subsequent practice even if released over the objection of most of the executive branch.³⁸⁵

16. *Some ACIS, especially those from 1981 to 1983, supported the restrictive interpretation in varying degrees.*³⁸⁶

³⁸² 1987 Legal Advisor's Report, Part III, *supra*, note 278, at 108.

³⁸³ That this is the inference to be taken is concurred in by Spurgeon M. Keeny, Jr., President of the U.S. NGO, The Arms Control Association. See "Sofaer's Last Stand?", *Arms Control Today* October 1987, 14, at 15-16 [report on a news conference of 11 September 1987].

³⁸⁴ See *Nunn Report*, *supra*, note 285, at 74, where it is noted that the FY79 ACIS involved "an intensive interagency review process, including final review and approval by the National Security Council. As such, it represented the formal, co-ordinated views of the Executive Branch."

See also *Senate Foreign Relations Committee Report*, *supra*, note 223, at 22.

³⁸⁵ *Ibid.*

³⁸⁶ 1987 Legal Advisor's Report, Part III, *supra*, note 278, at 6; emphasis added.

With this contention, the Legal Advisor endeavours to downplay the consistency with which the *ACIS* treated the development of mobile exotic ABMs from FY79 to FY86. In fact, the *ACIS* for FY79 through FY85 all contain unambiguous, unequivocal support for the restrictive interpretation.³⁸⁷ It is submitted that these constitute much better evidence of the U.S. government position on the matter through the 1970s and 1980s than do ACDA's *Arms Control and Disarmament Agreements -- Texts and Histories of Negotiations* cited by the Legal Advisor.³⁸⁸ So far as is known from the public record, no Soviet objection to the restrictive interpretation in the various *ACIS* was ever made.³⁸⁹

17. *The FY79 and subsequent ACIS are entitled to little weight because they do not appear to have been based on a detailed study of the negotiating record and preceding subsequent practice.*³⁹⁰

In addition to being mentioned several times in the *1987 Legal Advisor's Report*, this theme is repeated many times in recent Congressional testimony of Reagan Administration officials.³⁹¹ The point, however, is irrelevant. The significance of official U.S. government statements on matters of treaty interpretation would only be compromised by inadequate study of the negotiating record if their value to the interpretation process was merely that of yet another expert analysis of the text

³⁸⁷ See Appendix 7(a) for excerpts from the *ACIS* for FY79 through FY86 dealing with the ABM Treaty's treatment of the development and testing of exotic ABM devices in mobile basing modes.

³⁸⁸ Aside from their superior thoroughness, Alan Sherr notes ("New Interpretation", *supra*, note 222, at 80) that, unlike ACDA's *Arms Control and Disarmament Agreements*, the *ACIS* and the *1985 SDI Report* were submitted to Congress pursuant to federal law.

Proponents of the permissive interpretation, while acknowledging the effect of the *ACIS*, claim that the restrictive interpretation was the *minority* administration view from 1972 to 1978, before the advent of the *ACIS*. (See *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 369 (answers of John B. Rhinelander to additional questions submitted by Congressman Fascell.))

³⁸⁹ Nunn Floor Speech on Subsequent Practice, *supra*, note 307, at 4.

³⁹⁰ See *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 5-6, 55, and 108 and at 11, where the reader is informed that the restrictive interpretation was "reflected" in the *FY79 ACIS* and "supported" in "some" subsequent *ACIS*.

³⁹¹ E.g., *1985 SDI Hearings*, *supra*, note 199, at 73, where Richard Perle tried to minimize the importance of the fact that official statements of four consecutive U.S. administrations (Nixon, Ford, Carter and Reagan) adopted the restrictive interpretation by claiming that each would "build upon earlier statements without independent corroboration" and that they "did not do [their] homework" by studying the negotiating record before espousing the restrictive view.

and negotiating history. This is not the case. Their value inheres in the simple fact that they are made, that they are made publicly, that they are seen to and do represent official U.S. government policy, and that the Soviet government offers no objection, either publicly or through diplomatic channels. In short, inadequate study does not affect the value of official statements as subsequent practice.

4.2.1.2.5.2.9 Treatment of the ABM Treaty in the Negotiation and
Text of the 1978 Agreed Interpretations Concerning
The Meaning of "Tested in an ABM Mode"

18. *In the texts of 1978 agreed interpretations concerning the meaning of "tested in an ABM mode," and in the negotiations leading up to them, "the Soviets emphasized their view that ABM systems regulated by the Treaty were comprised exclusively of the three [traditional] components listed in Article II."*³⁹²
19. *"The language and negotiating history of the interpretation indicates acceptance by the U.S. of this Soviet position for at least this purpose." (i.e. for purposes of the agreed interpretation)*³⁹³
20. *One of these agreed interpretations provided that, if an interceptor missile were created in the future that had the capability to carry out ABM intercepts without the use of an ABM radar for guidance (i.e. using a non-radar sensor), application of the term "tested in an ABM mode" to such interceptor missiles would be subject to additional discussion and amendment in the SCC.³⁹⁴ Although "[t]he record of the discussion of this provision does not clearly indicate a mutual understanding by the parties [i.e. U.S. agreement] of its implications,"³⁹⁵ one implication (a) understood by the Soviets³⁹⁶ and (b) that the language of the provision "suggests"³⁹⁷ is that such interceptor missiles should be treated as elements of ABM systems "based on other physical principles."*

³⁹² 1987 Legal Advisor's Report, Part III, *supra*, note 278, at 5 and 21.

³⁹³ *Id.*, at 105.

³⁹⁴ *Id.*, at 21.

³⁹⁵ *Id.*, at 5.

³⁹⁶ *Ibid.*

³⁹⁷ *Id.*, at 22.

The texts of formal, agreed interpretations of treaties can be very important sources of subsequent practice. However, their significance is much greater in disputes concerning the issue with which they deal directly. The 1978 agreed statements on the meaning of "tested in an ABM mode" do not deal with ABM systems that include devices able to substitute for traditional ABM components. This being the case, it is doubtful that these agreed statements "are entitled to substantial weight in the interpretation of the treaty"³⁹⁸ in respect of the issue we are addressing -- the extent of limits on the development and testing of *exotic* ABM systems. Although it may well be that that agreed statement sheds light on the question of mobile exotics inferentially, as the Legal Advisor maintains, this is impossible to know until the texts of the agreed statements are made public.

Elsewhere in Part III of the *1987 Legal Advisor's Report*,³⁹⁹ however, a much lesser claim is made for the 1978 agreed interpretations: They "*may be read as lending support to*" the permissive interpretation. This is highly equivocal language, and its use casts doubt on just how strongly, if at all, these agreed statements imply the permissive interpretation.

The first claim of the three related claims above is followed immediately by an acknowledgment that its significance is limited by the fact that the Treaty articles under discussion (i.e. those containing the phrase "tested in an ABM mode" -- articles II(1) and VI) only apply to interceptor missile, launchers and radars. If, however, the Soviets really did make the claim cited, its significance would not be diminished by this fact. What seems more likely, however, is that what the Soviets really refused to do was to include in a discussion of *the meaning of "tested in an ABM mode"* consideration of anything other than interceptor missiles, launchers and radars, since the Treaty only applied the phrase to these devices. Such a Soviet position would be irrelevant to the issue of whether "ABM systems" includes those "based on other physical principles." Likewise, when the U.S. negotiators "in one agreement acquiesced in Soviet proposed language" suggesting that the

³⁹⁸ *Id.*, at 9.

³⁹⁹ At 9.

Treaty proper applies to traditional ABM components only, they were probably only conceding that "testing in an ABM mode" was only relevant to interceptor missiles and launchers – something that the provisions of the ABM Treaty make plain.

The second claim – that the U.S. accepted the position, for purposes of the agreed interpretations, that the Treaty only applied to traditional ABM components – is simply not supported by any evidence. As with the first claim, it seems more likely that the U.S. agreed that the phrase "tested in an ABM mode" only applied to interceptor missiles, launchers and radars.

As to the third claim, it is hard to see how a mere agreement to defer consideration of the application of "tested in an ABM mode" to interceptor missiles able to carry out ABM intercepts without the aid of ABM radars implies that such devices would be part of an ABM system "based on other physical principles." Furthermore, even if this inference is sustained, it is not clear how it supports the permissive interpretation. It is noteworthy that the Legal Advisor also alleges that the parties disagreed initially about whether such an interceptor missile would be treated as part of an ABM system based on other physical principles.⁴⁰⁰ If this is true, its significance lies in the mere fact that it should warrant discussion, since under the restrictive interpretation, it would make no difference – at least at the development and testing stage – whether an interceptor missile was part of a system based on other physical principles or not. However, there would be a difference at the deployment stage. This was probably the reason the U.S. declined to agree that ABM-capable interceptor missiles guided exclusively by non-radar sensors would be part of an ABM system based on other physical principles. To do so could foreclose the possibility of deploying such interceptors in the future. In any event, the Legal Advisor is only able to claim that the wording of this agreed interpretation "suggests" that such an interceptor missile would be treated as part of an exotic system. This is an equivocal claim that cannot be verified since the texts of the agreed interpretations remains classified.

⁴⁰⁰ *Ibid.*

What was really at issue when the parties discussed interceptor missiles that developed an ABM capability without the aid of ABM radars? Here, we should recall that the *unilateral* U.S. statement on the meaning of "tested in an ABM mode," made on 7 April 1972, was the most detailed public exposition by either side of what the term meant. This statement set out the U.S. view that any interceptor missile would be deemed an "ABM interceptor missile," and hence subject to the Treaty, if, *inter alia*, it was "flight tested in conjunction with the test of... an ABM radar at the same test range." That radar would be an "ABM radar" if it had either been "constructed and deployed for an ABM role, or [was] of a type tested in an ABM mode."⁴⁰¹ One way for a radar to become an "ABM radar," according to the unilateral U.S. statement, was for it to "make measurements in conjunction with the test of an ABM interceptor missile at the same test range." Thus, if a new radar were tested in conjunction with a known ABM interceptor missile (for instance, of a type that had successfully intercepted a strategic ballistic missile), then that radar would be deemed an "ABM radar" by the unilateral U.S. statement. If that radar were then tested in conjunction with a *different* model of interceptor missile, that *interceptor missile* would be deemed an "ABM interceptor missile" under the U.S. statement. What the U.S. statement failed to address, however, was the possibility of a *non*--radar sensor first being tested in conjunction with a known ABM interceptor missile then being tested in conjunction with *another* model of interceptor missile. *In particular, it did not specify that after such a test that interceptor would be deemed an ABM interceptor.* In other words, the U.S. statement recognized that the testing of a new interceptor missile in conjunction with an ABM-capable *radar* would bring that missile within the purview of the Treaty, but neglected to draw the same conclusion where the sensor with recognized ABM capability was not a radar. This may be the situation on which the Parties deferred agreement in 1978.

⁴⁰¹ ABM Treaty, Article II(1)(c).

The Legal Advisor acknowledges the possibility (but dismisses it as the less likely of two) that this treatment of non-radar assisted interceptor missiles was merely the result of at least one of the parties wishing to keep the issue alive for future consideration,⁴⁰² and that there was not in fact agreement that such interceptors would be considered part of an ABM system based on other physical principles. In fact, this was probably the U.S. position.

4.2.1.2.5.2.10 **Legal Issue: The Status of Internal Statements and of Public Statements Not Addressed to the Other Party**

21. *Deliberations internal to the government of a party are entitled to little if any weight.*⁴⁰³
22. *Statements not communicated to the other party are not part of subsequent practice under Article 31(3)(b), since they do not establish the agreement of the parties.*⁴⁰⁴

The Legal Advisor makes his blanket claim about "internal" government statements without distinguishing between the various types that can exist in the U.S. government:

1. communications between and within executive branch agencies that remain classified,
2. executive representations to Congress that remain classified and
3. executive representations to Congress that immediately enter the public domain.⁴⁰⁵

⁴⁰² 1987 Legal Advisor's Report, Part III, *supra*, note 278, at 22.

⁴⁰³ *Id.*, at 9 and 10.

⁴⁰⁴ *Id.*, at 105:

Subsequent practice that fails to meet the standard required for being considered along with the "context" of a treaty may nonetheless be considered as a "supplementary" means of interpretation... Uncommunicated, unilateral actions, or statements or deliberations may have value in construing one party's understanding of the international obligation, but would not establish agreement of the parties regarding its interpretation.

⁴⁰⁵ *Ibid.*:

Uncommunicated, unilateral actions, or statements or deliberations may have value in construing one party's understanding... but would not establish agreement of the parties regarding its interpretation.

Statements falling into the first two categories cannot possibly form the basis of subsequent practice establishing the agreement of the parties for the simple reason that, by definition (barring espionage), the U.S.S.R. is unaware of their existence. Those in the third category, however, should be treated just like any other official U.S. public statements *if* it is reasonable to assume that the Soviets were aware of their existence and official nature.

Some legal scholars insist on conclusive proof that a statement of one treaty party has come to the attention of the other(s) before they will consider it a part of subsequent practice under Article 31(3)(b).⁴⁰⁶ However, it is submitted that this is an unrealistically stringent test. It is taken for granted within the U.S. national security community that Soviet intelligence officials pour over all executive branch Congressional testimony when it pertains to their country's security interests. It is conceivable (if doubtful) that the occasional inference one might draw from the testimony of a minor official could escape the attention of the Soviet government. But surely it is ludicrous to pretend that the U.S.S.R. could have been unaware of the unclassified versions of high-profile official arms control documents such as the annual *ACIS* or the *1985 SDI Report* just because these are formally communicated to Congress and not to the Soviet government. Rather than lumping these together with truly internal communications such as classified intra-agency memoranda, as the Legal Advisor does, these documents should be treated as the official published U.S. government positions that they are. As such, when they contain express, unambiguous formulations of the restrictive interpretation (and it will be shown presently that many do) to which the Soviets do not object, this constitutes important evidence of subsequent practice showing the agreement of the parties within the meaning of Article 31(3)(b) of the Vienna Convention.

⁴⁰⁶ Haraszti, *Fundamental Problems*, *supra*, note 365, at 141:

[Tacit consent] cannot be presumed, and can only be taken for granted when, *according to conclusive data*, the other party has acquired knowledge of the practice followed by the one party, and its agencies had lodged no protest against it. [Emphasis added]

The drafting history of Article 31 does provide some evidence that the practice of one party alone, even if known about and acquiesced in by other parties, was not meant to be considered under Article 31(3)(b). In his Fifth Report, ILC Special Rapporteur Waldock stated that

[c]learly, to amount to an "authentic interpretation," the practice must be such as to indicate that the interpretation has received the tacit assent of the parties generally.... The word "understanding" was chosen by the Commission instead of "agreement" expressly in order to indicate that the assent of a party to the interpretation may be inferred from its reaction or absence of reaction to the practice.⁴⁰⁷

Accordingly, both the 1964 and 1966 ILC Drafts referred to practice that establishes the "understanding" of the parties. At the Conference, however, the word "understanding" was changed to "agreement."

Oddly enough, after disparaging the value of internal evidence, the *1987 Legal Advisor's Report* spends a great deal of time chronicling the dissenting view within the U.S. government, which favoured the permissive interpretation, as it is revealed in intra- and inter-agency memoranda from the 1970s that remained classified until 1987. Then, despite acknowledging that this material is entitled to little or no weight as subsequent practice since it cannot be treated as subsequent practice under Article 31, the Legal Advisor appears to give it considerable weight anyway, concluding that "the evidence of internal doubt [i.e. within the U.S. government], combined with a lack of Soviet confirmation, reflected the absence of any commonly held view."⁴⁰⁸

In a written response to a question submitted in Congressional testimony,⁴⁰⁹ Judge Sofaer defined subsequent practice to include:

1. "any public statements or writings by officials and negotiators of both countries,"
2. "any communications after ratification by the two governments to their legislative bodies,"

⁴⁰⁷ Sir H. Waldock, *Fifth Report on the Law of Treaties*, U.N. Doc. A/CN.4/183 and Add.1-4, reproduced YBILC 1966 II, at 99.

⁴⁰⁸ *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 10.

⁴⁰⁹ *Constitution Hearings*, *supra*, note 237, at 348 (answers to additional questions submitted by Senator Thurmond).

3. "any diplomatic conversations between the two governments" and
4. "other materials to the extent that they are of relevance to the ABM interpretation question."

The inclusion of the first category is proper, as long as the person making the statement is a government official *at the time of the statement*. In the second category, only those communications to legislative bodies that are made public should be included. In the third category, only those diplomatic conversations that are formal and on the record should enter into consideration. However, the inclusion of the catch-all fourth category, whose sole criterion is relevance is, it is submitted, not proper in a list of materials that can form part of subsequent practice under Article 31. In addition, one category not mentioned, which should have been, is that of statements made by government officials to the *press*.

4.2.1.2.5.2.11 Official Statements During the SDI Period (1983-85): Treatment of the ABM Treaty and Related Legal Issues

23. *Although some executive branch reports and statements between March 1983 (when SDI was announced) and October 1985 (when the U.S. officially and publicly adopted the permissive interpretation) supported the restrictive interpretation and some were ambiguous, others "questioned the restrictive interpretation."*⁴¹⁰

As an examination of the record reveals,⁴¹¹ there are several official U.S. statements and reports from this period that support the restrictive interpretation. Reports include a supporting study paper

⁴¹⁰ 1987 *Legal Advisor's Report*, Part III, *supra*, note 278, at 81.

⁴¹¹ See Appendix 7(a).

⁴¹² Unnamed supporting study paper to F.S. Hoffman *et al.*, "Ballistic Missile Defense and U.S. National Security: Summary Report", Future Security Strategy Study, (n.p., October 1983) [unpublished] (reproduced in United States, Congress, Senate, Committee on Foreign Relations, *Strategic Defense and Anti-Satellite Weapons*, April 1984, 98th Cong., 2nd Sess. (Washington, D.C.: USGPO, 1984), at 125) (commonly and hereinafter the *Hoffman Report*), cited in 1987 *Legal Advisor's Report*, Part III, *supra*, note 278, at 76.

⁴¹³ *FY84 Arms Control Impact Statements* (Washington, D.C.: USGPO, 1983).

to the *Hoffman Report*,⁴¹² the authoritative *ACIS* for FY84,⁴¹³ FY85⁴¹⁴ and FY86,⁴¹⁵ and SDIO's *1985 SDI Report*. In addition, there is clear support for the restrictive interpretation in public statements of (a) Dr. Robert Cooper, Director, Defense Advanced Research Projects Agency (DARPA), on 2 May 1983, (b) Thomas Graham, Jr., then-ACDA Director for Congressional and Public Affairs, on 26 May 1983, (c) SDIO Director General Abrahamson, on 2 April 1985 and (d) the President's Special Advisor on Arms Control, Paul Nitze on 30 May 1985.

Although one can certainly find ambiguous statements,⁴¹⁶ and one statement hinting at the existence of a controversy over the application of the Treaty to exotic ABMs (presumably within the U.S. government),⁴¹⁷ the Legal Advisor can identify no official U.S. Government statements between March 1983 and October 1985 (or, indeed, before that period) that support the permissive interpretation. Under these circumstances, the claim that *some* official U.S. statements support the restrictive interpretation, while others are ambiguous or support the permissive interpretation, misrepresents the record.

24. *There was a period of time during which the parties both held the position that the development and testing of mobile exotic ABM systems and components were prohibited by the Treaty. However, that period -- from 1983 until October of 1985 -- constitutes less than three years out of the thirteen years during which the subsequent practice is relevant to the dispute.*⁴¹⁸

⁴¹⁴ *FY85 Arms Control Impact Statements* (Washington, D.C.: USGPO, 1984).

⁴¹⁵ *FY86 Arms Control Impact Statements* (Washington, D.C.: USGPO, 1985).

⁴¹⁶ See, for example, those of Ambassador Paul Nitze in February and May of 1985, and of Dr. Donald Hicks, nominee for Undersecretary of Defense for Research and Engineering on 25 July 1985, all in Appendix 7(a).

⁴¹⁷ See the 23 March 1983 Congressional testimony of Maj. Gen. Grayson D. Tate, Jr., Commander, Ballistic Missile Defense Systems Command, Appendix 7(a).

⁴¹⁸ *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 11. The *Report* actually compares the period of less than three years to the *fifteen* years during which the Treaty had been in force as of 1987. This comparison is irrelevant, however, to a study of subsequent practice, for which evidence after October of 1987 is inadmissible.

25. *The significance of even this short period of agreement is minimal because the theory of the Treaty's terms by which the Soviets arrived at that conclusion was materially different than the classical restrictive interpretation held by the U.S. at the time. In particular, the Soviet position differed from the classical restrictive interpretation in that it*
- (a) regarded Article II(1) as applying to traditional ABM components only and*
 - (b) saw the prohibition on the development and testing of mobile exotic ABM systems and components as coming from Article I(2) rather than Article V(1);⁴¹⁹*
26. *Concordance as to a treaty's effect cannot form the basis of concordant subsequent practice (or, alternatively, is entitled to less weight) if the agreed effect is based on different treaty provisions and different theories of the treaty.*
27. *The record of Soviet statements establishes that the Soviet position from 1972 to 1985 was that Article II(1), and the Treaty as a whole, only applies to traditional ABM components,⁴²⁰ although from 1979 to 1983 no Soviet position with respect to exotic systems was clearly stated.*
28. *From 1972 until 1985, the Soviets espoused the view that the Treaty proper applies to 1972-era ABM systems and components only, and not to all systems capable of performing the ABM function.⁴²¹ They did not begin to argue that Article II(1) provided a functional definition of "ABM systems" until after October 1985.⁴²² This is illustrated by the bilateral discussions from 1983 to 1985.⁴²³*

Contrary to the Legal Advisor's claim, his analysis of bilateral discussions from 1983 to 1985 fails to cite a single instance of an express Soviet statement that the Article II(1) definition of "ABM system" extends to systems comprised of traditional ABM components only. Nor does he point to any other Soviet statement that necessarily implies such a view.

One set of exchanges apparently cited for this purpose concerns the 1985 Soviet proposal concerning "space-strike arms." The Legal Advisor maintains that "[t]he Soviets proposed in 1985 to ban space-based ABM systems of any principle of action."⁴²⁴ If the Soviets had held out as new a

⁴¹⁹ *Id.*, at 10.

⁴²⁰ *Id.*, at 8, 9, 10, 21, 99 and 107.

⁴²¹ *Id.*, at 99.

⁴²² *Id.*, at 98.

⁴²³ *Ibid.*

⁴²⁴ *Id.*, at 98.

proposal to prohibit the development, testing and deployment of BMD systems based on any principle of action, this would imply that they did not regard this activity as already banned by the ABM Treaty, and would indeed suggest that they held the permissive interpretation. However, this 1985 proposal was not directed exclusively at "space-based ABM systems," but at "space-strike arms." This term appears to have included not only ABM systems, but space-based ASAT and anti-aircraft systems, as well as strategic offensive arms. Because none of these last three types of weapon system was or is constrained by treaty, there was plenty of new subject matter in the proposal without new limitations on ABM systems. In fact, as the Legal Advisor acknowledges, the Soviets observed in mid-June of 1985 that, in respect of ABM systems, their proposal was already covered by the ABM Treaty.⁴²⁵

Another series of bilateral discussions cited in apparent support of the proposition that the Soviets espoused the permissive interpretation until October of 1985 occurred in 1983. The Legal Advisor describes this as follows:

[T]he Soviets noted that development of a large-scale ABM system would be tantamount to an attempt to upset the strategic balance, would violate Article I, and would call into question other provisions, including Article V. They placed particular emphasis on Article I(2), which prohibited deployment of a territorial ABM defense and providing a base for such a defense.⁴²⁶

In fact, nothing about these positions necessarily implies a view of the Article II(1) definition of "ABM systems" as being limited to those consisting of traditional ABM components. Article V(1) clearly relies upon the Article II(1) definition to establish its scope. The same is arguably true of Article I(2).⁴²⁷ Since these provisions rely upon Article II(1) to define their scope, any Soviet argu-

⁴²⁵ *Id.*, at 97.

⁴²⁶ *Id.*, at 95.

⁴²⁷ The Article I(2) undertaking "not to provide a base for such a defense" raises the question what "such a defense" means. The text suggests that it means either (a) "a defense of the territory of its country" or (b) "a defense of the territory of its country *using ABM systems*." The former, unrestricted meaning is unlikely, as it could apply equally to territorial defenses against bombers by means of SAM deployments, something the ABM Treaty clearly permits. This leaves the latter meaning as the most likely,

ment that uses them as the basis for the illegality of the development and testing of mobile exotic ABM devices must regard systems utilizing such exotic devices as encompassed by the Article II(1) definition of "ABM systems." For this reason, arguments against the lawfulness of SDI development and testing based on the letter of Articles V(1) and I(2) imply the restrictive interpretation, not the permissive one.

As for Soviet reliance upon Article I(2) as an important substantive provision affecting development and testing, this is not an unreasonable interpretation. The U.S. has traditionally accorded little weight to Article I(2), treating it more like a preambular paragraph than a Treaty article. This is probably due to (a) the fact that the undertaking "not to deploy ABM systems for a defense of the territory of its country" is superfluous to Article III under either interpretation and (b) the uncertain meaning of the undertaking "not to provide a base for such a defense."

One other Soviet statement supports the view that they held the restrictive interpretation. When asked in 1985 to clarify their position on the extent of prohibited development under Article V(1), the Soviets responded, *inter alia*, that research designed to produce a space-based laser ABM system would be included under development.⁴²⁸ This statement is inconsistent with the permissive interpretation, under which laser weapons are not governed by Article V(1).

The Legal Advisor disparages the value of this statement by alleging that the untenable inclusion of research under the rubric of "development" "detract[s] from the credibility of the part that suggests that Article V(1) would cover space-based laser ABM systems."⁴²⁹ With all due respect, this distorts the role of official statements as subsequent practice. States parties cannot be expected to have to analyze official statements of treaty partners with a view to deciding which are serious

and that meaning depends upon the Article II(1) definition of "ABM systems."

⁴²⁸ 1987 Legal Advisor's Report, Part III, *supra*, note 278, at 97.

⁴²⁹ *Ibid.*

statements of their views and which were propaganda. Any unretracted and uncorrected statement, however untenable, made by a government official, is entitled to be relied upon by treaty partners as reflective of official government opinion. To hold otherwise would only add uncertainty to the already difficult process of elucidating treaty partners' views. The fact is that Soviet negotiators put forward a view of Article V(1) that necessarily implies the restrictive interpretation. U.S. negotiators themselves espoused the restrictive view at the time and therefore did not demur. This constitutes subsequent practice establishing the agreement of the parties on the question of the meaning of "ABM systems and components" notwithstanding simultaneous untenable Soviet claims as to the meaning of "development."

Similarly, in 1985, the Soviets "argued that Agreed Statement D permits the creation only of substitutes for fixed, land-based components ...".⁴³⁰ This position also necessarily implies the restrictive interpretation, since it alleges that the "creation" of exotic ABM devices sanctioned by Agreed Statement D does not extend to the development and testing of such devices in mobile basing modes. Under the permissive interpretation, there are no limitations on the development and testing of exotic ABM devices, regardless of basing mode. Since the U.S. response to this and other arguments "reflected the restrictive interpretation,"⁴³¹ this Soviet statement and the U.S. reaction to it constitute another example of subsequent practice establishing the agreement of the parties that the restrictive interpretation is the correct one.

Thus, it is incorrect to claim, as the Legal Advisor has done, that, prior to October 1985, Soviet statements espoused the view that the Article II(1) definition of "ABM systems" was limited to systems made up of traditional ABM components.

⁴³⁰ *Id.*, at 96.

⁴³¹ *Ibid.*

29. *The Soviet position was more restrictive than the restrictive interpretation in that*

(a) *from 1983 to 1985, it considered even research into mobile exotic ABM systems and components as prohibited and*⁴³²

(b) *in 1985, it regarded the development and testing of exotic ABM systems and components to be prohibited even if fixed and land-based if these were regarded as potentially providing a territorial defence.*⁴³³

*"No basis exists for these and other Soviet positions in the Treaty language or its negotiating history. The fact that these untenable positions were advanced makes questionable as evidence of subsequent practice all other Soviet assertions on the Treaty's meaning."*⁴³⁴

30. *"[A]t no time did U.S. and Soviet views coincide on the application of the Treaty to OPP systems."*⁴³⁵

The Legal Advisor claims that the U.S. and Soviet positions on the Treaty never coincided on the application of the Treaty to ABM systems based on other physical principles and that the Soviets never accepted the restrictive interpretation in its entirety. One might be swayed by such arguments until it is realized that the ways in which the Soviet and American positions may have differed had nothing to do with the prohibition on the development and testing of exotic ABM systems and components in mobile basing modes. As the Legal Advisor admits, the *effect* of both sides' positions was to recognize such a prohibition.⁴³⁶ The Soviet position differed in that it (a) *may* have been based on Article I(1) rather than V(1), (b) *may* have considered the development and testing of *fixed, land-based* ABMs to be prohibited if aimed at a nationwide ABM capability and (c) clearly claimed that *research* into mobile ABMs was also prohibited. However, none of these different readings of the Treaty alters the fact that the Soviets recognized the prohibition against the deployment and testing of exotic ABM systems and components in mobile basing modes. It is submitted that what matters for concordant subsequent practice is manifest agreement as to the *effect* of a Treaty on the

⁴³² *Id.*, at 107.

⁴³³ *Id.*, at 107-8.

⁴³⁴ *Id.*, at 108.

⁴³⁵ *Id.*, at 11 and 108.

⁴³⁶ *Id.*, at 8 and 108-9.

issue in question, not the theory by which this is carried out, the provisions which come into play, or the parties' positions on other issues.

Thus, the Legal Advisor's claim that "[a]t no time have the Soviets accepted the restrictive interpretation"⁴³⁷ is misleading. It appears to be true that the Soviets have never espoused a position that mirrored exactly the U.S. position on every single Treaty issue. However, the central element of the restrictive interpretation – that exotic ABM systems and components cannot be developed or tested in mobile basing modes – does appear to have been enunciated by Soviet spokesmen on those few occasions on which they addressed the issue. The points of difference between the U.S. and Soviet positions prior to the Reagan Administration's adoption of the permissive interpretation did not relate to the dispute that we are addressing, but to other issues of interpretation, such as the meaning of "development."⁴³⁸

Likewise, when the Legal Advisor states that, in their unilateral statements reacting to the SDI program, the Soviets "have not enunciated a consistent, coherent view of the ABM Treaty,"⁴³⁹ this, too, is misleading. When they addressed the matter, Soviet officials have been consistent on the one point that matters: the application of Article V(1) to exotic ABM devices. A coherent view of the Treaty as a whole is not a prerequisite for the acceptance of an official statement on a particular point of interpretation as part of subsequent practice.

⁴³⁷ *Id.*, at 8.

⁴³⁸ The *Report* states that the Soviet views of Article V(1) "were, before October 1985, inconsistent with any position ever held by a U.S. official and have no basis in the Treaty text or negotiating history." (*Id.*, at 8) By this statement, it is sought to create the impression that the Soviets adopted an untenable position in respect of the meaning of "ABM systems and components." In fact, however, the statement is only true of the Soviet position that "development" included some research and that Article I(2) operated to prohibit all research, development and testing intended ultimately to provide a territorial defence. This view of the meaning of "development," and not of "ABM systems" is what makes the overall Soviet position one never shared by a U.S. official.

⁴³⁹ *Id.*, at 100.

31. *Although SDI was announced in March of 1983, Soviet criticism of it was not based on its violating the ABM Treaty until October of 1984.*⁴⁴⁰
32. *Prior to October 1985, Soviet criticism of SDI focussed on the possibility of its leading to deployment and not on its activities involving development and testing.*⁴⁴¹

The answer to these last two points is that the SDI program need not necessarily exceed the restrictive interpretation. In fact, the U.S. has stated that SDI was designed to comply with that interpretation. In particular, many proposed tests were planned to avoid mobile basing modes. Under these circumstances, it would not have made sense for the Soviets to complain on the grounds that SDI involved development and testing activities that exceeded the restrictive interpretation. *Deployment* of non-traditional ABM systems, however, were it to flow from SDI, would be prohibited in *any* basing mode. As such, it would more clearly violate the Treaty. This explains why possible deployment was the early focus of Soviet criticism.

33. *In March of 1985 the Soviets proposed a ban on research, development, testing and deployment of "space-strike arms," a term they said included any space-based ABM system of "any principle of action." Under questioning by U.S. negotiators, the Soviets failed to immediately confirm that, other than extending the prohibition to research, this proposal would, insofar as it applied to ABM systems, ban nothing that was not already prohibited by Article V(1) of the ABM Treaty. This raises doubts about whether the Soviets held the restrictive view at that time.*⁴⁴²

Soviet negotiators did eventually confirm that, insofar as it applied to the development and testing of ABM systems (as opposed to ASAT systems, to which it was also obviously directed) their proposal involved nothing new. This occurred in June of 1985.⁴⁴³ This constitutes an important agreement between the parties that exotic ABM systems are governed by Article V(1) of the Treaty. The Legal Advisor mentions this, but pays scant attention to it, preferring to argue that the Soviets held the permissive interpretation on the weak evidence that, prior to this eventual agreement, "the Soviets were evasive... sometimes argu[ing] nothing was new, and other times suggest[ing] that some-

⁴⁴⁰ *Constitution Hearings, supra*, note 237, at 466 (testimony of Senator Hollings).

⁴⁴¹ *1985 SDI Hearings, supra*, note 199, at 166 (testimony of Judge Sofaer).

⁴⁴² *1987 Legal Advisor's Report, Part III, supra*, note 278, at 89, 96 and 97.

⁴⁴³ *Id.*, at 97.

thing was new over and above their proposed ban on scientific research."⁴⁴⁴ Since we are not provided with exact exchanges, it is reasonable to surmise that statements claiming that the proposal contained new prohibitions may have been addressed to *ASAT* systems. In the absence of more detail about these exchanges, the only firm evidence they provide is that the parties did eventually agree that, to the extent that the proposal banned activities involving ABM systems of "any principle of action," it was redundant with Article V(1) of the ABM Treaty. This constitutes important subsequent practice showing the agreement of the parties that the restrictive interpretation is the correct one.

⁴⁴⁴ *Ibid.*

4.2.1.2.5.3 Evidence of Subsequent Practice Overlooked By Proponents of The Permissive Interpretation

This completes our critique of the position of proponents of the permissive interpretation in the matter of subsequent practice. Now, we will look at a number of points that were not raised in this analysis.

First, there is a Soviet statement early in the SALT II negotiations that undermines the Legal Advisor's contention that the parties, and particularly the Soviets, regarded Agreed Statement D as having important substantive effect. On 12 October 1973, Soviet negotiator Trusov referred to Agreed Statement D in a conversation with U.S. delegate Fitzgerald as an "*interpretive* statement related to the ABM Treaty."⁴⁴⁵ This characterization prompted no objection from the U.S. delegation, and therefore stands as evidence of the parties' agreement that Agreed Statement D was intended to have interpretive, rather than substantive effect. This undermines the Legal Advisor's textual argument that the restrictive interpretation is seriously flawed because it treats as redundant a provision with substantive effect – Agreed Statement D. The Soviet statement also notes that the agreed Statement is "related to" the ABM Treaty, rather than being a part of it. This reinforces the argument made by proponents of the restrictive interpretation that it is inappropriate to favour one interpretation over another in order to prevent an agreed statement from being superfluous.

In his report on the ABM Treaty interpretation dispute, Senator Sam Nunn mentions two Soviet statements on the matter not mentioned by the Legal Advisor. The first is a statement by Soviet chief SALT II negotiator Viktor Karpov on 16 March 1976 allegedly "confirming that Article II applies to exotics."⁴⁴⁶ The second recently-discovered Soviet statement alleged to provide strong support for the restrictive interpretation was made by delegate Viktor Starodubov in the SCC in

⁴⁴⁵ Emphasis added.

⁴⁴⁶ *Nunn Report*, *supra*, note 285, at 104, his note 101, relying on "recent press reports." John Rhineland also mentions this statement "reportedly" made. (*Review Hearings*, *supra*, note 210, at 34 (testimony of John B. Rhineland))

May 1985.⁴⁴⁷

Senator Nunn provides independent confirmation of the effect of these statements. He notes that having since examined "a previously unavailable volume of classified documents" on ABM Treaty subsequent practice, he can report that these two Soviet statements "unequivocally underscore the [restrictive i]nterpretation."⁴⁴⁸ Furthermore, part of the text of the SCC exchange has been made public. Soviet SCC commissioner Lt. General Viktor Starodubov is reported to have declared to his U.S. counterpart General Richard Ellis that Soviet understanding "that under the treaty ABM systems or components based on other physical principles could not be tested in space."⁴⁴⁹

The *1987 Legal Advisor's Report* also fails to mention a 4 June 1985 *Pravda* article by Marshal Sergey Akhromeyev, Chief of the Soviet General Staff, which reads, in part, as follows:

... The aforementioned Agreed Statement [D] regarding the treaty does not rule out the possibility of the sides acquiring ABM systems "based on other physical principles," but only within the framework of the limitations envisaged by the treaty as a whole, in other words in the single authorized area.

One commentator, in arguing for the ultra-permissive interpretation, sees this passage as an indirect assertion of "a claim-of-right to deploy future-type ABM systems or components in lieu of the current-type systems presently deployed around Moscow."⁴⁵⁰

⁴⁴⁷ *Nunn Report, supra*, note 285, at 104, his note 101.

⁴⁴⁸ *The ABM Treaty -- Part Four: The Negotiating Record* (n.p., May 1987) [unpublished] (reproduced in *Constitution Hearings, supra*, note 237, at 663) at 11 (hereinafter *Nunn Report, Part 4*).

⁴⁴⁹ J.B. Rhinelander and J. Rubin, "Mission Accomplished: ABM Treaty Negotiations Review", *Arms Control Today*, September 1987.

⁴⁵⁰ *Review Hearings, supra*, note 210, at 132 (responses of William Harris to additional questions). Dr. Harris does, however, acknowledge that in June of 1985 "official Soviet statements" (presumably the Akhromeyev article) assert that Article V "limits the permissibility of testing and developing future-type ABM system components." (*Id.*, at 131-2)

According to the *1987 Senate Foreign Relations Committee Report, supra*, note 223, at 23: "Published articles by senior Soviet officials... appear in the Soviet press and are widely accepted as expressions of official Kremlin policy."

In fact, however, the passage represents nothing of the sort. For one thing, it merely claims that Agreed Statement D "does not rule out the possibility" of exotic ABM deployments. The restrictive interpretation does not rule out this possibility, either. It expressly provides for it, but holds that it cannot come to pass without amendment of the Treaty. Second, the passage notes that any exotic ABM deployment would be subject to "the limitations envisaged by the treaty as a whole." Under the permissive interpretation, limitations in the Treaty proper do not apply to exotic ABMs. Nothing in the language of Agreed Statement D compels the application of the limitations contained in the Treaty proper to any future agreed exotic ABM deployment. Marshal Akhromeyev must therefore have regarded these provisions as already applicable to exotic ABMs. This would be true only under the restrictive interpretation.

Marshal Akhromeyev's support for the restrictive interpretation is made clear by another passage from this article:

The provisions of the treaty apply to any systems intended, as defined in Article II of the Treaty, to counter strategic ballistic missiles in flight trajectory. Since the ABM components being created within the framework of the Strategic Defense Initiative are intended for precisely this purpose – that is, they are designed to replace the interceptor missiles mentioned in the treaty – all the provisions of the treaty fully apply to them, above all the ban on the creation, testing, and deployment of space-based ABM systems or components.⁴⁵¹

A more explicit endorsement of the restrictive interpretation is hard to imagine. The article clearly states that the Treaty proper, including Article V(1), applies to ABM devices that would replace ABM interceptor missiles, so as to prohibit their space-based testing.

The Soviets seem to have sought to assign some meaning to the latter. One possible way to interpret what it means to provide a base for nationwide ABM defense is to research, develop and test ABM components in mobile basing modes.

⁴⁵¹ Quoted in 1987 Senate Foreign Relations Committee Report, *supra*, note 223, at 23-4.

One statement by a Soviet official cited by proponents of the restrictive interpretation as supporting their case is an interview of Colonel General Nikolay Chervov published by Bratislava *Pravda* on 29 April 1983.⁴⁵² Certain aspects of this interview support the restrictive interpretation. For instance, the topic of the interview is the SDI announcement and the subject of one question "new systems of antimissile defense." Thus, that particular question would seem to pertain to exotic ABMs. In the response to that question, Chervov quotes Article V(1) as relevant to that subject, something that could only be done under the restrictive interpretation.

On the other hand, Chervov's position is muddled. For instance, he says that the ABM Treaty bans the development of "antimissile defence based on new physical principles," without distinguishing between fixed, land-based and mobile devices. This goes beyond the restrictive interpretation to an untenable position unsupported by the Treaty language or subsequent practice up to that time.

One final source of evidence whose status as subsequent practice must be ruled upon is the collection of government statements made at the parties' respective ratification hearings. The Legal Advisor's view is that statements made at ratification proceedings are not "subsequent practice" for purposes of interpretation under international law, since they are made prior to a treaty's entry into force.⁴⁵³ This would seem to be the correct view. There is little support for regarding official public statements made before entry into force as subsequent practice, even though there may be no good reason for not doing so.⁴⁵⁴ Official statements that precede ratification should be regarded as just as authentic a means of interpretation as those that follow it. There would seem to be no reason to

⁴⁵² For a complete quotation of the relevant excerpts of this interview, see Appendix 7(b).

⁴⁵³ 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 66.

⁴⁵⁴ One who has claimed that the U.S. Senate ratification procedure is part of subsequent practice is Senator Sam Nunn (*Constitution Hearings*, *supra*, note 237, at 77) "because that was an explanation by a party."

differentiate except in cases where the treaty is either (a) subsequently amended, (b) ratified subject to formally communicated conditions or (c) ratified together with other formal documents, agreed upon after the ratification process. Since none of these things occurred in the case of the ABM Treaty, there is no reason to treat executive statements made during the ratification debates differently than those made after ratification. Nevertheless, as there is no support for treating pre-ratification statements as subsequent practice, we shall not treat them as such.⁴⁵⁵

⁴⁵⁵ The 1987 *Legal Advisor's Report* (Part II, *supra*, note 319, at 66) cites Sinclair, *The Vienna Convention*, *supra*, note 202, at 138 in support of the contention that statements made prior to entry into force appear not to be part of subsequent practice. In fact, nothing Sinclair says implies this view at all. In assessing the position under the Vienna Convention, Sinclair merely points out that only subsequent practice that is concordant and common to all the parties is to be considered under Article 31; subsequent practice other than this is governed by Article 32. The Legal Advisor seems to assume that Sinclair would regard the practice embodied in executive representations at the public ratification hearings of a single party as incapable of being "common to all the parties" (unless, presumably, similar statements were made to the legislative bodies of all other parties by their governments). It is unclear that Sinclair takes this view.

4.2.1.3 Supplementary Means of Interpretation

This completes our examination of the sources of evidence upon which reliance may be placed under Article 31 of the Vienna Convention in order to determine a treaty's meaning. According to some, the various indications canvassed there demonstrate that the Treaty unambiguously supports the restrictive interpretation.⁴⁵⁶ Others, including various Reagan Administration officials, disagree.⁴⁵⁷ It is submitted that the Treaty language, in the context of the Treaty's object and purpose, clearly supports the restrictive interpretation, particularly in view of the serious logical problems inherent in the permissive interpretation, and the consistent subsequent practice supporting the restrictive interpretation. Nevertheless, we shall now consider any admissible supplementary means of interpretation, to see whether they confirm this conclusion.

4.2.1.3.1 The Negotiating Record and The Recollections of Negotiators

4.2.1.3.1.1 Introduction

In putting forward the permissive interpretation of "ABM systems and components," the Reagan Administration relied heavily on records of the ABM Treaty negotiations prepared by various members of the U.S. SALT I delegation. In fact, Judge Sofaer resorted to this negotiating record – along with the Treaty text – in the first instance, i.e. as a primary means of interpretation, to the initial exclusion of subsequent practice, the ratification process and the recollections of negotiators.⁴⁵⁸

⁴⁵⁶ *ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 356 (written responses of John B. Rhinelander to additional questions from Congressman Faschell). Ralph Earle agrees, at least with respect to the critical issue of the meaning of "ABM systems" in Article II(1). (See *supra*, note 256.)

⁴⁵⁷ *Id.*, at 11 (prepared statement). Judge Sofaer has testified that, in his opinion, the Treaty language, except for that of Agreed Statement D, is ambiguous, but that it can more reasonably be read to support the permissive interpretation. He regards Agreed Statement D as unambiguously supporting the permissive interpretation.

⁴⁵⁸ I can assure you that the negotiating record, which we looked at first because we would not have even begun to go beyond that point if it were clear, has some extraordinary evidence in it of the fact that we did not bind the Soviets to the [restrictive interpretation].

Most of these negotiating records are "memoranda of conversation" – summaries of meetings, at various levels of formality,⁴⁵⁹ between U.S. and Soviet delegates, of various degrees of authority – written by individual U.S. delegates for use within the U.S. Delegation. Some are reporting cables from the U.S. Delegation back to Washington. Soviet delegates never saw the memoranda of conversation or the reporting cables. The only negotiating documents available to both sides during the negotiations were (a) draft provisions prepared by each side, (b) various drafts of an agreed Joint Draft Text (JDT) and, on rare occasion, (c) informal notes exchanged by the delegations.⁴⁶⁰

(*Constitution Hearings*, *supra*, note 237, at 147 (testimony of Judge Sofaer))

This Administration looked at the treaty language and the negotiating record, because these were the bases upon which individuals had been arguing over the Treaty's meaning.

(*Id.*, at 348 (answers of Judge Sofaer to additional questions from Senator Thurmond))

Studies of the ABM Treaty beginning in 1985 focussed upon its text and negotiating history. These subjects are fundamentally important to what the parties intended in good faith, in a context in which no definitive "practical construction" [subsequent practice] was likely to have been developed. ABM devices based on OPP have only recently approached a point in their scientific development which might provide probative evidence of intentions based on subsequent conduct.

(*1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 2)

⁴⁵⁹ The meetings recorded ranged in formality from full plenary sessions involving numerous delegates from each side, to informal fifteen-minute discussions outside meeting rooms between one delegate from each side.

⁴⁶⁰ The only example of the last of these relevant to the exotic ABM issue, as far as the author is aware, is a paper given by U.S. delegate Garthoff to Soviet delegates Kishilov and Grinevsky on 31 January 1972, which Garthoff refers to as the "talking points." (See U.S. SALT I Document A-763, reproduced in Appendix 9, *infra*.)

4.2.1.3.1.2 The Reagan Administration Position on the Content of the Written Negotiating Record

Ever since the permissive interpretation was unveiled in October 1985, the Reagan Administration position has been that the written negotiating record supports the permissive interpretation. However, the degree of certainty with which it has been claimed to do so has declined. For example, on 30 October 1985, Fred Iklé, then Undersecretary for Policy, Department of Defense, asserted that it is "clear" from the negotiating record that the U.S. negotiators failed to get Soviet agreement that the restrictive interpretation is the correct one.⁴⁶¹ On 21 November 1985, Judge Sofaer testified that the negotiating record "persuasively supports" the permissive interpretation⁴⁶² and that after reviewing the negotiating record, he

... reached the firm conclusion that, although the U.S. delegates initially sought to ban development and testing of non-land based systems or components based on future technology, the Soviets refused to go along, and no such agreement was reached.⁴⁶³

By 11 May 1987, however, these professions of certainty or near-certainty had been tempered: Part I of the *1987 Legal Advisor's Report* asserted that the negotiating record "on balance supports" the permissive interpretation.⁴⁶⁴

However, there is every indication that even this claim does not mean that the Reagan Administration applied a balance of probabilities standard of proof to the written negotiating record and found the permissive interpretation more persuasive by that standard. On the contrary, it appears that the onus of proof was placed on the restrictive interpretation, and that the standard of proof used was "beyond a reasonable doubt." Evidence of this comes from Judge Sofaer's descrip-

⁴⁶¹ *1985 SDI Hearings, supra*, note 199, at 37.

⁴⁶² *Id.*, at 270 (answers of Judge Sofaer to additional questions from Senator Levin).

⁴⁶³ *ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 16 (testimony of Judge Sofaer).

⁴⁶⁴ *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 75. This contrasts with the *Report's* view that the negotiating record "strongly favors" the position that the *deployment* of exotic ABMs is prohibited. In the introductory part of the *Report* a stronger claim appears, namely that the negotiating record "establishes" that the U.S.S.R. refused to agree to the restrictive interpretation. (at 3)

tion of his own conclusions and those of Ambassador Nitze. He shows that he placed the onus of proof on the restrictive interpretation by concluding that

[t]he negotiating record, in sum, *fails to establish* that, by February 4, 1972,... the Soviets had agreed to any limit on future systems other than the arguably ambiguous separate statement, which later became Agreed Statement D.⁴⁶⁵

He maintains that ambiguities in the negotiating record, together with what he alleges is an ambiguous Treaty text, "would effectively have prevented the President from enforcing the [restrictive] interpretation against the Soviets."⁴⁶⁶ Judge Sofaer described Ambassador Nitze's procedure in reviewing the record, and his conclusions, as follows:

You have to remember who you are dealing with here. You are not dealing with the United Kingdom or some ally with which we can have agreements that can be a little more vague and feel that they are enforceable. But in dealing with the Soviet Union, with its record of not letting us get away with anything and keeping all their options open, *by that standard* he [Nitze] concluded that we had not bound them to the narrow interpretation.⁴⁶⁷

Raymond Garthoff confirms this:

... Ambassador Paul Nitze ... has told me that until the fall of 1985 he too believed [that the restrictive interpretation was correct] ... but that after careful review of the negotiating record with hindsight he now believes that was not the understanding that we had established *beyond question* in the negotiation with the Soviet side. I and other members do not agree with his assessment.⁴⁶⁸

It is submitted that, by requiring the restrictive interpretation to be proven by the written negotiating record beyond a reasonable doubt, the Reagan Administration asked itself the wrong question, a question irrelevant to an interpretation of the ABM Treaty according to any school of accepted international treaty interpretation.

⁴⁶⁵ *Id.*, at 68; emphasis added.

⁴⁶⁶ *Ibid.*

⁴⁶⁷ *Constitution Hearings, supra*, note 237, at 135 (testimony of Judge Sofaer; emphasis added).

⁴⁶⁸ *Id.*, at 329-330 (answers of Raymond L. Garthoff to additional questions from Senator Kerry; emphasis added).

4.2.1.3.1.3 Whether U.S. ABM Treaty Negotiating Records Qualify As *Travaux Préparatoires*

It may be that most of the written ABM Treaty negotiating record does not come within the definition of *travaux préparatoires*, and is therefore inadmissible at any stage of interpretation.⁴⁶⁹ One requirement of *travaux préparatoires* has always been that it should be in writing, and have been available to all the parties to the dispute at some point during the negotiations.⁴⁷⁰ Although the U.S. Delegation's reporting cables, memoranda of conversation and records of other meetings are in written form, they were never made available to the Soviets during the negotiations.

⁴⁶⁹ This is the view of Abram and Antonia Handler Chayes, who say that the "so-called 'negotiating record'" is "inadmissible both under the [U.S.] Constitution and at international law," and that there is no ABM Treaty negotiating record, in the sense of the international legal term "preparatory work." That, they say, consists of "preliminary drafts, documentary exchanges and records of debate." (*Constitution Hearings, supra*, note 237, at 397 (joint prepared statement))

⁴⁷⁰ The Second Restatement of the Foreign Relations Law of the United States notes that "conference records kept by delegations for their own use ... will usually be excluded" from consideration under international law. (1962, section 147, comment (d)) This is the position taken by a majority of the Senate Foreign Relations Committee, which was reluctant to use the term "negotiating record" to describe the unilaterally maintained U.S. records of the ABM Treaty negotiations, on the ground that that is normally a term of art used to describe an *agreed* negotiating record. They have asserted that "notes unilaterally compiled by one party cannot control a treaty's meaning," and that as a result no "genuine" negotiating record even exists for the ABM Treaty. (1987 Senate Foreign Relations Committee Report, *supra*, note 223, at 57) See also *Young Loan Arbitration*, (*The Kingdom of Belgium, The French Republic, The Swiss Confederation, The United Kingdom and The United States of America v. The Federal Republic of Germany*, 59 I.L.R. 495, at 544 (quoted *infra*, in text accompanying note 490)).

Haraszti appears not to require documents to be agreed upon, or even seen by all parties. He defines preparatory work to include "any material laid down in writing which issues from the period preceding the actual conclusion of the treaty," including "the oral negotiations carried on before the signature and mostly laid down in minutes." (*Fundamental Problems, supra*, note 365, at 120) Lauterpacht, too, may have accepted unilaterally maintained reports of negotiations, defining *travaux préparatoires* as "the negotiations at the conference and its committees as recorded in the minutes or otherwise." (H. Lauterpacht, "Some Observations on Preparatory Work in the Interpretation of Treaties" (1935), 48 *Harv. L. Rev.* 549, at 552; emphasis added (hereinafter "Observations on Preparatory Work"))

Professor Rovine notes that there can be agreed negotiating records and ones that are not agreed to, and is uncertain whether both fall within Article 32 of the Vienna Convention. (*Constitution Hearings, supra*, note 237, at 194 (testimony))

In arguing for liberal recourse to preparatory work, Lauterpacht noted that

[t]here is a factor of considerable importance which increases the evidential value of the negotiations preceding a treaty as compared with the preparatory work of statutes or contracts. In the case of treaties the preparatory work is as a rule recorded, formal, authoritative, explicit, and continuous. If thoroughly studied, it permits the tracing of the development of a clause, in an illuminating chain of continuity...⁴⁷¹

The record of negotiations kept by the U.S. side fails to exhibit many of these characteristics. It is not formal, in the sense of being recorded by someone officially sanctioned by both parties to keep records: the Soviets had no say in its recording or maintenance. It is not authoritative: the Soviets did not review it and confirm its accuracy. It is not continuous: individual memoranda were often mere cryptic summaries of the meetings they recorded, and it is unclear whether all meetings were recorded or even whether all memoranda have been collected. In short, few of the factors that usually enhance the reliability of international preparatory work are present in the ABM Treaty negotiating record.

4.2.1.3.1.4 Incompleteness of The ABM Treaty Negotiating Record

It would appear that the written ABM Treaty negotiating record is incomplete in two respects. First, it is unlikely that all of the relevant documents have been collected. There was never any SALT I negotiating record formally maintained by the U.S. government. The "record" consists of individual documents from various executive agencies brought to one place for the first time in 1985. As of 26 March 1987, Judge Sofaer acknowledged that there still was not a complete accumulation of negotiating documents.⁴⁷² The *1987 Legal Advisor's Report* also concedes this, noting that "[n]o study of this subject can be treated as totally complete"⁴⁷³ and that

⁴⁷¹ Lauterpacht, *id.*, at 575-6.

⁴⁷² *Constitution Hearings*, *supra*, note 237, at 151 (testimony of Judge Sofaer).

⁴⁷³ *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 3.

[n]o single set of documents comprising the negotiating record is available. We have collected and reviewed as many of the documents in the SALT I negotiating record as we could obtain, including memoranda retained by ACDA, CIA, DOD, and the Nixon papers. This study has been occasionally revised to incorporate material that turned up from time to time.⁴⁷⁴

The U.S. Senate Foreign Relations Committee has harshly criticized the consequences of relying upon a collection of documents that is constantly being expanded, noting that this permits the "correct" interpretation to change every time a new document is unearthed.⁴⁷⁵

Second, according to Sidney Graybeal, records of individual meetings were also incomplete. *Verbatim* records were not kept, and three-hour meetings were sometimes summarized in reports of only a few pages in length.⁴⁷⁶

Sir Gerald Fitzmaurice formulated what he saw as Judge Alvarez's views (with which Sir Gerald apparently agreed) of the potential of written negotiating records to misinform:

Travaux préparatoires may be actively misleading, in various ways. For instance, it not infrequently occurs that the most important decisions taken, or the reasons for them, do not appear in the records at all. They are the result of private meetings and discussions between delegations, and the outcome appears as the actual text of some provision of the treaty, but the records will often give no indication of how or why it got there. In such cases, the earlier statements made by the participants are quite misleading, while the later statements, which would correct them, are made in private, and are, so far as the official records go, non-existent.⁴⁷⁷

⁴⁷⁴ *Id.*, at 13.

⁴⁷⁵ 1987 Senate Foreign Relations Committee Report, *supra*, note 223, at 63.

⁴⁷⁶ The problem is did the Soviets in fact agree to the limits on future systems? And much of that discussion took place in a working group responsible for article V where there is really no verbatim record of what transpired.

[In the Graybeal-Karpov working group] the details of what Graybeal said are nowhere in any record that you can find, because as I say, it was a lengthy two-way conversation across the table. There is no record of all the things Karpov said in the negotiating record.

(*Constitution Hearings*, *supra*, note 237, at 206-8 (testimony of Sydney N. Graybeal))

⁴⁷⁷ G. Fitzmaurice, "The Law and Procedure of the International Court of Justice: Treaty Interpretation

Although Fitzmaurice had in mind multilateral conferences with official records of formal meetings that can fail to record decisions taken in informal meetings, the same is true of those elements of the U.S. ABM Treaty negotiations that were recorded and those that were not.

4.2.1.3.1.5 International Law Governing Recourse to Negotiators' Recollections

If the written ABM Treaty negotiating record is incomplete, and if incomplete negotiating records can mislead the interpreter, then reliance on the written ABM Treaty negotiating record as the sole component of the treaty's preparatory work is likely to produce an inaccurate picture of what the parties agreed upon in the negotiations. How, then, are we to approach the ABM Treaty negotiating record? The two options seem to be to (a) disregard it altogether, so that it does not mislead us or (b) supplement a study of the written record with a review of oral evidence subsequently given by former negotiators. This evidence is of two types: (a) objective first-hand accounts of elements of the negotiations -- working documents, oral statements, non-verbal communications -- that do not appear in the written record and (b) the negotiators' personal opinions (which may be based in part on second-hand knowledge) as to whether the Soviets agreed to the restrictive interpretation.

There has been some recognition in international practice that, in certain cases, the recollections, and even the opinions, of negotiators may be utilized in seeking the meaning of treaty provisions. For example, in the course of Senate debate on the bill repealing the act of Congress exempting American vessels from Panama Canal tolls, Senator Elihu Root said with regard to the Hay-Pauncefote Treaty, on the subject of negotiators' opinions:

Of course, what the negotiator of a treaty says cannot be effective to overthrow a treaty; but I think we must all start, in considering this question, with the assumption that the words are capable of two constructions. I think no one can deny that, in view of the differences of opinion which have been expressed here regarding their meaning. So here are words capable of two constructions, a broad construction and a narrow construction, *but the fact that all the makers of the treaty intended that the words they used should have the larger effect is certainly very persuasive toward the conclusion that those words should receive the larger effect.* Not only the American negotiators but the British negotiators as well so understood it....⁴⁷⁸

Charles Cheney Hyde noted that the declarations of negotiators are not without value even if made long after the conclusion of a treaty.⁴⁷⁹ He cited the case of a commission under the Jay Treaty of 1794 between the U.S. and the U.K. established to decide what river was the "River St. Croix," specified by the treaty of 1782-3 as marking the boundary between the U.S. and New Brunswick. The commission received in evidence the depositions of John Adams and John Jay and a letter from Benjamin Franklin. All three had been negotiators of the 1782-3 treaty. Their evidence was received "as declarations concerning the original negotiations and the agreement itself."⁴⁸⁰ Hyde found value in this use of negotiators' declarations only, it would seem, "in so far as they indicate the sense in which terms were employed."⁴⁸¹ It is not clear whether this permits reliance upon the testimony of negotiators on the general issue of whether the other side agreed to a particular position, or whether it limits its use to the search for a special meaning of a term.

Hyde also cited an 1898 U.S./Swiss dispute over the meaning of a bilateral 1850 trade treaty. The U.S. Secretary of State eventually conceded the correctness of the Swiss position after consulting, in addition to the ratification debates of each party, the U.S. negotiator of the treaty, who agreed with the Swiss position.⁴⁸²

⁴⁷⁸ Quoted in G.H. Hackworth, *V Digest of International Law* (Washington, D.C.: USGPO, 1943), at 259-60; emphasis added.

⁴⁷⁹ Hyde, 2 *International Law*, *supra*, note 364, at 1497.

⁴⁸⁰ *Ibid.*, citing Moore, *Adjudications*, I, at 63-67.

⁴⁸¹ *Ibid.*

In the *Night Work* case,⁴⁸³ the PCIJ was influenced by the public statements of former negotiators to undertake an inquiry into the preparatory work, even though the Court had already found the text "clear and free from ambiguity."⁴⁸⁴

In the 1980 *Young Loan Arbitration*,⁴⁸⁵ the parties called a number of witnesses to give oral evidence as to the meaning of the 1953 London Agreement on German External Debt (LDA). The respondent, the Federal Republic of Germany, called Herr Abs, head of the German delegation to the conference at which that agreement was negotiated.⁴⁸⁶ The judgment also mentions three witnesses called by the applicants.⁴⁸⁷ Although the tribunal did not say so expressly, they appear to have been negotiators at the same conference. These witnesses testified as to the events of the conference,⁴⁸⁸ particularly those not appearing in the official minutes. The tribunal appears to have placed great emphasis on their testimony. In particular, it expressly relied, in part, upon the testimony of Herr Abs in reaching the conclusion that the *travaux préparatoires* confirmed the tribunal's interpretation already arrived at on the basis of the Vienna Convention Article 31 materials.⁴⁸⁹

⁴⁸² *Id.*, at 1498.

⁴⁸³ *Interpretation of the Convention of 1919 Concerning Employment of Women During the Night*, [1932] 362 P.C.I.J., Series A/B, No. 50, at 378.

⁴⁸⁴ The Court has been so struck with the confident opinions expressed by several delegates with expert knowledge of the subject at Geneva during the discussions in 1930 and 1931 ... that the Court has been led to examine the preparatory work of the Convention in order to see whether or not it confirmed the opinions expressed at Geneva.

(*Ibid.*)

⁴⁸⁵ *Supra*, note 470, at 544.

⁴⁸⁶ *Id.*, at 543, Para. 33.

⁴⁸⁷ These were Mr. Spang, Mr. Gunter (mentioned *id.*, at 544, Para. 33), and Baron van Lynden (mentioned *id.*, at 547, Para. 36).

⁴⁸⁸ The tribunal referred to "the oral and written material so painstakingly produced by the parties in connection with the early history of the LDA." (*Id.*, at 543, Para. 32)

The *Young Loan* tribunal explicitly inquired into what constitutes *travaux préparatoires*:

A few words seem necessary at this point to define the concept of *travaux préparatoires*. It must first be stressed that the term must normally be restricted to material set down in writing – and thereby actually available at a later date. This means that oral statements and opinions not recorded in minutes or conference papers can apparently be regarded as a component of *travaux préparatoires* only in exceptional cases. They can in any event be considered only if made in an official capacity and during the negotiations themselves. (Cf. Hyde, *International Law, Chiefly As Interpreted and Applied by the United States*, Vol. 2, Boston 1947, pp. 1497-8.)⁴⁹⁰

It thus appears that the recollections of negotiators can be relied upon in the interpretation of treaties, at least insofar as they consist of first-hand knowledge of unrecorded oral statements made during the negotiations. If such reliance is indeed limited to exceptional cases, the patent incompleteness of the U.S. records of the ABM Treaty negotiations should justify it in the instant case.

4.2.1.3.1.6 U.S. Negotiators' Recollections: Overall Opinion of Soviet Position

The opinions of former U.S. ABM Treaty negotiators overwhelmingly favour the restrictive interpretation.⁴⁹¹ Royal B. Allison, Harold Brown, Philip J. Farley, the late Charles L. FitzGerald, Raymond Garthoff, Sidney Graybeal, J. Graham Parsons, John Rhineland, Gerard Smith and Dr. Lawrence D. Weiler – all former members of the U.S. SALT I Delegation – have all, in one form or another, publicly stated their belief that the Soviets accepted the restrictive interpretation during the ABM Treaty negotiations. So has then Secretary of State Henry Kissinger. Only one principal delegate, Paul Nitze, has questioned the restrictive interpretation, and even his position is only that

⁴⁸⁹ *Id.*, at 543, Para. 33.

⁴⁹⁰ *Id.*, at 544, Para. 34.

⁴⁹¹ A detailed discussion of the Congressional testimony and other publicly expressed opinions of these negotiators appears in Appendix 10, Section A10.2.

the *written* negotiating record does not *conclusively* establish Soviet acceptance of the restrictive interpretation.

4.2.1.3.1.7 U.S. Negotiators' Recollections of Express Soviet Agreement With the Restrictive Interpretation

The negotiators' evidence summarized above consists of *opinions* as to whether the Soviets agreed to the restrictive interpretation during the negotiations. As persuasive as this may appear, its admissibility is open to question. Fortunately, a more objective use may be made of the memories of former negotiators. This is to review their testimony as to matters of which they possess first-hand knowledge. These recollections of fact also favour the restrictive interpretation.

Raymond Garthoff was asked in a 1987 Congressional hearing whether, in his view, "the Soviets also closed on the same [i.e. the restrictive] interpretation of the treaty." He answered, "Yes, sir. And I was so told by members of the Soviet delegation with whom I had been negotiating these questions in late January 1972, as we were working out the final wording."⁴⁹²

Paul Nitze concedes that there was an oral statement – perhaps the one to which Garthoff refers – made by a Soviet negotiator in January 1972 to the effect that Agreed Statement D specifically allowed development and testing, but not deployment, of stationary futuristic systems. He contends, however, that the statement did not address mobile-based devices and therefore doubts that the Soviets consider themselves bound in respect of such devices.⁴⁹³

⁴⁹² *Constitution Hearings, supra*, note 237, at 17 (testimony of Raymond Garthoff). See also *Id.*, at 24, where Garthoff notes that by the time the exotic deployment ban was shifted from Article V to Agreed Statement D,

the Soviet delegation had *explicitly* accepted the idea that article V(1), with the language that is now there in the treaty, included not only current technologies but also future technologies based on other physical principles. [Emphasis added]

⁴⁹³ P. Nitze, "Interpreting the ABM Treaty", *Dep't. State Bull.* June 1987, 31, at 32.

4.2.1.3.1.8 Opinions of Current U.S. Senators Concerning The Written Negotiating Record

Among current U.S. senators who have reviewed the written negotiating record in detail, most agree that it is ambiguous but, on balance, supports the restrictive interpretation.⁴⁹⁴

⁴⁹⁴ This is the view of Senate Armed Services Committee Chairman Sam Nunn:

I have ... spent countless hours ... reviewing the negotiating record, which is still classified.

Based on my review, I believe that Judge Sofaer has identified some ambiguities in this record.... These ambiguities are not, however, of sufficient magnitude to demonstrate that the Nixon administration reached one agreement with the Soviets and then presented a different one to the Senate.

I have concluded that the preponderance of evidence in the negotiating record supports the Senate's original understanding of the treaty -- that is, the traditional [restrictive] interpretation.

(133 Cong. Rec. 40, 2 (daily ed. 13 March 1987) (prepared statement of Sen. Nunn, "Interpretation of ABM Treaty -- Part Three: The ABM Negotiating Record") (hereinafter Nunn Floor Speech on Negotiating Record))

A majority of the Senate Foreign Relations Committee has also concluded that "the preponderance of evidence in the negotiating record supports the [restrictive interpretation]." (1987 *Senate Foreign Relations Committee Report*, *supra*, note 223, at 57)

Senator Levin has gone farther still, stating that his own reading of the record "clearly" indicates that the Parties agreed to the restrictive interpretation. (Levin, "Administration Wrong on ABM Treaty", *Bull. Atom. Scientists*, April 1987, at 33)

A minority of the Senate Foreign Relations Committee, however, (Senators Helms, Pressler and Tribble) maintains that the Treaty text and written negotiating record "establish unambiguously" the permissive interpretation. (1987 *Senate Foreign Relations Committee Report -- Minority*, *supra*, note 313, at 91-2)

4.2.1.3.1.9 Content of the Declassified Portion Of the Written Negotiating Record

Throughout the debate on the meaning of "ABM systems and components," Reagan Administration officials kept returning to the written U.S. records of the ABM Treaty negotiations as proof that, in adopting the treaty text, the Soviets did not agree to restrict the development and testing of exotic ABM systems and components in mobile basing modes. Consequently, in order to give the fairest possible hearing to the permissive interpretation, we must look in detail at that portion of the written negotiating record that is in the public domain.

In Appendix A to Part I of the *1987 Legal Advisor's Report*, many U.S. negotiating records are reproduced. However, not all of the known documents bearing upon the exotic systems dispute are to be found there. Appendix A contains only those documents that record the Soviet and U.S. positions on the propriety, in principle, of restricting activities involving exotic ABMs.⁴⁹⁵ Other negotiating documents are cited and quoted throughout the body of the *1987 Legal Advisor's Report*. Together, these sources comprise the declassified portion of the negotiating record relevant to the exotic systems dispute. Accordingly, Appendix 9 of this thesis reproduces those portions of the documents in Appendix A of Part I of the *Report* that are relevant to the dispute, augmented by relevant excerpts from the body of the *Report*.

Intentionally omitted from this collection are communications between U.S. officials in which opinions are given as to what the Soviets have agreed to and might be expected to agree to.⁴⁹⁶ We

⁴⁹⁵ *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 23:

The Soviets repeatedly returned to their arguments against "referring to any present or future systems, which employ devices other than those known to the delegations"
... (This theme was of such significance throughout the negotiations that Appendix A has been prepared with Soviet and U.S. statements on the subject.)

⁴⁹⁶ The Legal Advisor makes the following claim in respect of such materials:

An objection could be made to reliance, in this analysis, on the internal conclusions and deliberations of U.S. negotiators. Evidence of this sort is not strictly speaking

will limit ourselves to consideration of documents that purport to quote, paraphrase or summarize what the delegates of each side actually said to representatives of the other side.

A detailed analysis of these materials appears in Appendix 10. Here in Chapter 4, in the interest of brevity, we shall limit ourselves to repeating the principal conclusions of Appendix 10.

These are as follows:

1. On 15 September 1971, Soviet delegate Karpov agreed with U.S. delegate Graybeal's statement that Soviet Article V(1), which banned various activities involving mobile "ABM systems and components," applied to "any type of present or future components' of ABM systems." A review of the use of the terms "component" and "ABM system" during the negotiations shows that this almost certainly was an admission that Article V(1) applied to exotic ABMs.
2. On that same day, the U.S. dropped its proposal to expressly extend the ban on mobile ABMs to "ABM interceptor missiles, ABM launchers, ABM radars, or *other devices to perform the functions of these components*." The written negotiating record does not indicate, however, that the dropping of the U.S. demand for express reference to "other devices" was intended by the U.S., or understood by the U.S.S.R., as a substantive U.S. concession not to have the mobile ban apply to exotic ABMs.
3. Both before and after 15 September 1971, Soviet delegates opposed constraints on exotic ABMs on the ground that these were unknown systems, which it was improper to limit in an international treaty. However, the declassified portion of the negotiating record shows that these Soviet objections were directed not towards the mobile ABM prohibition but towards the U.S. provision that would have expressly banned the *deployment* of *all* exotic ABMs. Even though their principled opposition applied, as a matter of logic, to both provisions, this supports the contention of several U.S. negotiators that the Soviets accepted the banning of mobile exotics on 15 September 1971, but continued to oppose the prohibition against the deployment of fixed, land-based exotic ABMs.
4. On 13 September 1971, Graybeal asserted that the words "other devices" in the U.S. version of the mobile ABM provision were contentious. However, it is likely that the Soviet objection to these words in the mobile ABM provision reflected a concern that non-ABM systems, particularly SAMs, might be affected. It did not necessarily signal Soviet opposi-

part of the negotiating record, and would be given little or no weight in a court or tribunal. This observation is true, however, only with respect to the use of one side's internal deliberations to establish that the other is bound by a certain rule or interpretation. The materials are a proper and probative source of guidance for determining what the U.S. negotiators believed was unclear or the positions they felt had not been accepted by the Soviets.

(*Id.*, at 80)

It is submitted that the opinions of U.S. negotiators as to what their Soviet counterparts believed, understood or accepted, and *vice versa*, are immaterial. What matters is what the negotiators actually said to one another, and the positions that can be derived objectively therefrom.

tion to a ban on mobile exotic ABMs.

5. The permissive interpretation is supported by the fact that the declassified portion of the negotiating record discloses no instance of a U.S. negotiator, after 15 September 1971, countering the Soviets' avowed principled opposition to the regulation of "unknown" devices by pointing out that the parties had already agreed to limit such devices in Article V(1). On the other hand, neither did the Soviets argue that the U.S. had conceded the folly of regulating "unknown" devices on that date.
6. Confirmation that the Soviets had accepted the application of Article V(1) to exotic ABMs came on 4 December 1971. Soviet delegate Chulitsky argued that the U.S. proposal to expressly ban the deployment of exotic ABMs was unnecessary, on the ground that Article V(1) was adequate to cover "the problem of future systems."
7. The chronology of the negotiations shows that the text of Agreed Statement D was finalized more than two months before Article III was amended to prohibit the deployment of ABM systems and components except as the article expressly permitted – an amendment that rendered Agreed Statement D redundant. At the time it was negotiated, Agreed Statement D had a significant substantive effect it would later lose. Thus, the question at the end of the negotiations was not whether Agreed Statement D would be added but whether, having been negotiated, it would be deleted. The presence of Agreed Statement D in the final Treaty documents therefore does not disprove that provision's redundancy.
8. The record contains a number of references to Agreed Statement D indicating that it was regarded by both sides not as an agreement separate from and without any basis in the Treaty text, but as an interpretation of that text. There are other indications that the provision was regarded as superfluous.
9. On 20 December 1971, U.S. delegate Garthoff proposed "currently consisting of" as the connecting language for Article II(1) that was most precise in its description of the relationship between "ABM systems" and traditional ABM components. On the following day, the Soviets tabled a revised version of Article II that incorporated the phrase "currently consisting of." In doing so, Soviet delegates Grinevsky and Kishilov (a) informed their U.S. counterparts that acceptance of the phrase had been controversial, and had occasioned considerable debate within the Soviet delegation and (b) highlighted the insertion of the connective language and treated it as a major Soviet concession. These developments strongly suggest that the Soviets understood and accepted that inserting "currently consisting of" into Article II(1) had the effect of including exotic ABMs in the definition of "ABM system."
10. When the parties agreed to the final text of Article II(1), including the phrase "currently consisting of", they did so on the understanding that the agreed language would not prejudice the two sides' positions on the provision to ban exotic ABM deployments – JDT Article V(1). There is no reason to regard this as an agreement that the Article II(1) definition of "ABM systems," so amended, did not necessarily extend to exotic ABM systems. On the contrary, by agreeing that the insertion of "currently consisting of" into Article II(1) would not prejudice the parties' positions on exotic ABM system deployments, the U.S. was merely confirming the truism that an agreement on *definitions* – Article II(1) – could not prejudice either side's position on *obligations*.
11. On 31 January 1972, Garthoff showed Kishilov and Grinevsky a set of five "talking points" about exotic ABM Systems. Talking Point 4 read as follows:

Article III should be drafted so as not to permit the deployment of devices other than ABM interceptor missiles, ABM launchers, or ABM radars to substitute for and perform their functions.

The Soviets appear to have agreed with the "talking points." The record gives no indication that the apparent shared intention – as reflected in Talking Point 4 – to have Article III ban the deployment of exotic ABM components was ever changed. The restrictive interpretation of the final Treaty text attributes to Article III the prohibition against the deployment of exotic ABM components. This apparent shared intention therefore supports the restrictive interpretation.

12. The failure of the "talking points" to suggest that the development and testing of exotic ABMs had already been regulated in Article V(1) is of little importance because, contrary to the scope suggested by their title ("Statement on 'Future ABM Systems'"), the "talking points" did not deal with all aspects of exotic ABM systems, including development and testing, but with the *deployment* of *all* fixed, land-based ABMs, both traditional and exotic.
13. When the parties confirmed their acceptance of Agreed Statement D on 3 February 1972, they did so by noting their agreement "concerning Article V of the Joint Draft Text of an ABM Treaty." Only the permissive interpretation recognizes a substantive relationship between Agreed Statement D and Article V. This statement, however, is far more likely to have resulted from the fact that the agreed statement replaced Article V(3) in the JDT than from any substantive relationship between the two provisions.
14. On 28 April 1972, U.S. delegate Parsons asked if he understood correctly that the Soviets could probably accept a formulation of Article III in which the parties would agree not to deploy ABM systems and components except as the article allowed. The record shows that "Grinevsky said that they could, as this would ban 'other systems.'" Since "other systems" clearly meant exotic ABM systems, Grinevsky was expressly acknowledging that inserting into Article III a prohibition against the deployment of "ABM systems" would have the effect of prohibiting the deployment of exotic ABMs. Article III could not do this unless Article II(1) defined "ABM systems" to include *exotic* ABMs. Thus, Grinevsky's statement unambiguously implied an Article II(1) definition of "ABM system" that included exotic ABMs.
15. Contrary to the Legal Advisor's claims, changes to John Rhinelander's "Article-by-Article Analysis" of the Treaty between 24 January and 24 May 1972, and indications in other internal U.S. documents from this period, do not show that the U.S. Delegation as a whole doubted whether the Soviets had accepted the application of JDT Article V(1) to exotic ABMs. Even if these documents are taken as proof of such U.S. doubts, however, these doubts would have been dispelled to a large extent by Grinevsky's statement of 28 April 1972.
16. The written record contains several indications that, prior to the amendment of Article III to prohibit the deployment of all ABM systems and components, the Soviets regarded the combined effect of Articles I, II and III as prohibiting the deployment of exotic ABMs, at least in a manner that would provide nationwide ABM coverage. This could not have been the case unless Article II(1) defined "ABM systems" to include systems comprised in whole or in part of exotic ABMs.

**4.2.1.3.1.10 Conclusions Regarding the Written
ABM Treaty Negotiating Record**

The findings of the preceding section show the declassified portion of the written negotiating record to be at least as consistent with the restrictive interpretation as with the permissive interpretation. It follows that this record provides no justification for superceding a Treaty text that clearly sets out the restrictive interpretation and recognizing the permissive interpretation as correct instead. This conclusion is echoed by all but one of the principal U.S. SALT I delegates and by the majority of U.S. legislators who have reviewed the full (including classified) record.

4.2.1.3.2 The Ratification Proceedings

4.2.1.3.2.1 Introduction

A rich source of information as to the correct interpretation of any ABM Treaty term are the 1972 U.S. ratification hearings at which representatives of the Nixon Administration testified before committees of the House and Senate as to their understanding of the Treaty's meaning. It is submitted that

1. it is permissible under Article 32 of the Vienna Convention, and in international practice generally, to take into account the public or published representations of executive branch witnesses to legislative bodies during the course of a treaty's consideration for ratification;
2. U.S. executive branch testimony to Congress at the 1972 ABM Treaty ratification hearings overwhelmingly supported the restrictive interpretation; and
3. the small portion of the Soviet ratification hearings that was made public in the Western press in 1972 was consistent with either interpretation.

Proponents of the permissive interpretation do not share these conclusions.

4.2.1.3.2.2 Ratification Proceedings: The Law

Reagan Administration officials did acknowledge a role for ratification materials in treaty interpretation,⁴⁹⁷ though not always without reservation.⁴⁹⁸ The main argument raised by the Legal Advisor in opposition to consideration of any elements of the U.S. ABM Treaty ratification record is that

⁴⁹⁷ 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 3:

The representations to the Senate can ... for international purposes, be considered as "supplementary" materials in an overall appraisal of the Treaty's meaning under international law.

⁴⁹⁸ *Id.*, at 33:

How the record of internal ratification proceedings fits into the scheme of the Vienna Convention on the Law of Treaties is unclear.... Such evidence *might* ... qualify under Article 32 as "supplementary means of interpretation" and appears to have been treated as such by various scholars. [citation omitted] Internal ratification records are therefore, *at best*, no higher in status in the interpretation of treaties for international purposes than the negotiating record. [Emphasis added]

no, or very little, probative value should attach to executive representations unless the Senate (a) expressly incorporates the interpretation supported by those representations into its resolution of ratification, (b) insists that the President incorporate them into the U.S. ratification documents and, preferably, (c) obtains the treaty partner's express agreement to that interpretation.⁴⁹⁹

It is certainly true that such an agreement would carry a great deal of weight, even to the point of being conclusive. After all, it would constitute an authoritative interpretation of the parties, a status reflected in its position under the Vienna Convention scheme: an "agreement relating to the treaty which was made between all the parties in connexion with the conclusion of the treaty," and therefore part of the treaty's context under Article 31(2)(a). Even if the U.S. did not seek express Soviet agreement with the restrictive interpretation at the time of ratification, but included a statement expressly adopting that interpretation in her ratification documents, this would still receive considerable weight under the Convention, qualifying as an "instrument which was made by one or more of the parties in connexion with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty" under Article 31(2)(b). However, authoritative interpretation is not the purpose to which we propose to put U.S. executive representations. All that is asserted is that they can be used as a supplementary means of interpretation and possess significant probative value.

⁴⁹⁹ For instance, not only is it claimed that the probative value of executive representations to Congress depends upon (a) the degree to which the other party is officially put on notice and (b) the other party's response (*ibid.*), a reasonable assertion, but it is suggested that the probative value of an executive statement to Congress is almost nil unless it is *formally* communicated to the other party. See also *Constitution Hearings, supra*, note 237, at 363-4 (prepared statement of Judge Sofaer); *1987 Legal Advisor's Report, Part II, supra*, note 319, at 33. The *1987 Senate Foreign Relations Committee Report -- Minority (supra*, note 313, at 93) was less equivocal, claiming that interpretive declarations of witnesses "have no effect upon legal duties under a treaty with an unqualified resolution of advice and consent to ratification." (Emphasis added)

It has also been asserted that executive representations to Congress in respect of the ABM Treaty were never formally communicated to the U.S.S.R. and could therefore not be relied upon by the U.S. to "create" obligations on the U.S.S.R. (*1987 Legal Advisor's Report, Part II, supra*, note 319, at 3; similarly, *id.*, at 33, where it is stated that, in general, interpretations discussed before the Senate are not "binding" under international law, unless agreed to by the other party.)

The Legal Advisor has raised concerns about the extent to which ratification materials reflect the agreement of *both* parties.⁵⁰⁰ He cites Lord McNair in apparent support of his contention that ratification material is "inappropriate for use in treaty interpretation, because of its unilateral character."⁵⁰¹ However, Lord McNair's objection was to reliance upon negotiating documents that were in the possession of one party only, and that remained confidential. This is not true of executive representations to the U.S. Congress during public hearings (particularly when the treaty partner has representatives in attendance, as the U.S.S.R. did at many U.S. SALT I ratification hearings) or of the publicly released portions of closed hearings. Surely it is not asking too much of the Soviets to monitor public or published U.S. ratification proceedings.⁵⁰²

⁵⁰⁰ *Constitution Hearings*, *supra*, note 237, at 27; also *1985 SDI Hearings*, *supra*, note 199, at 189:

These statements [at the ratification hearings, in support of the restrictive interpretation] represent only the view of one party to a treaty in which there were two parties. I think that you have to look at the negotiating history and the language of the treaty itself to derive what the *binding* commitments are, the *mutually binding* commitments. [Emphasis added]

Similarly, in the *1985 SDI Hearings* (at 267 (written response of Judge Sofaer to question submitted by Senator Nunn)):

Although ... [the ratification] process may have helped to answer questions in particular Senators' minds, it could not result in authoritative clarifications of any ambiguities in the Treaty, because statements made during the hearings were unilateral.

Significantly, Judge Sofaer did not draw attention to the need for caution in the use of preparatory work, in respect of which warnings have more often been sounded. He has, however, claimed that caution is particularly necessary when the other party's ratification proceeding is confidential. (*1987 Legal Advisor's Report*, Part II, *supra*, note 319, at 33) It is not clear why this is the case.

⁵⁰¹ *1987 Legal Advisor's Report*, Part II, *supra*, note 319, at 38. The passage cited from McNair (*Law of Treaties*, *supra*, note 304, at 421-2) is as follows:

Amongst other safeguards that might be attached to the practice of admitting evidence of preparatory work it is believed that it would be prudent to exclude evidence of unilateral preparatory work. Surely whatever value there may be in preparatory work is that it may afford evidence of the common intention of the parties, as might in some circumstances be said of an earlier draft discussed by both parties or an exchange of letters between them. It is quite another thing to permit one party to produce, for instance, a report made by its own representatives to their own Government during the negotiations as to what they understood a provision in the treaty to mean, or indeed a report made by the representatives of the other party to their own Government, unless such reports were contemporaneously communicated to the other party.

Concerns that the statements of U.S. officials at ratification hearings may not have represented the views of both parties, however, are alleviated in the instant case by the fact that the ones we propose to consider were (a) made either at public hearings or at closed hearings of which transcripts were published, (b) made, in many cases, in the presence of Soviet representatives monitoring the hearings and (c) never disputed by the U.S.S.R.

Judge Sofaer also expressly raised the argument that "[t]he Senate has repeatedly refused to rely on the record of its advice-and-consent proceedings *alone* as the basis for establishing *authoritative* interpretations of the international aspects of treaties."⁵⁰³ This is undoubtedly correct, but irrelevant. Again, just because a piece of evidence cannot bind a State to a legal obligation on its own does not mean that it cannot be considered as evidence for purposes of interpretation. It is not contended that the executive testimony before the Congress resolves the dispute conclusively in and of itself.

What precedent is there in international jurisprudence for the use of ratification materials? The only time the ICJ dealt with the admissibility of evidence similar to executive representations to legislative bodies was in the *Anglo-Iranian Oil Company Case*.⁵⁰⁴ The outcome of that case hinged on the scope of the Iranian declaration accepting the compulsory jurisdiction of the Court. Iran introduced as evidence of the meaning of its declaration an Iranian law, passed some months after the declaration was signed and some months before it was ratified⁵⁰⁵ by which that country's Majlis (parliament) approved or ratified the declaration. A majority of the Court (8 of 14 judges) regarded

⁵⁰² *Constitution Hearings*, *supra*, note 237, at 59-60 (testimony of Professor Tribe).

⁵⁰³ *Constitution Hearings*, *supra*, note 237, at 367 (prepared statement of Judge Sofaer; emphasis added). See also *1987 Legal Advisor's Report*, Part II, *supra*, note 319, at 33.

⁵⁰⁴ (Preliminary Objection) 1952 I.C.J. Rep. 92.

⁵⁰⁵ *Id.*, at 107.

the relevant clause of this law as "a decisive confirmation of the intention of the Government of Iran at the time when it accepted the compulsory jurisdiction of the Court."⁵⁰⁶ The Court continued:

It is contended that this evidence as to the intention of the Government of Iran should be rejected as inadmissible and that the Iranian law is a purely domestic instrument, unknown to other Governments. The law is described as "a private document written only in the Persian language which was not communicated to the League or to any other States which had made declarations."

The Court is unable to see why it should be prevented from taking this piece of evidence into consideration. The law was published in the Corpus of Iranian laws voted and ratified during the period from January 15, 1931, to January 15, 1933. It has thus been available for the examination of other Governments during a period of about twenty years. The law is not, and could not be, relied on as affording a basis for the jurisdiction of the Court. It was filed for the sole purpose of throwing light on a disputed question of fact, namely, the intention of the Government of Iran at the time when it signed the Declaration.⁵⁰⁷

In a separate opinion, Judge McNair disputed the admissibility of the Iranian law, saying that he

should have preferred that it should be excluded from the consideration of the Court. Its admissibility in evidence is open to question, and its evidentiary value is slight.⁵⁰⁸

Judge Hackworth, in a dissenting opinion, concurred:

I do not consider that ... it was necessary or even permissible for the Court to rely upon the Iranian Parliamentary Act of approval as evidence of the intention of the Iranian Government, since that was a unilateral act of a legislative body of which other nations had not been apprised. National courts may, as a matter of course, draw upon such acts for municipal purposes, but this Court must look to the public declarations of States made for international purposes, and cannot resort to municipal legislative enactments to explain ambiguities in international acts. The fact that this was a public law which was available after 1933 to people who might have had the foresight and the facilities to examine it, is no answer. When a State deposits with an international organ a document, such as a declaration accepting compulsory jurisdiction of the Court, upon which other States are expected to rely, those States are entitled to accept that document at face value; they are not required to go back to the municipal law of that State for explanations of the meaning or significance of the international instrument. Such a procedure would in many cases lead to utter confusion. This is not a case of drawing upon the *travaux préparatoires* of a bilateral or multilateral agreement to explain ambiguities. Had the Act of Parliament been attached to the instrument of ratification filed by Iran with the League of Nations, a

⁵⁰⁶ *Ibid.*.

⁵⁰⁷ *Ibid.*.

⁵⁰⁸ *Id.*, at 121.

different situation would have been presented. Other States would thus have been on notice of the discrepancy between the Declaration and the act of approval. But this was not done.⁵⁰⁹

Judge Hackworth's concern was clearly with the extent to which other States could reasonably be presumed to have known of the Iranian law. This affords an important distinction between that case and the instant one. While the extent to which other States were aware of the Iranian municipal legislative act ratifying her declaration accepting compulsory jurisdiction of the ICJ may be open to question, the U.S. Congressional hearings on SALT I clearly did not enjoy the same level of obscurity in the Foreign Ministry of the U.S.S.R. This conclusion is not merely a matter of speculation flowing logically from the importance of the SALT agreements to Soviet national security, but is confirmed concretely by the presence of Soviet government representatives at many of the U.S. hearings.

In a 1935 article, Lauterpacht included in one of two meanings of preparatory work "the expression of opinion of Governments or authoritative members or committees of legislative bodies during the process of obtaining parliamentary approval of a treaty."⁵¹⁰ Thus, to him, ratification debates would appear to be as legitimate a source of evidence as the negotiating record.

Professor Rovine has stated that, for international legal purposes, it is appropriate to consider the ratification processes, including "interpretations communicated to the Senate by the Executive."⁵¹¹

⁵⁰⁹ *Id.*, at 137.

⁵¹⁰ Lauterpacht, "Observations on Preparatory Work", *supra*, note 470, at 552, his note 3.

⁵¹¹ *Constitution Hearings*, *supra*, note 237, at 194 (testimony). In particular, he believes that ratification hearings are "supplementary means of interpretation" for purposes of Article 32 of the Vienna Convention. (*Id.*, at 193)

The Legal Advisor endeavours to marshal a 1977 Senate Foreign Relations Staff Memorandum in support of a position that "internal ratification proceedings, for the purpose of international obligations ... [are] 'purely domestic documents' of 'no concern to other parties.'"⁵¹² This is misleading. The memorandum in question pronounced this judgment only upon Senate committee reports and "[s]tatements and colloquies by the floor manager." It did not comment upon executive representations to Congress. Committee reports and statements of individual senators are different in kind from representations of executive branch witnesses: the former serve only to indicate the understanding of the Senate; the latter indicate the understanding of the Government. It is only logical that executive representations should possess a higher status for purposes of treaty interpretation under international law.

