

ANTI-SATELLITE WEAPONS AND THE OUTER SPACE TREATY OF 1967*

REX J. ZEDALIS**
AND
CATHERINE L. WADE†

Table of Contents

I.	OUTER SPACE TREATY OF 1967: AN OVERVIEW	456
II.	ARTICLE IV, PARAGRAPH 1: PARTIAL DISARMAMENT	459
	A. <i>Is it Permissible to Place a Directed-Energy Weapon in Orbit Around the Moon or Other Celestial Bodies?</i>	461
	B. <i>Can a Directed-Energy Weapon be Installed on the Moon or Other Celestial Bodies?</i>	461
	C. <i>Must a Directed-Energy Weapon Complete a Full Orbit Before Coming Within the Prohibitions of the Treaty?: What if the Weapon is Synchronous?</i>	463
	D. <i>Is a Directed-Energy Weapon a Nuclear Weapon or Other Weapon of Mass Destruction?</i>	465
III.	ARTICLE IV, PARAGRAPH 2: "PEACEFUL PURPOSES" .	467
	A. <i>Does the "Peaceful Purposes" Clause Permit Nonaggressive Activity or Only Non-Military Activity to be Conducted on the Moon and Other Celestial Bodies?</i>	470
	1. <i>Nonaggressive</i>	470
	2. <i>Non-Military</i>	472
	3. <i>Analysis of the Positions</i>	474

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** LL.M. candidate in International Law, George Washington University; B.A., California State University, 1973; J.D., Pepperdine University, 1976.

† B.A., School of Public and International Affairs, George Washington University, 1977.

B. Is Outer Space Covered by the “Peaceful Purposes” Clause or any Other Similarly Restrictive Provision? 475

 1. “Peaceful Purposes” Does not Apply to Outer Space..... 476

 2. “Peaceful Purposes” Applies to Outer Space.. 477

IV. ARTICLE I, PARAGRAPH 1: DEMILITARIZATION OF OUTER SPACE 478

V. RECOMMENDATIONS..... 481

In recent months it has become apparent that military planners in both the Soviet Union and the United States have been striving to develop operational anti-satellite (ASAT) weapons. Though the United States has limited its efforts to the production of a non-nuclear, non-explosive device capable of accomplishing its objective simply by colliding with a targeted satellite,¹ the Soviet Union is on the verge of deploying a non-nuclear weapon designed to destroy or neutralize a targeted satellite by explosion.² Moreover, the Soviets allegedly continue to work toward production of an operational nuclear weapon,³ known as a directed-energy weapon, capable of focusing and projecting charged, destructive atomic particles at the speed of light.⁴

1. Washington Post, Sept. 23, 1977, § 1, at 1, col. 1. The Air Force recently awarded Vought Corporation of Dallas, Texas, a 58.7 million dollar contract to build the weapon. It is a highly maneuverable, heat-sensing vehicle, cylindrical in shape, one foot in length and eight inches in diameter. According to the article, it could be carried into space by any number of rockets launched from earth or airplane. Thereafter, it would be released and permitted to fly or hover with the aid of its own small propulsion motors. The satellite-killer would use its heat-sensing mechanism to home in on the difference in temperature between the metal satellite and surrounding space and then ram the targeted vehicle at about 17,500 miles per hour.

2. Washington Post, Oct. 5, 1977, § 1, at 2, col. 1. As mentioned, the Soviet weapon, though similar to the United States weapon because it is non-nuclear, is different from the United States weapon. It is an explosive device that flies within range of the targeted vehicle and explodes. According to Secretary of Defense, Harold Brown, the Soviets recently have completed successful testing of the ASAT weapon and the Department of Defense has upgraded the weapon to operational status. The Department presently is working to harden the circuitry of its reconnaissance satellites in an effort to increase their survivability.

3. Robinson, *Soviets Push for Beam Weapon*, 106 AVIATION WEEK & SPACE TECH. 11, 16, May 2, 1977.

4. United States scientists have speculated that the technology required to produce such a beam weapon includes: 1) explosive or pulsed power generation supplied by either fission or fusion; 2) giant capacitors capable of storing extremely high levels of power for fractions of a second; 3) electron injectors capable of generating high energy pulse streams of electrons at high velocities; 4) collective accelerators to generate electron pulse streams or hot gas plasma necessary to accelerate other subatomic particles at high velocities; 5) flux compression to convert energy from explosive generation to energy sufficient to produce the elec-

Apparently, utilization of the non-nuclear devices presently under development in both the United States and the Soviet Union will be limited to destruction or neutralization of both reconnaissance and communication satellites. The destructive potential and operational utility of the directed-energy weapon, however, is not nearly so limited. The device could function in two distinct environments: it could be stationed on earth and directed toward outer space,⁵ or placed somewhere in outer space, either in space itself or on a celestial body or the moon, and directed toward the earth or other objects similarly located in outer space.⁶ Moreover, such a weapon could be designed to destroy satellites, to neutralize or intercept intercontinental or submarine launched ballistic missiles, and to attack earthly targets.

This article's objective is to examine the international legality of these anti-satellite weapons in light of the Outer Space Treaty of 1967.⁷ The discussion of the directed-energy weapon will not directly address the question of the legality of such a terrestrially-based system. Nor will the legality of using a space-based directed-energy weapon to attack targets other than satellites be specifically considered. However, to the extent that such a space-based system falls within the proscriptions of the Outer Space Treaty, it, too, is prohibited.

I. OUTER SPACE TREATY OF 1967: AN OVERVIEW

The Outer Space Treaty, signed at Moscow, London, and Washington on January 27, 1967,⁸ was the first multilateral convention to enumerate widely accepted guidelines designed to temper the intensity of potential disputes certain to arise in future allocation of both the spatial and material resources of outer space. The

tron beam; 6) switching mechanisms necessary to store the energy from the generators in large capacitors; and 7) development of pressurized lines needed to transfer the power pulses from the generators to power stores. The lines must be cooled cryogenically. Scientists have estimated that the typical energy levels required for use with a beam weapon are 10^{12} joules per pulse, with the energy of a particle of the beam from 1 to 100 giga electron volts.

5. One use of directed-energy weapons would be to saturate the spatial windows through which ICBM's or SLBM's penetrate enemy airspace in order to attack enemy targets. Utilizing the atomically charged particles projected by such weapons, the incoming warheads would be destroyed or neutralized.

6. Robinson, *supra* note 3, at 16.

7. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies, *done*, Jan. 27, 1967, [1967] 3 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 [hereinafter cited as Outer Space Treaty].

8. *Id.*

treaty attempts to conserve, as well as extend, mutually held values⁹ through the promotion of three basic objectives. Each article of the Treaty is subsumed under one of these three objectives.