The question of "creating" obligations ties in with the absence of a formal Senate understanding or condition concerning exotic ABM development and testing. A condition would only have been attached if the Senate wished to create an obligation that it felt the Treaty did not contain. In the instant case, however, the Senate was presented with a Treaty text that supported the restrictive interpretation and was told by the executive branch that the restrictive interpretation was what the Treaty meant. There was therefore no reason to attach a condition to that effect. A formal understanding (which, in contrast to a condition, would not create any obligations, but would simply register the Senate's understanding of what the Treaty already set out) might have been insisted upon. But again, since nobody in the ratification hearings set out the permissive interpretation, there was no dispute, and no more reason to set out a formal understanding on this issue than on any oth-

⁵¹² 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 34.

⁵¹³ The 1987 *Senate Foreign Relations Committee Report -- Minority*, *supra*, note 313, at 94 states that there was no formal Senate understanding or reservation on this topic "[n]otwithstanding notice of alternate interpretations." Yet the only thing that could conceivably have given the Senate notice of the possibility of the Soviets holding the permissive interpretation is the report in *Pravda* of the Grechko statement in the Soviet ratification proceeding (see *infra*, Appendix 11(h)) and a 30 September 1972 *Washington Post* article by Robert Kaiser. The minority report claims that the latter "placed the Senate on notice" of the prospect of a permissive interpretation. (*id.*, at 99) This is highly dubious, seeing as the article was based on the Grechko statement, which was ambiguous (see Appendix 12, Section A12.1).

er.⁵¹³

In support of the proposition that no element of U.S. ratification proceedings is of international legal effect unless incorporated into or appended to the resolution of ratification, the Legal Advisor cites a Senate Foreign Relations Committee Report on SALT II.⁵¹⁴ That report concluded that the conditions formally attached by the U.S. to her SALT II resolution of ratification had differing degrees of binding force, and that the Soviets might not even be bound by the most binding of these unless their express agreement was obtained. Consequently, it concerned itself with ratification materials as conclusively binding evidence of legal obligations, rather than as aids to treaty interpretation.⁵¹⁵ Moreover, it dealt with conditions, i.e. changes to the text, or additions to or clarifications of ambiguous treaty provisions; it did not deal with understandings firmly based in an unambiguous text.

Finally, it is argued that both the Soviet Union and the U.S. have in the past objected to other States' reliance upon evidence of ratification proceedings.⁵¹⁶

Two examples are cited of the Soviets allegedly stating their objections on this issue. The first is a

statement "on behalf of the Soviet government" proximate to treaty ratification by the Presidium of the USSR on September 29, 1972, [that] expressly rejected unilateral U.S. declarations interpreting SALT I obligations during the U.S. ratification process.⁵¹⁷

⁵¹⁴ United States, Congress, Senate Committee on Foreign Relations, *The SALT II Treaty* (Washington, D.C.: USGPO, 1979) [S. Exec. Rep. No. 14, 96th Cong., 1st Sess.].

⁵¹⁵ 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 31.

⁵¹⁶ The Soviet Union does not hold itself to review and be responsible for responding to statements made during U.S. internal proceedings, any more than we held ourselves responsible for responding to Soviet internal proceedings.

(*Ibid.*)

⁵¹⁷ 1987 *Senate Foreign Relations Committee Report -- Minority*, *supra*, note 313, at 98.

In fact, the statement in question was not a blanket disavowal of the legal significance of all statements made in U.S. ratification hearings. What the Soviet First Deputy Foreign Minister said was that

... there are political figures in the United States who continue to insist on pursuing "from a position of strength" policy with regard to the Soviet Union. During the discussions of the Soviet-U.S. agreements in the United States, these figures advanced various far-fetched "conditions" and "interpretations" for the agreements which had already been signed, thus intended to obtain one-sided advantages for the United States.... The Treaty and the interim agreement need no far-fetched interpretations or conditions. It is important that the clauses of the agreements which have been concluded be steadily implemented in both their letter and their spirit.⁵¹⁸

As this statement was limited to denouncing certain "far-fetched 'conditions' and 'interpretations'" put forth during the U.S. ratification process, it is doubtful that it was a denial of the relevance of U.S. executive branch representations *per se*.

The second example cited is an SCC discussion in which the following events supposedly took place. The U.S. representatives pointed to the testimony of Ambassador Gerard Smith at a 1972 ratification hearing in support of their position on a different issue, noting that a Soviet representative had attended the hearing, and that the Soviets had not objected to the substance of Ambassador Smith's remarks. The Soviet SCC official replied that what Ambassador Smith said in a U.S. Senate hearing is a matter of U.S. internal concern and that it is no business of the U.S.S.R. to respond to anything he said.⁵¹⁹ Since no transcript of this incident has been made public, it is difficult to say whether it constitutes a Soviet objection to reliance upon ratification materials.

As evidence of U.S. unwillingness to countenance reliance upon ratification materials generally, the Legal Advisor cited a 1921 case in which the U.S. objected to German reliance upon certain U.S. Senate proceedings.⁵²⁰ What the U.S. objected to in that case, however, was not the use

⁵¹⁸ *Pravda*, 30 September 1972, at 1-2.

⁵¹⁹ *Constitution Hearings*, *supra*, note 237, at 165 (testimony of Judge Sofaer).

⁵²⁰ *1987 Legal Advisor's Report*, Part II, *supra*, note 319, at 38.

of ratification materials generally, but of "expressions of opinion as to the meaning of the treaty ... occurring in general debate".⁵²¹ Statements made in general debate on the Senate floor are very different from representations made on behalf of the executive branch. This is because no individual senator can purport to speak for the executive branch. The German-U.S. case, therefore, does not pertain to executive representations to Congress.

More telling than this dubious precedent is the U.S. State Department's own reliance upon U.S. ratification hearings in three of the six contentious ICJ cases in which the U.S. has been involved.⁵²²

Thus, it appears that international practice, if not customary law, supported reliance, in the interpretation of treaties, upon executive representations to legislative bodies in public or published ratification hearings, and that neither the U.S. nor the Soviet Union has consistently objected to such reliance.

A further argument is that representations to Congress by executive branch witnesses carry less weight when those witnesses were not negotiators⁵²³ or at least present at the negotiations.⁵²⁴

⁵²¹ Quoted in *ibid.*, emphasis added.

⁵²² 1987 Senate Foreign Relations Committee Report, *supra*, note 223, at 59; Constitution Hearings, *supra*, note 237, at 396 (joint prepared statement of A. Chayes and A.H. Chayes). Although neither of these sources provides a complete list of such cases, the latter cites *Memorial of the United States in United States vs. Iran*, 1980 I.C.J. Rep. 41-2.

⁵²³ 1987 Legal Advisor's Report, Part II, *supra*, note 319, at 40.

⁵²⁴ 1987 Senate Foreign Relations Committee Report -- Minority, *supra*, note 313, at 94. The minority of the Senate Foreign Relations Committee went on to claim that Secretary of State Rogers, Ambassador Smith and JCS Chairman Moorer were the most authoritative witnesses (even though neither Secretary Rogers nor Admiral Moorer appears to have participated directly in the negotiations) because "two of them had the authority to bind the United States in the negotiations." The 1987 Legal Advisor's Report, Part II, *supra*, note 319, at 27 says that the transmittal documents and testimony of Secretary Rogers and Ambassador Smith are the most authoritative sources of the executive branch position. William Harris, on the other hand, asserts that the testimony of both Dr. Foster and Admiral Moorer was of "no legal effect." (Constitution Hearings, *supra*, note 237, at 60 (prepared statement))

It is submitted that there should be little difference in the weight accorded the testimony of various administration witnesses. In particular, it should not matter whether a witness was a negotiator, was present at the negotiations, or was neither. An administration is responsible for the testimony of all its witnesses. None of those testifying at the 1972 ratification hearings claimed to speak in their personal capacities only. Under these circumstances, their testimony represented the Nixon Administration's formal stated position unless, subsequently modified or repudiated.

It is also incorrect to regard those officials capable of binding the U.S. to legal obligations as giving the more legally significant testimony.⁵²⁵ This would be the case if the statements formed the sole basis of an alleged legal obligation, as in the *Nuclear Tests Case*, but their value here is merely as an aid to interpretation for obligations already undertaken in written treaty form.

4.2.1.3.2.3 Ratification Proceedings: The Evidence

In addition to questioning the admissibility and minimizing the weight of U.S. executive representations to Congress, proponents of the permissive interpretation have also argued that the content of those representations offers little support to the restrictive interpretation. Their views on this matter can be summarized as follows:

1. Much of the material and testimony presented to the U.S. Senate during the ratification hearings was "inconsistent and inconclusive."⁵²⁶
2. In hearings before the Senate Armed Services Committee, written and oral Administration answers were given that "in varying degrees *could be read* to support the restrictive interpretation."⁵²⁷

⁵²⁵ See 1987 Senate Foreign Relations Committee Report -- Minority, *supra*, note 313.

⁵²⁶ 1987 Legal Advisor's Report, Part II, *supra*, note 319, at 27. Also, at 28:

In the course of the ratification proceedings, Executive Branch witnesses made inconsistent statements The Administration may not have had a clear and uniform view on this issue, and in any event its representatives failed to communicate a clear and consistent view to the Senate.

⁵²⁷ *Ibid.*; emphasis added. See also Sofaer, "The ABM Treaty and SDI", *supra*, note 208, at 1981-2,

3. These answers "reasonably led the few Senators who focussed clearly on this issue to conclude that the Treaty precludes the development and testing of space-based lasers" (i.e. to conclude that the restrictive interpretation was the correct one).⁵²⁸
4. However, the testimony of Administration witnesses was, on the whole, consistent with the permissive interpretation.⁵²⁹
5. The Letter of Transmittal,⁵³⁰ and the testimony of Ambassador Smith and Secretary Rogers, did not advance the restrictive interpretation.⁵³¹

The author cannot accept the contention that the content of executive representations to Congress during the ABM Treaty ratification hearings fails to lend much support to the restrictive interpretation. On the contrary, it is submitted that they overwhelmingly support that interpretation.⁵³² That the Nixon Administration witnesses presented the restrictive interpretation to Congress in 1972 is also the view of Richard Perle,⁵³³ Professor Cutler,⁵³⁴ SALT I Legal Counsel John

where there is less equivocation: "A few witnesses did make statements that support the restrictive interpretation, as did some Senators."

⁵²⁸ 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 28.

⁵²⁹ Sofaer, "The ABM Treaty and SDI", *supra*, note 208, at 1981-2.

⁵³⁰ Letter of Transmittal of the SALT I agreements from Secretary of State Rogers to President Richard M. Nixon, 10 June 1972 (hereinafter Letter of Transmittal), reproduced in United States, Congress, House, Committee on Foreign Affairs, *Agreement on Limitation of Strategic Offensive Weapons*, July-August 1972, 92nd Cong., 2nd Sess. (Washington, D.C.: USGPO, 1972), at 121-2 (hereinafter 1972 *House Foreign Affairs Hearings*).

⁵³¹ 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 9.

⁵³² Due to space constraints, ratification debates and contemporaneous statements will not be considered in the body of the thesis. Relevant excerpts from U.S. and Soviet ratification debates are collected in Appendix 11. A detailed analysis of these materials can be found in Appendix 12.

⁵³³ 1985 *SDI Hearings*, *supra*, note 199, at 96; *Constitution Hearings*, *supra*, note 237, at 162-3. In the former hearings, Mr. Perle opined that although it is "probably right" that Secretary of Defence Laird, Dr. John Foster and General Palmer explicitly confirmed the restrictive interpretation, they "were all wrong."

⁵³⁴ *Review Hearings*, *supra*, note 210, at 16:

[I]t seems to me very clear that, in presenting the Treaty to the Senate, the administration of the day relied on [the restrictive interpretation].

Rhineland, ⁵³⁵ Ambassador Gerard Smith, ⁵³⁶ and a majority of the Senate Foreign Relations Committee. ⁵³⁷ The Senate Foreign Relations Committee has dismissed the Legal Advisor's claim that Nixon Administration's representations during the ratification hearings were inconsistent as "simply unsupportable" and "pure sophistry," noting that he fails to identify a single explicit rejection of the restrictive interpretation, and that "[t]here can be no inconsistency if only the restrictive view was explicitly stated." ⁵³⁸ Judge Sofaer, for his part, has conceded that he knows of no express endorsement of the permissive interpretation in the ratification process, including executive representations and Senate debates. ⁵³⁹

As for the Legal Advisor's concession that executive representations to the Senate Armed Services Committee "in varying degrees could be read to support the restrictive interpretation," it does not go far enough. Clearly, at hearings before the Senate Armed Services Committee and before other Congressional committees, there were several statements that could *only* be read to support the restrictive interpretation.

As for the Soviet ratification debates, the one relevant excerpt from those is ambiguous.

⁵³⁵ *Id.*, at 30.

⁵³⁶ *Constitution Hearings*, *supra*, note 237, at 482 (prepared statement).

⁵³⁷ *1987 Senate Foreign Relations Committee Report*, *supra*, note 223, at 33.

⁵³⁸ *Ibid.*

⁵³⁹ *Constitution Hearings*, *supra*, note 237, at 153. Ambassador Smith agrees that there is not a single affirmative statement in the ratification proceedings that supports the permissive interpretation, and goes farther, stating that, in his view, the ratification record is not consistent with the permissive interpretation. (*Constitution Hearings*, *supra*, note 237, at 482 (prepared statement))

4.2.1.3.2.4 Ratification Proceedings: Conclusions

It is submitted that it is proper, in interpreting a treaty, to take account of the representations of one party's executive to its legislature, even if (a) the legislature does not expressly affirm the interpretation supported by such representations, (b) that party does not incorporate the interpretation into its instrument(s) of ratification and (c) the other party's express agreement with that interpretation is not obtained. It is also submitted that the testimony of Nixon Administration witnesses to the U.S. Congress at the ABM Treaty ratification hearings strongly confirm the restrictive interpretation, and that the tiny portion of the Soviet ratification hearings known in the West is consistent with either interpretation.

4.2.1.3.3 Conclusions Regarding Supplementary Means

The conclusion was reached in Section 4.2.1.2 that the materials available under Article 31 of the Vienna Convention for the interpretation of "ABM systems and components" in the ABM Treaty lead to the conclusion that that term, as used in the Treaty proper and associated agreed statements, unambiguously includes ABM systems "based on other physical principles" and components thereof. Furthermore, it became clear that this conclusion did not lead to any absurd result in the application of the Treaty.

Under these circumstances, the Vienna Convention procedure does not compel reliance upon supplementary means of interpretation. It does, however, envision reliance for the purpose of *confirming* the interpretation reached on the basis of Article 31 materials. For this reason, and because the Vienna Convention procedure is not binding in the instant case, we have looked at the supplementary means relevant to the ABM Treaty.

The three most widely recognized and important supplementary means available for the interpretation of an international treaty are (a) its written negotiating record, (b) statements made by government representatives during the course of ratification hearings or debates and (c) the recollections of negotiators. In the case of the dispute over the meaning of "ABM systems and components" under the ABM Treaty, the last two of these overwhelmingly confirm our findings based on Article 31 materials, pointing clearly to the restrictive interpretation as the correct one. In the case of the written negotiating record, the case for the restrictive interpretation is not overwhelming. Neither, however, does that record support the permissive interpretation. It is, in fact, ambiguous on the matter in most instances. The declassified portion of the written ABM Treaty negotiating record is consistent with the restrictive interpretation.

It is therefore proper to conclude that, as a whole, the supplementary means confirm the conclusion reached on the basis of Article 31 materials, namely that the correct interpretation of the meaning of "ABM systems and components" under the ABM Treaty is the restrictive interpretation.

4.2.1.4 Conclusions as to the Meaning of "ABM Systems and Components"

In October 1985, the Reagan Administration put forward an interpretation of the ABM Treaty term "ABM systems and components" under which that term does not apply, in the Treaty proper (as opposed to associated agreed statements), to ABM-capable weapon systems and components based on 'exotic' ABM technologies (or "other physical principles"). This became known as the permissive interpretation of that term. Prior to October 1985, the U.S. arms control community had, with virtual unanimity, considered "ABM systems and components" to include all weapon systems and components capable of strategic BMD, regardless of the technologies employed. This position became known as the restrictive interpretation of that term.

By hailing the permissive interpretation as the correct interpretation, the Reagan Administration set in motion a debate both between itself and the Soviets and between itself and the majority of the U.S. and international arms control community.

The outcome of this debate will decide whether the U.S. and U.S.S.R. may, under current international law, develop and test ABMs based on 'exotic' ABM technologies – principally high energy lasers, particle beam weapons and non-radar sensors – in mobile basing modes, including on satellites in Earth orbit.

Before one can interpret the meaning of a term or provision in an international treaty, one must decide upon a framework for interpretation. This thesis applies the interpretation rules of Vienna Convention on the Law of Treaties, with one modification. It does so in spite of the fact that the Vienna Convention rules do not apply to interpretation disputes under the ABM Treaty as a matter of conventional or customary international law. Other methods of interpretation could also be applied. The Convention procedure was selected (a) because some procedure must be followed

and (b) because it represents a compromise between competing schools of interpretation that was acceptable to the majority of States at the Vienna Conference, and is in the process of crystallizing into customary international law. It is submitted, however, that any accepted process of interpretation carried out in good faith would yield the same result.

Section 4.2.1.2 therefore analyzed those materials available to an interpreter under Article 31 of the Vienna Convention. These materials comprised (a) the Treaty text and associated agreed statements, (b) agreed interpretations entered into after the conclusion of the treaty, (c) the object and purpose of the Treaty and of its relevant provisions and (d) the Parties' subsequent practice in respect of the disputed terms and provisions.

The conclusion was reached that these materials support the restrictive interpretation, and that they do so unambiguously and without giving rise to absurd results.

Article 32 of the Vienna Convention permits reliance upon supplementary means only (a) when the Article 31 inquiry leads to an ambiguous or absurd result or (b) for the purpose of confirming a clear result. For the latter purpose, recourse is discretionary. However, because the Vienna Convention does not apply as a matter of law to the present dispute, this aspect of its procedure was modified to make reliance upon supplementary means compulsory. We therefore consulted the ratification debates, the written negotiating record and the recollections of negotiators. These materials confirmed that the restrictive interpretation is correct as a matter of international law.

Consequently, it must be concluded that the ABM Treaty term "ABM systems and components" applies to ABM-capable weapon systems and components regardless of the technologies these employ. It follows that it is a violation of Article V(1) of the ABM Treaty to develop or test 'exotic' ABM systems or components in mobile basing modes, including on satellites in Earth orbit.

4.2.2 When Is An Exotic ABM Device An "ABM Component"?

If one accepts the restrictive interpretation of "ABM systems and components", as we will do for the remainder of this thesis, one accepts the proposition that Article III prohibits the deployment of all non-traditional "ABM systems or their components", Article IV restricts the development and testing of "ABM systems or their components" to agreed test ranges, and Article V(1) prohibits the development, testing, and deployment of "ABM systems or components" in mobile basing modes. In order to be governed by the ABM Treaty, then, a non-traditional device must be classified as an "ABM component,"⁵⁴⁰ and the most clear-cut example of an 'exotic' or non-traditional ABM device is one that uses directed energy as the kill mechanism.

In the case of *traditional* ABM technology, the list of "ABM components" is short and relatively well-defined. Reading Article II(1) and II(2) together leads to the widely-accepted conclusion that the only parts of a traditional ABM system considered "ABM components" are "ABM launchers", "ABM missiles" and "ABM radars." In the case of non-traditional technologies, however, no such easily-applied list exists. Nor does the Treaty provide a definition of "ABM component" in the context of exotic ABM technologies. To what, then, does the ABM Treaty apply -- in the realm of non-traditional technologies such as DEWs -- when it refers to "ABM components"?

Logically, there are two ways in which a device that forms part of a weapon system can fail to be an "ABM component." First, it can be part of a weapon system that is not an "ABM system." Second, even if part of an "ABM system", it can be something other than a "component" of that system. We shall look at these in order.

⁵⁴⁰ The only Article of the Treaty that applies to devices other than "ABM components" is Article VI, which applies, by its own terms, to traditional technologies only.

4.2.2.1 When is a Weapon System an "ABM System"?

As we saw earlier in this chapter, under the restrictive interpretation of "ABM systems and components", the term "ABM system" is defined in Article II(1) by a functional test:

For the purpose of this Treaty an ABM system is a system to counter strategic ballistic missiles or their elements in flight trajectory...

Three problems arise with the application of this definition, the first two definitional, the third practical. The two definitional problems are these:

1. What is "a system *to* counter"? Is it a system *designed* to counter or a system *capable* of countering?
2. Which ballistic missiles are "*strategic* ballistic missiles"?

Evidently, the Soviets would have liked the Treaty to read "a system *designed* to counter", while the U.S. would have liked it to say "a system *capable* of countering", but agreement was never reached as to which of these meanings was carried by the Treaty phrase "to counter."⁵⁴¹ Similarly, no agreement was ever reached as to the meaning of "strategic": the Soviets have always argued that any ballistic missile capable of depositing its warhead on their homeland was "strategic", while the U.S. has always sought a definition based on a missile's range and destructive yield, regardless of its location vis-a-vis the adversary's homeland.

Most analysts treat the U.S. positions on these definitional questions as correct. The test of "ABM system" status in Article II(1) is treated as essentially a capability test – whether the system is *capable* of countering strategic ballistic missiles or their elements in flight trajectory. Similarly, a fairly good understanding of which ballistic missiles are considered "strategic" exists, in which the litmus test seems to be inclusion or exclusion from coverage by SALT II, which is based on *range*.

⁵⁴¹ OTA Workshop Report, *supra*, note 143, at 33.

Even if one accepts the above resolution of these definitional uncertainties, there remains the practical problem of determining by NTM which of the other Party's weapon systems are ABM-capable. As long as weapon systems are not tested against strategic ballistic missiles or their elements in flight, but against such targets as satellites and anti-satellite weapons, outsiders can never be certain whether ABM capability has been achieved. Consequently, no allegation of ABM capability can ever be conclusively substantiated in respect of any weapon system as long no testing against strategic ballistic missile targets occurs. SDIO claims treaty-compliant status for many SDI activities on the grounds that the targets involved will be satellites or ASATs.⁵⁴² Testing weapon systems in the ASAT, DSAT or ATBM modes is a perfectly legitimate activity under the Treaty, and does not constitute a violation even if mobile basing modes are used. As such, it constitutes a very important loophole whereby ABM components can be developed in mobile basing modes.⁵⁴³

Unfortunately, from the point of view of preventing the development of ABM systems in mobile basing modes, testing a system in the ASAT or DSAT modes is likely to (a) yield valuable information otherwise obtainable only through actual testing against ballistic missile targets and (b) produce a system with at least the appearance (and probably the reality) of some ABM capabili-

⁵⁴² The ASAT testing loophole is used in respect of SSTs, kinetic kill vehicle tests and the Space-Based Railgun experiment. (Chayes, et al., "Space Weapons: The Legal Context", *supra*, note 138, at 207) The DSAT loophole is used in respect of essentially all kill mechanisms to be based in space, such as SBKKVs and the Space-Based Railgun experiment. (See, generally, the *Compliance Appendix*, *supra*, note 149.)

⁵⁴³ In the words of Gerard Smith:

It is my understanding that the treaty says nothing about ASAT systems. I think that we could go to a full ASAT deployment and not violate the treaty. I think [it] may be considered a loophole.

(United States, Congress, Senate, Committee on Armed Services, Subcommittee on Strategic and Theater Nuclear Forces, *Department of Defense Authorization for Appropriations for FY85. Part 6: Strategic Defense Initiative*, Hearings, March-April-May 1984, 98th Cong., 1st Sess. (Washington, D.C.: USGPO, 1985), at 3066)

⁵⁴⁴ [T]here is very little difference, at least in theory, between the technology required to destroy a satellite that is travelling 17,000 miles an hour and that required to destroy an ICBM warhead that is travelling at 15,000 miles an hour. Indeed, in at least the American programme in the past, there has been a non-trivial degree of technological

ty.⁵⁴⁴ If the development of ABM-capable DEWs during tests against targets *other than* strategic ballistic missiles is to be avoided, the Parties will have to agree to limit DEW power levels in such tests.⁵⁴⁵

Since "ABM system" status flows from ABM capability, it is not surprising that a number of SDI activities are justified, *inter alia*, on the grounds that the devices to be tested will not possess such a capability.⁵⁴⁶ In the case of some DEWs, for example, the power achievable by the directed

heritage from the ASAT to the ABM programme, and *vice versa*.

(John Pike, quoted in United Nations Non-Governmental Organizations Committee on Disarmament, "Preventing an Arms Race in Outer Space: A Symposium Held at United Nations Headquarters, 26 January 1984 [abridged transcript]", 7:2 *Disarmament* 55, at 75 (hereinafter *U.N. NGO Symposium*))

This overlap applies not only to kill mechanisms, but to other weapon components as well:

The other weapon system components, such as surveillance, acquisition, tracking, pointing, damage assessment and attack assessment technologies, which are being developed for space-based ASAT systems and many ground-based systems are either directly applicable to BMD systems or contribute to the technologies necessary to make space-based BMD possible.

(D. Kerr, "Implications of Anti-Satellite Weapons for ABM Issues", in B. Jasani (ed.), *Space Weapons -- The Arms Control Dilemma* (London: Taylor and Francis, 1984), 107, at 121 (hereinafter "ASATs and ABM Issues" and *Arms Control Dilemma* respectively))

One specific example of this would be the testing of orbiting laser pointing and tracking devices to track *satellites*. This activity would not violate the Treaty, even though it could be useful in reducing "beam jitter" in components for space-based BMD systems. (Jones, "Space-Based BMD Lasers", *supra*, note 123, at 46)

DSAT tests may be even more useful in yielding information relevant to space-based BMD systems, since "the difference between ASATs [the targets of DSAT tests] and ballistic missiles in this context is slight." (Position attributed to Tom Longstreth, John Pike and Representative George Brown in Smith, "Star Wars Tests", *supra*, note 137, at 31)

⁵⁴⁵ John Rhinelander, quoted in *Arms Control Today*, November 1986, at 5:

You've got to translate the concept of ABM-capable to new technology.

We didn't address these issues with the Soviets in 1972. That is the fundamental unaddressed question under the ABM Treaty. There's a lot of leeway. There's a lot of elasticity. And that's where the attention ought to be now.

If we and the Soviets begin to address it, we're going to have to take it technology by technology, and look at the capability of each one. For example, a laser up to 'this' level of capability in space is okay because it's not ABM capable. But neither government is really addressing it.

energy source is to be limited to a level at which the countering of strategic ballistic missiles supposedly cannot take place.

The use of a capability- or power-limitation defence against a charge that a given weapon system test involves an "ABM system" is unobjectionable as long as the targets involved are other than strategic ballistic missiles or their elements in flight trajectory, i.e. as a companion defence to the claim that the targets are tactical ballistic missiles, satellites, or ASATs. However, some recent remarks of then-SDIO Director General Abrahamson suggest that such a defence may also be pleaded *in respect of tests involving strategic ballistic missile targets*.⁵⁴⁷ To use the capability- or

⁵⁴⁶ The Reagan Administration has made this claim in respect of several experiments in the SDI, including

1. SSTS (see above quotation);
2. ALPHA/LAMP/LODE ("... using devices incapable of achieving ABM performance levels ..." – *Compliance Appendix, supra*, note 149, at B-6);
3. the experiment integrating a HEL and optical devices ("The power, optics, and laser frequency are not compatible with atmospheric propagation at ranges useful for ABM applications." – *Id.*, at B-7);
4. BSTS ("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." – *Ibid.*);
5. Acquisition, Tracking and Pointing (ATP) ("These devices will also not be capable of achieving ABM performance levels." – *Ibid.*);
6. the "Ground-Based Laser Uplink" experiment ("The testing mode and capabilities are below the power level and beam quality required for a ground-based laser ABM weapon..." – *Ibid.*); and
7. the Space-Based Railgun Experiment ("Specific performance parameters ... will be established to satisfy Treaty compliant guidelines." – *Id.*, at B-8).

⁵⁴⁷ See, for example, statements of General Abrahamson that "we can do testing, provided it is not *fully* ABM capable..." and that the ABM Treaty precludes certain tests in mobile basing modes "in the ABM mode, *fully capable* ABM mode." (United States, Congress, Senate, Committee on Armed Services, Subcommittee on Strategic and Theater Nuclear Forces, *Department of Defense Authorization for Appropriations for FY86. Part 7: Strategic and Theater Nuclear Forces*, Hearings, February-March 1985, 99th Cong., 1st Sess. (Washington, D.C.: USGPO, 1986) at 4051; emphasis added (hereinafter *FY86 DoD Authorization Hearings, Part 7*))

power-limitation defence in this way is, it is submitted, impermissible. As Chayes *et al.* note,

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.⁵⁴⁸

This principle – that the success or failure of a test undertaken against a strategic ballistic missile target cannot be the determinant of whether development and testing of an ABM system is going on – is supported by the *Compliance Appendix* in the context of traditional ABM components, when it notes that “an interceptor missile is considered to be ‘tested in an ABM mode’ if it has *attempted to intercept (successfully or not)* a strategic ballistic missile or its elements in flight.”⁵⁴⁹

The “tested in an ABM mode” test is intended to skirt the problem of determining whether nominally non-ABM devices have achieved ABM capability for the purposes of Article VI(a), by in effect *deeming* any weapon system components tested against strategic ballistic missile targets (or, *per* the U.S. unilateral statement, against targets with flight trajectories similar to those of strategic ballistic missiles) to be “ABM components.” However, as mentioned, the “tested in an ABM mode” test only appears in Articles II(1) and VI(a), where, in both cases, it clearly applies to *traditional* ABM systems and components only.

Some commentators have nonetheless applied the “tested in an ABM mode” test *directly* to devices other than missiles, launchers or radars.⁵⁵⁰ It is submitted that it is incorrect to do so. The

⁵⁴⁸ “Space Weapons: The Legal Context”, *supra*, note 138, at 205; emphasis in original.

⁵⁴⁹ *Compliance Appendix*, *supra*, note 149, at B-5; emphasis added.

⁵⁵⁰ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 43:

If tested in an ABM mode, SSTS would be inconsistent with Article VI(a) of the Treaty... [Emphasis added]

SSTS is to use optical sensors rather than radar. Thus, it cannot be an “ABM radar” within the meaning of Article II(1). Nor can it be subjected to the provisions of Article VI(a), since it is not a “radar.”

Compliance Appendix does not treat the "tested in an ABM mode" test as directly applicable to non-traditional devices. Instead, it proposes to apply it only "by analogy to the requirement for interceptors, launchers and radars."⁵⁵¹ It is submitted that this is the proper interpretation, but that nothing in the Treaty language compels even this indirect application of the "tested in an ABM mode" or "ABM capability" tests. Consequently, the deeming effect of testing a device "in an ABM mode" cannot be relied upon to skirt the problem of determining the presence or absence of ABM capability in the case of devices other than launchers, interceptor missiles and radars.

4.2.2.2 Which Elements of "ABM Systems" are "ABM Components"?

Not all elements of "ABM systems" are "ABM components." This was expressly recognized in the negotiating record in respect of devices labelled "adjuncts" to ABM components. It can also be inferred from the fact that Article II appears to regard "ABM launchers," "ABM interceptor missiles" and "ABM radars" as the *only* "components" of traditional ABM systems, even though these were not the only elements of such systems.

See also Jones, "Space-Based BMD Lasers", *supra*, note 123, at 45:

[T]he Treaty... would not restrict development, testing and deployment of space-based lasers as antisatellite [weapons]..., *so long as they were not "tested in an ABM mode"*.
[Emphasis added]

See also *id.*, at 62-3, where it is contended that the U.S. unilateral statement on "tested in an ABM mode" would preclude the testing of space-based *lasers* against IRBM targets because it covers targets with flight trajectories similar to strategic ballistic missiles. Laser weapons would have to be characterized as either "missiles" or "launchers" in order for the "tested in an ABM mode" test to apply to them.

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In this assessment many of the SDI devices do not use traditional technology, but are "based on other physical principles" (such as lasers). In these cases they were reviewed by considering their capability to substitute for traditional ABM components, *whether they will be tested in an ABM mode by analogy to the requirement for interceptors, launchers and radars*, and the intended use of the device in the experiment.

(*Compliance Appendix*, *supra*, note 149, at B-6)

Two reasons suggest themselves for why so few traditional ABM system elements were given regulated "ABM component" status. First, many elements – such as computer hardware and software – are inherently susceptible to clandestine development, testing and deployment and/or are too small to be reliably monitored by NTM. Second, other elements – such as rocket engines – although perhaps monitorable by NTM, have many uses aside from ABM applications and therefore could not be restricted without unduly limiting their use in these other capacities. In other words, they had a generic quality; they were not uniquely or even primarily associated with ABM systems.

It follows that ABM Treaty Parties may openly develop and test computer hardware and software or test-fire rockets for ABM applications. Since these cannot be "ABM components" within the meaning of the Treaty, the Treaty does not constrain their development, testing or deployment, as long as sub-components are not combined such that the aggregate constitutes an ABM component.

What indication does the Treaty give of the kind of device that should be considered an "ABM component" when the technology is non-traditional? The test suggested by many is the "substitution test" – whether an exotic device can substitute for a traditional ABM component. The failure of various devices slated for SDI testing to pass the substitution test is cited by SDIO's *Compliance Appendix* as a factor relevant to their compliance with the ABM Treaty.⁵⁵² The substitution test has also been recognized by non-governmental commentators, including those critical of SDI.⁵⁵³

⁵⁵² The substitution test has been expressly invoked to justify BSTS ("The BSTS experimental device will be limited in capability *so that it cannot substitute for an ABM component...*" – *Compliance Appendix, supra*, note 149, at B-7; emphasis added), SSTs ("The capabilities of any demonstration [SSTs] satellites will be significantly less than those necessary to achieve ABM performance levels *or substitute for an ABM component.*" – *Ibid.*; emphasis added) and AOS/AOA ("The AOA experimental device... *will not be capable of substituting for an ABM component* due to sensor and platform limitations." – *Ibid.*; emphasis added).

⁵⁵³ The test applied to identify a new kind of 'component' is whether it is 'capable of substituting for' the 1972-era components mentioned in Article II.

(Sherr, "New Interpretation", *supra*, note 222, at 73)

The substitution test is applied to the identification of *exotic* ABM components because it appears in Agreed Statement D, which governs

... ABM systems based on other physical principles *and including components capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars...*⁵⁵⁴

It may be doubted, however,

1. whether the Treaty language justifies its use as the definition of an exotic "ABM component" and
2. if this *is* a correct use of the test, whether it is proper to apply it at the *development and testing* stage, and to devices in *all* basing modes, or just to the *deployment* of *fixed, land-based* components.

On the first question, an examination of the language of Agreed Statement D shows the substitution test to be applicable, strictly speaking, to devices *that have already been found to be "components" of "ABM systems"*:

John Rhinelander also seems to recognize the substitution test:

... The issue that neither side appears to be addressing is: what is a "component"? There are two aspects to this question of developing and testing. If you say 'it' is prohibited once 'it' reaches the field testing stage, the question is: What is 'it'? Now, with respect to the traditional kind of technology we were dealing with in the 1960's, the 'it' was the ABM radars, the ABM interceptor missiles and the ABM launchers. We never did discuss with the Soviets during SALT I what the word "component" means when you move to new kinds of exotic technologies: lasers, particle beams, etc.

I have my own rule of reason as to what 'it' ought to be. Everybody else can come up with a rule of reason. But there is no agreement between the U.S. and the Soviets. A lot of the scheduled SDI tests between now and the next four or five years raise questions, but there is no clear line at all, because we didn't discuss this issue *except for the general formulation that 'it' is a device which substitutes for a traditional component.*

(Statement of John B. Rhinelander at a press conference on 15 October 1986, quoted in *Arms Control Today*, November 1986, at 3; emphasis added)

⁵⁵⁴ Emphasis added.

... [T]he Parties agree that in the event that *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.⁵⁵⁵

This suggests that the substitution test was intended to be an *additional* test, applied to devices *already* found to be "components" of "ABM systems based on other physical principles", to determine *which* of these may lawfully be fielded as part of an Article III deployment. In other words, the substitution test, according to the language of Agreed Statement D, should be regarded not as a test of which exotic devices are "ABM components," but of which "ABM systems based on other physical principles" are governed by Agreed Statement D: those which include "components capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars" *are* governed by the provision; those which do not are not.

Even if the substitution test is the correct test of "ABM component" status for exotic ABM devices, this is only the case when the issue is the lawfulness of a prospective *deployment* of a *fixed, land-based* ABM device.⁵⁵⁶ The purpose of Agreed Statement D, according to its first clause, is to "insure fulfillment of the obligation not to *deploy* ABM systems and their components except as provided in Article III..."⁵⁵⁷ Since the only permissible Article III deployments are fixed and land-based, Agreed Statement D and its substitution test arguably apply to fixed, land-based ABM devices only.

⁵⁵⁵ Emphasis added.

⁵⁵⁶ Jones, "Space-Based BMD Lasers", *supra*, note 123, at 49.

⁵⁵⁷ Emphasis added.

4.2.2.2.1 'Stand Alone' Substitution

Assuming, as most commentators do, that the substitution test defines "ABM component" status for exotic ABM devices, it must still be determined what substitution means. Is an exotic ABM device an "ABM component" if it can substitute fully for more than one traditional ABM component, or must it substitute for only one in order to qualify? What if it performs all the functions of one traditional ABM component and, in addition, some, but not all, of those of another? What if two or more devices perform all the tasks of one traditional ABM component?

Many in the Reagan Administration argued that a device is not an "ABM component" unless it is able to perform *all* the functions of *one* traditional ABM component.⁵⁵⁸ This perfect overlap of function is known as substitution on a 'stand alone' basis.

Use of the 'stand alone' substitution test to determine whether an exotic ABM device is an "ABM component" has been challenged on the grounds that it would frustrate one of the Treaty's purposes – preventing the development of mobile ABM systems that could form the basis of a nation-wide ABM deployment. It would virtually guarantee most significant exotic ABM devices immunity from the Treaty's restrictions because the systems of which they form a part are unlikely to allocate functions in the same way as traditional ABM systems.⁵⁵⁹ One should not be able to avoid

⁵⁵⁸ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 29), who say that many in the Reagan Administration argued that a device is not 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... [For example,] 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".*

(Emphasis added)

⁵⁵⁹ Chayes, et al., "Space Weapons: The Legal Context", *supra*, note 138, at 203-5.

the strictures of the Treaty merely by effecting a division of labour different from that found in traditional ABM systems, and then developing and testing system elements separately. The very purpose of making provisions such as the Article V(1) prohibition on mobile development and testing applicable to "systems or components" was to make it clear that they could not be circumvented by simply taking ABM systems apart and testing each element on its own. As Chayes *et. al* point out:

[i]t would be ironic if this prohibition [Article V(1)] could be evaded simply by disaggregating the system along different axes than those of the original system...⁵⁶⁰

An early description of the substitution test is given by John Rhinelander in a chapter of a 1974 book. It strongly suggests that substitution need not be on a 'stand alone' basis, but that the test can be met by more than one exotic device performing the functions of a single traditional ABM component, noting that a space-based sensor could be an "ABM component" if, "*coupled with land-based components*, [it] was capable of substituting for one or more current ABM components."⁵⁶¹

⁵⁶⁰ *Ibid.* They continue, with specific reference to the Acquisition, Tracking and Pointing experiment:

ATP alone... 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.

Skepticism about the scope of the 'stand alone' substitution test has been voiced by others as well. In connection with BSTS, McGeorge Bundy, George F. Kennan, Robert McNamara and Gerard Smith have commented:

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"*.

(M. Bundy, et al., "The President's Choice: Star Wars or Arms Control" (1984), 63 *Foreign Affairs* 264, at 274 ; emphasis added (hereinafter "The President's Choice"))

⁵⁶¹ J.B. Rhinelander, "The SALT I Agreements", chapter 5 of M. Willrich and J.B. Rhinelander (eds.), *SALT: The Moscow Agreements and Beyond*, at 134; emphasis added.

If the land-based components referred to are other *sensors*, such as ABM radars, this passage is a repudiation of the 'stand alone' substitution test; it would mean that the space-based sensor postulated, in order to be an "ABM component," need only be able to substitute for an ABM radar *when combined with other sensors*. It would not have to be able to do so *on its own*. If, instead, the land-based components referred to are *non-sensor* components, then the statement is consistent with 'stand alone' substitution. However, it seems doubtful that this is the case.⁵⁶²

The 'stand alone' substitution test has nonetheless been applied by the U.S. Administration to forthcoming SDI development and testing projects. The ATP and AOS experiments have both been defended, *inter alia*, on the grounds that the devices tested will not be "ABM components" (or prototypes or breadboard models thereof), but mere subcomponents or adjuncts.⁵⁶³ AOS appears to have been characterized as a subcomponent on the ground that it does not perform the full range of sensor and battle management functions, as an "ABM radar" supposedly does.

This judgment has been roundly criticized. Longstreth *et al.* point out that ABM systems utilizing only one kind of sensor component (such as an ABM radar) are the exception and not the rule. For instance, the early U.S. "Nike-Zeus" ABM system had *four* separate types of radar. Moreover, AOS would perform a similar function in a future ABM system to that performed by prime-

⁵⁶² The passage contemplates the space-based sensor coupled with land-based components substituting for *one* "current ABM component." This strongly suggests that the land-based components referred to are other *sensors*. A space-based sensor coupled with "land-based components" could only substitute for *one* "current ABM component" *if that current ABM component were an ABM radar and the land-based component were another sensor*. See also *Id.*, at 128, where the need for a one-to-one correlation is again negated:

The future systems ban applies to devices which would be capable of substituting for *one or more* of the three basic ABM components... [Emphasis added]

⁵⁶³ Of the former, the *Compliance Appendix* says: "If conducted, these experiments will use technologies which are only part of the set of technologies ultimately required for an ABM component." (at B-6 to B-7). As for the Airborne Optical System (AOS), it was renamed the Airborne Optical *Adjunct* (AOA) for the apparent purpose of attaching a label more conducive to a finding that the device is not an ABM component.

ter acquisition radars (PARs) in the traditional U.S. "Sentinel/Safeguard" ABM system.⁵⁶⁴ These PARs were clearly considered "ABM components" when the Treaty was being negotiated.⁵⁶⁵

4.2.2.2.2 "Adjuncts" to ABM Systems

The negotiating record and ratification hearings make it clear that certain devices are to be classified as "adjuncts" to ABM systems and not as "ABM components."⁵⁶⁶ One example of an adjunct mentioned in the negotiations was a small optical telescope used in conjunction with an ABM radar to provide, for example, assistance in calibrating the radar.⁵⁶⁷

⁵⁶⁴ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 29.

⁵⁶⁵ United States, Congress, House, Committee on Foreign Affairs, Subcommittee on Arms Control, International Security, and Science, *Implications of the President's SDI and Antisatellite Policy*, Hearings, April-May 1985, 99th Cong., 1st Sess. (Washington, D.C.: USGPO, 1985), at 72 (testimony of Thomas K. Longstreth, Associate Director, Research and Analysis, Arms Control Association) (hereinafter *1985 SDI and ASAT Policy Hearings*). As a result, the Longstreth *et al.* report concludes, unlike the Reagan Administration's *1985 SDI Report*, (*supra*, note 149) that AOS would be an ABM component. (at 43) A similar assessment is made of SSTs. (*Ibid.*)

⁵⁶⁶ For example:

Devices other than ABM interceptor missiles, ABM launchers, or ABM radars could be used as adjuncts to an ABM system, provided that such devices were not capable of substituting for one or more of these components.

(Letter of Transmittal, *supra*, note 530, at 126)

A laser could be used as part of an auxiliary designator system but it could not be used in substitution for the prime detector, that is, the ABM radar, or interceptor missile component...

You can use lasers in connection with our present land-based *Safeguard* system provided that such lasers augment, or are in addendum to current ABM components. Or in other words, you could use lasers as an auxiliary piece of equipment but not as one of the prime components either as a radar or as an interceptor to destroy the vehicle.

(1972 Senate Armed Services Hearings, *supra*, note 135, at 222 and 275 (testimony of Dr. Foster; emphasis added)

⁵⁶⁷ Longstreth, et al., "The Impact of BMD Programs on the ABM Treaty", *supra*, note 136, at 24-5. Also:

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.

These approved examples of "adjuncts," however, show how incidental a device was supposed to have been before it could escape classification as an "ABM component." Small optical telescopes to calibrate ABM radars and lasers used as auxiliary target designators are much less significant than BSTS, SSTS, AOS and other devices for which sub-component status is claimed.

4.2.2.3 Conclusions Regarding Exotic "ABM Component" Status

Although one can formulate a reasonable judgment as to what constitutes an exotic "ABM component," it would be difficult to put it forward without equivocation. The fact of the matter is that the Parties to the ABM Treaty appear to have failed to agree on the matter.⁵⁶⁸ In this atmosphere of uncertainty, all manner of planned tests of technologies relevant to BMD are characterized as "experiments" and "demonstrations" of "sub-components" and "adjuncts" of weapon systems with no ABM capability.⁵⁶⁹ Some of these claims are undoubtedly legitimate. However, self-serving char-

(1985 SDI and ASAT Policy Hearings, *supra*, note 565, at 45 (testimony of John B. Rhinelander; emphasis added)

See also R. Garthoff's correspondence to *International Security*, *supra*, note 253, at 108, where it was asserted that the language of Agreed Statement D

was crafted to allow, for example, laser adjuncts to other components for missile detection or ABM missile guidance but to bar lasers as interceptors or as substitutes for radars.

⁵⁶⁸ See statement of John Rhinelander, *supra*, note 553. See also Longstreth, et al, *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 24-5 where the authors maintain that the difference between a "component" and an "adjunct" has never been agreed to either (a) in the 1972 negotiations leading to the Treaty, (b) in any subsequent authoritative statement or (c) in the Standing Consultative Commission.

⁵⁶⁹ An example of a statement that painstakingly avoids the use of the words "development," "testing" or "component" in describing SDI development projects is one by former Presidential Science Advisor Keyworth, who stated that SDI

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

acterizations of insignificance, impotence or benign intent should not be permitted to effectively prevent the Treaty from governing non-traditional ABM systems.⁵⁷⁰

What would a reasonable judgment as to "ABM component" status look like? It is submitted that any element of a weapon system, where either that element or the system as a whole has been tested – successfully or not – against real or simulated strategic ballistic missile targets in flight trajectory, should be regarded as an "ABM component" *if* it is large enough and visible enough in the development, testing or deployment states to be monitored by NTM.⁵⁷¹ This would amount to an adoption of the "tested in an ABM mode" test as a guideline, without according it direct applicability to exotic systems.

4.2.3 Ground-Based Lasers and Orbiting Mirrors: "Space-Based ABM System"?

The question is sometimes raised whether an ABM system whose kill mechanism is a ground-based high energy laser redirected by orbiting mirrors, but which has no other orbiting elements, is a "space-based" system.⁵⁷² As it turns out, the answer depends not on the meaning of "space-based"

but in and of themselves would not constitute a weapon system.

(Quoted in L. Sigal, "Antisatellite Accord Key to Summit", *Bull. Atom. Scientists* October 1985, at 18; emphasis added)

⁵⁷⁰ As John Rhinelander puts it:

The basic legal position of the Administration's SDI Report... 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 and testing of "ABM components" ... is factually suspect and legally questionable.

(1985 SDI and ASAT Policy Hearings, *supra*, note 565, at 64 (testimony of John B. Rhinelander); emphasis in original)

⁵⁷¹ See Sherr, "New Interpretation", *supra*, note 222, at 73, his n. 5, where this verifiability test is suggested.

⁵⁷² This question is raised by J. Goldblat, "New Means of Ballistic Missile Defence: The Question of

but on that of "ABM component," and specifically on whether the mirrors (which are clearly space-based if orbited) are "ABM components."

The outcome of this latter question determines whether the system as a whole can be termed "space-based" because the system postulated has no other space-based components. Presumably, a system cannot be "space-based" unless at least one of its *components* is. Therefore, unless the orbiting mirrors are "ABM components," the system as a whole cannot be "space-based."

More importantly, however, there is no need to decide how the *system* is based. Article V(1) bans testing of mobile ABM *components* as well as ABM *systems*. Therefore, the development, testing or deployment of the mirror alone (if found to be an "ABM component") would violate Article V(1), and the issue of whether the system is "space-based" would never be reached.

What is the answer to *this* question? Can an orbiting mirror be an "ABM component"? Longstreth *et al.* are noncommittal; they say only that orbiting mirrors "could raise concerns" about compliance with Article V(1).⁵⁷³

If one accepts the 'stand alone' substitution test, of course, a mirror cannot, by itself, be an "ABM component." It cannot substitute for an "ABM interceptor missile" on its own because an interceptor's main function is the direct deposition of destructive energy on the target. A mirror does not perform this function; the laser beam does. Neither does a mirror seem capable of substituting fully for an "ABM launcher," which, by definition (Article II(1)), must launch "ABM interceptor missiles," which laser beams clearly are not.

Legality and Arms Control Implications" (1984), 5 *Arms Control* 176, at 177. In reality, such a system is likely to require orbiting sensors as well.

⁵⁷³ *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 49.

If one *rejects* the 'stand alone' substitution test, as this thesis does, and instead adopts a verifiability test, a different conclusion is reached. Orbiting mirrors of sufficient size to be useful in an ABM role would most likely be large enough and visible enough to be monitored by NTM. Even with the potential combination of (a) mirrors of relatively small diameter for DEWs of lower wavelengths and (b) folding mirror designs, mirrors could probably be recognized as such, at least in LEO.

Some scenarios envision mirrors in GSO as well, however. These create uncertainties of monitoring that make it difficult to state unequivocally that even a verifiability test would be passed.

We are therefore unable to conclude with certainty that ABM-capable orbiting mirrors should be regarded as "ABM components." However, if 'stand alone' substitution is rejected as an unduly exclusive test of "ABM component" status, a strong case can be made that they should be.

CHAPTER 5

EXISTING INTERNATIONAL LEGAL CONSTRAINTS ON WEAPON SYSTEM SENSORS

In Chapter 1 we examined the international law pertaining to non-weapon space activities such as photoreconnaissance, communications and navigation. We found that there was no international legal constraint on these activities when carried out in Earth orbit or in orbit around a celestial body. However, the clause in Article IV(2) of the Outer Space Treaty dealing with the establishment of "military bases, installations and fortifications" was judged likely to prohibit the deployment and operation of reconnaissance or other non-weapon military equipment on the surface of the moon and other celestial bodies in most cases.

All of the above is also true of sensors directly used as components of weapon systems, such as satellite-borne infrared sensors used to guide ASATs or BMD interceptors. In addition, one could argue that Article IV(2) also prohibits the *testing* of weapon system sensors on the ground that this constituted the testing of a "weapon" on a celestial body in violation of Article IV(2). It may be, however, that the word "weapon" should be interpreted to mean kill mechanisms only.

In order to find international legal constraints on the testing and deployment of weapon system sensors in Earth orbit, one must look to the ABM Treaty. It imposes certain restrictions on sensor devices when these constitute "ABM components" within the meaning of the Treaty. These limitations are made up largely of detailed qualitative and quantitative limitations on radars that may be deployed under the terms of the Treaty. Many apply to land-based radars of a "permanent fixed type." Because we are addressing military uses of *outer space*, we will not concern ourselves with these provisions but only with those affecting weapon sensors physically introduced into space in some manner. This includes the following:

1. radars placed into Earth orbit;
2. radars launched into sub-orbital trajectories;
3. *non*-radar sensors (e.g. infrared sensors) placed into Earth orbit, and
4. *non*-radar sensors launched into sub-orbital trajectories.

5.1 Radars in Earth Orbit

For ABM Treaty purposes, radars can be of two kinds. They can be "ABM radars" or non-ABM radars. Non-ABM radars include (a) those that have been previously developed, tested or deployed for a military mission other than the ABM mission (such as the radar ocean reconnaissance satellites (RORSATs) the Soviet Union has orbited for a number of years), (b) those that have performed civilian missions such as remote sensing of Earth resources and (c) any new types that have yet to be developed for any particular purpose. What does the ABM Treaty have to say about the development, testing and deployment of "ABM radars" and non-ABM radars placed into Earth orbit?

Let us consider non-ABM radars first. In Article VI(a), each Party undertakes, *inter alia*, not to give... radars, other than... ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory or test them in an ABM mode.

Since it says nothing about basing modes, Article VI(a) must be taken to apply to radars in all basing modes, including those in Earth orbit. Thus, Article VI(a), taken at face value, prohibits giving non-ABM radars in Earth orbit an ABM capability or testing them in an ABM mode.

We refer to taking Article VI(a) "at face value" because an alternative view of that provision is that, despite its clear wording, it does not *prohibit* giving non-ABM radars ABM capability or testing them in an ABM mode, but only *deems* radars so treated to be "ABM radars" (and hence "ABM components")⁵⁷⁴ so that the various Treaty provisions governing "ABM radars" and "ABM

⁵⁷⁴ Paragraphs 1 and 2 of Article II, read together, make it clear that an "ABM radar" is also an "ABM

components" apply from that time on. Under this interpretation, it is still a Treaty violation to give non-ABM radars ABM capability or test them in an ABM mode if those radars are in Earth orbit, because such radars are then deemed to be "ABM radars," and hence "ABM components," and Article V(1) bans the development, testing or deployment of space-based "ABM systems or components."

What about "ABM radars"? As we have just seen, Article V(1) prohibits the development, testing or deployment of acknowledged "ABM radars" (for instance, ones that have been deployed on the Earth's surface as part of an Article III ABM deployment) if they can be shown to be "space-based." Because the mere presence of an "ABM component" outside a laboratory constitutes "development" of that component,⁵⁷⁵ the placement of an acknowledged "ABM radar" into Earth orbit would constitute prohibited development of a space-based ABM radar even if no testing were carried out against strategic ballistic missile targets. *A fortiori*, testing and deployment of ABM radars in Earth orbit is also prohibited.

When, though, is a radar considered an "ABM radar"? One way is through the possible deeming effect of Article VI(a). The other way is through the operation of Article II(1)(c). This defines "ABM radars" as "radars constructed and deployed for an ABM role, or of a type tested in an ABM mode." Therefore, a radar need only be of a type tested in an ABM mode in some other location (say, in a fixed, land-based location) in order for its mere placement into Earth orbit to be a violation.

component." Article II(1) lists "ABM radars" as one of the elements of which ABM systems "currently" consisted in 1972; Article II(2) refers to the "ABM system components listed in paragraph 1 of this Article," meaning, *inter alia*, "ABM radars."

⁵⁷⁵ See *supra*, Section 2.2.1.

To summarize:

1. A radar becomes an "ABM radar" as soon as it is either "constructed and deployed for an ABM role" or "tested in an ABM mode" (Article II(1)(c)). Therefore, a radar of a type to which either of these phrases applies cannot lawfully be developed, tested or deployed in Earth orbit (Article V(1)). The development prohibition means that such a device violates Article V(1) as soon as it is placed into orbit.
2. A radar that cannot be labelled an "ABM radar," since it has not been engaged in any ABM activity, may lawfully be placed into Earth orbit. However, it violates either Article VI(a) or V(1) as soon as it is given "capabilities to counter strategic ballistic missiles or their elements in flight trajectory" or is "tested in an ABM mode."

5.2 Radars in Sub-Orbital Trajectories

All of what was said above applies to radars in sub-orbital trajectory as well, with one important exception. Whereas ABM components placed into Earth orbit are clearly subject to the Article V(1) ban on the development, testing and deployment of mobile ABM components (by virtue of their being undeniably "space-based"), those in sub-orbital trajectories may not be.⁵⁷⁶

It is arguable, however, that ABM radars in sub-orbital trajectories are prohibited by Article V(1) whether properly considered "space-based" or not. This is because of an agreement the Parties appear to have reached during the ABM Treaty negotiations, which the U.S. refers to as Common Understanding C. It consists of the following unilateral U.S. statement during the negotiations, and Soviet reply:

⁵⁷⁶ This issue will be considered below.

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 the 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.⁵⁷⁷

Presumably, a "permanent fixed type" of ABM component is one that does not move during the execution of its functions. A radar in sub-orbital trajectory, if used for ABM purposes, would move during the carrying out of its mission. Therefore, it must be considered to be other than of a "permanent fixed type." Common Understanding C thus shows apparent agreement in the ABM Treaty negotiations that the *deployment* of ABM radars capable of being launched into sub-orbital trajectories would constitute prohibited deployment of mobile ABM components.

One flaw in this reasoning is its reliance upon a "common understanding," a much less certain form of legal obligation than Treaty articles or even agreed statements. Whereas the language of the agreed statements was negotiated by the delegations and initialled by the delegation heads, just like the formal Treaty articles, the "common understandings" are nothing more than a culling from the negotiating record of what the Nixon Administration decided had been additional points of agreement not reflected in the Treaty text or agreed statements.

The uncertainty surrounding common understandings arises in two ways. First, because no language was formally agreed upon, it is more difficult to be sure exactly what the Parties agreed upon⁵⁷⁸ and questionable to rely upon the exact wording of statements made. Second, the common

⁵⁷⁷ . Emphasis added.

⁵⁷⁸ For instance, Common Understanding C consists of a detailed U.S. statement made during the negotiations on 29 January 1972, together with a Soviet statement on 13 April 1972 that "there is a general

understandings do not enjoy the binding force of Treaty articles or agreed statements, being one side's interpretation of the negotiating record, and not agreed "provisions" of the Treaty.

If one accepts the negotiating exchange in Common Understanding C as establishing an agreement to limit deployed ABM radars to "permanent fixed types," it becomes possible to argue that the *development and testing* of an ABM radar in sub-orbital trajectory constitutes development and testing of a mobile ABM radar in violation of Article V(1). This is a more difficult case to make than the one against *deployment* in sub-orbital trajectories because the U.S. statement in Common Understanding C refers to *deployment* only. Nevertheless, if "a prohibition on deployment of mobile ABM systems and components would rule out the deployment of ABM launchers and radars which are not permanent fixed types," it would seem to follow logically that a prohibition on the *development and testing* of mobile ABM systems and components would rule out the *development and testing* of ABM launchers and radars that are not permanent fixed types. Therefore, it is submitted that the conclusions reached concerning radars in Earth orbit should apply equally to those in sub-orbital trajectories.

5.3 Non-Radar Sensors in Earth Orbit

Non-radar sensors receive different treatment than radars. Article VI(a) (which, as we have seen, either prohibits the giving of ABM capability to non-ABM radars and testing them in an ABM mode or, alternatively, deems radars so treated to be "ABM radars") *does not apply to non-radar sensors*. In addition, whereas Article II(1)(c) defines "ABM radars" as those "constructed and deployed for an ABM role, or of a type tested in an ABM mode," no provision defines exotic "ABM components" such as non-radar sensors. As a result, giving a non-radar sensor ABM capability, testing it in an ABM mode or constructing and deploying it for an ABM role does not automatically result in its being considered an "ABM component," like it does with radars.

common understanding on this matter." This leaves a lot to be desired in terms of binding the U.S.S.R. to the exact wording of the U.S. statement.

How one decides when a non-radar sensor is an "ABM component" has already been discussed in detail in the context of exotic ABM devices generally.⁵⁷⁹ There it was concluded that any weapon system element large enough and visible enough to have its development, testing and deployment monitored by NTM should be considered an "ABM component" once either the element or the system as a whole has been tested (successfully or not) against a strategic ballistic missile target, but that much uncertainty attends this conclusion because of the Treaty's lack of clarity on the matter.

In the case of sensors, some additional test must be devised to distinguish between devices used for BMD acquisition and tracking and those used for early warning of strategic ballistic missile launch. Early warning satellites have for years used infrared sensing devices to monitor ICBM fields. These should not be considered "ABM components" if limited to the early warning role. However, improved early warning satellites could have some ABM capability and become indistinguishable from avowed BMD devices that also use infrared sensors, such as the Boost Phase Tracking System (BSTS). Until a specific technical dividing line is agreed upon, the task of distinguishing permitted early warning satellites from prohibited space-based sensor ABM components will not be possible.

Once a non-radar sensor is shown to be an "ABM component," however, the situation becomes clear. Its development and testing in Earth orbit is banned by Article V(1) and its deployment prohibited by Articles III and V(1).

⁵⁷⁹ See *supra*, Section 4.2.2.

5.4 Non-Radar Sensors in Sub-Orbital Trajectories

Non-radar sensors may not be deployed in sub-orbital trajectories once their status as "ABM components" is established. This is true regardless of how one characterizes their basing mode because Article III permits no deployment of non-traditional ABM components, which in the sensor field means anything other than radars.

This basing mode characterization issue is critical, however, in the case of the *development and testing* of such devices. Only if they are "sea-based, air-based, space-based or mobile land-based" is their development and testing prohibited by Article V(1).

Some would argue that non-radar sensors that can operate only in space and that need to remain there for the duration of their mission (i.e., gathering all their information) should be regarded as "space-based" even if not orbited.⁵⁸⁰ It is submitted that this interpretation is not supportable. There is no proof, in the absence of at least one full orbit, that objects in sub-orbital trajectories even *enter* "space" as this term is understood in the ABM Treaty or in international law generally, let alone that they are *based* there.

It is possible, however, to assert the unlawfulness of developing and testing non-radar ABM components in sub-orbital trajectories without arguing that such devices are "space-based." Such an assertion would be based in part on Common Understanding C, where the U.S. statement, it will be recalled, asserted that deployed "ABM launchers and radars" must be "permanent fixed types." This can be taken as evidence that the basing mode *permitted* by Article V(1) (commonly referred to by the non-Treaty term "fixed, land-based") differs in meaning not just as between "ABM launchers and radars" and "ABM interceptor missiles" (as the U.S. statement in Common Understanding C expressly states) but also between *all* ABM components that act as launchers and sensors, on the

⁵⁸⁰ Jones, "Space-Based BMD Lasers", *supra*, note 123, at 56, sets out this argument, but does not endorse it.

one hand, and those that act as interceptor missiles, on the other. In other words, although only "ABM radars" are expressly required by the agreement reflected in Common Understanding C to be "permanent fixed types," one can argue that the same requirement exists, by implication, for ABM-capable *non*-radar sensors as well.

There are three reasons why such an inference is justified. First, the central fact underlying Common Understanding C – that while interceptor missiles must be able to move in order to carry out their mission, launchers or radars can and do carry out theirs while anchored to the same fixed location on the surface of the Earth at all times – is no less true of non-radar sensors than it is of radars.

Second, the three rationales behind the mobile ABM ban apply just as strongly, if not more so, to devices in sub-orbital trajectory than to those in orbit.⁵⁸¹

⁵⁸¹ Schneiter, "The ABM Treaty Today", *supra*, note 151, at 227, lists as the concerns that brought about the mobile ban (a) the greater facility with which the number of deployed components can be counted when mobility is prohibited, (b) the relative vulnerability of immobile components to attack by offensive weapons, thus reducing ABM effectiveness and (c) the ability of mobile components to be moved from the defence of one set of targets to that of another.

As far as ease of counting deployed systems is concerned, sub-orbital components may be just as problematic as orbital ones. Once a capability to launch non-radar sensors into sub-orbital trajectories has been shown, NTM cannot reveal how many such devices are stored near launch sites ready for immediate launching. This makes them more akin to orbiting devices than permanent fixed ones, which may be reliably counted. In fact, an important compliance issue involves Soviet land-based radars that are allegedly transportable from one site to another. It makes little sense to prohibit the development of transportable radars but not that of non-radar sensors capable of being launched into sub-orbital trajectories.

ABM components capable of being fired into space on warning of missile attack are less vulnerable to offensive attack than permanent fixed ground-based sensors. In fact, because they do not follow predictable orbits, they may be less vulnerable than orbiting sensors, too. (In fact, doubt as to the survivability of orbiting BMD devices is the main reason 'pop-up' devices are seen as a more attractive option whenever it can be shown that they can get to their posts quickly enough to carry out their tasks in a timely fashion.)

Finally, whereas the targets that can be defended by a permanent fixed ground-based sensor such as a traditional ABM radar are both limited and unchangeable, and the coverage of a satellite-based sensor is determined by its fixed orbit, a sensor ready to be popped up into a sub-orbital trajectory can be sent to cover any one of a number of target sets, depending upon the direction in which it is sent.

Third, the wording of Common Understanding C suggests that "permanent fixed" is not a requirement placed on ABM launchers and radars *in addition to* that imposed by Article V(1) but a *clarification* of what Article V(1) already means. This leaves us freer to apply a general principle based on the difference between sensors and launchers on the one hand, and interceptor missiles on the other, to the meaning of "fixed, land-based" in Article V(1) than if the Common Understanding set out an *additional* basing requirement on "ABM launchers and radars" beyond that called for by Article V(1).

As was the case with radars in sub-orbital trajectories, this argument suffers from the dubious binding nature of common understandings.

In addition, the application of the "permanent fixed" requirement to non-radar sensors is not accepted by the weight of opinion of knowledgeable commentators. On the contrary, there is consensus that non-radar sensors launched into sub-orbital trajectories *can* be made to be 'fixed, land-based' by launching them from fixed, land-based launch pads. For instance, SDIO's *Compliance Appendix* had the following to say about the planned Long Wavelength Infrared (LWIR) Probe experiment, in which an LWIR sensor is to locate and track strategic ballistic missiles from a platform in a sub-orbital trajectory:

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.⁵⁸²

SDI critics Longstreth, *et al.*, do not consider whether LWIR sensors in sub-orbital trajectories may properly be characterized as fixed, land-based if fired from fixed, land-based launchers.⁵⁸³ Other commentators, however, clearly argue that they may.⁵⁸⁴

⁵⁸² *Compliance Appendix, supra*, note 149, at B-9; emphasis added.

⁵⁸³ *The Impact of BMD Programs on the ABM Treaty, supra*, note 136, at 42-44. They raise only the issue of whether U.S. plans to track Soviet ballistic missile tests with LWIR sensors launched from rockets based in Alaska would constitute the setting up of an additional ABM test range, for which agreement between the Parties would be a prerequisite.

⁵⁸⁴ Schneiter ("The ABM Treaty Today", *supra*, note 151, at 226) lists the following as a device whose

This being the case, and in view of the uncertainty of the application of Common Understanding C to non-radar sensors, we must conclude that no recognized prohibition against the development and testing of non-radar sensors in sub-orbital trajectory exists.

development and testing would be permitted under Article V(1):

a rocket-launched infrared probe, such as is being considered by the United States in its Overlay advanced exoatmospheric concept, *provided the probe's launcher is a fixed, land-based launcher*. [Emphasis added]

See also Smith, "Legal Implications", *supra*, note 78, at 63-65.

CHAPTER 6

CONCLUSIONS AS TO THE EXTENT OF EXISTING INTERNATIONAL LEGAL CONSTRAINTS ON THE MILITARY USE OF OUTER SPACE

Despite the existence of a number of multilateral and bilateral treaties dealing with peacetime military uses of outer space, the majority of such uses are free from clear limitations and prohibitions.

6.1 Non-Destructive Military Space Systems Including Weapon System Sensors

Non-destructive devices such as reconnaissance, communications and navigation satellites may be used for military purposes, if not with the implicit blessing of the Outer Space Treaty, then at least without explicit prohibition.

This seems to be the case even when these non-destructive devices constitute the sensor portion of weapon systems. Only in the case of the superpowers are there any restrictions on the development, testing or deployment of weapon system sensors. These flow from the ABM Treaty, and are limited, for the most part, to sensors that constitute "ABM components."

Weapon system sensors that can be shown to be "ABM components" are of two types: "ABM radars" and non-radar sensor ABM components. Neither may be developed or tested in sea-, air-, space- or mobile land-based configurations. (Article V(1)) This leaves as the only permissible basing mode for the development and testing of "ABM components" that which is referred to by the non-Treaty term "fixed, land-based."

In the case of ABM *radars*, *deployment* is also restricted to the fixed, land-based mode. *Non-radar* sensors that are "ABM components," however, may not be deployed at all, even if fixed and land-based. (Article III)

Because components that commence operations from a position in Earth orbit are indisputably "space-based," the development, testing and deployment of *any* orbiting "ABM component" (radar and non-radar alike) is clearly prohibited. (Article V(1))

Those in *sub*-orbital trajectories are not as easily classified. Common Understanding C appears to reflect an understanding of the Parties that ABM radars may not be deployed unless they are "permanent fixed types." Presumably, a component that is a "permanent fixed type" maintains uninterrupted physical contact with the same point on the surface of the Earth throughout the entire course of its lifetime. It follows that components in sub-orbital trajectories are not "permanent fixed types." Therefore, the *deployment* of "ABM radars" in sub-orbital trajectories is clearly prohibited.

The ABM Treaty is clear concerning the deployment of *non*-radar sensors as well, not because of Common Understanding C, but because "ABM components" that are non-radar sensors may not be deployed in *any* basing mode. (Article III)

The status of the *development and testing* of sensors in sub-orbital trajectories is more problematic. In the case of *ABM radars*, it is only logical to extend the scope of Common Understanding C to development and testing, although not uncontroversial. Non-radar sensors are more troublesome, since Common Understanding C expressly applies to "ABM launchers and radars" only. It was argued in Chapter 5 that it could be inferred from Common Understanding C that *all* sensors that are ABM components must be "permanent fixed types" before they can be lawfully developed and tested. The weight of informed opinion rejects this notion, however, and regards the development and testing of non-radar sensors in sub-orbital trajectories as Treaty-compliant.

The preceding analysis considers only acknowledged "ABM components." In practice, the more difficult problem is deciding *when* a device has become an "ABM component."

In the case of *radars*, two provisions aid in this determination. Article II(1)(c) defines "ABM radars" as "radars constructed and deployed for an ABM role, or of a type tested in an ABM mode." Article VI(a) prohibits non-ABM radars from being given "capabilities to counter strategic ballistic missiles or their elements in flight trajectory." Article VI(a) is treated by many not as an absolute prohibition against the activities it describes but as a provision whereby non-ABM radars (and launchers and interceptor missiles) are *deemed* to be "ABM radars" (and "ABM launchers" and "ABM radars," respectively).

These provisions are not devoid of ambiguity. Moreover, it may be difficult, as a practical matter, to ascertain by NTM alone whether a non-ABM radar has been given an ABM capability, or can be quickly converted so as to have such a capability. Nevertheless, these provisions make the determination of "ABM radar" status somewhat easier. The Treaty provides little help, however, in determining when non-traditional ABM devices such as non-radar sensors have become "ABM components." A test is suggested whereby any sensor large enough and visible enough to be monitored by NTM, and used to detect or track strategic ballistic missile elements in flight trajectory – successfully or not – should be considered an "ABM component." Many, however, consider that non-radar sensors should not be considered "ABM components" unless capable of carrying out the entire range of BMD battle management functions. This test, it is submitted, defines "ABM components" in an unduly restrictive fashion. However, if the test proposed in this thesis is accepted, some way of distinguishing between devices used for early warning of missile launch and those used for BMD acquisition and tracking must still be found. Some arbitrary technical capability level will have to be agreed upon as the dividing line if erosion of the Treaty is to be avoided in this area.

6.2 Conventional Weapons

Conventional weapons also seem unconstrained, for the most part, by multilateral treaty provisions. Some space law experts maintain that the Parties to the Outer Space Treaty never intended to authorize the testing or deployment of weapons in outer space. Many others, however, consider the Outer Space Treaty to implicitly authorize all activities it does not expressly prohibit. This would leave unconstrained the development, testing and deployment of any weapons other than "weapons of mass destruction" anywhere in space other than "on celestial bodies."

On celestial bodies it is clear that no weapons may be tested, although there is uncertainty as to what "on" celestial bodies includes, and what the definition of "weapon" is. It is arguable that no weapons may be *deployed* on celestial bodies either, however this conclusion relies upon the "non-military" interpretation of the peaceful purposes admonition, an interpretation not accepted by Western governments.

This means that ASAT development, testing and deployment that (a) does not involve the orbiting of mass destruction weapons or the detonation of nuclear explosive devices, (b) does not constitute the threat or use of force within the meaning of the U.N. Charter and (c) complies with Article IX of the Outer Space Treaty (i.e. does not cause "potentially harmful interference" with the lawful space activities of other States or, if it does, is carried out only after consultation with any such States),⁵⁸⁵ must be regarded as lawful (i) from the Earth's surface or from its atmosphere, (ii) in sub-orbital trajectories around the Earth, (iii) in Earth orbit and (iv) anywhere else in outer space other than on celestial bodies.

⁵⁸⁵ For the text of Article IX, see Appendix 4, *infra*.

In the case of the superpowers, the kinds of conventional weapon activities that may be carried out towards, from or within outer space are limited by the ABM Treaty. Under the restrictive interpretation of "ABM systems and components" (which was shown in Chapter 4 to be the correct interpretation of that term), conventional (or any other) weapons capable of countering strategic ballistic missiles or their elements in flight trajectory should be regarded as "ABM components." Consequently, their testing, development and deployment in mobile basing modes against strategic ballistic missile elements should be regarded as prohibited by Article V(1).

It is submitted that the prohibition against mobile-based ABMs applies to ABM components comprised of conventional weapons affixed to platforms in sub-orbital trajectories, at least where the former makes an independent powered flight to the target along a trajectory significantly different from that of the latter.

It is also submitted that conventional – including kinetic energy – weapons capable of countering strategic ballistic missiles or their elements in flight trajectory should be regarded as "ABM interceptor missiles" within the meaning of Article II(1) of the ABM Treaty, and that this is the case regardless of the presence of on-board non-radar guidance sensors. Consequently, their development and testing is permitted as long as it takes place in agreed test ranges and does not involve (a) interceptor missiles with more than one independently-targetable warhead, (b) launchers capable of launching more than one interceptor missile at a time or of being rapidly reloaded or (c) more than 15 ABM launchers deployed in agreed test ranges at any one time. Their *deployment* is permitted (a) in a Party's one permitted "ABM system deployment area" only, (b) in a fixed, land-based mode only, (c) as long as it does not involve MIRVed interceptors or multi-interceptor or rapidly reloadable launchers and (d) up to a maximum of 100 "ABM interceptor missiles."

6.3 Weapons of Mass Destruction

Nuclear weapons and other weapons of mass destruction are subject to deployment limitations under the Outer Space Treaty. Article IV(1) clearly prohibits their deployment in Earth orbit. It probably bans their deployment in orbits around celestial bodies as well, although this is less certain. Deployment in sub-orbital trajectory is permitted, however.

For Outer Space Treaty purposes, the phrase "nuclear weapons" should not be regarded as encompassing weapons powered by *non-explosive* nuclear power sources. It should, however, be taken to include X-ray laser weapons 'pumped' by nuclear explosive devices.

"Other weapons of mass destruction" almost certainly include lethal chemical, biological and radiological weapons, since international agreement exists generally (i.e. not in the specific context of Article IV(1) of the Outer Space Treaty) that these are "weapons of mass destruction."

No similar agreement exists with respect to DEWs, however. Therefore, these should not be regarded as "weapons of mass destruction" *per se*. Individual directed-energy devices may achieve that status, though, depending on their particular capabilities.

Nuclear explosive devices may not undergo test detonations anywhere in outer space, according to the multilateral Partial Test Ban Treaty. Nor may they be tested in sub-orbital trajectories, since the Partial Test Ban Treaty prohibits atmospheric nuclear testing as well.

Nuclear explosive devices that form part of a weapon system with ABM capability are, in the case of the superpowers, subject to the restrictions of the ABM Treaty. This means that "ABM interceptor missiles" armed with nuclear warheads may only be deployed in the fixed, land-based mode, up to a maximum of 100, and may not be MIRVed, or made capable of being fired more than one at a time from, or rapidly reloaded into, any ABM launcher.

Although it is not clear whether X-ray laser weapons pumped by a nuclear explosive devices should be considered "interceptor missiles," the issue is moot from a practical point of view. Only *deployment* is affected by this characterization, and deployment is unlikely in the absence of full-scale space tests, which are prohibited by the Partial Test Ban Treaty.

A complete ABM-capable X-ray laser weapon could lawfully be test-fired into a sub-orbital trajectory from an agreed ABM test range as long as the nuclear explosive device was not detonated. There would, however, be little point in doing this except as a prelude to a full-scale test in violation of the Partial Test Ban Treaty. The Outer Space Treaty restrictions on mass destruction weapons limit such tests, since a sub-orbital trajectory does not necessarily take an object into "outer space" for purposes of the Outer Space Treaty, and no orbit would be attained.

As with all other "ABM components," air-, sea-, space- and mobile land-based development, testing and deployment of such a device would be prohibited. The permissive interpretation of the ABM Treaty term "ABM systems and components" would free up ABM-capable X-ray lasers from the Article V(1) mobile development and testing prohibition, while recognizing an absolute prohibition against their deployment. It is submitted, however, that this interpretation should be rejected in favour of the restrictive interpretation, under which ABM-capable X-ray lasers would be "ABM components."

6.4 Directed Energy Weapons

Other directed energy weapons, such as those using high energy lasers and particle beams, can lawfully be developed, tested and deployed for use from, towards or within outer space without limitation, as long as they can escape characterization as "ABM components" within the meaning of the

ABM Treaty. This means that ASAT and DSAT activities involving these weapons can be carried out as long as no ABM capability is attained.

It is not clear when an exotic ABM device is to be considered an "ABM component." The only clear-cut example of an event that would grant that status is the successful destruction of a strategic ballistic missile, or element thereof, in flight. However, a strong case can be made that any test, successful or not, against a strategic ballistic missile element establishes a device as an "ABM component."

6.5 Overview of Existing Legal Constraints

While there are important international legal barriers to a number of military uses of outer space, many significant activities remain unregulated. This is particularly true if one seeks iron-clad prohibitions with which great powers may be expected to comply even in matters affecting their national security. Poor treaty-making, including the deliberate papering over of important substantive disagreements and the absence of crucial definitions, has introduced enough uncertainty into the scope or effect of a number of restrictions to reduce the body of clear-cut rules to a very small one indeed. Expansion of this body of law, together with clarification of existing law, is clearly indicated.

CHAPTER 7

RECOMMENDATIONS FOR CLARIFICATION AND DEVELOPMENT OF THE LAW

Improvements in the law could take one of two forms: (a) the clarification of existing restrictions or (b) the addition of new restrictions, either as amendments to existing treaty provisions, or as new provisions.

7.1 Clarification of Existing Provisions

Some possible clarifications would be uncontroversial, since they probably reflect consensus of the parties. Others, though embodying the most reasonable interpretation of the provisions to which they relate, could prove more difficult to obtain agreement upon.

A few uncontroversial clarifications of the Outer Space Treaty were agreed upon in the 1979 Moon Treaty. The Moon Treaty, however, although now in force, has yet to be ratified by many signatories, including the two space powers. This reluctance is not considered to be related to the Moon Treaty's arms control provisions, but to its regime governing natural resources on celestial bodies. Consequently, some observers have suggested separate adoption of the treaty's arms control provisions. If this were done, the following clarifications would result:

1. the prohibition on the installation of nuclear or other mass destruction weapons would expressly apply to the *Moon*⁵⁸⁶ and
2. the same prohibition would also apply expressly to orbits around and trajectories to and around the Moon and other celestial bodies.⁵⁸⁷

⁵⁸⁶ Article 3(3). It will be recalled that Article IV(1) of the Outer Space Treaty was not clear on this point. See discussion *supra*, Chapter 2, Section 2.1.1.2.

⁵⁸⁷ Article 3(3). By applying the prohibition "on celestial bodies," the Outer Space Treaty left this point unclear. See discussion *supra*, Chapter 2, Section 2.1.1.2.

Other Moon Treaty provisions, while also uncontroversial, are extensions, rather than clarifications, of Outer Space Treaty provisions. For instance, Article 1(2) would extend the prohibition against the establishment of "military bases, installations and fortifications" to orbits and trajectories around celestial bodies.⁵⁸⁸

A number of terms used in the Outer Space Treaty have not been clarified in the Moon Treaty and require clarification. For example, agreement should be reached on a definition of "weapons of mass destruction," including a list of those types of weapons that are to be considered weapons of mass destruction in all cases.⁵⁸⁹ Another term needing clarification is "peaceful purposes." It has been suggested that rather than defining the term, a list of military activities not considered "peaceful" should be agreed upon.⁵⁹⁰ Until this is done, uncertainty will persist concerning the lawfulness of non-weapon military activities on the moon and other celestial bodies.

Many agreed clarifications to the ABM Treaty have also been proposed. One that would now be relatively uncontroversial is an agreed line of demarcation between permitted research and prohibited development. Formal agreement to something like Gerard Smith's statement on this issue would be desirable.⁵⁹¹ It would also seem to be negotiable now that the Soviets appear to have accepted the long-held U.S. position that laboratory work is not governed by the Treaty.⁵⁹² More problematic might be clarification of what the term "laboratory" includes, although agreement could

⁵⁸⁸ Article IV(2) of the Outer Space Treaty, which prohibits the establishment of these structures "on celestial bodies," may apply to surface (and probably sub-surface) structures only. See *supra*, Chapter 3, Section 3.1.2.

⁵⁸⁹ Hasselman, "Weapons of Mass Destruction", *supra*, note 125. Such a definition would be unnecessary, however, if the testing and deployment of all weapons in outer space were to be prohibited.

⁵⁹⁰ Goedhuis, "Additional Measures", *supra*, note 19, at 308; Gorove, *Studies in Space Law*, *supra*, note 12, at 91.

⁵⁹¹ This is the recommendation of Longstreth et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 66-7.

⁵⁹² See *supra*, Section 2.2.1.

probably be reached on a restrictive definition, one that includes fully-enclosed buildings or underground structures, but not islands, portions of outer space, celestial bodies, or other locations potentially visible to NTM.

Another needed clarification to the ABM Treaty is a definition of the term "ABM component" in the context of exotic ABM devices such as DEWs and non-radar sensors. This could consist of a general formulation.⁵⁹³ However, it should also include express reference to specific system elements. For instance, it should be agreed not only that orbiting mirrors can be ABM components, but that mirrors larger than a specified diameter are deemed "ABM components."

Clarification is also needed concerning which non-radar sensors are "ABM components" and which are unregulated "adjuncts." If agreement could be reached to amend the Treaty so that it prohibits the development, testing and deployment of ABM components in *all* basing modes – a comprehensive BMD ban – it would be easy to agree that any degree of sensing contribution to BMD constitutes a violation, with the exception of agreed early warning activities. If this were accompanied by a comprehensive ASAT ban, then stringent capability levels could be imposed as well.

⁵⁹³ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 67, suggest that "ABM component" should include

those devices that are capable of working in conjunction with or as substitutes for existing types of ABM systems and components.

Note that this would appear to define the term broadly enough to abolish the exemption for "adjuncts."

7.2 Additional Restrictions

In addition to clarifying the meaning of existing provisions, many new restrictions on the military use of outer space have been proposed. These fall into the following categories:

1. agreements, including ABM Treaty amendments, that would further restrict permitted BMD activities,
2. agreements, including ABM Treaty amendments, that would relax existing BMD restrictions,
3. ASAT prohibitions, including those involving amendment of the Outer Space Treaty,
4. restrictions on destabilizing non-weapon satellites and
5. collateral restrictions needed to prevent circumvention of one of the foregoing, such as limits on space-based DEWs for whatever purpose, military or civilian.

7.2.1 Alterations to the Existing Regime Governing Ballistic Missile Defence

7.2.1.1 Arguments in Favour of a Liberalized Regime Governing Ballistic Missile Defence

Policy arguments in favour of a less restrictive BMD regime include the following:

1. It would be unwise, even immoral, to limit technology that might someday provide complete protection of populations against offensive nuclear weapons;
2. Even imperfect strategic defences are necessary to maintain the survivability of the U.S. ICBM force against a Soviet first strike by complicating the calculations of Soviet targeters⁵⁹⁴;

⁵⁹⁴ See, for example, *FY86 ACIS*, *supra*, note 415, at 46-7:

An effective defence against ballistic missiles would have the potential for enhancing deterrence and stability by increasing attack uncertainties of an aggressor and by reducing or eliminating the utility of a non-nuclear first strike to an aggressor. In the face of effective defense against ballistic missiles, a potential aggressor could not be certain that any given weapon would penetrate the defensive system and destroy a given military target. It would be very difficult for a potential aggressor to predict likely outcomes of a nuclear attack in the face of such uncertainties, and no aggressor is likely to contemplate initiating a nuclear conflict, even in crisis circumstances, while lacking any confidence in a successful outcome. This is the essence of deterrence.

3. Once strategic BMD becomes cheaper at the margin than offsetting proliferation of offensive ballistic missiles, there will be no incentive to deploy more of the latter. This will set the stage for deep reductions in those offensive systems;⁵⁹⁵
4. Extended U.S. nuclear deterrence to NATO Europe would be more credible if the continental U.S. were protected by a ballistic missile defence⁵⁹⁶ since the likelihood and consequences of a Soviet attack on the U.S. with offensive strategic ballistic missiles would be significantly less;
5. BMD should be deployed in order to reduce the damage of a nuclear war in case deterrence fails;
6. At least a thin nation-wide BMD should be deployed to deal with offensive ballistic missiles launched accidentally or in an unauthorized way by the superpowers, or intentionally by some irrational State actor or sub-national terrorist group.⁵⁹⁷

Below, we shall examine the validity of these arguments.

7.2.1.1.1 Population Defence

The problem with the argument that it is unwise or immoral to forego the prospect of a perfect population defence against nuclear weapons is that no expert sees this as anything more than a remote future possibility, if not an impossibility.⁵⁹⁸ Reasons include (a) the likelihood that any BMD sys-

See also *1985 SDI and ASAT Policy Hearings, supra*, note 565, at 89-90 (testimony of Keith B. Payne).

⁵⁹⁵ *FY86 ACIS, supra*, note 415, at VIII and IX:

In the long term, SDI research will be a crucial means by which the United States and the Soviet Union can safely agree to very deep reductions, and eventually, even the elimination of ballistic missiles and nuclear warheads.

... Were both sides to pursue effective defenses, it could facilitate negotiations of deep offensive force reductions by decreasing the effectiveness of offensive forces.

⁵⁹⁶ *1985 SDI and ASAT Policy Hearings, supra*, note 565, at 89-90 (testimony of Keith B. Payne).

⁵⁹⁷ *FY86 ACIS, supra*, note 415, at 50.

⁵⁹⁸ Ashton Carter calls the prospect of perfect nation-wide BMD a "possibility that is ignorably remote" (*FY86 DoD Authorization Hearings, Part 7, supra*, note 547, at 4024), so remote that it should not serve as the basis for public expectation or public policy, and that he knows of "no one in the defense technical community who differs in that judgment." (*Id.*, at 4023) Albert Carnesdale agrees. (*Id.*, at 4017-18)

Bundy, et al., agree:

tem would be susceptible to evolving offensive countermeasures,⁵⁹⁹ (b) the fact that any BMD system purporting to provide leak-proof population defence would have to work perfectly the first time, since it could not be subjected to full-scale testing in advance⁶⁰⁰ and (c) the fact that even if the interception of 100% Soviet strategic ballistic missiles were possible, nuclear weapons could be delivered by other means (most notably by submarine-launched cruise missiles launched from just outside U.S. territorial waters and by air-launched cruise missiles, against which it would be very difficult to defend, given the huge U.S. coastline).⁶⁰¹ Anything less than a perfect defence would not provide significant protection to populations, because nuclear weapons are so destructive that even if a tiny fraction of the superpower arsenals reached urban targets, unprecedented carnage would ensue.⁶⁰²

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" ... [SDI] 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 Choice", *supra*, note 560, at 265)

They go on to note that SDIO Director Abrahamson has acknowledged that a perfect defense is not a realistic thing and that Richard Delauer has testified before Congress that he does not foresee any level of defence that would make U.S. offensive systems unnecessary. (*Id.*, at 266)

See also R.L. Garwin and J.E. Pike, "Space Weapons: History and Present Debate", *Bull. Atom. Scientists* May 1984, 2S, at 4S (hereinafter "History and Present Debate"), who maintain that "[n]o ABM system in prospect could provide a perfect defense against attack."

⁵⁹⁹ Bundy *et al.* quote Richard DeLauer as saying that "[t]here's no way an enemy can't overwhelm your defences if he wants to badly enough" and note that no Reagan Administration spokesperson with any significant technical qualifications has been willing to question this statement. (*Id.*, at 266-7)

It is the prospect of countermeasures which renders inapt any analogy to the Apollo space program and its technical naysayers. "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." (*Id.*, at 267)

⁶⁰⁰ Bundy, *et al.*, describe this as an "important and enduring obstacle" which is "systemic and ineradicable." (*Ibid.*)

⁶⁰¹ 1985 SDI and ASAT Policy Hearings, *supra*, note 565, at 138-9 (testimony of John B. Rhinelander).

⁶⁰² Longstreth, *et al.*, *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 1.

7.2.1.1.2 Enhanced Crisis Stability

BMD is indeed one way to reduce the vulnerability of ICBMs to a first strike. However, U.S. ICBMs are not yet vulnerable⁶⁰³ and, in any event, there are other and, some think, better ways to maintain this state of affairs.⁶⁰⁴ These include (a) making ICBMs mobile, (b) reducing the number of warheads on each ICBM (and hence its value as a target) and (c) concluding agreements on strategic offensive arms whereby the Soviets must reduce the number of large MIRVed ICBMs they deploy.

Even assuming that the maintenance of ICBM survivability will eventually require BMD deployments, these need not involve space-based components and boost-phase intercept, but could be limited to point defence with land-based ABM interceptors and radars. (ABM Treaty ceilings on permitted deployments of these components would have to be raised significantly, however, before meaningful defence against ICBMs could occur.)

Even the deployment of an extensive fixed, land-based point defence could harm arms control stability, however. It would probably increase pressure to deploy additional offensive systems, due to (a) a desire to offset the reduced ability of the existing offensive forces to penetrate the new defences or (b) increased fear of a breakout to nation-wide area defence by the other side.⁶⁰⁵ Although seldom discussed, any expansion by the superpowers of their strategic defensive and offensive deployments could have grave consequences for horizontal non-proliferation efforts as well.⁶⁰⁶

⁶⁰³ This was the conclusion of the Scowcroft Commission. See also Bundy, et al., "The President's Choice", *supra*, note 560, at 272, to the same effect.

⁶⁰⁴ *Ibid.*

⁶⁰⁵ *Id.*, at 269-70, and at 272, where the following is stated:

Even a tightly limited and partially effective local defense of missile fields... would create such interacting fears of expanding defenses that we strongly believe it should be avoided.

⁶⁰⁶ 1985 SDI and ASAT Policy Hearings, *supra*, note 565, at 66-7 (prepared statement of John B. Rhine-

Another important reason to continue to constrain space-based BMD is the harm likely to be done to crisis stability by the existence of extensive and capable but imperfect nationwide ballistic missile defences on one or both sides. Incentives for pre-emptive first strikes would be increased by the deployment of BMD systems that could be overwhelmed by a massive, organized first strike but capable of defending the country against a small, disorganized retaliatory strike.⁶⁰⁷

7.2.1.1.3 Incentives for Reductions in Offensive Systems

The weight of informed opinion holds that accelerated BMD testing and deployment would not facilitate the negotiation of an agreement to reduce the number of deployed offensive strategic ballistic missiles, but would reduce the likelihood of such an agreement.⁶⁰⁸

lander). Horizontal nuclear proliferation is the spread of nuclear weapons technology to additional States.

⁶⁰⁷ Garwin and Pike, "Space Weapons: History and Present Debate", *supra*, note 598, at 4S.

⁶⁰⁸ See, e.g., *1985 SDI and ASAT Policy Hearings*, *supra*, note 565, at 45, 136, 161 and 171 (testimony of John B. Rhinelander, John Pike, and former U.S. Secretaries of Defense Clark Clifford and Robert McNamara, respectively). Secretary Clifford calls the belief that offensive reductions could accompany expanded BMD "a tragically dangerous misconception." Secretary McNamara says that faced with what the U.S. is doing in BMD now with SDI ("a massive acceleration of a research program in the context of intent to as quickly as possible translate that into deployment") the Soviets will not and should not agree to cuts in strategic offensive arms, "nor would we."