The first and most fundamental objective of the Treaty is to guarantee that outer space, including the moon and other celestial bodies, remains the heritage of all mankind. This objective is reflected in both general and specific provisions of the Treaty. The opening provisions of the Treaty enunciate three general principles governing the use and exploration of space. Article I requires that all space activities be carried on for the benefit, and in the interest, of all mankind. Consistent with the first article, article II prohibits any nation from appropriating outer space, including the moon and other celestial bodies. Article III, however, applies both international law and the optimum order system of the United Nations Charter to space activities.

The specific provisions that reflect the first objective of the Treaty seek to distribute the benefits resulting from the use and exploration of space among the largest number of participants while simultaneously providing a means for redressing exclusive use. For example, articles X, XI, and XII, respectively, require that states parties be given an opportunity to observe the flight of objects launched into space; that the nature, conduct, location, and results of space activity be disseminated to the public to the greatest extent practicable; and that stations, installations, equipment, and space vehicles be open to all parties on the basis of reciprocity.¹⁰ On the other hand, under article IX, any party planning to undertake an activity in outer space, including the moon and other celestial bodies, which gives it "reason to believe" the activity will cause "potentially harmful interference" with the activity of any other party in the peaceful use or exploration of space, is required to request "appropriate" international consultation before proceeding.¹¹ Simi-

9. The international decision-making process attempts to conserve, extend, and distribute universally shared values to the largest number of participants. See generally M. McDUGAL, *et. al.*, STUDIES IN WORLD PUBLIC ORDER (1960). Such universally shared values include, *inter alia*, power, wealth, respect, well-being, security, skill, enlightenment, rectitude (applied ethics), and affection. The Outer Space Treaty affects these values in two distinct ways. First, it attempts to conserve these values, particularly well-being and security. Second, it extends their applicability to the outer space environment. At least one factor affecting adherence to the provisions of the Treaty is the extent to which the Treaty reflects these universally shared values. It is unlikely that any international convention will prove effective if it fails to conserve or, in fact, threatens such values.

10. Outer Space Treaty, *supra* note 7, arts. X, XI & XII.

11. *Id.* art. IX.

larly, if the party planning to undertake the activity decides against fulfilling the obligation imposed upon it to request consultation, then any party with "reason to believe" the activity will cause "potentially harmful interference" with activities in the peaceful use or exploration of space may request such consultation. This provision is particularly pertinent to the present discussion. To the extent that deployment of an anti-satellite weapon creates the potential for harmful interference with peaceful uses of space, such deployment interferes with the inclusive uses of space promoted by the Treaty. The deploying state may have an obligation to request consultation.

The second objective of the Treaty provides for cooperation among, and liability of, the parties exploring space. Article V requires that parties regard astronauts as envoys of mankind and render them all needed assistance.¹² Article VI fixes the responsibility for space activities of a governmental or non-governmental entity upon the adhering state,¹³ while article VII declares that liability for damage caused by a space object to another party is to be incurred by both the launching state and the state from which the object was launched.¹⁴ For the purpose of tying these principles together and guaranteeing that a launched object does not become *res nullius*, article VIII was included to assure that the state of registry retains jurisdiction over the object.¹⁵

The third and final objective of the Treaty is to prevent the arms race from spreading to outer space. This objective exemplifies the widely shared values of security and well-being. The Limited Test Ban Treaty of 1963¹⁶ merely prohibited nuclear explosions in outer space. It said nothing about various other military uses of space. The following discussion is designed to treat the arms control provisions of the Outer Space Treaty in the context of the anti-satellite weapon problem.

12. *Id.* art. V.

13. *Id.* art. VI.

14. *Id.* art. VII.

15. *Id.* art. VIII.

16. Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, *done*, Aug. 5, 1963, [1963] 2 U.S.T. 1313, T.I.A.S. No. 5433, 480 U.N.T.S. 43 [hereinafter cited as Limited Test Ban Treaty, 1963]. Art. I (1) reads:

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 underwater, including territorial waters or high seas . . . ;

II. ARTICLE IV, PARAGRAPH 1: PARTIAL DISARMAMENT

The first paragraph of article IV reads as follows:

States Parties to the Treaty undertake not to place in orbit around the *Earth* any objects carrying nuclear weapons or any kind of weapons of mass destruction, *install* such weapons on celestial bodies, or *station* such weapons in *outer space* in any other manner.¹⁷

The objective of the opening paragraph is to eliminate nuclear and other weapons of mass destruction from outer space and celestial bodies. It does not proscribe conventional non-nuclear devices. Because only nuclear and other weapons of mass destruction have been prohibited expressly by the terms of paragraph 1, it has been termed a clause of *partial disarmament*.¹⁸ As such, it does not affect deployment of non-nuclear anti-satellite weapons presently under development in both the United States and Soviet Union. In light of the fact that this section of the article intends to test the legality of anti-satellite weapons against the restrictions of paragraph 1, and because paragraph 1 does not proscribe deployment of non-nuclear weapons, the present discussion shall focus upon the legality of the directed-energy anti-satellite weapon. The question of whether a directed-energy weapon is, in fact, a nuclear or other weapon of mass destruction will be addressed later. To the extent such a weapon falls into the nuclear or mass destruction category, it is covered by the proscriptions of article IV, paragraph 1.¹⁹

The inclusions and omissions under article IV, paragraph 1, present several questions that should be examined before any definitive answer can be posited as to whether deployment of an outer space directed-energy weapon would violate article IV. For example, although placing nuclear weapons or weapons of mass destruction in orbit around the *earth* is expressly prohibited, is it permissible to place a directed-energy weapon in orbit around the *moon* or other *celestial* bodies, if such a weapon is categorized as a nuclear weapon or a weapon of mass destruction? Since the language of the first paragraph appears to prohibit installation only on celestial bodies, may a directed-energy weapon legally be installed on the moon? Suppose a directed-energy weapon is pursuing a spa-

17. Outer Space Treaty, *supra* note 7, art. IV, para. 1 (emphasis added). Although the paragraphs within the articles to this Treaty are not numbered, they will be numbered herein for purposes of clarity and precision.

18. Markoff, *Disarmament and "Peaceful Purposes" Provision in the 1967 Outer Space Treaty*, 4 J. SPACE L. 3, 4 (1976).

19. Outer Space Treaty, *supra* note 7, art. IV, para. 1.

tial course and would complete one orbit of the earth if unimpeded. Is the weapon within the purview of paragraph 1 if it fails, either adventitiously or by design, to complete the orbit? Does the prescription of orbiting weapons embrace a synchronous directed-energy weapon? Finally, is a directed-energy weapon a nuclear weapon, or a weapon of mass destruction within the meaning of either term?

The fact that there are few actual interpretive documents on article IV²⁰ similar to those that domestic lawyers analyze when attempting to construe municipal legislation, poses a significant problem. Thus, the task of construing article IV has been left to international lawyers using, in good faith, generally accepted principles of construction. Article 31 of the Vienna Convention on the Law of Treaties,²¹ though not yet in force, states the most universally accepted rule of construction and composes a synthesis of the interpretive methodology applied throughout this article. Article 31 states that:

1. A treaty will 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 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 . . . its preamble and annexes . . .*
3. There shall be taken into account, together with the context:
(a) any subsequent agreement between the parties . . . ; (b) any subsequent practice in the application of the treaty which establishes the agreement of the parties . . . ;²²

It is clear from the above article that when interpreting any treaty provision, that provision should be construed within the context of the total treaty. The context includes the preamble as well as the preceding and subsequent provisions. Moreover, the construction should be designed to effectuate the object and purpose of the drafters.

20. While no actual reports exist as to the precise meaning of each provision, details of the negotiations in the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) do exist. See U.N. Doc. A/AC.105/C.2/SR.63, particularly SR.66 at 6 (July 25, 1966).

21. U.N. Doc. A/CONF. 39/27, May 22, 1969, *reprinted in* 63 AM. J. INT'L L. 875, 885 (1969) [hereinafter cited as Vienna Convention].

22. *Id.* (emphasis added).

A. Is it Permissible to Place a Directed-Energy Weapon in Orbit Around the Moon or Other Celestial Bodies?

Assuming that a directed-energy weapon is a nuclear weapon or a weapon of mass destruction, a first reading of article IV, paragraph 1 appears only to prohibit the placement of such weapons in orbit around the earth. In fact, because reference to the moon is conspicuously absent, an argument can be posited for the proposition that celestial-orbiting as well as moon-orbiting directed-energy weapons are permissible. That construction, however, does not withstand scrutiny because paragraph 1 prohibits the orbiting of nuclear or comparable earth-orbiting weapons, the installation of such on celestial bodies, and, also, the stationing of such weapons in outer space in "any other manner."²³ The latter provision has been construed to mean deployment around the moon or any celestial body.²⁴ In fact, that is the construction accepted by the United States.²⁵ Thus, paragraph 1 not only expressly proscribes earth-orbiting weapons, but also, within the definition of "station," those weapons designed to orbit the moon or any other celestial body.²⁶

B. Can a Directed-Energy Weapon be Installed on the Moon Without Violating Article IV?

Though it would be a clear violation to install a directed-energy weapon on a celestial body, the language of the Treaty fails to clarify whether the moon is a celestial body. Does paragraph 1 prohibit a party from *orbiting* a directed-energy weapon around the moon by preventing such from being *stationed* in outer space, yet permit the lunar installation of a directed-energy weapon? This is a significant question because it is entirely conceivable that some nation may attempt to install such a weapon on the moon and then proceed to use it against satellites, space vehicles located in outer space, or earth based targets.

Some have suggested that the moon was intentionally excluded

23. Outer Space Treaty, *supra* note 7, art. IV, para. 1.

24. U.N. Doc. A/7221 (1968); A/Bur./Sr.175, at 3 (1968).

25. *Hearings Before the Senate Foreign Relations Comm. on Executive D*, 90th Cong., 1st Sess. 8 (1967) [hereinafter cited as *Outer Space Hearings*]. United Nations Ambassador Arthur Goldberg responded negatively during the Senate Committee on Foreign Relations hearings when asked whether article IV, para. 1 permitted orbiting of the moon.

26. Nor does it matter that the ultimate target is on the earth, another celestial body, or in outer space proper.

from the proscription.²⁷ Yet, not all agree,²⁸ and the better view appears to be that *installation*, whether on a celestial body apart from the moon, or on the moon itself, is prohibited. The moon is a celestial body within the “ordinary meaning” of that term. When the Treaty is construed in context, so that each article is rendered consistent with the preceding and subsequent articles,²⁹ installation on the moon is contrary to the avowed declaration of article I, paragraph 1, which states that the “use of outer space, including the *moon* and other celestial bodies shall be carried out for the benefit and in the interest of all countries”³⁰ Moreover, the peaceful purposes clause of article IV, paragraph 2,³¹ demilitarizes the moon and other celestial bodies. This construction receives additional credence from the fact that any other interpretation would violate the preambular language of the Outer Space Treaty³² and General Assembly Resolution 1884,³³ recalled by the architects of the

27. N. MATTE, AEROSPACE LAW 299 (1969). He states:

[In] accordance with the *structo sensu* interpretation of the law of treaties, the fact that the expression ‘the moon and other celestial bodies’ is used at the beginning of the second paragraph of the same article . . . , might mean that the expression ‘celestial bodies’ when used by itself should be interpreted as *excluding the moon*. The result of such an interpretation would mean that the installation of nuclear weapons on the moon would be permissible (emphasis added).

28. Wehringer, *The Treaty on Outer Space*, 54 A.B.A. J. 586, 587 (1968).

29. There are two basic schools of thought on the construction of treaties: 1) the “plain meaning” school; and 2) the “general purpose” school. The former uses the notion of univocalism as its primary operable premise. This means that a term has one meaning, the meaning is identifiable and the specific meaning controls. The better method of construction is the latter. It seeks to effectuate the intentions of the drafters by looking at the provision in the context of the total treaty. For a complete exposition of the latter approach see Vienna Convention, art. 31, *supra* note 21, at 293. See also Judge Anzilotti’s dissenting opinion in the case of *Interpretation of the 1919 Convention Concerning Employment of Women During the Night*, [1932] P.C.I.J., Ser. A/B, No. 50; M. HUDSON, 3 WORLD COURTS REPORTS 99, 112-16 (1932). McDougal & Gardner, *The Veto and the Charter: An Interpretation for Survival*, 60 YALE L.J. 258-92 (1951) also adopts the general purpose approach with some modifications. For an introduction to the plain meaning approach see Gross, *Voting in the Security Council*, 60 YALE L.J. 209 (1951). Although the article deals with the interpretation of article 27 (3) of the United Nations Charter and the question of the effect of absence and abstention in the Security Council voting process, it provides an adequate introduction to the plain meaning rule.

30. Outer Space Treaty, *supra* note 7, art. I.

31. Regarding the arguments mustered to prove the unlawfulness of installing nuclear weapons on the moon, critics may claim that the only activities actually considered non-peaceful by article IV, para. 2 are those enumerated in the second sentence of the second paragraph. Moreover, although the installation of nuclear weapons appears to violate the “installation” prohibition, the entire second sentence is limited only to *celestial* bodies and states nothing about the moon.

32. Outer Space Treaty, *supra* note 7, at 2411. The preamble states in part:

Believing that the exploration and use of outer space should be carried on for the benefit of all peoples . . . (emphasis added).

Id.