Pike notes that (a) the Reagan Administration's own *1985 SDI Report* (*supra*, note 149), (b) the *Hoffman Report* (*supra*, note 412) and (c) the *Fletcher Report* (United States, Department of Defense, Strategic Defense Initiative Organization, *Defensive Technologies Study* (Washington, D.C.: USGPO, 1984) (commonly and hereinafter the *Fletcher Report*) all assume, in one way or another, that, for the next several decades at least, the most likely response to BMD deployment is a proliferation of offensive warheads.

7.2.1.1.4 Enhanced Extended Deterrence

The argument that extended deterrence would be enhanced presupposes a perfect or near-perfect defence of the U.S. We have already seen that perfect strategic defence is unlikely. This benefit is therefore unlikely ever to come about.

7.2.1.1.5 Damage Limitation

BMD might indeed reduce the number of warheads reaching their targets in a strategic nuclear war, even allowing for the increased offensive deployment it would engender. However, unless one envisions a 100% leak-proof shield (which we have already seen is most unlikely) incredible damage would still occur. It is therefore doubtful that *meaningful* damage limitation could be achieved in the event of a full-scale strategic nuclear exchange, whatever the extent of BMD deployments. Meaningful damage limitation would be possible in limited nuclear exchanges. Many defence theorists, however, question whether such restrained, measured exchanges are possible.

7.2.1.1.6 Defence Against Accidental, Unauthorized or Third-Party Attack

There are ways of dealing with accidental launches other than deploying active ballistic missile defences. One way would be to agree to equip all offensive missiles with self-destruct mechanisms. If capable of activation from somewhere other than launch facilities, such mechanisms could also safeguard against unauthorized launches. As for third party States and sub-national terrorist groups, while such actors might indeed obtain nuclear explosive devices, they would be far more likely to deliver them by means of a human operative (i.e. a suitcase bomb) or freight ship than via a ballistic missile.⁶⁰⁹

⁶⁰⁹ FY86 DOD Authorization Hearings, Part 7, *supra*, note 547, at 4009-10 (testimony of Albert Carnesdale):

Against terrorists and madmen BMD is feasible but irrelevant. Quaddafi will have nuclear weapons long before he has ballistic missiles, and it is unlikely that he would

7.2.1.2 Recommendations Concerning Ballistic Missile Defence

For all of the above reasons, it is submitted that no significant liberalization of the regime governing superpower BMD activities embodied in the ABM Treaty should be undertaken. It may be beneficial to amend the Treaty to allow for the deployment of greater numbers of fixed, land-based ABM interceptor missiles, launchers and radars, but this is the most that should be considered. No relaxation of the development and testing restrictions in the ABM Treaty should be undertaken.

The best course of action appears to be the prohibition of the development, testing and deployment of *all* strategic BMD. In order to make such a regime work, however, it would also be necessary to prohibit the development, testing and deployment of (a) ASATs in all basing modes,⁶¹⁰ (b) space-based anti-aircraft weapons and (c) ATBMs. Otherwise, ABM activities could be undertaken in the guise of one of these other missions. In the case of ATBM, altitude and velocity limitations on test intercepts might prove an acceptable alternative to an absolute prohibition.⁶¹¹

be so co-operative as to deliver his nuclear weapon by the one system against which we might have a defense.

⁶¹⁰ Longstreth et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 75, propose "stringent" ASAT limits in order to keep advances in KEW and DEW ASATs from undermining the ABM Treaty. See also Section 7.2.2 below.

⁶¹¹ See *ibid.*, where it is suggested that, in order to limit the strategic BMD potential of ATBM, the testing of interceptors of any type should be limited to (a) altitudes below about 40 km. and (b) velocities below about 2 km./sec.

7.2.2 Additional Restrictions on Anti-Satellite Weapons

In addition to preventing the circumvention of a more restrictive BMD regime up to and including a complete ban on BMD, many observers argue that tighter legal restraints on ASAT activities are desirable in their own right. Consequently, many types of ASAT regimes have been suggested, including, in ascending order of restrictiveness,

1. "rules of the road" agreements, which do not ban any form of ASAT development, testing or deployment, but merely proscribe certain activities in the vicinity of an adversary's satellites – such as close approaches and explosions – which could raise concerns about possible hostile ASAT *use*. (Such agreements could provide for keep-out zones around certain or all satellites. Such zones could be defended or undefended)⁶¹²;
2. "high-altitude" ASAT bans, in which ASAT activities would be permitted only below a specified altitude;
3. "no new types" agreements, under which only the existing Soviet co-orbital ASAT and U.S. MHV ASAT, but not more advanced systems, such as DEWs, could continue to be developed, tested and deployed; and
4. "comprehensive dedicated ASAT bans," in which all dedicated ASAT activity would be prohibited.

There could also be combinations of the above. A detailed analysis of the many possible additional ASAT restrictions that might be adopted is outside the scope of this thesis. We shall therefore limit ourselves to examining the policy reasons for and against such restrictions, and briefly discussing two possible solutions to the problem of protecting stabilizing satellites from the threat of destructive ASAT means.

⁶¹² For a discussion of rules of the road agreements, see R. Dalbello, "Rules of the Road': Legal Measures to Strengthen the Peaceful Uses of Outer Space", *Proc. 28th Colloq. L. Outer Space*, *supra*, note 111, 8. For a discussion of defended keep-out zones, see A. Wohlstetter and B. Chow, "Arms Control That Could Work", *Wall Street Journal*, 17 July 1985, at 28.

7.2.2.1 Arguments In Favour of Additional Restrictions on Anti-Satellite Weapons

The case for ASAT restrictions rests on the following arguments:

1. The ability to attack early warning and strategic communications satellites could support a strategic nuclear first strike by preventing the adversary from detecting the attack or communicating with his strategic retaliatory forces. This would increase the temptation in a crisis to launch a pre-emptive strike of one's own, including ASAT attacks on these satellites.⁶¹³
2. Once both sides possessed the ability to attack the space segments of intelligence-gathering systems, such as photoreconnaissance satellites, there would be a temptation in a crisis or low-level conflict to use this ASAT capability to prevent one's adversary from doing the same. This could create a major conventional conflict from what might otherwise have been a crisis short of armed conflict or a minor skirmish.⁶¹⁴ This temptation will become particularly acute in the future once high-resolution, real-time reconnaissance of large expanses of the Earth's surface becomes possible.⁶¹⁵
3. In a major conventional conflict in which one or both sides believed the other to be considering escalation to nuclear attacks, there would be a temptation to use one's ASATs in the knowledge that they depended on surveillance and launch facilities that could not be expected to survive nuclear attack. This could result in escalation to nuclear war, which might be avoided if neither side possessed ASATs.⁶¹⁶

⁶¹³ T. Karas, "Military Satellites and War-Fighting Doctrines", in Jasani (ed.), *Arms Control Dilemma*, *supra*, note 544, 43, at 51-2:

The fact that attacks on early warning and communication satellites would be most useful to the side which started what it expected would be protracted nuclear war makes for additional crisis instability.

⁶¹⁴ J. Tirman (ed.), *The Fallacy of Star Wars* (New York: Vintage, 1984), at 230; P.B. Stares, *The Militarization of Space: U.S. Policy 1945-1984* (Ithaca, N.Y.: Cornell University Press, 1985), at 253 (hereinafter *U.S. Policy 1945-1984*).

This tendency towards escalation at low levels of conflict in turn increases the likelihood of nuclear war, given that escalation of a conventional war is seen as the most likely way in which a nuclear war would begin. (W. Slocombe, "Approaches to an ASAT Treaty", in Jasani (ed.), *Arms Control Dilemma*, *supra*, note 544, 145, at 146)

⁶¹⁵ K. Gottfried ("An ASAT Test Ban Treaty", in Jasani (ed.), *Arms Control Dilemma*, *supra*, note 544, 131, at 132) maintains that in the future

LEO satellites carrying large synthetic aperture radars should provide all-weather night-and-day surveillance of vast areas, and in conjunction with more sophisticated photoreconnaissance satellites, will provide real-time intelligence of unprecedented quality to all military operations.

⁶¹⁶ Karas, "Military Satellites and War-Fighting Doctrines", *supra*, note 613, at 51-2.

4. The distinction between the tactical and strategic roles of satellites is often uncertain. This creates a danger of escalation if an ASAT attack on what the attacker regards as a tactical satellite is perceived by the other side as the opening move in an escalation of theatre conflict to strategic conflict.⁶¹⁷
5. Attacks on certain satellites tend to make a conflict less controllable.⁶¹⁸ If armed conflict ever broke out between the superpowers, reliable surveillance and communications (a) between national leaders and their strategic forces and (b) between the two countries would be needed if there were to be any hope of avoiding escalation.⁶¹⁹ All of these functions are carried out, *inter alia*, by satellites. Surveillance functions needed to prevent escalation include (a) photoreconnaissance to monitor weapon and troop movements, (b) surveillance of ICBM fields with early warning satellites and (c) monitoring one's own territory with nuclear explosion detection satellites.⁶²⁰
6. The testing and deployment in space of ASAT weapons will retard the growth of commercial space usage due to concerns over commercial satellites (a) being accidentally destroyed by deployed ASATs,⁶²¹ (b) colliding with space debris from ASAT tests or (c) being deliberately attacked by ASATs during wartime.⁶²² Moreover, ASAT activities drain civilian/commercial space budgets of funding, imposing an opportunity cost as well.⁶²³

The arguments in favour of further ASAT restraints will now be examined.

⁶¹⁷ O. Wilkes, "The Arms Race in Space", [1978] *SIPRI Yearbook* 104, at 129.

⁶¹⁸ Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 253.

⁶¹⁹ Tirman (ed.), *The Fallacy of Star Wars*, *supra*, note 614, at 179.

⁶²⁰ A.B. Carter, "Satellites and Antisatellites – The Limits of the Possible" (1986), 10:4 *Int'l Security* 46, at 60 (hereinafter "Satellites and Antisatellites"):

[T]he most important use of missile launch and nuclear detection data would probably be to give decision-makers a clear assessment of what has happened – information crucial to responsible action and, under the circumstances, hard to come by otherwise.

⁶²¹ Stanley Foundation, *US-USSR Confrontation or Co-operation In Space, Strategy For Peace -- 19th Annual U.S. Foreign Policy Conference*, 5-8 October 1978, at 17:

[T]he group largely agreed that the presence of armed systems in space (intended to destroy space systems) would severely discourage industrial exploitation of the exoatmospheric environment.

⁶²² Stares (*U.S. Policy 1945-1984*, *supra*, note 614, at 248) maintains that civilian satellites are likely to be "fair game" in wartime. This is not surprising, since arrangements have already been made for civilian communications satellites to be available for military purposes in wartime.

⁶²³ *Ibid.*; Stanley Foundation, *US-USSR Confrontation or Co-operation in Space?*, *supra*, note 621, at 20-1.

7.2.2.1.1 Protection of Stabilizing Non-Weapon Satellite Functions

The first five reasons why ASAT restrictions should be put in place relate to situations in which non-weapon satellites that perform stabilizing functions would be put at risk by the further development of ASATs. These will all be dealt with together.

The vulnerability of a stabilizing satellite to destructive ASAT means is only dangerous when (a) attacks against it are plausible and (b) the functions it performs cannot be reliably and securely duplicated by non-satellite systems. In many cases, the benefits of stabilizing satellites do not greatly exceed those of non-satellite systems that perform the same functions. The latter may either be employed redundantly in peacetime or available for quick deployment in wartime as substitutes for disabled satellites.

In the case of early warning satellites, is the additional 15 minutes' warning time of ICBM launch over that provided by land-based radars significant? The answer would appear to be yes.⁶²⁴ Missile warning data permit the safe escape of bombers, tankers, cruise missile carriers, airborne command posts and, if a launch-under-attack policy were adopted, ICBMs.⁶²⁵ The more warning provided, the better are the chances of these deterrent forces escaping destruction. On the other hand, the survival of a given number of such forces can probably always be assured by deploying them in greater numbers. Thus, additional warning time may merely reduce the cost of assuring the survival of the minimum number.⁶²⁶ Furthermore, increased survivability may only be obtainable against ICBMs with 30-minute flight times. The deployment in large numbers of highly accurate

⁶²⁴ Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 16. Karas ("Military Satellites and War-Fighting Doctrines", *supra*, note 613, at 48) suggests that the contribution of this additional warning time to crisis stability is "at least marginal."

⁶²⁵ Carter, "Satellites and Antisatellites", *supra*, note 620, at 60.

⁶²⁶ Karas, "Military Satellites and War-Fighting Doctrines", *supra*, note 613, at 48.

SLBMs with much shorter flight times will negate this benefit. These will be able to destroy not only bomber bases but ICBM silos with negligible warning time.⁶²⁷ It should be recalled, however, that, in addition to increasing warning time, data from early warning satellites can be used to confirm that provided by ground-based early warning radars. Having two independent systems reduces the chance of nuclear war resulting from miscalculation or computer error.

Even if early warning satellites do promote strategic stability, direct attacks on them may be unlikely. Such attacks would themselves constitute warning of ICBM attack, raising the prospect of the other side assuming the worst and launching an all-out nuclear response.⁶²⁸ For this reason, great restraint can probably be expected in attacking early warning satellites. Even so, the uncertainty introduced by the ability to target these important space systems hurts both arms control and crisis stability.⁶²⁹

Other satellite functions could be performed by non-satellite systems as well. Reconnaissance satellites could be replaced in wartime, to a large extent, by high-altitude aircraft, since the peacetime restriction against entering enemy airspace would no longer be observed.⁶³⁰ Similarly, strategic communications to SSBNs need not travel exclusively via satellite. They can also be sent via

⁶²⁷ *Ibid.* This assumes that no arms control agreement is reached establishing "stand-off zones" that impose minimum SSBN operating distances from an adversary's territory.

⁶²⁸ An attack on an early warning satellite would only constitute warning in and of itself if the causes of satellite malfunctions can be reliably determined in a timely manner. It is not clear that this is or will be the case.

⁶²⁹ The problem with acquiring the capability to attack warning satellites... is that it causes... Soviet reactions in peacetime [i.e. pressures to deploy additional strategic offensive forces as insurance] and Soviet anxieties in crisis [i.e. fear of a U.S. first strike in conjunction with an attack on Soviet early warning satellites, which could in turn create pressure for a Soviet pre-emptive strike] that are harmful to U.S. interests. In most people's minds, the harm done by this capability on every other day outweighs its hypothetical value on the hypothetical day of [a U.S. pre-emptive strategic nuclear] attack.

(Carter, "Satellites and Antisatellites", *supra*, note 620, at 60)

⁶³⁰ *Id.*, at 86.

relay aircraft, or through the ground by means of extra-low frequency (ELF) radio waves.

These non-satellite means of performing stabilizing satellite functions, however, are themselves subject to frustration by destructive and other means. Thus, it remains important to protect satellites in stabilizing roles from destructive interference by ASATs.

7.2.2.1.2 Effect on Civilian Space Usage

Will the weaponization of space spell the end of commercial and scientific space use? Those who say not would argue that the extensive deployment on the high seas of military ships carrying weapons has not put an end to civilian shipping. Neither, therefore, should the weaponization of space be expected to discourage commercial space usage. There are three crucial differences, however, between these cases.

First, the weapon systems in prospect for deployment in space will not be subject to the same degree of human control as those thus far installed aboard military ships. Space-based DEW weapons would require a great deal of autonomy. Otherwise, they could be destroyed by hostile ASATs before a human decision to fire in self-defence could be reached. The possibility would therefore exist for the accidental destruction of commercial satellites. This could increase insurance premiums for satellite launches,⁶³¹ perhaps significantly.

Second, the risk of catastrophic failure of a space system is greater than that of a ship. The many launch failures of the U.S. space program in the past few years have already made insurance for satellite launches difficult to obtain.

⁶³¹ P. Stares and J. Pike, "The 'Star Wars' Initiative", *Space Policy*, May 1985, 153, at 163.

Third, damaged ships are more easily retrieved for repairs than are satellites. While the Space Shuttle is supposed to change this state of affairs, it could be many years before it, or a space vehicle like it, is repairing satellites as routinely as ships are now repaired.

7.2.2.2 Arguments Against Additional Restrictions on Anti-Satellite Weapons

The case *against* further ASAT limitations rests on essentially four arguments:

1. Comprehensive restrictions on the development, testing and deployment of ASATs would effectively grant immunity from destructive interference in wartime to satellites that perform destabilizing functions. This would encourage the continuation of these undesirable satellite functions and could also spawn other destabilizing functions thus far deterred by the prospect of ASATs.⁶³²
2. ASAT restrictions are unnecessary since the U.S. can, by virtue of her superior technology, threaten Soviet satellites while maintaining the survivability of her own;
3. Most ASAT restrictions would be unverifiable.
4. ASAT restrictions could not protect U.S. satellites from destruction by residual ASAT means, many of which could never be outlawed, or from interference by non-destructive means.

7.2.2.2.1 The Need to Counter Destabilizing Satellites By Destructive ASAT Means

Satellites cited as performing destabilizing functions include:

1. GPS navigation satellites, without which highly accurate counterforce ballistic missile strikes would measure miss distances in 100s rather than 10s of feet,⁶³³
2. reconnaissance satellites capable of locating (i) heretofore undetectable SSBNs and putting these at risk from anti-submarine warfare (ASW) forces⁶³⁴ and (ii) mobile nuclear forces,

⁶³² Carter, "Satellites and Antisatellites", *supra*, note 620, at 68-9.

⁶³³ Stanley Foundation, *US-USSR Confrontation or Co-operation in Space?*, *supra*, note 621, at 21; Vlasic, "Disarmament Decade", *supra*, note 93, at 154; see also Karas, "Military Satellites and War-Fighting Doctrines", *supra*, note 613, at 47-8, who mentions in particular the contribution of navigation satellites to the counterforce potential of SLBMs.

⁶³⁴ Vlasic, "Disarmament Decade", *supra*, note 93, at 154; Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 15.

including mobile ICBMs and airborne command posts,⁶³⁵

3. NUDETS systems, which, by pinpointing the location of nuclear explosions on an adversary's territory during a first strike, could indicate which targets were destroyed, obviating the need for two-on-one targeting,⁶³⁶
4. EORSATs and RORSATs, which could combine to precisely locate military surface shipping and
5. LEO BMD platforms.⁶³⁷

The arguments against the need to threaten such satellites by ASAT means are of two types. Either (a) their benefits can be negated by means short of ASAT attack – with active, non-destructive countermeasures such as electronic jamming, or with passive countermeasures such as deception – or (b) even if the satellites were destroyed, their functions could be performed by non-satellite systems or by reconstituted satellite constellations. Let us consider these arguments as applied to the various classes of military satellite.

7.2.2.2.1.1 Navigation Satellites

There appears to be no countermeasure to the use of navigation satellites for improved ballistic missile accuracy short of destructive ASAT means. Furthermore, non-satellite navigation systems do not provide enough accuracy for counterforce strikes. Therefore, the vulnerability of highly-accurate navigation satellites to ASATs might seem beneficial, in that it could preclude their availability for a first strike.

However, this may not be so. First of all, the side that attacked the navigation satellites of the other first might be able to keep its own navigation satellites functioning long enough to carry out a first strike.

⁶³⁵ Carter, "Satellites and Anti-Satellites", *supra*, note 620, at 69.

⁶³⁶ *Ibid.*

⁶³⁷ Even under a comprehensive BMD prohibition, it might be desirable to allow ground-based ASAT capability against LEO satellites to discourage clandestine development and testing of space-based BMD weapons by putting in doubt their survivability if ever deployed. (*Id.*, at 68-9)

Second, if both sides lost their navigation satellites to ASAT attacks, there is the question of whether non-satellite navigation systems can maintain the credibility of the sea-based deterrent. Therefore, even though there is reason to discourage excessive navigational accuracy, so is there reason to preserve some lesser satellite navigation capability.

Third, if all navigation satellites were destroyed, this could disadvantage Western conventional forces, which are more reliant on satellite navigation than their Soviets counterparts are.

7.2.2.2.1.2 Targeting of Strategic Ballistic Missile Submarines

The ability of satellites to locate SSBNs would be subject to non-destructive countermeasures, particularly deception.⁶³⁸ Even if the oceans were "rendered transparent," however, this would not spell the end for submarines any more than the discovery of the air's transparency to radar ended the usefulness of military aircraft.⁶³⁹ Presumably, though, it would require considerable proliferation of SSBNs.

7.2.2.2.1.3 Electronic Ocean Reconnaissance Satellites (EORSATs) And Radar Ocean Reconnaissance Satellites (RORSATs)

A considerable body of expert opinion holds that the threat posed by EORSATs and RORSATs to surface shipping can be defeated by non-destructive countermeasures. Electronic intelligence satellites such as EORSATs are vulnerable to a variety of electronic countermeasures⁶⁴⁰ and to the

⁶³⁸ *Id.*, at 77.

⁶³⁹ *Ibid.*

⁶⁴⁰ Richard Garwin considers that Soviet electronic intelligence satellites can be defeated by high-frequency, short wavelength, broad-spectrum radio signals, generated by focussed antennas and relayed from one U.S. satellite to another, and that an ASAT is not needed for this purpose. (R.J. Smith, "Aerospace Experts Challenge ASAT Decision", *Science*, 18 May 1984, at 696)

maintenance of radio silence. RORSATs, like any active sensors, can be fooled by decoys and stealth technology. Furthermore, it is not clear that an ASAT could dispose of RORSATs cost-effectively and *before* the latter have done their work.⁶⁴¹

7.2.2.2.1.4 Nuclear Explosion Detection (NUDETS) Satellites

While the use of NUDETS in one-on-one targeting would be a destabilizing development, one-on-one targeting can be achieved by other means. Consequently, the ability to target NUDETS satellites would not fully solve this problem.⁶⁴²

7.2.2.2.1.5 Conclusions Regarding the Need For ASATs To Counter Destabilizing Satellites

It is not always necessary to counter destabilizing functions by destructive ASAT means. Many can be readily frustrated by non-destructive countermeasures. Of those that cannot, many can be performed by non-satellite means. In either case, the value of ASATs is doubtful.

7.2.2.2.2 The Ability of the U.S. to Both Protect Her Own Satellites and Threaten Soviet Satellites

Informed opinion dismisses this argument as so much technological overconfidence. The likelihood is that whatever ASAT, DSAT and satellite survivability measures the U.S. is able to achieve, the U.S.S.R will be able to roughly match them. A world in which U.S. satellites systems are safe and Soviet ones are vulnerable is not likely to occur. The reality is that either both sides will proceed with advanced ASATs, in which case satellites on both sides will become vulnerable, or constraints will be imposed on the ASAT activities of both sides which, depending on the restrictions, and in

⁶⁴¹ Carter, "Satellites and Antisatellites", *supra*, note 620, at 89.

⁶⁴² For example, RVs could, just before detonation, radio their locations to satellites that could compute miss distances from which the need for second RVs to be sent to the same locations can be calculated.

combination with unilateral satellite survivability measures, will protect a sufficient number of satellites as to safeguard the missions of all satellite systems in high Earth orbit.

7.2.2.2.3 The Verifiability of ASAT Restrictions

One cannot make blanket statements about the verifiability of ASAT restrictions. It varies from one restriction to the next. For example, there are indeed potential ASAT limitations that would be difficult to verify. For instance, verification of the dismantling of all existing deployed Soviet co-orbital ASAT interceptors could not be reliably done by NTM alone. Likewise, because of its small size, a ban on the deployment of the the U.S. MHV ASAT would be next to impossible, particularly once this device has been fully tested.⁶⁴³ However, limits on the testing and deployment of ground-based laser ASAT facilities with sufficient power to threaten satellites in high Earth orbit could be verified by NTM with considerable confidence. Such facilities would be very large and possess unmistakable identifying characteristics.⁶⁴⁴ Moreover, by the time such capable ground-based laser ASAT facilities are developed, satellite hardness levels may well have progressed to such an extent that even LEO satellites could not be threatened except with such large, noticeable facilities.⁶⁴⁵

⁶⁴³ Tirman (ed.), *The Fallacy of Star Wars*, *supra*, note 614, at 217.

⁶⁴⁴ Aspen Strategy Group, *The 1985 Aspen Strategy Report -- Key Issues in American Security: Antisatellite Weapons and U.S. Military Space Policy* (University Press of America, 1985), at 27 (hereinafter *Aspen Report*):

[T]he sheer size of the power sources and adaptive optics necessary to threaten high altitude satellites would be extremely difficult to hide or deny, especially when the co-location of specified components at the same facility would be a clear (and agreed) 'signature' of a violation.

Such lasers would probably be

the size of a football field with optical components and stable bases... larger than most astronomical installations, with power supplies in the hundreds of megawatts at least, the whole installed in a region that should be free from cloud cover most of the time if the ASAT system is to be effective.

(M. May, "Safeguarding Our Military Space Assets", *Science* 18 April 1986, at 338)

⁶⁴⁵ *Ibid.*

Reliable verification of the non-testing of space-based laser ASATs could probably be achieved if an ancillary ban on the testing of space-based lasers for other purposes – including BMD and air-defense – were instituted.⁶⁴⁶

7.2.2.2.4 Residual ASAT Means

Opponents of ASAT arms control measures maintain that because there will always be residual means of destroying satellites (e.g. ICBMs, ABM interceptor missiles, manned space vehicles, etc.) there is no point in introducing prohibitions against dedicated means. The error of this view is that it regards perfect satellite protection as the goal of a comprehensive prohibition against dedicated ASAT activities. In fact, however, perfect protection is neither attainable nor necessary. An ASAT arms control regime would seek merely to prevent the acquisition of a capability to promptly destroy a sufficient number of a given type of stabilizing satellite as to prevent the constellation as a whole from performing its mission. Measured by this standard, residual ASAT means are of dubious military utility,⁶⁴⁷ particularly in an aggressive manner prior to the outbreak of hostilities.⁶⁴⁸ They are cumbersome and expensive, and could be rendered even more so, as well as more transparent, by

⁶⁴⁶ Tirman (ed.), *The Fallacy of Star Wars*, *supra*, note 614, at 242:

Due to their obvious external characteristics and serious technical hurdles, clandestine development of [space-based] lasers to the stage of an operational weapon system would be a most unproductive undertaking.

Richard Garwin ("Are We on the Verge of an Arms Race in Space?", *Bull. Atom. Scientists* May 1981, 48, at 48 (hereinafter "On the Verge")) describes the capability of a space-based laser that might result from clandestine testing as "modest."

⁶⁴⁷ J. Scheffers, "Why Anti-Satellite Warfare Should be Prohibited", in Jasani (ed.), *Arms Control Dilemma*, *supra*, note 544, at 81.

⁶⁴⁸ *Aspen Report*, *supra*, note 644, at 14:

As a rule... attacks with residual forces are only attractive when the penalties of failure are low -- that is, once conflict is begun. The surprise attack potential of residual ASAT capabilities is not great. For example, the idea of using nuclear-armed interceptors... is scarcely believable in any scenario except strategic nuclear conflict.

certain agreed limitations.⁶⁴⁹ Moreover, most residual ASAT means are capable of attacking satellites in LEO only.⁶⁵⁰ Even so, it has been suggested that a comprehensive ban on the development, testing and deployment of ASATs should include, as an ancillary measure, an amendment to the ABM Treaty prohibiting the development and testing of ground-based BMD weapons with exoatmospheric range.

Thus, the existence of residual means of destroying satellites is no reason not to consider far-reaching restrictions on dedicated ASATs. It is merely one factor to be considered in designing an ASAT arms control regime.

⁶⁴⁹ *Id.*, at 19.

⁶⁵⁰ *Id.*, at 12.

7.2.2.3 Resolving the Anti-Satellite "Arms Control Dilemma"

Reconciling a desire to preserve stabilizing satellites from harm while simultaneously placing at risk of destruction those which perform undesirable, destabilizing functions has been called "the arms control dilemma."⁶⁵¹ Two solutions to this dilemma have been proposed. One is consistent with a comprehensive ban on ASAT activities. The other would permit certain ASAT activities and proscribe others. These are, respectively, (a) negotiated restrictions on destabilizing satellites and (b) a high altitude ASAT ban.

7.2.2.3.1 Negotiated Restrictions on Destabilizing Satellites

If one deplores the effect of certain sensor or weapon systems, one can always agree to prohibit their development, testing and deployment or limit their capabilities. There is no reason why this could not be done with certain types of satellites, and it has been suggested by a number of observers.⁶⁵²

In fact, a capability limitation on early warning satellites (the desirable function) would be necessary in connection with a ban on all or on space-based BMD components in order to insure that they did not acquire the ability to track ballistic missiles for BMD purposes (the undesirable function).

⁶⁵¹ See, generally, Jasani (ed.), *Arms Control Dilemma*, *supra*, note 544.

⁶⁵² E.g., Vlasic, "Disarmament Decade", *supra*, note 93, at 203, who suggests this for destabilizing satellites in general and GPS navigation satellites in particular. See also R. Buchheim [U.S. Ambassador to the bilateral U.S.-Soviet ASAT talks of 1978-9], "Anti-Satellite Weapons and Some Related Matters", in Jasentuliyana (ed.), *Maintaining Outer Space For Peaceful Uses*, *supra*, note 21, 270, at 271:

... [I]f such radar satellites [RORSATs] become an unbearable nuisance, why not construct an agreement to prohibit them?

In the case of surveillance satellites, the undesirable capability comes with real-time data transmission and interpretation. Only then are mobile forces placed at risk.⁶⁵³

The desirable aspects of surveillance — crisis monitoring and arms control verification — can be maintained without real-time capability.

7.2.2.3.2 A High-Altitude Anti-Satellite Ban

An examination of military satellites reveals many of their more destabilizing functions to be performed by satellites in LEO. The more desirable, stabilizing functions tend to be carried out by satellites in much higher orbits. Moreover, there is a certain constancy to this state of affairs. Many destabilizing satellite missions cannot be performed from higher orbits. Although navigation satellites can and have been moved to higher orbits⁶⁵⁴ and EORSATs could be but have not yet been,⁶⁵⁵ RORSATs would have such poor resolution in higher orbits that there is little prospect of their leaving LEO. The same is true of any future surveillance satellite used to locate SSBNs, mobile ICBMs, satellite ground stations or aircraft.⁶⁵⁶ Certain orbital BMD components, such as

⁶⁵³ The *Aspen Report*, *supra*, note 644, at 8, confirms this:

Looking ahead, the real operational significance of Soviet space-based reconnaissance in wartime will depend on whether new systems can compress the "intelligence recycle" time to a point where they can actually direct attacks on mobile land or sea targets or (in the distant future) aircraft. "Real-time" targeting by satellites is not now a major threat to our security. But it is prudent to assume that they will expand their capabilities in this area (as we will) in the future. At that point our ASAT option will become much more attractive than it is now.

It follows that this future motivation for the maintenance of an ASAT capability would be lacking if real-time surveillance satellites were limited by agreement. U.S. interest in ASATs waned considerably following the prohibition of the deployment of nuclear "bombs in orbit" — the space system that early U.S. ASATs were primarily intended to counter. (Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 240)

⁶⁵⁴ See Appendix 1, Section A1.2.1.4.

⁶⁵⁵ See Appendix 1, Section A1.2.1.2.3.

⁶⁵⁶ The reason for this is that radars, being active sensors, have the resolution of their images degraded as the fourth power of any increase in their distance from a sensed object. The resolution of imagery from passive sensors, such as any satellites for locating aircraft are likely to use, varies inversely with the square of the distance increase.

KEW interceptors and most targeting sensors, would also be restricted to LEO.

Some of the most important stabilizing functions (early warning, communications to strategic forces and between the superpowers), on the other hand, are performed by satellites in high orbits while those that cannot be moved to higher orbits (e.g. reconnaissance) can be performed by non-satellite means.

These observations have led some to conclude that the best solution to the "arms control dilemma" of satellites and ASATs is a high-altitude ASAT ban. This would create a sanctuary for those satellites which perform desirable, stabilizing functions, while permitting low-orbit ASAT development to proceed as a discouragement to undesirable, destabilizing satellite uses of LEO.⁶⁵⁷

⁶⁵⁷ This is the solution proposed by the *Aspen Report*, *supra*, note 644, at 16. It is also the central thesis of Carter's "Satellites and Antisatellites" (*supra*, note 620). It has been claimed that such a regime could permit the testing and even deployment of space-based DEWs – as long as these remained in LEO – and still offer protection to high-orbit satellites. (*Id.*, at 96.) Many analyses assert that any DEW that is BMD-capable must, *a fortiori* be ASAT-capable as well. Carter regards this as an oversimplification that ignores the fact that high-orbit satellites hardened against DEW effects would be relatively invulnerable to even BMD-capable DEWs, as long as the latter remained far away in LEO.

The same is true of space-based KEWs. Even hypervelocity railgun projectiles with velocities of 25-30 km./sec. would take almost 20 minutes to arrive in GSO from altitudes of about 1,000 km. This would permit maneuvering satellites to evade them. If high-orbit satellites were deployed in super-synchronous orbits, the flight time would be longer still.

The wisdom of such a solution is less clear now that the most probable BMD DEW scheme involves ground-based lasers, large relay mirrors in high Earth orbit and smaller fighting mirrors in LEO. A high-orbit ASAT ban would offer sanctuary to the larger and less numerous (and, therefore, more vulnerable) relay mirrors while allowing ASAT capabilities to be mounted only against the smaller, more proliferable (and, hence more survivable) fighting mirrors.

As mentioned, a detailed analysis of the numerous possible ASAT arms control regimes is beyond the scope of this thesis. For a thorough discussion of these, see United States, Congress, Office of Technology Assessment, *Anti-Satellite Weapons, Countermeasures and Arms Control* (Washington, D.C.: USGPO, 1985), Chapters 6 ("ASAT Arms Control: Options") and 7 ("Comparative Evaluation of ASAT Policy Options").

APPENDIXES

APPENDIX 1

OUTER SPACE: PHYSICAL CHARACTERISTICS PAST, PRESENT AND PROSPECTIVE MILITARY USES

A1.1 Physical Characteristics of Outer Space

A1.1.1 Gravitational Fields

One of the most important uses to which outer space can be put for *any* purpose, military or civilian, is for the positioning of artificial satellites in orbits around the Earth or other celestial bodies, including the Moon.⁶⁵⁸ Without the force of gravity, an object would simply fly away from the celestial body from which it was launched. Once placed in orbit, an artificial satellite circles the celestial body in whose gravitational field it finds itself without the need to induce such motion artificially. This natural, unpowered circling motion caused by the gravitational field of a celestial body represents the first characteristic of outer space we shall identify as useful for military missions. It makes possible possession of a platform from which one can enjoy, over the course of several hours or days, a direct line of sight to every location on the surface of the celestial body in question. In the case of the Earth, this constitutes a unique advantage. The combined effect of the curvature of the Earth and the notion of exclusive State sovereignty over the airspace above national territory make it impossible to do this from the surface of the Earth, or from aircraft.

One important military use of this unique location is for the surveillance of objects or events on the surface of the Earth of perceived importance to national security. These range from geography, atmospheric conditions and magnetic fields – all natural phenomena – to the precise location of man-made objects of military interest, be they stationary, such as bases and missile silos, or mobile, such as ships, aircraft and troop concentrations.⁶⁵⁹

⁶⁵⁸ The term "artificial satellite," as opposed to "natural satellite," means a satellite that would not be orbiting the celestial body about which it moves but for the actions of man. It means "man-made." Once placed in orbit, an artificial satellite remains there by virtue of the same natural forces as govern the movement of natural satellites such as the Moon, namely the off-setting effects of (a) gravity and (b) centrifugal force. If in a low enough orbit around the Earth, a satellite also experiences friction with the Earth's atmosphere. Because the effects of gravity and atmospheric drag, if any, often exceed that of centrifugal force, especially in low Earth orbits, a small quantity of additional outward force is frequently needed to maintain the same altitude. The procedure of providing this force through the use of small rockets on an artificial satellite is called "station-keeping." The need for station-keeping is the one qualification that must be made to the contention that artificial satellites remain in orbit entirely through the effect of natural forces.

⁶⁵⁹ Information concerning the whereabouts of mobile vehicles in a manner sufficiently timely to be useful for targeting has only recently become available with the development of "real time" satellite reconnaissance. To deliver data in real time simply means to deliver it immediately. For instance, since television transmission is essentially instantaneous, a video image from a satellite-based television camera would provide data in "real time." Since television images have traditionally had much poorer resolution than still photographs, however, the problem has not been transmitting images in real time, but transmitting *high resolution* images in real time.

A second effect of the gravitational attraction of celestial bodies on artificial satellites is that orbits can be selected such that the force of gravity almost exactly off-sets centrifugal force. This makes it possible to place satellites into orbit such that their altitude above the celestial body diminishes only slightly with time, and can therefore be maintained with minimal station-keeping effort. In the case of the Earth-Moon system,⁶⁶⁰ the amount of energy needed to maintain a constant altitude above the Earth in Earth orbit varies with the altitude chosen. The lower the altitude, the stronger is the Earth's gravitational attraction, and the greater is the amount of energy that must be expended to maintain the same orbit. Once a satellite gets close enough to the Moon, however, it will begin to orbit that celestial body instead of the Earth.

In theory, it is possible to place an object into a position where the gravitational attraction of the Moon and that of the Earth exactly offset one another. There are only five such positions in the Earth-Moon system. These are referred to collectively as the "Lagrange Libration Points."⁶⁶¹ A stable constant altitude above the Earth makes these libration points valuable as sites for large, permanent space structures, which could be prohibitively expensive to station in any other location. These structures could be used for the civilian purposes of mining or manufacturing, or as military bases or both.⁶⁶²

Thus, the gravitational attraction of celestial bodies makes possible the circling motion of artificial satellites. This (a) enables them to enjoy a direct line of sight to all points on the Earth and (b) permits a relatively stable altitude to be maintained, particularly at higher orbits.

A1.1.2 The Rotation of the Earth About Its Axis

So far, our description of orbital flight has implicitly assumed the surface of the celestial body to remain stationary relative to the orbital plane of the satellite.⁶⁶³ In the case of the Earth, however, this is not so. The Earth revolves about its axis at the rate of approximately one revolution every 24 hours. This fact is of importance to the military use of space in several ways.

First, it makes possible the special orbit known as geostationary orbit ("GSO" or sometimes "GEO") -- that orbit above the equator of the Earth whose altitude is such that the length of time it takes to complete one orbit of the Earth⁶⁶⁴ exactly equals the length of time it takes the Earth to revolve about its own axis once. At this altitude -- about 36,000 km. -- a satellite travelling from East to West is motionless relative to the *surface* of the Earth.⁶⁶⁵ Its position does not vary significantly from its initial placement above

⁶⁶⁰ The Earth-Moon system is simply the volume of outer space in which these two celestial bodies move.

⁶⁶¹ Of the five, however, only two are truly "stable" in that they are not subject to perturbations attributable to the gravitational field of the Sun. These two are the "Trojan" libration points, also known as "L4" and "L5." (M. Vaucher, "Geographical Parameters for Military Doctrine in Space and the Defense of the Space-Based Enterprise", in Ra'anani and Pfaltzgraff (eds.), *International Security Dimensions of Space*, *supra*, note 93, at 37-8 (hereinafter "Geographical Parameters"))

⁶⁶² *Ibid.*

⁶⁶³ A satellite's orbital plane is that two-dimensional area in which its orbit is located. All orbital planes bisect the Earth and contain its centre.

⁶⁶⁴ This length of time is called the "orbital period."

one particular point on the Earth's equator.⁶⁶⁶

A second consequence of the rotation of the Earth is that it permits a satellite in polar orbit to pass over every single part of the Earth's surface over the course of several orbits. This is possible because, although the orbital plane of the satellite does not change, the Earth revolves underneath it. A low orbiting satellite around a celestial body that did *not* rotate would pass over the same terrain orbit after orbit, and would never have a direct line of sight to most of that body's surface. This is not the case for Earth satellites in polar orbits that, over the course of a number of orbits, enjoy a direct line of sight to every point on the Earth's surface.

A1.1.3 The Earth's Atmosphere vs. the Vacuum of Space

Unlike outer space, which is characterized by the absence of matter in the great expanses between celestial bodies, the surface of the Earth is surrounded by a gaseous atmosphere. The transition from atmosphere to vacuum does not occur abruptly at a certain altitude. Instead, the density of the atmosphere falls off gradually as one leaves the Earth's surface. Consequently, parts of what is commonly regarded as outer space, namely the very lowest orbits at which satellites are currently able to fly without falling to Earth, do in fact contain traces of air. All of this has implications for various military uses of outer space.

First, the presence of atmosphere, even in the very thin form in which it is found where the very lowest satellites orbit the Earth, adds to the cost of satellite upkeep by requiring "station-keeping" rockets to intermittently thrust the satellite away from the Earth.⁶⁶⁷ Friction with the atmosphere can cause a satellite to slow down enough for the forces of gravity to overwhelm the centrifugal force that keeps it aloft, unless a rocket engine is used to thrust it away from the planet. Failure to make this adjustment results in the satellite's eventual re-entry into the atmosphere, where it burns up from friction with the air. Since most objects are completely burned up on re-entry, this has the positive effect of cleansing LEO of much of the space debris that would otherwise clutter it up and make safe passage to higher orbits or interplanetary trajectories all but impossible. On the other hand, some objects are too large and/or well protected from the heat of re-entry to burn up completely. These can fall all the way to the Earth's surface, possibly harming people or damaging property there.

⁶⁶⁵ GSO satellites still move, as all satellites do, relative to (i.e. around) the Earth's *centre*.

⁶⁶⁶ A satellite in GSO maintains an altitude of approximately 35,786 km. from the surface of the Earth. (J. Gehrig, "Geostationary Orbit – Technology and Law", *Proc. 19th Colloq. L. Outer Space, supra*, note 24, 267, at 275) It therefore traces a circular orbit of about 264,790 kilometers in length.

The above describes the *theoretical* definition of GSO. In practice, GSO refers to a three-dimensional band of outer space within a several hundred mile range around the theoretical altitude, and within a few degrees of the equator. The resultant total volume of the space known as GSO, and exhibiting enough of the stationary characteristic of "pure" GSO to be useful for communications – the main use to which the orbit is put – is about 300,000 million cubic kilometers (*Id.*, at 268) or over 200 times the total volume of the Earth's oceans. The latter is a mere 1,370 million cubic km. (E. Luard, *The Control of the Seabed: Who Controls the Resources of the Oceans?*, rev. ed. (London: Heinemann, 1977), at 5)

⁶⁶⁷ Station-keeping also counteracts the Earth's gravitational pull.

Second, the Earth's atmosphere has the effect of distorting, attenuating or blocking altogether the passage of various forms of electromagnetic radiation. This fact reduces the prospects for Earth basing of certain directed energy weapons (DEWs)⁶⁶⁸ intended for use against targets in outer space. It also limits the types of DEW that can usefully be based in outer space for use against targets on the Earth's surface, or in its atmosphere.⁶⁶⁹

Other kinds of electromagnetic radiation can pass through only very short distances in air, and are thus not useful for missions that call for them to pass through the atmosphere. For example, many of the technologies proposed for space-based BMD would be rendered ineffective against ballistic missiles in their boost phase once the duration of this part of their flight is shortened so that it takes place entirely within the atmosphere.

Many military missions, however, can be achieved entirely within the vacuum of space, outside any trace of the Earth's atmosphere. One example would be most space-based ASAT missions, where both the weapon and the target are located in space. How, then, does this vacuum affect various military uses of space?

First, it places no obstacle in the way of solid objects that are in motion. This is important for a number of reasons. One important consequence of the absence of matter in space (or of very thin air in low Earth orbit (LEO)) has been flimsy satellite design. Because they need not withstand the stresses of travel through air, present-generation satellites are much less robust than are aircraft. Although this has reduced the weights that must be placed in orbit, it has left presently-deployed satellites, for the most part, extremely vulnerable to all manner of destructive interference, rendering many ASAT technologies much more potent than they would have been had satellite design evolved more towards robustness.⁶⁷⁰

⁶⁶⁸ "Directed energy weapons" are weapons that destroy their targets by directing at them beams of radiation or matter travelling at or near the speed of light.

⁶⁶⁹ For instance, all of the laser weapons proposed for Earth basing and use against satellites will suffer varying degrees of beam distortion unless atmospheric perturbations caused by varying densities of air can be compensated for by what is known as "adaptive optics."

K. Tsipis ("Laser Weapons", *Scientific American* December 1981, at 54-6), cites 5 ways in which the passage of laser radiation through the atmosphere can be impeded: (a) absorption by air molecules and particulate matter (dust, water droplets, smoke particles), (b) reflection or "scattering" by the same elements, (c) "thermal blooming" (beam divergence caused by the tendency of light waves to bend away from the hotter, less dense region at the centre of the laser beam – hotter because of the beam energy absorbed by the air), (d) discrepancies in air density along the laser's path, more commonly known as "turbulence," which make a beam diverge, and (e) the ionization of the air resulting in the creation of a beam-absorbing plasma.

Only in the case of a pulse of *X-rays* does the atmosphere prevent propagation altogether. Visible light, ultraviolet and infrared laser beams can be generated that are only partially affected by these phenomena. Thus, in the case of these lasers, the disadvantage to atmospheric propagation is not total blockage, but a need for increased energy levels at the source to produce a given level of energy deposition at the target.

⁶⁷⁰ This situation can be corrected in the future through the implementation of a number of satellite survivability measures. Many of these, however, involve significant cost penalties due to their additional weight.

Second, the total absence of resistance to the motion of solid objects makes feasible space-based BMD and ASAT weapon systems that hurl small, high-velocity projectiles through space at their targets. In space, these can reach their targets many thousands of kilometers away without the reduction in velocity (and, hence, lethal range) that would attend their passage through the Earth's atmosphere.

In addition to facilitating the movement of solid objects, the vacuum of space is an ideal medium for the propagation of electromagnetic radiation. This permits efficient communications to, from and between satellites via transmitted radio waves. It also permits sensors operating at various wavelengths to produce high-resolution images of Earth-bound objects, aircraft or other spacecraft.⁶⁷¹

Directed energy weapon (DEW) technologies also benefit from a matter-free propagation medium. While the atmosphere interferes with the passage of laser radiation in various ways, a vacuum does not. The characteristics of this apparently ideal DEW propagation environment should not, however, be exaggerated. Beams of directed energy cannot deposit all of their energy on small targets over long distances in space because even there they are subject to "beam spread," a gradual widening of cross-section as the beam leaves its source.⁶⁷² Thus, a space-based laser ASAT weapon that could destroy a satellite a few hundred kilometers distant by irradiating it for just a few minutes, would take much longer to do so to a satellite several thousand kilometers away. This discrepancy in time can mean the difference between a potentially destabilizing "prompt" ASAT capability and one that gives too much warning to be of much military value.

One final important implication of the absence of air in outer space is its effect on the way in which nuclear weapons detonated there disperse their energy. In the atmosphere, the three-quarters of a nuclear explosion's energy released in the form of X-rays is absorbed in only a very few feet of air, causing the massive fireball and consequent blast effect largely responsible for the destruction of targets. In the vacuum of space, nuclear explosions generate no blast effect because there is nothing to absorb the X-rays.⁶⁷³ On the other hand, the X-rays can travel many thousands of kilometers in space and themselves be used to destroy space objects. X-rays caused to travel in the same direction as one another are the basis for the "X-ray laser," a weapon under development for BMD and ASAT use in outer space.

This is not to say that isotropic⁶⁷⁴ nuclear explosive devices are of no use as space weapons. Although there is no blast effect, unchanneled X-rays, together with a phenomenon known as electromagnetic pulse (EMP)⁶⁷⁵ would combine to damage unprotected optical sensors, electronic circuitry, solar power panels and other sensitive devices on satellites over great distances.⁶⁷⁶ Furthermore, the radiation

⁶⁷¹ In the case of the former this is subject to atmospheric distortion.

⁶⁷² Beam spread in lasers occurs in the vacuum of space because it is not a consequence of atmospheric propagation, but of the wave nature of electromagnetic radiation. It can be minimized by increasing the frequency of the light generated and the diameter of the mirror used to reflect it at the target, but can never be removed entirely. (*Ibid.*) Particle beams are subject to beam spread as well.

⁶⁷³ Wilkes, "The Arms Race in Space", *supra*, note 617, at 107.

⁶⁷⁴ Isotropic nuclear explosive devices are those that release their energy equally in all directions.

⁶⁷⁵ Tirman (ed.), *The Fallacy of Star Wars*, *supra*, note 614, at 134. EMP effects overload components and cause the failure of electronic circuits.

⁶⁷⁶ O. Wilkes, "The Arms Race in Space", *supra*, note 617, at 107. Indeed, the destructive capacity of

released will always be of use in killing the occupants of manned space vehicles, should these ever be deployed in combat roles. Manned space vehicles could thus be disabled by nearby nuclear bursts or by distant detonations trapped by the Earth's magnetic field.⁶⁷⁷

A1.1.4 Advantages of High Altitude

In reading about the military use of space, one often encounters the phrase "(seizing) the high ground of space" -- the cosmic analogue of taking a hill in conventional terrestrial warfare. There are essentially two advantages to commanding the high ground, be it in space or on land. First, you put gravity on your side. On land this confers an advantage in the range at which one's artillery can be effective, all else being equal. For space vehicles, higher altitude equals lower gravitational attraction equals greater maneuverability.⁶⁷⁸ Second, in space, as on Earth, the higher ground affords a better view of the battlefield. A satellite in high Earth orbit enjoys a direct line of sight to a large portion of the Earth's surface.⁶⁷⁹ Near-global communications coverage, for instance, can be achieved with a mere four satellites in GSO.⁶⁸⁰

There are some satellite missions, however, for which high altitude is disadvantageous. This is the case for most satellites that survey the Earth's surface. The resolution of photographs taken by photoreconnaissance satellite varies inversely with the square of the altitude change. Where images are obtained by means of active radar, additional altitude leads to poorer resolution still; resolution varies inversely with the fourth power of the altitude change.⁶⁸¹

Thus, the use of space for military missions can be directly linked to identifiable advantages associated with the space environment stemming from its physical characteristics. These have provided, and will continue to provide, the motivation for developments in military space technology.

nuclear weapons in an ASAT role is such that even the most successful conceivable "hardening" of satellites against nuclear effects is expected to do no more than oblige an attacker to resort to "one-on-one targeting" -- the use of one nuclear explosive device per satellite attacked.

⁶⁷⁷ Carter, "Satellites and Antisatellites", *supra*, note 620, at 71-2. Human beings are about 100 times more susceptible to radiation than ordinary space equipment and about 10,000 times as susceptible as electronics that have been hardened against radiation.

⁶⁷⁸ This has led some to comment that significant, if not decisive, control over activities in the entire Earth-Moon system can be achieved by establishing military bases (presumably with many manned military space vehicles stationed there) at the Lagrange libration points, which sit at the top of the Earth's "gravity well." (Vaucher, "Geographical Parameters", *supra*, note 661, at 44)

⁶⁷⁹ For a comparison of the area of the Earth's surface visible from GSO with that visible from an altitude of 1,000 km., and the relative apparent size of the Earth from each altitude, see Figures 1 and 2, *infra*.

⁶⁸⁰ See Figure 3, *infra*.

⁶⁸¹ Carter, "Satellites and Antisatellites", *supra*, note 620, at 95. Not only does additional altitude reduce the resolution of radar images, it also makes the jamming and deception of radar reconnaissance satellites -- important countermeasures to them -- easier to do.

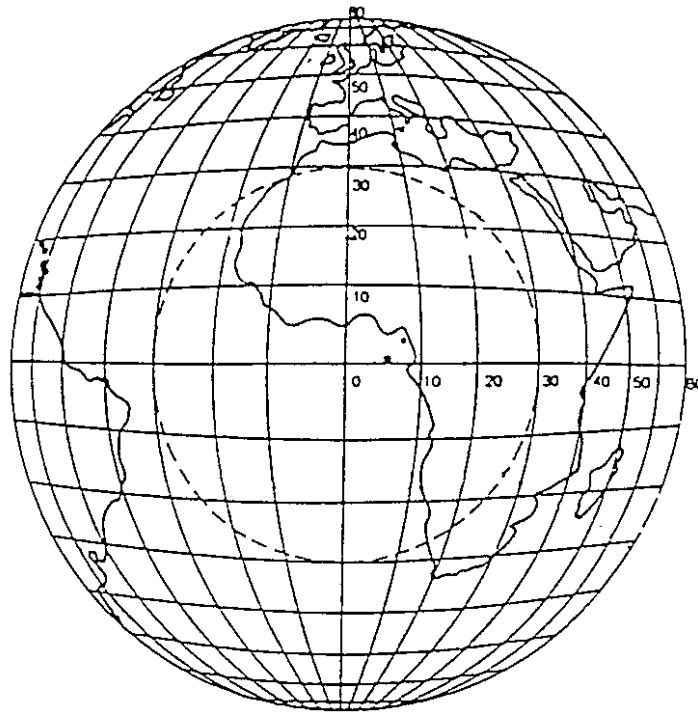


Figure 1: View of the Earth from GSO and from 1,000 km. LEO.

View of the Earth from GSO (Dashed circle indicates portion of Earth's surface visible from 1,000 km. LEO)

(Source: Carter, "Satellites and Antisatellites", *supra*, note 620, at 57-8; adapted from W.G. Collins and J. van Genderen, *Fundamentals of Remote Sensing* (London: 1974))

A1.2 Uses of Outer Space With Military Applications

We shall now examine the various uses to which outer space has been or may be put in support of States' national security concerns. Of these uses, one can distinguish between space systems that

1. have been developed expressly for military use, termed "dedicated" military systems,
2. serve primarily civilian ends but have some capacity to carry out military missions as well, termed "ancillary" or "residual" military systems, or
3. were designed to fill both civilian and military needs.

A second distinction one can make is between those military systems that are used to destroy an adversary's military assets *directly* and those that play a supporting role only. The former are usually

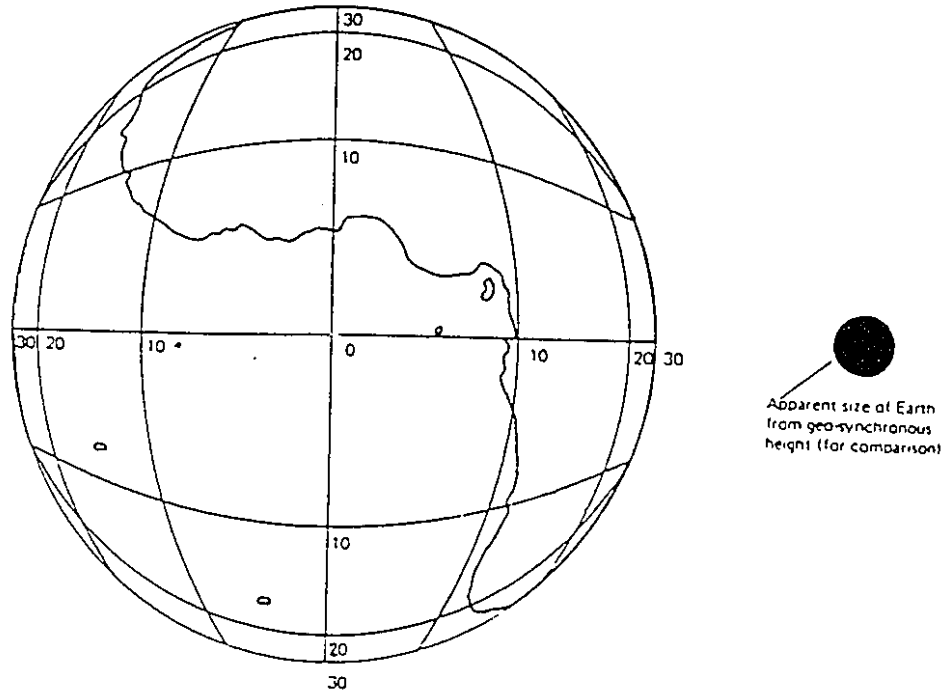


Figure 2: View of the Earth from 1,000 km. LEO and from GSO.

View of the Earth from 1,000 km. LEO (Smaller dark circle represents relative apparent size of the Earth from GSO)

(Source: Carter, "Satellites and Antisatellites", *supra*, note 620, at 57-8; adapted from Collins and van Genderen, *Fundamentals of Remote Sensing*)

referred to as "weapons."⁶⁸² Their introduction into the space environment is coming to be referred to as the "weaponization" of space. With a few notable exceptions, the weaponization of space has yet to occur to any great extent. The proliferation of *all* manner of military space systems – weapon systems and non-weapon support systems alike – is referred to as the "militarization" of space. Outer space, or at least Earth orbit, has been heavily *militarized* since the advent of the space age and is certain to remain so for the foreseeable future. Too many important stabilizing non-weapon functions are performed by space systems for it to be otherwise.

Calls for the complete *demilitarization* of space are therefore naive and irrelevant at best, and deliberately non-negotiable and obstructionist at worst. The important policy debate concerns whether additional international legal norms should be adopted to limit the further development, testing and deployment of *weapons* for use in, from or towards outer space. Indeed, the case for the desirability of most *non-weapon* military space systems is so strong that one of the most important reasons for limiting space weaponry is to ensure that these non-weapon applications can continue to flourish in an environment free from the risk of

⁶⁸² E.g., "anti-satellite weapons" (ASATs), "directed energy weapons" (DEWs).

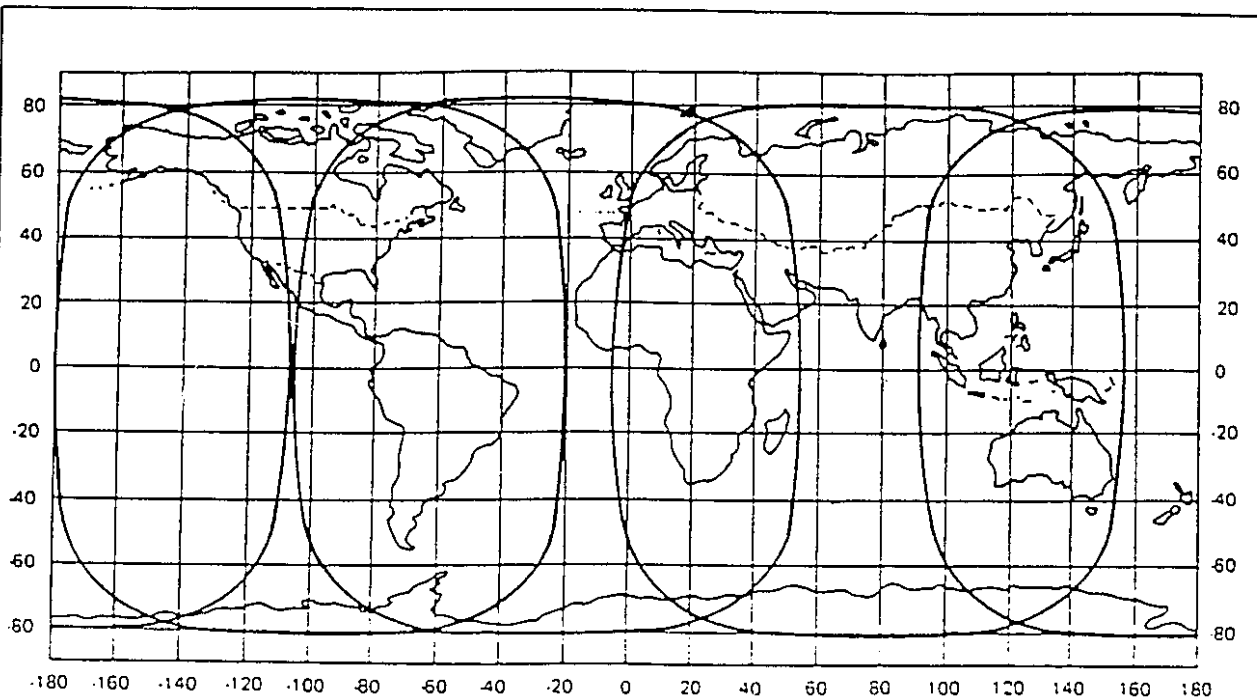


Figure 3: Four GSO Comsats Provide Worldwide Coverage at Mid-Latitudes.

(Source: Carter, "Satellites and Antisatellites", *supra*, note 620, at 62)

their prompt and widespread destruction.

A1.2.1 Non-Weapon Military Space Systems

Four broad classes of non-weapon military space system can be identified. One is composed of those systems that take measurements of natural phenomena. These satellites perform such functions as geodesy – mapping of the Earth's geography and magnetic fields – and the reporting of meteorological and oceanographic conditions.

A second class also makes observations, but of human activity rather than natural phenomena. This class may be termed "surveillance satellites." The human activities of most interest to one military establishment are, of course, those carried out by other, particularly adversarial, military establishments. Hence, military surveillance satellites monitor all manner of military deployments, from troops to strategic ballistic missile submarines (SSBN), as well as tests of military equipment. Images are obtained by collecting radiation reflected or naturally emitted from objects of interest in various parts of the electromagnetic spectrum – ultraviolet (UV) light, visible light, infrared (IR) radiation and reflected radio waves, primarily.

Surveillance is carried out for three purposes: (a) to verify other States' compliance with arms control obligations (b) to provide early warning of surprise attack and (c) to precisely locate an adversary's terrestrial military assets for targeting purposes. The first two of these are universally recognized as playing a stabilizing role in world affairs and are generally regarded as deserving the utmost protection from disruption. There is much debate, however, over the desirability of many forms of targeting surveillance. This is particularly true where the possibility of the prompt destruction of the targeted forces threatens the maintenance of strategic deterrence.

A third broad class of non-weapon military space system is communications satellites. These transmit data from one military unit to another within a limited theatre of operations, or around the world.

Finally, there is the fourth class, navigation satellites. These send out radio signals by which all manner of surface vehicles on the Earth can calculate their positions and velocities with varying degrees of accuracy, depending on the system used.

A1.2.1.1 Observation of Natural Phenomena

A1.2.1.1.1 Geodesy

Geodesy is the study and mapping of the Earth's size and shape, its gravitational fields and its surface features, including the location of human settlements and military targets.⁶⁸³ Satellites are widely used to increase knowledge in this field.⁶⁸⁴ The information is useful in increasing the accuracy of ballistic and cruise missiles.⁶⁸⁵

⁶⁸³ Jasani (ed.), *New Dimension*, *supra*, note 19, at 65.

⁶⁸⁴ *Ibid.*

⁶⁸⁵ *Ibid.*

A1.2.1.1.2 Meteorology

Both superpowers use meteorological satellites to support military missions. The data they acquire are used to plan cloud-free routes for maneuverable photoreconnaissance satellites and to plan trajectories for ballistic missiles that compensate for wind and precipitation.⁶⁸⁶

A1.2.1.1.3 Oceanography

Oceanographic satellites determine conditions on and under the world's oceans. In addition to being put to the same purposes as meteorological satellites, they are also used in the detection of submarines.

A1.2.1.2 Surveillance of Military Structures and Activities

A1.2.1.2.1 Photoreconnaissance

There are two broad types of photoreconnaissance satellite. These complement one another. Lower resolution "area surveillance" satellites scan broad areas of the Earth's surface in search of likely locations for more detailed observation, which is then undertaken by the second type, the "close-look" satellite.⁶⁸⁷

⁶⁸⁶ The United States operates approximately 4 GOES (for "Geostationary Operational Experimental Satellite") meteorological satellites in GSO. In addition, 2 DMSP (for "Defense Meteorological Support Program") satellites fly in near-polar LEO at approximately 800 km. altitude.

The Soviet Union operates an older type of military weather satellite in LEO, with about three of these in operation at a time. She is just beginning to place weather satellites in GSO, following the U.S. lead, and plans an eventual constellation of four satellites there. (See Tables 12 and 13, *infra*, Appendix 2, for authorities and further information about meteorological satellites.)

⁶⁸⁷ The U.S. flies "Big Bird" close-look satellites in near-polar orbits of between 180 and 290 km. These can stay aloft for about 200 days.

The area surveillance mission is performed for the U.S. by the newer "KH-11" satellite which, in point of fact, blurs the distinction between area surveillance and close-look missions by performing both. It appears as if an effort is being made to keep two KH-11s in orbit at all times. They orbit somewhat higher at 240 to 530 km. Consequently, it is possible to keep them in orbit for longer periods, about 700 days or more, station-keeping being less demanding at this higher orbit. Both Big Birds and KH-11s are flown in near-polar orbits of about 97 degrees' inclination.

The Soviets have also employed photoreconnaissance satellites in two distinct altitude ranges, implying separate close-look and area surveillance missions. These are both flown at orbital inclinations of about 70 degrees, unlike the near-polar orbits of their U.S. counterparts. There are usually anywhere from 0 to 4 aloft at any one time, with 2 or 3 being most common.

The lifetimes of Soviet photoreconnaissance satellites have traditionally been much shorter than those of U.S. satellites. Many Soviet close-look versions have been staying aloft only 14 days, even in the 1980s. Their longevity seems to be on the upswing, though, with many fourth-generation versions in 1982-3 lasting between 30 and 50 days. The Soviets' first long-lived high resolution satellite, lasting 173 days, was launched in 1984, but this longevity appears to have been anomalous. (See Tables 2 and 3, *infra*, Appendix 2, for authority for this and subsequent statements in this section pertaining to photoreconnaissance satellites.)

A1.2.1.2.2 Radar Imaging Ocean Reconnaissance (RORSAT)

RORSATs use active radar to pinpoint the location of ships. They are flown at heights of about 250 km.⁶⁸⁸ The U.S.S.R. has operated such satellites from time to time, without any consistency in the numbers deployed simultaneously.⁶⁸⁹

RORSATs are powered by small nuclear reactors, and are therefore boosted into higher orbits at the end of their useful lifetimes in order to avoid the dangers to the Earth's environment of disintegrating nuclear materials.

Although the U.S. deploys ocean surveillance satellites with radar on board, these do not use nuclear power sources.

A1.2.1.2.3 Electronic Intelligence

Electronic intelligence (ELINT) and electronic ocean reconnaissance (EORSAT) satellites eavesdrop on military radio communications, the former generally, the latter with particular attention to communications emanating from ships. The data thus obtained is used to monitor the movements and alert status of an adversary's military forces. This serves the stabilizing function of providing reassurance that no surprise attack is in the offing, since such an attack would most likely require considerable radio communications to implement.

Radio transmissions also permit the monitoring of weapons testing. This is also a desirable function, as it facilitates the verification of arms control agreements that place constraints on such testing.

Intercepted radio transmissions also permit, in conjunction with photographic and radar images from reconnaissance satellites, the location of mobile forces such as mobile ICBMs and surface ships. This is arguably a destabilizing function, since it makes aggressive pre-emptive attacks against such forces more plausible. Indeed, one of the main rationales for U.S. development of a non-nuclear low-altitude ASAT weapon is a purported need to acquire the ability to destroy Soviet RORSATs and EORSATs, which might otherwise combine to locate U.S. surface shipping.

The U.S. deploys a classified number of ELINT satellites in near-polar LEO.⁶⁹⁰ There are also U.S. ELINT satellites called "Rhyolite" in GSO. The exact number of these is also classified, although it would appear to be a very low number, probably less than 4.

⁶⁸⁸ See Table 4, *infra*, Appendix 2, for authorities for this and subsequent statements concerning RORSATs.

⁶⁸⁹ In 1982 there was an apparent effort to keep 2 in orbit at all times, but in 1983 there was scarcely any coverage at all, even by one satellite at a time.

⁶⁹⁰ Altitudes have ranged from 480 to 1,290 km. (See Tables 5 to 8, *infra*, Appendix 2, for authorities for this and subsequent statements concerning ELINT and EORSAT satellites.)

Soviet ELINT satellites operate in orbits of about 620 to 670 km. altitude. There are about 8 or 10 in the full constellation.

A classified number of U.S. EORSATs flies in 1,100 km. orbits. Soviet EORSATs orbit at much lower altitudes than their U.S. counterparts – about 430 km. Only one or two are ever in orbit at a time. They are flown in pairs with RORSATs.

A1.2.1.2.4 Early Warning of Ballistic Missile Attack

Arguably the most important function performed by military satellites from the point of view of strategic stability is that assigned to early warning satellites. This mission entails surveying the missile fields of a potential adversary to assure oneself that no ICBMs have been launched in an attack. Because preparations for retaliation take time, prompt warning is of the essence. It seems to be generally accepted that early warning satellites would provide about thirty minutes' warning of the flight of strategic ballistic missiles between the U.S. and U.S.S.R. This is about twice as much warning as would be provided by ground-based early warning radars.

In addition to increased warning time, early warning satellites provide a valuable second system of missile warning. Having two independent systems strengthens crisis stability and reduces the chance of accidental nuclear war. The findings of one system can be checked against those of the other while preparations for a response are undertaken.⁶⁹¹

A1.2.1.2.5 Nuclear Explosion Detection

Another type of surveillance satellite is the nuclear explosion detection satellite (NUDETS). Traditionally, the purpose of detecting nuclear explosions has been to facilitate the monitoring of compliance by other States with the three international treaties restricting nuclear test explosions – the Partial Test Ban Treaty, the Treaty of Tlatelolco⁶⁹² and the Non-Proliferation Treaty – as well as bilateral undertakings given in connection with transfers of peaceful nuclear technology.⁶⁹³

⁶⁹¹ Karas, "Military Satellites and War-Fighting Doctrines", *supra*, note 613, at 48.

Missile warning satellites scan known missile fields for the infrared radiation emitted by the rocket plumes of ICBM boosters. The U.S. currently deploys about 3 such satellites in GSO. (See Tables 9 and 10, *infra*, Appendix 2, for authority for this and subsequent statements concerning the early warning satellites of both superpowers.)

The Soviet Union deploys about 9 early warning satellites. These are not in GSO but in highly elliptical "Molniya" orbits of about 600 km. perigee and 40,000 km. apogee. By 1989, however, the Soviets were to have followed the U.S. lead and deployed three early warning satellites in the less vulnerable GSO.

⁶⁹² *Treaty for the Prohibition of Nuclear Weapons in Latin America*, opened for signature, 12 May 1971, 22 U.S.T. 754, T.I.A.S. No. 7137, 634 U.N.T.S. 281.

⁶⁹³ This may explain why the U.S. deploys satellites for this purpose while the Soviet Union, as far as is known, does not. Owing to the open nature of Western society, the Soviet Union can probably monitor the territory of the U.S. for any possible atmospheric nuclear tests in breach of the Partial Test Ban Treaty without a satellite system dedicated to the task. The U.S., on the other hand, cannot maintain similar confidence in Soviet compliance with the Partial Test Ban Treaty without nuclear explosion detection satellites. In addition, the U.S. has assumed a leadership role in monitoring NPT

The first generation of U.S. nuclear detection satellite was the "Vela," of which a classified number were orbited in supersynchronous orbits of 110,000 km. altitude. These are being replaced by Integrated Operational Nuclear Detection System ("IONDS") satellite packages aboard each of the 18 new NAVSTAR GPS navigation satellites in semi-synchronous orbits of about 20,000 kilometers.⁶⁹⁴

A1.2.1.3 Communications

Military communications satellites are used in essentially three ways: (a) to relay peacetime communications between military headquarters and forces in far-flung parts of the world, (b) to allow wartime communications between military forces within a theater of war, and (c) to allow reliable communications from the national command authority to the commanders of strategic nuclear forces at strategic bomber bases, ICBM fields and on strategic ballistic missile submarines (SSBN) in wartime.⁶⁹⁵

Peacetime communications are sent via satellite only for reasons of convenience and economy. Satellites that handle nothing but peacetime communications are not hardened against nuclear effects and cannot be relied upon to perform wartime functions. Those used for tactical wartime communications are somewhat better protected. Those in the third class, for handling communication with strategic forces, are generally much better protected. The U.S. deploys three satellite systems that correspond roughly to the three types of communication mission listed above.⁶⁹⁶ The Soviet Union has deployed two general types of

compliance, whereas the U.S.S.R. has not. The U.S. is also interested in monitoring non-nuclear weapon States not party to the NPT that are on the threshold of nuclear weapons capability, particularly those whose nuclear technology was supplied by the U.S.

⁶⁹⁴ These will operate at an orbital inclination of 64 degrees, in a "birdcage" configuration with 3 satellites in each of six orbital planes, separated by 60 degrees.

Because IONDS can discern the origin of nuclear explosive effects with more precision than "Vela," and because it will be deployed on 18 satellites, it will become possible to locate nuclear explosions on the surface of the Earth with great accuracy, using the time-difference-of-arrival method. This will make it possible to use nuclear explosion detection information in two new ways unrelated to the monitoring of treaty compliance.

First, precise data about the location of nuclear bursts on one's *own* territory, or above it, following a strategic nuclear attack will permit more accurate assessment of the exact extent of the damage incurred. This will allow determination both of the appropriate response and of the surviving forces available to carry it out.

Second, precise information about the location of nuclear bursts on the territory of one's *adversary* can be used to determine how destructive one's own nuclear attack has been. This "damage assessment" function allows one to know which targets have been destroyed and which have not, so that only the latter will be targeted in any subsequent attack(s).

⁶⁹⁵ Carter, "Satellites and Antisatellites", *supra*, note 620, at 55-59.

⁶⁹⁶ Peacetime communications are carried, for the most part, on the "Defense Satellite Communication System" (DSCS). The "Fleet Satellite Communication System" (FLTSATCOM) handles the tactical communications mission, and the "Air Force Satellite Communications System" (AFSATCOM) handles the important task of communicating with U.S. strategic nuclear forces. (*Ibid.*)

There are about 2 or 3 DSCS satellites in orbit at any given time. (See Tables 14 and 15, *infra*, Appendix 2, for authority for this and subsequent statements concerning communications satellites.) These follow Molniya orbits with apogees of about 40,000 km. and perigees of about 250 km., at an

communications satellite -- tactical and strategic.⁶⁹⁷

A1.2.1.4 Navigation

For years both superpowers have maintained constellations of navigation satellites to aid vehicles, both military and civilian, in moving over and above the surface of the Earth. Of particular importance to the military has been the usefulness of these satellites in helping SSBN captains to determine their positions well enough to be able to deliver their missiles with reasonable accuracy. All military shipping, however, has come to rely on navigation satellites to one extent or another.

At the present time, both superpowers are in the process of moving from the first to the second generation of navigation satellite.⁶⁹⁸

orbital inclination of 64 degrees. This situation was not expected to change by 1989. In addition, 4 active and 2 spare "DSCS II" satellites have been deployed in GSO.

FLTSATCOM satellites are also deployed in GSO. There are about 4 to 6 stationed there.

The AFSATCOM system is not located on its own constellation of satellites. Rather, its transponder units are carried by many different types of satellite in various orbits. There are probably more than 25 such units deployed in all, on DSCS satellites in Molniya orbit, on FLTSATCOM satellites in GSO and on the new NAVSTAR GPS navigation satellites in semi-synchronous orbit. Their number and dispersion reflect the importance of their mission. (Carter, "Satellites and Antisatellites," *supra*, note 620, at 56)

Two other U.S. communications satellite systems worth noting are the "TDRS" system and the "MILSTAR" system. TDRS consists of GSO satellites whose function is to relay communications between other satellites, or between ground stations and other satellites. MILSTAR is the next generation of U.S. communication satellite. It will incorporate many survivability features in order to provide the more secure communications needed in wartime. MILSTAR satellites are reportedly to be deployed in GSO.

⁶⁹⁷ Soviet tactical communications are handled by about 25 satellites in LEO of anywhere from 800 to 1,400 km. altitude and usually 74 degrees orbital inclination. Since the area of the Earth's surface within view at any one time from such low altitudes is small, these satellites employ the "store-and-dump" method, accepting messages from the sender, storing the data, and retransmitting it once within sight of the receiver. (For diagrams of the area of the Earth's surface visible from 1,000 km. and from GSO see Figures 1 and 2, *supra*.) By 1989, almost all of these tactical communications satellites were to have been replaced by 12 new ones located in GSO.

The Soviet satellites that handle strategic communications are in Molniya orbits. There are 4 of these deployed for strictly military communications.

⁶⁹⁸ The old U.S. system is called "Transit." It consists of five satellites in polar LEO, one in each of five separate orbital planes. (For a schematic diagram of the Transit constellation, see Figure 4(a), *infra*. For authorities concerning navigation satellites, see Tables 16 and 17, *infra*, Appendix 2. The new system being put in place is called NAVSTAR GPS (for "Global Positioning System"). It will, when completed, consist of 18 satellites in 20,000 km. semi-synchronous orbits, 3 in each of 6 orbital planes. (For a schematic diagram of the NAVSTAR constellation, see Figure 4(d), *infra*.)

The NAVSTAR constellation will not be completely deployed until sometime in or after 1989, although some navigation will be possible with fewer than the full complement of satellites.

The older Soviet system consists of about 10 satellites in near-circular 1,000 km. orbits.

The new Soviet system, called "GLONASS," will consist of twelve satellites in semi-synchronous orbits of about 19,000 km. -- 1,000 km. below the U.S. NAVSTAR system. The entire system was to have been operational by 1989.

Each nation's new system will improve considerably the accuracy with which a user can determine his position (in 3 dimensions) and velocity. In the case of NAVSTAR, plans are underway for use by ballistic missiles – to increase their accuracy to very high levels –, aircraft – to guide them at night or in bad weather – and even footsoldiers, who will be equipped with receivers in backpacks, allowing them to do such things as call in very accurate air strikes.

It is important that the navigation mission be protected. The credibility of the sea-based deterrent depends on it. On the other hand, with the help of the new generation of navigation satellites, the accuracy with which ballistic missiles can be delivered could destabilize the strategic balance by increasing the vulnerability of strategic forces.⁶⁹⁹

⁶⁹⁹ See, generally, R. Aldridge, *First Strike! The Pentagon's Strategy For Nuclear War* (Boston: South End Press, 1983).

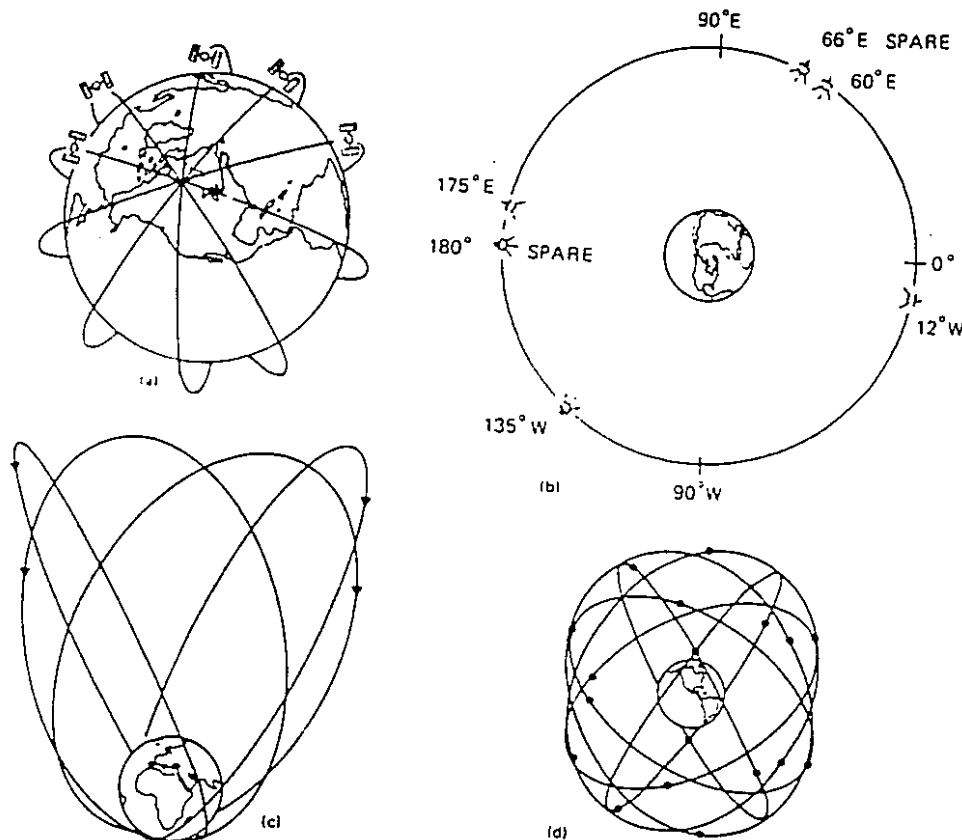


Figure 4: Military Satellite Constellations in the Four Orbit Categories.

- (a) 5 U.S. "Transit" navigation satellites in polar LEO, in 5 separate orbital planes.
- (b) 4 U.S. "DSCS" comsats in GSO.
- (c) 4 Soviet Molniya comsats in inclined Molniya orbits, in 4 orbital planes.
- (d) 18 U.S. "NAVSTAR" GPS navigation and IONDS satellites in inclined semi-synchronous orbits, in 6 orbital planes.

(Source: Carter, "Satellites and Antisatellites", *supra*, note 620, at 53)

A1.2.2 Weapons

The space systems discussed thus far are non-weapon systems used to enhance the performance of Earth-bound weapon systems. Now we shall look at weapons designed to destroy, or capable of destroying, targets in space from locations on Earth, in its atmosphere or in space, or targets on Earth or in its atmosphere from locations in space. Collectively, such systems are known as "space weapons," a misleading term that may imply basing in or operation from space. At the present time, however, the only "space weapons," in the widest sense of the term, to have been tested or deployed are of types aimed at space targets either from the surface of the Earth or from aircraft in its atmosphere. We shall now examine all of the weapon systems, existing and proposed, that are based in space or which threaten satellites or other space objects from locations on the Earth or in its atmosphere.

A1.2.2.1 Ground-Based Weapons

A1.2.2.1.1 Dedicated Ground-Based Anti-Satellite Weapons

One of the reasons one might want to have weapons capable of operating in outer space, and in particular in Earth orbit, is to deny one's adversary the benefits of his various satellite constellations in time of war. To do this while retaining the benefits of one's own space systems is another way in which one might be said to have "seized the high ground of space." Weapon systems designed specifically to interfere with an adversary's satellites in a way that entails physical interference or destruction are called "dedicated" ASATs. Systems, which may or may not be *weapon* systems,⁷⁰⁰ judged capable of physically interfering with satellites, but not designed for that purpose, are called "residual" ASATs.

A1.2.2.1.1.1 The First Generation: Early U.S. Nuclear-Armed Co-Orbital Anti-Satellite Weapons

The U.S. deployed the first operational dedicated ASAT systems in the 1960s. These were called Program 437, located on Johnson Island in the Central Pacific Ocean, and Program 505, located on Kwajalein Atoll, also in the Pacific.

Program 437 used "Thor" intermediate range ballistic missile (IRBM) booster rockets to lift nuclear warheads into orbit near satellites in low orbits. The system was tested at least 13 times between 1964 and 1968.⁷⁰¹ It was maintained as an operational ASAT system from 1964 to 1975.⁷⁰²

Program 505 deployed nuclear warheads on "Nike-Zeus" ABM interceptor missiles that were adapted to the ASAT role in 1963.⁷⁰³ Its only operational site at Kwajalein was deactivated in 1968.⁷⁰⁴

These first-generation ASAT systems were not dismantled because any arms control agreement banned their deployment. Their development, testing and deployment was and remains lawful, if limited to the ASAT mission, and as long as no nuclear warheads are detonated or orbited in space. They were decommissioned for two main reasons. First, the Outer Space Treaty prohibited the deployment in Earth orbit of nuclear weapons. It was primarily as a means of destroying such orbiting nuclear weapons that these early ASATs were developed. The Outer Space Treaty thus removed the central rationale for the

⁷⁰⁰ An example of a space system that is not a weapon system, as such, yet has been called a residual ASAT by some, is the U.S. space shuttle.

⁷⁰¹ M. Smith, "Satellite and Missile ASAT Systems and Potential Verification Problems Associated With the Existing Soviet Systems", in Jasani (ed.), *Arms Control Dilemma*, *supra*, note 544, at 86 (hereinafter "Satellite and Missile ASAT Systems").

⁷⁰² The system's usefulness in undertaking aggressive ASAT attacks was reduced much earlier, in 1970, when launch personnel were transferred to Vandenberg AFB in California, increasing the response time from 24 hours to 30 days. (Wilkes., "The Arms Race in Space", *supra*, note 617, at 106)

⁷⁰³ *Ibid.*

⁷⁰⁴ *Ibid.*

deployment of ASATs. Second, these nuclear-armed ASATs were of limited effectiveness, and had undesirable side effects that made the threat of their use less credible.⁷⁰⁵

A1.2.2.1.1.2 The Second Generation: Soviet Conventionally-Armed Co-Orbital Anti-Satellite Weapons

The second generation of ASAT weapon was tested and deployed by the U.S.S.R. Like the early U.S. systems, it was and is ground-launched. Unlike those systems, it employs a conventional, shrapnel-dispersing chemical explosive instead of a nuclear warhead. This must be propelled to within about one kilometer of the target satellite, most observers estimate, in order to damage it.⁷⁰⁶ The interceptor vehicle in which the explosive charge is housed, and which must be placed in orbit near the target satellite, weighs between 2,300 and 3,300 kilograms.⁷⁰⁷ Consequently, it requires a great deal of power to place it in orbit and is launched by the F-1-m booster, the same booster used for the SS-9 ICBM, but modified to permit maneuvering.⁷⁰⁸ Guidance was provided by active radar during all but 6 of the 20 system tests.⁷⁰⁹ In those 6 other tests, guidance is believed to have been provided by a new passive system, probably employing on-board optical sensors.

The Soviet ASAT is co-orbital. This means that it must be placed into the same orbital plane as, and at almost exactly the same velocity as, its target. This distinguishes it from a direct-ascent ASAT, which need not match orbits with its target, but is instead placed on a trajectory which crosses the target's

⁷⁰⁵ Because they were very limited in number, and in the horizontal range within which they could operate, the systems had a very low rate of fire. (Garwin and Pike, "History and Present Debate", *supra*, note 598, at 2S) In addition, they could only attack satellites in very low orbits. Ironically, it has even been suggested that their nuclear warheads were considered insufficiently destructive, due to the absence of blast effect in space, and therefore of less interest than possible non-nuclear means of destruction such as conventional chemical explosives that spray shrapnel or vehicles which collide with their targets. (Wilkes, "The Arms Race in Space", *supra*, note 617, at 129)

The nuclear warhead made any threat to use these early ASATs less credible because their use would have risked escalation of a conflict from conventional to nuclear, if used before the nuclear threshold had otherwise been crossed. (R. Giffen, "Space System Survivability: Strategic Alternatives for the 1990s", in *International Security Dimensions of Space*, *supra*, note 93, (hereinafter "Space System Survivability"), at 82) Furthermore, the poor accuracy of the guidance system meant that high yield nuclear warheads had to be used. This created a great danger of unintentional harm to one's own satellites or those of one's allies. (*Ibid.*; see also Garwin and Pike, "Space Weapons: History and Present Debate", *supra*, note 598, at 2S.) This could happen immediately, from prompt radiation, or over a period of days from delayed radiation effects. Many satellites malfunctioned following a U.S. nuclear test detonation in space in the early 1960s, so there had been experience with this problem already.

⁷⁰⁶ Some have claimed that the lethal radius is 8 km. It is not clear which is the correct figure.

⁷⁰⁷ Garwin and Pike, "Space Weapons: History and Present Debate", *supra*, note 598, at 3S.

⁷⁰⁸ Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 136; Tirman (ed.), *The Fallacy of Star Wars*, *supra*, note 614, at 298.

⁷⁰⁹ Garwin and Pike, "Space Weapons: History and Present Debate", *supra*, note 598, at 3S. Tests were conducted between 1968 and 1982, with a hiatus from December 1971 to February 1976, and a moratorium from August 1983 to the present. For a table setting out orbital characteristics, dates, and other details of all Soviet ASAT tests, see Table 1, *infra*, at 324.

orbit.⁷¹⁰

The Soviet ASAT has been tested to attempted interception altitudes of 1,600 km.⁷¹¹ Most attempts, however, have taken place at much lower altitudes -- about 500 km.⁷¹²

Although the Soviet interceptor must be launched into the same orbital plane as its target, the range of orbital inclinations at which it has been tested is very limited.⁷¹³ The set of U.S. satellites it puts at risk is therefore reduced, if one assumes that the Soviet ASAT interceptor would never be used to initiate armed conflict against satellites in orbital inclinations in which the device has not been extensively tested.⁷¹⁴ There are reportedly about ten specialized launchers for the Soviet co-orbital ASAT deployed, together with an unknown number of interceptor missiles.⁷¹⁵

⁷¹⁰ Carter, "Satellites and Antisatellites", *supra*, note 620, at 73.

⁷¹¹ *Aspen Report*, *supra*, note 644, at 38, their note 5; Garwin and Pike ("Space Weapons: History and Present Debate", *supra*, note 598, at 3S) say 2,300 km.

⁷¹² Wilkes, "The Arms Race in Space", *supra*, note 617, at 108. Even so, the system is given credit for placing at risk U.S. satellites in altitudes up to 5,000 km. for low (near-equatorial) orbital inclinations, and up to 2,000 km. for near-polar orbits. Thus, the upper limit of its altitude range is highly dependent on the orbital inclination of the target satellite.

⁷¹³ The Soviet ASAT has only been tested, as far as Western intelligence is aware, between orbital inclinations of 62 and 66 degrees inclusive.

⁷¹⁴ It is a standard assumption that rigorous testing under realistic conditions is a prerequisite for the use of a weapon in war, at least in an aggressive role. In desperate circumstances, however, a State might forego such testing and gamble on untried and uncertain, even improbable, last resorts. In this context, use of the Soviet co-orbital ASAT in untested orbital inclinations might be plausible.

Of all U.S. satellites in LEO, including RORSAT, EORSAT, ELINT, photoreconnaissance, meteorological, "Transit" navigation, "NOSS" ocean reconnaissance and "SDS" communication satellites, only the last two types fly in orbital inclinations at which the Soviet ASAT has thus far been tested. (Tirman (ed.), *The Fallacy of Star Wars*, *supra*, note 614, at 199. This report goes on, however, to say that U.S. photoreconnaissance satellites in low polar orbits could nevertheless be threatened.)

⁷¹⁵ John Pike, quoted in *U.N. NGO Symposium*, *supra*, note 545, at 72. See also Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 145, who cites a CIA report to the effect that up to 10 boosters and interceptors can be stored at the known launch area.