33. GAOR Res. 1884, U.N. Doc. A/C.1/L.34 A/Res./1884 (1963), states in its opening stanza:

Treaty and expressly designed to curb the spread of the arms race to outer space. Numerous positions on the legality of installing nuclear or other analogous weapons on the moon have been voiced. The better view, however, appears to find such installations violative because article IV, paragraph 1, read in conjunction with article I, paragraph 1, requires that the moon be used for the benefit of all mankind.³⁴ This cannot be accomplished if used by a single nation for its own military purposes. Article IV, paragraph 2 also requires that the moon and other celestial bodies be used for peaceful purposes.³⁵ Moreover, the preamble of the Outer Space Treaty and General Assembly Resolution 1884 express complimentary intentions.

C. Must a Directed-Energy Space Weapon Complete One Full Orbit Before Coming Within the Prohibitions of the Treaty?: What if the Weapon is Synchronous?

The legality of placing *conventional* weapons in outer space remains unresolved when paragraphs 1 and 2 of article IV are read in conjunction, yet, an analysis of that subject must await the next section of this article.³⁶ On the other hand, it is essential that discus-

Determined to take steps to prevent the spread of the arms race to outer space

Note that on October 16, 1963, Ambassador Adlai Stevenson remarked to the United Nations Political and Security Committee:

[T]his resolution calls for abstention. It would represent international recognition that the arms race in outer space must not be extended into this new environment, that while we are seeking ways of limiting and reducing existing armaments, *we undertake to refrain from developing a new potential* in the armaments field. Certainly, it would seem easier not to arm an environment that has never been armed than to agree to disarm areas which have been armed (emphasis added).

49 DEPT STATE BULL. 753 (1963).

In light of the fact the preamble of the Outer Space Treaty recalls General Assembly Resolution 1884, the draftsmen probably were looking to effectuate the precatory language found in that resolution as cited above.

34. Outer Space Treaty, *supra* note 7, art. IV, para. 1 & art. I, para. 1.

35. *Id.* art. IV, para. 2.

36. N. MATTE, *supra* note 27, at 240. As stated previously, paragraph 1 prohibits the deployment of nuclear weapons and other weapons of mass destruction. It is not a complete disarmament clause. Deployment of conventional weapons is not considered violative of article IV, para. 1. Alternative arguments can be posited in favor of outlawing even conventional weapons. These, however, are not based upon any reading of article IV, para. 1, but rather upon the peaceful purposes clause of article IV, para. 2, which is extended tenuously to outer space when construed in conjunction with the clause in article I, para. 1 declaring that outer space is to be used for the "benefit and in the interest of all countries." As will be discussed *infra*, all the preparatory work indicates that the intention of the drafters was not to include outer space proper within the protection of the peaceful purposes clause. Thus, prohibition of conventional weapons must spring, if at all, from some provision other than article IV, para. 2. *See* text accompanying notes 46-89 *infra*.

sion ensue as to whether or not it is necessary for a directed-energy weapon to complete one full orbit before it comes within the ambit of the Convention's proscription regarding orbiting weapons. Does article IV, paragraph 1 prohibit a nation from placing in orbit a directed-energy, or other similarly destructive weapon, that merely embarks on a partial orbit; one that, if not discontinued, would be at an altitude and speed sufficient to complete a full orbit?³⁷ Furthermore, to what extent would a synchronous vehicle,³⁸ equipped with a prohibited weapon, come within the restrictions of article IV, paragraph 1?

Some have contended that any weapon which fails to complete one orbit escapes the language of the Treaty.³⁹ Opponents of such an interpretation suggest that there is nothing in article IV, paragraph 1 requiring that the vehicle complete an orbit before being affected by the prohibitions of the agreement. They suggest that, because the term orbit is not defined by the Treaty, other sources should be analyzed to determine the definition. One such source is the definition proposed by the National Aeronautics and Space Administration describing orbit as the path followed by a body under gravitational or other forces. This is a directional or locational definition and not one that would require the completion of one orbit before the directed-energy weapon would be considered to be in orbit.⁴⁰ The real concern, however, should not be whether the weapon has completed or must complete one revolution of the

37. This was an acute concern of the United States in November of 1968, immediately prior to the signing of the Outer Space Treaty. Secretary of Defense McNamara disclosed that the Soviets were developing a Fractional Orbital Bombardment System (FOBS) capable of being launched into outer space, pursuing a partial orbit and then, periodically, slowing to discharge nuclear warheads toward earthly targets. Shortly thereafter, the Director of the Defense Department's Research and Engineering Office stated that the United States was in the process of developing its own FOBS termed the Space Bus. See N. MATTE, *supra* note 27, at 240. Views on the international legality of FOBS were conflicting. When questioned by Congress as to whether the system violated article IV, para. 1, McNamara responded in the negative. He pointed out that "the so called FOBS would not accomplish *one full orbit* . . . and was, like ballistic missiles that go through space in their trajectories, not covered by the Treaty and thus no more than the ICBM" (emphasis added). See N. MATTE, *supra* note 27, at 240.

38. A synchronous vehicle is one that, after being placed in space, does not circle the earth at a speed faster than the earth rotates on its axis. Rather, a synchronous satellite is located in space at some point above the earth traveling in an orbit at the same speed as the earth. Therefore, it is constantly above that same spot on the earth.

39. Markoff, *supra* note 18, at 4. See also Stein, *Legal Restraints in Modern Arms Control Agreements*, 66 AM. J. INT'L L. 255, 263 (1972).

40. Comment, *The Treaty On Outer Space: An Evaluation of the Arms Control Provisions*, 7 COLUM. J. TRANSNAT'L L. 259, 274 (1968).

earth before triggering the proscriptions of paragraph 1. The United States and Soviet Union had no intention of restricting the use of Intercontinental Ballistic Missiles (ICBMs) through the Outer Space Treaty. The real issue, therefore, should be the length of time the weapon spends in space. Even if it does not complete one orbit, but is positioned in outer space, it is outlawed by the clause preventing the *stationing* of nuclear or comparable weapons in outer space in "any manner". Thus, one should actually look for the existence or absence of a time analogy between ICBMs and directed-energy weapons. If the length of time spent is comparable to that of an ICBM, then the use may be permissible. Whether the weapon is synchronous does not matter because stationing is related to time rather than location. The drafters intended to leave ICBMs untouched, while prohibiting the parties from stationing or orbiting nuclear and other analogous weapons.

D. Is a Directed-Energy Weapon a Nuclear Weapon or Other Weapon of Mass Destruction?

Paragraph 1 of article IV prohibits deployment in space of both nuclear weapons and other weapons of mass destruction.⁴¹ The generally accepted position is that a weapon of mass destruction is not a typical non-nuclear device.⁴² Rather, it is a bacteriological, chemical, or other weapon capable of producing damage equivalent to a nuclear device.⁴³ When one considers the operational features of a directed-energy weapon, there is little question that it is covered by either proscription. The previous discussion assumes that a directed-energy weapon is a nuclear weapon or weapon of mass destruction. The following discussion merely substantiates that assumption.

41. Outer Space Treaty, *supra* note 7, art. IV, para. 1.

42. See note 40 *supra*, at 275.

43. *Outer Space Hearings*, *supra* note 25, at 23. Ambassador Goldberg stated that mass destruction weapons included, *inter alia*, "any type of weapon which could lead to the same type of catastrophe that a nuclear weapon could lead to It does not refer to any conventional weapon." If one closely examines Goldberg's statement, there is nothing endemic to conventional weapons that prohibits a super-powerful conventional weapon from being considered a weapon of mass destruction. Such a conclusion is supported by the United Nations. For example, the Commission for Conventional Armaments, established by the Security Council, adopted a resolution on Aug. 12, 1948, defining weapons of mass destruction to include lethal chemical and biological weapons developed in the future which have "characteristics comparable in destructive effect to those of the atomic bomb or other weapons mentioned above." Resolution Adopted by the Commission for Conventional Armaments, 3 U.N. SCOR 2, U.N. Doc. S/C.3/32 (1948).

Although a directed-energy weapon differs from a typical nuclear bomb, which centers its destructive force at the point of detonation, it is, nevertheless, precisely the type of weapon that paragraph 1 contemplates. A nuclear weapon utilizes, for destructive purposes, energy forces released through the splitting⁴⁴ or union⁴⁵ of atoms. The basic atomic physics underlying a directed-energy weapon is the projection of destructive particles that have been atomically charged through the fission or fusion processes. The fact that resultant damage may not be as catastrophic as that caused by a larger typical nuclear device is not determinative. Few would seriously contend that so-called "mini-nukes" are not nuclear weapons and a directed-energy weapon is designed to similarly limit the damage inflicted.⁴⁶ Thus, as with any nuclear weapon, a directed-energy weapon is incapable of escaping the mandates of the Treaty.

Despite the apertures of article IV, paragraph 1, proper construction renders it a useful device for instructing such nations as the Soviet Union, which is contemplating the placement of directed-energy weapons in outer space, that such would violate accepted international principles designed to seek the widest distribution of shared values. Though the express language appears to prohibit only earth orbiting weapons, directed-energy weapons are precluded from orbiting the moon or any other celestial body by the clause that prohibits the stationing of such weapons in outer space. Additionally, any attempted lunar installation of a directed-energy weapon would run afoul of the provision that prohibits the installation of such devices on celestial bodies, because the moon is a celestial body. Moreover, the parties have agreed to use "outer space, including the moon," for the benefit of all countries. Such a benefit would not occur if one nation used it for its own military objectives. A directed-energy weapon designed not to complete one full orbit, or one designed to be synchronous, cannot escape the language of paragraph 1. The determinative factor is the length of time the vehicle spends in outer space. The completion of

44. Referred to as fission.

45. Referred to as fusion.

46. Though it is conceivable that future technological advances may enhance substantially the destructive capability of directed-energy weapons, present information indicates that their utility and destructive capability are limited. Apparently, directed-energy weapons will be used against satellites and warheads. However, the effect of destroying an incoming warhead in the airspace above a terrestrial target may be significant.

one full orbit, or continuous spatial location above one spot on the earth, does not alter the situation.

III. ARTICLE IV, PARAGRAPH 1: "PEACEFUL PURPOSES"

As previously discussed, article IV, paragraph 1 prohibits the deployment of nuclear and other analogous weapons in outer space, including the moon and other celestial bodies. The extent to which the Treaty limits non-nuclear anti-satellite weapons rests in part upon the peaceful purposes clause of article IV, paragraph 2. Because the United States and the Soviet Union are endeavoring to develop conventional non-nuclear anti-satellite weapons, it is essential to explore the limitations that the peaceful purposes clause places upon the deployment of such weapons.

Article IV, paragraph 2 reaches beyond a mere prohibition of nuclear and other analogous weapons towards complete demilitarization.⁴⁷ The paragraph reflects a compromise between disparate Soviet⁴⁸ and United States⁴⁹ draft proposals. It reads:

The *moon* and other celestial bodies shall be used by all State 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 *maneuvers* on celestial bodies shall be forbidden. The use of military personnel for *scientific* 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 not be prohibited.⁵⁰

47. Outer Space Treaty, *supra* note 7, art. IV, para. 2.

48. See STAFF REPORT, COMM. ON AERONAUTICAL & SPACE SCIENCES, 89TH CONG., 2D SESS., SPACE TREATY PROPOSALS BY THE UNITED STATES AND U.S.S.R. (Comm. Print 1966) [hereinafter cited as Space Treaty Report]. The Soviet draft article IV proposed:

The moon and other celestial bodies shall be used exclusively for peaceful purposes by all Parties to the Treaty. The establishment of military bases and installations, the testing of weapons and conduct of military manoeuvres on celestial bodies shall be forbidden.

Id. at 20.

49. See *id.* at 20 for the United States proposals. Article 9 states:

Celestial bodies shall be used for peaceful purposes only. All States undertake to refrain from conducting on celestial bodies any activities such as the establishment of military fortifications, the carrying out of military maneuvers, or the testing of any type of weapons. The use of military personnel, facilities or equipment for scientific research or for any other peaceful purposes shall not be prohibited.

Id. The final draft incorporated both the Soviet and United States proposals.

50. Outer Space Treaty, *supra* note 7, art. IV, para. 2 (emphasis added). While the Soviet proposal applied to both the moon and other celestial bodies, the United States draft provision covered celestial bodies alone. In addition, the United States draft prohibited *military fortifications*, maneuvers, and testing, while the Soviet draft prohibited *military bases and*

Close analysis of the language used in the second paragraph of article IV reveals almost as many ambiguities as the first paragraph of article IV.⁵¹ The following are the specific issues most deserving of discussion. First, does the term "peaceful purposes" mean that space may be used only for non-military, or nonaggressive purposes? Non-nuclear anti-satellite weapons are not within the prohibitions of the first paragraph. Therefore, only a non-military definition will prohibit their deployment. Secondly, although the express language of the peaceful purposes clause applies only to the the moon and other celestial bodies, does the failure to mention outer space mean that outer space may be used for non-peaceful purposes so long as the prohibitions of article IV, paragraph 1 and other relevant international principles are not transgressed? There are other issues of interest based upon a thorough exploration of article IV, paragraph 2; yet, it is beyond the scope of this article to explore all the vagaries of the Treaty.⁵²

While differences of opinion exist as to the meaning of the term peaceful purposes,⁵³ apparently since 1957 the major powers

installations, maneuvers, and testing. Finally, article 9 of the draft submitted by the United States contained provision for the use of military personnel, facilities, and equipment for scientific or other peaceful purposes. The Soviet draft permitted no such use. The Soviet Union's request to insert the term "installation" between *bases* and *fortifications* was incorporated. The Soviet's *quid pro quo* was acquiescence to the United States request that two additional sentences be included reflecting the fact that military personnel and equipment would be permitted to make peaceful use of the moon and other celestial bodies.