Table 1: Soviet Conventional Co-orbital ASAT: Test Record 1968-1982

(Source: Jasani, *Arms Control Dilemma*, *supra*, note 544, at 15)

Test number	Target satellite				Interceptor satellite			
	Cosmos number	Launch date	Orbital inclination (deg)	Perigee/apogee height (km)	Cosmos number	Launch date	Orbital inclination (deg)	Perigee/apogee height (km)
1	248	19 Oct 68	62	475/543	249 ^b	20 Oct 68	62	493/2157
2					252 ^b	1 Nov 68	62	521/2149
3	373	20 Oct 70	63	472/544	374 ^b	23 Oct 70	63	521/2141
4					375 ^b	30 Oct 70	63	528/2098
5	394	9 Feb 71	66	527/614	397 ^b	25 Feb 71	66	574/2202
6	400	18 Mar 71	66	983/1006	404 ^c	4 Apr 71	66	802/1010
7	459	29 Nov 71	66	224/260	462 ^b	3 Dec 71	66	230/1800
8	803	12 Feb 76	66	554/618	804 ^d	16 Feb 76	66	556/615
9					814 ^d	13 Apr 76	65	118/480
10	839	9 Jul 76	66	984/2098	843 ^e	21 Jul 76	65	132/346
11	880	9 Dec 76	66	560/617	886 ^b	27 Dec 76	66	590/2296
12	909	19 May 77	66	990/2109	910 ^e	23 May 77	66	300/1774
13					918 ^e	17 Jun 77	65	128/243
14	959	21 Oct 77	66	145/850	961 ^c	26 Oct 77	66	125/302
15	967	13 Dec 77	66	973/1013	970 ^b	21 Dec 77	65	144/854
16					1009 ^c	19 May 78	66	996/1364
17	1171	3 Apr 80	66	947/1033	1174 ^c	18 Apr 80	66	362/1025
18	1241	21 Jan 81	66	977/1011	1243 ^c	2 Feb 81	66	297/1017
19					1258 ^c	14 Mar 81	66	303/1026
20	1375	6 Jun 82	66	981/1011	1379 ^c	18 Jun 82	65	144/546

^a Other Cosmos possibly related to the interceptor-destructor programme are numbers 185, 217, 291, 516, 520, 521, 752, 816, 844, 885, 891, 933, 1075, 1146, 1169.

^b Exploded.

^c Entered the atmosphere.

^d Probably recovered.

^e Probably failed.

Sources: 'Summary log of space launches 1957-81', *TRW Space Log*, Vol. 19, 1982, pp. 27-115.
Jasani, B. (ed.), *Outer Space—A New Dimension of the Arms Race* (Taylor & Francis, London, 1982), pp. 364-365 [a SIPRI book].

SIPRI, *Outer Space—Battlefield of the Future*, edited by B. Jasani (Taylor & Francis, London, 1978), pp. 181-182.

SIPRI, *World Armaments and Disarmament*, *SIPRI Yearbook 1982* (Taylor & Francis, London, 1982), p. 312.

SIPRI, *World Armaments and Disarmament*, *SIPRI Yearbook 1983* (Taylor & Francis, London, 1983), p. 453.

A1.2.2.1.1.3 Ground-Based Laser Anti-Satellite Weapons

Laser weapons are also under consideration for use as ground-based ASATs. Ground basing of lasers is advantageous because it is much less costly than lofting the large devices into space or ferrying them about on aircraft. Mountaintop locations are envisioned for any deployed ground-based laser ASATs so as to reduce the volume of distorting atmosphere the beam would have to pass through.

Although no operational ground-based laser ASATs have as yet been deployed by either superpower, their deployment before 1995 is a distinct possibility in the absence of legal constraint.⁷¹⁶

Another important type of DEW, the particle beam weapon (PBW), is not suitable for use as a ground-based ASAT because that location would require it to pass through the two realms of air and space. PBWs can only be expected to propagate, if at all, in one or the other of these places, but not both with the same device. This is because the *charged*-particle beams being developed for use in the atmosphere would be bent by the Earth's magnetic field, making it too difficult to aim them accurately over the distance between a ground-based ASAT facility and its satellite targets. Conversely, the neutral-particle beams (NPB) being developed for use in outer space cannot propagate far in the atmosphere.⁷¹⁷

A1.2.2.1.2 Ground-Based Ballistic Missile Defence Systems

Many kinds of weapon systems based on the surface of the Earth have been proposed for the BMD mission. Some have been deployed. Many have not even been tested. Some are intended to intercept ballistic missile warheads once these have penetrated into the atmosphere and are descending to their targets.⁷¹⁸

⁷¹⁶ J. Pike, quoted in *U.N. NGO Symposium*, *supra*, note 544, at 72-73, stated in 1984 that deployment was a distinct possibility in the next 5 to 10 years.

There is, however, some considerable doubt as to the likely *effectiveness* of such early systems. (*Ibid.*) It seems clear that ground-based laser ASATs could *eventually* be developed that could cause considerable physical damage to many of the components of satellites in LEO. (Garwin, "On the Verge", *supra*, note 646, at 51) However, early models would most likely have the much more modest goal of interfering with a satellite's functioning by overloading or "blinding" optical sensors, such as the cameras on board photoreconnaissance satellites or the attitude control sensors that are common to most satellites. This limited capability may already exist. Giffen ("Space System Survivability", *supra*, note 705, at 83, his "Figure 6.1"), labels as "current" the capability to damage optical sensors on satellites in LEO with low power ground-based lasers.

Furthermore, there is doubt as to whether ground-based lasers will ever have much capability against satellites in higher orbits such as semi-synchronous and GSO. (*Aspen Report*, *supra*, note 644, at 26) The propagation from the surface of the Earth to GSO of the high levels of laser energy needed to cause physical damage to satellites, especially hardened ones, seems a remote possibility. It is possible, however, that the lower levels needed to blind optical sensors at such distances are achievable. For this reason, the U.S. has designed early warning satellite sensors that record infrared radiation only at those wavelengths at which the Earth's atmosphere is opaque to it. (Carter, "Satellites and Antisatellites", *supra*, note 620, at 76) This precaution should make it impossible for these important sensors to be blinded by ground-based lasers, at least until fast burn boosters (FBB) that burn out in the atmosphere are deployed.

⁷¹⁷ Collisions between air molecules and neutral particles would strip the latter of electrons, leaving them with a positive charge. They would then be induced to deviate wildly from the beam's path under the influence of the Earth's magnetic field. (A.B. Carter, *Directed Energy Missile Defense in Space* (Washington, D.C.: USGPO, 1984) [Publication No. OTA-BP-ISC-26], at 30-31)

⁷¹⁸ Examples of such systems are the U.S. "Sprint" ABM missile, which was deployed at one time as part of the "Safeguard" ABM system, and "LoADS" (for Low Altitude Defense System) presently under development by the U.S. for point defence of "hard targets" such as ICBM silos. The latter is designed to intercept target warheads 10 seconds from impact. (M.B. Einhorn, et al., "Strategic Arms Control Through Test Restraints" (1984), 8:3 *Int'l Security* 108, at 131) These "terminal defence" systems do not have the capability to operate more than a few kilometers above the Earth's surface. Consequently, they are of little relevance to the present study, which is concerned with weapons

Others are intended to intercept incoming warheads hundreds of kilometers from their intended targets. The U.S. Safeguard system, for example, had, in addition to short-range Sprint missiles, longer-range nuclear-armed "Spartan" ABM missiles, which could intercept warheads at exoatmospheric altitudes. This is true, as well, of the Soviet "Galosh" ABM interceptor missile, currently deployed around Moscow, which can climb to an altitude of several hundred kilometers.⁷¹⁹

In addition to nuclear-armed, ground-launched ABM systems like Safeguard and Galosh, which have been deployed, systems using non-nuclear ABM technologies – such as kinetic and directed energy – as the destruct mechanism have also been proposed.

A1.2.2.1.2.1 Ground-Based Kinetic Energy Weapons For Ballistic Missile Defence

The U.S. has already successfully tested a ground-launched kinetic kill vehicle against an incoming strategic ballistic missile warhead.⁷²⁰ This occurred in the Homing Overlay Experiment (HOE). In four tests from 1977 to 1984, the first three failed to destroy the target warhead. The fourth, in June 1984, succeeded. HOE used a modified "Minuteman I" ICBM booster⁷²¹ to launch the interceptor, which carried on-board long-wave infrared (LWIR) sensors to guide it to the target.⁷²² The interceptor weighed over 2000 pounds.⁷²³ Just prior to collision, the interceptor unfurled a 15-foot-diameter aluminum net with metal weights attached,⁷²⁴ to increase the probability of collision. The interception occurred at an altitude of over 160 kilometers, above the atmosphere.⁷²⁵ The elapsed time from launch to intercept was less than 10 minutes.⁷²⁶

Ground-based kinetic energy interceptors (KEWs) for BMD, if deployed, would be intended to intercept ballistic missile warheads in the mid-course phase of their flight.⁷²⁷ In most descriptions of a

which operate in, from, or towards outer space.

⁷¹⁹ Carter, "Satellites and Antisatellites", *supra*, note 620, at 131.

⁷²⁰ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 45.

⁷²¹ *Ibid.*

⁷²² *Ibid.*

⁷²³ United States, Congress, Senate, Committee on Armed Services, Subcommittee on Strategic and Theater Nuclear Forces, *Department of Defense Authorization for Appropriations for FY87. Part 4: Strategic and Theater Nuclear Forces: Hearings on S. 2199*, January, March-May 1986, 99th Cong., 2nd Sess. (Washington, D.C.: USGPO, 1987), at 1625 (testimony of Lt. Gen. James A. Abrahamson, Director of the Strategic Defense Initiative Organization (SDIO)) (hereinafter *FY87 Senate DOD Authorization Hearings, Part 4*).

⁷²⁴ AWST, 11 November 1985, at 21.

⁷²⁵ *Ibid.*

⁷²⁶ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 46.

⁷²⁷ Jones, "Space-Based BMD Lasers", *supra*, note 123, at 55. The mid-course portion of a ballistic mis-

deployed system, the interceptors would be aided in the guidance function by additional long-wavelength infrared (LWIR) sensors fired into space on separate probes, and would use multiple warhead interceptor missiles instead of the single warhead on the tested HOE vehicle.⁷²⁸

HOE has been incorporated into the Strategic Defense Initiative (SDI) under the new name of "ERIS" (for "Exoatmospheric Re-entry Vehicle Interception System").⁷²⁹ The ground-launched ERIS interceptor is slated to begin testing in the late 1980s.⁷³⁰ It is to be much lighter than its counterpart in HOE, and thus better suited to being tested with multiple warheads, although no plans for MIRVed testing have been announced.

A1.2.2.1.2.2 Ground-Based High-Energy Lasers (HELs) For Ballistic Missile Defence

HELs⁷³¹ have also been considered for ground-based exoatmospheric BMD.⁷³² Although ground-based HELs could, in theory, target warheads above the atmosphere *directly*, BMD systems are more likely to use mirrors – either stationed on satellites or popped up on sub-orbital ballistic trajectories – to redirect the beam. The kind of system under discussion envisions a large mirror at GSO or somewhat lower high Earth orbit and several "battle mirrors" in LEO. The beam would be directed from the ground-based laser facility at the large mirror, refocused and redirected at one of the battle mirrors, which would in turn redirect the beam at the ballistic missile target.

The use of mirrors provides two advantages over the direct targeting of incoming warheads. First, it makes it possible to attack ICBMs launched from the other side of the Earth while these are still in boost-phase. Since laser beams must travel in straight lines, and since Soviet ICBM boost phase currently ends at an altitude of about 400 km,⁷³³ the curvature of the earth compels any U.S. HEL intended for boost-phase intercept to be either based in space or redirected by mirrors in space. Boost-phase intercept is considered essential to any BMD system that aspires to defend large areas, particularly "soft" targets such as cities. This is because it would greatly reduce the number of objects (warheads ("re-entry vehicles" or RVs), decoys and other debris) later tiers of any defence would have to cope with; missiles destroyed while still under power from boosters would not yet have had a chance to dispense their individual warheads. Second, interposing a mirror between the laser beam source and the target gives the system a "co-operative" element outside the atmosphere. This makes it possible to use a process known as "adaptive optics" to compensate for distor-

sile's flight follows release of the individual warheads from their post-boost vehicles (PBVs) or "busses," and precedes their re-entry into the Earth's atmosphere.

⁷²⁸ *Ibid.*

⁷²⁹ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 45.

⁷³⁰ *Ibid.*

⁷³¹ Jasani ("Military Outpaces Legal Controls", *supra*, note 99, at 233) defines a HEL as a laser having either (a) an average power output of more than 20 kilowatts or (b) a single pulse energy of at least 30 kilojoules.

⁷³² Particle beams are unsuitable for reasons already given.

⁷³³ Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 10.

tions in the beam caused by passage through atmospheric turbulence.⁷³⁴ A U.S. test in June 1985, in which a laser beam was bounced off the side of a space shuttle, was a low power adaptive optics experiment.⁷³⁵ Even with adaptive optics, locating the laser facility on a mountaintop is advisable, so as to keep atmospheric effects manageable. As we saw earlier,⁷³⁶ turbulence is not the only impediment to atmospheric propagation of HELs.

Two types of lasers are being proposed for the ground-based laser BMD scheme: excimer lasers and free-electron lasers (FELs).⁷³⁷ Of these, FELs are emerging as the leading candidate.⁷³⁸ Indeed, ground-based FELs have been selected by SDIO as the primary directed energy kill mechanism for boost-phase intercept.⁷³⁹ Because the efficiency of ground-based laser schemes is expected to be very low – about 90% of the energy from a ground-based HEL would be lost in the atmosphere or reflected away by the various mirrors – very powerful beam generators would be required – on the order of at least hundreds of megawatts (MW).⁷⁴⁰

⁷³⁴ This involves sending a low-power laser beam down from the orbiting mirror to the ground-based laser facility. Any distortions in the beam are noted, and used to pre-distort the high energy weapon beam in such a way as to make it arrive at the relay mirror in a coherent state in spite of the atmospheric turbulence.

⁷³⁵ 1985 SDI Hearings, *supra*, note 199, at 113 (testimony of Lt. Gen. Abrahamson).

⁷³⁶ *Supra*, note 669.

⁷³⁷ Chemical lasers are ill-suited to ground basing because their longer wavelengths require much larger mirrors. (United States, Congress, Office of Technology Assessment, *Ballistic Missile Defense Technologies* (Washington, D.C.: USGPO, 1985) [Publication No. OTA-ISC-254], at 149-50)

Hydrogen-fluoride (HF) lasers are particularly poor candidates because of the very high level of atmospheric absorption at the wavelengths in which they emit light (about 2.8 microns). (*Ibid.*; Study Group of the American Physical Society (APS), *Science and Technology of Directed Energy Weapons* (1987) (hereinafter *APS Study*), as reported in C.K.N. Patel and N. Bloembergen (co-chairmen of the APS Study Group), "Strategic Defense and Directed-Energy Weapons", *Scientific American*, September 1987, at 41, (hereinafter "Strategic Defense and DEWs").

Deuterium-fluoride (DF) and atomic-iodine chemical lasers, with wavelengths of 3.8 and 1.3 microns respectively, pass easily through the atmosphere and could be ground-based if the necessary power levels are attained. However, it is not yet clear that this can be done. (*Ibid.*)

⁷³⁸ SDI funding cuts have resulted in more effort being concentrated on FELs than on excimer lasers. (1985 SDI Hearings, *supra*, note 199, at 60 (written response of Lt. Gen. Abrahamson to questions submitted by Senator Warner))

The *APS Study* estimates that excimer laser energy must be improved by at least four orders of magnitude before the device could be useful for BMD. It concedes that this might be achieved by combining several lasers, but concludes that the feasibility of such a scheme is unclear. (Patel and Bloembergen, "Strategic Defense and DEWs", *supra*, note 737, at 42)

⁷³⁹ *Military Space*, 9 December 1985, at 3.

⁷⁴⁰ Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 23, posits a 400 MW laser. The *APS Study* concludes that for BMD applications, a ground-based FEL with a wavelength of one micron (at which the laser would pass through the atmosphere with ease) should have an average power of at least one gigawatt (one billion watts). (Patel and Bloembergen, "Strategic Defense and DEWs", *supra*, note 737, at 42)

FELs convert the kinetic energy of an electron beam generated by a particle accelerator into laser light. The electron beam is passed through a magnetic field designed to cause the electrons to move or "wiggle" sideways to the beam's direction. This causes the electrons to lose energy in the form of photons, all emitting light at the same wavelength.⁷⁴¹ The wavelength of the laser light can be varied by altering the magnetic field. Thus, FELs can potentially be "tuned" to any wavelength in the IR, visible, or UV part of the spectrum.⁷⁴² This should permit selection of the optimal wavelength for atmospheric propagation at the high power levels needed for a weapons-grade beam. The main technical hurdles involved in developing a ground-based FEL BMD system are (a) achieving the necessary high power levels at useful wavelengths,⁷⁴³ (b) the manufacture of mirrors that can handle the high intensity beam, (c) understanding atmospheric effects on beams of such high power,⁷⁴⁴ and (d) tracking ballistic missile targets and pointing the beam at them with sufficient accuracy.

Despite claims from some quarters that operational DEWs for BMD are just around the corner, this now seems doubtful.⁷⁴⁵ However, this judgment does not preclude development and testing of prototype DEWs for BMD in the very near future.

⁷⁴¹ *AWST*, 18 August 1986, at 40.

⁷⁴² *FY85 ACIS*, *supra*, note 414, at 236.

⁷⁴³ The *APS Study* concludes that

scaling [FELs] to short wavelengths at high powers is a difficult technical problem. The feasibility of building high-efficiency, high-power free electron lasers that operate at one micrometer depends on first verifying several physical concepts that have been developed only theoretically.

⁷⁴⁴ *AWST*, 18 August 1986, at 41.

⁷⁴⁵ The *APS Study* concludes that

[a]lthough substantial progress has been made in many technologies of DEW over the last two decades, the Study Group finds significant gaps in the scientific and engineering understanding of many issues associated with the development of these technologies. Successful resolution of these issues is critical for the extrapolation to performance levels that would be required in an effective ballistic missile defense system. At present, there is insufficient information to decide whether the required extrapolations can or cannot be achieved. Most crucial elements required for a DEW system need improvements of several orders of magnitude... We estimate that even in the best of circumstances, a decade or more of intensive research would be required to provide the technical knowledge needed for an informed decision about the potential effectiveness and survivability of [BMD] directed energy weapon systems.

(quoted in Patel and Bloembergen, "Strategic Defense and DEWs", *supra*, note 737, at 39-40)

A1.2.2.1.3 Ground-Based Weapons That Traverse Outer Space En Route to Terrestrial Targets

For the sake of completeness, we must mention those weapon systems not often thought of in connection with outer space: those launched from the surface of the Earth at targets elsewhere on the Earth's surface, but that get there via outer space. These include strategic (ICBMs and SLBMs) and intermediate-range (IRBMs) ballistic missiles, as well as a variant of the ICBM called the Fractional Orbital Bombardment System (FOBS). The latter does not deliver a nuclear weapon over a single, consistent ballistic trajectory as a ballistic missile does. Instead, it launches its warhead with orbital velocity but then uses a small on-board rocket to de-orbit it before completion of its first orbit. An FOBS device does its partial orbit of the globe in very low orbit, at a maximum altitude of about 160 km.⁷⁴⁶ ICBMs penetrate outer space to a much greater degree, reaching a height of about 1,300 km. at the top of their ballistic trajectories.⁷⁴⁷

A1.2.2.1.4 Residual Ground-Based Anti-Satellite Capability

A number of ground-based weapon systems, some of which have been discussed already, possess residual ASAT capability. These include FOBS and, more importantly, ABM interceptor missiles and strategic ballistic missiles. In addition, any ground-based DEW facility with significant anti-aircraft or ABM capability would probably have a significant ASAT capability as well, at least against satellites in LEO. Because they are not designed expressly for the ASAT mission, however, many residual ASATs have considerable limitations, some shared, others peculiar to each system.

The most commonly cited example of a *deployed* ground-based residual ASAT is the Soviet Galosh ABM system around Moscow. It consists of 64 ABM interceptor missiles armed with nuclear warheads. Although capable of satellite interception, Galosh would have a number of important limitations and disadvantages in an ASAT role.⁷⁴⁸

⁷⁴⁶ Goedhuis, "Leading Principles of the Treaty on Outer Space", *supra*, note 21, at 37.

⁷⁴⁷ *Id.*, at 36-7.

⁷⁴⁸ First, it is capable of attacking satellites only up to about 150 kilometers' altitude. (*Aspen Report, supra*, note 644, at 10). This limits drastically the kinds of U.S. satellites it puts at risk.

Second, the nuclear warheads it uses give the system the same disadvantage as the U.S. dedicated ASATs decommissioned in the 1960s and 1970s – the likelihood of harming friendly and hostile satellites alike. (Tirman (ed.), *The Fallacy of Star Wars, supra*, note 614, at 244-45)

Third, unlike those early nuclear-armed ASATs located on Pacific islands, superpower deployment of ABM components is limited under the ABM Treaty to their own national territory. This, combined with their short range, ensures that the detonation of nuclear-armed ABMs would occur over the territory of the nation using them as ASATs. This would involve considerable risk to that State from a variety of nuclear effects. (Carter, "Satellites and Antisatellites", *supra*, note 620, at 75) These would include the possibility of blacking out all ground communications over huge areas, potentially for long periods of time, from EMP effects.

These disadvantages need not be permanent attributes of ground-based systems, however. For instance, while *current* ground-launched ABM interceptor missiles can only reach very low altitudes, future ones could have greater ranges. It might also be possible to replace the nuclear warheads with conventional ones. One observer has claimed that the Soviet Galosh, for instance, given the proper radar support for tracking target satellites, could conceivably be used for the ASAT mission with a non-nuclear warhead. (*Ibid.*)

The ASAT use of ICBMs and SLBMs is somewhat more plausible. These could loft their nuclear warheads to altitudes of about 1,400 km. where, if fused correctly, they could detonate, destroying nearby satellites.⁷⁴⁹ This greater range, in addition to permitting more satellites to be threatened, means that offensive ballistic missiles, unlike ABM interceptor missiles used as ASATs, would not have to detonate their nuclear warheads over the territory of the nation that fired them.⁷⁵⁰ The problem of risking harm to friendly satellites, however, would remain, as long as nuclear warheads were used.

⁷⁴⁹ The *Aspen Report*, *supra*, note 644, at 10, states that the lethal radius of a nuclear explosion in space would depend on (a) the yield of the explosion, (b) the manner in which the device is designed to release its energy and (c) the hardness of the target satellite against nuclear effects.

⁷⁵⁰ Carter, "Satellites and Antisatellites", *supra*, note 620, at 75.

A1.2.2.2 Air-Based Weapons

A1.2.2.2.1 Dedicated Air-Based Anti-Satellite Weapons

Aircraft are being studied as the basing mode for various kill mechanisms useful as dedicated ASATs. As the location of *laser* ASATs, aircraft would provide the same advantages as mountaintop location – a reduction of the volume of atmosphere through which the beam must pass – but with the further advantage of mobility and, hence, greater survivability. However, air-based laser ASATs would also entail the disadvantage, relative to ground-based facilities, of weight and bulk constraints.

Air-based laser ASATs are at the research and development phase only. No HEL based in an aircraft has as yet been tested against any target in space.⁷⁵¹

One dedicated air-based ASAT that has been tested, but not yet deployed, is the U.S. "Miniature Homing Vehicle" (MHV). This device is launched from an F-15 fighter aircraft. The MHV itself is a small (about 12 inches by 13 inches),⁷⁵² light (about 15 kilograms)⁷⁵³ cylindrical device which consists of a cluster of rockets surrounding eight cryogenically-cooled infrared telescopes.⁷⁵⁴ An on-board computer receives data from the telescopes as to the location of the target satellite. It then instructs various combinations of rockets when to fire, so as to guide the device towards the target. The MHV employs no explosive charge, but destroys its target by simply colliding with it. Unlike the Soviet ASAT, it need not be co-orbited with the target satellite but can be boosted directly into its path in the direct ascent mode.

The MHV is propelled into space from its carrier aircraft by a two-stage booster mounted on a short range attack missile (SRAM).⁷⁵⁵ Estimates of the altitude to which this combination booster can loft the MHV range from 475 km.⁷⁵⁶ to 2,000 km.⁷⁵⁷ An effort to develop a more advanced system with a greater altitude capability has been announced.⁷⁵⁸ If really significant increases in the altitude attainable with the MHV are to be achieved, however, it may be necessary to deploy them on submarines rather than

⁷⁵¹ This statement is based on the author never having read any public account of such experiments by either superpower.

⁷⁵² Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 206.

⁷⁵³ Tirman (ed.), *The Fallacy of Star Wars*, *supra*, note 614, at 98.

⁷⁵⁴ Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 206.

⁷⁵⁵ Jasani, *Arms Control Dilemma*, *supra*, note 544, at 13.

⁷⁵⁶ *Ibid.*

⁷⁵⁷ Garwin and Pike, "Space Weapons: History and Present Debate", *supra*, note 598, at 3S. R.J. Smith ("Limited ASAT Proposal Gains Backers", *Science*, 24 January 1986, at 331-2) reports its range to be from 500 to 700 kilometers.

⁷⁵⁸ Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 247: "U.S. officials have already expressed their intention to develop a more advanced ASAT weapon that will extend the range of the air-launched system." John Pike, quoted in *U.N. NGO Symposium*, *supra*, note 544, at 72, claims that a larger rocket for F-15 launch of the MHV is the most probable immediate development in the U.S. ASAT program.

on aircraft so that more powerful boosters can be used.⁷⁵⁹

Attacks against GSO satellites using the MHV might be possible, with submarine basing,⁷⁶⁰ although the flight time would be so long – on the order of many hours – as to bring into doubt the military utility of such a capability.⁷⁶¹ In contrast, the flight time of the present, lower power booster to low orbits is about 10 to 20 minutes.⁷⁶² This short flight time is a direct result of the MHV's being usable in a direct ascent mode.⁷⁶³

The U.S. F-15-launched MHV ASAT system was to have been deployed and become operational by 1987,⁷⁶⁴ but Congressionally-imposed testing restrictions and doubts about the utility of the system have made it doubtful that the system will ever be deployed. A deployed system, if it does come about, is to consist of at least 50 F-15s with 2 ASATs each, to be deployed at 2 continental U.S. bases.⁷⁶⁵ There are no announced plans to base F-15 MHV ASATs in the Southern Hemisphere where they could threaten Molniya satellites.⁷⁶⁶ Such additional deployment plans may not be very likely, either, since the U.S. does not have the necessary support facilities in the Southern Hemisphere at the present time.⁷⁶⁷

⁷⁵⁹ J. Pike, quoted in *ibid.*, sees the maximum range of an air-based system with a much larger booster as only about 3,000 to 4,000 km.

⁷⁶⁰ Jasani, *Arms Control Dilemma*, *supra*, note 544, at 14. The Union of Concerned Scientists (Tirman (ed.), *The Fallacy of Star Wars*, *supra*, note 614, at 203), although agreeing that the MHV "should be able to attack geosynchronous targets," notes that there is some doubt as to whether it would have the ability to home on such remote targets.

⁷⁶¹ *Ibid.* Such a lengthy flight time, assuming timely detection of launch by the other side, means that a target satellite in GSO could take evasive action, if equipped to do so. Alternatively, backup systems that carry out the same function as the satellite could be activated in anticipation of its destruction.

⁷⁶² *U.N. NGO Symposium*, *supra*, note 544, at 72, where John Pike is quoted as saying: "The time from launch to intercept... is approximately 10 minutes." The *Aspen Report*, *supra*, note 644, at 11, says that "the entire attack sequence [presumably including the F-15's ascent] takes from 10 to 20 minutes." Garwin and Pike, "Space Weapons: History and Present Debate", *supra*, note 598, at 4S, note that this is about one-tenth that of the Soviet co-orbital ASAT.

⁷⁶³ Carter ("Satellites and Antisatellites", *supra*, note 620, at 74) notes that another result of the ability to use the direct ascent mode is that, if deployed in the Southern Hemisphere, the F-15-launched MHV could, in theory, intercept satellites in Molniya orbits when these are at their perigees of a few hundred km. A co-orbital ASAT would find it next to impossible to do this, since it must match the velocity of its target and a satellite in Molniya orbit would travel much faster at perigee than a satellite in a circular orbit of the same altitude.

⁷⁶⁴ Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 221.

⁷⁶⁵ J. Pike, quoted in *U.N. NGO Symposium*, *supra*, note 544, at 72.

⁷⁶⁶ Garwin and Pike ("Space Weapons: History and Present Debate", *supra*, note 598, at 3S) say that this would require forward basing at Diego Garcia, Ascension Island, or North West Cape, Australia, in addition to aerial refueling.

⁷⁶⁷ The *Aspen Report*, *supra*, note 644, at 11, notes that the potential for Southern Hemisphere deployment is not great because (a) the F-15 is not designed as a carrier-based aircraft and (b) there is no

Even without such basing, excellent geographical coverage would be available with the two planned bases. The F-15 has a horizontal range of 2,500 km. – 7,500 if refueled in mid-air.⁷⁶⁸ This gives considerable launchpoint flexibility not available to fixed, ground-based ASATs like the current Soviet system, which must wait, sometimes for many hours, for a target satellite to pass overhead. The F-15, on the other hand, can fly the MHV ASAT to a point on the target satellite's projected flightpath. Another advantage will be its much higher rate of fire. The entire arsenal of 100 or more MHVs could be fired within a few hours. This is because instead of being launched from a handful of ground-based launchers, it will be based on 50 or more launch platforms – the F-15s.

None of these benefits will be reaped, of course, if the system is never deployed. Unlike the Soviet ASAT, which has had a number of successful tests, the U.S. F-15-launched MHV is not yet operational, has been subjected to very few full-scale tests, and is encountering technical problems.⁷⁶⁹

Even more importantly, a Congressional ban against testing ASAT weapons against targets in space has been in effect through FY86 and FY87. This has prevented continued full-scale testing and delayed the attainment of operational status.

infrastructure to support land-based deployments in that part of the world.

⁷⁶⁸ Jasani, *Arms Control Dilemma*, *supra*, note 544, at 13.

⁷⁶⁹ Its test history can be briefly summarized. There were 6 captive tests before April of 1983. (Smith, "Satellite and Missile ASAT Systems", *supra*, note 701, at 86) (In a captive test, the missile is simply flown around on its launch platform. It is not fired.) By July 1985, 2 free-flying tests had also been conducted. The first of these occurred on 21 January 1984. (Jasani, "Militarization Outpaces Legal Controls", *supra*, note 99, at 227) It involved a launch, not at a target satellite, but simply at a point in space. It was judged fully successful by the Air Force. (J.R. Smith, "Problems Plague ASAT Program", *Science*, 26 July 1985, at 361) In the second test, however, the cables used to cool the device's infrared sensors "failed to separate before the ASAT began to spin, and the resulting tangle prevented it from tracking its target." (J.R. Smith, "Reagan Announces a New ASAT Test", *Science*, 6 September 1985, at 946) (A further cryptic description can be found in "Problems Plague ASAT Program", at 361, where it is reported that "the ASAT apparently failed to maneuver properly so that its homing mechanism could acquire and track a star." This sounds as if the IR sensors were never put to the test due to the failure of the MHV to disengage from its booster and the consequent failure to place the device within homing distance of its IR sensors.)

On 13 September 1985, a third free-flying test occurred. The target was not a star or point in space, as in the first two tests, but a U.S. satellite whose useful lifetime had expired. This satellite had been in an orbit of 320 nautical miles altitude at 97.7 degrees orbital inclination. The MHV succeeded in destroying the target satellite. (See generally "Defense Department Plans Next Test Firing of Air-Launched ASAT System", *AWST*, 23 September 1985, at 20-21.)

Notwithstanding the success of the third free-flying test, technical challenges remain. In particular, there appears to be a need to develop rocket engines for the device that generate more power while creating less exhaust, in order to keep the MHV from contaminating its own infrared sensors while pursuing the more maneuverable Soviet satellites expected in the future. (Smith, "Reagan Announces a New ASAT Test", at 946) Even the U.S. Air Force reportedly regards this challenge as "daunting."

A1.2.2.3 Space-Based Weapons

A1.2.2.3.1 Orbital Bombardment Systems ("Bombs in Orbit")

The earliest space-based weapon system developed was the orbiting nuclear weapon. This was to be de-orbited and detonated on or over the territory of an enemy in wartime. In effect, the concept was to have made of satellites a fourth basing mode for strategic nuclear weapons, to complement the "triad" already in existence – ICBMs, SSBNs and strategic bomber aircraft. Known in the arms control jargon as "bombs in orbit," no official public accusation or acknowledgement of their deployment by any nation has been made since the Outer Space Treaty came into force.

A1.2.2.3.2 Dedicated Space-Based ASATs

A1.2.2.3.2.1 Space Mines

Closely related to "bombs in orbit" are the most elementary form of space-based ASAT proposed – "space mines." A space mine, in the most basic and least inclusive use of the term, is an explosive charge, either nuclear or conventional, that is orbited near or within maneuvering range of an adversary's satellite, ready to be detonated on command to destroy that satellite.

The most common *modus operandi* envisioned for space mines is to remain "dormant" (i.e. with minimal station-keeping and radio communications) within, say, 1,000 km. of their intended target. When needed, the device would be switched on, lock its homing sensor onto the target satellite, maneuver to within lethal range and explode.⁷⁷⁰

There have been no known tests or deployments of space mines, although the pop-up testing mode of the Soviet conventional ASAT device is very close to, if not actually, the test of a conventional space mine in LEO.⁷⁷¹

A1.2.2.3.2.2 Space-Based Kinetic Energy Anti-Satellite Weapons

The next most sophisticated space-based ASAT weapon one could propose would be an orbiting kinetic energy weapon (KEW). A space-based KEW ASAT projectile could be powered by a chemical rocket or by more advanced means such as an electromagnetic railgun.⁷⁷² In addition to attacking satellites, KEWs could be used to defend satellites from attacks by KEW ASATs (the "DSAT" mission).

Only one instance of the basing of kinetic kill vehicles in space has been alleged: "Kosmos 1267," launched on April 24, 1981.⁷⁷³ Although initially reported to be believed by "intelligence community offi-

⁷⁷⁰ Giffen, "Space System Survivability", *supra*, note 705, at 83.

⁷⁷¹ In tests in the so-called "pop-up" mode, the Soviet co-orbital ASAT was placed into orbit in the same orbital plane as the target satellite, but at a lower altitude. After a few orbits, it thrust up to the same altitude as its target, and eventually within its lethal radius.

⁷⁷² More will be said about the capabilities of and differences between rocket-powered KEWs and railguns below, in the section entitled "Space-Based KEWs for BMD".

cials" to be "a feasibility demonstration of a new type of ASAT or DSAT battlestation,"⁷⁷⁴ subsequent developments have cast considerable doubt on the contention that the spacecraft carried any weapons at all.⁷⁷⁵

Since KEWs do not move anywhere near the speed of light, they could be evaded by maneuvering satellites with warning of their attack. Consequently, they are likely to be of use as ASATs only over relatively short distances, so that the time given to target satellites to manoeuvre out of range is minimized.

A1.2.2.3.2.3 Space-Based Directed Energy Anti-Satellite Weapons

The most sophisticated kind of ASAT weapon proposed for space-basing is the DEW. Space-based DEWs would either be lasers or neutral particle beams (NPBs). The types of laser suitable for space-basing include X-ray, chemical and free electron lasers (FELs).⁷⁷⁶

Chemical lasers and FELs work on the traditional laser principle of stimulating emission of radiation in a lasing medium such that a coherent beam of radiation is created. This is accomplished through the use of mirrors to reflect the radiation back and forth from one end of the chamber to the other. Such devices would inflict damage on a target through the deposition of large enough quantities of energy to (a) overload its optical sensors, (b) cause electronic circuitry to malfunction, (c) literally melt the material of which it is constructed or (d) fracture components by means of the shock effect that can accompany such melting.⁷⁷⁷

⁷⁷³ Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 223, notes that *AWST* reported on 30 November 1981 that Kosmos 1267 had firing ports for miniature homing vehicles intended for ASAT purposes. The U.S. never made any official claim that this was the case. In fact, the Pentagon expressly denied it. After demonstrating "extensive maneuvering capability" between the time of its launch and 19 June 1981, when it docked with the Salyut 6 space station, (C.A. Robinson, Jr., "Antisatellite Weaponry and Possible Defense Technologies Against Killer Satellites", in Ra'anani and Pfaltzgraff (eds.), *International Security Dimensions of Space*, *supra*, note 93, 70, at 72) it was de-orbited along with the station on 29 July 1982 with no known test firing of any projectile having occurred. (Smith, "Satellite and Missile ASAT Systems", *supra*, note 701, at 86)

⁷⁷⁴ Robinson, *id.*, at 72.

⁷⁷⁵ Smith, "Satellite and Missile ASAT Systems", *supra*, note 701, at 86:

The subsequent launch of Cosmos 1443 in March 1983, which the Soviet Union announced as being an operational version of Cosmos 1267 [whose official purpose was to act as a test vehicle related to the construction of modular space stations], and the docking of that satellite with Salyut 7 for use as a space tug / resupply vehicle, leads to the conclusion that the *AWST* charges were incorrect.

⁷⁷⁶ Excimer lasers are not well suited for space basing. Jasani, *Arms Control Dilemma*, *supra*, note 544, at 17, says that although at the lower end of its wavelength range they could damage a satellite at a range of 1,000 km. with a mere 200 kilowatts, there are drawbacks that make such lasers unsuitable as space-based ASAT weapons. These include (a) the very low efficiency (1 to 3 %) of present excimer lasers and (b) problems of corrosion and maintaining the purity of the lasing medium in the hostile space environment.

⁷⁷⁷ See K. Tsipis, "Laser Weapons", *supra*, note 669, at 55. All damage would result from overheating

The near-term prospects for the testing and deployment of space-based lasers are fairly good, depending very much, however, on the outcome of inquiries into how vulnerable such weapons would themselves be. At least one observer feels that the deployment of space-based laser weapons is a distinct possibility in the next 5 to 10 years.⁷⁷⁸ The first models would likely be useful only as short-range ASATs, since that mission is considerably less demanding than either the long-range ASAT mission or the BMD mission.

X-ray lasers, as the name implies, generate coherent radiation in the X-ray portion of the electromagnetic spectrum, rather than in the range of UV, IR or visible light. Since X-rays cannot be reflected by mirrors, their stimulated emission must be effected by some other means. The means used is to heat thin rods of solid material so as to raise the energy level of their electrons.⁷⁷⁹ When these electrons revert to lower energy levels, stimulated emission in the rods occurs much more strongly lengthwise than widthwise. This can result in a coherent beam of X-rays being emitted from ends of the rods.⁷⁸⁰ On an X-ray laser configured as a weapon, several such rods might be pointed at several targets. Various technical reasons demand that, in order to generate enough X-rays to make the device useful as a weapon, a nuclear explosion must be used as the source of the X-rays.⁷⁸¹

Only a few percent of the energy from a nuclear explosion can be transformed into an X-ray laser beam. The inefficiency comes not from the pumping process -- with careful design, most of the bomb's energy can be sent through the rods -- but in the failure of the vast majority of harnessed energy to leave the

the target, i.e. by concentrating on it more thermal energy than it could withstand without malfunctioning. The second of these mechanisms, which does not result in physical destruction of the target, is known as "functional kill," since the satellite (or ballistic missile, as the case may be) is unable to perform as designed. The third, melting of material, is known as "thermal kill." It is likely to cause the destruction of the target by the forces the latter undergoes while moving. The fourth mechanism, in which the laser destroys its target by means of an immediate shock wave, is called "impulse kill." It occurs when high-intensity directed energy causes the surface of the target to rapidly and violently boil off, sending a mechanical shock wave to the rest of the target, resulting in its structural failure. (OTA, *Ballistic Missile Defense Technologies*, *supra*, note 737, at 323 (Glossary))

As a general rule, a given target must be irradiated with the largest amount of laser energy in a given period of time to achieve impulse kill, less for thermal kill, still less for functional kill, and the lowest level to effect a temporary blinding of optical sensors.

The problem with relying on levels of deposited energy designed only to blind optical sensors or effect functional kill is that the target may not show any changes to confirm that it has been incapacitated. For instance, satellites and unguided ballistic missile warheads are not apt to noticeably change their behaviour even if a functional kill has been achieved. Since the vacuum of space provides no resistance to the movement of solid objects, both would continue on the same flight path whether rendered dysfunctional or not. Ballistic missile boosters and post-boost vehicles, on the other hand, once rendered dysfunctional, are apt to act erratically or even be destroyed by the stresses they undergo.

⁷⁷⁸ J. Pike, quoted in *U.N. NGO Symposium*, *supra*, note 544, at 72.

⁷⁷⁹ The chemical composition of the rods being used in U.S. X-ray laser research has not been made public. (Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 25)

⁷⁸⁰ *Ibid.*

⁷⁸¹ Jasani, " Militarization Outpaces Legal Controls", *supra*, note 99, at 239.

rod tip in the form of *coherent* (i.e. laser) radiation.⁷⁸² X-rays could disrupt targets in two separate ways. They could cause them to recoil, which, in the case of ballistic missile boosters, might be enough to deflect them off course. Second, they could dent or fracture the skins of unshielded space vehicles.⁷⁸³ As with other nuclear explosive devices in space, the main drawback of X-ray lasers would be the uncontrolled portion of nuclear effects, which could harm friendly satellites or create radar blackout zones.⁷⁸⁴

Pointing accuracy would not be a problem with the X-ray laser. This is because the size of the cone formed by the beam of X-rays leaving the end of the rods would necessarily be very large.⁷⁸⁵

Nonetheless, "the feasibility of making a militarily useful X-ray laser remains unclear."⁷⁸⁶

Neutral particle beam (NPB) weapons could also be used as space-based ASATs. Particle beams are streams of atomic or sub-atomic particles accelerated to velocities approaching the speed of light.⁷⁸⁷ Because beams of atomic particles deposit their energy within the first few centimeters of a target, rather than on the surface, as lasers do⁷⁸⁸ they would have the advantage over lasers of lower susceptibility to frustration by target shielding.⁷⁸⁹ In addition, higher energy levels per pulse are attainable with NPBs than with HELs.⁷⁹⁰ However, the near-term likelihood of the testing and deployment of NPBs in space is very

⁷⁸² Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 26.

⁷⁸³ Tirman (ed.), *The Fallacy of Star Wars*, *supra*, note 614, at 113.

⁷⁸⁴ Kerr, "ASATs and ABM Issues", *supra*, note 544, at 116.

⁷⁸⁵ Carter (*Directed Energy Missile Defense in Space*, *supra*, note 717, at 26) calculates that the diameter of the beam spot produced by a hypothetical "perfect" X-ray laser device would be 200 meters at a range of 10,000 km.

⁷⁸⁶ This is the APS Study conclusion, *per* Patel and Bloembergen, "Strategic Defense and DEWs", *supra*, note 737, at 42, who continue:

Many other physical concepts must be validated before the application of nuclear-pumped X-ray lasers to strategic defense can be evaluated.

⁷⁸⁷ Fletcher Report, *supra*, note 608, at 33.

⁷⁸⁸ *Id.*, at 28.

⁷⁸⁹ Einhorn, et al., "Strategic Arms Control Through Test Restraints", *supra*, note 718, at 144.

⁷⁹⁰ *Ibid.*

⁷⁹¹ Stares, *U.S. Policy 1945-1984*, *supra*, note 614, at 224, notes that the 1984 (3rd) edition of *Soviet Military Power* claims that "a prototype space-based PBW intended only to disrupt satellite electronic equipment could be tested in the early 1990s." No mention is made of the *range* over which such a device might have this limited capability. A more representative view of the national security community is that of Karas, "Military Satellites and Warfighting Doctrines", *supra*, note 613, at 51, who says of space-based NPBs for ASAT use that "the necessary technology is too remotely in the future to take seriously now."

poor⁷⁹¹ since particle accelerators of the required power are still gigantic devices.⁷⁹²

Like all other DEWs, NPBs experience a certain amount of beam divergence.⁷⁹³

A1.2.2.3.3 Space-Based Ballistic Missile Defence Systems

All of the methods of destruction potentially useful in the ASAT role from locations in space are also applicable to BMD. This includes kinetic kill vehicles, HELs (including X-ray lasers) and NPBs. As mentioned above, useful BMD applications are, in each case, likely to *follow* ASAT development, since the latter is by far the less demanding mission, at least across short distances and against satellites with present levels of robustness.

A1.2.2.3.3.1 Space-Based Kinetic Energy Weapons For Ballistic Missile Defense

Space-based KEWs for BMD can be grouped into two categories: rocket-powered KEWs, known as space-based kinetic kill vehicles or "SBKKVs," and electromagnetic railguns. Both SBKKVs and railguns are being touted as kill mechanisms for boost-, post-boost and midcourse phases of the BMD mission.⁷⁹⁴ However, the utility of SBKKVs for boost-phase intercept has been questioned on the grounds that the slow speeds attainable with chemical rockets will not be fast enough to attack the ICBM boosters of the 1990s -- expected to burn out in as little as 50 seconds at altitudes as low as 90 km.⁷⁹⁵

Tending to corroborate this view is the *FY85 ACIS* (*supra*, note 414, at 258), which refers to a "lack of significant near-term development of U.S. or foreign particle beam weapons for ASAT (or other military missions)."

⁷⁹² General Abrahamson has said that a space-based NPB weapon would be "a very large thing... It might be two shuttle loads put together." (1985 *SDI Hearings*, *supra*, note 199, at 115)

⁷⁹³ For example, the cone formed by a neutral tritium beam of energy 100 MeV and current 0.5 amperes would be 10 meters in diameter at a distance of 5,000 km. from its source. (Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 29)

⁷⁹⁴ 1985 *SDI Report*, *supra*, note 149, at 52.

⁷⁹⁵ Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 10 and 34. Carter points out that an SBKKV in a 400-km. orbit with a velocity of 5 km./sec. could not even descend to a fast-burn booster at 100 km. altitude in the 50 seconds it would take the latter to burn out, let alone have any lateral radius of action. He says that orbits of less than 400 km. would be less acceptable since atmospheric drag would shorten satellite lifetimes there. (*Id.*, at 35)

Two prominent SDI supporters have contested the importance of fast-burn boosters as a BMD countermeasure, on the grounds that even if the booster burned out in the atmosphere, the post-boost vehicle (PBV) could not begin to dispense warheads until it cleared the atmosphere. Thus, the warheads would still represent a single target up to the same altitude as with conventional boosters. (F. Seitz and R. Jastrow, *A Critical Commentary on the OTA Report "Ballistic Missile Defense Technologies"* (Washington, D.C.: Center for Peace and Freedom, 1985), at 5-7 (hereinafter *Critical Commentary*))

General Abrahamson has claimed SDIO will develop SBKKVs with velocities of from 5 to 8 km./sec., which would consist of a 2.5 kg. warhead and a 60 kg. chemical rocket, but that this is not a near-term prospect. The SBKKV that SDIO officials are confident they can develop by the early

The U.S. has announced plans to develop and test SBKKVs and railguns for eventual BMD use. These plans do not yet include full-scale tests of orbiting KEWs against strategic ballistic missile targets, since this would probably violate the ABM Treaty.⁷⁹⁶ For example, on 5 September 1986, the U.S. conducted the "Delta 180" experiment, which involved the testing of a number of sensors for BMD purposes⁷⁹⁷ followed by the destruction by kinetic impact of the second stage of a Delta booster by a special SDI satellite. Because the target was not an element of a strategic ballistic missile, and because it was in orbit rather than following a ballistic trajectory, this was not technically an SBKKV BMD test, but, strictly speaking, the test of a crude space-based kinetic energy ASAT.

Similarly, plans have been outlined to test SBKKVs against orbiting satellites simulating ballistic missile components⁷⁹⁸ or simulating anti-satellite weapons.⁷⁹⁹ More specifically, plans for a so-called "end-game booster kill experiment" in 1989 or 1990 would involve testing an SBKKV against a Polaris A-3 SLBM booster.⁸⁰⁰ Finally, two "Space Based Interceptor" or "SBI" experiments are planned for some time before 1992 involving KEW interceptors launched from the ground into sub-orbital trajectories and then fired at sounding rocket targets.⁸⁰¹

As for space-based railguns, their development is likely to follow that of rocket-propelled KEWs. Laboratory ground-based railguns are the only ones to have been tested to date, and their frequency of firing is still far from the rate needed for BMD.⁸⁰² In addition to improving the frequency of railgun opera-

1990s would have a 5 kg. warhead and a 100 kg. rocket, although the entire device built at the present state of the art would weigh 340 kg. (*Military Space*, 16 February 1987, at 3) General Abrahamson calls the proposed 2.5 kg./5-8 km./sec. KEW warhead a first-generation SBKKV, and notes that there are plans to use the same projectile as ammunition for a railgun, in which case speeds of 25 to 30 km./sec. would be sought. (*FY87 Senate DOD Authorization Hearings, Part 4, supra*, note 723, at 1624)

⁷⁹⁶ A full discussion of the effect of the ABM Treaty on the development, testing and deployment of kinetic energy weapons appears *supra*, in Chapter 2.

⁷⁹⁷ The sensor aspects of Delta 180 are described *infra*, in Section A1.2.3, "Sensors for Weapon Systems".

⁷⁹⁸ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty, supra*, note 136, at 48.

⁷⁹⁹ *Compliance Appendix, supra*, note 149, at B-8.

⁸⁰⁰ *Military Space*, 16 February 1987, at 4, and 30 March 1987, at 1. It is not clear from these descriptions whether the KEW will be in orbit, will launch itself from a platform in sub-orbital trajectory, or will attack the target booster directly from the ground.

⁸⁰¹ *Military Space*, 17 August 1987, at 3.

⁸⁰² The goal of SDI's Ground-Based Railgun Experiment is to develop a device capable of firing a 100-gram projectile at least 20 times per week. (*AWST*, 19 May 1986, at 27) Even this device would be far from weapons-capable, and would only be intended to develop a data base and serve as a test-bed for new rail materials and insulators. (*Ibid.*) Yet Seitz and Jastrow (*Critical Commentary, supra*, note 795, at 3) claim that a recent test succeeded in firing projectiles once every five seconds, and conclude from this that "it now appears that no obstacles stand in the way" of achieving the several shots

tion, guided projectiles must be reduced in weight and their electronic components made to withstand great acceleration forces.

U.S. tests of space-based railguns against satellites simulating strategic ballistic missile components are scheduled for the early 1990s.⁸⁰³ Deployed devices could be used in all phases of the BMD mission, from space-based guns for boost-phase, post-boost and midcourse to ground-based versions for terminal defence.⁸⁰⁴

A1.2.2.3.3.2 Space-Based Directed Energy Weapons For Ballistic Missile Defence

DEWs under consideration for space-based BMD include chemical lasers, FELs, X-ray lasers and NPBs. Although space-based chemical lasers were once touted as the most likely space-based DEW for BMD, the tremendous cost of placing their chemical lasants in orbit, together with the very large mirrors necessitated by their long wavelengths, make it unlikely they will ever be deployed in orbit as part of a BMD system. Nonetheless, the U.S. continues its "Triad" program aimed at developing a 5-megawatt continuous-wave hydrogen-fluoride laser weapon capable of being based in space. Announced testing of the "Alpha" beam generator for this weapon is limited to under-roof experiments on the ground.⁸⁰⁵ Unlike some DEWs, the two principal chemical lasers being developed by the U.S. could penetrate the atmosphere far enough to allow destruction even of fast-burn boosters.⁸⁰⁶

FELs, due to their potentially high efficiencies,⁸⁰⁷ are also candidates for space basing. However, size considerations prevent this from being a near-term prospect. The currently most promising type of FEL, if scaled to power levels needed for BMD, would have dimensions measured in *miles*.⁸⁰⁸ All in all, if FELs are to become BMD weapons, the beam generator is far more likely to be ground-based and the beam directed at targets via orbiting or popped-up mirrors.

The X-ray laser continues to be a candidate for space-basing, although many of its proponents favour its use in a pop-up mode, for improved survivability.⁸⁰⁹ One drawback is the fact that X-rays cannot

per second needed for a railgun weapon.

⁸⁰³ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 47.

⁸⁰⁴ *Ibid.*

⁸⁰⁵ *AWST*, 4 August 1987, at 33; *FY85 ACIS*, *supra*, note 414, at 232-3; *Compliance Appendix*, *supra*, note 149, at B-6.

⁸⁰⁶ These are a hydrogen fluoride laser of wavelength 2.7 microns and a deuterium fluoride laser of wavelength 3.8 microns. The former can descend to an altitude of about 10 km., the latter lower still. (Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 18.

⁸⁰⁷ OTA, *Ballistic Missile Defense Technologies*, *supra*, note 737, at 152. The *FY85 ACIS* (*supra*, note 414, at 236) claims that FELs "are potentially scaleable to multimewatt power levels at electrical efficiencies exceeding 20 percent."

⁸⁰⁸ *AWST*, 18 August 1986, at 40.

penetrate the atmosphere to altitudes of less than 60 to 100 km.⁸¹⁰ Thus, fast-burn boosters could reduce or even eliminate any opportunity for the use of X-ray lasers in boost-phase intercept, even if the latter were orbited. In any event, it has yet to be proven that the very high brightness levels required of X-ray lasers before they would be useful as BMD weapons are achievable.

A DEW technology which may be orbitally-based for BMD in the longer term is the NPB. These could be used in boost-, post-boost and midcourse phases of ballistic missile flight. Two upcoming SDI NPB experiments are called "BEAR" (for Beam Experiment Aboard Rocket) and "ISE" (for Integrated Space Experiment). The former was to have sent a 1 mega-electron-volt (MeV) accelerator on a sub-orbital trajectory in 1988 for general experimentation with NPB propagation in space. The latter is to send a 50 MeV accelerator into space in the early 1990s.⁸¹¹ Accelerators with much greater particle energies have been tested on the ground. For instance, the "White Horse" Accelerator Test Stand (ATS) device has attained 800 MeV beam energies.⁸¹²

The important measurement for a weapons-grade NPB, however, is not beam energy, but beam power. Power is the product of the energy carried by each particle, measured in electron volts, and the current, or number of particles in the beam per unit of time. While Earth-bound accelerators have been able to produce weapons-grade energy levels or currents, no device has come close to achieving *both* at the same time. As for planned space-based NPB experiments, the ISE, while it is to have a beam energy of 50 MeV, the current is to be only 50 milliamperes.⁸¹³ Its power will therefore be only 2.5 MW. Even if weapons-grade NPB power is attainable, there will still be the problem of reducing size and weight so that placement into orbit becomes plausible.⁸¹⁴

One serious shortcoming of NPBs for boost-phase BMD is the fact that they cannot penetrate even the thinnest layers of atmosphere. Thus, space-based devices cannot destroy targets at altitudes of less than 160 km.⁸¹⁵ Fast-burn boosters likely to be available at the time space-based, weapons-grade NPBs are ready, are will not afford an NPB boost-phase targets to shoot at. NPBs could still be effective post-boost

⁸⁰⁹ The most plausible pop-up basing scheme for U.S. X-ray lasers for boost-phase BMD is on submarines. Land-basing in the U.S. or even the U.K. would consume more time than ICBM boosters with even slightly reduced burn times would take to burn out. (Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 27-8) Even submarine basing may not get the devices close enough to Soviet ICBM fields to accomplish boost-phase BMD (although post-boost and mid-course use will always be possible). Carter (*ibid.*) notes that fast-burn boosters only slightly faster than MX would defeat such a scheme for boost-phase BMD. Sidney Drell (quoted in *Military Space*, 16 May 1985, at 6) maintains that there is "no plausible pop-up X-ray laser scheme for an effective boost-phase defense against a capable opponent determined to deny us that capability."

⁸¹⁰ Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 26.

⁸¹¹ *Military Space*, 2 February 1987, at 4.

⁸¹² *AWST*, 17 August 1987, at 26.

⁸¹³ *AWST*, 17 August 1987, at 26.

⁸¹⁴ Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 29.

⁸¹⁵ *Id.*, at 30.

and mid-course BMD weapons, but great improvements in power levels will be required.⁸¹⁶

Any space-based DEW platform would require a nuclear reactor as a power source.⁸¹⁷

A1.2.2.3.4 Other Dedicated Space-Based Weapons

The only other space-based weapon not intended for either the ASAT, DSAT or BMD mission would be space-based anti-aircraft weapons. DEWs could potentially be developed for use in the destruction of aircraft and cruise missiles. Obviously, only those beams that can penetrate the atmosphere are candidate technologies in this role. This would exclude X-ray lasers, which are fully absorbed by the atmosphere within very short distances, as well as NPBs, which are stripped of their neutral charge and disrupted by the Earth's magnetic field in the thinnest layer of air.⁸¹⁸ It would also exclude HELs operating in the ultraviolet range and parts of the infrared range.

This leaves certain types of HELs, as well as kinetic kill vehicles as possible space-based anti-aircraft weapons. Deuterium-fluoride chemical lasers have been suggested.⁸¹⁹ KEW operation in the atmosphere must await the development of guidance systems able to function during the devices' re-entry into the atmosphere.⁸²⁰ Whichever kill mechanism is used, the more difficult part of the mission will continue to be *locating* aircraft targets against the cluttered background of the Earth.⁸²¹

A1.2.2.3.5 Residual Space-Based Anti-Satellite Capability

There are all manner of technologies deployed in space, both civilian and military, that could be used to damage, destroy or alter the flight trajectories of satellites, but that were not expressly designed to do so. The military utility of these in an ASAT role varies from significant to almost non-existent, depending upon such factors as (a) the speed with which they could damage satellites, (b) the number of satellites they threaten and (c) the cost of the devices (especially where *kamikaze* operations are envisioned).

The most straightforward way of damaging an adversary's satellite is to simply command one's own satellite to collide with it. For this purpose, it matters not whether the satellite so employed ordinarily performs a civilian or a military function. All that matters is that it be maneuverable and that a capability exist to guide it accurately towards its target. This latter capability is not easily obtained, however. Recall the mixed success of the *dedicated* Soviet ASAT's test history. There was frequent failure to bring that inter-

⁸¹⁶ The *APS Study* estimates that NPBs operating at the necessary current levels, before becoming useful for BMD, must be scaled up by at least two orders of magnitude in *both* voltage and the rate at which they can deliver a beam. (Patel and Bloembergen, "Strategic Defense and DEWs", *supra*, note 737, at 43-4)

⁸¹⁷ *Id.*, at 45.

⁸¹⁸ OTA, *Ballistic Missile Defense Technologies*, *supra*, note 737, at 191.

⁸¹⁹ Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 98.

⁸²⁰ OTA, *Ballistic Missile Defense Technologies*, *supra*, note 737, at 191.

⁸²¹ *Ibid.*

ceptor to within the one km. generally regarded as its warhead's lethal radius. Causing a collision with a satellite not expressly designed for the purpose would be much more difficult. There is also the question of the cost of any satellite one might use as a kinetic ASAT. It makes little sense to plan on using one multi-million dollar satellite to destroy another, except in emergencies.

Somewhat more capable as ASATs than manoeuvrable satellites are maneuvering space vehicles. In particular, the Soviet "Progrez" vehicle -- used to ferry supplies to the Soyuz space stations -- and the U.S. space shuttle have been touted as systems with considerable residual ASAT capability. The former does have features in common with dedicated ASAT interceptors: it can be brought into the vicinity of a target satellite, maneuvered alongside, and brought into contact with it.⁸²² As for the space shuttle, one of its big selling points was its ability to rendez-vous with malfunctioning satellites in order to either effect on-orbit repairs or physically retrieve them for return to the Earth. In theory, such a capability could be used to damage or capture the satellites of other nations as well.

There are considerable limitations and drawbacks, though, attendant upon the use of such space vehicles for ASAT activities. In the first place, these systems can only be made to operate, at the present time, at altitudes of a few hundred miles.⁸²³ Thus, the number of satellites threatened in this manner would be very small. Second, any large maneuvering spacecraft would, of necessity, be a very slow interceptor, poorly suited to attacking a large number of satellites at widely varying locations in a short period of time.⁸²⁴ Third, these spacecraft are very expensive. It makes little sense to plan on using them in close proximity to enemy satellites when the latter can easily be booby-trapped to destroy any space vehicle found interfering with them. Because the space shuttle is manned, it is especially vulnerable to such a tactic, and is thus particularly unlikely to be used as an ASAT. In addition to risking the destruction of a billion dollar spacecraft, there would be the prospect of the loss of human life to deter such schemes. For all of these reasons, it is questionable whether any significant military value inheres in such systems' residual ASAT capability.⁸²⁵

Another class of device with residual ASAT capability is the directed energy device deployed for non-weapon purposes. In the near term, this means various laser devices. Fortunately, many of the devices that utilize laser illumination for such military tasks as intelligence gathering and weapon targeting do so at low power, and are not suitable as ASATs.⁸²⁶ However, there are some potential non-weapon space uses of HELs as well.⁸²⁷

⁸²² Tirman (ed.), *The Fallacy of Star Wars*, *supra*, note 614, at 237.

⁸²³ *Id.*, at 245.

⁸²⁴ *Ibid.*

⁸²⁵ *Ibid.*

⁸²⁶ *Aspen Report*, *supra*, note 644, at 25.

⁸²⁷ Smith, "Satellite and Missile ASAT Systems", *supra*, note 701, at 89:

A ban on R & D associated with laser ASAT systems would be extremely difficult to verify simply because lasers, even powerful ones, have so many applications other than space warfare.

One such potential use of HELs is in connection with solar power satellites (SPS). These would be very large structures, several kilometers long, that would gather solar energy for use on Earth. This energy would be transported to the Earth's surface by directed energy beams of one kind or another. Lasers and microwave beams have been suggested for the task.⁸²⁸ Alternatively, such energy could be beamed to other satellites to provide them with a power source.⁸²⁹ In either case, the SPS could be seen by an adversary as a potential kill mechanism against satellites or ballistic missiles.⁸³⁰ There have also been proposals to use *ground*-based lasers as a power source for rocket boosters. All devices of this nature should be seen as at least conveying the appearance of residual ASAT capability.

⁸²⁸ Einhorn, et al., "Strategic Arms Control Through Test Restraints", *supra*, note 718, at 146.

⁸²⁹ *Ibid.* In fact, the idea of SPS grew out of research into the refueling of satellites for military purposes.

⁸³⁰ Stanley Foundation, *US-USSR Confrontation or Co-operation in Space?*, *supra*, note 621, at 16.

A1.2.3 Sensors for Weapon Systems

The mechanism used to actually destroy a target is not the only component of a weapon system. DEWs would be relatively harmless devices unless their operators knew where and when to fire them. The ASAT mission, regardless of the kill mechanism involved, would not be possible without reliable satellite tracking. BMD is unthinkable without some means of detecting, tracking and distinguishing between the various elements of ballistic missiles in flight, pointing the kill mechanism at them, and confirming that they have been destroyed. To date, most of these weapon system sensors have been located on the Earth's surface. For instance, the backbone of any space tracking system is the network of ground-based radars and optical telescopes relied upon to date. Similarly, BMD sensors have been limited, for the most part, to ground-based radars.

However, air- and space-based sensors for tracking space objects for targeting purposes are under development. Air-based passive LWIR sensors for detecting and tracking ballistic missile warheads in the late mid-course portion of flight are being investigated by the U.S. in its SDI "Airborne Optical Adjunct/ System" (AOA/AOS) program.⁸³¹ The system will also provide data for additional discrimination between warheads and other objects, by observing their interaction with the atmosphere as they re-enter it.⁸³² If deployed, AOA/AOS would most likely involve unmanned drone aircraft sent aloft upon warning of attack⁸³³ to altitudes of 50,000 to 60,000 ft. around the perimeters of defended areas.⁸³⁴ It is not expected that passive sensors alone will be able to track RVs accurately enough to direct interceptors. Therefore, it is envisioned that AOA/AOS would feed information to active sensors – radar or ladar (laser radar) – which would in turn direct the interceptors.⁸³⁵ AOA/AOS testing was to have begun in 1988.

Space-based BMD sensors are to follow. Some, designed to track ballistic missiles during boost phase, are in fact improved versions of early warning satellites. The U.S. program of this kind is known as the "Boost Surveillance and Tracking System" (BSTS). It is intended to track ICBM boosters with greater resolution and precision than present early warning satellite sensors are capable of.⁸³⁶ BSTS will involve a satellite in high Earth orbit⁸³⁷ that uses passive short- and medium-wave infrared (SWIR and MWIR) or possibly UV sensors to observe the hot booster plumes of ICBMs.⁸³⁸ While a deployed BSTS satellite

⁸³¹ *Military Space*, 19 August 1985, at 2, states that AOA refers to the first-generation sensors aboard manned aircraft, while AOS refers to the follow-on program where these sensors would probably be based on unmanned drone aircraft. We will refer to the system as AOA/AOS.

⁸³² *Fletcher Report*, *supra*, note 608, at 14.

⁸³³ *Ibid.*

⁸³⁴ *1985 SDI Hearings*, *supra*, note 199, at 107 (testimony of John Gardner, Director of Systems, SDIO).

⁸³⁵ *Fletcher Report*, *supra*, note 608, at 14.

⁸³⁶ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 42.

⁸³⁷ *Military Space* (17 August 1987, at 3) reports that the first BSTS test satellite will be in GSO.

⁸³⁸ Most discussions of BSTS mention only IR sensing, since booster plumes emit radiation most prolifically at MWIR and SWIR wavelengths, on the order of hundreds of kilowatts of power. (Carter, *Directed Energy Missile Defense in Space*, *supra*, note 717, at 39) However, UV sensors may be used instead, as these would cost much less and require smaller optics. (*Military Space*, 1 September 1986, at 1)

would process sensor data on-board in real or near-real time, the test satellite may send its data back to Earth for processing there.⁸³⁹ The first test satellite is likely to be launched between 1991 and 1993.⁸⁴⁰

Two other U.S. sensor systems scheduled for space testing in the early 1990s are the "Space Surveillance and Tracking System" (SSTS) and "Space-based Imaging Radar and Imaging Laser" programs.

SSTS will be a low to medium Earth orbit⁸⁴¹ satellite-based surveillance and tracking system using passive SWIR and LWIR sensors⁸⁴² to track and discriminate ballistic missiles and their elements not only in midcourse, as is commonly stated⁸⁴³ but in boost and post-boost phases as well.⁸⁴⁴

SSTS testing is likely to begin between 1991 and 1993⁸⁴⁵ and involve "the collection of tracking and signature data on a number of space objects"⁸⁴⁶ including satellites simulating strategic ballistic missile elements.⁸⁴⁷

SSTS could also be used to track satellites for ASAT purposes. In fact, SSTS began as part of an upgrading of the U.S. "Spacetrack" ground-based satellite tracking network and was intended to provide tracking support for U.S. ASATs.⁸⁴⁸

Several tests of passive LWIR sensors launched into sub-orbital trajectories have already been undertaken by the U.S. under the "Designating Optical Tracker" (DOT) program.⁸⁴⁹ Future tests under the

⁸³⁹ This limitation, if implemented, would be intended to make any BSTS test compliant with the ABM Treaty.

⁸⁴⁰ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 18.

⁸⁴¹ John Gardner, Director of Systems, SDIO, has testified that SSTS will be in "medium Earth orbit" (1985 SDI Hearings, *supra*, note 199, at 107), but that near-term deployment would involve 50 to 150 satellites in low polar orbits. (*Military Space*, 11 November 1985, at 8)

⁸⁴² *Ibid.*

⁸⁴³ See, e.g. Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 16.

⁸⁴⁴ 1985 SDI Hearings, *supra*, note 199, at 107 (testimony of John Gardner).

⁸⁴⁵ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 18.

⁸⁴⁶ *Compliance Appendix*, *supra*, note 149, at B-7.

⁸⁴⁷ *Military Space* (18 August 1987, at 4) quotes SDIO as stating that the objects of SSTS testing would include "a small number of realistic targets on non-threat trajectories."

⁸⁴⁸ *AWST*, 10 August 1987, at 42.

⁸⁴⁹ The FY85 ACIS (*supra*, note 414, at 201) reports that 5 DOT tests occurred between 1978 and 1982 and that the sensor platforms are launched by sounding rockets and operate above the atmosphere.

program, renamed "Queen Match," will track *Soviet* ballistic missile tests.⁸⁵⁰ Another SDI program involving sensors launched on sub-orbital trajectories is the "Ground-Based Surveillance and Tracking System" or GSTS (formerly called "Probe" or "LWIR Probe"). The objects of GSTS sensing are to be U.S. Minuteman boosters, rather than Soviet boosters.⁸⁵¹

At one time, it was believed that passive IR sensing would be adequate for midcourse BMD tracking and discrimination. Now, however, it is recognized that the resolution required for these tasks will require active or interactive sensing, using space-based radar, ladar or NPBs.⁸⁵² Consequently, the resolution requirements for SSTs have been reduced.⁸⁵³

In addition to being placed in space on their own to collect data for BMD and ASAT weapons, sensors would be built into DEW platforms. There, they would use the data from dedicated sensor satellites to locate targets (called "acquisition"), monitor the targets' motion (called "tracking") and aim the DEWs' beams at them (called "pointing") with sufficient precision to keep the beam on the target long enough to

⁸⁵⁰ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty*, *supra*, note 136, at 42.

⁸⁵¹ AWST, 10 August 1987, at 28-9.

⁸⁵² See *FY87 Senate DOD Authorization Hearings, Part 4*, *supra*, note 723, at 1643, where Lt. Gen. Abrahamson testified that there is "clear agreement" that passive means alone "may not be efficient [enough] to do that [midcourse discrimination]." Patel and Bloembergen are less equivocal:

Because of the weak thermal signatures of post-boost and reentry vehicles, thermal detectors *will* have to be supplemented with microwave or optical radars.

("Strategic Defense and DEWs", *supra*, note 737, at 44; emphasis added)

Passive sensors utilize radiation *naturally* emitted by or reflected from objects. All objects emit IR radiation and reflect sunlight. Active sensors utilize radiation *emitted by the sensor* and reflected back to it by the target. Radar works on this principle. Interactive sensing seeks to actually modify the behaviour of the target in a manner discernable to the sensor. Examples of this include the use of lasers to actually move low mass warhead decoys so as to distinguish them from high mass genuine warheads, and NPBs to cause the heavy nuclear materials in real warheads to emit characteristic radiation.

The reason why passive sensing is unlikely to provide adequate resolution for many BMD purposes is that it is limited to the collection of radiation in the wavelength naturally given off by the target. The longer the wavelength, the larger must be the mirrors in the telescope used to do the sensing, in order to achieve a given angular resolution. Ballistic missile warheads travelling through space are at approximately room temperature, and, as such, emit radiation primarily in the LWIR at a wavelength of about 10 microns. (OTA, *Ballistic Missile Defense Technologies*, *supra*, note 737, at 161) If one wishes to produce an image of a warhead with 30 cm. (about 1 ft.) resolution – the kind of high resolution needed to distinguish real warheads from decoys – at a distance of 3,000 km., relying solely upon naturally emitted 10-micron LWIR radiation, a telescope with a mirror 120 meters in diameter would be required. (*Id.*, at 163) The manufacture of perfect mirrors of this immense size cannot be foreseen for decades. Even if it could, such mirrors would be very vulnerable. By moving to *active* sensing, the wavelength of the sensed radiation can be selected so as to minimize the size of the optics required. A telescope observing reflected radiation from an UV laser of wavelength 0.2 microns would need a mirror only 2.4 meters in diameter. (*Id.*, at 163-4)

⁸⁵³ *Military Space*, 9 December 1985, at 3.

destroy it. One forthcoming SDI project, called "ATP" (for Acquisition, Pointing and Tracking, formerly called "Talon Gold"), will test telescopes, probably passive IR and/or UV, to perform these three functions over long ranges, including against ballistic missiles in boost phase.⁸⁵⁴

One other role for space-based passive sensors is in the detection and tracking of aircraft and cruise missiles. This is a difficult task because of the need to spot the LWIR signatures of aircraft against the cluttered background of Earth, itself a prodigious source of LWIR radiation. The U.S. program aimed at producing space-based IR sensors for this role is called "Teal Ruby." It is investigating the possibility of carrying out the mission with 100,000 or more IR sensors in a "focal plane mosaic array."⁸⁵⁵

Active sensors being considered for space-based BMD are radar and laser imaging. One SDI endeavour, the "Space-Based Imaging Radar and Imaging Laser" project, is to determine which of the two is the more promising for midcourse discrimination and to subject the better candidate to full-scale space testing in the early 1990s.⁸⁵⁶ A nearer-term use of space-based radars, however, is for early warning of strategic bombers and cruise missiles.⁸⁵⁷

Ladar involves the use of a telescope and a laser beam – used in the same way as radio waves are used in radar – to produce high quality images of an object⁸⁵⁸ and to yield information as to its distance from, and velocity relative to, the sensor.⁸⁵⁹ Aside from its possible use for midcourse acquisition, tracking and discrimination,⁸⁶⁰ ladar could be used for the accurate pointing and tracking of DEWs for boost-phase intercept. Particularly for shorter wavelength HELs (such as FELs and excimer lasers), which would produce small spot sizes at the distances to be covered by space-based DEWs, the booster plumes are too large to serve as targets, when what must be hit is not the plume but the booster itself.⁸⁶¹ Ladar would allow sensing of the booster rather than the plume.

The main technology being touted for interactive midcourse discrimination is the NPB. As mentioned, this entails penetrating targets with relatively low-power beams of neutral particles. Observing the degree to which the target emits gamma rays and neutrons discloses whether it is a real warhead containing heavy nuclear material or a low-mass decoy. As has been mentioned, the U.S. has two tests planned for placing NPBs into space, the latter, in the early 1990s, involving a 2.5 MW accelerator. This device will

⁸⁵⁴ *Compliance Appendix, supra*, note 149, at B-6, notes that, while in the near-term ATP will involve ground-based, laboratory experiments only, "[i]n the future, the measurement of booster plumes from space is a distinct possibility" using "passive sensors in the Shuttle Bay."

⁸⁵⁵ OTA, *Ballistic Missile Defense Technologies, supra*, note 737, at 191.

⁸⁵⁶ Longstreth, et al., *The Impact of BMD Programs on the ABM Treaty, supra*, note 136, at 16 and 43.

⁸⁵⁷ See *Military Space*, 9 December 1985, at 1-2.

⁸⁵⁸ *Fletcher Report, supra*, note 608, at 32 (Glossary).

⁸⁵⁹ OTA, *Ballistic Missile Defense Technologies, supra*, note 737, at 323 (Glossary).

⁸⁶⁰ *1985 SDI Report, supra*, note 149, at 32.

⁸⁶¹ Patel and Bloembergen, "Strategic Defense and DEWs", *supra*, note 737, at 44; Carter, *Directed Energy Missile Defense in Space, supra*, note 717, at 24.

reportedly fold out to a length in excess of 100 ft.⁸⁶²

There is considerable controversy over the likelihood of developing a NPB for mid-course discrimination before the year 2000.⁸⁶³ Even BMD systems using KEWs as the kill mechanism will rely on active sensing for midcourse discrimination.⁸⁶⁴

One SDI experiment that has already taken place -- the "Delta 180" experiment flown on 5 September 1986 -- involved a number of passive and active sensor tests. Passive IR and other (possibly UV) sensors were used to produce images both of ICBM booster plumes and of a satellite simulating a Soviet PBV.⁸⁶⁵ The "first laser radar ever flown in space" was used, not for imaging, it would seem, but for the more limited role of determining the distance between two spacecraft that never got farther than 120 miles apart. Finally, a radar tracker transplanted from use in firing air-to-air missiles was used to guide one of the two satellites involved into a collision with the other.

⁸⁶² AWST, 15 September 1986, at 18.

⁸⁶³ AWST (27 April 1987, at 36) attributes to SDIO confidence that a reliable midcourse discrimination capability can be developed before the year 2000, but without specifying NPBs. Sidney D. Drell, Deputy Director of the Stanford Linear Accelerator Center, is more pessimistic, saying:

Recent proposals have suggested using beams of neutral particles produced by atomic accelerators in space to distinguish warheads from decoys, *but these are no more than interesting theoretical concepts*. Even if the accelerators can be developed and deployed, they must still survive an attack and remain effective in a space environment disrupted by radiation from multiple nuclear explosions.

(S. Drell, "Stop Early SDI Deployment", *Bull. Atom. Scientists* April 1987, at 3; emphasis added)

⁸⁶⁴ Patel and Bloembergen, "Strategic Defense and DEWs", *supra*, note 737, at 40.

⁸⁶⁵ This and subsequent facts in this paragraph concerning Delta 180 are found in *id.*, at 18-19.

APPENDIX 2

SUPERPOWER MILITARY SATELLITE TABLES

(Numbers in parentheses refer to authorities cited in endnotes)

Table 2: U.S. PHOTORECONNAISSANCE SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
"Big Bird"	Near-Polar sun-synchronous circular LEO (1)(8)	180-290 (1)	97 deg. (1)	0-1 (3)

Comments: Average lifetimes since 1977: 200 days plus. (2)

"KH-11"	Near-Polar sun-synchronous circular LEO (1)(8)	240-530 (1)	97 deg. (1)	2 (3)(43)

Comments: Average lifetimes since 1976: 700 days plus. (1) An effort appears to have been made to keep 2 in orbit at all times. (3)

Total U.S. Photoreconnaissance Satellites	2 (43)

Comments: (43) estimated total # of U.S. photorecce sats to fall from 4 in 1983 to 2 in 1989. This probably means that "Big Birds" were expected to have been retired by then and that 2 KH-11s would be flown at all times.

Table 3: SOVIET PHOTORECONNAISSANCE SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
Area Sur- veillance (low reso- lution)	Circular LEO (1)	182-366 (17)(31)	82 deg. (44)	?
Comments: Lifetimes of about 14 days in 1982-4. (17)(31) May also perform geodesy (44) and civilian Earth resources work. (17)(31)				
Third Generation / Medium to High Resolution	Circular LEO (1)	356-415 (30)	70 & 73 deg. (30)(44)	?
Comments: Lifetimes of about 14 days. (17)(31)				
Fourth Generation / High Resolution	Circular LEO (1)(8)	172-351 (30)	65, 67 & 70 deg. (30)(44)	?
Comments: Maneuverable. (44) Lifetimes improving, from average of approx. 40 days in 1982-3, (31) to 48 days in 1984, including 1 with lifetime of 173 days. (17)				
Total Soviet Photoreconnaissance Satellites				2-3 (5)(8)(30)

*Table 4: RADAR OCEAN RECONNAISSANCE SATELLITES (RORSAT)
(SOVIET ONLY)*

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
RORSAT	Inclined, circular LEO (1)(12)	245-265 (1)(12)(19)(30)	65 deg. (1)(12)(19)(30)	0-2 (8)(43)

Comments: Dates of launches and boosts to higher orbits in (12) suggest effort to keep 2 in orbit at all times in 1982 yet almost no coverage in 1983. Lifetimes before boost of nuclear power source to higher orbit and burnup of rest of satellite on order of 5 weeks to 5 months, with 2-3 months about the norm. (12)(19)(45)

Table 5: U.S. ELECTRONIC INTELLIGENCE (ELINT) SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
ELINT	Near-Polar circular LEO (1)	700-1,300 (11)(18)	95-97 deg. (1)(24)(33)	14 (43)

Comments: Number of ELINT satellites deployed is an estimate made in 1983. The number deployed at that time was 6. (43)

"Rhyolite"	GSO (4)(26)	36,000 approx. (4)(26)	0 deg. approx. (4)(26)	4 (43)

Table 6: SOVIET ELECTRONIC INTELLIGENCE (ELINT) SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
ELINT	Circular, inclined LEO (1)	620-660 (1)(11)(30)	81-83 deg. (1)(18)(30)	6

Comments: (43) projected 8 ELINT satellites for 1989, down from 10 in 1983, but included EORSATs in the figure. (8) gives figure of 6. Lifetimes of older system (those at 81 degrees) estimated at 60 years. (11)(18)(39) Those launched at 83 degrees may be a new system with lifetimes of only 3 years. (39)

Table 7: U.S. OCEAN ELECTRONIC INTELLIGENCE SATELLITES (EORSAT)

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
EORSAT/ Ocean Surveillance	Inclined, circular LEO (1)	1,100 (1)(11)(34)	63 deg. (1)(34)	?

Table 8: SOVIET OCEAN ELECTRONIC INTELLIGENCE SATELLITES (EORSAT)

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
EORSAT	Inclined, circular LEO (1)	425-550 (1)(11) (24)(30)	74 & 65 deg. (1)(24)(25) (30)(33)(34)	0-2 (8)

Comments: Lifetimes on order of 2-5 years. (11)

Table 9: U.S. EARLY WARNING SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
Early Warning/ "IMEWS"	GSO (1)(8)(26)	36,000 (1)(41)	0 deg. (1)	2-3 (4)(8)(43)

Comments: Lifetimes probably on order of five years, since there were a total of 4 early warning sats launched in the six-year period 1979-84 inclusive. (13)(20)(26)(35)(41)

Table 10: SOVIET EARLY WARNING SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
Early Warning	Molniya * (1)(8)	550-700 x 40,000 (1)(20)(30)	63 deg. (1)(13)(26)(35)	9 ** (8)(13)

Comments: * A Molniya orbit is a highly elliptical orbit that takes a satellite tens of thousands of km. from Earth at its highest point (apogee) and to within a few hundred km. at its lowest point (perigee).

** (43) projected no Soviet early warning sats in Molniya orbits for 1989. Instead, Soviets will follow U.S. lead and deploy 3 early warning sats in GSO.

Table 11: NUCLEAR EXPLOSION DETECTION (NUDETS) (U.S. ONLY)

One IONDS package is to be deployed on each of the 18 NAVSTAR GPS satellites. (See Table 16, *infra*)

Table 12: U.S. METEOROLOGICAL (WEATHER) SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
"DMSP"	LEO	820	99 deg.	2
	(10)	(16)	(16)	(10)(43)

"GOES"	GSO	36,000	0 deg.	2-4
	(1)(10)(36)(43)	(1)(16)	(1) *	**

Comments: * "GOES 6", launched in 1983, had an orbital inclination of 15 degrees, yet was nominally in GSO. (16)
 ** (4) and (10) list the number deployed as 4; (43) listed the number in 1983 as 2 and projected that this would not change by 1989.

Table 13: SOVIET METEOROLOGICAL (WEATHER) SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
"Meteor"	LEO	590-670	98 deg.	approx. 3
	(10)	(1)(27)(42)	(1)	(10)(43)

"GOMS" (Planned)	GSO	36,000	0 deg.	1
	(10)	(10)		*

Comments: * (43) projected a single satellite deployed as of 1989. (10) lists 4 as the eventual size of the constellation.

Table 14: U.S. COMMUNICATIONS SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
"SDS" ("DSCS")	Molniya (1)(7)	250 x 39,000 (1)	64 deg. (1)	2-3 (7)(43)
"TDRS"	GSO (14)	35,800 (14)	0 deg. (14)	?
"FLTSATCOM"	GSO (1)(7)	36,000 (1)(37)	0 deg. (1)	4-6 (6)(7)
"DSCS II"	GSO (4)(14)	36,000 (4)(14)	0 deg. (4)(14)	4 + 2 spares (6)(7)
"MILSTAR"	GEO (polar & equatorial) (7)	36,000	0 deg.	*
Comments: 6-8 planned as eventual size of constellation. (7)				
"AFSATCOM"	transponders on satellites in various orbits (7)	various	various	more than 25 (7)
Total U.S. Comsats (including NATO)				20-22 (43)

Table 15: SOVIET COMMUNICATIONS SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
Tactical "Store and Dump"	Circular, inclined LEO (1)	800-1,400 (1)(14)(30)(37)	47 & 74 deg. (1)(14)(30)	2 (43)

Comments: Number deployed is estimate made in 1983 of number to be deployed by 1989. 1983 number deployed was approx. 25. (7) The drop in number and increase in number of strategic comsats (see below) reflects the move of Soviet comsats from LEO to the more secure GSO. (14) and (22) suggest lifetimes on the order of 15 mo.

"Molniya" Strategic	Molniya (1)	400 x 40,000 (1)(30)	63 deg. (1)(14)(30)	4 (6)(43)

Comments: Each satellite is in its own unique orbital plane. (6) (14) and (22) indicate that 3 launches in 1983-4 were replacements for satellites launched 15, 17 and 18 mo. before, suggesting lifetimes in this range.

Strategic (43)	GSO (43)	36,000 (43)	0 deg. (43)	12 (43)

Comments: Number is 1983 estimate of number to be deployed by 1989. Number deployed in 1983 was 0.

Table 16: U.S. NAVIGATION SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
"Transit"/ "Nova"	Polar, near- circular LEO (6)(23)	1,200 (23)	approx. 90 deg. (23)	* (43)

Comments: * A constellation of 5 satellites, each in its own orbit, in a "birdcage" configuration (6)(9), to have been phased out by 1989. (43)

"NAVSTAR GPS"	Inclined, circular semi-synchronous, (1)(6)(8)(9)	20,000 (1)(15)(23)	63-64 deg. (1)(38)	18 * (6)(9)

Comments: * (43) reports 21 to be deployed by 1989, but actual number active at any one time is to be 18 with several spares. (6)(9) These 18 are to be deployed in a "birdcage" configuration, 3 in each of 6 orbital planes separated by 60 degrees. (6)

Table 17: SOVIET NAVIGATION SATELLITES

Satellite Name or Type	Orbital Description	Altitude (km.)	Orbital Inclination	Number Deployed
"Transit"- like (9)	Inclined, circular LEO (1)(9)	1,000 (1)(28)(38)	83 deg. (1)	0 * (43)

Comments: LEO navigation sats to be phased out by 1989. (43)
Approx. 10 were deployed previously. (9)(43)

"GLONASS"	Semi-synchronous (or nearly so) (9)(15)	19,000- 19,200 (15)(30)	65 deg. (15)(30)	12 * (43)

Comments: * Estimate made in 1983 based on full constellation
being deployed by 1989.

Appendix 2 – Endnotes

- (1) Jasani, *New Dimension*, *supra*, note 19, at 45.
- (2) *Id.*, at 46.
- (3) *Id.*, at 48-9.
- (4) *Id.*, at 60 (Chart on GSO Usage).
- (5) *Id.*, at 97.
- (6) Carter, "Satellites and Antisatellites", *supra*, note 620, at 53 (his "Figure 3").
- (7) *Id.*, at 59 (his "Table 1").
- (8) *Id.*, at 65 (his "Table 2").
- (9) *Id.*, at 66 (his "Table 3").
- (10) *Id.*, at 67 (his "Table 4").
- (11) Jasani, *Arms Control Dilemma*, *supra*, note 544, at 202 (his "Appendix 1B").
- (12) *Id.*, at 203 (his "Appendix 1C").
- (13) *Id.*, at 204 (his "Appendix 1D").
- (14) *Id.*, at 205-6 (his "Appendix 1E").
- (15) *Id.*, at 207 (his "Appendix 1F").
- (16) *Id.*, at 208 (his "Appendix 1G").
- (17) *1985 SIPRI Yearbook*, at 151-2 (their "Table 5B.1").
- (18) *Id.*, at 153 (Their "Table 5B.2").
- (19) *Id.*, at 154 (Their "Table 5B.3").
- (20) *Id.*, at 154 (Their "Table 5B.4").
- (21) *Id.*, at 155 (Their "Table 5B.5").
- (22) *Id.*, at 156 (Their "Table 5B.6").
- (23) *Id.*, at 157 (Their "Table 5B.7").
- (24) *1980 SIPRI Yearbook*, at 203 (their "Table 5.4").
- (25) *Id.*, at 203 (their "Table 5.5").
- (26) *Id.*, at 203 (their "Table 5.6").
- (27) *Id.*, at 204 (their "Table 5.7").
- (28) *Id.*, at 205 (their "Table 5.8").
- (29) *Id.*, at 206 (their "Table 5.9").
- (30) United States, Congress, Office of Technology Assessment, *Anti-Satellite Weapons, Countermeasures and Arms Control* (Washington, D.C.: USGPO, 1985), at 37 (their "Table 3.2").
- (31) Jasani, *Arms Control Dilemma*, *supra*, note 544, at 197-200 (his "Appendix 1").
- (32) *1981 SIPRI Yearbook*, at 285-7 (their "Table 9.2").
- (33) *Id.*, at 287 (their "Table 9.3").
- (34) *Id.*, at 288 (their "Table 9.4").
- (35) *Id.*, at 289 (their "Table 9.5").
- (36) *Id.*, at 289 (their "Table 9.6").
- (37) *Id.*, at 290-1 (their "Table 9.7").
- (38) *Id.*, at 292 (their "Table 9.8").
- (39) *1982 SIPRI Yearbook*, at 308 (their "Table 9.3").
- (40) *Id.*, at 308 (their "Table 9.4").
- (41) *Id.*, at 309 (their "Table 9.5").
- (42) *Id.*, at 309 (their "Table 9.6").
- (43) J. Pike, "Anti-Satellite Weapons", *FAS Public Interest Report*, November 1983, at 3.
- (44) *1984 SIPRI Yearbook*, at 354.
- (45) *1981 SIPRI Yearbook*, at 283.
- (46) *Military Space* 16 March 1987, at 8.

APPENDIX 3

TREATY BANNING NUCLEAR WEAPON TESTS IN THE ATMOSPHERE, IN OUTER SPACE AND UNDER WATER [PARTIAL TEST BAN TREATY]: TEXT OF PROVISIONS RELATING TO THE MILITARY USE OF OUTER SPACE

Signed: Moscow, 5 August 1963

Entered Into Force: 10 October 1963

The Governments of the United States of America, the United Kingdom of Great Britain and Northern Ireland, and the Union of Soviet Socialist Republics, hereinafter referred to as the "Original Parties",

Proclaiming as their principal aim the speediest possible achievement of an agreement on general and complete disarmament under strict international control in accordance with the objectives of the United Nations which would put an end to the armaments race and eliminate the incentive to the production and testing of all kinds of weapons, including nuclear weapons,

Seeking to achieve the discontinuance of all test explosions of nuclear weapons for all time, determined to continue negotiations to this end, and desiring to put an end to the contamination of man's environment by radioactive substances,

Have agreed as follows:

Article I

1. Each of the Parties to this Treaty undertakes to prohibit, to prevent, and not to carry out any nuclear weapon test explosion, or any other nuclear explosion, at any place under its jurisdiction or control:

(a) in the atmosphere; beyond its limits, including outer space; or under water, including territorial waters or high seas; or

(b) in any other environment if such explosion causes radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control such explosion is conducted. It is understood in this connection that the provisions of this subparagraph are without prejudice to the conclusion of a treaty resulting in the permanent banning of all nuclear test explosions, including all such explosions underground, the conclusion of which, as the Parties have stated in the Preamble to this Treaty, they seek to achieve.

2. Each of the Parties to this Treaty undertakes furthermore to refrain from causing, encouraging, or in any way participating in, the carrying out of any nuclear weapon test explosion, or any other nuclear explosion, anywhere which would take place in any of the environments described, or have the effect referred to, in paragraph 1 of this Article.

Article IV

This Treaty shall be of unlimited duration.

Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty three months in advance.

Article V

This Treaty, of which the English and Russian texts are equally authentic, shall be deposited in the archives of the Depositary Governments....

APPENDIX 4

TREATY ON PRINCIPLES GOVERNING THE ACTIVITIES OF STATES IN THE EXPLORATION AND USE OF OUTER SPACE, INCLUDING THE MOON AND OTHER CELESTIAL BODIES [OUTER SPACE TREATY]: TEXT OF PROVISIONS RELATING TO THE MILITARY USE OF OUTER SPACE

Signed: London, Moscow and Washington, 27 January 1967
Entered Into Force: 10 October 1967

The States Parties to this Treaty,

Inspired by the great prospects opening up before mankind as a result of man's entry into outer space,
Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,

Believing that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development,

Desiring to contribute to broad international co-operation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes,

Believing that such co-operation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples,

Recalling resolution 1962 (XVIII), entitled "Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space", which was adopted unanimously by the United Nations General Assembly on 13 December 1963,

Recalling resolution 1884 (XVIII), calling upon States to refrain from placing in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction or from installing such weapons on celestial bodies, which was adopted unanimously by the United Nations General Assembly on 17 October 1963,

Taking account of United Nations General Assembly resolution 110(II) of 3 November 1947, which condemned propaganda designed or likely to provoke or encourage any threat to the peace, breach of the peace or act of aggression, and considering that the aforementioned resolution is applicable to outer space,

Convinced that a Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, will further the Purposes and Principles of the Charter of the United Nations,

Have agreed on the following:

Article I

The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international co-operation in such investigation.

Article II

Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

Article III

States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding.

Article IV

States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.

The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited.

Article IX

In the exploration and use of outer space, including the moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space, including the moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. States Parties to the Treaty shall pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the moon and other celestial bodies, may request consultation concerning the activity or experiment.

Article XI

In order to promote international co-operation in the peaceful exploration and use of outer space, States Parties to the Treaty conducting activities in outer space including the moon and other celestial bodies, agree to inform the Secretary-General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results of such activities....

Article XII

All stations, installations, equipment and space vehicles on the moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity. Such representatives shall give reasonable advance notice of a projected visit, in order that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited.

Article XVI

Any State Party to the Treaty may give notice of its withdrawal from the Treaty one year after its entry into force by written notification to the Depositary Governments. Such withdrawal shall take effect one year from the date of receipt of this notification.

Article XVII

This Treaty, of which the English, Russian, French, Spanish and Chinese texts are equally authentic, shall be deposited in the archives of the Depositary Governments....

APPENDIX 5

TREATY BETWEEN THE UNITED STATES OF AMERICA AND THE UNION OF SOVIET SOCIALIST REPUBLICS ON THE LIMITATION OF ANTI-BALLISTIC MISSILE SYSTEMS [ABM TREATY]: TEXT

Signed: Moscow, 26 May 1972
Entered Into Force: 3 October 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 towards 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 centred 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 their 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 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.

AGREED STATEMENTS

The document below was agreed upon and initialed by the heads of the delegations on May 26, 1972 [letter designation added]:

Agreed Statement 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.

Agreed Statement 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.

Agreed Statement C

The Parties understand that the centre of the ABM system deployment area centred on the national capital and the centre of the ABM system deployment area containing ICBM silo launchers for each Party shall be separated by no less than thirteen hundred kilometers.

Agreed Statement 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.

Agreed Statement 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.

Agreed Statement 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.

Agreed Statement 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.

COMMON UNDERSTANDINGS

Common understanding of the Parties on the following matters was reached during the negotiations:

A. Location of ICBM Defences

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

Article III of the Treaty provides for each side one ABM system deployment area centred 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 centre of the ABM system deployment area centred on the national capital and the centre 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 centred in the Grand Forks ICBM silo launcher deployment area.

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 the 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 [Agreement to Reduce the Risk of Outbreak of Nuclear War Between the United States of America and the Union of Soviet Socialist Republics, signed 30 September, 1971], 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 the signature of these two documents.

In reply, the U.S. Delegation made the following statement on May 20, 1972:

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.

UNILATERAL STATEMENTS

The following noteworthy unilateral statements were made during the negotiations:

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 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 considerations 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 Draft Text 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 the 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. views 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 co-operative target vehicle of the kind referred to in item (2) above during the re-entry 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 of 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.

APPENDIX 6

VIENNA CONVENTION ON THE LAW OF TREATIES: TEXT OF PROVISIONS RELATING TO THE INTERPRETATION OF TREATIES TOGETHER WITH AN ANALYSIS OF WHETHER THEY CODIFY CUSTOMARY INTERNATIONAL LAW

A6.1 Text of Interpretation Provisions

Opened for signature: 23 May 1969
Entered into force: 27 January 1980

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PART I: INTRODUCTION

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Article 4

Non-Retroactivity of the Present Convention

Without prejudice to the application of any rules set forth in the present Convention to which treaties would be subject under international law independently of the Convention, the Convention applies only to treaties which are concluded by States after the entry into force of the present Convention with regard to such States.

PART 3: OBSERVANCE, APPLICATION AND INTERPRETATION OF TREATIES

SECTION 3: INTERPRETATION OF TREATIES

Article 31

General Rule of Interpretation

1. A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.

2. The context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes:

(a) any agreement relating to the treaty which was made between all the parties in connexion with the conclusion of the treaty;

(b) any instrument which was made by one or more parties in connexion with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty.

3. There shall be taken into account, together with the context:

(a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions;

(b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation;

(c) any relevant rules of international law applicable in the relations between the parties.

4. A special meaning shall be given to a term if it is established that the parties so intended.

Article 32

Supplementary Means of Interpretation

Recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to confirm the meaning resulting from the application of article 31, or to determine the meaning when the interpretation according to article 31:

- (a) leaves the meaning ambiguous or obscure; or
- (b) leads to a result which is manifestly absurd or unreasonable.

Article 33

Interpretation of Treaties Authenticated in Two or More Languages

1. When a Treaty has been authenticated in two or more languages, the text is equally authoritative in each language, unless the treaty provides or the parties agree that, in the case of divergence, a particular text shall prevail.
2. A version of the treaty in a language other than one of those in which the text was authenticated shall be considered an authentic text only if the treaty so provides or the parties so agree.
3. The terms of the treaty are presumed to have the same meaning in each authentic text.
4. Except where a particular text prevails in accordance with paragraph 1, when a comparison of the authentic texts discloses a difference of meaning which the application of articles 31 and 32 does not remove, the meaning which best reconciles the texts, having regard to the object and purpose of the treaty, shall be adopted.

A6.2 The Vienna Convention on the Law of Treaties: Do Its Provisions On Treaty Interpretation Codify Customary International Law?

A6.2.1 The Opinions of Publicists

Few publicists recognize the existence of binding customary international legal rules of treaty interpretation beyond the duty to exercise good faith. For instance, Schwartzberger has stated that judicial discretion in the interpretation of international treaties is subject to only two rules:

1. The *first* judicial task of treaty interpretation is to establish whether the consensus of the parties has produced any legal effects.
2. If the answer is in the affirmative, the *second* judicial task of treaty interpretation is to determine, in a spirit of *jus aequum*, the exact meaning and consequences of any disputed undertaking of the parties.⁸⁶⁶

Other than authoritative interpretation, Schwartzberger acknowledges no techniques of interpretation that are binding upon an interpreter. Professors Kelsen,⁸⁶⁷ Stone,⁸⁶⁸ Cheng,⁸⁶⁹ Brierly,⁸⁷⁰ Oppenheim,⁸⁷¹

⁸⁶⁶ G. Schwartzberger, "Myths and Realities of Treaty Interpretation" (1969), 22 *Current Legal Problems* 205, at 214; emphasis in original.

⁸⁶⁷ H. Kelsen, *Reine Rechtslehre* (1960), at 349 *et seq.* (*per ibid.*).

⁸⁶⁸ J. Stone, "Fictional Elements in Treaty Interpretation" (1955), 1 *Sydney L.R.*, at 344 *et seq.*

⁸⁶⁹ B. Cheng, *General Principles of Law as Applied by International Courts and Tribunals* (1953), at 114 *et seq.*

⁸⁷⁰ J.L. Brierly, *The Law of Nations*, H. Waldock (ed.), (6th ed., 1963) Oxford: Clarendon, at 325:

[t]here are no technical rules in international law for the interpretation of treaties; its object can only be to give effect to the intention of the parties as fully and fairly as possible.

However, Brierly/Waldock also noted that the PCIJ has pointed out that the historical method of interpretation – whereby recourse is had to preparatory work –

should be resorted to only when the terms of the treaty itself are not clear, and only when all the parties before the Court have taken part in the preparatory work.

There is no clear indication whether this restriction on the use of the *travaux* is regarded by Brierly/Waldock as an obligatory rule or as a mere guideline.

⁸⁷¹ L. Oppenheim, *International Law*, 8th ed. H. Lauterpacht ed., at 950 *et seq.*:

There are no precise rules of customary or conventional International Law concerning the interpretation of treaties... It is of importance to enumerate some rules of interpretation which commend themselves on account of their suitability.

Note that the 5th edition did not refer to "*precise rules*," but to "*rules*." (At 751: "Neither customary nor conventional rules ... exist ...")

Hyde⁸⁷² and Lauterpacht⁸⁷³ have similarly refused to recognize the existence of binding rules of treaty interpretation beyond the *jus aequum* rule.

Even Sir Gerald Fitzmaurice, more willing than most to recognize the existence of obligatory rules, acknowledged that

in the last resort all interpretation must consist in the exercise of common sense by the judge, applied in good faith and with intelligence.⁸⁷⁴

Sir Gerald did draw six "general principles" of interpretation from the jurisprudence of the ICJ from 1945 to 1954, but made no claim that these constituted customary international law. He noted that it was inevitable that the Court should develop a jurisprudence "reducible to a set of coherent principles."⁸⁷⁵

⁸⁷² 2 *International Law*, *supra*, note 364, at 1498:

As no principle of law deters contracting States from employing the terms of their agreement in any sense they choose, or prevents those charged with the task of interpretation from giving heed to all evidence that is probative of the choice actually made, it may be doubted whether the enunciation of so-called rules of construction serves a useful purpose.

⁸⁷³ The practice of international tribunals has been to ignore formulas and rules based on the historical peculiarities of one country or group of countries, and to explore the intention of the parties by reference to all available sources of evidence. The first and principal lesson which can be deduced from their practice is that in no circumstances ought preparatory work to be excluded on the ground that the treaty is clear in itself....

("Observations on Preparatory Work", *supra*, note 470, at 571)

It is the duty of the judge to resort to all available means – including rules of construction – to discover the intention of the parties; to avoid using rules of interpretation as a ready substitute for active and independent search for intention; and to refrain from neglecting any possible clues, however troublesome may be their examination and however liable they may be to abuse, which may reveal or render clear the intention of the authors of the rule to be interpreted.

("Restrictive Interpretation and the Principle of Effectiveness in the Interpretation of Treaties", 26 *Brit. Yb. I.L.* 48, at 83)

On the other hand, Lauterpacht stated that it was "inadmissible to depart from the absolutely clear meaning of the treaty" ("Observations on Preparatory Work", *supra*, note 470, at 573), although also noting that "there ought to be the greatest reluctance to assume, without exhaustively examining the available sources, that the meaning is absolutely clear."

⁸⁷⁴ G. Fitzmaurice, "The Law and Procedure of the International Court of Justice: Treaty Interpretation and Certain Other Treaty Points", (1951) 28 *Brit. Yb. I.L.* 1, at 3.

⁸⁷⁵ *Id.*, at 6.

Some members of the ILC also questioned the existence of customary rules of treaty interpretation in the years preceding the Vienna Conference,⁸⁷⁶ although some inclined toward the view that customary rules already existed, and could be codified.⁸⁷⁷

Sinclair takes issue with Schwartzberger's contention that the Vienna Convention rules on treaty interpretation constitute a departure from the *lex lata*. He says that this argument is difficult to sustain and

is based on the assumption that the only relevant rule of customary international law is that the meaning and effect of consensual obligations must be interpreted in a spirit of equity. But this comes very near to an assertion that the principles which international tribunals purport to apply are no more than an exercise in justification, disguise and self-deception. This is no doubt one view of the matter ... but it is not a view which commands general support.⁸⁷⁸

Thus, there is no clear support from the publicists for the view that binding customary international legal rules exist governing the interpretation of treaties.

A6.2.2 Pre-Convention State Practice

In providing comments on the 1964 and 1966 ILC Drafts, and during the Vienna Conference in 1968 and 1969, a number of States expressed beliefs inconsistent with the position that the Vienna Convention provisions codified customary international law in existence at that time. For instance, some questioned the existence of binding rules.⁸⁷⁹ Others went further, expressly asserting that no binding rules existed, or that the only rule was that the interpreter had a duty to give effect to the intentions of the parties by whatever means

⁸⁷⁶ Verdross noted that "it was highly controversial whether the rules established by the case-law of arbitral tribunals and international courts were general rules of international law or merely technical rules." (YBILC 1964 I, at 21) Ruda considered that "at the present stage of development of international law, there did not as yet exist for States any obligatory rules on the subject of interpretation." (*id.*, at 277) De Luna and Castrén were skeptical about the possibility of drafting interpretation rules. (*id.*, at 276)

⁸⁷⁷ Briggs (*id.*, at 275) seconded the Special Rapporteur's preferred approach of "seek[ing] to isolate and codify the comparatively few rules which appeared to constitute the strictly legal basis of the interpretation of treaties." Tunkin said that he favoured "the codification of the rules on the interpretation of treaties, particularly since there existed already a substantial body of precedent and State practice on the subject." (*id.*, at 278)

⁸⁷⁸ Sinclair, *The Vienna Convention*, *supra*, note 202, at 117.

⁸⁷⁹ In 1966, the U.S. noted that "[t]here is ... a question whether the provisions should be stated as guidelines rather than as rules." (YBILC 1966 II, at 359) In 1968, she asserted that "[c]anons of interpretation as a whole had seldom been considered as mandatory rules of law that would preclude examination of relevant circumstances." (U.N. Doc. A/CONF.39/11, at 167)

In 1967, Tunisia contended that "[o]n the important subject of the interpretation of treaties, ... international law provided no absolute rules but merely a set of flexible guidelines." (GAOR 22 6th (1967) 981st 129, Para. 6).

⁸⁸⁰ In 1966, the Netherlands noted that "[i]f it must be assumed that it is desirable to lay down interpreta-

necessary.⁸⁸⁰ Some States maintained that the existing practice was unsettled.⁸⁸¹ Some maintained that there was a well-settled international practice giving the interpreter unfettered discretion in choosing which

tion rules, the Netherlands Government can concur with the ILC on the two basic principles adopted..." (YBILC 1966 II, at 322; emphasis added)

In 1966, Greece stated that the only basic rule of interpretation is to ascertain the intentions of the parties by every possible means. (*id.*, at 93) In 1968, she expressed the view that

interpretation could not obey set rules.... All that could be done was to facilitate interpretation and lay down guidelines to assist jurists in their efforts to determine the meaning of a text. Under those conditions, it seemed impossible to draw up guidelines on interpretation in the form of rules of law.

(U.N. Doc. A/CONF.39/11, at 172)

In 1968, Ghana stated that

[i]t was most unusual to codify rules of interpretation, although it was customary to restate principles of interpretation, because the latter were only guidelines intended to assist international tribunals and decision-makers in ascertaining the intention of the parties... [and] considered that there were no obligatory rules of interpretation in international law.

(*id.*, at 170)

Nigeria maintained that there "were no generally accepted rules of interpretation in international law." (*id.*, at 181)

881 In 1968, Sweden stated that a wide variety of opinions had been expressed in legal literature and that no uniform State practice had yet developed. (*id.*, at 181)

Argentina stated that the ILC had been right to try to "establish" rules on interpretation "despite the divergent practice." (*id.*, at 179)

882 In 1965, Kenya asserted that

as the essence of any treaty was the intention of the parties, the goal of any method of interpretation must always be to use all intrinsic and external aids to find out what that intention really was.

(GAOR 20 6th (1965) 850th 70, Para. 40)

In 1968, The U.S. stated that

the overwhelming body of case-law of international courts and arbitral tribunals, and the practice of Ministries of Foreign Affairs ..., bore out the right of the interpreter to take into account any circumstance affecting the common intent that the parties

evidence to consider and when.⁸⁸² Some characterized the draft articles on interpretation as "new."⁸⁸³ Only the United Kingdom⁸⁸⁴ and Turkey⁸⁸⁵ recognized the existence of a number of rules of interpretation having the force of law in 1966 although the latter seemed less certain of this in 1968.⁸⁸⁶

As of 1969, then, the majority of States publicly expressing an opinion did not regard the Vienna Convention interpretation rules as codifying existing international customary law.

A6.2.3 Post-Convention State Practice

A6.2.3.1 Evidence

In 1972, in the case of *Kingdom of Greece v. Federal Republic of Germany*, the Arbitral Tribunal for the Agreement on German External Debts applied Article 31 of the Vienna Convention, saying that its interpretation would be "in accordance with the general rule, as stated in Article 31, paragraph I of the 1969 Vienna Convention on the Law of Treaties ..."⁸⁸⁷

had sought to express in the text.... The restrictions placed by article 28 [now Article 32] on the use of preparatory work did not represent established practice.... The rigid system of articles 27 and 28 [now Articles 31 and 32] was thus not an expression of existing rules of international law.

(U.N. Doc. A/CONF.39/11, at 167)

883 Remarks of the Ukrainian SSR, GAOR 22 6th (1967) 978th 115, Para. 18:

[S]ome of the draft Articles were new and very timely: for example,... article 27 [now Article 31], which expresses a general rule of interpretation of treaties...

884 The U.K. delegation "found little difficulty with articles 69 to 73 [now Articles 31-33] on interpretation of treaties, which, in its view, reflected existing international law and practice." (GAOR 20 6th (1965) 843rd 24, Para. 25)

885 There are sufficient number of rules for interpretation as confirmed in the decisions of the International Court.... The Turkish Government, imbued with this desire, supports the efforts of the International Law Commission in *codifying* the rules concerning the interpretation of treaties.

(YBILC 1966 II, at 93; emphasis added)

886 Turkey stated that the 1966 ILC Draft contained "progressive rules" and that the ILC

had not sought to deal with all the hypotheses in the controversial problem of interpretation and had confined itself to formulating certain fundamental principles which might be regarded as rules of international law.

(U.N. Doc. A/CONF.39/11, at 172)

887 47 I.L.R. 418, at 450-1, Para. 55.

In 1975, a legal opinion of the Austrian Ministry of Foreign Affairs on a provision of the 1955 State Treaty referred to Article 31(1) as undoubtedly reflecting customary law.⁸⁸⁸ If the opinion was indeed limited to Article 31(1), this does not, strictly speaking, shed any light on the Austrian view of the declaratory nature of Article 32's imposition of conditions on the use of preparatory work.

Also in 1975, the European Court of Human Rights (EuCHR), in the *Golder Case*, was prepared to consider, as do the Government [of the United Kingdom] and the Commission, that it should be guided by Articles 31 to 33 of the Vienna Convention ... on the Law of Treaties. That Convention has not yet entered into force ... but its Articles 31 to 33 enunciate in essence generally accepted principles of international law to which the Court has already referred on occasion.⁸⁸⁹

The U.K. Government stated that it regarded Articles 31 to 33 as "correctly formulating generally recognized principles of international law."⁸⁹⁰

In 1976, before the EuCHR, the Swedish government spoke in the *Swedish Engine Drivers' Union Case* of "the general principles in interpretation established by international law and codified in the [Vienna Convention]."⁸⁹¹

In 1978, the EuCHR reaffirmed the applicability of the Vienna Convention articles on treaty interpretation, notwithstanding the fact that the Convention had not yet come into force, and was supported in this position by the government of the Federal Republic of Germany. The Court held as follows:

39. For the purpose of interpreting Article 6(3)(e) [of the European Convention on Human Rights], the Court will be guided, as also were the Government [of the Federal Republic of Germany] and the Commission, by Articles 31 to 33 of the Vienna Convention ... on the Law of Treaties In order to decide the issue arising in the present proceedings, the Court will therefore seek to ascertain "the ordinary meaning to be given to the terms" of Article 6(3)(e) "in their context and in the light of their object and purpose" (Article 31(1) of the Vienna Convention).⁸⁹²

In another 1978 EuCHR case, the *Koenig Case*, the FRG went further, emphasizing the declaratory nature of Articles 31-33:

Il est vrai que [la Convention de Vienne sur le droit de Traités] n'est pas entrée en vigueur jusqu'ici, mais ses dispositions relatives à l'interprétation de traités internationaux sont applicables comme droit international public coutumier et ont déjà été appliquées par la

⁸⁸⁸ (1976) 27 *OeZoeRVR*, at 341f, cited in Villiger, *Customary International Law and Treaties*, *supra*, note 192, at 334.

⁸⁸⁹ *The Golder Case* (1975) Eur. Court H.R., Series A, No. 18, at 14; 57 I.L.R. 200, at 213-4, Para. 29.

⁸⁹⁰ Eur. Court H.R., Series B, No. 16, at 94 and 244.

⁸⁹¹ Eur. Court H.R., Series B, No. 18, at 89.

⁸⁹² *Luedicke, Belkacem and Koç Case*, Eur. Court H.R., Series B, No. 29, at 16; 58 I.L.R. 463, at 479.

Cour Européenne des Droits de l'Homme. [citing *Golder*]⁸⁹³

In the *Beagle Channel* arbitration the Counter-Memorial of Chile stated that

The fourth principle which appears to be common to the two Parties is that regard must be paid in the interpretation of the [1881] Treaty to the principles now reflected in Articles 31 and 32 of the Vienna Convention on the Law of Treaties.⁸⁹⁴

The Argentine reply noted that "this is perhaps not so much a principle as a statement of the obvious."⁸⁹⁵ The court of arbitration, in its 1977 decision, set out its interpretation procedure in terms of the Vienna Convention:

15. In accordance with the traditional canons of treaty interpretation now enshrined in the Vienna Convention on the Law of Treaties, which ... both the Parties have accepted as governing the matter, the Court will next proceed to consider what is the effect of the Treaty of 1881, interpreted "in good faith" and "in accordance with the ordinary meaning to be given to [its] terms ... in their context and in the light of its object and purpose" – (Vienna Convention, Article 31).⁸⁹⁶

In 1980, in the *Young Loan* arbitration,⁸⁹⁷ the Arbitral Tribunal for the Agreement on German External Debts stated the following:

16. According to Article 6 of the Charter of the Arbitral Tribunal, when interpreting the Agreement and the Annexes thereto the Tribunal shall "apply the generally accepted rules of international law." The international law on treaties – including the principal rules of interpretation – has been codified in the Vienna Convention on the Law of Treaties The provisions of the Convention do not apply in the present proceedings [due to Article 4, the Convention's non-retroactivity provision] ..., but nevertheless it is widely held in jurisprudence and legal literature that the Convention properly reflects both the present and the past state of international treaty law since, as regards interpretation at least, it is restricted to the codification of customary law in force. This is a view subscribed to not only by all Parties to these proceedings, but by the Tribunal itself in its previous decisions ...⁸⁹⁸

Also in 1980, the U.S. Legal Advisor to the Department of State wrote in a letter that

⁸⁹³ *Koenig Case*, Eur. Court H.R., Series B, No. 25, at 111.

⁸⁹⁴ *The Beagle Channel Arbitration, Counter-Memorial of the Government of Chile*, Vol. I, para. 7(d), at 14 (1974), cited in H.W. Briggs, "United States Ratification of the Vienna Treaty Convention" (1979), 73 A.J.I.L. 470, at 472.

⁸⁹⁵ *Argentine-Chilean Arbitration Concerning the Region of the Beagle Channel, Reply of the Argentine Republic*, Vol I, at 354 (1973), cited *ibid.*

⁸⁹⁶ 17 I.L.M. 634, at 646.

⁸⁹⁷ *Supra*, note 470, at 495.

⁸⁹⁸ *Id.*, at 529.

[m]ost provisions of the Vienna Convention, including Articles 31 and 32 on matters of treaty interpretation, are declaratory of customary international law

and that

the interpretation of a treaty does not necessarily depend entirely on its negotiating history, but recourse to is had to the negotiating history when other means of interpretation leave the meaning of a provision ambiguous or obscure.⁸⁹⁹

A6.2.3.2 Analysis

In *Greece v. FRG*, as far as can be discerned from the decision, the Parties did not assert that the Vienna Convention might be applied. Only the Tribunal made this judgment. Thus, the case contains no evidence of State practice. It does, however, represent the judgment of an international tribunal that the interpretation of an agreement concluded prior to the entry into force of the Vienna Convention may be made in accordance with Article 31(1). Strictly speaking, however, the tribunal did not say that the Convention's interpretation provisions should be applied in their entirety. In particular, no approval of Article 32 – where conditions are placed on recourse to preparatory work – is given.

In the *Golder Case*, the Court used the Vienna Convention rules, but seemed to equivocate on the issue of whether it was required to do so because they represented a codification of customary international law. The Court was only "prepared to consider" that it should be "guided" by Articles 31 to 33. The use of the word "guided," as opposed to "applied," is, it is submitted, compatible with the view that the Convention codified existing custom. One would not "apply" a convention that did not yet enjoy the status of conventional law. However, by only being "prepared to consider" the relevance of the Convention, the Court made no judgment as to whether it felt obliged to do so. The Court did, however, state that Articles 31-33 "enunciate in essence generally accepted principles of international law."⁹⁰⁰

According to the judgment, the United Kingdom was not merely "prepared to consider" that the Court should be guided by Articles 31-33, but believed that it should. For a State to consent to the use of the Convention prior to its entry into force is an instance of State practice in support of the Convention's codificatory nature in respect of the rules of interpretation. When a State also expresses the opinion that the Convention *should* or *must* be used as a guide, this evidences *opinio juris*. Thus, the U.K. position in *Golder* provides evidence of State practice accompanied by *opinio juris* in support of the proposition that the Vienna Convention articles on interpretation codify international customary law.

The ICJ has held that, when a codificatory convention has been completed, contributions to State practice in support of custom can only be made thereafter by non-Parties to that convention.⁹⁰¹ Although

⁸⁹⁹ Letter from Roberts B. Owen to the Subcomm. on Science, Technology, and Space of the United States Senate Comm. on Commerce, Science and Transportation, 12 September 1980, reproduced in 75 *A.J.I.L.*, at 147.

⁹⁰⁰ Although the words "in essence" qualify this statement, they do not do so to such a degree as to raise doubts about such fundamental rules as the placement of conditions on the use of preparatory work.

⁹⁰¹ In the *North Sea Continental Shelf Cases*, the ICJ, in determining whether the principle of equidistance contained in the 1958 Convention on the Continental Shelf had become a norm of customary international law, looked exclusively to the conduct of States that had not ratified or adhered to that convention and expressly dismissed as irrelevant the practice of States Parties. The Court stated that,

the United Kingdom had ratified the Vienna Convention by the time *Golder* was decided in 1975, the Convention did not enter into force until 27 January 1980. Consequently, it could not be applied to the case as a matter of conventional law. The reason the ICJ gave for excluding the practice of States Parties was that, in their case, one could not tell whether a codificatory convention was being applied as a matter of custom or treaty obligation. Since Article 4 excludes the application of the Vienna Convention to treaties concluded before its entry into force, there is no question of the behaviour of the United Kingdom being motivated by considerations of treaty obligation, even the obligation of signatories not to act in contravention of a convention's provisions pending its entry into force. Thus, it is submitted, the position of the United Kingdom in *Golder* can properly be admitted as evidence of the status of Articles 31-33 of the Vienna Convention as a codification of international customary law in respect of treaty interpretation.

None of the other cases cited involve the interpretation of a treaty concluded before the entry into force of the Convention. (Although the *Young Loan* arbitration was decided after the Convention's entry into force, it involved the interpretation of a 1953 Treaty.) Thus, all of the State practice evidenced by these cases may properly be considered in determining the codificatory status of Articles 31-33.

In the *Luedicke* decision, although the FRG was guided by Articles 31-33, there is no indication that she felt obliged to do so by customary international law. Thus, there is no evidence of *opinio juris* in respect of her position.

The Court in *Luedicke*, however, also applied Articles 31-33. Since it must be expected to have applied existing international law as it understood it, this fact alone is evidence of judicial support for the codificatory nature of the Vienna Convention's interpretation provisions.⁹⁰²

In the *Beagle Channel* arbitration, both Chile and Argentina exhibited practice and *opinio juris* in support of the codificatory nature of Articles 31-32. The Chilean Memorial stated that "regard must be paid ... to the principles now reflected in Articles 31 and 32 ..."⁹⁰³ Argentina agreed.

The *Beagle Channel* court of arbitration stated that the "traditional canons of treaty interpretation [were] now enshrined in the Vienna Convention ...," another way of expressing the view that the Convention codified these canons.⁹⁰⁴

The *Young Loan* arbitration is the most plentiful source of State practice accompanied by *opinio juris*. The Arbitral Tribunal stated that all six Parties to the decision subscribed to the view that the Convention "as regards interpretation at least, is restricted to the codification of customary law in force." The

from the action of the latter "no inference could legitimately be drawn as to the existence of a rule of customary international law." (1969 I.C.J. Rep. 4, at 43, Para. 76)

See also M. Frankowska, "The Vienna Convention on the Law of Treaties Before the United States Courts" (1988), 28 *Va. J. Int'l L.* 235, at 384.

⁹⁰² Since all Parties to the proceedings appear to have accepted the applicability of the Convention, however, the Court's views are arguably *obiter*.

⁹⁰³ Emphasis added.

⁹⁰⁴ Again, since both Parties accepted this, the Court's view was arguably *obiter*.

Tribunal agreed.⁹⁰⁵

The *Young Loan* arbitration is especially important because one of the States that confirmed the codificatory nature of Articles 31-33 was the United States, a Party to the ABM Treaty and the one that has relied heavily upon the negotiating record in support of the permissive interpretation of that treaty.

Thus, there is State practice and *opinio juris* in support of the Vienna Convention interpretation provisions as a codification of custom from (a) Argentina and Chile in the *Beagle Channel* arbitration, (b) the United Kingdom in the *Golder Case*, and again in the *Young Loan* arbitration, (c) Sweden in the *Swedish Engine Drivers' Union Case*, (d) the Federal Republic of Germany in the *Koenig Case* and the *Young Loan* arbitration and (e) from Belgium, France, Switzerland and the United States in the *Young Loan* arbitration.

The codificatory nature of the Convention's interpretation provisions was upheld by the Arbitral Tribunal for the Agreement on German External Debts in *Greece v. FRG*, and again in the *Young Loan* arbitration, by the EuCHR in *Luedicke*, and by the *Beagle Channel* court of arbitration. In the last three cases, however, the Court's views were shared by all Parties to the proceedings and were therefore, arguably, *obiter*.

There have also been official U.S. public statements outside the context of litigation and arbitration that recognized the codificatory nature of the Vienna Convention in respect of interpretation rules. In 1979, the State Department's Legal Advisor provided a memorandum of law to the Senate concerning the legal status of various ancillary SALT II documents.⁹⁰⁶ This memorandum cited Article 31(2)(a) and (b) in support of the legally binding nature of the SALT II Agreed Statements and Common Understandings.⁹⁰⁷ Moreover, in a footnote, it stated the following:

... The [Vienna] Convention is not yet in force. Nonetheless, it is widely considered as a restatement of existing customary international law...⁹⁰⁸

No indication was given that the U.S. disagreed with this assessment.

⁹⁰⁵ Yet again, since all Parties were in agreement on this point, the Court's view was arguably *obiter*.

⁹⁰⁶ H. Hansell, "Memorandum of Law – Subject: Legal Status of the SALT II Documents", reprinted in part in M.L. Nash, *Digest of United States Practice in International Law -- 1979* (Washington, D.C.: USGPO, 1983), at 702.

⁹⁰⁷ *Id.*, at 703.

⁹⁰⁸ *Id.*, at 708 (Note 3).

A6.2.4 Conclusions

The above analysis makes it clear that Articles 31-33 of the Vienna Convention had not crystallized into customary law by 1972, when the ABM Treaty was signed. While a great deal more State practice has occurred since that time, it is still uncertain whether a customary international law of treaty interpretation exists today. The most that can be said with certainty is that the Convention's interpretation rules are in the process of developing into customary international law.

APPENDIX 7

U.S. AND SOVIET OFFICIAL STATEMENTS CONCERNING THE MEANING OF "ABM SYSTEMS AND COMPONENTS" IN THE ABM TREATY, OCTOBER 1972 TO OCTOBER 1985: A COMPILATION

(a) OFFICIAL PUBLIC STATEMENTS BY REPRESENTATIVES OF
THE U.S. EXECUTIVE BRANCH AFTER ENTRY INTO FORCE

1972 ACDA Annual Report

An additional important qualitative limitation is the prohibition on development and testing , as well as deployment, of sea, air, space-based and land-mobile ABM systems and components.

Another important element is the agreement that if future types of ABM systems or components based on physical principles different from present technology become feasible, specific limitations thereon will be a subject of discussion and agreement in accordance with treaty provisions regarding amendments. An example of such a future system would be one depending on the use of laser beams for destruction of missile reentry vehicles.

26 March 1973 – Admiral Moorer, Chairman,
Joint Chiefs of Staff⁹⁰⁹

The ABM Treaty limits both parties to a relatively small, but equal, number of ABM launchers, and, to some extent, constrains the development of new ABM systems.⁹¹⁰

In broad outline, the terms of the ABM Treaty... are summarized as follows.

1. *Deployment*

.

2. *Development, Testing, and Other Limitations*

.

⁹⁰⁹ United States, Congress, Senate, Committee on Appropriations, Subcommittee on Department of Defense Appropriations, *Department of Defense Appropriations for FY74. Part 1*, Hearings, March, April, June, July 1974, 93rd Cong., 1st Sess. (Washington, D.C.: USGPO, 1974).

⁹¹⁰ *Id.*, at 30 (oral testimony).

3. Future ABM Systems

The Treaty does not permit, without discussion and agreement, the deployment of a system or components based on other physical principles as substitutes for ABM interceptor missiles, launchers, or radars.⁹¹¹

Both signatory nations are permitted to:

- a. Conduct research, development, testing and evaluation of ABM systems within current or additionally agreed test ranges....
- b. Develop and test ABM devices based on physical principles other than ABM interceptors, ABM launchers and ABM radars. Deployment limitations on such systems and their components would be subject to discussion in accordance with Article XIII and agreement [sic] with Article XIV of the treaty.

As a hedge against the emergence of new threats which could gravely jeopardize our national safety, we plan to continue... new technological approaches to even more advanced ABM systems. The strategic situation is still fraught with many uncertainties. It is only prudent, therefore, that we continue our efforts to advance our ABM technology to the full extent permitted by the Treaty. This is the kind of action the Joint Chiefs of Staff had in mind with regard to the third of the 'three assurances' I presented to this Committee last summer in connection with the Hearings on the SAL agreements; namely, full support of a 'vigorous research and development program'.⁹¹²

4 April 1974 – Lt. Gen. Walter P. Leber⁹¹³

The ABM Treaty limitations apply primarily to deployment, not to development. The few specific hardware restrictions included in the Treaty do not impact the broad scope of technology and component development pursued in this advanced BMD Technology program. Those specific hardware developments actually prohibited by the Treaty, including the two I have previously mentioned, are as follows:

- (a) Any space-based ballistic missile defense system

With the exception of the prohibitions noted above, the ABM Treaty does permit component and system developments modernization and replacement of current systems, all paper studies, and the development of systems based on new or different principles.

⁹¹¹ *Id.*, at 30-32 (insertion for the record).

⁹¹² *Id.*, at 60 (insertion for the record).

⁹¹³ United States, Congress, Senate, Committee on Armed Services, Subcommittee on Research and Development, *FY75 Authorization for Military Procurement, Research and Development, and Active Duty, Selected Reserve and Civilian Personnel Strengths. Part 7, Hearings, April-May 1974*, 93rd Cong., 2nd Sess. (Washington, D.C.: USGPO, 1974), at 3472 (insertion into the record).

June 1978 – *FY79 Arms Control Impact Statements*⁹¹⁴

[T]he ABM Treaty bans the deployment of advanced ABM systems, such as laser and directed energy beams, because article III, together with Agreed Statement 'E' [now D] make clear that systems based on 'other physical principles' cannot be deployed without further discussion, and amendment of the treaty.

However, development and testing of fixed land-based advanced ABM systems is permitted.⁹¹⁵

The current PBW [particle beam weapon] programs are not constrained by existing arms control agreements. However, the BMD potential of future PBW's creates a possible conflict with regard to the 1972 ABM Treaty. Article V of the ABM Treaty prohibits the development, testing or deployment of all types of ABM systems or their components that are sea-based, air-based, space-based, or mobile land-based. Article III of the ABM Treaty prohibits all deployment of ABM systems or their components except for the two land-based deployments permitted pursuant to such article. Article II defines an ABM system as a "system to counter strategic ballistic missiles or their elements in flight trajectory" and describes current systems as consisting of ABM interceptor missiles, ABM launchers and ABM radars. [Deleted] Thus PBW's used for BMD which are fixed land-based could be developed and tested but not deployed without amendment to the ABM Treaty, and the development, testing, and deployment of such systems which are other than fixed land-based is prohibited by article V of the treaty.⁹¹⁶

March 1979 – *FY80 Arms Control Impact Statements*⁹¹⁷

The ABM Treaty also bans the following: (1) the development, testing or deployment of ABM systems or components that are sea-based, air-based, space-based or mobile land-based; ... In addition, the ABM Treaty requires further discussion and amendment before deployment of advanced ABM systems, such as laser and directed energy beams. Article III, together with an agreed statement on possible future systems, makes clear that systems or components which may be substituted for ABM components based on "other physical principles" cannot be deployed without further negotiations and amendment of the Treaty. Development and testing of fixed land-based advanced ABM systems which consist of launchers, interceptor missiles and radars is, however, permitted.⁹¹⁸

The current DE [directed energy] research programs are not constrained by existing arms control agreements. However, the BMD potential of future DE weapons creates a possible conflict with regard to the 1972 ABM Treaty. Article V of the ABM Treaty prohibits the development, testing or deployment of ABM systems or their components, as defined by Article II, that are sea-based, air-based, space-based or mobile land-based. Article III of the ABM Treaty and the protocol to that Treaty of July 3, 1974 prohibit all

⁹¹⁴ *Supra*, note 337.

⁹¹⁵ *Id.*, at 99.

⁹¹⁶ *Id.*, at 231.

⁹¹⁷ Washington, D.C.: USGPO, 1979.

⁹¹⁸ *Id.*, at 76.

deployment of ABM systems or their components except that each Party may deploy in one ABM deployment area a fixed, land-based ABM system as described in Article III. Article II of the Treaty defines an ABM system as a "system to counter strategic ballistic missiles or other [sic] elements in flight trajectory" and describes current systems as consisting of ABM interceptor missiles, ABM launchers and ABM radars. Agreed Statement E [now D] associated with the ABM Treaty provides that... [Agreed Statement D quoted in full]. Thus DE weapons used for BMD which are fixed land-based could be developed and tested but not deployed until discussions have occurred and agreement reached to amend the current provisions of the ABM Treaty and until such agreement has entered into force. The development, testing and deployment of such systems which are other than fixed land-based is prohibited by Article V of the Treaty.⁹¹⁹

May 1980 – *FY81 Arms Control Impact Statements*⁹²⁰

... [T]he ABM Treaty requires further discussion and amendment before advanced ABM systems, such as laser and directed energy beams, can be deployed. Article III of the Treaty, together with an agreed statement on possible future systems, makes clear 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 the Standing Consultative Commission (SCC) and amendment of the Treaty.⁹²¹

... DE weapons used to counter strategic ballistic missiles which are fixed and land-based could be developed and tested, but they could not be deployed until discussions had occurred and agreement reached to amend the ABM Treaty. The development and testing, as well as deployment, of directed energy strategic BMD systems which were other than fixed land-based, would be prohibited by Article V of the treaty.⁹²²

February 1981 – *FY82 Arms Control Impact Statements*⁹²³

The ABM Treaty allows the development and testing of fixed, land-based ABM systems and components at agreed test ranges (Article IV), but prohibits (Article V) the development, testing or deployment of sea-based, air-based, space-based, or mobile land-based ABM systems or components...

... While the Treaty allows development and testing of fixed, land-based ABM systems or components based on other physical principles such as lasers or particle beams and including such fixed, land-based components capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars, such systems or components may not be deployed under the terms of Article III and an agreed statement in connection with Article III, unless specific limitations on such systems and their components are discussed and

⁹¹⁹ *Id.*, at 99-100.

⁹²⁰ Washington, D.C.: USGPO, 1980.

⁹²¹ *Id.*, at 228-9.

⁹²² *Id.*, at 452.

⁹²³ *Supra*, note 138.

agreement is reached to amend the Treaty.⁹²⁴

[Deleted] the current DE research programs are not constrained by existing arms control agreements. The BMD potential of future DE weapons could eventually create a conflict with the obligations assumed by the US under the provisions of the ABM Treaty.

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) and including such fixed, land-based components capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars, the Treaty prohibits the deployment of such fixed, land-based systems and components unless the Parties consult and amend the Treaty...

Unless otherwise amended, the ABM Treaty prohibition [deleted] applies to directed energy technology (or any other technology) used for this purpose. Thus, when such DE programs enter the field testing phase they become constrained by these ABM Treaty obligations.⁹²⁵

4 March 1981 – Dr. James P. Wade, Acting Principal
Deputy Secretary of Defense
For Research and Engineering⁹²⁶

... [T]he [ABM] Treaty places very few limits on research and development (no development, testing or deployment of (1) sea-based, air-based, space-based or mobile land-based ABM systems and components...) In this context, BMD components are considered to be ABM interceptor missiles, launchers, and radars, or components capable of substituting for them...

The ABM Treaty constrains deployment, and to a lesser extent development, of space-based laser weapons. High energy laser research programs are not constrained by existing arms control agreements. The ABM Treaty does ban the development, testing and deployment of all ABM systems and components that are sea-based, air-based[,] space-based or mobile land-based. The Treaty permits the development and testing of fixed, land-based ABM systems and components based on other physical principles (such as lasers and particle beams), and including components capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars. However, the Treaty prohibits the deployment of such land-based systems and components unless the Parties consult and amend the Treaty.

⁹²⁴ *Id.*, at 195-6.

⁹²⁵ *Id.*, at 393-4.

⁹²⁶ United States, Congress, Senate, Committee on Armed Services, Subcommittee on Strategic and Theater Nuclear Forces, *Department of Defense Authorization for Appropriations for FY82. Part 7: Strategic and Theater Nuclear Forces, Civil Defense: Hearings on S. 815*, February-March 1981, 97th Cong., 1st Sess. (Washington, D.C.: USGPO, 1982), at 4180 (answer to written question submitted by Senator Warner).

March 1982 – *FY83 Arms Control Impact Statements*⁹²⁷

At 141-2, the passage quoted from at 195-6 of *FY82 ACIS* is reproduced *verbatim*.

23 March 1983 – Maj. Gen. Grayson D. Tate, Jr.,
Commander, Ballistic Missile
Defense Systems Command⁹²⁸

A controversy clearly exists as to the application of the ABM Treaty to new concepts for BMD such as space-based DEW. The treaty prohibits the deployment of space-based, air-based, mobile land-based BMD components and requires consultations on the use of components that utilize other physical principles...

April 1983 – *FY84 Arms Control Impact Statements*⁹²⁹

[At 133-4, the passage quoted from at 195 of *FY82 ACIS* is reproduced *verbatim*. In addition, there is the following:]

The BMD potential of future DE weapons could eventually create a conflict with the obligations assumed by the US under the provisions of the ABM Treaty.

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) and including such fixed, land-based components capable of substituting for ABM interceptor missiles, ABM launchers, and ABM radars, 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 programs enter the field testing phase they become constrained by these ABM Treaty obligations.⁹³⁰

927 Washington, D.C.: USGPO, 1982.

928 United States, Congress, Senate, Committee on Armed Services, Subcommittee on Strategic and Theater Nuclear Forces, *Department of Defense Authorization for Appropriations for FY84. Part 5: Strategic and Theater Nuclear Forces*, Hearings, March-May 1983, 98th Cong., 1st Sess. (Washington, D.C.: USGPO, 1984), at 2721 (answers to additional questions from Senator Denton).

929 *Supra*, note 413.

930 *Id.*, at 265-7.

2 May 1983 — Dr. Robert Cooper, Director,
Defense Advanced Research
Projects Agency (DARPA)⁹³¹

[In response to a question about "our obligations under the ABM Treaty as they relate to space-based lasers":]

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) and including such fixed, land-based components capable of substituting for ABM interceptor missiles, ABM launchers or radars, the Treaty prohibits the deployment of such fixed land-based systems and components unless the parties consult and amend the Treaty.

26 May 1983 — Thomas Graham, Jr., Director,
Congressional and Public Affairs, ACDA⁹³²

OK. Then article II, that is a definition of what an ABM system is. What I would draw your attention to there is just the first part of it.

"An ABM system is a system to counter strategic ballistic missiles or their elements in flight trajectory."

That is, it is a system that has capabilities against missiles which we identify as strategic...

We say, if the system has capabilities to counter these missiles, then it is an ABM system; if it has capabilities to counter some lesser capable missile, then it is not an ABM system.

Then to go on, "Currently consisting of ABM interceptor missiles, ABM launchers and ABM radars."

That is important to understand the "currently consisting of" because that, combined with article III, prohibits future systems — prohibits the deployment of future systems based on new technology.

In other words, the kinds of systems that the President was talking about in his speech, if they are fixed land-based — there are other provisions about space-based systems — but, if they are fixed, land-based, they can be tested but they can't be deployed without amending the treaty because the treaty says, to go on to article III, "Each party undertakes not to deploy ABM systems except ..." in the two deployment areas stipulated in the treaty and pursuant to article I using the technology that is laid out in the definition of what an ABM system is. So if we eventually are able to develop particle beams or lasers that can act as ABM systems, we can't deploy them in a fixed, land-based mode without amending the Treaty.

Maybe this is an appropriate time to discuss article V. We can't even test such futuristic systems if they are sea-based air-based, space-based or mobile land-based, because article V, paragraph 1, provides 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.

931 Quoted in 1987 *Legal Advisor's Report*, Part III, *supra*, note 278, at 78.

932 United States, Congress, House, Committee on Armed Services, Subcommittee Special Panel on Arms Control and Disarmament, *Arms Control and Disarmament Activities, 98th Congress, Hearings*, March, May-July 1983 and January 1984, 98th Cong., 1st and 2nd Sess. (Washington, D.C.: USGPO: 1985) at 97-100.

What the President is talking about is not the current technology. If it is future technology, we can test them, if they are fixed, land-based, but we can't deploy them without amending the treaty.

... So, if it is future technology, on the one hand if it is to be space-based, you can't test it without amending the treaty and, if it is fixed land-based, you can't deploy it without amending the treaty, but you could test it.

... [The President] has proposed a long-term program of research consistent with the ABM Treaty to see if we could develop systems based on future technologies such as lasers or particle beam technology that could defend against strategic ballistic missiles.

If, after this long research program, we identify technology that could do this job, then if it is space-based, we would have to amend article V to permit testing and ultimately deployment of space-based systems, and if it is fixed land-based, we would have to amend article III to permit its deployment, but not its testing, because that would be permissible if it is fixed land-based.

October 1983 – Supporting Study Paper,
*Hoffman Report*⁹³³

[The following is not permitted under the ABM Treaty:] field testing of ABM systems or components, including prototypes or other models, that are air-based, sea-based, space-based or mobile land-based. A specific example would be the placing into orbit of a prototype space-based laser BMD satellite.

March 1984 – *FY85 Arms Control Impact Statements*

[This document contains, at 212-3 and 251-2, passages virtually identical to those quoted above from *FY84 ACIS*.]

26 February 1985 – Ambassador Paul Nitze, President's
Special Advisor on Arms Control⁹³⁴

All systems which can counter strategic ballistic missile RV's, whether in space or otherwise, are controlled by the ABM Treaty.

That Treaty prohibits the deployment of ABM systems in space or on Earth except for precisely limited fixed land based elements. ABM systems otherwise permitted by the ABM Treaty but based upon other physical principles are subject to agreed statement D of the treaty. Such systems cannot be deployed without prior consultation and amendment to the treaty. This covers high energy lasers, neutral particle beam

933 *Supra*, note 412.

934 United States, Congress, Senate, Foreign Relations Committee, *Commitments, Consensus and U.S. Foreign Policy*, Hearings, January, February, October, November 1985, 99th Cong., 1st Sess. (Washington, D.C.: USGPO, 1986), at 370-1.

systems, et cetera. Thus the ABM Treaty provides a basis should new defensive technologies prove feasible for discussing how those systems might be integrated in the sides' force structures.

March 1985 – 1985 SDI Report⁹³⁵

Second, because there are gray areas that are not fully defined in the ABM Treaty, it is necessary in some cases to set additional standards to make certain that the U.S. is in compliance. [And in a footnote: "An example is the issue of components versus subcomponents. ABM components are defined in the Treaty as currently consisting of ABM missiles, launchers, and radars. Subcomponents, which are not limited by the Treaty are not defined by the Treaty."]

The major technology experiments ... are designed to demonstrate technical feasibility, that can be established without involving ABM systems or components or devices with their capabilities. Thus, compliant space-based as well as fixed land-based experiments are possible.⁹³⁶

In this assessment many of the SDI devices do not use traditional technology, but are "based on other physical principles" (such as lasers). In these cases they were reviewed by considering their capability to substitute for traditional ABM components, whether they will be "tested in an ABM mode" by analogy to the requirement for interceptors, launchers, and radars, and the intended use of the device in the experiment.

... The BSTS experimental device will not be a prototype of an ABM component. [It] will be limited in capability so that it cannot substitute for an ABM component...

... The capabilities of any demonstration [SSTS] satellites will be significantly less than those necessary to achieve ABM performance levels or substitute for an ABM component.

... 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.⁹³⁷

The Long Wavelength Infrared (LWIR) Probe is planned to use a ground-launched, 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.⁹³⁸

⁹³⁵ *Supra*, note 149.

⁹³⁶ *Compliance Appendix, supra*, note 149, at B-2.

⁹³⁷ *Id.*, at B-7.

⁹³⁸ *Id.*, at B-9.

2 April 1985 – Lt. Gen. James A. Abrahamson,
Director, SDIO⁹³⁹

The more important areas are some of what is referred to in the treaty as "other physical principles" or mobile systems. These are very severely restricted. We can conduct what we define as laboratory or research types of tests. That does not mean it had to be under a roof, but we could not go out and do a mobile demonstration like a firing from a submarine or firing from space against a ballistic missile.

April 1985 – *FY86 Arms Control Impact Statements*⁹⁴⁰

The ABM Treaty allows the development and testing of fixed, land-based ABM systems and components at agreed test ranges (Article IV), but prohibits (Article V) the development, testing or deployment of sea-based, air-based, space-based, or mobile land-based ABM systems or components...

The ABM Treaty allows development and testing of fixed, land-based ABM systems based on "other physical principles" and including components capable of substituting for ABM interceptor missiles, launchers, or radars. However, such systems or components may not be deployed under the terms of Article III and an agreed statement in connection with Article III, unless the Parties consult in accordance with Article XIII... and amend the ABM Treaty in accordance with Article XIV.⁹⁴¹

May 1985 – Ambassador Paul Nitze⁹⁴²

Additionally, all systems – whether nuclear or otherwise – which have a capability to counter strategic ballistic missiles or their warheads at any point in their trajectory are subject to the ABM Treaty. That agreement prohibits the deployment of ABM systems in space or on the earth, except for precisely limited, fixed, land-based systems. Its provisions also cover testing and engineering development of such systems and their major components.

⁹³⁹ United States, Congress, Senate, Committee on Appropriations, Subcommittee on Defense Appropriations, *Department of Defense Appropriations for FY86. Part 2*, Hearings, April-May 1985, 99th Cong., 1st Sess. (Washington, D.C.: USGPO, 1986), at 32.

⁹⁴⁰ *Supra*, note 415.

⁹⁴¹ *Id.*, at 36.

⁹⁴² Public speech, quoted in *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 83.

30 May 1985 – Ambassador Paul Nitze⁹⁴³

That the possibility of new technologies was foreseen is clear from the language of the treaty. That future types of permitted ABM systems and components were contemplated is obvious from the language of article II, which defines ABM systems as "currently consisting of" ABM interceptor missiles, launchers and radars.

The fact that the possibility of future systems was foreseen in 1972 is also clear from the language of agreed statement D, which acknowledges the possibility that new ABM systems based "on other physical principles" might be created in the future and provides for consultations with a view to possible amendment of the treaty constraints on such systems prior to their deployment.

25 July 1985 – Dr. Donald Hicks, Administration
Nominee for Undersecretary of
Defense For Research and Engineering⁹⁴⁴

[In response to a request for the *Administration's* definition of a "component" under the ABM Treaty:] 1. "ABM components" are ABM interceptor missiles, ABM launchers, and ABM radars and are described in article II of the treaty. Devices capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars also are treated as ABM components under the treaty. ...

⁹⁴³ "SDI and the ABM Treaty", public speech before the Johns Hopkins School of Advanced International Studies, Washington, D.C., reprinted by U.S. Department of State, Bureau of Public Affairs Office of Public Communication, Editorial Division.

⁹⁴⁴ United States, Congress, Senate, Committee on Armed Services, *Nomination of Donald Alder Hicks to be Under Secretary of Defense for Research and Engineering*, Hearings, July 1985, 99th Cong., 1st Sess. (Washington, D.C.: USGPO, 1986), at 13 (answers to questions submitted by Senator Levin). According to the *1987 Legal Advisor's Report*, Part III, *supra*, note 278, at 90, Dr. Hicks's written response was the result of interagency deliberation.

(b) OFFICIAL STATEMENTS BY REPRESENTATIVES OF
THE SOVIET GOVERNMENT AFTER ENTRY INTO FORCE

29 April 1983 – Col. Gen. Nikolayi Chervov⁹⁴⁵

"Defense or Attack – On Reagan's 'Antimissile Decision'"

Question. Representatives of the American Administration have declared that new systems of antimissile defense are not inconsistent with existing treaties and agreements. Is that so?

Answer. One can on no account agree with these declarations. First, the United States is disregarding commitments which it adopted in the sphere of strategic arms limitation. The agreement on antimissile defense (of 1972) firmly established: "Effective measures toward limiting systems of antimissile defense would be an important factor in curbing the race in developing and producing strategic offensive weapons and would lead to lessening the danger of the outbreak of a war involving nuclear weapons." The protocol of 1974 envisaged a further limitation of antimissile defense systems. Reagan's "antimissile decision" is completely inconsistent with these demands. Second, Article No. 5 of the agreement states: "Each side commits itself not to develop, test or deploy systems or components of antimissile defense with bases on the sea[,] in the air, in outer space or with mobile land bases."

The emergence of antimissile defense with combat complexes of its outer space bases endangers the whole system of international legal regulations imposing limits on the arms race.

It violates, above all, the agreement on antimissile defense as a whole because the agreement bans both sides from developing antimissile defense based on new physical principles – lasers, microwave radiation, beam weapons and so forth (according to the agreement, the two sides are entitled to use only those components of antimissile defense that are enumerated in it)....

May 1985 – Lt. Gen. Viktor Starodubov,
Soviet Commissioner, SCC

...[U]nder the treaty ABM systems or components based on other physical principles could not be tested in space.⁹⁴⁶

⁹⁴⁵ Interview given to Bratislava *Pravda*, FBIS translation, reproduced in *Constitution Hearings, supra*, note 237, at 410-1.

⁹⁴⁶ *Arms Control Today* September 1987.

4 June 1985 – Marshal Sergey Akhromeyev,
Chief, Soviet General Staff

The provisions of the treaty apply to any systems intended, as defined in Article II of the Treaty, to counter strategic ballistic missiles in flight trajectory. Since the ABM components being created within the framework of the Strategic Defense Initiative are intended for precisely this purpose – that is, they are designed to replace the interceptor missiles mentioned in the treaty – all the provisions of the treaty fully apply to them, above all the ban on the creation, testing, and deployment of space-based ABM systems or components.⁹⁴⁷

... The aforementioned Agreed Statement [D] regarding the treaty does not rule out the possibility of the sides acquiring ABM systems "based on other physical principles", but only within the framework of the limitations envisaged by the treaty as a whole, in other words in the single authorized area.⁹⁴⁸

⁹⁴⁷ Quoted in 1987 Senate Foreign Relations Committee Report, *supra*, note 223, at 23-4.

⁹⁴⁸ Moscow *Pravda*, quoted in Review Hearings, *supra*, note 210, at 132 (responses by William Harris to additional questions).

(c) STATEMENTS MADE IN BILATERAL DISCUSSIONS⁹⁴⁹

An early version of the [SALT II] Agreed Statements [on MIRVs] was discussed by U.S. negotiator Boris H. Klosson on March 3, 1976. He proposed that the Soviet version then under consideration be amended to add four words – "currently understood to be" – resulting in the following formulation:

Reentry vehicles are *currently understood to be* independently targetable if after separation from the booster the maneuvering and targeting of the reentry vehicles to separate targets is ensured by means of devices installed in the front-end (in a self-contained dispensing mechanism) or on the reentry vehicles, and based on the use of electronic or other computers in combination with devices using (a) jet (rocket) engines, (b) aerodynamic systems, or (c) other devices for directing the reentry vehicles. [Emphasis added]

Klosson explained the reason for the proposed revision as follows:

The U.S. has added to the Soviet text the words "currently understood to be". The U.S. has made this addition for the one purpose of protecting both sides from the possibility that between entry into force and 1985 some techniques and devices not listed in the Agreed Statement [on MIRVs] might be developed. For example, targeting and maneuvering might be done before, not after separation. Another example is that devices could be located neither on the front-end nor on the RVs but elsewhere. Thirdly, there may be other devices that may be developed other than those listed in the Agreed Statement. By using "currently" both sides would be protected. It is not without interest that the Parties have a precedent for the use of the word "currently". It appears in Article II of the ABM Treaty which Klosson then proceeded to read.

The same problem was simultaneously discussed by Dr. George R. Schneider and Colonel M.I. Saltykov; the U.S. felt the Soviet version grammatically inadequate to ensure coverage of all future devices.

Karpov proposed a new version of Article II.5 on March 9 [1976], designed to accommodate the U.S. concern, but not accepting use of the word "currently". He explained the Soviet position on March 16... [The U.S. report of Karpov's statement is as follows:]

With respect to the word "currently", it is translated into Russian as *v nastoyashcheye vremya*. In support of the use of this term, the U.S. referred to the ABM Treaty. Such a comparison is not quite justified. The point is that the natures of the ABM Treaty and the new agreement [SALT II] are different. The ABM Treaty is of unlimited duration. The new treaty has a specific defined period of time for its duration. Moreover, the approach in the ABM Treaty is based on a combination of two elements. The first element is in Article II which Karpov proceeded to read. At the same time, there was a Common Understanding between the sides, as follows: [quoting Agreed Statement D] In the ABM Treaty, using

949 This entire section is quoted directly from the 1987 Legal Advisor's Report, Part III, *supra*, note 278, at 25-29.

"currently" in Article II is quite justified because of the unlimited duration and the Common Understanding. With the new agreement, the Soviets believe there is no need to use the word "currently", because the duration of the agreement is specifically circumscribed and there are elements in the second part of the Agreed Statement [on MIRVs] which make the reference redundant.

What is the main thing here? The Agreed Statement [on MIRVs] reads, "Reentry vehicles are independently targetable if after separation from the booster maneuvering and targeting of the reentry vehicles to separate aim-points along trajectories which are independent of each other are accomplished by means of devices..." The devices are then listed. When the Soviet side speaks of devices which are used in combination with other devices described later, there are important elements which provide against the possibility of excluding devices in the future. For instance, the Soviet proposal speaks of devices which are installed in certain places and which are based on electronic or other computers. That is, the Soviet proposal speaks of "other computers" as well, so there are no specific computers or devices defined. "Other computers" may exist in the future. Consequently, existing computers and those which might exist in the future are covered by this principle. The next portion of the Soviet Agreed Statement deals with devices which work in combination with those just mentioned. It says these devices use rocket engines or aerodynamic systems or other devices for targeting the RVs. That is, there is the possibility of devices which are not rocket engines or aerodynamic systems, but which perform the functions of such rocket engines or aerodynamic systems. Taking into account these elements, "currently" is not necessary, because the Soviet proposed Agreed Statement is not meant for the present time only but for the period of the entire new agreement.

U.S. delegate Ralph Earle II responded to Karpov on March 16 [1976] by pointing out that "other devices" in the Soviet formulation referred only to that part of the draft Agreed Statement that dealt with "jet engines" and "aerodynamic systems." Karpov admitted this was so, but pointed out that the Soviet draft referred in the phrase describing computers, not only to electronic, but also to "other" computers. He was willing, moreover, to add "other devices" to that phrase as well. Karpov then asked Earle what changes might satisfy the U.S., since both sides agreed in principle....

Karpov said he was asking his question to understand Earle's idea. If "currently" were omitted and if the phrase "other devices" were to be an alternative to "devices installed", as well as an alternative to devices using jet engines and aerodynamic systems, would it correct the problem? Karpov said he was not proposing anything, just trying to understand. Perhaps this is a sufficient way to answer Earle's question. Another possibility might be to use "currently" but combine it with a statement that in the future new MIRVs based on other principles would be subject to consultation between the sides.

Earle responded that the U.S. viewed the underlying paragraph (II(5)) as describing the MIRV system, and saw the Agreed Statement as "an amplification of the paragraph, giving those components which both sides understood to compose a MIRV system." The danger perceived by the U.S. was that the Soviet formulation appeared to be an exhaustive list of MIRV components, and if any of the components is missing or changed "the weapon is excluded from paragraph 5. That is why the U.S. thought 'currently' helped. Both sides could agree on those components which are currently understood to compose a MIRV system, but future systems using other components should not be foreclosed."

Karpov agreed with this objective, but differed with Earle's characterization of the Soviet draft. He contended that both the Soviet and U.S. drafts did not merely give a list of components, but sought "to define what MIRVs are." He ... [said]: "It would not be quite clear if with respect to paragraph 5 the sides speak of the entire period of the new agreement, while in the Agreed Statement they only speak of the par-

word "currently". He wanted to understand how the U.S. concern might be reflected in the text, without prejudice to the Soviet proposal. He then suggested several formulations, one of which contained both "currently" and "other devices". Earle replied that the point could be made in either of two ways, a limited list which then adds all future systems, or an open-ended list, "in which case the word 'currently' would not be required." Karpov once again disagreed with the suggestion that the Soviet draft failed to cover future devices, but the record makes clear that both sides agreed on the scope of coverage desired.

APPENDIX 8

EXCHANGES FROM THE SALT II NEGOTIATIONS BEARING UPON THE MEANING OF "ABM SYSTEMS AND COMPONENTS" IN THE ABM TREATY: AN ANALYSIS

A8.1 Negotiations on Heavy Bombers

The Legal Advisor quotes the SALT II provision dealing with heavy bombers and contends that its treatment of "current" bombers in one paragraph and future bombers in another "is roughly analogous with the treatment of 'current' ABM systems in Article II(1), while Agreed Statement D dealt with all exotic ABM devices being 'created in the future.'"⁹⁵⁰ There are a number of differences between the ABM Treaty's definition of ABM systems and the SALT II definition of heavy bombers that make this analogy inapt. However, whether it is or not is academic in terms of ABM Treaty subsequent practice because arriving at a definition of "heavy bomber" in SALT II is not evidence of the Parties' agreement on the meaning of any ABM Treaty term.

The Legal Advisor's second contention about the heavy bomber definition is that it represents a formula the U.S. tried unsuccessfully to have incorporated into the ABM Treaty. In that context, it would have defined ABM interceptor missiles and radars to include all types of missiles "indistinguishable from" missiles or radars tested in an ABM mode. He maintains that

The Soviets refused this effort, as part of their opposition to dealing with unknown future devices. They accepted the concept in SALT II, however, where they had no opposition to regulating future forms of heavy bombers which could perform the functions of those currently in use.⁹⁵¹

Even if it were true that Soviet unwillingness to accept the "indistinguishable from" formulation in the ABM Treaty negotiations, their acceptance of a similar (or even identical) provision concerning heavy bombers in SALT II would not constitute subsequent practice under the ABM Treaty.

A8.2 Negotiations on Exotic Strategic Offensive Arms

There is more substance to the Legal Advisor's contentions regarding the SALT II discussions of future offensive arms based on other physical principles. At least there he cites exchanges between Soviet and U.S. negotiators as to the meaning of the ABM Treaty, and its relationship to Soviet proposals concerning exotic offensive arms. Ultimately, however, due to the vagueness of the Soviets' statements, the exchanges are ambiguous. In any event, they certainly never establish agreement between the Parties that the permissive interpretation of the ABM Treaty is correct. The exchanges consist largely of the U.S. negotiators seeking to clarify whether a Soviet proposal on exotic offensive arms would permit or prohibit the deployment of such weapons pending subsequent agreement.

The Legal Advisor contends that records of the SALT II negotiations on exotic offensive arms:

⁹⁵⁰ 1987 Legal Advisor's Report, Part III, *supra*, note 278, at 23.

⁹⁵¹ *Ibid.*

1. "indicate that the U.S. and USSR may have had different interpretations of the ABM Treaty's treatment of development and testing of mobile exotic systems."⁹⁵²
2. show that the Soviets "apparently did not believe that exotic systems were covered by the main body of the Treaty..."⁹⁵³ and
3. reveal agreement between the Parties that Agreed Statement D has a significant function in the ABM Treaty.⁹⁵⁴

The exchanges do indicate that the Parties *may* have held different views of the ABM Treaty's application to mobile exotics, but the claim that the Soviets "apparently" did not regard the text of the ABM Treaty proper as applicable to exotics is simply not supported by the excerpts provided in the *1987 Legal Advisor's Report*. Some Soviet statements do raise doubts about their belief in the restrictive interpretation, but there is too much ambiguity to regard this as subsequent practice -- even by one Party -- in support of that interpretation. Moreover, the various Soviet statements contradict one another.

The Soviet statements are all of one of the following types:

1. A claim that the language of the Soviet draft SALT II article XI on exotic offensive arms was not materially different from the ABM Treaty provisions governing exotic ABMs;⁹⁵⁵
2. A claim that this language had the same effect as the language agreed upon in the ABM Treaty;⁹⁵⁶
3. An explanation of the effect of draft Article XI that was ambiguous as to whether deployment would be prohibited pending subsequent agreement;⁹⁵⁷
4. A statement that the U.S. understanding of the ABM Treaty -- that it prohibited the deployment of exotic ABMs pending agreement to the contrary -- was what the Soviets understood their draft Article XI to achieve with respect to exotic offensive arms;⁹⁵⁸

⁹⁵² *Id.*, at 36.

⁹⁵³ *Ibid.*

⁹⁵⁴ *Ibid.*

⁹⁵⁵ Statement of Soviet delegate Trusov (*id.*, at 31).

⁹⁵⁶ Statements of Trusov (*id.*, at 31), Chulitsky (*ibid.*) and Grinevsky and Smolin (*id.*, at 32).

⁹⁵⁷ Statements of Trusov (*id.*, at 31 and 32) and Grinevsky and Smolin (*id.*, at 32).

⁹⁵⁸ Statement of Grinevsky and Smolin (*id.*, at 32).

5. A contention that draft Article XI was intended to be a *prohibition* on the deployment of exotic offensive arms;⁹⁵⁹ and
6. A fairly clear statement that, on the contrary, draft Article XI only provided for the Parties to prohibit or limit exotic offensive arms *at some time in the future*.⁹⁶⁰

It will be noted that, by combining the second and sixth positions listed above, General Trusov's October 30, 1973 plenary remarks do indeed suggest that he considered the ABM Treaty to permit the deployment of exotic ABMs pending further agreement. If deployment of exotic ABMs were permitted, it would follow logically that development and testing in mobile basing modes could also be carried out. However, General Trusov never expressly stated that he regarded the deployment of exotic ABMs as permitted.

Also falling into the category of ambiguous Soviet statements is a correction issued by Soviet Minister Semenov to U.S. Ambassador Johnson on October 25, 1974. Johnson told Semenov that

in his recollection, [the ABM Treaty] stated that systems based on new physical principles would be banned unless they were specifically permitted by additional agreement between the sides.⁹⁶¹

According to Johnson's Memorandum of Conversation,

Semenov interrupted to say that he did not think this was quite correct. It would be better to check the wording of the ABM Treaty and to analyze the proposal the Soviet side had submitted today.⁹⁶²

The claim of the 1987 *Legal Advisor's Report* that Semenov's statement "raised the question whether Semenov concurred in Johnson's description of Agreed Statement D as banning all future systems" is a fair one. However, since Johnson sought no clarification of Semenov's view of the Treaty's effect, and none was volunteered, no clear Soviet statement on the matter was ever made.

It is submitted that only clear statements of a Party's position can result in subsequent practice establishing the agreement of the Parties, since only then can other Parties be expected to raise objections to interpretations with which they disagree. Statements that merely "raise a question" should not be considered for this purpose, or should be accorded very little weight.

⁹⁵⁹ *Ibid.*.

⁹⁶⁰ Statement of Trusov (*id.*, at 32) in a plenary:

[T]he Soviet draft . . . provides that in the event that new strategic offensive arms should appear in the future, the sides may agree on banning or limiting them.

⁹⁶¹ *Id.*, at 34.

⁹⁶² *Ibid.*

To summarize, records of the SALT II negotiations on exotic offensive arms contain some exchanges that raise doubts about Soviet agreement with the U.S. position that the ABM Treaty prohibited the deployment of exotic ABMs. If the Soviets did not consider the deployment of exotic ABMs to be prohibited, it would follow that they did not regard the development and testing of such devices to be limited to the fixed, land-based mode. They would thus have held the permissive interpretation. However, no Soviet statement cited by the Legal Advisor expressly sets out either of these positions. Moreover, the Soviet statements contradict one another, and the U.S. delegates espoused the restrictive interpretation throughout. Consequently, the exchanges cannot be considered part of a subsequent practice establishing the agreement of the Parties. The consistent U.S. support for the restrictive interpretation also reduces the significance of their treating Agreed Statement D as an important provision.

A8.3 Negotiations on MIRVed Strategic Offensive Missiles

The Legal Advisor's contentions concerning the SALT II negotiation of two identical agreed statements on MIRVed ICBMs are based on the following events:⁹⁶³

(i) On March 3, 1976, U.S. negotiator Boris Klosson proposed adding the following italicized words to an outstanding Soviet draft of the agreed statements on MIRVs:

Reentry vehicles are *currently understood to be* independently targetable if after separation from the booster the maneuvering and targeting of the reentry vehicles to separate targets is ensured by means of devices installed in the front-end (in a self-contained dispensing mechanism) or on the reentry vehicles, and based on the use of electronic or other computers in combination with devices using (a) jet (rocket) engines, (b) aerodynamic systems, or (c) other devices for directing the reentry vehicles.

In proposing this change, Klosson explained that the U.S. had one purpose in mind – "protecting both sides from the possibility that between entry into force and 1985 [the year SALT II was to terminate] some techniques and devices not listed... might be developed." He also noted that "... the Parties have a precedent for the use of the word 'currently.' It appears in Article II of the ABM Treaty"

(ii) On March 9, Soviet negotiator Karpov proposed a new version of Article II.5 that did not make use of the word "currently." On March 16, he explained the Soviet position, saying that the U.S. comparison with the ABM Treaty was "not quite justified" and that the use of "currently" was appropriate there but not in the agreed statement on MIRVs because:

(a) the duration of the ABM Treaty is unlimited, while that of SALT II was to be limited;

(b) there were already elements in the second part of the agreed statement on MIRVs that made the use of "currently" unnecessary (referring to these as "important elements which provide against the possibility of excluding devices in the future"), such as references to "electronic or other computers" and to "other devices for directing the reentry vehicles"; and

(c) "the approach in the ABM Treaty is based on a combination of two elements. The first element is in Article II... At the same time, there was a Common Understanding between the sides, as follows [quoting Agreed Statement D]. . . . In the ABM Treaty, using "currently" in Article II is quite justified [in part] because of... [Agreed Statement D]."

⁹⁶³ A fuller description, including verbatim quotation of all passages of the U.S. SALT II negotiating record provided by the Legal Advisor, is to be found in Appendix 7(c). The source of these events and quotations is the 1987 *Legal Advisor's Report*, Part III, *supra*, note 278, at 23-30.

(iii) Karpov suggested that "[a]nother possibility might be to use 'currently' but combine it with a statement that in the future new MIRVs based on other principles would be subject to consultation between the sides."

(iv) U.S. negotiator Ralph Earle responded that the U.S. proposed adding the word "currently" to help insure that the Soviet draft did not exclude from the definition of "MIRV" any system that differed only slightly from that set out in the Soviet draft. "Both sides could agree on those components which are *currently* understood to compose a MIRVed system, but future systems using other components should not be foreclosed."⁹⁶⁴

(v) Karpov responded, *inter alia*, that "[i]t would not be quite clear if with respect to [SALT II Article II.5] the sides speak of the entire period of the new agreement, while in the Agreed Statement [on MIRVs] they only speak of the particular period at present."

(vi) Earle stated that future kinds of MIRVs could be included in one of two ways: a limited list that then adds all future systems or an open-ended list, "in which case the word 'currently' would not be required."

(vii) In April of 1976, the problem was solved in principle, with a Soviet proposal for a formulation that listed current MIRV components and then went on to cover all "other devices" developed in the future to serve the same purpose. The final text of the agreed statements on MIRVs read as follows:

Reentry vehicles are independently targetable:

(a) if after separation from the booster, maneuvering and targeting of the reentry vehicles to separate aim points along trajectories which are unrelated to each other are accomplished by means of devices which are installed in a self-contained dispensing mechanism or on the reentry vehicles, and which are based on the use of electronic or other computers in combination with devices using jet engines, including rocket engines, or aerodynamic systems;

(b) if maneuvering and targeting of the reentry vehicles to separate aim points along trajectories which are unrelated to each other are accomplished by means of other devices which may be developed in the future.

The Legal Advisor makes the following claims concerning these events:

(i) The U.S. position, as stated, was that "currently" in Article II(1) of the ABM Treaty served to apply that provision to all future ABMs, and that the insertion into the early Soviet draft of the SALT II agreed statement on MIRVs of the phrase "currently understood to be" would serve the same purpose for future kinds of MIRVed strategic offensive missiles.

(ii) The Soviets regarded "currently" as having a *limiting* rather than an inclusive effect on the functional definition both of "ABM system" in the ABM Treaty, and of "MIRV" in the draft SALT II agreed statements. They viewed the ABM Treaty as applying to exotic ABMs only because it had the additional element of Agreed Statement D.

⁹⁶⁴ Emphasis added.

(iii) The final text of the agreed statements on MIRVs did not use the word "currently," but followed the first of the two alternative formulations suggested by Earle -- a limited list that then adds all future systems. This shows that the U.S. ultimately acceded to the Soviet assumption that "currently" would have a limiting effect.

(iv) The fact that the Soviets agreed to use the phrase "other devices" in the SALT II agreed statements on MIRVs shows their willingness to use that phrase once they have agreed to constrain all mechanisms, present and future, that meet a functional definition. Their unwillingness to use that phrase in the ABM Treaty, after it was proposed in an early U.S. draft of Article V(1), shows that they were not willing to regulate all ABM-capable devices in the ABM Treaty proper.

The contention that the U.S. negotiators espoused the restrictive interpretation of the ABM Treaty and saw their proposed amendment using "currently" as having the same inclusive effect in the SALT II agreed statements on MIRVs is correct. However, the third contention -- that by agreeing to drop "currently" in the agreed statements, the U.S. acceded to the view that the word did not have an inclusive effect in the ABM Treaty -- is not supportable. There are any number of ways of drafting a definition such that it automatically includes newly-invented devices. The word "currently" need not necessarily be used. The wording finally arrived at achieved the U.S. goal of including all future MIRVs, and proved acceptable to the Soviets. Its acceptance says nothing about either party's view of the ABM Treaty.

The Legal Advisor's second contention -- that the Soviets regarded the word "currently" as *limiting* the scope of a functional definition -- is a possible interpretation of Karpov's statements, but not the only one, nor the most persuasive. Of the three reasons given by Karpov why "currently" was necessary in the ABM Treaty but not in the SALT II agreed statements on MIRVs, two suggest that he shared the U.S. view of the word's effect -- that which accords with the restrictive interpretation only.

The first reason has to do with definite versus indefinite duration. The logical connection between treaty duration and the need to regulate future systems is that, as a practical matter, future developments are far more likely to overtake and undermine a treaty of indefinite duration (such as the ABM Treaty) than an agreement of a short, limited duration (such as the five-year SALT II Treaty).

The second reason is that "currently" would be *unnecessary* in the early Soviet draft agreed statement on MIRVs because of the other wording that applied to future MIRV devices. While this wording clearly would not have covered all future variations, it would have covered many of them, and would therefore have expanded the definition of MIRVed systems. Thus, the fact that its presence was cited as a reason why "currently" was unnecessary shows an understanding on Karpov's part that "currently" would have the same inclusive effect, and not a limiting effect as the Legal Advisor maintains.

Karpov's third reason why the use of the word "currently" is appropriate in Article II(1) of the ABM Treaty is, however, hard to square with the restrictive interpretation. It is that the presence of Agreed Statement D in the ABM Treaty somehow makes "currently" necessary. The Legal Advisor seizes upon this as proof that Karpov regarded "currently" as limiting the scope of the definition of "MIRV" in the Soviet draft. Presumably, the argument is that if the ABM Treaty were to bring about the permissive interpretation -- whereby the Treaty proper would regulate traditional ABM systems and components only, and exotic systems and components would be regulated in Agreed Statement D only -- then some way had to be found to limit the Article II(1) definition of "ABM systems" to *traditional* ABM systems. If the word "currently" limited a functional definition to any listed components that followed, then that word would be appropriate and

necessary in Article II(1) to ensure that the scope of the Treaty proper was indeed limited to traditional ABM systems and components.

The problem with this view is that "currently" would not be necessary to effect the permissive interpretation. If it were absent, and ABM systems were "consisting of" traditional ABM components, then a textual analysis would strongly favour the permissive interpretation. Thus, although the author can offer no explanation for how this third reason is consistent with the restrictive interpretation, the argument in favour of the permissive interpretation is illogical.

All in all, then, Karpov's reasons for putting "currently" in the ABM Treaty but not the SALT II agreed statements on MIRVs favour the restrictive interpretation.

Finally, the claim that Soviet acceptance of the term "other devices" in SALT II to cover unspecified future MIRV mechanisms shows their rejection of similar language in the body of the ABM Treaty to have been a rejection of the restrictive interpretation cannot be entertained under the general rule of interpretation of the Vienna Convention. This is because it is based on the ABM Treaty negotiating record.

APPENDIX 9

U.S. SALT I DELEGATION RECORDS OF THE ABM TREATY NEGOTIATIONS: A COMPILATION OF EXCERPTS CONCERNING THE MEANING OF "ABM SYSTEMS AND COMPONENTS" IN THE ABM TREATY

Soviet Draft Agreement tabled March 1971

Article II(1)

The obligations provided for under this Treaty shall apply to systems specially designed to counter strategic ballistic missiles and their components in flight trajectory, namely: (a) ABM launchers, (B) ABMs, (C) Long-range acquisition radars, (D) tracking and ABM guidance radars.⁹⁶⁵

19 March 1971

[On March 19, 1971, the Soviets proposed language [for Article III] providing that the Parties: "undertake not to deploy ABM systems listed in Article II of this treaty" more than 200 kilometers from national capitals. (USDEL SALT 566) The first U.S. proposal [on Article III – not necessarily proposed on the same date] provided that each Party "undertakes not to deploy ABM interceptor missiles, ABM launchers, or ABM radars except in its own territory and only at one of the following...." (A-300A) The Parties' drafts maintained this basic form, with some changes (such as Soviet mention of "components"), until April 11, 1972.]⁹⁶⁶

U.S. Draft Agreement tabled 27 July 1971

Article 2(1)(a):

[A]n anti-ballistic missile (ABM) system is a system constructed or deployed to counter strategic ballistic missiles or their components in flight trajectory.⁹⁶⁷

⁹⁶⁵ 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 38, citing USDEL SALT 566, (exact date not given).

⁹⁶⁶ *Id.*, at 69. Throughout Appendix 9, materials that are italicized and enclosed in square brackets are direct quotations of the 1987 Legal Advisor's Report. They are not direct quotations of the negotiating documents themselves, but the Legal Advisor's description of those documents. As such, they may not always be reliable indicators of the content of those documents.

⁹⁶⁷ *Id.*, at 15. Curiously, the 1987 Legal Advisor's Report (Part I, at 15) quotes the U.S. proposal differently, saying that Article 2(1)(a) defined "ABM system" as "a system for rendering ineffective strategic ballistic missiles or their components in flight trajectory." In either case, the definition is clearly functional. At 38, the Report notes that this functional definition was followed by separate definitions of

Article 6(1): [bracketed only]

1. [An appropriate provision regarding sea-based, air-based, space-based, and mobile land-based ABM systems will be tabled separately.]⁹⁶⁸

MINI-PLENARY – A-408, 17 August 1971

[U.S. Draft ABM Agreement tabled that day:]

Article 6:

1. Each Party undertakes not to deploy ABM systems using devices other than ABM interceptor missiles, ABM launchers, or ABM radars to perform the functions of these components.
2. Each Party undertakes not to develop or produce for or test or deploy in sea-based, air-based, space-based, or mobile land-based modes,
- ABM interceptor missiles,
 - ABM launchers,
 - ABM radars, or
 - other devices to perform the functions of these components.⁹⁶⁹

[In introducing Article 6 of the U.S. Draft, Smith said that paragraph 1] makes clear what we believe should be the aim of an agreement limiting ABM defenses; namely, that the Agreement would apply to all types of ABM systems, including possible future types of ABM systems, and not only to ABM systems employing ABM interceptor missiles, ABM launchers and ABM radars.... We believe that the Agreement should reflect this explicitly.... One difference between the U.S. paragraph 2 and the USSR paragraph A is that the U.S. text prohibits the development and production of, in addition to the testing and deployment of sea-based, air-based, space-based, and mobile land-based ABM interceptor missiles, ABM launchers and ABM radars. We believe that the more complete prohibition would be in the interest of both sides. Another difference between the two texts is that the U.S. text makes clear that the obligations assumed in this paragraph apply not only to ABM interceptor missiles, ABM launchers and ABM radars, but also to possible future types of devices capable of performing the functions of these components.⁹⁷⁰

"ABM interceptor missile", "ABM launcher" and "ABM radar".

⁹⁶⁸ *Id.*, at 15.

⁹⁶⁹ *Id.*, at 19.

⁹⁷⁰ *Id.*, at 20.

A-398

12:30-12:45 p.m., 17 August 1971, Soviet Embassy, Helsinki

U.S. Participants: Nitze, Brown

Soviet Participant: Shchukin

2. Brown asked Shchukin what his reaction was to Article 6 which we had presented today. Had we made it clear that in the first paragraph we were talking about a ban on the deployment, but not on the development and testing, of future kinds of systems, not using the usual components? Shchukin replied he would have to look at the text carefully. Nitze pointed out that Shchukin himself had raised the possibility of future kinds of systems in informal conversations.

Shchukin said that there might be some difficulty in getting the politicians and diplomats to consider this problem, because if one could not point to specific systems in or near development status, the politicians and diplomats would probably not be interested in future possibilities. Shchukin ... said that it might be all right to include such a ban, but the whole subject was not very important....

US/USSR MINI-PLenary MEETING No. 8 -- A-424

11:00 a.m., 24 August 1971, U.S. Embassy, Helsinki

U.S. Participants: Smith, Farley, Parsons, Nitze, Brown, Allison, Graybeal, Ifft, Krimer

Soviet Participants: Semenov, Shchukin, Trusov, Timberbaev, Kishilov, Anyutin, Faskov

Academician Shchukin said that it was his view that as a result of the negotiations the sides had achieved an understanding that limitations should cover such systems of ABM defense as radars, launchers, and ABM interceptor missiles. In this both sides proceeded from the premise that these systems could be distinguished from other systems, and so on. In other words the treaty should have for its subject ABM systems which could be controlled by national technical means.

On August 17, the US Delegation introduced new language for Article 6. It is proposed in Paragraph 1 that the sides be obligated not to deploy ABM systems using devices other than ABM missiles, ABM launchers, and ABM radars to perform the functions of these components. This is an entirely new provision and the Soviet side is not clear on its meaning and substance. What did the US have in mind in speaking of such ABM systems and such devices?

Ambassador Smith replied that this was an important point and he wished to give it some study before replying....

Academician Shchukin said that he had another question relating to Paragraphs 2 and 3 of Article 6. He had just spoken about the prohibition on the development of some kinds of ABM systems. Article 2 of the US draft also contained a paragraph to the effect that limitations should extend to cover ABM systems undergoing development. Would it be possible for the US to clarify its understanding of the notion of "development" and of the practical application of limitations at this stage?

US/USSR "TROIKA" MEETING No. 1 – A-438**11:00 a.m., 27 August 1971, Soviet Embassy, Helsinki****U.S. Participants: Smith, Farley, Nitze, Brown, Allison, Garthoff, Krimer****Soviet Participants: Semenov, Shchukin, Trusov, Karpov, Faskov**

Minister Semenov noted that paragraph 1 of Article 6 of the US draft was new, and contained a new concept of limiting devices other than ABM launchers, missiles, and radars ... [I]t was his impression that it was doubtful if it properly applied to the subject matter of an agreement on ABM limitation.

Annex 1**Dr. Brown's Response to Academician Shchukin's Questions
On Article 6 "Troika," August 27, 1971**

We would like to respond at this time to the questions posed by Academician Shchukin in connection with Article 6 of the US text.

With regard to paragraph 1 of our Article 6, Academician Shchukin asked what is meant by "ABM systems using devices other than ABM interceptor missiles, ABM launchers, or ABM radars to perform the functions of these components." By this we refer to any present or future system which employs other means or devices to perform the functions of interceptor missiles, launchers, or radars in rendering ineffective strategic ballistic missiles or their components in flight trajectory. Our objective in this Article is to establish a commitment that neither side will deploy ABM systems – including possible future types of ABM systems – which might not use ABM interceptor missiles, ABM launchers, or ABM radars....

Soviet Draft Agreement, 31 August 1971

Article II(1)

The obligations provided for under this Treaty shall apply to anti-ballistic missile (ABM) systems, i.e. the means specially constructed and deployed to counter strategic ballistic missiles and their components in flight trajectory, namely: *[after which followed the definitions of the components]*.⁹⁷¹

⁹⁷¹ *Id.*, at 38, citing A-540, 31 August 1971 (working paper).

Memorandum of Conversation -- A-442
11:55 to 12:55 a.m., 31 August 1971, U.S. Embassy, Helsinki
U.S. Participants: McLean, DeSimone
Soviet Participants: Trusov, Sinetsky, Anyutin, Bardin

Trusov said that he would like to return to clarification of paragraph 1, Article 6 of the U.S. draft ABM Agreement which General Allison had promised him He wanted to know what we had in mind when we spoke of an ABM system which does not include launchers, interceptor missiles and radars, and asked for an example ... Trusov said that he did not consider it reasonable or necessary to include a provision covering what he called undefined ideas, maintaining that the provision in both the U.S. and Soviet drafts for review and amendment would be sufficient. He said that development, testing and deployment of such future systems would be observed by our national means of verification and the review process could take care of the necessary prohibition or limitation. He went on to say that a provision of the kind which the U.S. side has proposed would add an undesirable element of vagueness to our ABM agreement.

I agreed with Trusov that the process of review would be necessary to take account of developments and to reexamine the ABM agreement in light of those developments and stated that we had such a provision in our text. However, we also feel a need to avoid channeling arms competition in a new direction with the search by either side for ABM means not specifically constrained in the agreement. Paragraph 1 of our Article 6 was directed toward filling this need. Trusov said that his understanding of paragraph 1, Article 6 was that it referred to deployment and he repeated his argument that the possibilities it foresees could be dealt with by national technical means and the review process.

US/USSR AD HOC MEETING No. 1
4:00 p.m., 31 August 1971, U.S. Embassy, Helsinki
U.S. Participants: Graybeal, Shaw, Wade, Leard, Krimer, FitzGerald
Soviet Participants: Karpov, Fedenko, Obukhov, Artemyev

Karpov [said that i]n general, paragraph 1 [of Article II] should contain a definition of the scope of systems to be covered by the obligations of the treaty; i.e., ABM systems, ABM launchers, ABM interceptors, and ABM radars ...

US/USSR AD HOC MEETING No. 2

11:00 p.m., 2 September 1971, Soviet Embassy, Helsinki

U.S. Participants: Graybeal, Wade, Leard, Krimer

Soviet Participants: Karpov, Fedenko, Obukhov, Artemyev

Karpov ... opened by presenting a Soviet draft of Article II which he stated takes into consideration the U.S. Article and the views expressed by both sides at the last meeting, and contains all the necessary provisions required in Article II to insure the effectiveness of a treaty on ABM's. He said that the text contains precise definitions of systems and components that are the means to which obligations should extend.

In dealing with Article II, we do not specify obligations as such; rather, the obligations of the sides shall apply to the means listed in paragraph 1 of Article II and explained in paragraph 2. The systems defined in paragraph 1 give a precise concept of the subjects for the obligations of both sides on ABM systems. This article is a means of ensuring confidence in compliance of the sides by listing the subjects for control, not the method of controlling them. The definitional approach is an unnecessarily complicated structure for the agreement. The best approach to definitions is one in which whatever is to be limited or defined is accompanied by a corresponding definition where it first appears in the treaty. It is our opinion that it is unnecessary to define other than ABM terms until they first appear in the article. So if this article is to define the composition of the systems to be covered by the obligations of each side, then the definitions should be limited to those necessary to the content of the article.

It seems clear the Soviet version precisely expresses no obligations, but the systems that should be covered by the obligations.

Graybeal asked if the obligations would apply only to the systems listed in Article II.

Karpov responded that the fundamental basic obligations which deal with numerical limitations in the Soviet Article III would be applied to these systems. It does not mean that there will not be other obligations listed in the treaty which will cover other systems. For example, the Soviet Article IV, which has a counterpart in U.S. Article 5, would place obligations on each side. However, it is a concept not covered in Article II. Also, Soviet Article V, which corresponds to paragraphs 2 and 3 of U.S. Article 6, is a concept covered by the obligations under the Soviet Article V.

Wade then asked how the Soviets would handle a missile whose purpose may not be the destruction of an incoming ballistic missile?

Karpov responded that we must decide what we are talking about. The main thing is to define systems that are really ABM systems. In Article II, paragraph 1, ABM systems are defined as a whole, and specific means for limiting components are included in the following paragraph ... It is most important to define deployed systems in terms of the tasks set for ABM systems. For example, in order to define ABM interceptors, the Soviets use the criteria listed in their subparagraph (b).

US/USSR MINI-PLenary MEETING No. 10

11:00 a.m., 3 September 1971, Soviet Embassy, Helsinki

U.S. Participants: Smith, Parsons, Nitze, Allison, Garthoff FitzGerald, Krimer (Interpreter)

Soviet Participants: Semenov, Shchukin, Trusov, Timberbaev, Kishilov, Fedenko,
Fackov (Interpreter)

General Trusov said that Para 1 of Article 6 of the U.S. Draft provides that each Party undertake obligations not to deploy ABM systems using a device other than ABM interceptor missiles, ABM launchers or ABM radars to perform the functions of these components. Dr. Brown, on August 27, in answering Academician Shchukin's question as to what systems are meant by this paragraph, said that this applies to any present or future system which employs other physical mechanisms or devices to perform the functions of interceptor missiles, launchers, or radars in rendering ineffective strategic ballistic missiles or their elements in flight trajectory. Frankly speaking, General Trusov believed that such a reply referring to any present or future systems, which employ devices other than those known to the Delegations, does not cast any light on the problem. If such systems exist, then they should be named and the subject would be made more clear and could become the subject of further discussion. The U.S. side's objective in including a paragraph in Article 6 to provide obligations not to deploy ABM systems, including future systems, which use components other than ABM launchers, interceptors and radars, is not clear. What is, in fact, involved is conjectural systems, i.e., some possible future systems not now known to anybody. So far, the sides have been discussing limitations on concrete existing systems or systems whose reality is adequately known for the future and can be clearly defined in an agreement. Now the U.S. side proposes to include in a draft treaty limitations on the deployment of such systems or components not known to anybody. The Soviet side does not believe that it is correct to include such limitations. Such a provision in a treaty could have reference to something that is amorphous and not subject to a clear determination of what is to be limited. Both sides are equally interested in the viability of an agreement to limit ABM systems. However, Para 1 of Article 6 acts in the opposite direction ... and gives rise to unnecessary misunderstandings.