51. See generally Dembling & Arons, *The Evolution of the Outer Space Treaty*, 33 J. AIR L. & COM. 419 (1967).

52. Two important questions remain. Since no mention is made of the moon or outer space in the sentence prohibiting bases, installations, fortifications, maneuvers, and weapons testing, can these facilities and activities be conducted in such places? The other question is whether reconnaissance from the moon and outer space is permissible? Though other issues remain, these are the most significant.

53. As noted, basic views on the definition of "peaceful purposes" are that it means either non-military or nonaggressive. Professor Gorove, in his commentary *Some Thoughts on Article IV of the Outer Space Treaty*, PROCEEDINGS OF THE THIRTEENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 79 (1971) suggests that

it would appear much more productive to abandon the artificial . . . distinction[s] . . . and focus on the prohibition or permission of *the particular activity* instead. Certain activities from the viewpoint of national security may not be as critical or significant as others (emphasis added).

Apparently, Gorove is of the opinion that parties should be less concerned about defining peaceful purposes in isolation, and should examine the extent of intrusion by particular activities on a case by case basis. While this surely would improve the accuracy of the definition in application, it fails to provide the needed predictability to determine whether the particular contemplated conduct is permissible. In this sense, acting nations are given no clear guidelines to follow.

have endeavored to exclude all other uses of outer space.⁵⁴ Two views have emerged regarding the meaning of peaceful purposes. The legality of non-nuclear anti-satellite weapons will be examined in light of both of these views. One school of thought contends that “‘peaceful’ is not the opposite of ‘military’ but is meant as ‘non-aggressive’ only.”⁵⁵ Therefore, military activities of a nonaggressive character are permissible. The other view suggests that when the peaceful purposes clause is construed in conjunction with article I, paragraph 1, which calls for the use of the celestial environment for the benefit and in the interest of all countries, peaceful must mean non-military.⁵⁶ Thus, any military activity, aggressive or not, is proscribed. Actually, the language of article IV, paragraph 2 is insufficient to suggest a definition. The paragraph merely reads that the “moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for *peaceful purposes*.”⁵⁷ Because there is a dearth of actual interpretive documentation, one must rely upon the accepted principles of construction recounted earlier when attempting to determine the line of reasoning that most accurately reflects the intention of the drafters.

Initially, it should be noted that there are three distinctly different environments to which the peaceful purposes clause may have applicability: the moon, celestial bodies, and outer space. The analysis of article IV, paragraph 2 *infra* includes only the moon and other celestial bodies because the first sentence of the second paragraph, by its express terms, covers only those two realms. Differences of opinion regarding the application of the peaceful purposes clause to the moon and celestial bodies do not necessarily exist when applying the clause to outer space.⁵⁸ In fact, the United States

54. See Soraghan, *Reconnaissance Satellites: Legal Characterization and Possible Utilization for Peacekeeping*, 13 MCGILL L.J. 458 (1967). The commentator notes:

In January, 1957, the United States urged in the United Nations that studies in disarmament include space activities, and in August of that year the United States was joined by Canada, France and Great Britain in proposing United Nations inspection of spacecraft to insure that they serve peaceful purposes only.

Id. at 460. Proposals were made in domestic as well as international fora. In 1958, the National Aeronautics and Space Administration (NASA) suggested, and Congress confirmed in Act of July 29, 1958, Pub. L. 85-568, § 102(a), 72 Stat. 426, that space be used for peaceful purposes. That same year the Soviets also called upon the United Nations to use space for peaceful purposes. See U.N. Doc. A/3818 (1958).

55. Markoff, *supra* note 18, at 6.

56. *Id.* at 7.

57. Outer Space Treaty, *supra* note 7, art IV, para. 2 (emphasis added).

58. Both the United States and the Soviet Union agree on the fact that the use of outer space is limited by a nonaggressive rather than a non-military doctrine. Thus, any activity that is military, but nonaggressive, is permissible. The nonaggressive doctrine apparently

and the Soviet Union hold different positions as to the meaning of the clause when applied to the moon and other celestial bodies; yet, both agree the clause has no applicability to outer space.

A. Does the "Peaceful Purposes" Clause Permit Nonaggressive Activity or Only Non-Military Activity to be Conducted on the Moon and Other Celestial Bodies?

As stated previously, the express terms of the peaceful purposes clause cover only the moon and celestial bodies. Additionally, article IV, paragraph 1 prohibits lunar or celestial deployment of nuclear and other analogous weapons. Therefore, if lunar or celestial deployment of any conventional non-nuclear weapon is to be prohibited, the prohibition must arise from a non-military definition of peaceful purposes because article IV, paragraph 1 is not so comprehensive.

Neither of the non-nuclear anti-satellite weapons discussed above are designed to be deployed on the moon or other celestial bodies. Consequently, they will not be affected directly by any application of the peaceful purposes clause to those two environments. Nevertheless, it is essential to develop a functional definition for the clause. Such a definition will assist in determining the legality of any directed-energy weapon installed on the moon or other celestial body and held to be unaffected by article IV, paragraph 1. Moreover, the definition may also prove useful in determining the legality of some future lunar or celestial deployment of other non-nuclear anti-satellite weapons.

1. *Nonaggressive.* As stated above, one group of jurists contends that the term peaceful purposes is most accurately defined as meaning nonaggressive.⁵⁹ This is basically the view held by the

arises from the fact that the peaceful purposes clause does not expressly apply to outer space proper and, therefore, only the United Nations Charter and international law apply. Both only prohibit aggressive activity.

59. See generally Beresford, *Surveillance Aircraft and Satellites: A Problem of International Law*, 27 J. AIR L. & COM. 107 (1960). One commentator suggests that "[i]t is the position of the United States . . . that the term 'peaceful', as applied to space activities, is used in opposition [to the term] 'aggressive', not [the term] . . . 'military'." Soraghan, *supra* note 54, at 466. The Soviets basically agree with this definition as it is applied to outer space. When it comes to application to the moon and other celestial bodies, however, the Soviets take a view contrary to that of the United States. Specifically, the Soviets insist that peaceful purposes means non-military and that it applies to the moon and celestial bodies exclusively. Outer space is not covered by the peaceful purposes clause and, therefore, only article III limits the nature of the activity that may be pursued in outer space proper.