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As regards Ambassador Smith's comments on the Seabeds Treaty and the Space Treaty, this is a somewhat irrelevant analogy. The obligations assumed in those treaties referred to actually existing systems. It was clear what systems were involved. Para 1 of Article 6 speaks about possible future systems which are completely conjectural. Therefore, inclusion of Para 1 of Article 6 is not necessary.

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Ambassador Smith ... A fundamental question before the sides is whether we are trying to limit ABM systems or just ABM interceptor missiles, launchers, and radars.... Speaking personally, Ambassador Smith believed that, in the event that Para 1 of Article 6 should not be included in an agreement, it would be a cruel illusion to the peoples of both nations to say that we had concluded an agreement on ABM systems. We should more properly say that there had been an agreement to limit ABM interceptor missiles, launchers, and radars. This would be a far cry from what the U.S. side means when it speaks about limiting ABM systems.

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Minister Semenov thought that the viewpoints of both sides had been made sufficiently clear. If there were no objections from the U.S. side, he would propose to turn discussion of Paragraphs 1 and 2 of the U.S. Article 6 over to the Karpov-Graybeal Ad Hoc Committee

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Memorandum of Conversation -- A-481**1:00 p.m., 8 September 1971, Soviet Embassy and Capitol Theatre, Helsinki****U.S. Participants: FitzGerald, Leard (part of time)****Soviet Participants: Gryzlov (part of time), Fedenko****Subject: New Soviet ABM Proposal "Other Devices"**

During the portion of the conversation at which Lt. Col. Laird was present, Col. Fedenko repeated the arguments Mr. Karpov had made in favor of excluding paragraph 1 of U.S. Article 6. He declared that the sides are in agreement (with the exception of OLPARs and MARCs) on the ABM components (*sredstva*) to be limited. These are spelled out in Article 2 of the Soviet Draft, which specifies the components to be limited, namely, ABM interceptors, launchers and radars. The sides have no intentions of limiting the computers or communications associated with ABM systems, or ABM depots (*sklady*). At the same time, if ABM means different from those presently known -- for example, some new power source, or source of light, or some new searchlight (*prozhektor*), ... should be detected by national means, the problem could be examined in the Standing Commission ... He concluded that ... "other means" should be identified if they are known at the present time.

Col Fedenko also argued in favor of the Soviet version of Para I of Article 2, which specifies only interceptors, launchers, and radars as the ABM means to be limited. I argued against exclusion of MARCs and OLPARs but Col Fedenko insisted that these definitions should be discussed in the context of the articles in which they initially appear. Article 3 in the case of MARCs and Article 4 in the case of OLPARs. I continued to disagree. ...



US/USSR AD HOC MEETING No. 4 -- A-540

11:00 a.m., 8 September 1971, Soviet Embassy, Helsinki

U.S. Participants: Graybeal, Leard, Barlow, Carnesdale, Krimer, FitzGerald, Zaraschnak

Soviet Participants: Karpov, Fedenko, Obukhov, Artemyev

[The Soviets tabled their Article V(1) on mobile ABMs:]

Each Party undertakes not to construct, not to test and not to deploy mobile land-based, sea-based, air-based or space-based ABM systems and their components, specially constructed for such systems.

[The record of the meeting reflects ... that discussion commenced with Graybeal's suggestion] that we start with paragraphs 1 and 2 of the U.S. Article 6 and Paragraph A [or 1] of the USSR Article V. [He invited discussion] of these paragraphs [leading Karpov to remark] that the burden of proof lies with the side making the proposal, [and asking Graybeal to] clarify why the language of Article 6 had been chosen and what it was intended to do. [Graybeal began his reply by stating:] Our Article 6 is ... intended to address future ABM systems that would utilize components or devices other than launchers, interceptor missiles, or radars.⁹⁷²

Graybeal made the following points:

— The U.S. paragraph 1 of Article 6, which has no counterpart in the Soviet text, would prohibit the deployment of future ABM systems or components other than those fixed land-based components defined in Article 2; that is, ABM interceptor missiles, ABM launchers, or ABM radars. ...

Karpov addressed the formulas used to identify systems limited under paragraph 1 of the U.S. Article 6. He noted that this act envisages the undertaking of the Parties "not to deploy ABM systems using devices other than ABM interceptor missiles, ABM launchers, or ABM radars to perform the functions of these components." He believed that the subject matter of this provision was outlined in such an unclear manner, in terms of legal science, that it could not be accepted. He said that if the U.S. side believes that such systems exist in reality, then it should identify and name them so that the possibilities to limit them could become clear. ... [T]he agreement cannot be amorphous with regard to the subject matter of the means to be limited. He believed it was wrong to limit means not known to anyone. Up to now, he noted, the subject of our discussions was limitations on concrete and specific ABM systems, on ABM systems which might exist and could be verified by national means. He believed that we should adhere to this subject in the future too. He said that he could not agree to an approach designed to prevent deployment in the future of certain systems when the systems to be limited are undefined. He recognized that in the future, questions may arise about ABM systems which are not covered in this Agreement or Treaty. He noted that appropriate procedures for handling these questions are envisaged in both the USSR and U.S. draft texts. ... Thus, he said, the possibility of questions arising in the future is fully covered by the appropriate paragraphs in the U.S. Arti-

cle 11 and the USSR Article X. Furthermore, he said, the paragraphs which follow (subparagraph (f) of U.S. text and subparagraph G of USSR text) eliminate the need for paragraph 1 of Article 6 of the U.S. text.

Graybeal stated that ... he would deal with the substance and intent of the U.S. paragraph 1 rather than with legalities. ... He said that if he understood Karpov, the Soviet side intended to limit only ABM launchers, ABM interceptors, and ABM radars. He wondered if we would be doing a service to either side or to the world if we were to enter an agreement which limited only existing systems and did not attempt to limit future systems....

Karpov ... [said that i]f there is no clear-cut definition as to what would be limited by paragraph 1 of U.S. Article 6, then in the future there would remain a vast field for disagreement and doubt.... Since the purpose of the Treaty is to limit ABM systems, the question of future systems would be a matter for the Standing Commission. Without a precise definition in the Treaty ... as to what would be covered by the obligations of the sides, he did not believe it possible to include the present form of paragraph 1 of the U.S. Article 6 in the ... Treaty ...

Graybeal expressed the view that paragraph 1 of Article 6 would serve to strengthen the relationship between our two countries and would avoid misunderstandings in the future. He said that while we were not yet in agreement, at our level, on the definition of an ABM system, we were close. He referred to the wording in the U.S. working paper of September 6; namely, "An anti-ballistic missile system is a system constructed or deployed to counter strategic ballistic missiles or their components in flight trajectory." He said that this definition would apply also to paragraph 1 of Article 6. ... He stated that paragraph 1 of the [sic] Article 6 would avoid just the kind of misunderstandings that Karpov had referred to in his remarks. He believed that if we could make clear the intent of the Agreement, which in our view is to limit ABM systems, then we could help the Standing Commission fulfill its role. If the intent were only to limit present systems, and to leave to the Standing Commission the matter of limiting future systems, then we would be inviting misunderstandings. He asked if it is the intent of the Soviet side to limit ABM systems or just to limit present ABM systems.

Karpov believed that our intent is to limit ABM systems and that we have a mutual understanding between ourselves on that score. The difference is in our approach -- how to do it in the most effective way and, at the same time, to guarantee the two sides that the agreement would be complied with. He could not imagine how an agreement could bring the two sides closer together if it dealt with systems which could not be clearly defined. He said that the subject of an agreement is determined by at least three elements: the presence of physical or legal entities entering into the agreement, the subject matter of agreement, and the guarantees of compliance with the obligations. He could admit the existence of an agreement without guarantees, but not without the first two elements. The U.S. draft, he said, contains no legal definition of what it deals with. He did not agree with the definitions in the U.S. Article 2. On the other hand, he said, Article 2 of the Soviet draft gives a clear-cut definition of ABM systems; namely, "The means specially constructed and deployed to counter strategic missiles and their components in flight trajectory." This definition would enable one fully to verify by national means compliance with an agreement. It is essential that an agreement include a precise definition of the means to be covered by the obligations. He wished to note also that paragraph 1 of Article 6 in its present form could not promote the U.S. intent of precluding possible misunderstandings in the future. This paragraph did not make it possible for national means of verification to determine clearly if systems are ABM systems or not, and, since paragraph 1 would be an integral part of the ... Treaty, compliance with the entire Treaty would be questioned. He asked if it would not be better for us to refer the questions of future systems to the Standing Commission. He thought that this would be the most rational approach to limiting those ABM systems which cannot be defined in technical or legal terms.

Graybeal ... thought that there was a difference in the views of the two sides regarding the adequacy of the definitions in paragraph 1 of the U.S. Article 2. He thought that these definitions were adequate to deal with all ABM systems, while paragraph 1 of the USSR Article XI [Article 2?] dealt only with ABM launch-

ers, ABM interceptors, and ABM radars. He asked if he was correct in believing that in Karpov's opinion the U.S. definitions were inadequate.

Karpov responded that Graybeal was correct and that the Soviets had proposed to limit systems which use ABM launchers, ABM interceptors, and ABM radars.

Karpov expressed the belief that both sides recognize that the Treaty cannot cover all possible cases in limiting ABM systems, and that we could not envisage everything that will appear in the future... Unfortunately, he said, the term "ABM defense" cannot determine whether specific means belong to such a system.

Graybeal agreed that not all future ABM systems could be identified now; however, he disagreed with the contention that an agreement could not cover all possible future ABM systems. He pointed out that, with an understanding of what is an ABM system, we could prohibit the deployment of future systems or devices. He then turned to paragraph 2 of the U.S. Article 6 and its counterpart, paragraph A of the USSR Article V. He noted that the texts were similar, with two exceptions. First, the U.S. text would prohibit the development, production, testing and deployment of these systems while the Soviet text would prohibit only testing and deployment... Second, the U.S. text refers to future devices, and reflects the basic difference in view which we have been discussing in relation to paragraph 1 of the U.S. Article 6.

Memorandum of Conversation -- A-498
12:30-1:00 p.m., 13 September 1971, U.S. Embassy, Helsinki
U.S. Participants: FitzGerald, Barlow
Soviet Participants: Fedenko, Obukhov

Future Systems

Col. Fedenko reiterated the standard Soviet arguments against including any general provisions on future undefined ABM systems. The Standing Commission could handle such problems if they ever arose. The alternative, he felt, was for the U.S. to specify and define in Article II what systems, components or mechanisms it had in mind. If the U.S. could define what it was talking about, then national means could probably verify such activities because presumably it would be mandatory to test such conceptual devices. The Soviet side would then be in a position to determine whether such systems should be in an ABM Treaty.

13 September 1971

*[On that day, both Karpov and Graybeal presented working papers taking into account the positions of each side on U.S. Article 6, among other issues. The FitzGerald/Graybeal Study notes that Karpov said the Soviet side had "exactly the same interpretation as the US side" [on the matter of "mobile" and "transportable" ABM systems.]*⁹⁷³

⁹⁷³ C.L. FitzGerald and S. Graybeal, *SALT I Negotiating History Relating to Limitations on Future ABM Systems and Components Based on "Other Physical Principles"* (System Planning Corporation, March

[Karpov noted that ... [Article II(1) of the Soviet working paper] incorporated the word "principal," and in connection with the descriptions of missiles and radars the phrase "for an ABM role." He felt this met American views "half-way" and hoped agreement could be reached.... Karpov proposed that the language should be read as reflecting that Article II covered "principal" obligations, and recognized that the Treaty contained obligations on other systems, for example in the new Article VI These obligations, he argued, were "complementary," and should not be confused with the basic provisions. Graybeal objected to the proposed distinction between "principal" and "complementary" obligations. He suggested a listing of the provisions to which the obligations would apply. Karpov agreed to try this approach, and said he was willing to delete "principal."]⁹⁷⁴

[Graybeal said:] The US working paper on Article 6 reflects the current difference of opinion concerning the inclusion of paragraph 1 and the related phrase "other devices" in paragraph 2.⁹⁷⁵

U.S. Working Paper of 13 September 1971

Article 6(2):

Each Party undertakes not to develop, test, or deploy sea-based, air-based, space-based, or mobile land-based ABM interceptor missiles, ABM launchers [or] ABM radars [, or other devices for performing the functions of these components].⁹⁷⁶

Soviet Working Paper of 13 September 1971

Article II(1):

The obligations provided for under this [Treaty] [Agreement] shall apply to anti-ballistic missile (ABM) systems, i.e. the following principal ABM system components specially constructed and deployed to counter strategic ballistic missiles and their components in flight trajectory:

- (a) ABM interceptor missiles which are interceptor missiles, constructed, tested and deployed for an ABM role;
- (b) launchers constructed, tested and deployed for launching ABM interceptor missiles;
- (c) ABM radars which are radars constructed, tested and deployed for an ABM role.⁹⁷⁷

1985; Contract DNA001-84-C-0309) (hereinafter *FitzGerald/Graybeal Study*), cited in *id.*, at 25-6.

⁹⁷⁴ *Id.*, at 39.

⁹⁷⁵ *Id.*, at 26.

⁹⁷⁶ *Ibid.*

⁹⁷⁷ *Id.*, at 27.

Memorandum of Conversation -- A-503
10:00-11:30 a.m., 15 September 1971, Soviet Embassy, Helsinki
U.S. Participants: Graybeal, FitzGerald
Soviet Participants: Karpov, Fedenko

[T]he Soviets tabled new Articles 2 and 6(V)....

The discussion started with Article 6(V). Karpov argued that the new formulation of Soviet paragraph 1 (U.S. paragraph 2) of Article 6(V) obviates the requirement for the phrase "other devices for performing the functions of these components" appearing at the end of U.S. paragraph 2. The Soviets were proposing to eliminate specific listing of ABM system components (launchers, interceptors and radars) and substitute the word "components" (using the literal Russian word (komponenty) for this instead of the word for "components" (sredstva) used in Article 2 when referring to launchers, interceptors, and radars. Karpov agreed with Graybeal's interpretation that the Soviet text meant "any type of present or future components" of ABM systems.

It was agreed that paragraph 1 of U.S. Article 6 would remain bracketed as a U.S. proposal.

The final result was to leave each side's version of the entire Article 2 in brackets.

Attachment
[Soviet Draft Article II(1)]

[The] obligations provided for under Articles III, IV, VI, VII, and VIII *[should apply to the "principal" ABM system components as described.]*⁹⁷⁸

⁹⁷⁸ *Id.*, at 40.

Memorandum of Conversation – A-515**5:00-5:15 p.m., 15 September 1971, Capitol Theatre, Helsinki****U.S. Participant: Garthoff Soviet Participant: Semenov**

As I was leaving the theater, Semenov engaged me in conversation for a few minutes in which he emphasized the desirability of removing some of the non-substantive bracketed disagreements in the Joint Draft Text being developed by the two delegations. I mentioned in particular Article 2, and urged that we find a solution which did not prejudice the different substantive positions of the two sides over the article on future kinds of ABM systems. Semenov agreed, and also thought that we should be able to find a neutral formulation which would not prejudice the views of either side.

Memorandum of Conversation – A-518**12:30-12:50 p.m., 17 September 1971, Soviet Embassy, Helsinki****U.S. Participants: Smith, Krimer (interpreter)****Soviet Participants: Semenov, Faekov (interpreter)**

Smith said that ... lately he had the feeling that the Soviet position on Article 2 reflected a desire that nothing be done to prejudice the Soviet position on the issue treated in paragraph 1 of Article 6. It seemed to him that we should be ingenious enough to draft Article 2 in such a way as not to prejudice the position of either side in regard to paragraph 1 of Article 6. Smith wanted to emphasize to Semenov the great importance that the US Government attached to this issue. It was his belief that without such a provision, which was similar to analogous provisions included in other treaties, an agreement between us might prove to be simply an illusion. We might think that we had concluded an agreement on limiting ABM systems, only to find that in fact we had only limited launchers, interceptors and radars. He hoped that he had been able to convey to Semenov the great importance we attached to that issue.

Semenov said that in regard to Article 2 he would have no objection to a further search by our Executive Secretaries for possible language that would not prejudice our respective positions on paragraph 1, Article 6. However, Article 2 spoke for itself. He did not really know in what sense Article 6 had a bearing on Article 2, since the latter dealt with definitions and in his view this was quite enough for that particular Article....

Frankly, it was his Delegation's impression that inclusion of the word "indistinguishable" in Article 2 would make the entire agreement quite uncertain. What was indistinguishable from launchers, missiles, and radars? This concept in his view was too ill-defined and arbitrary for inclusion in an agreement on ABM's that we have been working on. Furthermore, when we spoke of reaching an agreement to limit ABMs in our two countries, it was his impression that we intended such limitation to be at a minimum level and this in his view was an essential consideration in seeking mutually acceptable positions.... He emphasized that after concluding an ABM agreement we would be faced with the necessity of solving a number of other questions that were no less difficult than this one. Therefore he believed we should give a green light to the work that lies ahead of us He asked Smith to note that he had not spoken in these terms in the past, but in the context of recent events and of our work here he was doing so now.

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U.S. Reporting Cable -- USDEL SALT 1055, 17 September 1971

*[U.S. Article 6(1) ... was made Article V(3) of the Joint Draft Text on September 17, and bracketed by the Soviets.]*⁹⁷⁹

Memorandum of Conversation -- A-532
3:00-5:00 p.m., 20 September 1971, Soviet Embassy, Helsinki
U.S. Participant: Garthoff
Soviet Participants: Timberbaev, Kishilov
Subject: Joint Draft Text of an ABM Agreement

[On September 20, the language of what the FitzGerald/Graybeal Study terms Alternative 1 was changed to read] ABM systems or their components.

*[Garthoff ... characterized the draft which the parties were using as] the compromise proposal on eliminating brackets.*⁹⁸⁰

I noted that the package trade-off which I had outlined would, if accepted, remove a great deal of underbrush from the draft agreement. There would remain seven points of difference: ... ABM levels and deployment limitations; a provision to cover future "unconventional" ABM systems ...

[T]he Soviet participants agreed that this list of issues would remain.

U.S. Reporting Cable -- USDEL SALT 1056, 24 September 1971

ARTICLE II - DEFINITIONS, STATUS (U.S ART 2). ENTIRE ARTICLES [sic] REMAINS BRACKETED ALTHOUGH POSSIBLE SOLUTIONS WERE EXPLORED. U.S. HAD SOUGHT "DEFINITION" APPROACH, SEPARATELY DEFINING ABM SYSTEMS AND THE KEY ABM COMPONENTS (ABM INTERCEPTOR MISSILES, ABM LAUNCHERS, AND ABM RADARS). SEPARATE DEFINITION OF ABM SYSTEM IS IMPORTANT IN SEVERAL ARTICLES (I.E.. ARTICLES IV AND V(3) DISCUSSED BELOW). SOVIETS HAVE PROPOSED "OBLIGATION"

⁹⁷⁹ *Id.*, at 33.

⁹⁸⁰ *Id.*, at 36.

APPROACH, PROBABLY TO EMPHASIZE THAT ONLY ABM SYSTEMS AND NOT AIR DEFENSE SYSTEMS OR OTHER RADARS ARE BEING LIMITED, AND MORE RECENTLY AS REFLECTION OF THEIR OBJECTION TO LIMITING FUTURE NON-INTERCEPTOR MISSILE/RADAR SYSTEMS AS PROPOSED IN ARTICLE V(3) (OLD U.S. ARTICLE 6, PARA. 1). SOVIET APPROACH DEFINES ABM SYSTEMS IN TERMS ONLY OF THE THREE NAMED COMPONENTS.

[The cable stated generally that the text of Article V of the Soviet Draft (U.S. Article 6)] INCLUDING COMPONENTS FOR FUTURE ABM SYSTEMS WHICH ARE NOT FIXED AND LAND-BASED ... [WAS] AGREED *AD REFERENDUM*. TEXT OF ARTICLE V(3) ON DEPLOYMENT BAN ON FUTURE DEVICES, IN BRACKETS, IS U.S. PROPOSAL WHICH U.S.S.R. HAS FIRMLY OPPOSED.⁹⁸¹

Negotiations in Helsinki (the fifth round) were adjourned on 24 September 1971 and resumed in Vienna (the sixth round) on 15 November 1971.

US/USSR MINI-PLenary MEETING No. 8 -- A-594

11:00 a.m., 30 November 1971, Soviet Embassy, Vienna

U.S. Participants: Smith, Parsons, Nitze, Allison, Garthoff, Shaw,
Parr (interpreter), Krimer (interpreter)

Soviet Participants: Semenov, Shchukin, Trusov, Grinevsky, Kishilov,
Pavlov (interpreter), Novikov (interpreter)

Academician Shchukin said that thanks to the joint work on preparing a draft text of a Treaty (Agreement) on the Limitation of ABMs, the sides had been able to agree on a number of provisions. The results of this work had been confirmed in Moscow during the interval between Helsinki and Vienna. In this connection, it was of fundamental importance to have reached agreement on the text of a provision in which each party undertook not to develop, test, or deploy sea-based, air-based, space-based, or mobile land-based ABM systems or their components. This provision in particular confirmed the importance both sides attached to preparing a draft which excluded the possibility of the deployment of ABM defenses of the territory of a country.

Apart from this, the Soviet side cannot recognize as well-founded the proposal of the US involving an obligation not to deploy ABM systems using devices other than ABM interceptor missiles, ABM launchers, or ABM radars to perform the functions of these components. The subject of a Treaty (Agreement) could only be specific and concrete limitation of ABM systems. It would seem that prohibiting something unknown, as proposed by the U.S. side, would create uncertainty as to the subject of the Treaty (Agreement) on limiting ABMs. Such had never been done in a serious agreement. If systems based on different technical principles should subsequently appear, they could be discussed additionally, as provided by the draft Treaty.

⁹⁸¹ *Id.*, at 29.

A-592, 30 November 1971

*[Kishilov suggested to Garthoff ... that new language proposed by the Soviets prohibiting deployments of ABM systems to provide a territorial defense should be a partial substitute for a future-system provision.]*⁹⁸²

SALT V 01106
SUBJECT: HIGHLIGHTS OF POST MINI PLENARY CONVERSATIONS - NOV 30

5. KISHILOV TOLD GARTHOFF ... THAT SOVIET PROPOSED ADDITION TO JDT ARTICLE 1 WAS PARTIAL SUBSTITUTE FOR ARTICLE V, PARAGRAPH "C" ON FUTURE SYSTEMS WHICH SOVIETS STILL REJECT.

*[THE U.S. REJECTED THIS PROPOSITION, [I.E. TO ACCEPT LANGUAGE PROHIBITING DEPLOYMENTS CONSTITUTING TERRITORIAL DEFENSE AS A PARTIAL SUBSTITUTE FOR EXPRESS PROHIBITION OF THE DEPLOYMENT OF EXOTIC ABMS] BUT BOTH KISHILOV AND CHULITSKY SAID THE SOVIETS WOULD NOT ACCEPT A TREATY PROVISION [EXPRESSLY] ON THE ISSUE [OF PROHIBITING THE DEPLOYMENT OF EXOTIC ABMS]]*⁹⁸³

Memorandum of Conversation -- A-613
1:30-1:45 p.m., 4 December 1971, Soviet Embassy, Vienna
U.S. Participant: Aaron Soviet Participant: Chulitsky
Subject: Special Working Group -- ABM

Mr. Chulitsky also made a strong pitch for dropping Article 5, para 3, on future systems. He argued that it was unnecessary since "no one knew what future systems might be" and that an effort to include "everything" in the agreement would delay progress. He insisted that future systems could be dealt with in the Standing Consultative Commission in the periodic review conference, or in follow-on negotiations. He also argued that the prohibition on air-based, space-based, land-based, etc. ABM systems is adequate to cover the problem of future systems. The only insight Mr. Chulitsky offered into the reasons for the Soviet position was that "it is difficult to argue with the technical people" that unknown systems should be proscribed.

Mr. Chulitsky asked if the U.S. Delegation was prepared to drop Article V, para 3. I said no, we considered it very important. I reviewed the reasons for including it and indicated that the Soviets would be hearing more from our delegation in support of our position.

⁹⁸² *Id.*, at 49.

⁹⁸³ *Ibid.*, citing also USDEL SALT 1116 of 7 December 1971.

Memorandum of Conversation -- A-619

1:20-3:30 p.m., 7 December 1971, Franziskaner Restaurant, Vienna

U.S. Participants: Parsons, Garthoff

Soviet Participants: Grinevsky, Kishilov

Subject: Effort to Resolve Differences on the ABM Joint Draft Text

On Article V, both sides reiterated the strong positions which they hold on the question of the paragraph relating to future systems. After some discussion, Garthoff asked Kishilov whether Semenov and the Soviet Delegation might be willing to seek a change in their instructions in order to accept the US proposal. Kishilov and Grinevsky flatly asserted that they were certain there would be no change in the position of the Soviet side. Garthoff stressed this was a point on which the U.S. side felt strongly, and there seemed no alternative except to retain the provision in brackets for later resolution, perhaps at higher instance. Kishilov urged that some way be found to express the difference over this point in Article III rather than in Article V. Garthoff said he thought it would probably be better kept in Article V, but the possibility of dealing with the matter in Article III could be considered.

[[B]rackets were removed from the U.S. introduction [to Article II(1)]: "For purposes of this Agreement ..."⁹⁸⁴

Memorandum of Conversation -- A-626, 8 December 1971

[... [T]he Soviets agreed to delete the phrase "and including the following components" from their draft of Article II.]⁹⁸⁵

Memorandum of Conversation -- A-633

12:30-12:50 p.m., 9 December 1971, U.S. Embassy, Vienna

U.S. Participants: Parsons, Garthoff

Soviet Participants: Grinevsky, Kishilov

Subject: Resolving Differences on the ABM Joint Draft Text

Most of the discussion resolved [sic] around Article II. Grinevsky began by delivering a short speech to the effect that the Soviet side did not regard the article as necessary, that it had been found troublesome, and that it was something of a concession by his side even to be making this effort to resolve differences. Moreover, it was related to the differences contained in Article V. His remarks implied that members of his Delegation believed there should be a "tradeoff" involving the US dropping Para 3 of Article V in exchange for Soviet acceptance of a definitional Article II as proposed by the US side. Garthoff stated again that the US side considered Article II to be important, that the definitional approach was non-prejudicial to the Soviet as well as American positions on other articles such as Article V, and that the US

984 *Id.*, at 41.985 *Ibid.*

position on Article V involved a matter of important substance which could not be "traded".... (Grinevsky seemed to imply that it would be necessary for his Delegation to go through a ritual of trying to get concessions from our side on Article V before he would be authorized to reach an agreement accepting the basic US position on Article II.)

US/USSR MINI-PLenary MEETING No. 7 -- A-642

11:00 a.m., 10 December 1971, Soviet Embassy, Vienna

U.S. Participants: Smith, Parsons, Nitze, Brown, Allison, Garthoff, FitzGerald,
Krimer (interpreter)

Soviet Participants: Semenov, Shchukin, Trusov, Grinevsky, Kishilov, Sinetsky,
Pavlov (interpreter)

STATEMENT BY DR. BROWN
December 10, 1971

I

I would like now, Mr. Minister, to address the inclusion in an ABM Agreement of constraints on the deployment of possible future types of ABM systems.

II

The U.S. has proposed a specific provision to deal with the deployment of possible future types of ABM systems. The following language has been proposed by the U.S. as paragraph 3 of Article V:

"Each Party undertakes not to deploy ABM systems using devices other than ABM interceptor missiles, ABM launchers, or ABM radars to perform the functions of these components."

The two sides seek an agreement which would prohibit the deployment of both wide area and thick regional ABM defenses -- and also the foundation for such defenses -- whether or not these defense systems employ devices other than interceptor missiles, launchers and radars to perform the function of those ABM components.

The objective of the U.S. proposed language is to avoid a situation which otherwise could undermine the effectiveness of the ABM agreement. The U.S. Delegation believes that such an undertaking is necessary, especially in an agreement of unlimited duration.

III

The Soviet side has objected to limits on possible future ABM systems on the basis that such systems are defined only in general terms. This view runs contrary to the precedent established in the Outer Space Treaty and the Seabeds Treaty -- to which the U.S. and the U.S.S.R. are parties. In these treaties, our two governments have accepted obligations banning the deployment of "other weapons of mass destruction" -- a general term which clearly includes possible future systems. The rationale supporting the undertaking of these obligations applies fully to a corresponding undertaking in the case of possible future ABM systems.

Would we not risk undermining the viability and durability of the agreement if we did not foreclose now the deployment of ABM systems using technologies which future research may prove feasible?

Though one cannot -- and would not wish to -- halt scientific progress, we must recognize the effects -- which the U.S. side thinks would be beneficial -- that prohibiting the deployment of such types of systems would have in inhibiting a race to develop such systems. We believe it would be to the advantage of both sides to avoid deployment of such systems -- deployment that could circumvent the ABM limitations both sides have proposed....

The U.S. Delegation believes that our common objectives would be better served by prohibiting now the deployment of possible future types of ABM systems.

Memorandum of Conversation -- A-639

1:00-1:40 p.m., 10 December 1971, Soviet Embassy, Vienna

U.S. Participants: Nitze, Brown

Soviet Participant: Shchukin

Shchukin said he disagreed with Brown's statement on future systems. He thought general definitions where one couldn't even mention the specific system to which they applied were unhelpful. Brown referred to the general definition in the Outer Space Treaty. Shchukin responded, but in that case, one could specify systems which were within the meaning of "other weapons of mass destruction." These included chemical and bacteriological weapons. Brown said that, in fact, the use of such weapons from outer space was far from clear; similarly, one could specify systems which would be included within the general definition "future ABM systems." These would include lasers and particle accelerators.

Shchukin said he wished to get at the problem in another way; both sides agree that there should not be territorial defenses. The Soviet side has proposed specific language covering this in Article I; thus, the agreement would ban the deployment of future systems in a manner providing a territorial defense. If, however, new technology should make possible components carrying out the same tasks as existing components, but perhaps in a more efficient and less costly manner, why should those be prohibited? We are not prohibiting ABM components.

Nitze said that the number and location of ABM components would be limited under Article III and other articles of the agreement. Specifically, in the case of an NCA defense, launchers and ABMs would be limited to 100. If a future system were to be deployed which performed the same function as existing launchers and ABMs, but without interceptor missiles, for example, the limit of 100 could be rendered meaningless. Shchukin suggested that were such future systems to reach a stage where they could be deployed, the question would be referred to the Standing Commission, through which the necessary regulations could be worked out.

Nitze said he wished to see whether he correctly understood what it was that Shchukin had said. Was he saying that the sides would agree in principle that the provisions of the agreement should not be undermined by the deployment of components capable of performing functions similar to ABM components; that, if such components reached a stage of development such that their deployment could be contemplated, the issue of the appropriate manner of their regulation would be referred to the Standing Commission; and that no such deployment would take place until such regulations had been agreed by Governments through the Standing Commission. Shchukin said that if it were necessary, they could agree to that, though it was not clear that he was holding out a commitment in the treaty to that effect.

Memorandum of Conversation -- A-644**3:30 p.m., 13 December 1971, Soviet Embassy, Vienna****U.S. Participants: Parsons, Shaw, Wade, Aaron, Leard, Parr (interpreter)****Soviet Participants: Grinevsky, Anyutin, Surikov, Baranovsky, Obukhov,
Artemiev (interpreter), Yushin (interpreter)**

Turning to Article II, Mr. Grinevsky said the purpose of this article should be clear. It was a listing of the ABM components limited under other provisions of the agreement. On December 6 the Soviet side received the US revised draft text of Article II....

Mr. Grinevsky then read a Soviet proposed version of Article II as follows:

Article II

1. For the purposes of this Treaty:

- (a) an ABM system is a system specially constructed and deployed to counter strategic ballistic missiles or their elements in flight trajectory and including the following components -- ABM interceptor missiles, ABM launchers, and ABM radars;
- (b) ABM interceptor missiles are interceptor missiles specially constructed and deployed for an ABM role;
- (c) ABM launchers are launchers specially constructed and deployed for launching ABM interceptor missiles;
- (d) ABM radars are radars specially constructed and deployed for an ABM role.

2. The systems and components listed in paragraph 1 of this Article shall include those which are:

- (a) operational;
- (b) under construction;
- (c) undergoing testing;
- (d) undergoing overhaul, repair, or conversion;
- (e) mothballed.

Mr. Grinevsky said that the key merit of the Soviet proposal was that it formulated in a clear and unambiguous manner the subject matter of the Treaty by listing the ABM systems and components to be limited.

In particular, a feature which distinguished it from the U.S. draft was that paragraph 1(a) of the Soviet draft presented a comprehensive description of ABM components -- i.e., ABM interceptor missiles, ABM launchers, and ABM radars -- to avoid misunderstanding in the future.

In this connection, Mr. Grinevsky noted that paragraph 3 of Article V should be excluded since it is quite unacceptable to the Soviet side.

[Parsons replied that he was pleased the Soviets had adopted the method of listing definitions, but noted that the definitions given ABM systems were more restrictive than U.S. definitions, which take into account paragraph 3, Article V, which we consider as important and which the Soviet side said was unacceptable.⁹⁸⁶

Memorandum of Conversation – A-647

1:20-2:10 p.m., 14 December 1971, U.S. Embassy, Vienna

U.S. Participants: Nitze, Brown

Soviet Participant: Shchukin

Nitze noted, in connection with Shchukin's comments on the subject of the importance of dotting "i's," that in his comments this morning on future systems he had emphasized the inappropriateness of this subject for treaty language; was his emphasis on the word "treaty" meant to indicate the possibility of a minute or protocol dealing with that subject? Shchukin said this had not been his intent. He said that even though he felt we could swamp ourselves by getting into excessive detail on some subjects, in the case of future systems, he felt we needed to discuss the subject with more precision. In particular, he thought we should discuss optical systems; they represent current technology which can be applied to meeting certain ABM tasks. Nitze said that our suggested language for Article V, paragraph (c), would apply to optical systems only if they substitute for ABM radars, not if they were used as adjuncts to radars. Shchukin said that he assumed I was referring to the fact that meteorological conditions would prevent optical systems from being completely substitutable for radars. Brown said this was correct. He suggested that new technology such as lasers would first be developed to handle easier tasks such as anti-aircraft tasks [sic] before being developed to handle the more difficult tasks involved in ABM defense, and wondered whether, under the Soviet aversion to limiting air defense, they meant that they would not be willing to limit such systems even if they were usable for ABM.

Shchukin went on to say that speaking entirely on his own and without consultation with his Delegation, that it should be possible to provide that if components based on new technology were developed which could substitute for the components limited under Article III, the matter should be referred to the Standing Commission and agreements thereon reached by Governments so that there would be no circumvention of Article III. This, together with such provisions as the prohibitions on rapid reload, should take care of the problem.

⁹⁸⁶ *Id.*, at 42.

US/USSR "TROIKA" MEETING No. 1 -- A-662**11:00 a.m., 14 December 1971, U.S. Embassy, Helsinki****U.S. Participants: Smith, Nitze, Brown, Allison, Garthoff, Krimer****Soviet Participants: Semenov, Shchukin, Trusov, Kishilov, Pavlov**

... [Shchukin stated that a]lthough Dr. Brown said that the question of future ABM systems, which do not include launchers, radars, and interceptors, has already been discussed, I will allow myself to say a few words on this subject.

I would like to ask what this is all about in concrete terms. In what does the US side see a danger in the absence of a provision on this account of the treaty? If these systems cannot be defined now, except that they are something not known today, and, at the same time, the draft treaty includes a number of clear limitations and constraints not to deploy territorial ABM systems, not to give the capability for rapid reload, etc., is it not sufficient to have such limitations? To be sure, including in the treaty a provision covering something that is not known cannot be justified by any considerations, and therefore this proposition cannot be the subject of a treaty.

Memorandum of Conversation -- A-663**12:30-12:50 p.m., 17 December 1971, U.S. Embassy, Vienna****U.S. Participant: Garthoff Soviet Participant: Kishilov**

The ABM JDT

Kishilov emphasized the difficulty that his Delegation continued to have with Article II. I re-emphasized its importance from our standpoint, and the fact that our proposals should provide a base for a mutually acceptable agreement. We did not have time to discuss the specific issues. Kishilov did, however, for the second time suggest that movement on resolving the problem caused by our proposed addition to Article V might help to resolve the impasse over Article II.

On future ABM systems, I suggested to Kishilov the possibility of a new approach to meeting the issue. Perhaps it would be possible to have a clear and explicit understanding, for example in an agreed minute, that neither side would deploy a future ABM system or components without prior consultation and mutual agreement in the Standing Consultative Commission. Kishilov seemed quite interested in this possibility. He asked, for clarification, if I had indeed said that such an agreement could be in a separate understanding and if [sic] not in the treaty. I made clear that I was not making an official proposal, but he had correctly described the suggestion I was advancing. I stressed that I was speaking about consultation and mutual agreement. Kishilov suggested perhaps the language could indicate that the matter would be taken up in the Standing Commission for its "determination". Kishilov then suggested that perhaps the same technique could be used to handle OLPARs. I said that it seemed to me this was an idea that could be considered.

Memorandum of Conversation – A-667

7:30-11:00 p.m., 17 December 1971, Park Hotel, Baden

U.S. Participant: Garthoff Soviet Participant: Grinevsky

Future ABM Systems and OLPARs

Grinevsky referred to the conversation I had had that morning with Kishilov, concerning a possible alternative approach for handling future ABM systems and future OLPARs. He thought that the idea of handling both these matters through the Standing Consultative Commis[s]ion, rather than through explicit treaty provisions, offered a possible resolution to our differences. He initially referred to the idea of "declarations" in the negotiating record, but I noted that the suggestion had been for an explicitly agreed understanding; for example, in the form of an agreed minute. Grinevsky said that he understood, and that the precise form of the understanding was not so important. I emphasized that the suggestion was for consultation and agreement prior to any deployment of future ABM systems or components, or of OLPARs. Grinevsky acknowledged his understanding on that score.

US/USSR MINI-PLenary MEETING No. 10 – A-681

11:00 a.m., 20 December 1971, Soviet Embassy, Vienna

U.S. Participants: Smith, Parsons, Nitze, Brown, Allison,
Garthoff, FitzGerald, Krimer (interpreter)Soviet Participants: Semenov, Shchukin, Trusov, Grinevsky,
Kishilov, Anyutin – Artemiev and Novikov (interpreters)

Minister Semenov said, in regard to other ABM systems, suppose that the draft treaty on limiting ABM systems had a provision on limiting systems other than those now known which use interceptors and launchers. What would result from such a provision? Undoubtedly, such a provision would create the grounds for endless arguments, uncertainties, and suspicions ... He asked if the sides could in working out a draft ABM Treaty advocate such a situation. He also asked if the goal of the two Delegations isn't just the opposite, that is, to reach agreement on limiting known ABM systems referred to in Article III of the draft ABM Treaty. Certainly such limitations on known ABM systems constitute a factor for relaxing international tension and curbing the race in strategic arms and limiting them. Such a responsible international document as a treaty on limiting ABMs must be precise as to the subject of the agreement to the maximum extent possible. This would ensure the viability of a treaty which has an important bearing on the national security of the sides.

Minister Semenov said that the Soviet Delegation has repeatedly asked what the U.S. side has in mind specifically under other ABM systems. This question has never been answered. He asked how then could an ABM treaty include a provision about whose content the sides do not have the vaguest notion? ... Could the sides include in an ABM Treaty the unknown without risk of making the treaty indefinite and amorphous? On December 10 the Soviet side had already noted the importance of avoiding the temptation to go beyond the scope of our negotiations. We should ask ourselves the question: By including other systems in an ABM Treaty, would we not be placing ourselves in the position that the people refer to in the saying "Go I know not where, bring I know not what?" The sides cannot and must not engage in discussion of questions not known to anyone. The task faced by the two sides is to erect reliable barriers against deployment of known ABM components in excess of the levels defined by the ABM Treaty. At the same time, the sides undertake obligations not to create a territorial ABM system and to limit ABM deployments around capitals by the limitations contained in the draft treaty.

Minister Semenov then asked what would be done if something appears in the future that the sides should talk about. He believed that the draft ABM Treaty envisaged provisions on this score. Both sides recognize that the Treaty on limiting ABMs would be of unlimited duration. This does not preclude the possibility of supplementary and regular review when the need arises. Articles XIII and XIV, which are preliminarily agreed to, provide for such review. If it should appear necessary to supplement the ABM Treaty by a provision prohibiting or limiting other ABM components in addition to those now known, this can be done in accordance with the procedures provided for in the provision on review.

Memorandum of Conversation -- A-672
12:30-1:00 p.m., 20 December 1971, Soviet Embassy, Vienna
U.S. Participants: Smith, Krimer (interpreter)
Soviet Participants: Semenov, Artemiev (interpreter)
Subject: Smith-Semenov Post Mini-Plenary Conversation

On the future systems problem, Smith said it seemed to us that the problem was not so far off and not so amorphous as Semenov had suggested this morning. In his statement this morning Semenov had said that he had not been precise enough; however, if he would read Dr. Brown's statement of today carefully, he would find that one example given had referred to lasers. Smith was sure that Soviet scientists could also think of some other possible future systems.... In the matter of future ABM systems, which had not yet been developed, it was in the interests of both countries to outlaw them before they were born.

A-624, 20 December 1971

*[Brown explained in a formal statement that the U.S. position sought to prevent the limits of Article III from being undermined through, for example, a wide-area defense, a thick regional defense, or the use of substitute components. Of particular importance is Brown's argument that, although substitute devices could conceivably perform the tasks of regulated components more effectively,] their use, not specifically prohibited by Article III, might be in numbers and locations beyond those prescribed by Article III, and thus circumvent that Article. [Also, he noted,] a single future device substituting for an interceptor and launcher might in effect make many intercepts [and thus achieve a result contrary to that sought by the numerical limits of Article III. At the time, the Soviet draft of Article III prohibited the deployment of "the ABM systems or their components listed in Article II of the Treaty" outside of certain geographic locations.]*⁹⁸⁷

Memorandum of Conversation – A-677

1:40-3:50 p.m., 20 December 1971, Franziskaner Restaurant, Vienna

U.S. Participants: Parsons, Garthoff

Soviet Participants: Grinevsky, Kishilov

Article II of the ABM JDT

Following the mini-plenary meeting earlier that day, Garthoff had given Grinevsky a revised draft Article II ... Grinevsky noted that there were problems remaining....

Grinevsky stated that the second problem was the absence of a connective between the sub-paragraph defining ABM systems, and the three sub-paragraphs following which defined components. His Delegation strongly believed that there should be some connective such as "namely" or "consisting of". Garthoff stated that the American side did not consider that a connective of this kind was either necessary or desirable. If, however, there were to be one, it should be precise. Therefore, he suggested, we might consider use of the phrase "currently consisting of" as a connective. This was clearly a new thought to Grinevsky and Kishilov and they appeared uncertain of the reaction of their side. Garthoff noted that the Soviet side, as well as the American, recognized that their [sic] could be future systems, and while the question of constraints on future systems would be settled elsewhere than in Article II, the correct way of indicating a valid connection between components and systems in Article II would be to include the word "currently". Grinevsky agreed to take up this possibility with his Delegation.

Article V of the ABM JDT

Grinevsky raised the question of dealing with future ABM systems through statements on the record concerning consultation prior to deployment in the Standing Commission. Garthoff noted that the suggestion which he had advanced in this respect was for an agreed minute; formal plenary statements might be used, but in any case there must be a clear agreed mutual understanding that, prior to any deployment of future systems and components, there would be consultation and agreement in the Standing Consultative Commission. Grinevsky acknowledged this, and said that perhaps an agreed minute could be used. He did remark that there might be some question about the precise action to be taken through the Standing Commission. Garthoff again noted that his suggestion was for consultation and agreement prior to any such deployment. Grinevsky said that it was necessary to think further about this matter, but that the approach suggested was of interest.

Memorandum of Conversation – A-678

12:30-2:30 and 5:00-7:00 p.m., 21 December 1971,

U.S. and Soviet Embassies, Vienna

U.S. Participants: Parsons, Garthoff

Soviet Participants: Grinevsky, Kishilov

[/T]he Soviets presented a revised version of Article II in which they accepted Garthoff's language ["currently

consisting of"]].⁹⁸⁸

Article V of the ABM JDT

Grinevsky asked if the American side had proposed language for the suggested separate agreed understanding on future ABM systems. Garthoff said he could provide an illustrative draft statement, couched in the form of a statement by the US Delegation and incorporating the draft of an Agreed Minute. He was providing this language at Soviet request for consideration by both Delegations as a possible solution to the impasse over the American proposal for a third paragraph in Article V. (See attachment)

In the later session, Grinevsky and Kishilov said that the Soviet side would continue to study this possible approach for dealing with future ABM systems. In conjunction with discussion (described below) of a possible Agreed Minute in connection with Article IX, Grinevsky asked if the US side was prepared to do the same for Article V and Article VI. Garthoff noted that an agreed text of such a supplementary understanding had been reached with respect to Article IX, and if the Soviet side was prepared to accept the language proposed earlier that day, we were prepared to delete Article V(3) on an *ad referendum* basis. Grinevsky, however, said that the Soviet side needed to study this matter further, and it was left there.

Attachment

The Soviet Delegation has said on several occasions that it is opposed to the proposal by the United States to include a provision in the ABM agreement prohibiting ABM systems in the future which would use devices other than ABM interceptor missiles, ABM launchers, or ABM radars to perform the functions of those components. In order to contribute to negotiating progress, while maintaining our basic position on this matter, the U.S. side is willing to drop Article V(3) if there is a clear agreed understanding as part of the negotiating record. An Agreed Minute could read as follows:

The Parties agree that the deployment limitations undertaken in Article I and Article III are not to be circumvented by deployment of components other than ABM interceptor missiles, ABM launchers, or ABM radars, for countering ballistic missiles in flight trajectory. They agree that if such components are developed and the question of deployment arises, neither side will initiate such deployment without prior consultation and agreement in the Standing Consultative Commission.

21 December 1971

[Semenov ... rejected the regulation of future systems, but this time his remarks stressed] that inclusion of a provision on so-called "other ABM systems" in the text of a treaty limiting ABM systems is not acceptable
....⁹⁸⁹

⁹⁸⁸ *Id.*, at 44.

⁹⁸⁹ *Id.*, at 53.

US/USSR "TROIKA" MEETING No. 2 – A-706**11:00 a.m., 11 January 1972, Soviet Embassy, Vienna****U.S. Participants: Smith, Farley, Nitze, Allison,
Garthoff, Krimer (interpreter)****Soviet Participants: Semenov, Shchukin, Trusov, Kishilov,
Bratchikov (interpreter)**

Shchukin said that the Soviet Delegation had repeatedly stated its position concerning the paragraph 3 of Article V proposed by the U.S. side. This dealt with so-called "other systems". The Soviet side continues to believe that only quite specific ABM system components of which each side had a clear idea could be included in an ABM Treaty. Any attempt to include unknown matters in such a treaty were bound to lead to misunderstandings, arguments and suspicion The Soviet side has already said that in the event some concrete questions arose in this regard, they could be the subject of discussion in accordance with Article XIII of the joint draft text of the ABM treaty. For this reason the Soviet Delegation continues to consider this point "not suitable" for inclusion in the draft ABM treaty we were negotiating.

Semenov said that ... on the question of other systems discussed by Shchukin, the Soviet side would not object to turning it over for discussion in special working group and other exchanges.

Ambassador Smith said ... [i]f he had understood General Trusov correctly, he had said that restraints on other large phased-array radars were superfluous because under the general obligations of the treaty one could not deploy such radars for ABM use....

Nitze said he had understood from Shchukin's remarks that he believed that if ABM components other than radars, interceptors and launchers were developed, they could appropriately be the subject of consultations under Article XIII. However, if such components were developed and could, in fact, be developed in a manner to circumvent the specific limitations of Article III of the treaty, would it not be appropriate that they also be subject to agreement between our Governments?

*[Shchukin reiterated that Article V(3) was "not suitable" for inclusion in the Treaty.]*⁹⁹⁰

⁹⁹⁰ *Id.*, at 56, citing USDEL SALT 1165.

Memorandum of Conversation -- A-710

1:20-3:30 p.m., 11 January 1972, Drei Husaren Restaurant, Vienna

U.S. Participants: Parsons, Garthoff

Soviet Participants: Grinevsky, Kishilov

Future ABM Systems

A substantial portion of the discussion was devoted to the issue of future ABM systems. Kishilov, whom Garthoff had advised earlier that day that the US side might wish to make some changes in the formulation provided in December, pressed on what these changes would be. He asked if Garthoff had a new text. The latter replied in the negative. Kishilov then produced a text from his pocket, which on quick inspection turned out to be a Soviet translation of the language which Garthoff had provided in mid-December.... Grinevsky then suggested a "simplified" approach The gist of Grinevsky's suggestion was that if the occasion should arise to consider such other systems, they could be considered in the Standing Consultative Commission Garthoff asked what would happen if such consultation did not lead to an agreed conclusion. Would a party, wishing to deploy such a system, be able to do so or not? Grinevsky said that was a question which did not need to be asked, that the whole question was at present hypothetical. Garthoff said that such systems might at present be hypothetical, but the treaty as a whole either would or would not allow a party to deploy some presently unidentified ABM system or component at a future time if the matter were not resolved through consultation. Grinevsky said that it could do so, and that the other side always had the recourse of "Article XV" (withdrawal). Garthoff and Parsons noted that withdrawal would be a rather severe action, and while always available as a last resort, should not be relied upon as a solution to a problem which could be resolved in other ways. Garthoff suggested that instead of relying on Article XV, reliance should be placed on Article XIV (amendment)....

Grinevsky said that the treaty referred to ABM systems, which were defined in Article II. It could not deal with unknown other systems. Garthoff challenged this interpretation on two grounds: first, the treaty dealt not only with ABM systems comprising components identified in Article II, but all ABM systems; second, the issue did not concern "other" systems, but rather future ABM systems. He asked Grinevsky whether in the light of Articles I, II, and III, Grinevsky considered that a party would have the right -- assuming consultations were held and did not lead to agreement -- to deploy all around the country, say, a thousand stations for firing anti-ballistic missile laser interceptor beams. Grinevsky said no, it would not have such a right. But, he continued, it should be able to place "telescopes". Garthoff asked if he meant sensors which could serve the role played by ABM radars, and Grinevsky replied that was part of the problem. Also, "other" systems might or might not be for ABM purposes, but the US wanted to have a veto over them. Garthoff remarked that he had noted that morning constant Soviet reference to "other" systems rather than "future" systems. But the two issues should not be confused. If there were a question as to whether some system was in fact an ABM system or component or not, that would clearly be a subject for consultation, and if there were a serious divergence perhaps there would be a need for recourse to withdrawal, as Grinevsky had suggested. However, what Garthoff was referring to -- and what the US was particularly concerned about -- was precisely ABM systems and components of some new kind in the future. Garthoff repeated his reference to laser ABM interceptors as an example. In a side conversation, Grinevsky indicated to Parsons his own understanding of our concern, but implied that other (presumably military) members of his Delegation were unyielding, and in any case it was not an actual problem at this time.

In a briefer separate conversation, Kishilov conceded that Articles I, II, and III together would ban future ABM systems or components. (Comment: The confusion and discrepancy between the Soviet participants over interpretation of the effect of Article I, II, and III of the draft ABM Treaty with respect to future ABM systems, and over possible solutions, seem to indicate absence of a clear and thought-through position on this part of the Soviet Delegation at the present time.)

Garthoff emphasized, and Parsons concurred, that it was essential to establish a common understanding between the two Delegations with respect to the effect of Articles I, II, and III on future ABM systems, and to reach agreement on a position concerning this subject....

US/USSR MINI-PLenary MEETING No. 14 – A-717

11:00 a.m., 14 January 1972, U.S. Embassy, Vienna

U.S. Participants: Smith, Farley, Parsons, Nitze, Allison, Garthoff
FitzGerald – DeSimone and Krimer (interpreters)

Soviet Participants: Semenov, Shchukin, Trusov, Grinevsky, Kishilov, Surikov
Baranovsky – Bratchikov and Klyukin (interpreters)

Academician Shchukin said he had a very brief comment to make. At the January 11 meeting, Mr. Nitze had asked the question whether so-called "other ABM means" would be a subject not only for appropriate consultation but also for agreement. Both sides agree that they should assume obligations not to deploy ABM systems except as provided in Article III of the draft ABM Treaty. In order to insure implementation of this provision of the Treaty, the sides could, in the event of the emergence of ABM systems constructed on the basis of other physical principles, further discuss the question of their limitation in accordance with Articles XIII and XIV of the draft ABM Treaty.

Memorandum of Conversation – A-713

12:15-1:15 p.m., 14 January 1972, U.S. Embassy, Vienna

U.S. Participants: Farley, Nitze

Soviet Participant: Shchukin

I [Nitze] said it might be helpful if he [Shchukin] could discuss further his last statement at today's session; I had said I thought it was clear but wanted to be sure. I said that as I understood it, he was saying that under Article III and in the light of Article I, ABM systems could not be deployed except as provided by Article III. Shchukin interjected "and also in the light of Article II." I went on to say "and therefore, if new systems reached a stage where they could be deployed, they would be the subject of appropriate action under Articles XIII and XIV." Shchukin said that was right; he pointed out, however, that this did not prohibit the deployment of a telescope, for instance, in support of a radar. He was not sure that deploying a telescope would provide any benefit because of weather problems, but there were some who had an opposite view. Deployment of such a telescope would clearly not substitute for a radar. He went on to say that lasers could perhaps have some additive function in detecting or tracking, but in his opinion, could not substitute for a radar. He said he was not a laser expert, but had gone through the basic computations and had come to the conclusion that the power required to project a radar beam capable of melting an RV at appropriate distances was so immense as to be beyond any foreseeable practical technology.

Memorandum of Conversation -- A-714
12:15-1:30 p.m., 14 January 1972, U.S. Embassy, Vienna
U.S. Participants: Allison, FitzGerald, DeSimone
Soviet Participants: Trusov, Surikov, Baranovsky

Future Systems

I asked Trusov if he could repeat, so that I could be sure of understanding, Academician Shchukin's miniplenary statement concerning future ABM systems. Trusov affirmed the Soviet position that it is premature to discuss limiting systems which are now nonexistent, and that if and when such systems appear their limitation would be subject to discussion under the provisions of Articles XIII and XIV of the Draft ABM Treaty.

Memorandum of Conversation -- A-716
12:15-1:30 p.m., 14 January 1972, U.S. Embassy, Vienna
U.S. Participants: Parsons, Garthoff
Soviet Participants: Grinevsky, Kishilov

On the question of future ABM systems, Kishilov asked Garthoff if he had revised the American proposed language for an agreed understanding. When Garthoff said he did not, Grinevsky produced a Soviet draft, based closely upon (but not identical with) the statement made in the meeting that morning by Academician Shchukin. The statement read:

With a view to ensuring the implementation of the provisions contained in Articles I and III of the Treaty on the limitation of ABM systems, the Parties agree that in the event of the emergence of ABM systems based on other principles questions of their limitation may be discussed further in accordance with Articles XIII and XIV of the ABM Treaty.

Garthoff and Parsons said they thought this suggestion was helpful....

A-731, 20 January 1972

Joint Draft Text of 20 January 1972:

[Article II:]

1. For the purposes of this Treaty an ABM system is a system to counter strategic ballistic missiles or their elements in flight trajectory, currently consisting of: ...

Memorandum of Conversation – A-743
1:00-3:45 p.m., 26 January 1972, Stadtkrug Restaurant, Vienna
U.S. Participants: Parsons, Garthoff
Soviet Participants: Grinevsky, Kishilov

Future ABM Systems

Grinevsky then asked about the subject of "other" or future ABM systems.... Garthoff then asked if the Soviet participants had a response to the most recent American suggestions, made on January 21 in response to the Soviet proposal of that date. Kishilov then produced a draft statement, accepting all but one of the earlier American suggestions.... Garthoff then said that he also had a new text to present, one which was in most respects identical to the one which Kishilov and Grinevsky had just provided, but that it did include a few changes from the earlier American proposals.... Third was the addition for clarification of a clause reading "to perform the functions of ABM interceptor missiles, ABM launchers or ABM radars," as a penultimate clause.... Grinevsky ... could not ... agree to ... [this] newly proposed addition, and asked why it had been advanced. Garthoff explained that it was intended to make more precise the intention of the sentence, which he believed both sides shared, that we were talking about future system components which might take the place of ABM interceptor missiles, ABM launchers or ABM radars. He recalled Grinevsky's earlier reference to telescopes supplementing but not supplanting radars, and noted that we believed this additional language would help make more clear that additional elements of such kinds were not the subject of the sentence. Grinevsky said that he now understood, but could state definitely that his Delegation would not wish to make such an addition to the sentence. The American side evidently had not considered such an addition necessary when it provided the earlier formulation, and the Soviet side did not consider it necessary. He noted that the sentence already makes clear that reference is to future ABM system components other than the three indicated in the sentence and in Article II of the treaty. Article II made clear that these are the three components currently comprising ABM systems, and the language under discussion made clear that it was referring to precisely such system components other than the three current ones which were listed. He strongly urged that the American side not pursue this proposed addition. He also commented that his side had now accepted the earlier American formulation completely, and in fact had accepted the American position on the subject entirely, save only that it would be a jointly agreed interpretation rather than a paragraph in the treaty. Garthoff and Parsons agreed to report that fact to the American Delegation, and to seek agreement on the basis proposed. (The text of the agreed formulation is attached as Attachment 1.)

Attachment 1

Agreed Interpretive Statement on Future ABM Systems

In order to insure fulfillment of the obligation not to deploy ABM system components except as provided in Article III of the Treaty, it is agreed that in the event ABM system components other than ABM interceptor missiles, ABM launchers, or ABM radars are created in the future, specific limitations on such system components would be subject to discussion in accordance with Article XIII and agreement in accordance with Article XIV of the Treaty.

Memorandum of Conversation – A-763
4:30-5:15 p.m., 31 January 1972, U.S. Embassy, Vienna
U.S. Participant: Garthoff
Soviet Participants: Grinevsky, Kishilov

Future ABM Systems

I asked if the Soviet side had anything new to suggest on this problem.... I suggested that perhaps we needed a fresh approach, first survey the problem and see if we agreed on the substance of the matter – which I believed we did – and then find appropriate language to express this agreed position. (see attachment 2 for talking points I used.) Grinevsky saw that I was speaking from prepared notes, and seemed interested. I thereupon gave him a copy noting that this was not a formal transmittal from my Delegation, but if it would help him to see precisely what I was saying, I would be happy to give him a copy of the notes. After reading the talking points, Grinevsky said that he believed there was complete agreement. I thereupon gave him a text of a new proposed formulation, based on the chain of thought expressed in the talking points (see attachment 3)....

Grinevsky and Kishilov agreed to report the new language to their Delegation, and to present arguments for it and the gist of the talking points.

Attachment 2 – Statement on 'Future ABM Systems' ("The Talking Points")

It is understood that both sides agree that:

1. ABM systems and their components, as defined in Article II, should not be deployed except as provided for in Article III.
2. The deployment of ABM system components other than ABM interceptor missiles, launchers, or radars to perform the functions of those components is banned.
3. Devices other than ABM interceptor missiles, ABM launchers, or ABM radars could be used as adjuncts to an ABM system provided that the devices could not perform the functions of and substitute for ABM interceptor missiles, ABM launchers, or ABM radars. For example, a telescope could be deployed as an adjunct to an ABM system, whereas a laser for performing the function of an interceptor missile by rendering ineffective a strategic ballistic missile in flight trajectory could not be deployed.
4. Article III should be drafted so as not to permit the deployment of devices other than ABM interceptor missiles, ABM launchers, or ABM radars to substitute for and perform their functions.
5. If such devices are created in the future, their deployment could be provided for by limitations subject to discussion in accordance with Article XIII and agreement in accordance with Article XIV.

Attachment 3

[The U.S. proposal provided] that in the event other devices capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars are created in the future, their deployment would be subject to discussion in accordance with Article XIII and agreement in accordance with Article XIV of the Treaty.⁹⁹¹

Memorandum of Conversation -- A-766

11:05-11:50 a.m., 1 February 1972, Soviet Embassy, Vienna

U.S. Participants: Allison, DeSimone

Soviet Participants: Trusov, Pleshakov (part-time), Chesnakov

Subject: SALT: ABM Levels, Radar Limitations, Future Systems

I brought up the matter of future ABM systems as another possible problem in this category [*of remaining issues that could easily be resolved*],⁹⁹² noting the recent discussions concerning an agreed interpretive statement on the subject. I said I thought we could agree on this matter if each side understood what the other had in mind, and asked Trusov if he agreed with me. He said that we had understood one another earlier but now seemed to disagree because of a word problem, and went on to speak at some length about the changing terminology in the future systems paragraph. He dwelt primarily on the subjects of "systems", "components", and "devices." I observed that both sides have had a clear understanding for some time that within the context of our negotiations when we speak of an ABM system we are referring to a system made up of three components -- ABM launchers, ABM interceptor missiles, and ABM radars. We also appear to agree that substituting a different component for one of these three in the future would result in what we refer to as a "future" or "other" ABM system. It seems, I said, that with that understanding our Delegations should be able to agree on a set of words for the interpretive statement. Trusov agreed with my observation and said that the same words -- "other systems and their components" -- should be used consistently, since that was a clear expression of what was meant, as well as the wording in which the question had originally been raised.

Memorandum of Conversation

11:05 a.m.-12:50 p.m., 1 February 1972, Soviet Embassy, Vienna

U.S. Participant: Nitze Soviet Participant: Shchukin

Shchukin said that what he particularly wanted to talk to me about was the question of future systems. He felt that could and should be resolved prior to the time we leave Vienna. He said that concern had arisen in their Delegation because of the fact that we refuse to include language referring to "systems" and insisted upon restricting the language to cover only "components." He said that this appeared to raise the "telescope issue" which we had discussed with Harold Brown. I said I thought that concern was covered by our proposed phrase "substitute for." He asked why we opposed reference to "systems."

991 *Id.*, at 61.992 *Id.*, at 35.

I said that I did not believe that there was any substantive difference between the positions of the two sides. It seemed to me to be most likely that if something new were to become possible in the future, that this would be of such a nature as to substitute for either launchers or interceptors or radars, but not for all three. Shchukin said he thought there were only two categories involved; one was interceptor/launchers, the other radars. He could not conceive of a system which would substitute for a launcher and not substitute for an interceptor as well. He said that if a new system were developed which could substitute either for radars or for interceptor/launchers, this would be a new system and, as such, subject to Articles XIII and XIV.

I said my concern sprang from different grounds. As I understood it, the word "system" in Russian usage conveyed the thought of the entire panoply of elements deployed to counter ballistic missiles or their components in flight trajectory. It seemed to me that the language which they had proposed would not necessarily cover a situation where the "system" in this sense comprised radars, interceptor/launchers and new elements which might substitute for certain of the interceptor/launchers or radars.

Shchukin said he understood the point. He asked whether the following sentence did not correctly express what we meant: "If the system contains elements which could substitute for either ABM radars or ABM interceptor/launchers, the system would be a new system subject to Articles XIII and XIV." I said that to my mind, this would correctly record our understanding; but it would be necessary for me to discuss it with my Delegation. He said that he would wish to do the same.

Memorandum of Conversation – A-769
11:15-11:45 a.m., 1 February 1972, Soviet Embassy, Vienna
U.S. Participants: Parsons, Garthoff
Soviet Participants: Grinevsky, Kishilov

Future ABM Systems

Grinevsky said that the Soviet Delegation had found interesting and helpful the 5 points given by Garthoff. However, they did not see a need to move so drastically from the previous text, which had been agreed except for a few words, and did not feel that the latest US draft proposal was as good.

All four participants then addressed the several texts in an effort to find a compromise. Garthoff suggested a possible solution, and Grinevsky and Kishilov agreed to propose it to their Delegation. Grinevsky and Garthoff each had a considerably marked up paper indicating the change, but Garthoff agreed to provide a clean typed text to the Soviet Embassy that afternoon....

(Note: a few hours later, Grinevsky called to say that he believed his Delegation could accept the proposal if the words "based on other physical principles and" were included before the phrase "including components". Garthoff replied that he saw no objection of substance, but considered that this change would make the sentence even more ungainly. Grinevsky nonetheless argued that inclusion of those words would be necessary to gain the agreement of his Delegation, and Garthoff agreed to propose this formulation to his Delegation. Kishilov called later, and Garthoff informed him that the American Delegation could accept the revised formulation Kishilov said that not all members of their Delegation were there, and he could not give a definite answer that day, but he and Grinevsky were 90% sure that the new formulation would be acceptable.)

2 February 1972

[The parties finally reached agreement on February 2 on a formulation for what became Agreed Statement D.]⁹⁹³

A-776, 3 February 1972

[When the parties confirmed their acceptance of Agreed Statement D on February 3, 1972, they did so by noting their agreement] concerning Article V of the Joint Draft Text of an ABM Treaty.⁹⁹⁴

A-782a, 3 February 1972

[Ambassador Smith said:] The sides have agreed *ad referendum* to Delegations on an interpretation of how the provisions of the ABM Treaty would apply to ABM systems and their components based on possible future technologies.⁹⁹⁵

Negotiations in Vienna (the sixth round) were adjourned on 4 February 1972.

A-838, 11 April 1972

Attachment 2

[Lead-in language of new U.S. proposed Article III:]

Each Party undertakes not to deploy ABM systems or their components except that each Party may deploy ABM interceptor missiles, ABM launchers, and ABM radars within

⁹⁹³ *Id.*, at 62.

⁹⁹⁴ *Ibid.*

⁹⁹⁵ *Id.*, at 63.

⁹⁹⁶ *Id.*, at 69.

.... 996

Attachment 4

[When the Soviets tabled a new Draft ABM Treaty on April 11, 1972, they entitled what became Agreed Statement D] "DRAFT JOINT STATEMENT OF THE DELEGATIONS REGARDING ARTICLE V OF THE ABM TREATY."⁹⁹⁷

A-872, 26 April 1972

[On April 26, 1972, Grinevsky asked the purpose of the changed format [i.e. the new U.S. Article III tabled on 11 April], noting that it was longer than the Soviet version, and that it could simply refer to Article II instead of listing all three components. Garthoff explained that the draft had two elements:] an undertaking not to deploy ABM systems or components except as specified, and then specification of the components listed in Article II. [He said if brevity was important the shortest formulation would omit the reference to Article II and simply read:] "Each Party undertakes not to deploy ABM systems or ABM components except as follows:" [After discussion, Grinevsky] suddenly exclaimed that he now understood the difference between the two formulations, and what the American approach entailed.⁹⁹⁸

A-873, 28 April 1972

[The Soviets agreed to the U.S. approach [to Article III] in principle on April 28. At that time ... Grinevsky thought the Soviets could agree to the shorter formulation discussed on April 26,] the one which omitted reference to Article II. [Parsons asked if he understood correctly that the Soviets] could probably agree to a formulation undertaking not to deploy ABM systems or their components except as the Article would provide. Grinevsky said that they could, as this would ban "other systems."⁹⁹⁹

12 May 1972

[The text of Article III was ... agreed to ... [on] May 12, 1972.]¹⁰⁰⁰

⁹⁹⁷ *Id.*, at 63.

⁹⁹⁸ *Id.*, at 70.

⁹⁹⁹ *Id.*, at 71.

¹⁰⁰⁰ *Nunn Report -- Part 4, supra*, note 448, at 105.

APPENDIX 10

THE MEANING OF "ABM SYSTEMS AND COMPONENTS": AN ANALYSIS OF THE U.S. ABM TREATY NEGOTIATING RECORD AND THE OPINIONS OF U.S. SALT I NEGOTIATORS

A10.1 Analysis of the Declassified Portion of the U.S. ABM Treaty Negotiating Record

A10.1.1 Introduction

The following is an analysis of the written U.S. records of the ABM Treaty negotiations in terms of their tendency to support or refute the permissive and restrictive interpretations of the ABM Treaty term "ABM systems and components." Footnote references to documents are by document number only. For example, U.S. SALT Document A-503 is referred to simply as A-503. Some documents do not have known identification numbers. These are cited instead by the name of the meeting, e.g. Tenth Mini-Plenary. Reporting cables to Washington from the U.S. Delegation are cited as follows: U.S. DEL 1056. Relevant excerpts of all cited or quoted SALT Documents are reproduced in chronological (but not necessarily numerical) order in Appendix 9.

A10.1.2 Withdrawal of Early U.S. Proposal Expressly Prohibiting Mobile Development and Testing of "Other Devices to Perform the Functions of" Traditional ABM Components

Judge Sofaer finds great significance in the fact that (a) at one point in the negotiations the U.S. proposed language that would have explicitly banned the development and testing of exotic ABM components¹⁰⁰¹ and (b) this express language was rejected by the Soviets on several occasions in August and September of 1971 and eventually deleted from Article V(1).¹⁰⁰² However, just because an express provision was

¹⁰⁰¹ That provision, part of a U.S. Draft Agreement of 17 August 1971, read as follows:

Article 6:

1. Each Party undertakes not to deploy ABM systems using devices other than ABM interceptor missiles, ABM launchers, or ABM radars to perform the functions of these components.
2. Each Party undertakes not to develop or produce for or test or deploy in sea-based, air-based, space-based, or mobile land-based modes,
 - ABM interceptor missiles,
 - ABM launchers,
 - ABM radars, or
 - *other devices to perform the functions of these components.*

(1987 Legal Advisor's Report, Part I, *supra*, note 204, at 19, citing A-408; emphasis added)

¹⁰⁰² *Id.*, at 4-5; See also "The ABM Treaty and the SDI", *supra*, note 208, at 1980:

Former negotiators who now advocate the restrictive view have stressed that their instructions called for a ban on all future mobile devices -- which is uncontested -- but have not denied that they failed to obtain the clear language that they sought.

dropped early in the negotiations does not mean that agreement to the same effect was not reached and given effect *implicitly* in different words. The written record indicates that this is what happened.

The Legal Advisor, however, ignores this possibility. He seems to imply that the Soviets must have assumed that the U.S., by dropping her insistence on express reference to "other devices," was agreeing that Article V(1) would not cover exotic ABMs. In support of this view, he asserts that Ambassador Smith had earlier said that

the Treaty *must* "explicitly" apply to substitute devices and had expressly recognized the danger of ending up with a Treaty that regulated only conventional [i.e. traditional ABM] components.¹⁰⁰³

This is not convincing. First, Ambassador Smith had said that the Treaty "should" reflect explicitly that it applied to exotic ABMs, not that it "must" do so.¹⁰⁰⁴ Second, just because express coverage was the U.S. Delegation's stated goal, this does not mean that it was precluded from seeking and accepting language that covered exotics implicitly. The fact that Ambassador Smith had "expressly recognized the danger of ending up with a Treaty that regulated only conventional components" makes it more, not less, likely that he would seek *implicit* coverage before agreeing to *no* coverage. Third, there are indications that the Soviets opposed the "other devices" language because of its possible inclusion of non-ABM weapons such as SAMs.

The Legal Advisor also notes that the language proposed by the Soviets for Article V(1) on 15 September 1971 "failed ... to establish that the Soviets intended to include within the coverage of Article V(1) OPP devices that could substitute for conventional [traditional] components."¹⁰⁰⁵ This draft applied the mobile prohibition to "ABM systems and their components thereof."¹⁰⁰⁶ This being the case, the formulation was neutral as to the coverage of exotics. That depended upon what "ABM systems and components" was understood to include.

A10.1.3 Soviet "Principled Opposition" to Regulation of the Unknown

A10.1.3.1 Introduction

The U.S. tabled a version of her Article 6 (Article V in the final Treaty text) on 17 August 1971. It introduced the idea of limiting exotic ABM systems. Between 31 August 1971 and 14 January 1972, the Soviets argued several times that it was improper to limit exotic ABM systems in an international treaty because they were too imperfectly understood to define with sufficient precision. This would lead, they argued, to uncertainty and disagreement about what constituted an ABM system, inviting compliance controversies in the future.

¹⁰⁰³ 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 75-6; emphasis added.

¹⁰⁰⁴ A-408.

¹⁰⁰⁵ 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 5.

¹⁰⁰⁶ A-743.

A10.1.3.2 Review of Soviet Statements Professing Principled Opposition

The first such remark came from Trusov on 31 August 1971. He

said that he did not consider it reasonable or necessary to include a provision covering what he called undefined ideas, maintaining that the provision in both the U.S. and Soviet drafts for review and amendment would be sufficient. He said that development, testing and deployment of such future systems would be observed by our national means of verification and the review process could take care of the necessary prohibition or limitation. He went on to say that a provision of the kind which the U.S. side has proposed would add an undesirable element of vagueness to our ABM agreement.¹⁰⁰⁷

On 3 September 1971, Trusov stated, in reference to exotic ABMs, that

[i]f such systems exist, then they should be named and the subject would be made more clear and could become the subject of further discussion. The U.S. side's objective in including a paragraph in Article 6 to provide obligations not to deploy ABM systems, including future systems, which use components other than ABM launchers, interceptors and radars, i[s] not clear. What is, in fact, involved is conjectural systems, i.e., some possible future systems not now known to anybody. So far, the sides have been discussing limitations on concrete existing systems or systems whose reality is adequately known for the future and can be clearly defined in an agreement. Now the U.S. side proposes to include in a draft treaty limitations on the deployment of such systems or components not known to anybody. The Soviet side does not believe that it is correct to include such limitations. Such a provision in a treaty could have reference to something that is amorphous and not subject to a clear determination of what is to be limited. Both sides are equally interested in the viability of an agreement to limit ABM systems. However, Para 1 of Article 6 acts in the opposite direction ... and gives rise to unnecessary misunderstandings.

As regards Ambassador Smith's comments on the Seabeds Treaty and the Space Treaty, this is a somewhat irrelevant analogy. The obligations assumed in those treaties referred to actually existing systems. It was clear what systems were involved. Para 1 of Article 6 speaks about possible future systems which are completely conjectural. Therefore, inclusion of Para 1 of Article 6 is not necessary.¹⁰⁰⁸

On 8 September 1971,

Col. Fedenko repeated the arguments Mr. Karpov had made in favor of excluding paragraph 1 of U.S. Article 6.... [I]f ABM means different from those presently known – for example, some new power source, or source of light, or some new searchlight (*prozhektor*), ... should be detected by national means, the problem could be examined in the Standing Commission ... He concluded that ... "other means" should be identified if they are known at the present time.¹⁰⁰⁹

¹⁰⁰⁷ A-442.

¹⁰⁰⁸ Tenth Mini-Plenary.

¹⁰⁰⁹ A-481.

At another meeting that day,

[Karpov remarked] that the burden of proof lies with the side making the proposal, [and asked Graybeal to] clarify why the language of Article 6 had been chosen and what it was intended to do.¹⁰¹⁰

Later in this same meeting, Karpov

addressed the formulas used to identify systems limited under paragraph 1 of the U.S. Article 6.... He believed that the subject matter of this provision was outlined in such an unclear manner, in terms of legal science, that it could not be accepted. He said that if the U.S. side believes that such systems exist in reality, then it should identify and name them so that the possibilities to limit them could become clear.... [T]he agreement cannot be amorphous with regard to the subject matter of the means to be limited. He believed it was wrong to limit means not known to anyone. Up to now, he noted, the subject of our discussions was limitations on concrete and specific ABM systems, on ABM systems which might exist and could be verified by national means. He believed that we should adhere to this subject in the future too. He said that he could not agree to an approach designed to prevent deployment in the future of certain systems when the systems to be limited are undefined. He recognized that in the future, questions may arise about ABM systems which are not covered in this Agreement or Treaty. He noted that appropriate procedures for handling these questions are envisaged in both the USSR and U.S. draft texts....

After a reply from Graybeal, Karpov said that if there were

no clear-cut definition as to what would be limited by paragraph 1 of U.S. Article 6, then in the future there would remain a vast field for disagreement and doubt.... Since the purpose of the Treaty is to limit ABM systems, the question of future systems would be a matter for the Standing Commission. Without a precise definition in the Treaty ... as to what would be covered by the obligations of the sides, he did not believe it possible to include the present form of paragraph 1 of the U.S. Article 6 in the ... Treaty ...

Graybeal then asked whether "it is the intent of the Soviet side to limit ABM systems or just to limit present ABM systems." Karpov replied that he

believed that our intent is to limit ABM systems and that we have a mutual understanding between ourselves on that score. The difference is in our approach -- how to do it in the most effective way and, at the same time, to guarantee the two sides that the agreement would be complied with. He could not imagine how an agreement could bring the two sides closer together if it dealt with systems which could not be clearly defined. He said that the subject of an agreement is determined by at least three elements: the presence of physical or legal entities entering into the agreement, the subject matter of agreement, and the guarantees of compliance with the obligations. He could admit the existence of an agreement without guarantees, but not without the first two elements. The U.S. draft, he said, contains no legal definition of what it deals with. He did not agree with the definitions in the U.S. Article 2. On the other hand, he said, Article 2 of the Soviet draft gives a clear-cut definition of ABM systems; namely, "The means specially constructed and deployed to counter strategic missiles and their components in flight trajectory." This definition would enable one fully to verify by national means compliance with an agreement. It is essential that an agreement

¹⁰¹⁰ A-540.

include a precise definition of the means to be covered by the obligations. He wished to note also that paragraph 1 of Article 6 in its present form could not promote the U.S. intent of precluding possible misunderstandings in the future. This paragraph did not make it possible for national means of verification to determine clearly if systems are ABM systems or not, and, since paragraph 1 would be an integral part of the ... Treaty, compliance with the entire Treaty would be questioned. He asked if it would not be better for us to refer the questions of future systems to the Standing Commission. He thought that this would be the most rational approach to limiting those ABM systems which cannot be defined in technical or legal terms.

[Later, Karpov] expressed the belief that both sides recognize that the Treaty cannot cover all possible cases in limiting ABM systems, and that we could not envisage everything that will appear in the future... Unfortunately, he said, the term "ABM defense" cannot determine whether specific means belong to such a system.

On 13 December 1971, this theme was resumed by Fedenko. He

reiterated the standard Soviet arguments against including any general provisions on future undefined ABM systems. The Standing Commission could handle such problems if they ever arose. The alternative, he felt, was for the U.S. to specify and define in Article II what systems, components or mechanisms it had in mind. If the U.S. could define what it was talking about, then national means could probably verify such activities because presumably it would be mandatory to test such conceptual devices. The Soviet side would then be in a position to determine whether such systems should be in an ABM Treaty.¹⁰¹¹

On 30 November 1971, Academician Shchukin stated that

the Soviet side cannot recognize as well-founded the proposal of the US involving an obligation not to deploy ABM systems using devices other than ABM interceptor missiles, ABM launchers, or ABM radars to perform the functions of these components. The subject of a Treaty (Agreement) could only be specific and concrete limitation of ABM systems. It would seem that prohibiting something unknown, as proposed by the U.S. side, would create uncertainty as to the subject of the Treaty (Agreement) on limiting ABMs. Such had never been done in a serious agreement. If systems based on different technical principles should subsequently appear, they could be discussed additionally, as provided by the draft Treaty.¹⁰¹²

On 4 December 1971, Chulitsky

made a strong pitch for dropping Article 5, para 3, on future systems. He argued that it was unnecessary since "no one knew what future systems might be" and that an effort to include "everything" in the agreement would delay progress. He insisted that future systems could be dealt with in the Standing Consultative Commission in the periodic review conference, or in follow-on negotiations.... The only insight Mr. Chulitsky offered into the reasons for the

¹⁰¹¹ A-498.

¹⁰¹² A-594.

Soviet position was that "it is difficult to argue with the technical people" that unknown systems should be proscribed.¹⁰¹³

On 10 December 1971, Shchukin said that he

thought general definitions where one couldn't even mention the specific system to which they applied were unhelpful. Brown referred to the general definition in the Outer Space Treaty. Shchukin responded, but in that case, one could specify systems which were within the meaning of "other weapons of mass destruction." These included chemical and bacteriological weapons.¹⁰¹⁴

On 14 December 1971, Shchukin said that he

would like to ask what this is all about in concrete terms. In what does the US side see a danger in the absence of a provision on this account of the treaty? If these systems cannot be defined now, except that they are something not known today, and, at the same time, the draft treaty includes a number of clear limitations and constraints not to deploy territorial ABM systems, not to give the capability for rapid reload, etc., is it not sufficient to have such limitations? To be sure, including in the treaty a provision covering something that is not known cannot be justified by any considerations, and therefore this proposition cannot be the subject of a treaty.¹⁰¹⁵

On 20 December 1971, Semenov asked the U.S. delegates to

suppose that the draft treaty on limiting ABM systems had a provision on limiting systems other than those now known which use interceptors and launchers. What would result from such a provision? Undoubtedly, such a provision would create the grounds for endless arguments, uncertainties, and suspicions ... He asked if the sides could in working out a draft ABM Treaty advocate such a situation. He also asked if the goal of the two Delegations isn't just the opposite, that is, to reach agreement on limiting known ABM systems referred to in Article III of the draft ABM Treaty.... Such a responsible international document as a treaty on limiting ABMs must be precise as to the subject of the agreement to the maximum extent possible. This would ensure the viability of a treaty which has an important bearing on the national security of the sides.

[T]he Soviet Delegation has repeatedly asked what the U.S. side has in mind specifically under other ABM systems. This question has never been answered. He asked how then could an ABM treaty include a provision about whose content the sides do not have the vaguest notion? ... Could the sides include in an ABM Treaty the unknown without risk of making the treaty indefinite and amorphous? On December 10 the Soviet side had already noted the importance of avoiding the temptation to go beyond the scope of our negotiations. We should ask ourselves the question: By including other systems in an ABM Treaty, would we not be placing ourselves in the position that the people refer to in the saying "Go I know not where, bring I know not what?" The sides cannot and must not engage in discussion of

¹⁰¹³ A-613.

¹⁰¹⁴ A-639.

¹⁰¹⁵ A-662.

questions not known to anyone. The task faced by the two sides is to erect reliable barriers against deployment of known ABM components in excess of the levels defined by the ABM Treaty.¹⁰¹⁶

On 21 December 1971, the record shows that Semenov stated that "inclusion of a provision on so-called 'other ABM systems' in the text of a treaty limiting ABM systems is not acceptable," without reporting the reasons he gave, if any.¹⁰¹⁷

On 11 January 1971, Shchukin said that

the Soviet Delegation had repeatedly stated its position concerning the paragraph 3 of Article V proposed by the U.S. side. This dealt with so-called "other systems". The Soviet side continues to believe that only quite specific ABM system components of which each side had a clear idea could be included in an ABM Treaty. Any attempt to include unknown matters in such a treaty were bound to lead to misunderstandings, arguments and suspicion The Soviet side has already said that in the event some concrete questions arose in this regard, they could be the subject of discussion in accordance with Article XIII of the joint draft text of the ABM treaty. For this reason the Soviet Delegation continues to consider this point "not suitable" for inclusion in the draft ABM treaty we were negotiating.¹⁰¹⁸

The final principled opposition to the regulation of exotic ABMs came on 14 January 1971:

Trusov affirmed the Soviet position that it is premature to discuss limiting systems which are now nonexistent, and that if and when such systems appear their limitation would be subject to discussion under the provisions of Articles XIII and XIV of the Draft ABM Treaty.¹⁰¹⁹

A10.1.3.3 Reasons Why Statements Professing Principled Opposition To Regulation of the Unknown Do Not Lend Strong Support to the Permissive Interpretation

The argument that the Soviets' professed principled opposition to the regulation of exotic ABMs supports the permissive interpretation is as follows:

1. The Soviets opposed the regulation of exotic ABMs on the ground that these were too poorly understood to be defined with enough precision for an international treaty.
2. The principle involved applied, as a matter of logic, to any and all regulation of exotic ABMs, including the proposed prohibition of their development, testing and deployment in mobile basing modes in Article V(1).

¹⁰¹⁶ A-681.

¹⁰¹⁷ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 53.

¹⁰¹⁸ A-706.

¹⁰¹⁹ A-714.

3. After 20 September 1971, when JDT Article V(1) was agreed upon, the Soviets continued to invoke the principle when opposing a possible ban on the deployment of all exotic ABMS.
4. Therefore, the Soviets must not have agreed to regulate exotic ABMs in Article V(1). Otherwise, they would have agreed to limit exotic ABMs in Article V(1) yet continued to oppose their regulation in Article V(3) on principled grounds that logically applied to Article V(1) as well.

A number of factors cast doubt on this conclusion, however. They suggest that

1. The Soviets never sincerely believed that it was impossible to include unknown devices in the definition of "ABM systems" with enough precision for inclusion in an international treaty.
2. The Soviet Delegation *professed* principled opposition in August 1971 as a stalling tactic until the Soviet Government formulated and issued detailed instructions on how to respond to the U.S. proposal to regulate exotic ABMs.
3. The detailed instructions issued sometime later told the Soviet Delegation to oppose the prohibition of fixed, land-based exotic ABMs, as proposed in U.S. Article 6(1), but agree to prohibit mobile exotics in Article V(1), after first trying to obtain, in exchange, concessions on other matters.
4. Once these detailed instructions were issued, the agreement regulate mobile exotic ABMs in Article V(1) was achieved quickly and smoothly.
5. After agreement on Article V(1), the Soviets continued to object on the same principled grounds to the U.S. proposal to ban the deployment of all exotic ABMs. This was because the Soviet military would not agree to foreclose the option of deploying fixed, land-based exotic ABMs for the defense of Moscow.

The foregoing propositions are admittedly speculative. However, there is considerable circumstantial evidence to back them up. First, the "principle" made no sense. There was no logical reason why a definition of "ABM systems" could not encompass devices not yet in existence. In fact, as the U.S. delegates pointed out, this had already been done with the definition of "weapons of mass destruction" in the Outer Space Treaty.

Second, Soviet "principled" objections prior to 15 September 1971 were frequently directed not towards U.S. draft Article 6 (later JDT Article V) as a whole, but towards Article 6(1).¹⁰²⁰ Article 6(1) consisted solely of a prohibition on the *deployment* of exotic ABM components. The repeated Soviet focus on Article 6(1), and on *deployment* constraints alone,¹⁰²¹ when their professing principled opposition,

¹⁰²⁰ See, e.g., Shchukin on 24 August 1971 (A-424); Shchukin and Brown on 27 August 1971 (A-438); Trusov on 31 August 1971 (A-442); Trusov and Smith on 3 September 1971 (Tenth Mini-Plenary); Fedenko on 8 September 1971 (A-481); Karpov and Graybeal on 8 September 1971 (A-540).

¹⁰²¹ See remarks of Trusov on 3 September 1971 (Tenth Mini-Plenary), where limitations on the *deploy-*

strongly suggest that the Soviets opposed *deployment* limitations on *fixed, land-based* exotics, and not constraints on mobile ones.¹⁰²²

In response to this contention, the Legal Advisor cites four excerpts from the record. He claims that these show the parties to have understood that the Soviets opposed the regulation of exotic ABM devices in both the mobile systems provision (U.S. draft Article 6(2)) and the provision banning all exotic ABM deployment (U.S. Article 6(1)). The first is an excerpt from an internal U.S. status report filed by Graybeal on 8 September 1971:

At this point in time, the Soviets will *not* buy paragraph 1 of Article 6. *For similar reasons, they will insist on bracketing "other devices for performing the functions of these components" in paragraph 2.*¹⁰²³

The second is a statement by Graybeal to the Soviets on 13 September 1971:

The US working paper on Article 6 reflects the current difference of opinion concerning the inclusion of paragraph 1 *and the related phrase "other devices" in paragraph 2.*¹⁰²⁴

The third and fourth are the U.S. and Soviet drafts tabled on 13 September 1971. The U.S. draft bracketed the words "or other devices for performing the functions of these components" in its Article 6(2). That provision's Soviet counterpart – Article V(1) – did not refer expressly to exotic ABMs, but applied to ABM "systems and their components, specially constructed for such systems."¹⁰²⁵

ment of exotics were singled out for criticism. See also Trusov on 31 August 1971 (A-442) in a discussion with U.S. delegate McLean. McLean stated that U.S. Article 6(1) was directed towards filling the need

to avoid channeling arms competition in a new direction with the search by either side for ABM means not specifically constrained in the agreement. Trusov said that his understanding of paragraph 1, Article 6 was that it referred to deployment and he repeated his argument that the possibilities it foresees could be dealt with by national technical means and the review process.

This suggests that the Soviets could countenance a prohibition on the development, testing and even deployment of mobile exotic ABMs, but objected to banning the deployment of fixed, land-based exotic ABMs. Trusov seems to have conceded the wisdom of preventing certain future arms developments, but noted that U.S. Article 6(1) could not have been directed towards that end because it dealt not with development and testing but with deployment.

¹⁰²² Evidently, the *FitzGerald/Graybeal Study* came to the same conclusion, suggesting that the Soviets opposed the regulation of exotic ABMs in Article 6(1) but not in 6(2). (*1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 27)

¹⁰²³ *Id.*, at 25; first emphasis in original, second added.

¹⁰²⁴ *Id.*, at 26; emphasis added.

¹⁰²⁵ *Ibid.*

These excerpts, however, do not prove that the Soviets opposed the regulation of mobile exotic ABMs. They only indicate that the Soviets did not want to include the "other devices" language in Article V(1). Since there is evidence that the Soviets opposed this particular language in part due to concerns that it could be interpreted to constrain SAMs as well as ABM devices, opposition to this language does not necessarily indicate opposition to banning mobile exotic ABMs.

As for the belief that the Soviet military, like the U.S. JCS, wanted to keep open the option of deploying fixed, land-based ABM lasers, this is supported by a report of a 14 January 1971 meeting.¹⁰²⁶

Sidney Graybeal believes that the Soviet government did not give its delegation instructions on how to deal with exotics until late in the summer of 1971, and notes that once instructions arrived, the agreement to ban mobile exotics proceeded fairly quickly. It has been inferred from this that the Soviet delegation was caught off guard by U.S. demands to consider exotic ABMs, and that its opposition to regulating the unknown was merely a ploy to stall for time until instructions arrived.¹⁰²⁷

This theory is supported by the fact that even the permissive interpretation (which interprets Agreed Statement D as prohibiting the deployment of exotic ABMs) acknowledges that the Soviets eventually dropped their "principled opposition" to dealing with unknown ABM devices in agreeing to prohibit their deployment.

Another indication that Soviet principled opposition was not sincere is that the initial Soviet response to the U.S. proposal to regulate non-traditional ABM components was not to dismiss it out of hand "in principle." On several occasions following the tabling of the proposal, the Soviets asked for clarification of what systems it referred to, suggested that it would be difficult to convince certain elements of the Soviet bureaucracy of its desirability or necessity, and, in some cases, intimated personal support for controls on exotic ABMs.¹⁰²⁸

It has also been contended that in early September 1971 the Soviets feared that the language of U.S. Article 6 — "other devices to perform the functions of ABM components" — was so broad that the U.S. might try to apply it to elements of the Soviet air defence network.¹⁰²⁹

¹⁰²⁶ A-717. After U.S. delegates tried to persuade Grinevsky and Kishilov of the need to constrain exotic ABMs, apparently focussing on their deployment,

[i]n a side conversation, Grinevsky indicated to Parsons his own understanding of our [U.S.] concern, but implied that other (presumably military) members of his Delegation were unyielding, and in any case it was not an actual problem at this time.

¹⁰²⁷ *Nunn Report -- Part 4, supra*, note 448, at 36-7.

¹⁰²⁸ *Id.*, at 28. E.g., Shchukin on 17 (A-398) and 24 August 1971 (A-424), Semenov on 27 August 1971 (A-438), Trusov on 3 September 1971 (Tenth Mini-Plenary), Karpov on 8 September 1971 (A-540) and Fedenko on 8 (A-481) and 13 September 1971 (A-498).

¹⁰²⁹ *Nunn Report -- Part 4, supra*, note 448, at 35-6. This view is supported by Soviet opposition to a 26 January 1972 U.S. draft of the agreed interpretation on future systems that used the phrase "to perform the functions of ABM interceptor missiles, ABM launchers or ABM radars." (See A-743) It is also supported by Grinevsky's 11 January 1972 complaint that "'other' systems might or might not be

Thus, one has to question whether the Soviets -- regardless of what they said -- ever really opposed the regulation of nonexistent ABMs as a matter of principle. After all, they eventually agreed to prohibit their deployment. The argument that it was improper to constrain unknowns -- an argument that was unconvincing to begin with -- may have been advanced initially in order to mask the Soviet Delegation's lack of instructions on the matter. It was most likely persisted in for the sake of consistency and/or to hide the fact that the Soviet military wished (as did the U.S. JCS) to retain the option of deploying fixed, land-based exotic ABMs. It has also been suggested that the principled opposition was a ruse designed to draw out information about U.S. BMD development programs.

A10.1.4 Karpov's 15 September 1971 Confirmation that "the Soviet Text Meant 'Any Type of Present or Future Components' of ABM Systems"

A10.1.4.1 Introduction

On 15 September 1971, the Soviets tabled new versions of their Articles II and V.

The discussion started with [U.S.] Article 6([Soviet Article] V). Karpov argued that the new formulation of Soviet paragraph 1 (U.S. paragraph 2) of Article 6(V) obviates the requirement for the phrase "other devices for performing the functions of these components" appearing at the end of U.S. paragraph 2. The Soviets were proposing to eliminate specific listing of ABM system components (launchers, interceptors and radars) and substitute the word "components" (using the literal Russian word (komponenty) for this instead of the word for "components" (sredstva) used in Article 2 when referring to launchers, interceptors, and radars. *Karpov agreed with Graybeal's interpretation that the Soviet text meant "any type of present or future components" of ABM systems.*¹⁰³⁰

The U.S. delegates at this meeting, FitzGerald and Graybeal, give the following account:

Graybeal and Karpov ... proceeded to discuss alternative solutions for paragraph 2 of the U.S. Article 6 and Soviet paragraph 1 of Article V With regard to the Soviet side's proposal, Karpov said that "he would give favourable consideration to dropping the phrase 'specially constructed' for such [i.e., ABM] systems." Graybeal offered two versions of the U.S. side's proposal. Alternative 1 would have kept the U.S. side's proposal intact and the phrase "or other devices for performing the functions of these components ..." would be bracketed as a U.S. proposal while the phrase "specially constructed for such systems" would be bracketed as a Soviet proposal. Alternative 2 would have deleted both sides' proposals for the concluding phrase and substituted for them the phrase "ABM systems or any components therefor." This alternative was based upon Karpov's agreement with Graybeal's interpretation that the Soviet text meant "any type of present or future components" of ABM systems. The discussion of [U.S.] Article 6([Soviet Article] V) ended without any agreement as to which of Graybeal's two alternatives would be used in further discussions between the Delegations.¹⁰³¹

for ABM purposes, but the US wanted to have a veto over them." (A-710)

¹⁰³⁰ A-503; emphasis added.

¹⁰³¹ FitzGerald/Graybeal Study, *supra*, note 973, at 26-7, quoted in 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 29.

A U.S. reporting cable of 24 September 1971 stated that the text of JDT Article V

INCLUDING COMPONENTS FOR FUTURE ABM SYSTEMS WHICH ARE NOT FIXED AND LAND-BASED ... [WAS] AGREED *AD REFERENDUM*. TEXT OF ARTICLE V(3) ON DEPLOYMENT BAN ON FUTURE DEVICES, IN BRACKETS, IS U.S. PROPOSAL WHICH U.S.S.R. HAS FIRMLY OPPOSED.¹⁰³²

The text of JDT Article V(1) agreed upon between 15 and 24 September 1971 was essentially that of Graybeal's Alternative 2.

Proponents of the restrictive interpretation assert that Karpov's statement shows that the Soviets regarded "ABM systems and components" in Article V(1) as including exotic ABM devices that could substitute for traditional ABM components.

Judge Sofaer disputes the subject matter of Karpov's statement. He claims that in confirming coverage of "any type of present or future components" of ABM systems" in Article V(1), Karpov meant *future versions of the three traditional ABM components only*.¹⁰³³

Two understandings as to terminology, supposedly established by 15 September 1971 and maintained throughout the negotiations, are cited in support of this assertion:

1. the term "components" referred to interceptor missiles, launchers and radars only, other kinds of ABM devices being called "devices" and
2. the term "ABM systems" referred to systems composed of ABM interceptor missiles, launchers and radars only; systems that substituted other devices for one or more of these traditional ABM components were referred to as "future" or "other" ABM systems.¹⁰³⁴

Cited in support of these supposed terminological conventions¹⁰³⁵ is an exchange between Allison of the U.S. and Trusov of the U.S.S.R. on 1 February 1972:

¹⁰³² U.S. DEL 1056.

¹⁰³³ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 33.

¹⁰³⁴ *Id.*, at 35-6.

¹⁰³⁵ *Id.*, at 35.

I [Allison] brought up the matter of future ABM systems as another possible problem in this category [of remaining issues that could easily be resolved], noting the recent discussions concerning an agreed interpretive statement on the subject. I said I thought we could agree on this matter if each side understood what the other had in mind, and asked Trusov if he agreed with me. He said that we had understood one another earlier but now seemed to disagree because of a word problem, and went on to speak at some length about the changing terminology in the future systems paragraph. He dwelt primarily on the subjects of "systems", "components", and "devices." *I observed that both sides have had a clear understanding for some time that within the context of our negotiations when we speak of an ABM system we are referring to a system made up of three components -- ABM launchers, ABM interceptor missiles, and ABM radars. We also appear to agree that substituting a different component for one of these three in the future would result in what we refer to as a "future" or "other" ABM system.* It seems, I said, that with that understanding our Delegations should be able to agree on a set of words for the interpretive statement. Trusov agreed with my observation and said that the same words -- "other systems and their components" -- should be used consistently, since that was a clear expression of what was meant, as well as the wording in which the question had originally been raised.¹⁰³⁶

Contrary to the Legal Advisor's claim, this exchange does not support the conclusion that use of the word "component" was limited to ABM interceptor missiles, launchers and radars. Allison himself, in this exchange, used the word to describe both traditional and exotic ABMs, speaking of "substituting a different component for one of these three" Moreover, there are several other references to "components," and to "ABM components" that include exotic ABM devices. These will be reviewed below, in Section A10.1.4.3.

Clearly, Allison did assert that "ABM systems" meant traditional systems only, while "future ABM systems" or "other ABM systems" meant exotic systems. However, he appears to have simply been wrong about this. The negotiating record is replete with references to "ABM systems" in contexts that make it clear that the term extended to systems comprised in part of exotic substitute devices. These will be reviewed immediately below, in Section A10.1.4.2.

A10.1.4.2 References to "ABM Systems"

U.S. draft Article 2(1)(a) of 27 July 1971 and draft Article 6(1) of 17 August 1971 both referred to "ABM system" in such a way as to clearly include exotic ABMs. In introducing the latter, Ambassador Smith noted that the provision applied to "ABM systems, including possible future types of ABM systems, and not only to ABM systems employing ABM interceptor missiles, ABM launchers and ABM radars."¹⁰³⁷

On 24 August 1971, Soviet delegate Shchukin stated his view that

the sides had achieved an understanding that limitations should cover such systems of ABM defense as radars, launchers, and ABM interceptor missiles. In this both sides proceeded from the premise that these systems could be distinguished from other systems, and so on. In other words the treaty should have for its subject ABM systems which could be controlled by national technical means.¹⁰³⁸

¹⁰³⁶ A-766; emphasis added.

¹⁰³⁷ A-408.

Shchukin also said:

On August 17, the US Delegation introduced new language for Article 6. It is proposed in Paragraph 1 that the sides be obligated not to deploy *ABM systems using devices other than ABM missiles, ABM launchers, and ABM radars to perform the functions of these components*. This is an entirely new provision and the Soviet side is not clear on its meaning and substance. What did the US have in mind in speaking of such ABM systems and such devices? [Emphasis added]

On 27 August 1971, U.S. Delegate Brown provided the U.S.S.R. with a written document containing the following:

Our objective in this Article is to establish a commitment that neither side will deploy *ABM systems -- including possible future types of ABM systems -- which might not use ABM interceptor missiles, ABM launchers, or ABM radars....*¹⁰³⁹

On 3 September 1971, Ambassador Smith noted that

a fundamental question before the sides is whether we are trying to limit ABM systems or just ABM interceptor missiles, launchers, and radars.... Speaking personally, Ambassador Smith believed that, in the event that Para 1 of Article 6 should not be included in an agreement, it would be a cruel illusion to the peoples of both nations to say that we had concluded an agreement on ABM systems. We should more properly say that there had been an agreement to limit ABM interceptor missiles, launchers, and radars. This would be a far cry from what the U.S. side means when it speaks about limiting ABM systems.¹⁰⁴⁰

On 8 September 1971, Soviet delegate Karpov noted that

[u]p to now ... the subject of our discussions was limitations on *concrete and specific ABM systems, on ABM systems which might exist and could be verified by national means*. He believed that we should adhere to this subject in the future too. He said that he could not agree to an approach designed to prevent deployment in the future of certain systems when the systems to be limited are undefined. He recognized that in the future, questions may arise about *ABM systems which are not covered in this Agreement or Treaty*.¹⁰⁴¹

Later during this meeting, Graybeal stated that he

believed that if we could make clear the intent of the Agreement, which in our view is to limit ABM systems, then we could help the Standing Commission fulfill its role. If the intent were only to limit present systems, and to leave to the Standing Commission the matter of limiting future systems, then we would be inviting misunderstandings. *He asked if it is the intent of the Soviet side to limit ABM systems or just to limit present ABM systems.* [Emphasis added]

¹⁰³⁸ A-424.

¹⁰³⁹ A-438, Annex 1; emphasis added.

¹⁰⁴⁰ Tenth Mini-Plenary.

¹⁰⁴¹ A-540; emphasis added.

Karpov responded that he

believed that our intent is to limit ABM systems and that we have a mutual understanding between ourselves on that score. The difference is in our approach – how to do it in the most effective way and, at the same time, to guarantee the two sides that the agreement would be complied with.

At this same meeting, Karpov

asked if it would not be better for us to refer the questions of future systems to the Standing Commission. He thought that this would be the most rational approach to limiting *those ABM systems which cannot be defined in technical or legal terms*. [Emphasis added]

Graybeal said that he

thought that there was a difference in the views of the two sides regarding the adequacy of the definitions in paragraph 1 of the U.S. Article 2. He thought that these definitions were adequate to deal with all ABM systems, while paragraph 1 of the USSR Article XI [Article II?] dealt only with ABM launchers, ABM interceptors, and ABM radars.

Later, Karpov

expressed the belief that both sides recognize that *the Treaty cannot cover all possible cases in limiting ABM systems*, and that we could not envisage everything that will appear in the future. [Emphasis added]

On 17 September 1971, Ambassador Smith stated that without a provision such as U.S. draft Article 6(1) to prohibit the deployment of exotic ABM components,

we might think that we had concluded an agreement on limiting ABM systems, only to find that in fact we had only limited launchers, interceptors and radars.¹⁰⁴²

On 30 November 1971, Shchukin noted that

the Soviet side cannot recognize as well-founded the proposal of the US involving an obligation not to deploy *ABM systems using devices other than ABM interceptor missiles, ABM launchers, or ABM radars to perform the functions of these components*.¹⁰⁴³

On 10 December 1971, Dr. Brown provided the Soviets with a written statement. It referred to exotic ABM systems as "possible future types of ABM systems" and "ABM systems using technologies which future research may prove feasible."¹⁰⁴⁴

¹⁰⁴² A-518.

¹⁰⁴³ A-594; emphasis added.

¹⁰⁴⁴ A-642.

On 13 December 1971, Grinevsky said that

the key merit of the Soviet proposal was that it formulated in a clear and unambiguous manner the subject matter of the Treaty by listing *the ABM systems and components to be limited*.¹⁰⁴⁵

On 21 December 1971, the U.S. proposed language for what would become Agreed Statement D. The written introduction to this proposed language noted the Soviet delegation's opposition to

the proposal by the United States to include a provision in the ABM agreement prohibiting *ABM systems in the future which would use devices other than ABM interceptor missiles, ABM launchers, or ABM radars to perform the functions of those components*.¹⁰⁴⁶

The record of a meeting of 11 January 1972¹⁰⁴⁷ contains a number of references to exotic ABM systems as "ABM systems." For instance, Garthoff referred to exotic systems and components as "some presently unidentified ABM system or component." Later, Grinevsky did indeed speak of "ABM systems" in such a way as to *exclude* exotic ABM systems, as the Legal Advisor claims was consistently done by both sides:

Grinevsky said that the treaty referred to *ABM systems, which were defined in Article II. It could not deal with unknown other systems*. [Emphasis added]

The U.S., however, did not accede to this use of terminology. Garthoff immediately challenged it on two grounds:

first, the treaty dealt not only with ABM systems comprising components identified in Article II, but all ABM systems; second, the issue did not concern "other" systems, but rather future ABM systems.

Later in this meeting, Garthoff referred to "ABM systems and components of some new kind in the future".

The Legal Advisor's contention that "ABM system" was used exclusively in reference to traditional ABM systems is not without support in the record. In addition to Grinevsky's statement of 11 January 1972, there are four other Soviet references to "ABM systems" that *exclude* exotic ABM systems. Two of these, however, are proposed definitions of the term appearing in Soviet drafts of Article II(1), and therefore do not count as indicators of negotiating terminology.¹⁰⁴⁸ Of the other two, one came on 31 August 1971, when Karpov said that

[i]n general, paragraph 1 [of Article II] should contain a definition of the scope of systems to be covered by the obligations of the treaty; i.e., ABM systems, ABM launchers, ABM interceptors, and ABM radars ...¹⁰⁴⁹

¹⁰⁴⁵ A-644; emphasis added.

¹⁰⁴⁶ A-676, Attachment; emphasis added.

¹⁰⁴⁷ A-710.

¹⁰⁴⁸ See Soviet draft Article II(1) of 31 August 1971 and of 13 September 1972.

The other came on 21 December 1971, when Semenov stated that "inclusion of a provision on so-called 'other ABM systems' in the text of a treaty limiting ABM systems is not acceptable"¹⁰⁵⁰

Overall, however, the record does not reveal any mutual understanding – particularly one established by 15 September 1971 – that the term "ABM system" excluded exotic ABMs. Other than the 1 February 1972 statement by Allison expressly to that effect, it discloses no statement to that effect by any U.S. delegate. On the contrary, there are several references to the term "ABM system" by U.S. delegates that are consistent only with that term's including exotic ABM systems. Several similar statements were made by Soviet delegates as well. Many of these occurred before 15 September 1971.

The record does reveal three Soviet references (other than in draft provisions) that, explicitly or implicitly, treat "ABM systems" as excluding exotic ABM systems. Of these, however, only one occurred before 15 September 1971 (Karpov on 31 August 1971). Moreover, one of the two occurring after that date (Grinevsky on 11 January 1972) was explicitly challenged by Garthoff immediately after being made.

This record does not add up to an understanding among the negotiators as of 15 September 1971, or even later in the negotiations, that "ABM systems" meant traditional systems only.

A10.1.4.3 References to "Components" and to "ABM System Components" and Similar Phrases

Neither is any consistent distinction between "device" and "component" supported by the record. On many occasions exotic ABM devices were referred to as "components." For instance, on 17 August 1971, Brown referred to "future kinds of systems, not using the usual components."¹⁰⁵¹

On 3 September 1971, Trusov made two references to "component" that included exotic ABM devices. First, he referred to "ABM systems, including future systems, which use components other than ABM launchers, interceptors and radars." Then, he referred to exotic systems as "such systems or components not known to anybody."¹⁰⁵²

On 8 September 1971, Graybeal noted that U.S. Article 6 was "intended to address future ABM systems that would utilize components or devices other than launchers, interceptor missiles, or radars."¹⁰⁵³ He also stated that

U.S. paragraph 1 of Article 6 ... would prohibit the deployment of future ABM systems or components other than those fixed land-based components defined in Article 2; that is,

¹⁰⁴⁹ Ad Hoc Meeting No. 1.

¹⁰⁵⁰ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 53.

¹⁰⁵¹ A-398.

¹⁰⁵² Tenth Mini-Plenary.

¹⁰⁵³ *Ibid.*

ABM interceptor missiles, ABM launchers, or ABM radars.¹⁰⁵⁴

On 13 September 1971, Fedenko, in reference to "future undefined ABM systems," called on the U.S. to "specify and define in Article II what systems, components or mechanisms it had in mind."¹⁰⁵⁵

Shchukin asked, on 10 December 1971,

[i]f ... new technology should make possible components carrying out the same tasks as existing components, but perhaps in a more efficient and less costly manner, why should those be prohibited? We are not prohibiting ABM components.¹⁰⁵⁶

At the same meeting, U.S. delegate Nitze referred to "components capable of performing functions similar to ABM components."

On 14 December 1971, Shchukin stated what he thought the sides might be able to agree upon "if components based on new technology were developed which could substitute for the components limited under Article III."¹⁰⁵⁷

In reference to the proposed agreed interpretation on future ABM systems, Garthoff spoke on 17 December 1971 of "a future ABM system or components [sic]."¹⁰⁵⁸ At a meeting later that day, he referred to "any deployment of future ABM systems or components."¹⁰⁵⁹

Semenov referred to traditional components on 20 December 1971 as "known ABM components," and referred to exotic ABM devices as "other ABM components in addition to those now known."¹⁰⁶⁰ On the same day, but in a different meeting, Brown referred to exotic ABMs as "substitute components" and to traditional ABM components as "regulated components."¹⁰⁶¹ Still on 20 December 1971, at yet another meeting, Garthoff referred to "future systems and components."¹⁰⁶²

¹⁰⁵⁴ A-540.

¹⁰⁵⁵ A-498.

¹⁰⁵⁶ A-639.

¹⁰⁵⁷ A-647.

¹⁰⁵⁸ A-663.

¹⁰⁵⁹ A-667.

¹⁰⁶⁰ A-681.

¹⁰⁶¹ A-624. Brown did refer as well to "substitute devices" and to a "future device."

¹⁰⁶² A-677.

A written document tabled by the U.S. on 21 December 1971 mentioned the deployment of "components other than ABM interceptor missiles, ABM launchers, or ABM radars," and went on to specify what the parties should agree "if such components are developed"¹⁰⁶³

On 11 January 1972, Garthoff referred to traditional ABM components as "components identified in Article II."¹⁰⁶⁴

On 26 January 1972, Grinevsky noted that

Article II made clear that these [i.e. traditional ABM components] are *the three components currently comprising ABM systems*, and the language under discussion made clear that it was referring to precisely *such system components other than the three current ones* which were listed.¹⁰⁶⁵

The record does show that the term "ABM component" was on occasion limited to traditional ABM components. However, the first clear indication of this did not come until 10 December 1971, when U.S. delegate Nitze referred to exotic devices as "components capable of performing functions similar to ABM components."¹⁰⁶⁶

Three days later, on 13 December 1971, this restricted use of the term was repeated by Soviet delegate Grinevsky, who noted that "the Soviet draft presented a comprehensive description of ABM components – i.e., ABM interceptor missiles, ABM launchers, and ABM radars"¹⁰⁶⁷

It can be seen that this restricted use of the term "ABM component" or "ABM system component" was not explicitly espoused until well after 15 September 1971. Even then it was not consistently followed. On the contrary, there are several instances of delegates from both sides referring to "ABM components" or similar phrases in ways that clearly included exotic ABM devices.

On 11 January 1972, for example, Shchukin contrasted "other systems" (i.e. exotic ABM systems) with traditional ABM components, which he referred to as "quite specific ABM system components of which each side had a clear idea."¹⁰⁶⁸ At the same meeting, Nitze referred to exotic substitute devices as "ABM components other than radars, interceptors and launchers." At another meeting that day, Garthoff referred to a hypothetical exotic substitute device as "some presently unidentified ABM system or component."¹⁰⁶⁹ He also mentioned "ABM systems and components of some new kind in the future," citing laser

¹⁰⁶³ A-678, Attachment.

¹⁰⁶⁴ A-710.

¹⁰⁶⁵ A-743; emphasis added.

¹⁰⁶⁶ A-639.

¹⁰⁶⁷ A-644.

¹⁰⁶⁸ A-706.

ABM interceptors as an example. Soviet delegate Kishilov referred in that meeting to "future ABM systems or components."¹⁰⁷⁰

On 26 January 1972, Grinevsky referred to exotic ABM devices as "future ABM system components other than the three indicated in the sentence and in Article II of the treaty."¹⁰⁷¹ The Agreed Interpretive Statement agreed upon on that date referred to exotic ABMS as "ABM system components other than ABM interceptor missiles, ABM launchers, or ABM radars."¹⁰⁷²

On 31 January 1972, Garthoff showed Grinevsky and Kishilov the five "talking points." Point 2 read as follows: "The deployment of ABM system components other than ABM interceptor missiles, launchers, or radars to perform the functions of those components is banned."¹⁰⁷³

Finally, on 3 February 1972, Ambassador Smith referred in a prepared statement to "ABM systems and their components based on possible future technologies."¹⁰⁷⁴

Thus, the terms "component" and "ABM component" were used on several occasions in ways that included exotic ABM devices. It follows that no agreed usage evolved whereby those terms applied to ABM interceptor missiles, launchers and radars only.

A10.1.4.4 Significance of the Words "Any Type of"

We have just seen that there was no clear mutual understanding to limit use the word "component" or the expression "ABM component" to traditional ABM components, or to restrict the term "ABM system" to traditional ABM systems. Nevertheless, it is still possible that Karpov understood the terms to have those restricted meanings when he agreed that "the Soviet text meant 'any type of present or future components' of ABM systems." What makes this unlikely, however, is the presence of the words "any type of." If Karpov was only referring to present and future versions of ABM interceptor missiles, launchers and radars, why would such an inclusive term as "any type" be used? In that case, there could only be three types: interceptor missiles, launchers and radars. But this would impose a severe limitation on the word "any". Surely it is more likely that the words "any type" were meant by Graybeal – and understood by Karpov – to encompass not only the three traditional ABM components, but exotic substitutes as well.

This is especially likely since there was no reason for Graybeal to believe that the Soviet draft would treat one of the traditional ABM components differently from the other two. There was therefore no reason to use the words "any type" if only traditional components were under consideration.

¹⁰⁶⁹ A-710, Attachment.

¹⁰⁷⁰ *Ibid.*

¹⁰⁷¹ A-743.

¹⁰⁷² A-743, Attachment 1.

¹⁰⁷³ A-763, Attachment 2.

¹⁰⁷⁴ A-782a.

A10.1.4.5 The Soviet Proposal "Obviating" the Need For Express Mention of Substitute Devices

Another statement Karpov made in that 15 September 1971 meeting strongly suggests that he did regard Soviet Article V(1) as covering exotic ABM devices:

Karpov argued that the new formulation of Soviet paragraph 1 (U.S. paragraph 2) of Article 6([Soviet Article] V) *obviates* the requirement for the phrase "other devices for performing the functions of these components" appearing at the end of U.S. paragraph 2.¹⁰⁷⁵

If language "obviates" the need for other language, a change from one to the other does not involve a substantive concession by one party, but a mere alteration in wording intended to bring about the same result. Therefore, the new language proposed -- "ABM systems and their components" -- could not "obviate" the need for express reference to exotic ABM devices unless it, too, covered them.

A10.1.4.6 Whether The Definitions in Soviet Draft Article II(1) Applied to Article V

In support of his contention that Karpov was referring to future versions of traditional components only, Judge Sofaer points to the fact that, as of 15 September 1971, Soviet draft Article II defined "ABM system" applied to include traditional ABM systems only. Because the agreed text of Article V(1) applied to "ABM systems and components," he calls this a "clear indication" that the Soviets did not agree to ban activities involving mobile exotics during this period.¹⁰⁷⁶ However, at this stage, the Soviets continued to advocate an "obligational" approach to the whole treaty, whereby definitions were set out not at the beginning of the treaty for application throughout (as was the case with the "definitional" approach, which the parties eventually adopted) but only as they became necessary.¹⁰⁷⁷ The Soviets do not appear, as of 15 September 1971, to have intended the definition of "ABM systems" in their draft Article II(1) to apply to all other articles. In particular, they do not seem to have intended it to apply to Article V.

This is strongly suggested by three parts of the written record. First, there is the following report of a 2 September 1971 meeting¹⁰⁷⁸ that shows that the obligations in Soviet Article V were not necessarily limited to the components listed in Soviet Article II:

Karpov responded that the fundamental basic obligations which deal with numerical limitations in the Soviet Article III would be applied to these systems [i.e. traditional systems described in Article II] It does not mean that there will not be other obligations listed in the treaty which will cover other systems. For example, the Soviet Article IV ... would place obligations on each side. However, it is a concept not covered in Article II. Also, Soviet Article V ... is a concept covered by the obligations under the Soviet Article V.

¹⁰⁷⁵ A-503, reproduced *supra*, Appendix 9; emphasis added.

¹⁰⁷⁶ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 30.

¹⁰⁷⁷ The Soviets appear to have accepted the definitional approach for the first time on 13 December 1971. (See A-644.)

¹⁰⁷⁸ US/USSR Ad Hoc Meeting No. 2.

Second, on 13 September 1971, Karpov distinguished between "principal" obligations and other "complementary" obligations.¹⁰⁷⁹ Principal obligations appear to have been those that applied to "principal ABM system components...: (a) ABM interceptor missiles...; (b) launchers ... for launching ABM interceptor missiles; [and] (c) ABM radars" He stated that Article II "covered 'principal' obligations." Graybeal objected to the distinction between "principal" and "complementary" obligations, suggesting instead a listing of the provisions to which the obligations would apply.

Third, on 15 September 1971, the Soviets adopted this suggestion and provided a list of articles whose obligations were to apply to traditional ABM systems. The lead-in language to the Soviet draft Article II(1) introduced that day listed five articles. Significantly, Article V was not one of them:

Article II(1):

[The] obligations provided for under Articles III, IV, VI, VII, and VIII [should apply to the "principal" ABM system components as described.]¹⁰⁸⁰

This suggests that the Soviets did not regard the obligations set out in their Article V as applicable to the systems described in their Article II.¹⁰⁸¹

The 1987 *Legal Advisor's Report* calls this reading of the 15 September 1971 Soviet proposal "tenuous,"¹⁰⁸² for the following reasons:¹⁰⁸³

1. The lead-in language to Article II(1) that limited the application of its definitions to Articles III, IV, VI, VII and VIII was deleted by the Soviets on the day that it was introduced. This left the definitional language of Article II(1) unqualified in the obligations to which it applied.¹⁰⁸⁴ If the proposal of this lead-in language signified Soviet willingness to allow Soviet Article V to apply to exotic ABM components, its deletion should have signified a Soviet intention to limit the meaning of "ABM system" in Article V(1) to that term's definition in Soviet Article II(1) – one comprised of traditional ABM components.

¹⁰⁷⁹ A-540, cited in 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 39.

¹⁰⁸⁰ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 40.

¹⁰⁸¹ The FitzGerald/Graybeal Study shares this conclusion, asking the reader to

note the absence of any mention of Article V (U.S. 6) in this listing. This was consistent with Karpov's remarks of September 2, 1971 ... that Soviet Article V covered obligations on components not listed in Article II, and his September 15, 1971 agreement with Graybeal's interpretation that the wording of Article V covered all types of components.

(*Supra*, note 973, at 45, quoted in *id.*, at 40)

¹⁰⁸² 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 40.

¹⁰⁸³ *Id.*, at 40-1.

¹⁰⁸⁴ Citing a working paper to A-503.

2. It is far more likely that the Soviet listing of the obligations to which Article II applied was based on the thought, briefly entertained, that mobile ABM systems could differ from those then described in Article II, and not on the view that the Soviets were willing to allow such systems to include unknown substitute devices for the three ABM system components. Proof of this lies in the fact that Karpov continued to specifically reject, on September 15 1971, the inclusion in the Article II descriptions of ABM interceptor missiles and ABM radars missiles and radars "indistinguishable from" those tested in an ABM mode.¹⁰⁸⁵
3. The negotiating record reflects that the U.S. negotiators knew that the Soviets did not want to accept a definition of Article II(1) that would define "ABM system" to include devices other than missiles, launchers, and radars.

These arguments are not convincing. As to the first, even if the lead-in language was withdrawn, its proposal is still an indication that Soviet Article II was not meant to apply to Soviet Article V. Withdrawal of the lead-in language did not signal Soviet conversion to the definitional approach (with its application of Article II's definitions to all other articles). That did not occur until 13 December 1971. Therefore, it is likely that, as of 15 September 1971, the Soviets still regarded Article II as inapplicable to certain other articles, including Article V. This is shown by Semenov's remark on 17 September 1971 that

he did not really know in what sense [U.S.] Article 6 [Soviet Article V] had a bearing on Article 2, since the latter dealt with definitions and in his view this was quite enough for that particular Article....¹⁰⁸⁶

The second argument – that Article V did not appear in the list because the Soviets believed that versions of interceptor missiles, launchers and radars designed for use in mobile basing modes would differ from those described in Article II – is not convincing either. Soviet Article II(1) easily defined the three traditional ABM components broadly enough to include mobile versions of traditional components as well.

As for the phrase "indistinguishable from," it only applied to interceptor missiles and radars, and not to exotic devices. The U.S. proposed this phrase to ensure that once an interceptor missile or radar was tested in an ABM mode, all other interceptor missiles or radars (as the case may be) indistinguishable from the one so tested would be considered ABM interceptor missiles or ABM radars.¹⁰⁸⁷ In the final Treaty text, this function was performed by Article VI.

As for the claim that the U.S. negotiators *knew* that the Soviets did not want to accept a definition of Article II(1) that would define "ABM system" to include devices other than missiles, launchers, and radars, the record does not make this clear. In fact, that is exactly what the U.S. Delegation believed the Soviets agreed to on 21 December 1971.

¹⁰⁸⁵ Citing A-503 and A-518.

¹⁰⁸⁶ A-518.

¹⁰⁸⁷ On 2 September 1971, the U.S. proposed a version of Article II(1) that would "define ABM missiles and radars to include types 'indistinguishable from' missiles or radars tested in an ABM mode." (1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 39; see also *id.*, at 40)

A10.1.4.7 Other Arguments That Karpov's Statement Did Not Apply To Exotic ABMs

It has also been argued that because the Soviet text used the more exclusive Russian word *komponenty* (rather than the more inclusive *sredstva* which might be translated as "means"), the Americans should not have been reassured by any characterization of the provision's effect as inclusive.¹⁰⁸⁸ However, it is likely that the Russian word *komponenty*, like the English word "component," is capable of bearing a wider or narrower meaning, depending upon the context and upon any express definition. Karpov stated that the Soviet text, which contained the word *komponenty*, meant "any type of present or future components of ABM systems." He also stated that putting the provision in that form obviated the need for express mention of exotic substitute devices.¹⁰⁸⁹ With those assurances, it is perfectly reasonable to interpret Karpov's remarks as applying Article V(1) to exotic ABM devices.

The Legal Advisor also implies that because the Soviet draft remained unchanged on 15 September 1971, there could not have been any substantive Soviet concession on exotic ABMs. This is not true, however. An unchanged draft can have a changed (or clarified) meaning as the result of oral representations concerning the scope of certain of its terms. Karpov agreed on 15 September 1971 that the Soviet draft meant "any type of present or future components of ABM systems." Thus, although the Soviet draft may have been unchanged, its meaning was not. This statement by Karpov allowed the U.S. to drop its demand for express reference to "other devices" and accept instead reference to "ABM systems and components" without giving up coverage in Article V(1) of exotic ABMs.

Another argument raised by the Legal Advisor concerns the 2 alternative formulations of a JDT version of Article V(1) proposed by Graybeal. As described by the *FitzGerald/Graybeal Study*, these probably read as follows:

Alternative 1:

Each Party undertakes not to develop, test, or deploy sea-based, air-based, space-based, or mobile land-based ABM interceptor missiles, ABM launchers [or] ABM radars [, or other devices for performing the functions of these components,] [specially constructed for such systems].¹⁰⁹⁰

Alternative 2:

Each Party undertakes not to develop, test, or deploy sea-based, air-based, space-based, or mobile land-based ABM systems or any components therefor.

¹⁰⁸⁸ *Id.*, at 30-1.

¹⁰⁸⁹ The Legal Advisor claims that the reason why a simple reference to "components" in Article V(1) would eliminate the need to expressly refer to "other devices" is "presumably because the Soviet version would use a Russian word for components, 'komponenty,' different from the word used in Article 2, 'sredstva,' when referring to launchers, interceptors and radars." (*Id.*, at 30) However, this causal relationship is not clear.

¹⁰⁹⁰ Brackets in original.

The *FitzGerald/Graybeal Study* notes that Alternative 2 "was based upon" Karpov's agreement that the Soviet text meant "any type of present or future components of ABM systems."¹⁰⁹¹

The Legal Advisor contends that the first alternative's bracketing of the "other devices" phrase shows that the Soviets remained unwilling to accept coverage of exotic ABMs.¹⁰⁹² This is not necessarily the case. Part of their objection to this term was concern that it might include non-ABM systems, particularly SAMs. In other words, it is possible for the Soviets to have accepted coverage of exotic ABM components without accepting this particular language. This is what they did in Alternative 2.

As for this second alternative, the Legal Advisor claims that by offering to drop the "other devices" phrase, the U.S. was giving up on trying to regulate exotic ABMs in Article V(1). He asserts that, in Alternative 2, which was used as the basis for JDT Article V(1) on 20 September 1971, the U.S. was trading away coverage of exotic ABMs in exchange for the Soviets dropping the phrase "specially constructed for such systems."¹⁰⁹³ It may be true that the "other devices" language was traded for "specially constructed for such systems." However, if so, it does not necessarily follow that the U.S. traded away coverage of exotic ABMs in Article V(1). The Soviets appear to have advanced the "specially constructed" language in order to ensure that non-ABM systems, particularly SAMs, would not be covered.¹⁰⁹⁴ Thus, the Soviets would appear to have agreed to drop language ensuring that SAMs would not be covered (the "specially constructed" language) in exchange for the removal of "other devices," the language that they felt threatened to include SAMs in the first place.

The Legal Advisor also points to Garthoff's characterization of the draft the parties were using as "the compromise proposal on eliminating brackets,"¹⁰⁹⁵ claiming that if the Soviets had agreed to have Article V(1) cover exotic ABMs, it would not have been a compromise, but a complete victory for the U.S.¹⁰⁹⁶ He does not, however, provide the document in which this statement is reported.¹⁰⁹⁷ It is therefore not clear whether the compromise proposal referred to was JDT Article V(1) alone or in the entire JDT. The author strongly suspects it was the latter. Second, even if Garthoff was referring to JDT Article V(1) alone, there could still be an element of compromise in the dropping of the "other device" language because of the Soviet concern about its application to SAMs.

The Legal Advisor also finds support in Garthoff's listing of the differences remaining between the two sides on 20 September 1971.¹⁰⁹⁸ One area of disagreement was, Garthoff said, "a provision to cover

¹⁰⁹¹ *Supra*, note 973, at 26-7, quoted in *id.*, at 29.

¹⁰⁹² 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 32.

¹⁰⁹³ *Ibid.*

¹⁰⁹⁴ "Specially constructed" also appeared in draft Soviet Article II(1) of 13 September 1971. This tends to disprove the other possible meaning of "specially constructed for such systems" in Article V(1) -- "having special features adapting the component for mobile basing."

¹⁰⁹⁵ A-532.

¹⁰⁹⁶ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 36.

¹⁰⁹⁷ A-532.

future 'unconventional' ABM systems." It seems clear, however, that this meant a provision covering deployment of exotic ABMs, i.e. JDT Article V(3).

Finally, the Legal Advisor cites three internal U.S. documents from the period that supposedly show the U.S. to have believed that the Soviets did not agree to ban mobile exotic ABMs on 15 September 1971.

The first of these is Ambassador Smith's report to President Nixon on 28 September 1971 on the results of the fifth round of negotiations.¹⁰⁹⁹ According to the Legal Advisor, this report "contained several pages concerning the ABM Treaty but made no claim that anything was agreed concerning future systems."¹¹⁰⁰ Since no relevant passages of this report are provided, it is difficult to assess the truth of this claim. It may be surmised, however, that this report made note of the agreement to ban "ABM systems and components" in Article V(1) without indicating whether this term included exotic ABMs. If so, the report would be ambiguous.

The second internal document cited does not, as the Legal Advisor asserts, conclude that "the Soviets had refused to agree to a ban on futures in Article V(1)" during the fifth round.¹¹⁰¹ It, too, is ambiguous.

The third document is a memorandum of a Verification Panel Working Group, dated 27 October 1971. The Legal Advisor claims that it "reflected the underlying difference in coverage [in Article IV] due to disagreement on the meaning of 'components' in Article II." The quoted passage reads as follows:

One of the differences remaining is that the U.S. version [of Article II] presents definitions of ABM systems and of certain ABM components (launchers, interceptors and radars) while the Soviet version states that the obligations of the agreement shall apply to ABM launchers, interceptors and radars. The U.S. side has maintained that some of the obligations of the agreement extend also to systems and components other than ABM systems and components (e.g. to "other phased array radars", to early-warning radars, to surface-to-air missiles, and to non-interference with national means) and to future ABM components (viz., "devices") other than launchers, interceptors and radars.

¹⁰⁹⁸ *Ibid.*

¹⁰⁹⁹ Memorandum for the President, *Report of the U.S. Delegation to SALT* (28 September 1971).

¹¹⁰⁰ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 36.

¹¹⁰¹ *Ibid.* The document is "a study of the ABM negotiating history by ACDA's Historical Division, dated October 1972". The quoted passage reads:

They [the two sides] also agreed in article V to ban sea-based, air-based, space-based, and mobile land-based ABM systems, as well as automatic launchers; the American future-systems provision remained unagreed.

This passage is ambiguous as to whether Article V(1) covered exotic ABMs. That depends on the meaning of "ABM systems." Again, what remained unagreed was not all aspects of future systems but "the American future-systems provision," i.e. JDT Article V(3).

This is not very significant, though. Again, it is not disputed that the Soviet version of Article II(1) treated "ABM systems" as consisting of traditional ABM components only. However, as argued above, the Soviets appear not to have regarded that definition as applicable to Article V.

**A10.1.4.8 Conclusions Concerning Karpov's Statement
Of 15 September 1971**

On the strength of the above discussion, it may be concluded that the most likely meaning of Karpov's agreement that "the Soviet text [of Article V(1)] meant 'any type of present or future components' of ABM systems" is that the provision applied to exotic ABM devices that could substitute for traditional ABM components. This is not to say that the U.S. Delegation was immediately *certain* that this was the Soviet position. However, the Americans appear to have immediately accepted it as their working hypothesis. They would become more convinced of it as a result of subsequent Soviet statements, particularly one concerning the finalization of Article III.¹¹⁰²

**A10.1.5 Failure of the U.S. to Counter Principled Soviet
Opposition to an Exotic ABM Deployment Ban by Citing
Soviet Agreement to Regulate Exotic ABMs in Article V(1)**

The Legal Advisor points out¹¹⁰³ that if the Soviets agreed on 15 September 1971 to ban mobile exotic ABMs, one would expect the U.S. delegates to have responded to continued Soviet opposition to "regulating the unknown" in the proposed U.S. prohibition on the *deployment* of all exotic ABMs by saying, "Look. You have already agreed to limit mobile exotics. How can you logically continue to object to limiting fixed, land-based ones on the ground that one cannot limit the unknown?" Yet the declassified portion of the record gives no indication that U.S. delegates ever made this point.

The absence of this counterargument from the U.S. statements after 15 September 1971 is indeed curious. However, if the Soviets believed the U.S. to have capitulated on the issue of Article V(1)'s coverage of exotic ABMs on 15 September 1971, it is equally curious that *they* did not make the converse argument: "You (the U.S.) agreed with us on 15 September 1971 that unknown systems are not an appropriate subject for the Treaty. Why do you continue to insist on a provision banning the deployment of all exotic ABMs?" Not only did the Soviets not ask this question, but nowhere in the record did they indicate that they regarded the U.S. as having made a substantive concession in agreeing to drop demands for express reference to "other devices" in Article V(1).

**A10.1.6 Chulitsky's 4 December 1971 Assertion That Article V(1)
"Is Adequate to Cover the Problem of Future Systems"**

Similar to Karpov's 15 September 1971 statement is one by Soviet delegate Chulitsky on 4 December 1971:

Mr. Chulitsky also made a strong pitch for dropping Article 5, para 3, on future systems. He argued that it was unnecessary since "no one knew what future systems might be" and that an effort to include "everything" in the agreement would delay progress. He insisted that future systems could be dealt with in the Standing Consultative Commission in the periodic review conference, or in follow-on negotiations. *He also argued that the prohibition on air-based, space-based, land-based, etc. ABM systems is adequate to cover the problem of future*

¹¹⁰² See *infra*, Sections A10.1.6, A10.1.8 and A10.1.13.

¹¹⁰³ 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 49.

systems. The only insight Mr. Chulitsky offered into the reasons for the Soviet position was that "it is difficult to argue with the technical people" that unknown systems should be proscribed.¹¹⁰⁴

The Legal Advisor argues that Chulitsky's statement "is consistent with the position" that the Soviets had agreed to regulate future versions of traditional components only.¹¹⁰⁵ This is highly unlikely. It is obvious from the context that "future systems" meant exotic systems. The "future systems problem," as discussed by both sides, was the problem of how the Treaty should deal with the prospect of exotic ABM deployments. It had nothing to do with future versions of ABM systems comprised exclusively of traditional ABM components. Thus, Chulitsky's statement is additional evidence that the Soviets regarded Article V(1) as applying to exotic ABM components.

A10.1.7 The Introduction of the Connective "Currently Consisting of" Into Article II(1)

SALT Document A-677 gives the following report of a 20 December 1971 meeting between Parsons and Garthoff for the U.S. and Grinevsky and Kishilov for the U.S.S.R.:

Article II of the ABM JDT

Following the mini-plenary meeting earlier that day, Garthoff had given Grinevsky a revised draft Article II Grinevsky noted that there were problems remaining....

Grinevsky stated that the second problem was the absence of a connective between the sub-paragraph defining ABM systems, and the three sub-paragraphs following which defined components. His Delegation strongly believed that there should be some connective such as "namely" or "consisting of". Garthoff stated that the American side did not consider that a connective of this kind was either necessary or desirable. If, however, there were to be one, it should be precise. Therefore, he suggested, we might consider use of the phrase "currently consisting of" as a connective. This was clearly a new thought to Grinevsky and Kishilov and they appeared uncertain of the reaction of their side. Garthoff noted that the Soviet side, as well as the American, recognized that their [sic] could be future systems, and while the question of constraints on future systems would be settled elsewhere than in Article II, the correct way of indicating a valid connection between components and systems in Article II would be to include the word "currently". Grinevsky agreed to take up this possibility with his Delegation.

On the following day, 21 December 1971, the Soviets presented a revised version of Article II that incorporated the phrase "currently consisting of."¹¹⁰⁶ Grinevsky and Kishilov reportedly (a) informed Garthoff and Parsons that acceptance of the phrase had been controversial, and had occasioned considerable debate within the Soviet delegation¹¹⁰⁷ and (b) highlighted the insertion of the words and treated it as a major

¹¹⁰⁴ A-613; emphasis added.

¹¹⁰⁵ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 49.

¹¹⁰⁶ A-678.

¹¹⁰⁷ 1987 *Senate Foreign Relations Committee Report*, *supra*, note 223, at 9; *Nunn Report -- Part 4*, *supra*, note 448, at 87-8, citing A-678 to the effect that Grinevsky and Kishilov reported that there had been "a very delicate situation within the Soviet Delegation" wherein "the expression 'currently consisting of' had been strongly objected to by some members of the Soviet Delegation."

Soviet concession.¹¹⁰⁸

These developments strongly suggest that the Soviets understood and accepted that inserting "currently consisting of" into Article II(1) had the effect of including exotic ABMs in the definition of "ABM system." Garthoff stated that "the correct way of indicating a valid connection between components and systems in Article II would be to include the word 'currently.'" It should have been apparent from this that he regarded a definition incorporating that phrase as including ABM systems comprised in whole or in part of exotic substitutes for traditional ABM components. Moreover, proponents of the permissive interpretation have given no explanation why the insertion of the phrase "currently consisting of" would cause such controversy within the Soviet Delegation unless it brought exotic ABMs into the definition of "ABM system."¹¹⁰⁹

One argument raised to challenge the contention that the acceptance of "currently consisting of" had the effect of extending the definition of "ABM systems" to exotics is that it was understood that this language would not prejudice the positions of the sides on the issue of exotic ABM deployment limitations.¹¹¹⁰ However, this supposed U.S. "concession" does not support the permissive interpretation at all. By agreeing that the insertion of "currently consisting of" into Article II would not prejudice the parties' positions on future systems, the U.S. was merely confirming a truism. Article II's function was to define Treaty terms and not to introduce obligations of its own. This being the case, an agreement that the term "ABM systems" would include exotic systems for the purposes of the Treaty could not prejudice the parties' positions on what substantive restraints should be placed on exotic systems. An agreement on definitions could not prejudice either side's position on obligations.¹¹¹¹

Nevertheless, the Legal Advisor asserts that the Soviets agreed to the change in Article II(1)

only after Garthoff assured them that "the question of constraints on future systems would be settled elsewhere than in Article II," and after Garthoff and the U.S. Delegation had implemented this assurance by agreeing to drop Article V(3) of the U.S. draft and to seek instead a separate, agreed minute to the Treaty on the subject of future devices.¹¹¹²

In fact, however, the record does not indicate that Soviet agreement on Article II(1) was contingent on anything. There is no statement by a Soviet delegate making it so. Their agreement to use the connective "currently consisting of" in Article II(1) may well have been facilitated by Garthoff's *pointing out* that "constraints on future systems would be settled elsewhere." Since this was merely a truism, however, little significance should attach to their reliance upon it.

As for the Soviets agreeing to insert "currently consisting of" only if the U.S. dropped Article V(3) and accepted an agreed interpretation instead, there is no support for this in the record. On the contrary, the tradeoff seems to have been limited to Article V(3) and the agreed interpretation: the U.S. would only

¹¹⁰⁸ 1987 Senate Foreign Relations Committee Report, *supra*, note 223, at 9.

¹¹⁰⁹ Nunn Report -- Part 4, *supra*, note 448, at 88.

¹¹¹⁰ 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 44-5, citing A-677 (20 December 1971). See also *Constitution Hearings*, *supra*, note 237, at 453 (prepared statement of Senator Hollings).

¹¹¹¹ 1987 Senate Foreign Relations Committee Report, *supra*, note 223, at 32-3.

¹¹¹² 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 44-5; emphasis added.

drop the former on condition that it be replaced by the latter. The record confirms that this more straightforward tradeoff was the one contemplated. On 21 December 1971, the date on which the Soviets accepted "currently consisting of," Garthoff noted that "if the Soviet side was prepared to accept the language [for the agreed interpretation] proposed earlier that day, we [the U.S.] were prepared to delete Article V(3) on an *ad referendum* basis."¹¹¹³ Similarly, a U.S. prepared statement of that day, in introducing the proposed U.S. text for the agreed interpretation, stated that

[i]n order to contribute to negotiating progress, while maintaining our basic position on this matter, the U.S. side is willing to drop Article V(3) if there is a clear agreed understanding as part of the negotiating record.

There is no indication that U.S. acceptance of the agreed interpretation as a substitute for Article V(3) was the *quid pro quo* for Soviet acceptance of "currently consisting of" in Article II(1).

The history of these three provisions casts doubt on the Legal Advisor's version of the tradeoff. It shows firm agreement on the text of Article II(1) – including "currently consisting of" – on 21 December 1971. In contrast, the agreement to drop Article V(3) in favour of an agreed interpretation was only "tentative" on 21 December 1971, as the Legal Advisor himself acknowledges.¹¹¹⁴ Indeed, the record shows that as late as 3 February 1972 Article V(3) still had not been dropped from the JDT.¹¹¹⁵

Nonetheless, the Legal Advisor claims that the removal of Article V(3) – specifically its express reference to substitute devices – was a condition of Soviet acceptance of a purely functional definition of "ABM system" in Article II(1). Otherwise, it is argued, that functional definition "would be read – in light of Article V(3) – to include" exotic ABMs.¹¹¹⁶ But this makes no sense. If Article II(1) set out a purely functional definition of "ABM system," this would logically embrace exotic ABMs *whether the Treaty contained an express reference to substitute devices or not*.

The Legal Advisor claims that exchanges on or after 21 December 1971 indicate that the Soviets did not regard Article II(1) as including exotic ABMs in the definition of "ABM systems." First, he cites a statement by Semenov on 21 December 1971 "that inclusion of a provision on so-called 'other ABM systems' in the text of a treaty limiting ABM systems is not acceptable"¹¹¹⁷ The Legal Advisor contends that this "suggests ... that Semenov was assuming that *no provision* then in the draft treaty regulated substitute devices." He notes that the U.S. delegates present "did not challenge his assumption by referring to Article V(1) or Article II."¹¹¹⁸ It is not clear, however, that Semenov meant to imply that no provision of

¹¹¹³ A-678.

¹¹¹⁴ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 64.

¹¹¹⁵ Parsons made a statement on that day [3 February 1972] ... agreeing to drop Article V(3) if the Soviets accepted the interpretation relating to substitute components based on other physical principles.

(*Id.*, at 62-3)

¹¹¹⁶ *Id.*, at 46.

¹¹¹⁷ A-678.

¹¹¹⁸ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 53.

the Treaty constrained exotic ABMs. When the parties referred to "the provision" or "a provision" on exotic ABMs, they were usually referring not to provisions generally but to a specific draft provision -- U.S. Article 6(1) (later JDT Article V(3)) banning the deployment of all exotic ABMs. That was probably the case here too. In other words, Semenov was merely repeating the familiar refrain that JDT Article V(3) was not acceptable to the Soviets.

The Legal Advisor also points to a discussion on 26 January 1972 in which Grinevsky objected to the insertion of the phrase "to perform the functions of the ABM interceptor missiles, ABM launchers, or ABM radars" into the text of the agreed interpretation on future systems. Grinevsky is reported to have said that

the sentence already makes clear that reference is to future ABM system components other than the three indicated in the sentence and in Article II of the treaty. Article II made clear that these are the three components currently comprising ABM systems, and the language under discussion made clear that it was referring to precisely such system components other than the three current ones which were listed.¹¹¹⁹

The Legal Advisor maintains that this statement made it clear "that the Soviets remained committed to the view that the Agreed Statement covered future substitutes, and Article II covered the usual [i.e. traditional ABM] components."¹¹²⁰

This is doubtful. First, Grinevsky was not commenting, even implicitly, on the scope of Article II. He was simply asserting that the text of the agreed statement was sufficiently clear without the additional wording the U.S. was proposing. In so doing he referred to the components "indicated" in Article II. Clearly, Article II(1) "indicated" the three ABM components, in the sense of referring to them by name. Only if "indicated in" is taken to mean "covered by" (as opposed to "specified in," "named in" or "pointed to") would this statement imply the permissive interpretation. But there is no reason to believe that "indicated" was used in this way. In fact, the second quoted sentence tends to refute such a view. It contains one reference to "currently" and another to "current" that Grinevsky was unlikely to make if had he not regarded the insertion of "currently consisting of" as bringing exotic ABMs into the definition of "ABM system."

Finally, the fact that the Soviets gave up the obligational approach on 13 December 1971 and agreed to a functional definition of "ABM systems" plus the "currently consisting of" language in Article II just one week later¹¹²¹ supports the restrictive interpretation. The two developments are logically related: once it was agreed that Article II would define "ABM systems" for purposes of the whole Treaty, the next logical step (assuming an intention to limit exotic ABMs) was to make sure that the definition included exotic ABMs.

¹¹¹⁹ A-743.

¹¹²⁰ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 46-7.

¹¹²¹ A-677 (20 December 1971).

A10.1.8 Indications That Soviet Delegates Regarded the Combined Effect of Articles I, II and III As Prohibiting the Deployment of Exotic ABMs

There are indications in the record that the Soviet negotiators recognized that Articles I, II and III prohibited the deployment of exotic ABMs independently of Agreed Statement D, at least on a nationwide scale. Because Article II(1) defined "ABM system" for the purposes of the Treaty from 21 December 1971 onward, and because the prohibition in Article I applied to "ABM systems," these indications necessarily imply that Article II(1)'s definition of "ABM system" included exotic ABM systems.

The first such indication came on 11 January 1972¹¹²² when Garthoff asked Grinevsky what would happen if consultation on the deployment of exotic ABMs did not lead to agreement. "Would a party, wishing to deploy such a system, be able to do so or not?" After reporting some give and take concerning the hypothetical nature of this question, the record notes that "Grinevsky said that it could do so" Later, though, Garthoff asked

whether in the light of Articles I, II, and III, Grinevsky considered that a party would have the right -- assuming consultations were held and did not lead to agreement -- to deploy all around the country, say, a thousand stations for firing anti-ballistic missile laser interceptor beams. *Grinevsky said no, it would not have such a right....* [Emphasis added]

The document also notes the following concerning Kishilov's view:

In a briefer separate conversation, Kishilov conceded that Articles I, II, and III together would ban future ABM systems or components. (Comment: The confusion and discrepancy between the Soviet participants over interpretation of the effect of Article I, II, and III of the draft ABM Treaty with respect to future ABM systems, and over possible solutions, seem to indicate absence of a clear and thought-through position on this part of the Soviet Delegation at the present time.)

On 14 January 1972,¹¹²³ Soviet delegate Shchukin was asked to clarify his last statement at that day's mini-plenary. U.S. delegate Nitze said that, as he understood it, Shchukin "was saying that under Article III and in the light of Article I, ABM systems could not be deployed except as provided by Article III." Shchukin is reported to have interjected "and also in the light of Article II." Nitze went on to say "and therefore, if new systems reached a stage where they could be deployed, they would be the subject of appropriate action under Articles XIII and XIV." Shchukin then said that was right; he pointed out, though, that this did not prohibit the deployment of a telescope, for example, in support of an ABM radar.

Shchukin's mini-plenary statement itself, however, did not seem to acknowledge the existence of any constraint on the deployment of exotics. It was a response to an 11 January 1972 question as to whether the Soviets regarded "so-called 'other ABM means' as a fit subject not only for appropriate consultation but also for agreement." Shchukin replied:

Both sides agree that they should assume obligations not to deploy ABM systems except as provided in Article III of the draft ABM Treaty. In order to insure implementation of this provision of the Treaty, the sides could, in the event of the emergence of ABM systems

¹¹²² A-710.

¹¹²³ As recorded in A-713.

constructed on the basis of other physical principles, further discuss the question of their limitation in accordance with Articles XIII and XIV of the draft ABM Treaty.¹¹²⁴

Moreover, as the Legal Advisor notes,¹¹²⁵ at the same time as Shchukin was offering Nitze this clarification, Trusov was giving Allison an explanation of Shchukin's statement that contained no such admission of the scope of Articles I, II and III, and which resorted to the repeated Soviet position that "it is premature to discuss limiting systems which are now non-existent."¹¹²⁶

On 21 December 1971, the U.S. tabled a first draft of the agreed interpretation on future ABM systems that would become Agreed Statement D. It began as follows:

The Parties agree that the deployment limitations undertaken in Article I and Article III are not to be *circumvented* by deployment of components other than ABM interceptor missiles, ABM launchers, or ABM radars ¹¹²⁷

It might appear that by speaking of exotic ABM deployments *circumventing* Articles I and III, the U.S. draft implied that those two articles did not themselves prohibit such deployments. However, this formulation may have been drafted before agreement was reached on Article II(1), and the references to "circumvention" disappeared in subsequent versions of the agreed interpretation.

The 1987 Legal Advisor's Report contends that, as of 8 January 1972, the U.S. was uncertain if the Soviets had agreed that the Article II definition of "ABM systems" extended to exotic ABM systems. It offers as evidence the following draft cable prepared by the U.S. Delegation on 8 January 1972 (but which was never sent):

[C]urrent wording of revised articles in the *ad referendum* Joint Draft ABM Text can be interpreted as banning future systems since:

– Article I states that the Parties undertake "not to deploy ABM systems for defense of an individual region except as provided for in Article III."

– Article III, U.S. version, contains words to the effect that the Parties will deploy no more than specified levels of ABM interceptor missiles, ABM launchers, and ABM radars. Soviet version of Article III, uses phrase "the Parties undertake not to deploy ABM system components listed in Article II" except in geographically prescribed areas, and "shall not deploy more than" specified number of launchers and ABMs, thus not "providing for" other ABM component deployments.

– Article II defines an ABM system as "currently consisting of" ABM interceptor missiles, launchers and radars, clearly implying possible other ABM components in future. *These articles, considered together, can be plausibly considered to prohibit deployment of ABM systems other than the specific components permitted by Article III and defined in Article II. There is at present, however, ambiguity as to whether this interpretation is clear to Soviets, and*

¹¹²⁴ A-717.

¹¹²⁵ 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 59.

¹¹²⁶ A-714.

¹¹²⁷ A-678, Attachment; emphasis added.

*they may well not share this interpretation. Highlighting this application of the articles to future devices could have the undesirable effect of provoking a Soviet withdrawal of their agreement to the ad referendum Articles I and II. Delegation therefore believes it desirable seek to deal specifically with the issue, rather than rely solely on interpretation of these articles.*¹¹²⁸

The Legal Advisor describes the course of conduct contemplated in this draft cable as approaching the Soviets on the meaning of Article II alone,¹¹²⁹ thus implying that the meaning of Article II was what was in doubt. In fact, however, this is not what the draft cable said. It stated that Article II "clearly impli[es] inclusion of] possible other ABM components in [the] future."¹¹³⁰ It thus expressed uncertainty as to the Soviets' understanding not of the scope of Article II alone, but of *the combined effect of Articles I, II and III*. This is confirmed in the reporting cable of 10 January 1972 that was sent. This cable listed one option as "explor[ing] the Soviet interpretation of Articles I, II and III of the ABM JDT as applied to future ABM systems"¹¹³¹

The U.S. may have been fairly sure that the Soviets understood and accepted the effect of Articles I, II and III *individually* (including Article II's combining with Article V(1) to ban the development, testing and deployment of mobile exotics). What they were probably less certain about is whether the Soviets understood that the change to Article II(1) had produced a situation in which the combined effect of Articles I, II and III now constrained the deployment of fixed, land-based exotic ABMs. The U.S. delegates were afraid that if they pointed this out, the Soviets might withdraw their consent to JDT Article I and/or Article II. There is no indication that withdrawal of Soviet agreement on Article II was feared because the Soviets would realize for the first time that Article II defined "ABM systems" in such a way as to include systems that included exotic ABMs. From all indications, the only possible revelation to the Soviets lay in the combined effect of Articles I, II and III.

On the other hand, on 11 January 1972 Grinevsky cast doubt onto the apparent Soviet acceptance of Article II(1)'s definition of "ABM systems" encompassing exotic ABMs when he said that

the treaty referred to ABM systems, which were defined in Article II. It could not deal with unknown other systems.¹¹³²

However, the document notes that Garthoff challenged this interpretation, saying that "the treaty dealt not only with ABM systems comprising components identified in Article II, but all ABM systems; ..." The Soviets did not dispute this point.

Thus, the record shows that the Soviets may have regarded the combined effect of Articles I, II and III as constraining exotic ABMs. Since Article II(1) defined "ABM system" for the purpose of the whole Treaty, and since the prohibition in Article I against the defence of an individual region applied to "ABM systems," this implied possible Soviet understanding that Article II(1) defined "ABM system" to include

¹¹²⁸ Quoted in *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 55-6; emphasis added.

¹¹²⁹ *Id.*, at 56.

¹¹³⁰ Emphasis added.

¹¹³¹ *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 56.

¹¹³² A-710.

exotic ABMs.

Internal U.S. documents reveal that the U.S. was uncertain about how the Soviets viewed the combined effect of Article I, II and III. However, this uncertainty does not seem to have stemmed from doubt as to the Soviets' view of the scope of the definition of "ABM system" in Article II(1).

Furthermore, Soviet concessions as to the combined effect of Articles I, II, and III may not signify anything about their understanding of the scope of Article II. This is because there were clear indications that the Soviets regarded Article I as applicable to exotic ABMs even *before* "currently consisting of" was added to Article II(1). For instance, on 10 December 1971, Shchukin said that

both sides agree that there should not be territorial defenses. The Soviet side has proposed specific language covering this in Article I; thus, the agreement would ban the deployment of future systems in a manner providing a territorial defense.¹¹³³

Moreover, on 15 September 1971, when the Soviets briefly put forward introductory language to Article II(1) that listed provisions whose obligations would apply to the ABM systems described in Article II, that list omitted Article I. Thus, the Soviets may not have regarded the Article II(1) definitions as applicable to Article I. If this was the case, this casts doubt on the relevance for the meaning of Article II of Soviet assertions that the combined effect of Articles I, II and III banned the deployment of exotic ABMs.

**A10.1.9 The Absence of Statements in the Record Expressly
Limiting the Applicability of Agreed Statement D
To Fixed, Land-Based Systems and Components**

The Legal Advisor finds support in the absence of statements in the negotiating record by either side expressly acknowledging that Agreed Statement D would apply to fixed, land-based ABM systems and components only.¹¹³⁴ In fact, however, Agreed Statement D is not limited to fixed, land-based exotic ABMs. It just happens to duplicate the effect of Article V(1) with regard to mobile exotic ABMs.

There are indications, thought, that the extended discussion of limitations on exotic ABM deployments operated under the assumption that fixed, land-based systems were what was being discussed. On 14 December 1971, Shchukin said that

he thought we should discuss optical systems; they represent current technology which can be applied to meeting certain ABM tasks. Nitze said that our suggested language for Article V, paragraph (c), would apply to optical systems only if they substitute for ABM radars, not if they were used as adjuncts to radars. Shchukin said that he assumed I was referring to the fact that meteorological conditions would prevent optical systems from being completely substitutable for radars. Brown said this was correct.¹¹³⁵

In a similar vein on 14 January 1972, Shchukin

¹¹³³ A-639.

¹¹³⁴ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 5.

¹¹³⁵ A-647.

said that was right; he pointed out, however, that this did not prohibit the deployment of a telescope, for instance, in support of a radar. He was not sure that deploying a telescope would provide any benefit because of weather problems, but there were some who had an opposite view. Deployment of such a telescope would clearly not substitute for a radar.¹¹³⁶

Only in the case of land-, sea- and air-based systems, or space-based boost phase systems, does the prospect of adverse meteorological conditions make it impossible for optical sensors to fully substitute for radars. Weather would not affect space-based sensing for midcourse BMD. The assumption that sensing would take place through the atmosphere therefore suggests that the sides understood the discussion of the exotic ABM deployment ban to be limited to fixed, land-based systems and components.

A10.1.10 References to Agreed Statement D Indicating That It Was Regarded As Superfluous

The Legal Advisor asserts that the Soviets did not regard Agreed Statement D as superfluous during the negotiations.¹¹³⁷ There are, however, a number of indications that the parties regarded Agreed Statement D as no more than a clarification of what Articles I, II, and III already provided.

For example, the 10 January 1972 U.S. reporting cable¹¹³⁸ made it clear that the U.S. was willing to consider recording the sides' agreement to prohibit the deployment of exotic ABMs in an interpretive statement, rather than in bracketed JDT Article V(3), only if

the Soviets continue to indicate that these articles [I, II and III] in substantially their present form would be acceptable to them, and recognize that deployment of future ABM systems is not permitted *under these articles* without further agreement of the Parties.¹¹³⁹

One proponent of the permissive interpretation has claimed that Agreed Statement D "is an Agreement and not an Understanding,"¹¹⁴⁰ i.e. an independent substantive obligation and not a mere interpretation of Articles I, II and III. The written negotiating record does not bear this out. It contains a number of

¹¹³⁶ A-713.

¹¹³⁷ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 6.

¹¹³⁸ *Supra*, text accompanying note 1131.

¹¹³⁹ Quoted in 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 56; emphasis added.

¹¹⁴⁰ *Constitution Hearings*, *supra*, note 237, at 450 (prepared statement of Senator Hollings).

¹¹⁴¹ On 26 January 1972, the Garthoff/Grinevsky group worked out an agreed draft text, calling it "Agreed Interpretive Statement on Future ABM Systems." (A-743, Attachment 1) On 1 February 1972, Allison referred to the provision as an "agreed interpretive statement" and as an "interpretive statement." (A-766)

There are also several such references in internal U.S. materials from the negotiations. See 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 64, 67 and 70 (all referring to an "agreed interpretation," although the last of these put the expression in quotation marks, arguably questioning the appropriateness of the label) and at 71 ("interpretive statement"). Even more explicitly, an internal U.S. memo of 20 January 1972 from delegate Aldridge (quoted at 59) refers to Agreed Statement D

references to Agreed Statement D as an "interpretive statement"¹¹⁴¹ or an "understanding."¹¹⁴² Only once was Agreed Statement D referred to as an "agreement," and that same passage referred to it as an "understanding" as well.¹¹⁴³

On 3 February 1972, Ambassador Smith issued the following statement:

The sides have agreed *ad referendum* to Delegations on an interpretation of how the provisions of the ABM Treaty would apply to ABM systems and their components based on possible future technologies.¹¹⁴⁴

This is the clearest indication in the record that Agreed Statement D was seen as an interpretation of Treaty articles.

This review of the terminology used to describe Agreed Statement D is more consistent with the provision's being an agreed interpretation of what the Treaty articles provided than with its being a separate agreement with no basis in the Treaty proper.

It should also be noted that while Agreed Statement D was being negotiated (21 December 1971 to 3 February 1972) Article III had not yet been amended to ban all ABM system deployments. Furthermore, the proscription in Article I was, strictly speaking, limited to deployments "for defense of an individual region" and there was no formal agreement that it banned all exotic ABMs. Agreed Statement D was therefore not fully redundant at the time of its negotiation. It only became fully redundant once Article III was amended in late April-early May 1972 and the Soviets acknowledged that Article III banned the deployment of exotic ABMs.¹¹⁴⁵

It has also been asserted that if Agreed Statement D were superfluous, there would have been no need to "add" it to the Treaty.¹¹⁴⁶ This misrepresents the chronology of the negotiations. Agreed Statement D was negotiated before Article III was amended to proscribe the deployment of ABM systems and components. The version of the Treaty text that existed at the time Agreed Statement D was being negotiated was much less clear than the final Treaty text that the deployment of exotic ABMs was prohibited. Thus, the question was not whether Agreed Statement D would be *added* at the end of the negotiations, but whether, having been agreed upon when the Treaty text did not adequately prohibit the deployment of all exotic ABMs, it would be *deleted* once that inadequacy had been removed through the amendment of Arti-

as "an agreed minute and interpretation of Articles I, II and III."

¹¹⁴² Garthoff in A-663 of 17 December 1971 ("clear and explicit understanding"), A-667 of the same date ("explicitly agreed understanding") and A-677 of 20 December 1971 ("clear agreed mutual understanding"); U.S. Delegation in A-678 (Attachment) of 21 December 1971 ("clear agreed understanding"); Grinevsky in A-667 ("understanding") and A-678 ("suggested separate agreed understanding").

¹¹⁴³ Kishilov (A-663, 17 December 1971) observed that "such an agreement could be in a separate understanding."

¹¹⁴⁴ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 63, quoting A-782a; emphasis added.

¹¹⁴⁵ *Nunn Report -- Part 4*, *supra*, note 448, at 104-5.

¹¹⁴⁶ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 3-4.

cle III.¹¹⁴⁷

A10.1.11 The "Talking Points" of 31 January 1971

On January 31 1971, Garthoff showed Kishilov and Grinevsky a set of five points about exotic ABM systems:

Attachment 2 — Statement on 'Future ABM Systems'

It is understood that both sides agree that:

1. ABM systems and their components, as defined in Article II, should not be deployed except as provided for in Article III.
2. The deployment of ABM system components other than ABM interceptor missiles, launchers, or radars to perform the functions of those components is banned.
3. Devices other than ABM interceptor missiles, ABM launchers, or ABM radars could be used as adjuncts to an ABM system provided that the devices could not perform the functions of and substitute for ABM interceptor missiles, ABM launchers, or ABM radars. For example, a telescope could be deployed as an adjunct to an ABM system, whereas a laser for performing the function of an interceptor missile by rendering ineffective a strategic ballistic missile in flight trajectory could not be deployed.
4. Article III should be drafted so as not to permit the deployment of devices other than ABM interceptor missiles, ABM launchers, or ABM radars to substitute for and perform their functions.
5. If such devices are created in the future, their deployment could be provided for by limitations subject to discussion in accordance with Article XIII and agreement in accordance with Article XIV.¹¹⁴⁸

Point 4 made clear an intention to draft Article III in such a way as to prohibit the deployment of exotic ABMs. SALT Document A-763 notes that "[a]fter reading the talking points, Grinevsky said that he believed there was complete agreement." The following day (1 February 1972) Grinevsky said that the Soviet Delegation "had found interesting and helpful the 5 points given by Garthoff."¹¹⁴⁹ While he did not state that the Soviet Delegation as a whole agreed with the "talking points," neither did he retract his stated belief of the previous day that there was complete agreement on their content. It is therefore reasonable to conclude that, as of 1 February 1972, the parties shared an intention to draft Article III in such a way as to prohibit the deployment of exotic ABMs.

One way to effect such an intention would be to make Article III expressly prohibit "the deployment of devices capable of substituting for ABM interceptor missiles, ABM launchers and ABM radars." However, another way would be to have Article II define "ABM systems" to include exotic ABM systems and

¹¹⁴⁷ *Nunn Report -- Part 4, supra*, note 448, at 106.

¹¹⁴⁸ A-763, Attachment 2.

¹¹⁴⁹ A-769.

components, and have Article III ban the deployment of ABM systems and components except for permitted numbers of ABM interceptor missiles, launchers and radars. The final Treaty text implemented the latter option.

Thus we have, in the discussion of the "talking points," an apparent shared intention to have Article III ban exotic ABM deployments and, in the final Treaty text, language that appears to carry out that intention in a way that requires Article II to define "ABM systems" to include exotic ABM systems. In the absence of evidence that the parties did not implement Talking Point 4, contrary to the apparent shared intention it expressed, it is fair to conclude that the parties' discussion of the "talking points" supports the restrictive interpretation.

The *1987 Legal Advisor's Report* does not concede that the "talking points" give significant support to the restrictive interpretation. First, it notes that the "talking points" did not suggest that development and testing of exotic ABMs had already been regulated in Article V(1). The Legal Advisor seems to feel that the points ought to have done so, since they concerned future ABM systems and were not expressly limited to fixed, land-based devices.¹¹⁵⁰ However, the "talking points" did not deal with development and testing at all. Although their title covered all aspects of exotic ABMs, their subject matter was really the *deployment of all fixed, land-based ABMs*.¹¹⁵¹ This being the case, their failure to mention a prohibition on the development and testing of mobile exotic ABMs is no more remarkable than their silence on the development and testing ban on traditional ABM components in mobile basing modes. In fact, the "talking points" do not give a full account of the restrictions on deployment, since they fail to mention Article V(1)'s prohibition on mobile deployment. This omission suggests that, despite their failure to expressly restrict themselves to fixed, land-based ABMs, the "talking points" were not meant to deal with the deployment of mobile ABMs, either traditional or exotic.

The Legal Advisor also argues that Point 4

indicated that the parties felt they needed to redraft Article III to prohibit the deployment of substitute devices – an implicit acknowledgement that Article III as then drafted would not prohibit deployment of [exotic ABMs]. In the subsequent negotiations, a change in Article III made clearer than in earlier drafts that only those systems and components specified in the Article could be deployed. The provision did not, however, contain language expressly prohibiting the deployment of substitutes for "systems" and "components."¹¹⁵²

This is misleading in two respects. First, at the time the "talking points" were being discussed, the parties did not have an agreed text for Article III. Moreover, it is clear that neither the U.S. nor Soviet draft of Article III of that time prohibited the deployment of exotic ABMs, even assuming that Article II defined "ABM systems" to include exotic systems.¹¹⁵³ At that time, an argument could be made that the combined

¹¹⁵⁰ *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 61-2.

¹¹⁵¹ Point 1 deals with the deployment of traditional ABM components. Points 2 through 5 deal with the deployment of exotic ABMs.

¹¹⁵² *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 62.

¹¹⁵³ A draft cable prepared by the U.S. Delegation on 8 January 1972 (but never sent) described the parties' drafts of Article III as follows:

Article III, U.S. version, contains words to the effect that the Parties will deploy no

effect of Articles I, II and III was to ban the deployment of exotics, but the prohibition lay in Article I, not in Article III.¹¹⁵⁴ It was only much later that Article III was amended to itself prohibit the deployment of ABM systems, except as it expressly permitted.¹¹⁵⁵ Thus, it was only natural for Garthoff to acknowledge that Article III as then drafted would not prohibit the deployment of exotics. Article III as then drafted did not prohibit anything.

Second, Talking Point 4 did not say that Article III was to be drafted so as to *expressly* prohibit the deployment of exotic ABMs. It only said that it "should be drafted so as not to permit the deployment" of exotics. Thus, the fact that the final text of Article III does not specifically proscribe the deployment of exotic ABM "devices" is of no significance.

A10.1.12 The Connection Between Agreed Statement D and Article V

Under the permissive interpretation, Agreed Statement D is related to Article V(1). The fact that it contemplates the "creation" of exotic ABMs without limitation as to basing mode, it is argued, makes clear that Article V(1) could not have been meant to place restrictions on exotic ABMs. Under the restrictive interpretation, however, Agreed Statement D is essentially unrelated to Article V. The Legal Advisor therefore finds support for the permissive interpretation in the fact that

[w]hen the parties confirmed their acceptance of Agreed Statement D on February 3, 1972, they did so by noting their agreement "concerning *Article V* of the Joint Draft Text of an ABM Treaty."¹¹⁵⁶

The *Report* concedes that

[t]his format may have resulted simply from the fact that Parsons made a statement on that day (entitled "Article V of the ABM JDT"), agreeing to drop Article V(3) if the Soviets accepted the interpretation relating to substitute components based on other physical principles.¹¹⁵⁷

more than specified levels of ABM interceptor missiles, ABM launchers, and ABM radars. Soviet version of Article III, uses phrase "the Parties undertake not to deploy ABM system components listed in Article II" except in geographically prescribed areas, and "shall not deploy more than" specified number of launchers and ABMs, thus not "providing for" other ABM component deployments.

(Quoted in *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 55)

¹¹⁵⁴ The 8 January 1972 draft cable notes that the agreed Article I

states that the Parties undertake "not to deploy ABM systems for defense of an individual region except as provided for in Article III."

(Quoted in *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 55)

¹¹⁵⁵ See A-838, Attachment 2 (11 April 1972) where the U.S. first proposed this language, and A-872 (26 April 1972) and A-873 (28 April 1972), where there is discussion and eventual Soviet acceptance of the approach.

¹¹⁵⁶ *1987 Legal Advisor's Report*, Part I, *supra*, note 204, at 62, citing A-776; emphasis added.

However, it contends that:

the statement may also reflect an implicit assumption by the parties that the Agreed Statement was relevant to *all* of Article V, including Article V(1).¹¹⁵⁸

Like the textual argument itself,¹¹⁵⁹ this evidence of a substantive relationship between Agreed Statement D and Article V(1) is not persuasive. The agreed statement replaced JDT Article V(3) – a provision that had been part of JDT Article V (or its predecessor U.S. Article 6) since its introduction on 27 July 1971, over six months earlier. This long-time association of the agreed statement with Article V as a potential substitute for Article V(3) is a far more plausible explanation for its connection with Article V than is the highly strained argument of its substantive relevance to Article V(1).

A10.1.13 Indications That The Soviets Understood the Final Form Of Article III To Ban the Deployment of Exotic ABMs

On 28 April 1972, Parsons asked if he understood correctly that the Soviets could probably accept a formulation of Article III in which the parties would agree not to deploy ABM systems and components except as the article allowed. "Grinevsky said that they could, as this would ban 'other systems.'"¹¹⁶⁰ In this context, it is clear that "other systems" meant exotic ABM systems, since there was no question of Article III regulating non-ABM systems. Thus, Grinevsky was expressly acknowledging that inserting into Article III a prohibition against the deployment of ABM systems would have the effect of prohibiting the deployment of exotic ABMs. Article III could not do this unless Article II(1) (whose application to the whole Treaty had long since been settled) defined "ABM systems" to include exotic ABMs. Thus, this statement is strong evidence that the Soviets accepted the restrictive interpretation.

In response to the argument that Soviet acceptance of the restrictive interpretation of Article V(1) is implicit in events surrounding the finalization of Article III, the Legal Advisor argues that "[f]or all these effects to have occurred in this retroactive manner, without explicit confirmation, is unduly strained."¹¹⁶¹ However, Grinevsky's statement unambiguously implies an Article II(1) definition of "ABM systems" that includes exotic ABMs. There is nothing strained about applying that same Treaty-wide definition to Article V(1) and concluding that the Soviets must have understood that the development, testing and deployment of exotic ABM systems and components in mobile basing modes was prohibited.

Neither is it convincing to argue that the change to Article III was intended to clarify Agreed Statement D, and that the latter was where the real prohibition lay.¹¹⁶² Grinevsky did not say that *Agreed State-*

¹¹⁵⁷ *Id.*, at 62-3.

¹¹⁵⁸ *Id.*, at 63.

¹¹⁵⁹ For a critique of the textual argument, see Chapter 4, Section 4.2.1.2.1.7, *supra*.

¹¹⁶⁰ A-873.

¹¹⁶¹ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 78-9.

¹¹⁶² "The Agreed Statement was ambiguous, and the change in Article III helped to clarify its purpose." (*Id.*, at 73)

There is some support for this view in a U.S. reporting cable of 6 May 1972 (USDEL SALT

ment D would ban exotic ABMs; he said that *Article III* would do so.

A10.1.14 The U.S. View of the Soviets' Understanding of the Scope of Articles V(1) and II(1) as Shown in Internal U.S Documents

The Legal Advisor asserts that the U.S. Delegation (a) was uncertain whether the Soviets agreed that Article V(1) applied to exotic ABMs and (b) believed that the U.S. should make a unilateral statement and, if possible, elicit Soviet agreement that it did apply to them. In support of these claims, the Legal Advisor cites and analyses the following internal U.S. documents:¹¹⁶³

1. U.S. SALT I Legal Counsel John Rhinelanders's 24 January 1972 draft of an "Article-by-Article Analysis of ABM Treaty";
2. a 16 February 1972 draft of Rhinelanders's "Article-by-Article Analysis";
3. a paper issued on 6 March 1972 by a Verification Panel Working Group on open issues arising from the JDT;
4. the 20 March 1972 draft of Rhinelanders's "Article-by-Article Analysis";
5. an internal ACDA memorandum dated 20 March 1972;¹¹⁶⁴
6. a 12 April 1972 summary of meetings between U.S. delegates held on 3 and 5 April 1972;¹¹⁶⁵
7. the 20 April 1972 draft of Rhinelanders's "Article-by-Article Analysis";
8. the 24 May 1972 draft of Rhinelanders's "Article-by-Article Analysis";

The first Rhinelanders "Article-by-Article Analysis", that of 24 January 1972, clearly indicated that JDT Article V(1) applied to exotic ABMs. Its analysis of that provision read as follows:

Paragraph 1 of Article V prohibits the development, testing or deployment of:

- an ABM systems [sic] that is sea-based, air-based, space-based, or mobile land-based.
- an ABM interceptor missile, ABM launcher, or ABM radar that is sea-based, air-based, space-based, or mobile land-based.
- a device, which would replace an ABM interceptor missile, ABM launcher or ABM radar in an ABM system, _____, that is sea-based, air-based, space-based, or mobile land-based.¹¹⁶⁶

1289): "US approach on lead-in [of Article III] reinforcing the interpretive statement dealing with future ABM systems...."

¹¹⁶³ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 64-73.

¹¹⁶⁴ Memorandum, J.L. Malone to Hancock, ACDA GC, 20 March 1972.

¹¹⁶⁵ Memorandum, "Summary of Delegates' Review Of Issues Raised in Article-by-Article Analysis of ABM Treaty (draft March 30)...."

This draft showed uncertainty, however, as to whether Article IV limited the testing and development of exotic ABMs to agreed test ranges, using brackets to indicate that doubt. Its analysis of Article IV read as follows:

[This Article limits the testing and development of fixed, land-based ABM systems which are based on future technology to current or agreed test ranges.]¹¹⁶⁷

It seems fairly clear that the uncertainty concerning Article IV did not result from doubt as to whether the Soviets regarded the Article II(1) definition of "ABM system" as including exotic ABM systems. Had this been the case, doubt should also have been cast on Article V(1)'s application to exotic ABMs. But the analysis of Article IV confirmed the application of Article V(1) to exotic ABMs:

Nothing in the Treaty prohibits testing and development of ABM systems based on future technology other than paragraph 1 of Article V, which prohibits the development, testing or deployment of any ABM system, or any ABM component, which is sea-based, air-based, space-based or mobile land-based.¹¹⁶⁸

In the Rhinelander draft of 16 February 1972, the analysis of Article V(1) was the same as in the 24 January draft, except for the addition of two sets of brackets:¹¹⁶⁹

Paragraph 1 of Article V prohibits the development, testing or deployment of:

- an ABM systems [sic] that is sea-based, air-based, space-based, or mobile land-based.

[- an ABM interceptor missile, ABM launcher, or ABM radar that is sea-based, air-based, space-based, or mobile land-based.]

[- a device, which would replace an ABM interceptor missile, ABM launcher or ABM radar in an ABM system, _____, that is sea-based, air-based, space-based, or mobile land-based.]¹¹⁷⁰

Evidently, the following footnote was added in each case to explain the brackets: "US has not made its position clear to Soviets, and Soviet position not clear."¹¹⁷¹ It should be noted, however, that this draft bracketed not only the assertion that Article V(1) applied to substitute devices, *but also the statement that it applied to traditional ABM components*. This strongly suggests that the uncertainty did not relate uniquely to exotic technology.

¹¹⁶⁶ 1987 Legal Advisor's Report, Part I, *supra*, note 204, at 65.

¹¹⁶⁷ *Ibid.*

¹¹⁶⁸ *Ibid.*

¹¹⁶⁹ *Id.*, at 66.

¹¹⁷⁰ *Ibid.*

¹¹⁷¹ *Ibid.*

Perhaps the provision's application to individual components – traditional and exotic alike – as opposed to systems, was not clear. The Legal Advisor informs us that the sentence dealing with substitute devices remained bracketed in the Rhinelander drafts of 20 March¹¹⁷² and 20 April 1972,¹¹⁷³ and that these brackets were not removed until the draft of 24 May 1972.¹¹⁷⁴ He does not say, however, whether the sentence dealing with *traditional* components also remained bracketed in the 20 March and 20 April 1972 drafts. Only if those brackets were removed, while those around the sentence dealing with substitute devices remained, would these two drafts reveal doubt uniquely related to exotic ABM systems.

The Verification Panel Working Group paper of 6 March 1972 assumed that Article V(1) prohibited the development, testing and deployment of "ABM components (i.e., launchers, interceptors, radars, or other devices capable of substituting for them)."¹¹⁷⁵ However, the following footnote appeared after two of its references to "all ABM components (viz. "launchers, interceptors, radars, and other devices capable of substituting for them)": "The JCS representative would delete the phrase 'and other devices capable of substituting for them.'" The Legal Advisor asserts that this meant that the JCS representative did not agree that Article V(1) applied to exotic ABMs. If so, however, this was only the opinion of one of the several executive agencies represented at the meeting, and not that of the executive branch as a whole.

More support for the restrictive interpretation came in the analysis of Article II in the 20 March 1972 draft of the "Article-by-Article Analysis". This draft clearly implied a definition of "ABM system" in Article II(1) that included exotic ABMs. It stated that the word "current" did not limit "the generality of the term to systems composed of such components [i.e. traditional ABM components], but would also include future systems using different components." It also asserted that the listing of components in Article II(1) was "illustrative but not exclusive" of the components covered by the Treaty.¹¹⁷⁶ This supports the view that the bracketing of the sentence dealing with substitute devices in the analysis of Article V(1) was not occasioned by doubt about the applicability of Article V(1) to exotic ABM systems.

The Legal Advisor notes that this draft proposed the following:

The US should consider an agreed interpretation, or US statement, on "development or testing" as used in Article IV. This should dovetail with an interpretation on prohibited development or testing of systems for certain environments in Article V(1). This definition should apply equally to "current" ABM components and "future systems". The agreed interpretation should be keyed to agreed language in Article III.¹¹⁷⁷

This is not, however, as the Legal Advisor seems to imply, a recommendation to clarify the application of Article V(1) to exotic ABMs. It is a suggestion for a clarification of the meaning of "development and testing" in Articles IV and V(1). In fact, this recommendation implicitly *confirms* Article V(1)'s coverage of exotic ABMs by stating that the definition of "development and testing" should apply "equally to 'current'

¹¹⁷² *Id.*, at 68.

¹¹⁷³ *Id.*, at 72.

¹¹⁷⁴ *Ibid.*

¹¹⁷⁵ *Id.*, at 66-7.

¹¹⁷⁶ *Id.*, at 67.

¹¹⁷⁷ *Id.*, at 68.

ABM components and 'future systems.'" Under the permissive interpretation, there are no restrictions on the "development and testing" of exotic ABMs. There would therefore be no reason to apply a definition of those terms to exotic ABMs.

The Legal Advisor reports that the ACDA memorandum of 20 March 1972 suggested the following as part of an "inventory" of agreed statements the U.S. might possibly seek:

A clear understanding that Article IV limits the development and testing of 'future' ABM systems and ABM components (the deployment of which is prohibited) to current or agreed test ranges is needed. Further, what is prohibited under the "develop, test" language of Article V(1), is not clear.¹¹⁷⁸

Again, however, there is no recommendation concerning Article V(1)'s coverage of exotic ABM systems. The agreed statements proposed in this memorandum concern (a) Article IV's coverage of exotic ABMs and (b) the meaning of "development and testing" in Article V(1).

In the 12 April 1972 summary of meetings between U.S. delegates held on 3 and 5 April 1972, the issue of the application of Article V(1) to exotic ABM systems does arise. This document notes that the delegates decided to raise with the Soviets the issue of the application of Article V(1) to ABM systems composed of both mobile and fixed, land-based components. It notes that the U.S. Delegation

[d]eferred [the] decision whether U.S. should make [a] statement which would make clear that development, testing or deployment of "future ABM systems" which are space-based, etc., are prohibited.¹¹⁷⁹

The U.S. never did approach the Soviets on this issue. The fact that a U.S. statement on the matter was considered makes it clear that at least some of the U.S. delegates thought that the matter was unclear. However, again, this document is not evidence that the delegation as a whole thought so. The fact that no U.S. statement on this subject was ever made suggests that the majority of the U.S. Delegation believed, by the end of the negotiations, that none was needed.¹¹⁸⁰

As mentioned, the 20 April 1972 draft of Rhinelanders' "Article-by-Article Analysis" bracketed that part of its treatment of Article V(1) that dealt with substitute devices, as had the drafts of 16 February and 20 March 1972. On this occasion, the accompanying footnote read: "US has not emphasized position in text, which is based on guidance, and the Soviet position may not be clear," supplemented by the following: "ISSUE: Whether US should make US position in 'Four Points on future systems[']; see page 13, footnote 1." The Legal Advisor asserts that "[t]he points proposed would have clarified these issues, but no such effort was made."¹¹⁸¹ Yet he reveals no evidence that what was being discussed here was whether Article V(1) applied to exotic ABM systems.

¹¹⁷⁸ *Ibid.*

¹¹⁷⁹ *Id.*, at 72.

¹¹⁸⁰ It is also possible that the U.S. Delegation refrained from making a statement out of fear that once the issue was expressly raised the Soviets would *deny* the application of Article V(1) to exotic ABMs.

¹¹⁸¹ 1987 *Legal Advisor's Report*, Part I, *supra*, note 204, at 72.

The brackets in Rhinelander's analysis of Article V(1) were not removed until the draft of 24 May 1972. The Legal Advisor states that this shows that "Rhinelander apparently decided, some time between April 20 and May 24, that Article V(1) did, after all, apply to substitute 'devices,'" and that the dropping of brackets was done "without explanation for this change, and without any effort having been made to clarify either the U.S. or Soviet positions, as Rhinelander had recommended."¹¹⁸² As has already been noted, it is not at all clear that any of Rhinelander's drafts exhibited doubt concerning the application of Article V(1) to exotic ABM systems. Furthermore, there is no evidence that he recommended approaching the Soviets on this matter. However, even if both of these assertions were true, an important event occurring between 20 April and 24 May 1972 should have removed any doubt. This was the amendment of Article III to prohibit the deployment of "ABM systems and components" except as that article permitted, and, in particular, Grinevsky's 28 April 1972 comment that this new text of Article III "would ban 'other systems.'"¹¹⁸³ Soviet remarks, such as Grinevsky's, made in connection with the finalization of Article III (and made between 20 April and 24 May) may have been what reaffirmed the U.S. belief – already held, but not yet certain – that the Soviets had accepted the restrictive interpretation.

In conclusion, there is no clear evidence in the U.S. internal documents cited by the Legal Advisor that the U.S. delegation as a whole doubted that the Soviets regarded Article V(1) as applicable to exotic ABM systems. In particular, brackets around the assertion that Article V(1) prohibited the development, testing and deployment of substitute devices in three drafts of Rhinelander's "Article-by-Article Analysis of ABM Treaty" may well have reflected uncertainty on different issues.

A10.1.15 Conclusions Concerning the Declassified Portion Of the U.S. ABM Treaty Negotiating Record

The declassified portion of the U.S. ABM Treaty negotiating record contains some materials that support the permissive interpretation. However, it contains many materials that support the restrictive interpretation as well. At most, therefore, it is ambiguous. It therefore affords no justification for overturning the interpretation clearly established by the Treaty text – the restrictive interpretation.

¹¹⁸² *Id.*, at 72-3.

¹¹⁸³ A-873.