United States and most Western powers.⁶⁰ Such a construction is premised upon several bases. The most fundamental basis is that, in view of the admonition of article III of the Treaty, to apply the principles of the United Nations Charter and international law to outer space, the moon, and other celestial bodies, the drafters could not have intended to prohibit nonaggressive military uses⁶¹ because both sources permit nonaggressive military activity. In addition, proponents of the nonaggressive definition muster support from the fact that, generally, when the Treaty intends to proscribe certain activities, it explicitly enumerates them. For instance, one commentator has stated that:

It should be noted that when an express prohibition is intended, the Treaty clearly does so, such as its prohibition against "the testing of any types of weapons" in outer space in Article IV. No such similar prohibition is recited against military activities *per se*. The "Treaty must be read as a whole Military personnel expressly are authorized" for scientific research or for any other "peaceful purposes." How can it now any longer be said in the light of this language, that *peaceful purposes* means "non-military?" It can only mean "non-aggressive."⁶²

It matters little under such an interpretation that military personnel or equipment are used; the nonaggressive definition of peaceful purposes is not automatically violated.⁶³ Only aggressive activity that constitutes "an attack upon, or stress against, the territorial integrity and independence of another [s]tate . . ." ⁶⁴ violates the clause.

From the foregoing, it is apparent that several major powers accept the proposition that peaceful purposes, as applied to the moon and other celestial bodies, restricts only aggressive military activity. One reason for this construction is that it appears sound when article IV, paragraph 2 and article III, making the United

60. See Vlastic, *The Space Treaty: A preliminary Evaluation*, 55 CALIF. L. REV. 507, 514 (1967).

61. Dembling & Arons, *supra* note 51, at 434. Professor Dembling suggests:

In the interim, one might conclude that any military use of outer space must be restricted to nonaggressive purposes in view of Article III, which makes applicable international law including the Charter of the United Nations.

See also Stein, *supra* note 39, at 262-63.

62. Finch, *Outer Space for "Peaceful Purposes"*, 54 A.B.A.J. 365, 366 (1968) (emphasis added).

63. See Galloway, *Interpreting the Treaty on Outer Space*, PROCEEDINGS OF THE TENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 143, 145 (1967).

64. Meyer, *Interpretation of the Term "Peaceful" in the Light of the Space Treaty*, PROCEEDINGS OF THE ELEVENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 27 (1968).

Nations Charter and international law applicable to the moon and other celestial bodies, are read in conjunction. The Treaty generally enumerates the activities it desires to prohibit, and because it fails to strike at all military activity and, in fact, permits the use of military personnel and equipment in certain cases, any suggestion that peaceful purposes means non-military may be incorrect. However, one distinction seems to be overlooked by the proponents of the nonaggressive definition. The mere fact that military personnel are used for scientific and exploratory *research* does not necessarily imply that nonaggressive military *activity* can be undertaken. The fact that the use of military personnel and equipment is permitted only reflects upon the nature of the *characters* and not upon the *purpose* of the undertaking.⁶⁵

2. *Non-Military.* Even those who suggest that peaceful purposes means "non-military" acknowledge the permissibility of using military personnel and equipment to carry out scientific or other peaceful tasks.⁶⁶ Nevertheless, they deny that anyone, civilian or military, can undertake a particular activity for an avowed military objective. Those adhering to the non-military position base their interpretation on several foundations, the most important of which is constructional. They say the Treaty must be read as a unit; no one article or clause should be removed and examined *in vacuo*, but should be viewed in light of the preceding and subsequent articles. This is consistent with article 31 of the Vienna Convention⁶⁷ and seems to require that peaceful purposes be defined with reference to article I, paragraph 1.⁶⁸

Article I, paragraph 1 requires that every celestial activity be carried out for the benefit, and in the interest, of all mankind. It has been said that:

65. See Markov, *The Juridical Meaning of the Term "Peaceful" in the 1967 Space Treaty*, PROCEEDINGS OF THE ELEVENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 30 (1968). The commentator states:

[T]he basic criterion for "peaceful" . . . is not the civil or military status of the crew or of the installations on board a space engine, but the *real purpose* of a given space activity. Its goals are to be revealed given the specific *object* of the mission as well as by the resulting *records* (emphasis added).

Id. at 34.

66. See Markov, *Against the So-Called "Broader" Interpretation of the Term "Peaceful" in International Space Law*, PROCEEDINGS OF THE ELEVENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 73, 75 (1968).

67. Vienna Convention, *supra* note 21, art. 31, at 293.

68. See Markoff, *supra* note 18, at 7.

Since Article I, paragraph 1 expressly recognizes that exploration and use of [the moon and other celestial bodies] should be carried out for the benefit and in the interest of all states . . . , it is *doubtless* that this disposition shuts out automatically from the field of the lawful span of activities *all kinds of military actions without exception*. This is because no military activity can nowadays be envisaged as being beneficial to all mankind and being carried out in the interest of all countries of the world.⁶⁹

The advocates of the non-military interpretation purport to deal with the joint construction of articles I and III as follows. Despite the apparent inconsistency of articles I and III, they say article I, paragraph 1 should not be overlooked when attempting to define peaceful purposes. As one commentator has stated, article I, paragraph 1

provides the evidence that all military actions, even the non-aggressive, ought to be *automatically excluded* from the field of LAWFUL activities in outer space, since all military activities without exception, even the "non-aggressive" ones, may serve in present time, the interest of one state, or a group of states only—and NEVER of all the States as provided by the quoted text of the 1967 Treaty.⁷⁰

If the two articles are construed together to render the most consistent construction, the "application of the obligations arising under the [United Nations] Charter to space activities . . . involves the duty to maintain peace . . ." in outer space.⁷¹ Military activities are inconsistent with such an admonition. Some commentators have minimized the effect that the application of the Charter to space activities has had upon article I and article IV, paragraph 2. Stating that article III was included merely to prevent disputes as to which portions of the Charter would be applicable to outer space, some advocates of the non-military definition suggest that "the provisions of the Charter cannot find application in the Treaty and the

69. Markov, *supra* note 65, at 31 (emphasis added). See also Markoff, *supra* note 18, at 7, 21. Zhukov, *On the Question of Interpretation of the Term "Peaceful Uses of Outer Space" Contained in the Space Treaty*, PROCEEDINGS OF THE ELEVENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 36, 38 (1968). The Russian view is that "any military activity on the moon and other celestial bodies shall be forbidden." Thus, peaceful purposes is defined as non-military.

70. Markov, *supra* note 65, at 77 (emphasis added). The non-military definition is also the definition suggested by the former Chairman of the Legal Subcommittee of COPUOS. M. LACHS, THE LAW OF OUTER SPACE 106 (1972).