**A10.2 Review of the Opinions of U.S. SALT I Negotiators
As to Whether the Soviets Accepted the
Restrictive Interpretation During the Negotiations**

The opinions of former U.S. ABM Treaty negotiators overwhelmingly favour the restrictive interpretation. One of the earliest expressions of opinion came from John Rhinelander, Legal Advisor to the U.S. Delegation, in a 1974 book.¹¹⁸⁴ His chapter of this book unequivocally supports the restrictive interpretation.¹¹⁸⁵ His overall assessment of the Treaty's effect on future systems was exactly that of the restrictive interpretation:

... The prohibitions in Article V apply to each of the three basic ABM components, as well as the system as a whole... It would also prohibit future ABM systems, such as an air-borne killer laser, as a substitute for a fixed land-based ABM interceptor missile, or a space-based sensor that, coupled with land-based components, was capable of substituting for one or more current ABM components.¹¹⁸⁶

Today, Rhinelander still believes that the Soviets agreed to the restrictive interpretation. He concedes that they initially professed reluctance to impose limits on exotic ABMs, but contends that they eventually agreed.¹¹⁸⁷ In fact, Rhinelander's recollection is that Soviet agreement to apply the Article V(1) ban

¹¹⁸⁴ Rhinelander, "The SALT Agreements", *supra*, note 561, at 128 and 134. Rhinelander has testified that the book reflects his contemporaneous recollection of the advice he gave to the SALT delegation "which was the basis for the executive position before, during and after the ratification process." Although written while he was out of government, the chapter was, he says, informally cleared prior to publication with former government colleagues, in order to ensure both accuracy and non-disclosure of classified information. (*ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 79)

¹¹⁸⁵ In particular, it expressly states

1. that the ABM Treaty prohibitions are not limited to ABMs with nuclear warheads (Rhinelander, "The SALT Agreements", *supra*, note 561, at 128)
2. that Articles II and III "provide the treaty framework for the ban on 'future ABM systems,' which is merely 'spelled out further' in Agreed Statement D (*Ibid.*) and
3. that Article V(1) applies to future systems. (*Id.*, at 128 and 134)

¹¹⁸⁶ *Id.*, at 134.

¹¹⁸⁷ From the best of my recollection and after discussions with former SALT I colleagues now out of government, there is no doubt that the Soviets understood that the text of the ABM Treaty prohibited the development, testing and deployment of space-based 'future' or 'exotic' systems based on the language the U.S. sought and obtained in Article II(1) and Article V(1).

(1985 *ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 359 (answers of John B. Rhinelander to additional questions submitted by Congressman Fascell))

on mobile ABMs to exotic devices was achieved fairly early in the negotiations on exotics – in the fifth negotiating session,¹¹⁸⁸ "by September 1971, less than two months after the issue was first raised."¹¹⁸⁹ Swift agreement on the prohibition of all aspects of *mobile* exotics was possible because the U.S. was not pursuing them at the time.¹¹⁹⁰ The *development and testing of fixed, land-based* exotic ABMs was not a contentious issue either, because not only did the U.S.S.R. oppose its prohibition, but the U.S. Joint Chiefs of Staff insisted on preserving for the U.S. the option of developing and testing fixed, ground-based ABMs based on other physical principles.¹¹⁹¹ The prolonged disagreement – lasting, according to Rhinelander, about five months, into the sixth negotiating session¹¹⁹² – was over the very narrow issue of the *deployment of fixed, land-based* exotics, which the Soviets wanted to permit but the U.S. wanted to prohibit. This activity is regarded as prohibited under either interpretation.

Sidney Graybeal was an ACDA representative at SALT I, and headed the U.S. contingent to the working group charged with negotiating Article V. He believes that the *written* negotiating record is ambiguous as to whether the Soviets accepted the restrictive interpretation. As a key participant in the negotiating process, however, with the additional knowledge that entails, he believes that "[t]he Soviets fully understood what was intended by article V," i.e. that it applied to exotic ABMs.¹¹⁹³ Graybeal calls the process of using a review of the written negotiating record alone to support the permissive interpretation "rewriting history."¹¹⁹⁴

Graybeal recalls that his discussions with Soviet delegate Karpov were "very explicit and very detailed" and, based on them, there is no doubt in his mind that Karpov understood that the restrictive interpretation was what had been agreed upon.¹¹⁹⁵

To the best of my recollection, the U.S. never sought an Agreed Statement confirming that Article V(1) covered 'exotic' systems. We probably felt that seeking further specific agreement was unnecessary and would not be productive. In any event, I am absolutely certain that my *contemporaneous advice* to the U.S. delegation on the scope of Articles III and V(1) with respect to 'exotic' systems was clear and that *none of the delegates (State, ACDA, JCS and OSD) disagreed with that advice*. I recall no indication that the Soviets thought otherwise.

(*Id.*, at 74 (testimony of John B. Rhinelander; emphasis in original)).

¹¹⁸⁸ *Id.*, at 90 (testimony of John B. Rhinelander).

¹¹⁸⁹ *Id.*, at 372 (answers of John B. Rhinelander to additional questions submitted by Congressman Fassel).

¹¹⁹⁰ *Ibid.*

¹¹⁹¹ *Id.*, at 53 (testimony of John B. Rhinelander).

¹¹⁹² *Id.*, at 70-1 and 90 (testimony of John B. Rhinelander).

¹¹⁹³ *Constitution Hearings, supra*, note 237, at 221 (testimony of Sidney Graybeal).

¹¹⁹⁴ *Ibid.*

¹¹⁹⁵ *Id.*, at 217.

I think that based on my knowledge, my experience with Karpov and expressing a personal opinion, in my view the Soviets did fully understand and they fully agreed. My point is that the specific details of those exchanges are nonexistent. You look at other parts of the record, and there are in the negotiating record *per se* sufficient ambiguities for a very rigorous analyst and an honest man to come to a different conclusion. So two people can come to different conclusions on that. My personal conclusion is that this process [of reviewing the written record alone, and concluding that it supports the permissive interpretation] is rewriting what actually transpired.¹¹⁹⁶

U.S. Delegation head Gerard Smith believes that there was a "meeting of minds"¹¹⁹⁷ on the restrictive interpretation:

The Soviets did not want to try to tie down futuristics, but in the end they did, after much negotiating.¹¹⁹⁸

In fact, he, like John Rhinelander, maintains that the agreement to apply Article V to exotics was achieved by September 1971 and that, from that time forward, the only issue concerning exotics was whether their fixed, land-based deployment would be prohibited.¹¹⁹⁹

Harold Brown was a delegate-at-large at SALT I. He has reviewed the written negotiating record and believes that it is ambiguous, but lends more support to the restrictive than to the permissive interpretation.¹²⁰⁰

Raymond Garthoff was the Executive Secretary and Senior Advisor to the U.S. SALT I Delegation. When asked in 1987 whether, in his view, "the Soviets also closed on the same [i.e. the restrictive] interpretation of the treaty," Garthoff answered in the affirmative.¹²⁰¹ Like Ambassador Smith, Garthoff recalls that Soviet agreement to apply the Article V(1) ban on mobiles to exotic ABMs was obtained by September 1971, and that subsequent disagreement over exotics was limited to their fixed, land-based deployment.¹²⁰²

On 11 March 1987, Lt. Gen. Royal Allison (ret.) submitted to the Senate Foreign Relations Committee a joint letter, dated the previous day, from eight principal members of the U.S. Delegation. These include, in addition to Ambassador Smith, and Messrs. Rhinelander, Garthoff and Brown, Lt. Gen. Allison himself (senior military official and JCS representative at SALT I), Ambassador J. Graham Parsons (Depu-

¹¹⁹⁶ *Id.*, at 222.

¹¹⁹⁷ 1985 *SDI Hearings*, *supra*, note 199, at 192 (prepared statement).

¹¹⁹⁸ 1985 *ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 25 (testimony of Gerard C. Smith).

¹¹⁹⁹ *Id.*, at 265 (answers of Ambassador Smith to additional questions from Senator Warner).

¹²⁰⁰ H. Brown, "Too Much, Too Soon", *Arms Control Today*, May 1987, at 3.

¹²⁰¹ *Constitution Hearings*, *supra*, note 237, at 17 (testimony of Raymond Garthoff).

¹²⁰² *Id.*, at 24.

ty Chairman of the Delegation), Philip J. Farley (Alternate Chairman), and Dr. Lawrence D. Weiler (Advisor to the Chief Negotiator). Their joint testimony was, in part, as follows:

We wish to confirm our view that the Treaty prohibits the development and testing, as well as deployment, of all space-based and other mobile-based ABM systems and components, regardless of whether they use 1972-era or newer technologies. This view of the Treaty is clear from the ordinary meaning of the Treaty text, the Treaty's negotiating record, the United States legislative history, and the subsequent practice of both the US and the Soviet Union. We believe that a careful reading of the classified negotiating record will support our position.

We are convinced that the Soviet negotiators shared our view that the Treaty bans the development and testing, as well as deployment, of all space-based and other mobile-based ABM systems and components.¹²⁰³

Two important U.S. delegates who did not sign this letter are Sidney Graybeal and the late Col. Charles L. FitzGerald. However, their concurrence with the majority of their former colleagues is revealed in an analysis of the negotiating record that they recently co-authored.¹²⁰⁴ It was very supportive of the restrictive interpretation.¹²⁰⁵ Graybeal's concurrence is also clearly shown by his recent Congressional testimony on the matter.¹²⁰⁶

Finally, Ambassador Smith has testified that Henry Kissinger, Secretary of State in 1972, now supports the restrictive interpretation.¹²⁰⁷

Only one delegate, Paul Nitze, agrees with Judge Sofaer.¹²⁰⁸ However, his position on the *content* of the negotiating record is not necessarily inconsistent with that of his former colleagues. He has simply noted that the *written* negotiating record does not establish *conclusively* that the Soviets agreed to the restrictive interpretation.¹²⁰⁹ This is true. However, since (a) those written records are demonstrably

¹²⁰³ Reproduced in *id.*, at 495-6.

¹²⁰⁴ *FitzGerald/Graybeal Study*, *supra*, note 973.

¹²⁰⁵ See generally *1987 Legal Advisor's Report*, Part I, *supra*, note 204.

¹²⁰⁶ See *supra*, text accompanying notes 1193 to 1196.

¹²⁰⁷ *Constitution Hearings*, *supra*, note 237, at 171 (testimony of Gerard Smith).

¹²⁰⁸ *Id.*, at 31 (testimony of Paul Nitze). Ambassador Nitze testified that the U.S. tried unsuccessfully for months to tie the Soviets down to an agreement that the meaning of "components" in Article V included non-traditional devices and finally agreed to Agreed Statement D "in order to cover the point as best we could" (i.e. to at least nail down the exotic ABM *deployment* ban):

[T]hey adopted a principled position: it was improper to try to limit systems based upon technology which was unknown ... [although]... they finally agreed to Agreed Statement D which limited the deployment of such systems, were they once created.

(*Id.*, at 33)

incomplete, (b) all other principal U.S. delegates believe that the Soviets accepted the restrictive interpretation (and in some cases were expressly told as much by Soviet delegates)¹²¹⁰ and (c) conclusive proof is not required (and in most cases is unlikely to exist) in matters of treaty interpretation, Ambassador Nitze's opinion loses most of its force.

¹²⁰⁹ Sidney Graybeal noted this in 1987 Congressional testimony, stating that

[i]n his [Ambassador Nitze's] speech on April 1 [1987],... he carefully chooses his words ..., that you cannot *from the negotiating record* tie down that the Soviets *explicitly* agreed to this particular point.

(*Id.*, at 208-9; emphasis added)

¹²¹⁰ See Chapter 4, Section 4.2.1.3.1.7, *supra*.

APPENDIX 11

U.S. AND SOVIET HEARINGS TO CONSIDER RATIFICATION OF THE ABM TREATY: A COMPILATION OF EXCERPTS CONCERNING THE MEANING OF "ABM SYSTEMS AND COMPONENTS"

APPENDIX 11(a) – WHITE HOUSE PRESS CONFERENCES¹²¹¹

Passage #1 May 26, Spaso House, Moscow

Ambassador Smith. Now, Article II defines what we are talking about and has a very important bearing on the whole question of what we call future ABM systems. This treaty has as a most significant aspect that it not only limits the present situation, but has a choking off effect on future systems which, under the terms of the treaty as we have reached understandings, futures will not be deployable unless this treaty is amended. (at 99)

¹²¹¹ White House Press Conferences, reproduced in *1972 Senate Armed Services Hearings, supra*, note 135, at 99 (hereinafter *White House Press Conferences*).

APPENDIX 11(b) – LETTER OF TRANSMITTAL, 10 June 1972¹²¹²

Passage #1

In broad outline, the ABM Treaty Provides that:

[discussion of (a) the prohibition against nationwide ABM deployment or a base for the same; (b) ABM deployment for defence of a region, except as specifically permitted; (c) permitted deployments of ABM components, and their locations, including detailed limits on radars]

In order to assure the effectiveness of these basic provisions of the Treaty, a number of detailed corollary provisions were also agreed:

Development, testing and deployment of ABM systems or ABM components that are sea-based, air-based, space-based or mobile land-based are prohibited;

Deployment of ABM systems involving new types of basic components to perform the current functions of ABM launchers, interceptors or radars is prohibited;...

(at 121-2)

Passage #2

A. Limitations on ABM Systems

(1) Deployment ...

Article II defines an ABM system as "a system to counter strategic ballistic missiles or their elements in flight trajectory". It indicates that such systems currently consist of ABM interceptor missiles, ABM launchers and ABM radars... (at 123)

¹²¹² *Supra*, note 530, at 121-34.

Article III prohibits the deployment of any ABM systems or their components except as provided therein. Under Article III, the Parties may deploy only systems consisting of ABM interceptor missiles, ABM launchers and ABM radars. (at 124)

Passage #4

(2) 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 and deployment of ABM systems and components which are sea-based, air-based, space-based or mobile land-based... (at 125)

Passage #5

(3) 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. Devices other than ABM interceptor missiles, ABM launchers and ABM radars could be used as adjuncts to an ABM system, provided that such devices were not capable of substituting for one or more of these components. Finally, in the course of the negotiations, the Parties specified that: [Agreed Statement D quoted in full]... (at 125-6)

APPENDIX 11(c) – 1972 SENATE FOREIGN RELATIONS COMMITTEE HEARINGS¹²¹³

Passage #1 19 June 1972

Prepared Statement of Secretary Rogers

... The treaty provides for other important qualitative limitations. The parties will undertake not to develop, test or deploy ABM systems or their components which are sea-based, air-based, space-based or mobile land-based. They have also agreed not to develop, test or deploy ABM launchers for launching more than one ABM interceptor missile at a time from each launcher, nor to modify 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; not to develop, test or deploy ABM missiles with more than one independently guided warhead.

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. (at 6)¹²¹⁴

Passage #2 19 June 1972

Senator Aiken. I have been reading lately in several places about the effectiveness of the laser guided bombs in wiping out SAM's in North Vietnam. If a laser can be used in wiping out the SAM's, could the laser also be effective in the ABM system?

If the laser had come three years ago, one would have voted against the ABM system when it was first proposed.

Secretary Rogers. Under the agreement we provide that exotic ABM systems may not be deployed and that would include, of course, ABM system [sic] based on the laser principle.

Senator Aiken. Is the ABM system getting somewhat obsolete?

Secretary Rogers. Excuse me?

¹²¹³ United States, Congress, Senate, Committee on Foreign Relations, *Strategic Arms Limitations Agreements*, Hearings, June-July 1972, 92nd Cong., 2nd Sess. (Washington, D.C.: USGPO, 1972).

¹²¹⁴ The 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 12, maintains that a draft of Secretary Rogers's statement, submitted in advance to the committee, contained, in the paragraph dealing with "future types of ABM systems depending on such devices as lasers or particle accelerators", the sentence "Development and testing of such devices for fixed land-based systems is not prohibited", but that it was stricken out by hand. It is not known who deleted this sentence or why.

Senator Aiken. Is the ABM system getting obsolete? If the lasers can be used to knock out the SAM's, wouldn't they be effective against other types of missiles also?

Mr. [Ambassador Gerard] Smith. Senator Aiken, I think it is an entirely different problem with respect to the use of lasers to help guide offensive missiles and from their use to guide defensive missiles, but we have covered this concern of yours in this treaty by prohibiting the deployment of future type technology. Unless the treaty is amended, both sides can only deploy launchers and interceptors and radars. There are no inhibitions on modernizing this type of technology except that it cannot be deployed in mobile land-based or space-based or sea-based or air-based configurations. But the laser concern was considered and both sides agreed that they will not deploy future type ABM technology unless the treaty is amended. (at 20)

Passage #3

Senator Buckley. I will say at the outset that I will vote against ratification of the ABM Treaty for the reason that I have very strong misgivings as to both the prudence and the ultimate morality of denying ourselves for all time, or denying the Russians, for that matter, the right to protect our civilian populations from nuclear devastation...

... [T]he agreement goes so far as to prohibit the development, test or deployment of sea, air or space-based ballistic missile defense systems. This clause, in Article V of the ABM Treaty, would have the effect, for example of prohibiting the development and testing of a laser-type system based in space which could at least in principle provide an extremely reliable and effective system of defenses against ballistic missiles. The technological possibility has been formally excluded by agreement. (at 258-9)

APPENDIX 11(d) – 1972 HOUSE FOREIGN AFFAIRS COMMITTEE HEARINGS¹²¹⁵

Passage #1 20 July 1972

Prepared Statement of Secretary Rogers

[after describing the *quantitative* limitations on ABM technology...]

The commitment to low ABM levels is further enhanced by several important qualitative limitations. We and the Soviet Union have agreed not to develop, test or deploy:

1. ABM systems or components that are sea based, air based, space based, or mobile land based;
2. Automatic or semiautomatic or other similar systems for rapid reloading of ABM launchers;
3. An interceptor missile with more than one independently guided warhead; and
4. An ABM launcher capable of launching more than one interceptor missile at a time from each launcher, or to modify launchers to give them such a capability.

Such undertakings are important. It may be of even greater importance that both sides have agreed that future types of ABM systems based on different physical principles, for example, systems depending on such devices as lasers, that do not consist of ABM interceptor missiles, launchers, and radars, cannot be deployed even in permitted areas. So there is a limitation on what may be employed in the ABM systems now in operation and it prohibits the deployment of new esoteric systems in these areas. (at 5)

¹²¹⁵ *Supra*, note 530.

APPENDIX 11(e) – 1972 SENATE ARMED SERVICES COMMITTEE HEARINGS¹²¹⁶

Passage #1 6 June 1972

Senator Jackson. Do I understand that there is no prohibition in any of the understandings -- I can't find it in the treaty -- on research, tests, and development for the ABM?

Secretary Laird. Yes, in the Safeguard and site defense programs, Senator Jackson. I have been concerned about the statements which you made about a laser contract cancelled under my direction. I can assure you that there has been no such contract cancelled as far as the Army is concerned...

Senator Jackson. ... I take it your answer is that there is nothing in the SALT agreements or understandings or interpretation that prohibits any kind of research, test and development work in connection, first, with the ABM?

Secretary Laird. There are no other understandings or agreements that control research, development, test and evaluation on ABM other than the written treaty and the interpretative statements.

Senator Jackson. And what does that provide?

Secretary Laird. It provides that research and development can continue, but certain components and systems are not to be developed... (at 30-1)

Passage #2 6 June 1972

Senator Dominick. Is the U.S.S.R. restricted in further R & D in MIRV, FOBS, lasers, and all other new weapons of capabilities not expressly forbidden?

Secretary Laird. The answer is no.

Senator Dominick. In your opinion, does SALT impede satellite-based counterforce system developments which Senator Goldwater says to me is not only the way we should be on, but the way of the future?

Secretary Laird. I will supply the exact language for the record at this point. (The information follows:)

There are no specific provisions in the Interim Offensive Agreement which impede satellite-based counterforce system developments. However, as you know, the Treaty on Outer Space... explicitly prohibits the placing in orbit of weapons of mass destruction. The ABM Treaty specifically prohibits space-based ABM systems. The exact language is as fol-

¹²¹⁶ *Supra*, note 135.

lows: (ABM Treaty Article V(1) quoted in full)

Secretary Laird. This applies to the defensive, but not offensive systems. And I assume that your question applies to both. (at 38-9)

Passage #3 6 June 1972

Prepared Questions From Senator Goldwater

[questions submitted by Senator Goldwater answers supplied by Department of Defense]

Question: The ABM bit does not bother me too much, although I have not seen the fine print. For my money, we should have long since moved on the space based systems with boosting phase destruction with shot, nukes [sic], or lasers. I have seen nothing in SALT that prevents development to proceed in that direction. Am I correct?

Answer: With reference to development of a boost-phase intercept capability or lasers, there is no specific provision in the ABM Treaty which prohibits development of such systems.

There is, however, a prohibition on the development, testing or deployment of ABM systems which are space-based, as well as sea-based, air-based, or mobile land-based. The U.S. side understands this prohibition not to apply to basic and advanced research and exploratory development of technology which could be associated with such systems, or their components.

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, that is, ABM launchers, ABM interceptor missiles, and ABM radars, shall be subject to discussion in accordance with article XIV (amendments to the treaty).

Secretary Laird. [resuming oral testimony] Could I add, in answer to Senator Goldwater's question, it does have an effect on the defensive systems, but not on the offensive systems.
(The information follows:)

No. Space-based ABM systems are prohibited by Article V of the ABM Treaty which states in part: [ABM Treaty Article V(1) quoted in full]

Passage #4 20 June 1972

Senator Thurmond. ... [T]he proposed ABM Treaty seems to preclude any serious effort to protect major segments of our civilian population centers either now or at any time in the future. I understand we have had R & D programs, such as the development of the laser-type ABM system.

Is there any reason why we should forever preclude the possibility of developing a truly effective defense of our cities if technology should make one available?

Secretary Laird. The research and development programs in these areas will go forward and it is most important, I believe, that we carry out an adequate research and development program so that we can main-

tain our ABM technology. The treaty, of course, does make such deployments contingent upon treaty amendment, but it does permit research and development on the ongoing technology which we have in these fields.

Senator Thurmond. Would the agreement prohibit us from developing an ABM laser type weapon, for instance, on tanks?

Secretary Laird. No, it would not apply to weapons that did not have an ABM capability -- (at 171)

Passage #5 22 June 1972

Senator Smith. ... [W]ould you tell the committee what progress is being made in the research and development of the laser [deleted].

Dr. Foster. Certainly, Senator Smith. The United States today has a research and development effort in lasers that totals a little above [deleted].

Senator Smith. ... Is there anything in the agreements that would prevent us from continuing our effort along this line?

Dr. Foster. There is nothing in the agreements, Senator Smith, that prevents us [deleted]. The agreement does forbid the replacement of the currently allowed defense, that is, interceptor missiles, by a laser system.

Senator Smith. In other words, the laser, if it was developed to the ultimate, could not be used at one of the two sites?

Dr. Foster. Yes, its deployment would be prohibited by this treaty. A laser could be used as part of an auxiliary designator system but it could not be used in substitution for a prime detector, that is, the ABM radar, or interceptor missile component.

Senator Smith. But that will not slow us up or slow us down on continued research and development of the laser, will it?

Dr. Foster. No, Senator, it will not. [Deleted]
(at 222)

Passage #6 22 June 1972

Senator Jackson. ... [I]s there anything in these agreements that impinge[s] on our right to research those areas that bear on both our defense and on defense capability? Specifically, there is a limitation on lasers, as I recall, in the agreement and does the SAL agreement prohibit land-based laser development?

Dr. Foster. No, sir; it does not. [Deleted]¹²¹⁷

Senator Jackson. [Deleted]

Dr. Foster. [Deleted] What is affected by the treaty would be the development of laser ABM systems capable of substituting for current ABM components.

Senator Jackson. I am saying offense and defense, now.

Article 5 says each party undertakes not to develop and test, or deploy ABM systems or components which are sea based, air based, space based, or mobile land based.

Dr. Foster. Yes sir; I understand. We do not have a program to develop a laser ABM system.¹²¹⁸

Senator Jackson. If it is sea based, air based, space based, or mobile land based. If it is a fixed, land-based ABM system, it is permitted; am I not correct?

Dr. Foster. That is right.

Senator Jackson. What does this do to our research --

I will read it to you: section 1 of article 5 -- this is the treaty: "Each party undertakes not to develop" -- it hits all of these things -- "not to develop, test or deploy ABM systems." You can't do anything; you can't develop, you can't test and finally, you can't deploy. It is not "or".

Dr. Foster. One cannot deploy a fixed, land-based laser ABM system which is capable of substituting for an ABM radar, ABM launcher, or ABM interceptor missile.

Senator Jackson. You can't even test; you can't develop.

Dr. Foster. You can develop and test up to the deployment phase of future ABM system components which are fixed and land-based.¹²¹⁹

My understanding is you can develop and test but you cannot deploy. You can use lasers in connection with our present land-based Safeguard system provided that such lasers augment, or are an addendum to, current ABM components. Or in other words, you could use lasers as an ancillary piece of equipment but not as one of the prime components either as a radar or as an interceptor to destroy the vehicle.

Senator Jackson. The way I read this - but I may be wrong; it depends upon the interpretation here - but it says 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.

Dr. Foster. That is correct.

¹²¹⁷ The 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 16, supplies part of the deletion: "... What is affected by the treaty would be the development of laser ABM systems capable of substituting for current ABM components." It goes on to say that, while the original transcript of this sentence reads "development", it indicates that a change to "deployment" was intended which does not appear in the printed version.

¹²¹⁸ A continuation of this sentence -- "... and such a program through the development and tests is prohibited by the treaty." -- was deleted from the original transcript. (*Ibid.*)

¹²¹⁹ The answer given in oral testimony was simply "You can develop and test"; the remainder was inserted afterwards. (*Ibid.*)

Senator Jackson. Now, it could well be read into this that even though you are conducting research you have not deployed it, that you cannot do that either. The way I read this, Mr. Chairman - you might take a look at it - I think it raises a real question here whether you can actually engage in research.

(The information follows) [Provided by the Administration]

Article V prohibits the development and testing of ABM systems and components that are sea-based, air-based, or mobile land-based. 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 bread-board model.

Dr. Foster. [Orally] No.

(at 274-5)

Passage #7 28 June 1972

Mr. [Ambassador Gerard] Smith. ... As a further restraint on ABM capabilities, there are three significant qualitative limitations on ABM systems. Both sides have agreed not to develop, test or deploy ABM launchers for launching more than one interceptor missile at a time, to modify launchers to provide them with such capability, nor to develop, test or deploy ABM automatic or semi-automatic or other similar systems for rapid reload of ABM launchers.

The development and testing, as well as the deployment of sea, air, space-based, and land-mobile ABM devices is prohibited. Of perhaps even greater importance, the parties have agreed that no future types of ABM systems based on different physical principles from present technology can be deployed unless the treaty is amended. (at 287)

Passage #8 28 June 1972

Mr. [Ambassador Gerard] Smith. There were concerns about the dangers involved in a large, costly, destabilizing ABM competition. Under the terms of the ABM Treaty, those concerns should be sharply reduced, if not entirely eliminated. (at 291)

Passage #9 28 June 1972

Senator Smith. Mr. Ambassador, you say that the treaty prohibits the development of other ABM systems. Would this affect a development of a laser ABM system by the United States?

Mr. [Ambassador Gerard] Smith. Senator Smith one of the agreed understandings says that if ABM technology is created based on different physical principles, an ABM system or component based on them can only be deployed if the treaty is amended.

Work is [sic] that direction, development work, research, is not prohibited, but deployment of systems using those new principles in substitution for radars, launchers or interceptors, would not be permitted unless both parties agree by amending the treaty.

(at 295)

Passage #10 28 June 1972

Senator Goldwater. ... [U]nder this agreement are we and the Soviets precluded from the development of the laser as an ABM?

Mr. [Ambassador Gerard] Smith. No sir.

Senator Goldwater. Well now, there is a point of confusion, because I have been told that we are precluded from the development of the laser. I have read that the orders have come down from the Secretary of Defense to stop the development of the laser for ABM purposes...¹²²⁰

(at 306)

Passage #11 18 July 1972

Senator Jackson. ... [I]sn't it a fact that the Soviet technology in the area of antiballistic missiles is somewhat limited and that the Soviets have only confined themselves in this agreement to the limit of their technology at this time? Isn't that a fair statement?

Mr. [Ambassador Gerard] Smith. Well, this treaty is of indefinite duration; it placed no limitation on the technology, the development of technology of radars, launchers and interceptors. It does place limits on the technology of systems using other physical principles, but it would be fair to say it does not limit them to the present state of their art. (at 371)

¹²²⁰ Ambassador Smith did not comment on these last remarks. In particular, he did not assert that the development of mobile-based ABM components based on lasers was prohibited.

Passage #12 19 July 1972

Senator Goldwater. I have one more question, General Ryan,¹²²¹ and also of General Leber.¹²²² It applies to our R. & D.

I seem to remember, immediately after the announcement of the SALT talks, Secretary Laird's announcing that there would be no more R. & D. in laser development that might be used for antiballistic missiles. That appeared in the press, and when Ambassador Smith was here, I asked him if this were true. Surprisingly, he answered and said that it was not true, that we were allowed to continue with the laser research and development. Is that your understanding?

General Ryan. Yes, sir.

Senator Goldwater. Is it yours, too, General?

General Palmer. My understanding is in the defensive area, R. & D. is basically prohibited.

Senator Goldwater. Prohibited?

General Palmer. Basically prohibited.

Senator Goldwater. Here is another point that we have trouble on, a very simple point.

General Palmer. Talking about the defensive, now.

Senator Goldwater. Ambassador Smith didn't delineate between the two: offensive or defensive. I am interested in not particularly offensive because I think for our purposes we have made progress in this field, but I am thinking of the extent of research on laser that could result in a perfect ABM weapon.

General Palmer. Your question to me was development of laser, and we do have an ongoing program on development in the general generic term of "laser".

Senator Goldwater. I was interested -- again, you might be able to answer it -- if anyone acquainted with laser can see its application as we progress in the science of ABM use in a very perfect way, an inexpensive way compared to what we are doing. It was my interpretation of the Secretary's remarks we would no longer engage in such development.

General Palmer. I would like to correct my statement.

I was referring to the deployment of such systems. There is no limit or understanding of a limit on R. & D. in the futuristic systems, but would require an amendment of the treaty or further agreement to deploy such a system.

Senator Goldwater. Then what you are saying, if the Army or any of our research and development agencies suddenly came along with a breakthrough that would enable us to get the power to develop the optical mechanism, would it mean that we couldn't deploy the anti-ballistic missile capability?

General Ryan. That's correct.

¹²²¹ General John Ryan, Air Force Chief of Staff.

¹²²² Lt. Gen. W.P. Leber.

General Palmer. That's correct.

Senator Goldwater. Do you both believe that?

General Palmer. Without further agreement.

General Ryan. The development, when you speak of the development, is not banned. The development... [i]s not banned, such as Hardsite defense. The development --

Senator Goldwater. But the deployment?

General Palmer. The deployment of these systems is banned.

General Leber. The only limitation in the treaty, and it is in the ABM Treaty... is that either side... would not use a laser device to substitute for any other component part of the ABM system. You could use laser technique any of your existing components -- radar, interceptor -- those are the main components, but if you propose to substitute, for example, a laser device for the interceptor, that would be prohibited, an amendment to the treaty would be required for deployment.

That is a very narrow area now that we are talking about it has nothing to do with ICBM's, nothing to do with the defense systems in general. The only restriction is that you would not substitute a laser device for one of the components of your ABM system.

(at 437-9)

Passage #13 19 July 1972

Senator Jackson. Without some sort of onsite inspection, we can't monitor "development", can we?

General Leber. I think we can detect testing of laser devices in an ABM mode; I think we can without onsite inspection.

Passage #14 19 July 1972

Senator Dominick. ... There isn't any ban, as I understand it, on research and development on either side?

General Ryan. That's right.

Senator Dominick. So, therefore, the onsite inspection is no different; the offsite inspection is no different now than it was before?

Senator Jackson. Yes, but under article V of the ABM Treaty "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."

Senator Goldwater. Fixed based.

Senator Jackson. The fixed base ABM is exempt.

Senator Goldwater. Fixed based.

Senator Jackson. The fixed baseve. [sic] .

Senator Goldwater. We could then replace the Sentry with the laser if it became effective?

Senator Jackson. The prohibition runs to sea based, air based, space based, or mobile land based ABM's.

Senator Goldwater. Not fixed land?

Senator Jackson. That's right. That is exempt. I am just pointing this out. In those other areas, it is permitted and development is also permitted...

General Palmer. ... The treaty, as you have just read, does limit radars, launchers and missiles; it does not limit R & D on futuristic systems. We not could deploy such a new system, however —

(at 440)

Passage #15 19 July 1972

Senator Goldwater. ... Was the Chairman of the Joint Chiefs ever brought into this whole question of research and development of a laser or any other additions or subtractions of the weapon system?

General Ryan. My interpretation of the paragraph which you just read, Senator Jackson [Article V(1)], is that each party undertakes not to develop, test or deploy ABM systems or components which are sea based, air based, meaning in the atmosphere, space based, outside the atmosphere, or mobile land based.

Senator Jackson. Yes, sir.

General Ryan. It doesn't mean that fixed, land based cannot be developed.

Senator Jackson. Yes, I said that. Now, what I am saying, General Ryan, is that you are prohibited from developing a system that is sea based, air based, space based, or mobile land based?

General Ryan. That is correct.

(at 441)

Passage #16 19 July 1972

General Palmer. On the question of the ABM, the facts are that when the negotiation started the only system actually under development, in any meaningful sense, was a fixed, land-based system. As the negotiations progressed, and the position of each side became clear and each understood the other's objectives better, it came down to the point where to have agreement it appeared that -- this is on the anti-ballistic missile side -- this had to be confined to the fixed, land-based system. The Chiefs were consulted... on the question of qualitative limits on the AB side and agreed to the limits that you see in this treaty.

Senator Jackson. Even though it can't be monitored?

General Palmer. Yes.

Senator Jackson. I just wanted that; so the Chiefs went along with the concept here that involved --

General Palmer. A concept that does not prohibit the development in the fixed, land-based ABM system. We can look at futuristic systems as long as they are fixed and land based.

Senator Jackson. I understand.

General Palmer. The Chiefs were aware of that and had agreed to that and that was a fundamental part of the final agreement.

(at 443)

APPENDIX 11(f) – 1972 HOUSE ARMED SERVICES COMMITTEE HEARINGS¹²²³

Passage #1 25 July 1972

Mr. [Ambassador Gerard] Smith. ABM radars are an essential element of an ABM system and are the long-lead-time item in development of an ABM system.

Of even greater importance as a qualitative limitation is the prohibition on the deployment of future types of ABM systems that are based on physical principles different from present technology.

On this point, Mr. Chairman, there is an agreed interpretation with respect to ABM systems based on different physical principles, and including components capable of substituting for those components used at present – that is, launchers, missiles and radar components. If such new systems are developed, and one or the other side wants to deploy them under the limitations of this treaty, there would have to first be a discussion of the question in the Standing Consultative Commission we are proposing to establish under this treaty, and then the treaty would have to be amended before such novel ABM systems could be deployed.

(at 15086)

Passage #2 25 July 1972

A staff memorandum for members of the House Armed Services Committee was inserted into the record. It read, in part, as follows:

The Treaty defines an ABM system as one to counter ICBM's in flight trajectory and one consisting of ABM interceptor missiles, ABM launchers, and ABM radars. (Article 2)

No ABM system or component shall be sea-based, space-based, air-based or mobile.

Neither side shall develop, test or deploy launchers for launching more than one missile at a time, nor develop or deploy automatic, semi-automatic or similar systems for rapid reload of ABM launchers. (Article 5)

¹²²³ United States, Congress, House, Committee on Armed Services, *Military Implications of the Strategic Arms Limitation Talks*, Hearings, July 1972, 92nd Cong., 2nd Sess. (Washington, D.C.: USGPO, 1972) (hereinafter *1972 House Armed Services Hearings*).

The parties agree that in the event an ABM system based on other physical principle [sic] with components capable of substituting for interceptor missiles, launchers and radars is created in the future, limitations on such systems would be subject to discussion and in accordance with Article 18.

(at 15074)

Passage #3 25 July 1972

In response to a question about exotic ABMs:

Admiral Moorer. If I could just read one paragraph here that deals, I think, with your question... It states as follows: [Agreed Statement D quoted in full]

Mr. Whitehurst. That is exactly what I am referring to.

Admiral Moorer. Yes, sir.

Mr. Whitehurst. You have no means of surveillance, though. For example, if we achieved this technically, then we would be obliged to advise the Soviets that we have this capability?

Admiral Moorer. Only if we deployed it in the configuration of an ABM weapons system. But there is no restraint on research and development. (at 15124)

Passage #4 6 June 1972¹²²⁴

In the context of the supposed cancellation of laser contracts:

Mr. Stratton. My understanding was one area where we did not get any limitation was in the field of R. & D., that we are free to continue that, isn't that true?

Secretary Laird. That is correct, except for certain limitations in the ABM Treaty, Congressman Stratton.

¹²²⁴ United States, Congress, House, Committee on Armed Services, *Supplementary Hearings on Defense Procurement Authorization Relating to SALT Agreement*, Hearings (Washington, D.C.: USGPO, 1972) at 12098 (hereinafter *1972 House Armed Services Hearings -- Supplementary*).

APPENDIX 11(g) – U.S. CONGRESSIONAL DEBATES

Passage #1 18 August 1972 – House

Congressman Ashbrook inserted into the House record an article by A.H. Stanton Candlin and Gilbert S. Stubbs entitled "SALT: Hanging by the Thread of a Soviet Promise". It stated in part:

Despite the lessons of history and logic the present SALT Treaty on ABM's embarks on the perilous course of attempting without inspection safeguards to prohibit the development, testing and deployment of "ABM systems or components which are sea-based, air-based, or mobile land-based". (Article V.) Senator Buckley, in his recent testimony on SALT, was particularly critical of this treaty clause, pointing out that it "would have the effect, for example, of prohibiting the development and testing of a laser type system based in space which could at least in principle provide an extremely reliable and effective system of defense against ballistic missiles".

(118 *Cong. Rec.* 29124 (1972))

Passage #2 3 August 1972 – Senate

Senator Fullbright reviewed the ABM Treaty terms, in part, as follows:

... Third. Each side is prohibited by the treaty from developing, testing or deploying ABM systems based at sea, in the air, or in space, or mobile ABM launchers, ABM interceptor missiles with multiple warheads, or ABM launchers with a so-called reload capability.

(118 *Cong. Rec.* 26682 (1972))

Passage #3 3 August 1972 – Senate

Senator Thurmond noted:

[The ABM Treaty] also prevents us from developing new kinds of systems to protect our population. The most promising type appears to be the laser type, based on entirely new principles. Yet we forgo forever the ability to protect our people.

(118 *Cong. Rec.* 26700 (1972))

Passage #4 3 August 1972 -- Senate

Senator Buckley noted:

Thus the agreement goes so far as to prohibit the development, test or deployment of sea, air or space based ballistic missile defense systems. This clause, in article V of the ABM treaty, would have the effect, for example, of prohibiting the development and testing of a laser type system based in space which could at least in principle provide an extremely reliable and effective system of defenses against ballistic missiles. The technological possibility has been formally excluded by this agreement.

(118 *Cong. Rec.* 26703 (1972))

Passage #5 3 August 1972 -- Senate

Senator Fong noted that the ABM Treaty, among other things, ...

allows research and development on ABM systems to continue, but not the deployment of exotic or so-called future systems.

(*Cong. Rec.* 26707 (1972))

APPENDIX 11(h) – SOVIET RATIFICATION RECORD

[Only one statement bearing on the issue of the definition of "ABM systems" was made public. It was part of a speech made by Defence Minister Grechko, reported by *Pravda* on 30 September 1972:]

The treaty limiting ABM systems provides for quantitatively small development of ABM facilities by the USSR and the United States and prohibits the handover of these facilities to other states or the deployment of them outside the countries' national territories. At the same time it imposes no limitations on the performance of research and development work aimed at resolving the problem of defending the country against nuclear missile attack. Thus the treaty checks the further quantitative increasing of ABM facilities and blocks the development of competition between offensive and defensive nuclear missile weapons.

APPENDIX 12

U.S. AND SOVIET HEARINGS TO CONSIDER RATIFICATION OF THE ABM TREATY: AN ANALYSIS OF EVIDENCE CONCERNING THE MEANING OF "ABM SYSTEMS AND COMPONENTS"

A12.1 Statements Cited in Support of the Permissive Interpretation

We will begin our review of the representations of Nixon Administration witnesses with those statements that have been pointed to in support of the permissive interpretation. The most numerous of these are of two related types. First, there are statements in which the speaker maintains that the *development* of exotic ABM technology is *permitted* by the treaty, without adding the qualification that this is only true of *fixed, land-based* ABM systems and components. Second, there are statements that contend that the *deployment* of exotic ABM systems and components is *prohibited*, without any mention of restrictions on their development and testing.

Ambassador Gerard Smith made two such statements in testimony before the Senate Armed Services Committee. First, he was asked specifically whether the ABM Treaty would affect U.S. *development* of a laser ABM system. His answer was simply to reiterate the prohibition against the *deployment* of future ABM systems (in the absence of treaty amendment) and to mention that development work in that direction was not prohibited. He did not state that development work on laser or other exotic ABM components or systems would, in fact, be prohibited if these were *mobile*.¹²²⁵ Later, when asked whether the Parties were precluded from developing laser ABMs, he simply answered in the negative without qualification or elaboration and, in particular, without distinguishing between mobile and fixed, land-based systems.¹²²⁶

Other officials, including Secretary of Defense Melvin Laird,¹²²⁷ General Palmer¹²²⁸ and General Ryan,¹²²⁹ gave similar responses to questions concerning the development of exotic technologies.

Judge Sofaer has concluded, based on Ambassador Smith's statements of this kind, that

Smith did not distinguish between fixed land-based lasers or space-based lasers. The import of his comments is that he viewed future systems such as lasers as regulated exclusively by Agreed Statement D.¹²³⁰

¹²²⁵ 1972 Senate Armed Services Hearings, *supra*, note 135, at 295. For the full text of this exchange, see Appendix 11(e), Passage #9.

¹²²⁶ *Id.*, at 306. For the full text of this exchange, see Appendix 11(e), Passage #10.

¹²²⁷ *Id.*, at 171. For the full text of this exchange, see Appendix 11(e), Passage #4.

¹²²⁸ Then-Acting U.S. Army Chief of Staff, *id.*, at 437-9 and 440. For the full text of these exchanges, see Appendix 11(e), Passages #12 and #14.

¹²²⁹ Then-U.S. Air Force Chief of Staff, *id.*, at 437-9. For the full text of this exchange, see Appendix 11(e), Passage #12.

Similarly, he has concluded of General Palmer's first-cited remarks that:

Palmer seems to take the position that only the *deployment* of future systems is banned, a position in accord with the 'broad' [permissive] interpretation of the Treaty. He does not indicate at this point that Agreed Statement D and its deployment-only ban is limited to fixed land-based systems.¹²³¹

General Palmer's statement on 19 July 1972¹²³² does indeed seem to treat Agreed Statement D as the only constraint on exotic systems.¹²³³ However, the General clearly supported the restrictive interpretation later in the same day's testimony.¹²³⁴ It would thus appear that the earlier remark was an error that the General later corrected.

In an exchange with Congressman Whitehurst on 25 July 1972, Admiral Moorer stated that, in respect of lasers used for ABM purposes, "there is no restraint on research and development."¹²³⁵ If one assumes that the Admiral was using the term "development" in the Treaty sense, this statement supports the permissive interpretation, since it would go beyond the statements just discussed to say not only that development and testing of exotics was not prohibited, but that there were no constraints on it. However, it is possible that he was referring only to the stage of development that precedes the Treaty-constrained advanced development stage. The ambiguity over what was meant by "research and development" prevents this statement from lending substantial support to the permissive interpretation.

In the second class of official statement of this type, as mentioned, it was stated that the *deployment* of exotic ABMs was prohibited, without mentioning as well that their *development and testing* was prohibited in mobile basing modes. Ambassador Smith made at least four public statements of this type. The first came at a press conference in Moscow on 26 May 1972, where he stated that the Treaty

not only has a choking off effect on future systems which, under the terms of the treaty as we have reached understandings, futures will not be *deployable* unless this treaty is amend-

¹²³⁰ Sofaer, "Post-Negotiation Public Statements", *supra*, note 339, at 205.

¹²³¹ *Id.*, at 206; emphasis added.

¹²³² Appendix 11(e), Passage #14.

¹²³³ Senators Joseph Biden and John Kerry contend that this statement is not inconsistent with the restrictive interpretation. (*Constitution Hearings, supra*, note 237, at 155-6) There is really only one possible ground for this view: that "R & D" means laboratory experiments, rather than any part of the Treaty term "development and testing." The penchant of witnesses to use the term "R & D," rather than Treaty terms, introduces uncertainty into many statements in the ratification hearings. However, it is probable that, in this statement at least, it includes development and testing, given that the topic of conversation is Article V(1). Thus, proponents of the restrictive view must explain this statement as an error -- in which General Palmer failed to take into account the effect on exotic components of any provision other than Agreed Statement D -- stemming from an imperfect understanding of the Treaty, that was later corrected.

¹²³⁴ Appendix 11(e), Passage #16.

¹²³⁵ 1972 House Armed Services Hearings, *supra*, note 1223, at 15124 (exchange reproduced in full in Appendix 11(f), Passage #3).

ed.¹²³⁶

Similarly, in testimony before the Senate Armed Services Committee, he stated that

... the parties have agreed that no future types of ABM systems based on different physical principles from present technology can be *deployed* unless the treaty is amended.¹²³⁷

On this occasion, too, no mention was made of limitations on the development and testing of ABM systems and components that are both exotic and mobile. However, the previous sentence did mention the general rule of Article V(1) prohibiting the development, testing and deployment of mobile ABMs and did not limit its application to traditional ABM devices.

Ambassador Smith's third statement of this type came in testimony before the House Armed Services Committee. It was very similar to the first.¹²³⁸ The fourth was made before the Senate Committee on Foreign Relations.¹²³⁹ There were similar statements made by then-Secretary of State William Rogers.¹²⁴⁰

¹²³⁶ *White House Press Conferences, supra*, note 1211, at 99, Spaso House, Moscow, 22 May 1972; emphasis added). For the full text of this statement, see Appendix 11(a), Passage #1.

¹²³⁷ *1972 Senate Armed Services Hearings, supra*, note 135, at 287; emphasis added. For the full text of this statement, see Appendix 11(e), Passage #7.

¹²³⁸ *1972 House Armed Services Hearings, supra*, note 1223, at 15086. For the full text of this statement see Appendix 11(f), Passage #1.

¹²³⁹ *1972 Senate Foreign Relations Hearings, supra*, note 1213, at 20. For the full text of this exchange, see Appendix 11(c), Passage #2.

In this statement, Ambassador Smith focussed on deployment (to the exclusion of development and testing) not only in his discussion of exotic ABM devices, but also in his treatment of traditional ABM components. There was a tendency, among witnesses, to focus exclusively on deployment matters, perhaps on the assumption that the legislators were most interested in, or could better understand those. This observation reduces the significance of this and other references to deployment limitations on exotic ABMs.

¹²⁴⁰ Letter of Transmittal, *supra*, note 530, at 121-2 (For the full text of this part of the Letter, see Appendix 11(b), Passage #1.); *1972 Senate Foreign Relations Hearings, supra*, note 1213, at 6:

... [T]he 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.

(For the full text of this passage from Secretary Rogers's prepared statement, see Appendix 11(c), Passage #1)
See also *id.*, at 20:

Under the agreement, we provide that exotic ABM systems may not be deployed ...

(For the full text of the exchange in which this statement appears, see Appendix 11(c), Passage #2.)

See also *1972 House Foreign Affairs Hearings, supra*, note 530, at 5 (Appendix 11(d), Passage #1).

Judge Sofaer has seized upon Ambassador Smith's use of the term "deployment" in the first-cited passage above, arguing that the phrase used should have been "*development, testing and deployment*" if the restrictive interpretation were the correct one:

It is unlikely that the lead U.S. negotiator, in a prepared statement in this context, would have imprecisely used the term deployment -- a term of art under the treaty.¹²⁴¹

This argument shows a misunderstanding of the treaty provisions. The reason why Ambassador Smith did not say that the Treaty prohibited the "*development, testing and deployment*" of exotic ABMs was neither because he accepted the permissive interpretation nor because he erred in his choice of language (which Judge Sofaer has incorrectly implied is the only way in which this statement can be squared with the restrictive interpretation). The reason he did not tell Congress that the development and testing of exotic ABMs was prohibited by the ABM Treaty was that *it was not universally true*. Under *either* interpretation, the development and testing of *fixed, land-based* ABM systems and components is *permitted*. It is true that no express reference to the prohibition against the development and testing of *mobile exotics* appeared in any of the statements of Ambassador Smith or Secretary Rogers. However, in each case their explanation of the rule precluding the deployment of *exotics* was preceded by a description of the Article V(1) prohibition against the development, testing and deployment of *mobile* ABM systems and components. As long as these officials believed that the term "ABM systems and components" included the exotic as well as the traditional, there was no need to deal specifically with *mobile exotics*, since these had already been dealt with by stating the rule applicable to *mobile* ABM systems and components *generally*.¹²⁴²

Another class of statement cited in support of the permissive interpretation is that in which exotic ABMs were discussed without mentioning Article V(1), an available inference being that they are not governed by it. Two such statements can be identified. First, at a Moscow press conference, Ambassador Smith discussed exotic ABMs in this manner.¹²⁴³ Similarly, Article V(1) is not mentioned under the heading "Future ABM Systems" in the Letter of Transmittal.¹²⁴⁴

Judge Sofaer claims that it is unlikely that exotic ABMs would have been discussed without reference to Article V(1) if that article applied to them, as the restrictive interpretation says it does. In particular, he finds it significant that Ambassador Smith, in discussing the Treaty's "choking-off effect" on future systems, mentioned only a deployment ban, and not one on development and testing. Neither did the Ambassador attribute any of this choking-off effect to Article V.¹²⁴⁵ As for the passage from the Letter of Transmittal, Judge Sofaer finds it supportive of the permissive interpretation because it expressly consid-

¹²⁴¹ Sofaer, "Post-Negotiation Public Statements", *supra*, note 339, at 204.

¹²⁴² As will be shown presently, there is ample evidence that these two officials, as well as others, regarded exotic ABM devices as "ABM components" within the meaning of the ABM Treaty.

¹²⁴³ *White House Press Conferences*, *supra*, note 1211, at 99 (Appendix 11(a), Passage #1):

... Now, Article II defines what we are talking about and has a very important bearing on the whole question of what we call future ABM systems. This treaty has as a most significant aspect that it not only limits the present situation, but has a choking off effect on future systems which, under the terms of the treaty as we have reached understandings, futures will not be deployable unless this treaty is amended.

¹²⁴⁴ Letter of Transmittal, *supra*, note 530, at 125-6. (See Appendix 11(b), Passage #5.) See also 1972 *House Foreign Affairs Hearings*, *supra*, note 530, at 5 (Appendix 11(d), Passage #1).

¹²⁴⁵ Sofaer, "Post-Negotiation Public Statements", *supra*, note 339, at 201.

ered exotic ABMs but did not mention Article V, and because an earlier passage of the Letter, under the heading "Development, Testing and Other Limitations"¹²⁴⁶ "expressly dealt with Article V, but did not mention future systems."¹²⁴⁷

The answer to these points is to be found in the way Ambassador Smith and Secretary Rogers treated Articles II and III, both in these passages and in the hearings generally. Both men made statements showing that they believed Articles II and III to apply to future ABM systems, a belief consistent with the restrictive interpretation only. These will be reviewed presently, along with those of other officials. If Article II, which defines "ABM systems," and Article III, which governs "ABM systems or their components," apply to exotic ABMs, so too must Article V(1), which applies to "ABM systems or components."¹²⁴⁸

Another class of official statement used to support the permissive interpretation is that which expressly contemplates the development of exotic ABM systems and components. An example can be found in the Letter of Transmittal:

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.¹²⁴⁹

In fact, statements of this kind are perfectly consistent with the restrictive interpretation. They simply reflect the language of Agreed Statement D, which, by its own terms, comes into play

... 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....

As was noted in Section 4.2.1.2.1.7 of Chapter 4, the contemplation of the creation of exotic ABM systems is not inconsistent with the restrictive interpretation; such activities are *permitted* under that interpretation -- *as long as the system's components are fixed and land-based*. Consequently, official statements of this type favour neither interpretation.

On 25 July 1972 a memorandum prepared by the staff of the House Armed Services Committee was inserted into the record of that Committee's hearings. It stated in part that

¹²⁴⁶ (At 125) For the full text of this passage, see Appendix 11(b), Passage #4.

¹²⁴⁷ Sofaer, "Post-Negotiation Public Statements", *supra*, note 339, at 202.

¹²⁴⁸ It is not plausible to argue that these mean different things in different parts of the Treaty proper, since Article II(1) defines "ABM systems" "for the purpose of this Treaty." (Emphasis added)

¹²⁴⁹ Letter of Transmittal, *supra*, note 530, at 125; emphasis added (Appendix 11(b), Passage #5). See also 1972 House Armed Services Hearings, *supra*, note 1223, at 15086, where Ambassador Smith stated that "... there is an agreed interpretation with respect to ABM systems based on different physical principles ..." and that "[i]f such new systems are developed ..." they could not be deployed without amendment of the Treaty. (Emphasis added; Appendix 11(f), Passage #1)

[t]he Treaty defines an ABM system as one to counter ICBM's in flight trajectory *and* one consisting of ABM interceptor missiles, ABM launchers, and ABM radars. (Article 2)¹²⁵⁰

This description of the Treaty's definition of "ABM system" appears to set out the permissive interpretation. There are, however, a number of errors in this portion of the staff report that reveal it to be an imprecise and unreliable (and perhaps hastily prepared) guide to the Treaty's meaning.¹²⁵¹ Moreover, the executive branch is not responsible for the statements of Congressional staff, and is therefore under no obligation to correct their errors, as it is in the case of its own witnesses.

The Legal Advisor has asserted that Gerard Smith's testimony of 28 June and 18 July 1972 "can be read strongly to imply" the permissive interpretation.¹²⁵² Ambassador Smith made statements bearing upon the exotic systems dispute four times on the former date and once on the latter.¹²⁵³ The first of these¹²⁵⁴ provides little support for the permissive interpretation. It used the terms "ABM systems" and "ABM devices" in a manner inconsistent with that interpretation.¹²⁵⁵

In the second,¹²⁵⁶ Ambassador Smith noted that, under the terms of the ABM Treaty, concerns about "a large, costly, destabilizing ABM competition ... should be sharply reduced, if not entirely eliminated." If anything, this tends to support the restrictive interpretation.

¹²⁵⁰ Emphasis added.

¹²⁵¹ The passage dealing with exotic ABMs is reproduced in Appendix 11(f), Passage #2. It contains the following errors:

1. It states that an ABM system is one to counter ICBMs in flight trajectory. In fact, the treaty applies to BMD systems with capabilities against all strategic ballistic missiles (including SLBMs) and not just against ICBMs.
2. In describing Article V(1), it lists the fourth prohibited mobile basing mode as "mobile," rather than "mobile land-based". *All four* of the listed basing modes are "mobile."
3. In describing Agreed Statement D, it states that limitations on exotic ABMs "would be subject to discussion in accordance with Article 18." Agreed Statement D refers to "discussion in accordance with Article XIII *and agreement in accordance with Article XIV*". The Treaty does not even contain an Article XVIII.

¹²⁵² 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 17.

¹²⁵³ 1972 *Senate Armed Services Hearings*, *supra*, note 135, at 287, 291, 295 and 306 (reproduced in Appendix 11(f) as Passages #7 to 11).

¹²⁵⁴ Appendix 11(f), Passage #7.

¹²⁵⁵ See discussion, *infra*, in Section A12.2.

¹²⁵⁶ Appendix 11(f), Passage #8.

¹²⁵⁷ Appendix 11(f), Passage #9.

In the third,¹²⁵⁷ Ambassador Smith was told that he had said that the Treaty prohibited the development of "other ABM systems" and was asked whether this would affect the development of a laser ABM system. In reply, he pointed to Agreed Statement D, noting that it involved a deployment ban only, and did not constrain "development work, research." His reply did not mention that Article V(1) banned the development and testing of exotic ABMs in mobile basing modes. A complete answer to the question, if grounded in the restrictive interpretation and designed to set out that interpretation as clearly as possible, would have mentioned this point. This omission does give some support to the permissive interpretation. However, the answer may have been lacking in this regard as a result of exasperation at having his earlier words and the Treaty misinterpreted. At no time did he state that the development of exotic systems was prohibited *per se*. Indeed, this view is alien to either interpretation. This may explain the exclusive focus on Agreed Statement D, to correct what the Ambassador seemed to perceive as a belief that that provision constrained development and testing.

In the fourth passage from these hearings involving Gerard Smith,¹²⁵⁸ Senator Goldwater asked whether, under the ABM Treaty, the Parties would be prohibited from developing laser ABMs. Ambassador Smith simply replied "No, sir." The Senator went on to challenge this, saying that the Senate had been told otherwise, and that Secretary Laird had issued orders to stop development of the laser for ABM purposes. Ambassador Smith did not elaborate in response to the first remark that development was prohibited in respect of mobile exotics. The transcript of the hearings provides no response at all to the Senator's second remark.

Just the same, neither this nor the previously discussed passage¹²⁵⁹ justifies the Legal Advisor's claim that "[i]n response to specific questions, Smith said no restrictions exist on developing laser ABM systems."¹²⁶⁰ Ambassador Smith did not say this at all. What he did was disagree with blanket statements that the development of exotic ABMs was prohibited. This is a very different position than the Legal Advisor attributes to him, and one that accords with either interpretation.

Finally, the one passage from July 18,¹²⁶¹ is too ambiguous to give support to either interpretation.

All in all, then, Ambassador Smith's testimony before the Senate Armed Services Committee does not provide much support for the permissive interpretation.

Of Ambassador Smith's testimony before the *House* Armed Services Committee,¹²⁶² the Legal Advisor notes that it stated "unambiguously only that deployment of future devices was precluded." This is true, but it does not necessarily support the permissive interpretation. There is nothing else in his testimony before this committee to support the permissive interpretation.¹²⁶³ Moreover, he describes Agreed State-

¹²⁵⁸ Appendix 11(f), Passage #10.

¹²⁵⁹ Appendix 11(f), Passage #9.

¹²⁶⁰ 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 27.

¹²⁶¹ Appendix 11(f), Passage #11.

¹²⁶² 1972 *House Armed Services Hearings*, *supra*, note 1223, at 15086 (Appendix 11(f), Passage #1).

¹²⁶³ The Ambassador did say that "ABM radars are an essential element of an ABM system and are the

ment D as an "agreed interpretation," a description more in line with the provision's role in the restrictive interpretation.

Finally, proponents of the permissive interpretation find support for their case in an excerpt from the Soviet ratification debate. Defence Minister Grechko, in a speech reported by *Pravda* on 30 September 1972, stated that the ABM Treaty

imposes no limitations on the performance of research and development work aimed at resolving the problem of defending the country against nuclear missile attack.¹²⁶⁴

This statement is in no way supportive of the permissive interpretation. In order to use it for that purpose one must assume that (a) the term "research and experimental work" includes advanced development or testing (or both)¹²⁶⁵ and that (b) the statement addresses exotic ABMs only. There is, however, no reason why these assumptions should be made.¹²⁶⁶

Judge Sofaer has conceded that the Grechko statement is ambiguous¹²⁶⁷ but seeks to derive support from it nonetheless by pointing out that it "suggests that the parties retained significant freedom with respect to future systems."¹²⁶⁸ The impression of significant freedom should not be taken as favouring the permissive interpretation. Under the restrictive interpretation, too, there is significant freedom of action in developing and testing exotic ABMs, as long as such activity occurs in agreed ABM test ranges and is limited to fixed, land-based components. Nothing in Grechko's statement implies significant freedom in respect of exotic ABMs in *mobile basing modes*.

Proponents of the permissive interpretation also point to a floor speech by Senator Hiram Fong, in which he stated that the ABM Treaty

allows research and development on ABM systems to continue, but not the deployment of exotic or so-called future systems.¹²⁶⁹

long-lead-time item in development of an ABM system," arguably suggesting that he regarded traditional ABM components as the only components of an "ABM system." However, ABM radars are considered indispensable to even the most futuristic BMD schemes, and will almost certainly continue to be. Therefore, the Ambassador was probably only making a practical observation, rather than addressing the definition of "ABM systems."

¹²⁶⁴ For the full statement of which this forms a part, see Appendix 11(h).

¹²⁶⁵ *Constitution Hearings, supra*, note 237, at 68-9 (testimony of Sam Nunn).

¹²⁶⁶ Raymond Garthoff has testified that he believes Grechko was only talking about research and laboratory experimentation short of developmental testing, i.e. that part of the process regarded as unconstrained under either interpretation. (*Id.*, at 326-7)

¹²⁶⁷ *1985 SDI Hearings, supra*, note 199, at 267 (answers of Judge Sofaer to additional questions by Senator Nunn).

¹²⁶⁸ *Ibid.*

¹²⁶⁹ *Cong. Rec.* 26707 (1972))

Apart from not being attributable to the executive branch, however, this statement is merely ambiguous on the issue of developing and testing exotic ABMs.

A12.2 Statements Cited in Support of the Restrictive Interpretation

Now we shall consider those official statements that tend to support the *restrictive* interpretation. The most numerous of these by far are simple references to exotic ABM devices as "ABM systems" or "ABM components." A less frequent reference, which complements the above type, is to *traditional* ABM systems and components as "the ABM systems *now in operation*,"¹²⁷⁰ or similar phrases that make it clear that the three traditional ABM components – ABM launchers, interceptor missiles and radars – do not constitute the entire set of "ABM components" within the meaning of the ABM Treaty.¹²⁷¹

In some parts of the public ratification record, neutral terms were used to describe exotic ABM devices, rather than the Treaty terms "ABM system" or "ABM component." For instance, Ambassador Smith referred to "future type ABM technology"¹²⁷² and to "ABM technology ... based on different physical principles."¹²⁷³ Similarly, Secretary Rogers referred to exotic ABMs in the Letter of Transmittal as "devices other than ABM interceptor missiles, ABM launchers and ABM radars ..."¹²⁷⁴

If exotic ABMs had been consistently described in these non-Treaty terms, rather than as "ABM systems and components," the case for the permissive interpretation would be much stronger. However, this was not done. For instance, Ambassador Smith referred to future ABM devices as "*future types of ABM systems* that are based on physical principles different from present technology,"¹²⁷⁵ "ABM systems based

¹²⁷⁰ 1972 House Foreign Affairs Hearings, *supra*, note 530, at 5 (prepared statement of Secretary of State Rogers; emphasis added). (See Appendix 11(d), Passage #1.)

¹²⁷¹ See the remarks of Ambassador Smith in 1972 House Armed Services Hearings, *supra*, note 1223, at 15086 (Appendix 11(f), Passage #1), referring to "those components used at present," and those of Dr. John S. Foster, then-Director, Defense Research and Engineering, 1972 Senate Armed Services Hearings, *supra*, note 135, at 274 (Appendix 11(e), Passage #6), referring to "current ABM components." No such qualification would be needed if, as the permissive interpretation holds, traditional ABM devices were the only ones that could *ever* properly be referred to as "ABM components" within the meaning of the Treaty.

¹²⁷² 1972 Senate Foreign Relations Hearings, *supra*, note 1213, at 20; emphasis added. (For the full text of the exchange in which this appears, see Appendix 11(c), Passage #2.)

¹²⁷³ 1972 Senate Armed Services Hearings, *supra*, note 135, at 295; emphasis added. (For the full text of the exchange in which this appears, see Appendix 11(e), Passage #9.)

¹²⁷⁴ Letter of Transmittal, *supra*, note 530, at 125-6; emphasis added. (For the surrounding text of the Letter, see Appendix 11(b), Passage #5.)

¹²⁷⁵ 1972 House Armed Services Hearings, *supra*, note 1223, at 15086; emphasis added. (For the full text of the statement, see Appendix 11(f), Passage #1.)

¹²⁷⁶ *Ibid.*; emphasis added.

¹²⁷⁷ *Ibid.*; emphasis added.

on different physical principles,"¹²⁷⁶ "such novel *ABM systems*,"¹²⁷⁷ and many similar phrases.¹²⁷⁸ In fact, at one point, Ambassador Smith used the neutral term "devices" to describe the subject matter of Article V(1) (in which the term "ABM systems or their components" actually appears) and the Treaty term "ABM systems" to refer to exotic ABM devices:

The development and testing, as well as deployment of sea, air, space-based, and land-mobile ABM *devices* is prohibited. Of perhaps even greater importance, the parties have agreed that no future types of *ABM systems* based on different physical principles from present technology can be deployed unless the treaty is amended.¹²⁷⁹

If "ABM systems and components" were a term of art meaning *traditional* systems and components only, as the permissive interpretation holds, officials would be free to use that term to discuss Article V, and would take care to use a different and neutral term with no specialized meaning when discussing exotic systems. In this passage, Ambassador Smith did just the opposite.¹²⁸⁰ This terminology used by Nixon Administration witnesses is inconsistent with the permissive interpretation.

One final way in which Ambassador Smith used the term "ABM systems" in a manner inconsistent with the permissive interpretation can be found in the same passage. He testified that "... [a]s a further restraint on ABM capabilities, there are *three* significant qualitative limitations on *ABM systems*":¹²⁸¹

1. the prohibition against giving ABM launchers the capability of launching more than one interceptor missile at a time or of being rapidly reloaded,
2. the Article V(1) prohibition against the development, testing and deployment of mobile ABM systems and components, and

¹²⁷⁸ Ambassador Smith referred to "future types of *ABM systems* based on different physical principles from present technology," in 1972 *Senate Armed Services Hearings*, *supra*, note 135, at 287; emphasis added (Appendix 11(e), Passage #7). He testified before the same committee that

... if ABM technology is created based on different physical principles, an *ABM system or component* based on them can only be deployed if the treaty is amended.

(at 295; emphasis added (Appendix 11(e), Passage #9))

¹²⁷⁹ *Id.*, at 287; emphasis added (Appendix 11(e), Passage #7).

¹²⁸⁰ It is worth noting that, in arguing for the permissive interpretation, Judge Sofaer, unlike anyone involved in the ratification hearings, has taken pains to avoid calling ABM-capable weapon systems that use exotic ABM technology "ABM systems." Instead, he has referred to them merely as "systems" and to their elements not as "ABM components" but as "devices." For instance, he has testified that "future or exotic systems" (not "*ABM systems*") are

defensive systems that serve the same functions as ABM systems and components, but that use *devices* based on technology not understood in 1972 and that are capable of substituting for ABM interceptor missiles, launchers and radars.

(*ABM Treaty Interpretation Dispute Hearings*, *supra*, note 141, at 9 (testimony of Judge Sofaer; emphasis added).

¹²⁸¹ Emphasis added.

3. *the prohibition against the deployment of ABMs based on other physical principles.*

If he understood "ABM system" to be a term of art applicable exclusively to systems comprised of traditional ABM components, why would Ambassador Smith list the exotic systems deployment ban as a constraint on "ABM systems"?

Secretary Rogers made similar references to "ABM systems." Some can be found in the Letter of Transmittal.¹²⁸² Others were made in oral testimony¹²⁸³ and in his *Foreign Policy Report* of 19 April 1973.¹²⁸⁴ Dr. Foster made a similar statement, referring to "laser ABM systems capable of substituting for current ABM components."¹²⁸⁵

In addition to the various terms used to describe traditional and exotic ABM systems and components, another way in which the U.S. public ratification record supports the restrictive interpretation is in its treatment of Articles II and III. One passage from Secretary of State Rogers's Letter of Transmittal contains many such references:

(3) *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.* Anti-

¹²⁸² Secretary Rogers referred to "ABM systems involving new types of basic components ..." and to what the Treaty would stipulate "if an ABM system were developed in the future which did not consist of interceptor missiles, launchers and radars." (Letter of Transmittal, *supra*, note 530, at 121-2 and 125-6, respectively (emphasis added in both). For the full text of the relevant passages, see Appendix 11(b), Passages #1 and #5.)

¹²⁸³ Secretary Rogers referred to "exotic ABM systems," to "ABM system[s] based on the laser principle" and to "future exotic types of ABM systems, i.e. systems depending on such devices as lasers ..." (1972 *Senate Foreign Relations Hearings*, *supra*, note 1213, at 20, 20 and 6, respectively; emphasis added in all) For the full text of the exchanges in which these first two references appear, and that part of Secretary Rogers's prepared statement in which the third appears, see Appendix 11(c), Passages #2, #2, and #1, respectively. He also called exotic ABM devices "future types of ABM systems based on other physical principles." (1972 *House Foreign Affairs Hearings*, *supra*, note 530, at 5 (prepared Statement of Secretary Rogers). For the full text of this part of his prepared statement, see Appendix 11(d), Passage #1.)

¹²⁸⁴ The treaty also provides for important qualitative limitations on ABMs, including an agreement that ABM systems based on physical principles different from those of existing systems should not be deployed under the treaty in its present form.

(1973 *Documents on Disarmament*, cited in Sofaer, "Post-Negotiation Public Statements", *supra*, note 339, at 209; emphasis added)

¹²⁸⁵ 1972 *Senate Armed Services Hearings*, *supra*, note 135, at 274 (testimony of Dr. Foster; emphasis added). Later in the same passage, Dr. Foster referred to "laser ABM system" (twice) and to "future laser ABM system components." (For the full text of the exchange in which these references occur, see Appendix 11(e), Passage #6.)

cle 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. Devices other than ABM interceptor missiles, ABM launchers or ABM radars could be used as adjuncts to an ABM system, provided that such devices were not capable of substituting for one or more of these components. Finally, in the course of the negotiations, the Parties specified that [direct quotation of Agreed Statement D in its entirety] ...¹²⁸⁶

The first thing worth noting about this passage is the way the italicized part described the Treaty's definition of "ABM component." The validity of the "functional definition," which is at the heart of the restrictive interpretation, is directly supported by the words "defines ... in terms of its function," and by the use of, and emphasis upon, the word "currently." It is indirectly supported by the separation into different clauses of what the restrictive interpretation denotes the essential and parenthetical parts of the definition.¹²⁸⁷

The second thing to note about this passage is its attribution to Articles II and III of part of the credit for prohibiting the deployment of exotic ABM systems and components. Its statement that the Treaty would not permit the deployment of an ABM system that did not consist of traditional components, or of components of such a system that were capable of substituting for traditional components, was followed not with a period but with a *colon*. This was followed immediately by a description of the terms of Article II, Article III and Agreed Statement D *in that order*. The clear meaning of this sentence structure is that Articles II and III are important elements in the exotic ABM deployment ban. Hence, it flies in the face of the permissive interpretation's main corollary that exotic ABMs are dealt with exclusively by Agreed Statement D. Moreover, it is entirely consistent with the restrictive interpretation's holding that the ban on exotic ABM deployment flows from the combined effect of Articles II and III, and that Agreed Statement D merely reinforces the other two and is, strictly speaking, superfluous. Punctuation and structure aside, if Articles II and III have no bearing on exotic ABM systems, why were they discussed at all under a heading by that name?¹²⁸⁸

¹²⁸⁶ Letter of Transmittal, *supra*, note 530, at 125-6; emphasis added; quotations marks in original (Appendix 11(b), Passage #5).

¹²⁸⁷ See also *id.*, at 123, where the two parts of the definition are further separated into different sentences:

Article II *defines* an ABM system as "a system to counter strategic ballistic missiles or their elements in flight trajectory." It *indicates* that such systems *currently* consist of ABM interceptor missiles, ABM launchers and ABM radars. [Emphasis added (Appendix 11(b), Passage # 2)]

Note that Article II, in what has been called the essential part of the definition, "defines" an ABM system, but, in that part that has been called parenthetical, merely "indicates" the additional information concerning its "current" composition.

¹²⁸⁸ This point is noted as well by the 1987 Senate Foreign Relations Committee Report, *supra*, note 223, at 17.

A question one might ask in challenging the *restrictive* interpretation is why Article II specifies the three traditional ABM components at all. John Rhinelander's answer is that it was necessary to define these traditional components somewhere in the Treaty because some provisions, such as the deployments permitted by Article III, and Article VI(a) dealing with the SAM upgrade problem, applied exclusively to traditional components. See *ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 355 (answers of John B. Rhinelander to additional questions submitted by Congressman

The Legal Advisor makes two arguments concerning this passage. First, he focuses on the word "specifies," suggesting that its use shows that the Letter treated Agreed Statement D is the only place in the Treaty where obligations in respect of exotic ABMs are set out.¹²⁸⁹ This is absurd. The passage clearly discussed constraints on exotic systems long before the word "specifies" appeared. Moreover, as just discussed, it did so in terms of Articles II and III. Second, the Legal Advisor compares the language of the Letter of Transmittal to earlier drafts of that document, noting that support for the restrictive interpretation was watered down during the drafting process.¹²⁹⁰ This argument can be met on two levels. Most importantly, at the procedural level, it is highly doubtful that early drafts of the Letter, being internal U.S. government documents not made public until 1987, can properly be resorted to in interpreting the Treaty. The U.S.S.R. had no way (short of espionage) of knowing their contents. Any claim that the Letter's support for the restrictive interpretation was watered down can also be met on a substantive level. For starters, even if less explicitly supportive of the restrictive interpretation than earlier drafts, the final version of the Letter nonetheless clearly supports that interpretation (as shown in the discussion above). Moreover, John Rhinelander, who was responsible for drafting the Letter, has testified that (a) the relative imprecision of the final version was the result of the initial draft -- which was very long and detailed -- being abridged to no more than one third of its original length for the sake of brevity, (b) one consequence of this was that the final version of the Letter blurred the distinction between fixed, land-based and mobile basing modes and (c) many of the ambiguous statements of administration witnesses were due to following the language of the Letter, because that language had been cleared in advance by the White House, whereas permission would have been needed to use different, clearer language.¹²⁹¹

Two other observations may be made concerning the treatment of Article III in the Letter of Transmittal. One stems from the following part of the above-quoted passage:

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*.¹²⁹²

This describes the first effect of Article III as the *prohibition* of something, and the second effect as an express *permission* to deploy something *else* that derogates from that prohibition. Those devices whose deployment Article III prohibits are, according to the passage, "ABM systems or their components"; those whose deployment the Treaty provision then permits are "ABM interceptor missiles, ABM launchers and ABM radars."

Fascell).

¹²⁸⁹ 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 9:

... [T]he section includes an explicit reference to Agreed Statement D, and treats it as the place in the Treaty in which the Parties "specified" their obligations with respect to OPP systems and components ...

¹²⁹⁰ *Ibid.*

¹²⁹¹ 1985 *SDI Hearings*, *supra*, note 199, at 253; testimony of John Rhinelander)

¹²⁹² Emphasis added.

The use of these different terms in this context is very much in keeping with the restrictive interpretation. It holds Article III to commence with a total deployment ban on every conceivable kind of ABM-capable device, traditional or exotic, that performs enough of the ABM function to be considered a "component," and then to go on to create an express exception permitting the deployment of a specified number of *traditional* ABM components only. It is therefore not possible under the restrictive interpretation to use the same term to describe the classes of device regulated by each of these two parts of Article III.

Under the permissive interpretation, however, where the term "ABM components" is precisely equivalent to "ABM interceptor missiles, ABM launchers and ABM radars," two different terms would not be needed. In fact, the second clause would be superfluous; if the permissive interpretation were the correct one, the meaning of Article III could have been conveyed by simply saying that "Article III contains a prohibition on the deployment of *ABM systems or their components* except as specified therein" or, alternatively, "Article III contains a prohibition on the deployment of *ABM interceptor missiles, ABM launchers or ABM radars*, except as specified therein."

John Rhinelander says that the separate use of the terms in the Treaty text was intentional. When the term "ABM systems and components," or variations thereof, was used, this meant *all* technologies, whereas when traditional ABM components only were meant, these were referred to by name.¹²⁹³

Finally, another passage in the Letter of Transmittal dealing with Article III suggests that the permissive interpretation is incorrect:

Article III prohibits the deployment of any *ABM systems or their components* except as provided therein. Under Article III, the parties may deploy only systems consisting of *ABM interceptor missiles, ABM launchers and ABM radars*.¹²⁹⁴

Two related points can be made about this passage. First, as with the previous one, it makes no sense under the earlier version of the permissive interpretation, saying, in effect: "X is prohibited, but X is then permitted." It tells us little about Article III to say that it prohibits the deployment of traditional components, then permits their deployment. Only if Article III's *numerical limitations* were set out in the second sentence would it make any sense: "X is prohibited, but Z amount of X is then permitted." Under the *restrictive* interpretation, on the other hand, where the list of traditional components in the second sentence is *not* equivalent to "ABM systems or their components" but is only a *sub-set* thereof, the passage makes much more sense: "X+Y is prohibited, but X is then permitted."

Second, the passage's second sentence, by using the word "only," credits Article III with the exotic ABM deployment ban. If the permissive interpretation were correct, that restriction is introduced not by Article III, but by Agreed Statement D.

¹²⁹³ An example of the latter is the reference to "ABM launchers" and "ABM interceptor missiles" in Article V(2), which makes it clear that the limitations on rapid reload capability apply to these traditional components only, and not to their exotic counterparts. (*ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 171 (testimony of John B. Rhinelander.))

¹²⁹⁴ Letter of Transmittal, *supra*, note 530, at 124; emphasis added.

Thus, the restrictive interpretation finds considerable support in the treatment given to the term "ABM systems and components" (and variations thereof) and accorded Articles II and III in official U.S. executive branch testimony given during the ABM Treaty's ratification process.

Now we will move from official statements that implicitly support the restrictive interpretation to ones that support it more directly. One very important such passage can be found in the *1972 Senate Armed Services Hearings* and consists of a question by Senator Goldwater, a written answer prepared by the Nixon Administration for subsequent insertion, an oral response by Secretary of Defense Laird, and another written insertion.¹²⁹⁵ The passage began with Senator Goldwater stating that, in his view, the U.S. should long since have moved to "space based [ABM] systems with boosting phase destruction with shot, nukes, or lasers," and asked whether he was correct in concluding that the ABM Treaty would not prevent the development of such systems. The question, then, was whether the Treaty prohibits the development of space-based, boost-phase ABM systems in which the destruct mechanism is (a) a kinetic kill vehicle, (b) a nuclear explosive device or (c) a laser weapon. Since the third of these is an exotic ABM destruct mechanism, the question raised was, in part, the central issue in the interpretation dispute: Does the Treaty prohibit the development of mobile ABM components that use exotic technologies?

The answer contained in the Nixon Administration's written response was that nothing prohibits the development of boost-phase or laser ABM systems *per se*, but that

[t]here is, however, a prohibition on the development, testing and deployment of ABM systems which are space-based, as well as sea-based, air-based and mobile land-based.

The clear meaning of this was that Article V(1) applies to exotic ABM systems, since one of the three types of weapon mentioned in the question was of that kind. It went on to say that

[t]here are no restrictions on the *development* of lasers for *fixed, land-based* ABM systems.¹²⁹⁶

If there were no prohibition against the development of laser ABMs in *any* basing mode, there would be no need to specify "fixed, land-based." The fact that it was specified strongly suggests that exotic ABMs may not be developed in mobile basing modes.¹²⁹⁷

There is further support for the restrictive interpretation in the second written response in this passage. The question to which it responded was "I have seen nothing in SALT that prohibits development to proceed" in the direction of "space-based systems with boosting phase destruction with shot, nukes or lasers.... *Am I correct?*"¹²⁹⁸ Secretary Laird simply answered "No," then stated that space-based ABM systems are prohibited by Article V, which he quoted in part. In other words, the Nixon administration posi-

¹²⁹⁵ This passage appears at *1972 Senate Armed Services Hearings, supra*, note 135, at 40-1. It is reproduced in its entirety in Appendix 11(e) as Passage #3, and will not be reproduced in full here.

¹²⁹⁶ Emphasis added.

¹²⁹⁷ John Rhinelander notes that Judge Sofaer's analysis of the Congressional testimony did not refer to this prepared response, "cleared in the interagency process ... which almost certainly involved Paul Nitze and General Allison as well as Ambassador Smith." (*ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 376 (testimony of John B. Rhinelander.))

¹²⁹⁸ Emphasis added.

tion was that not only was it *not* correct to say that there were no restrictions on the development of space-based ABM systems, including those using lasers as the destruct mechanism, *but that Article V(1) constituted just such a restriction.*

The 1987 *Legal Advisor's Report* claims that the second written insertion "*permitted the inference that development and testing of a mobile OPP device would be precluded*" and that "[t]he few Senators interested in this issue drew that inference, which was confirmed by one JCS witness, and was otherwise unchallenged."¹²⁹⁹ In fact, the statement did not merely "permit" the inference that the restrictive interpretation was correct; it *compelled* it. Moreover, while the slightest hint of support for the permissive interpretation is spared no fanfare in the 1987 *Legal Advisor's Report*, the significance of this prepared executive branch position, consistent with the restrictive interpretation alone, after being dutifully reported, is promptly ignored.

The 1987 *Legal Advisor's Report* disparages these written insertions on the ground that they were supplied later for the Committee record.¹³⁰⁰ It provides, however, no explanation as to why this fact should reduce the weight accorded the statement. If anything, one would think that a written insertion into a public record, prepared by the executive branch as a whole and held out as the Administration's formal and considered response, would be the *most* reliable evidence at a ratification proceeding (as long as it is inserted prior to the exchange of ratifications).

Another important exchange bearing directly on the issue took place between Senator Jackson and Dr. Foster in the same hearing.¹³⁰¹ Senator Jackson established the topic under discussion as being the development of laser ABMs. In his second statement in the passage, Dr. Foster affirmed that he too was discussing "laser ABM systems." In this context, Senator Jackson paraphrased Article V(1). This suggests that he considered it applicable to the type of system under discussion – a laser ABM system. Dr. Foster did not tell the Senator that he was wrong to apply Article V(1) to laser ABMs, as one would expect him to do if he understood the permissive interpretation to be the correct one. Instead, he simply replied: "Yes, sir; I understand. We do not have a program to develop a laser ABM system." Apparently still discussing laser ABMs,¹³⁰² Senator Jackson then made a distinction between mobile systems and fixed, land-based systems, noting that the latter was permitted, and asked if Dr. Foster agreed. Dr. Foster replied: "That is right."

Later in this exchange, Dr. Foster said: "You can develop and test up to the deployment phase of *future ABM system components which are fixed and land-based.*"¹³⁰³ Again, there was no reason to speci-

¹²⁹⁹ 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 5; emphasis added.

¹³⁰⁰ *Id.*, at 40.

¹³⁰¹ 1972 *Senate Armed Services Hearings*, *supra*, note 135, at 274-5. (The full text of the exchange is reproduced in Appendix 11(e), Passage #6.)

¹³⁰² Nobody had changed the subject, and the most likely antecedent for the Senator's word "it" is the phrase "a laser ABM system" in Dr. Foster's immediately preceding statement.

¹³⁰³ Emphasis added. Judge Sofaer uses the term "future ABM systems" to mean any ABM system created in the future, whether it uses exotic devices or interceptors, launchers and radars. (1985 *SDI Hearings* *supra*, note 199, at 186) If Dr. Foster used the term in the same way, his statement would support neither interpretation. However, it is clear from the discussion of lasers that by "future" ABMs he

fy fixed, land-based systems if exotic ABM systems could be lawfully developed and tested in *any* basing mode. Thus, it seems clear that Dr. Foster's understanding of the Treaty's provisions, as communicated to Congress, was that the restrictive interpretation was correct.

This also seems to have been the understanding of General Ryan, then-U.S. Air Force Chief of Staff. In an exchange with Senator Goldwater,¹³⁰⁴ he was asked about "research and development of a laser or any other additions or subtractions of the weapon system." Thus, the development of laser ABMs appears to have been raised. General Ryan's response was to explain his understanding of Article V(1), and to state that that provision "doesn't mean that fixed, land based cannot be developed." Presumably, then, he considered Article V(1) to apply to, *inter alia*, laser ABM systems, and to prohibit their development in mobile basing modes.

Shortly thereafter, in the same hearings, there is a statement by General Palmer, then-Acting U.S. Army Chief of Staff, strongly supportive of the restrictive interpretation: "We can look at futuristic systems as long as they are fixed and land-based."¹³⁰⁵

means *exotic* ABMs. If he were referring to all ABMs created in the future, whether interceptors, launchers, radars or otherwise, his statement would be more restrictive than any proffered interpretation: it would rule out the deployment of post-1972 ABM components that were interceptors, launchers, or radars (such as ERIS, HEDI, LoADs, and TIR). This is an interpretation unsupported by the Treaty language or by any other evidence.

¹³⁰⁴ 1972 Senate Armed Services Hearings, *supra*, note 135, at 441. (For the full text of this exchange, see Appendix 11(e), Passage #15.)

¹³⁰⁵ *Id.*, at 443. (See Appendix 11(e), Passage #16 for the full text of this exchange.)

It is not certain what was meant by "looking at" these systems, but development was the only stage of the process mentioned in the exchange, and in particular in the General's immediately preceding sentence. Senator Jackson neither questioned this statement nor sought clarification, but simply said "I understand." Thus, General Palmer, too, seems to have been of the belief that the development of exotic ABM systems was prohibited in all but the fixed, land-based mode. John Rhinelanders is of the view that Passages #12 through #16 of Appendix 11(e) leave "no doubts the two Senators [Jackson and Goldwater] and this JCS [Joint Chiefs of Staff] representative [General Palmer], the acting Chief of Staff of the Army, which had responsibility for ABM programs, understood and agreed" that the restrictive interpretation was the proper one. He regards Passage #16 as the "key and conclusive colloquy" on the matter. (*ABM Treaty Interpretation Dispute Hearings, supra*, note 141, at 381.)

In Passage #14, the following exchange took place between Senators Goldwater and Jackson and General Palmer (emphasis added):

Senator Goldwater. We could then replace the Sentry [an ABM interceptor missile] with the *laser* if it became effective?

Senator Jackson. The prohibition [Article V(1)] runs to sea based, air based, space based and mobile land based ABM's.

Senator Goldwater. Not fixed land?

Senator Jackson. That's right. That is exempt. I am just pointing this out. In those other areas, it is prohibited *and development is also prohibited....*

The following exchange took place on 6 June 1972 before the House Armed Services Committee, in the context of the supposed cancellation of laser contracts:

Mr. Stratton. My understanding was one area where we did not get any limitation was in the field of R. & D., that we are free to continue that, isn't that true?

Secretary Laird. That is correct, except for certain limitations in the ABM Treaty, Congressman Stratton.¹³⁰⁶

The clear import of the Secretary's response is that the ABM Treaty contains "certain limitations" on the "R & D" of laser ABMs. Since the Treaty contains no limitations on laboratory research, the reference here must be, at least in part, to advanced development. Under the permissive interpretation there are no limitations on advanced development of exotic ABMs. This response, therefore, also supports the restrictive interpretation.

There was an important and lengthy exchange between Senator Jackson and Dr. Foster on 22 June 1972 before the Senate Foreign Armed Services Committee.¹³⁰⁷ In Dr. Foster's second statement in the

General Palmer ... The treaty, as you have just read, does limit radars, launchers and missiles; it does not limit R & D on futuristic systems. We could not deploy such a new system, however.

Judge Sofaer says of this passage that

Senator Jackson's statement is correct: article V does ban ABM systems other than fixed land-based systems. But he did not state that the article V prohibition applied to future systems based on other physical principles.

("The ABM Treaty and SDI", *supra*, note 208, at 1982)

This is misleading. Although Senator Jackson does not himself apply Article V(1) to exotic systems, he does cite it in the context of laser ABMs replacing *Sentry* ABM interceptor missiles. General Palmer's remark, however, is an endorsement of the permissive interpretation. He claims that Article V(1) applies only to "radars, launchers and missiles" but not to "futuristic systems." However, this must be viewed in the context of his *later* remark (in Passage #16) that "[w]e can look at futuristic systems as long as they are fixed and land based," one of the more explicit endorsements of the *restrictive* interpretation in the ratification hearings. General Palmer's position in Passage #16 should be regarded as a correction of his earlier position in Passage #14.

The 1987 *Legal Advisor's Report*, Part II, *supra*, note 319, at 21 claims that "[t]hese witnesses [Generals Leber, Palmer and Ryan] indicated that the JCS were fully aware of and had agreed that ABM development was confined to fixed, land-based systems" but that "[o]nly Palmer explicitly linked this proposition to OPP devices." While this is true as far as it goes, explicit espousal of the restrictive interpretation is not the only telling evidence in the ratification proceedings in favour of that interpretation. In Passage #14, General Ryan cites Article V(1) in regard to lasers. As for General Leber (project manager of the Safeguard ABM Program), in Passage #13 he expresses a belief that the U.S. can detect the testing of laser devices in an ABM mode by national technical means alone. There would be no reason to speculate on this matter if, as the permissive interpretation holds, the Treaty imposes no restrictions on the development and testing of exotic ABM devices.

¹³⁰⁶ 1972 House Armed Services Hearings -- *Supplementary*, *supra*, note 1224, at 12098.

exchange, he stated that the Treaty would affect "the development of laser ABM systems capable of substituting for current ABM components." This is clearly at odds with the permissive interpretation, under which the activity described would be unconstrained. Senator Jackson followed this remark by paraphrasing Article V(1), still in the context of laser ABMs. Dr. Foster did not take issue with the application of Article V(1) to exotic ABMs in his third statement, even though the permissive interpretation called for one. Senator Jackson followed this up by distinguishing between fixed, land-based development on the one hand, and mobile development on the other. Again, although this distinction is irrelevant in the context of exotic ABMs under the permissive interpretation (because of its view that Article V(1) does not apply to exotics), Dr. Foster did not point this out but merely said: "That is right." In his sixth statement of the exchange, Dr. Foster stated, still in the regard to laser ABMs, that

[y]ou can develop and test up to the deployment phase of future ABM system components which are fixed and land-based.

If development and testing of exotic ABMs were unrestricted, as the permissive interpretation holds, there would be no need to restrict the application of this remark to fixed, land-based components. The significance of this statement is made even greater by the fact that only the first five words of it – "You can develop and test" – were given by Dr. Foster in oral testimony. The remainder – the portion strongly supportive of the restrictive interpretation – was inserted into the record at a later date, presumably after thorough deliberation and approval by the executive branch as a whole.

Additional testimony was given by knowledgeable members of Congress, most notably Senator Buckley, who expressly espoused the restrictive interpretation. Although not an executive representation binding on the administration, Senator Buckley's testimony suggests that the Senate shared his understanding that Article V applied to exotic ABMs:

[T]he agreement goes so far as to prohibit the development, test or deployment of sea, air or space-based ballistic missile defense systems. This clause, in Article V of the ABM Treaty, would have the effect, for example, of prohibiting the development and testing of a laser-type system based in space....¹³⁰⁸

One final observation can be made about the U.S. ratification hearings. Despite many statements supporting the restrictive interpretation, no senator or administration witness ever stated explicitly that the Treaty governed exotic ABM devices only in respect of their deployment. If the permissive interpretation were correct, one would have expected someone to enunciate it explicitly, yet this never happened.¹³⁰⁹

¹³⁰⁷ 1972 Senate Armed Services Hearings, *supra*, note 135, at 274-5 (reproduced in full as Appendix 11(e), Passage #6).

¹³⁰⁸ Reproduced in 1972 Senate Foreign Relations Hearings, *supra*, note 1213, at 258-9. (See Appendix 11(c), Passage #3, for the full text of the statement.)

¹³⁰⁹ Sherr, "New Interpretation", *supra*, note 222, at 79.

A12.3 Conclusion

The restrictive interpretation, it is submitted, was clearly the one communicated to the U.S. Congress by Nixon Administration witnesses during the 1972 SALT I ratification hearings.¹³¹⁰

¹³¹⁰ This is also the conclusion of former Secretaries of Defense Harold Brown, Melvin L. Laird, Elliot L. Richardson, Clark M. Clifford, Robert S. McNamara and James R. Schlesinger. See "Statement by Former Secretaries of Defense on the ABM Treaty", 9 March 1987, reproduced in Nunn Floor Speech on Negotiating Record, *supra*, note 494, at 3.

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