71. Gál, *The Peaceful Uses of Outer Space—After the Space Treaty*, PROCEEDINGS OF THE TENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 129, 134 (1967).

intention has been to disassociate the Charter from the Treaty."⁷² Still other commenators suggest that article I, paragraph 1 establishes "a newly created general international law rule of higher rank"⁷³

3. *Analysis of the Positions.* The touchstones of the peaceful purposes clause were the Antarctica Treaty of 1959,⁷⁴ and the Charter of the International Atomic Energy Agency drafted in 1956.⁷⁵ Both of these documents utilize the term "peaceful" to mean non-military.⁷⁶ Considering article I, paragraph 1, the previous international conventions using the peaceful purposes clause, and the broad, general language in article III about the applicability of the United Nations Charter and international law to outer space, the most convincing argument favors the non-military definition of peaceful purposes. Moreover, such a definition promotes the inclusive more than the exclusive uses of space and, in that sense, is consistent with the basic objectives advanced by the Treaty.

Since peaceful purposes means non-military, even nonaggressive activity with a military objective is prohibited. This does not exclude scientific or other peaceful activity conducted by military personnel. Article IV, paragraph 1 prohibits the installation of directed-energy weapons on the moon and celestial bodies, and the peaceful purposes clause of the second paragraph prevents circumvention of the proscription of nuclear weapons by claims that directed-energy weapons are non-nuclear. Thus, both paragraphs of article IV affect the installation of directed-energy weapons on the moon and celestial bodies.

The United States position is that the treaty permits military activity so long as it is nonaggressive. On the other hand, the Soviet

72. N. MATTE, *supra* note 27, at 282.

73. Markov, *supra* note 65, at 32.

74. The Antarctic Treaty, *entered into force* June 23, 1961, [1961] U.S.T. 794, T.I.A.S. No. 4780, 402 U.N.T.S. 71. Article I reads:

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 type 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 (emphasis added).

On Antarctica generally, see Sullivan, *Antarctica in a Two-Power World*, 36 FOREIGN AFF. 154 (1957); Daniel, *Conflict of Sovereignities in the Antarctica*, 3 Y.B. WORLD AFF. 241 (1949); Hayton, *The "American" Antarctic*, 50 AM. J. INT'L LAW 583 (1956).

75. *Done*, Oct. 26, 1956, [1957] U.S.T. 1093, T.I.A.S. No. 3873, 276 U.N.T.S. 3.

76. Gál, *supra* note 71, at 135.

Union subscribes to the view that, while article IV, paragraph 1 calls for partial disarmament of outer space, article IV, paragraph 2 mandates *complete demilitarization of the moon and other celestial bodies*.⁷⁷ Assuming that directed-energy weapons are perceived as not within the proscription of article IV, paragraph 1, the Soviet view would still find a violation of article IV, paragraph 2 if directed-energy weapons were installed on the moon and other celestial bodies. This conclusion appears to be harmonious with the most accurate construction of the peaceful purposes clause and seeks the widest distribution of the values extended and conserved through the basic objectives of the Treaty.

B. Is Outer Space Covered by the "Peaceful Purposes" Clause or any Other Similarly Restrictive Provision?

As already discussed, article IV, paragraph 1 prohibits nuclear weapons or weapons of mass destruction from being stationed in outer space in any manner. Assuming that a directed-energy weapon is identified correctly as a nuclear weapon, the consequence of paragraph 1 would be to prohibit any nation from placing a directed-energy weapon in outer space in any manner, including orbit. Standing alone, however, article IV, paragraph 1 in no way restricts spatial deployment of conventional devices, such as the non-nuclear anti-satellite weapons presently under development in both the United States and the Soviet Union. A non-military construction of the peaceful purposes clause, coupled with an extension of that clause's prohibitions to outer space, however, would operate to proscribe the deployment of such weapons in space.

Perhaps the most troublesome issue introduced by article IV, paragraph 2 is whether the peaceful purposes clause applies to outer space as well as to the moon and other celestial bodies. The failure of the drafters to include outer space among the enumerated

77. Again, it should be noted that while the United States and the Soviet Union do not agree on their interpretations of peaceful purposes in relation to the moon and other celestial bodies, their positions are consonant as to the nature of the permissible activity that may be carried out in outer space. Despite the non-military and nonaggressive suggestions, Mankiewicz, *Interpretation of the Treaty on Outer Space*, PROCEEDINGS OF THE ELEVENTH COLLOQUIUM ON THE LAW OF OUTER SPACE (1968) notes:

The absence of definitions is not due to bad draftsmanship or pressure of time. Definitions have been omitted purposely, in order to permit those who undertake space activities to give their own definition of what they consider to be 'peaceful' or 'in the interest of all mankind.'

Id. at 82.

environments listed in the first sentence of the second paragraph has raised this issue. Though debate still exists between the Soviet Union and the United States as to whether peaceful purposes means non-military or nonaggressive, both basically are in agreement regarding the nature of the activity that one can lawfully undertake in outer space. In fact, although the early Soviet position was that the peaceful purposes clause applied to outer space,⁷⁸ presently they accept the United States position that it does not.⁷⁹ Both agree that activity undertaken for a military objective is permissible so long as it is nonaggressive in character.

1. "*Peaceful Purposes*" Does not Apply to Outer Space. Commentators who contend that the peaceful purposes clause does not apply to outer space proper, point out the failure of the drafters to include that environment. This, they say, indicates an intention to exclude it from the rule.⁸⁰ There is a great deal of validity to this position. In fact, during the preparatory work of the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space (COPUOS), when the representatives from India and Argentina proposed that outer space be included in the environments covered by the peaceful purposes clause, this proposal was rejected.⁸¹ Nevertheless, commentators who deny the extension to outer space state that the failure to mention outer space ought not be a license for lawlessness. Article III applies the United Nations Charter and international law to outer space.⁸² Moreover, article IV, paragraph 1, in conjunction with the Limited Test Ban Treaty

78. N. MATTE, *supra* note 27, at 271. On this basis, they objected to the United States use of reconnaissance satellites. See U.N. Doc. A/AC. 105/C.2/L.1, at 2 (1962).

79. Zhukov, *On the Question of Interpretation of the Term "Peaceful Uses of Outer Space" Contained in the Space Treaty*, PROCEEDINGS OF THE ELEVENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 36, 37 (1968).

80. Soraghan, *supra* note 54, at 461. The exclusion of outer space from the peaceful purposes clause prompted one Dr. Roy to state:

By analyzing the other articles we can see that every article explicitly says 'the Moon, other celestial bodies and outer space', except Article IV in which it is only said, 'the Moon and other celestial bodies.' Therefore, it is clear that the intention was present to exclude outer space from Article IV.

Herczeg, *Problems of Interpretation of the Space Treaty of 27 January 1967*, PROCEEDINGS OF THE TENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 105, 114 (1967) [hereinafter cited as Herczeg].

81. U.N. Doc. A/AC.105/C.2/SR.65, at 11 (1966); see also SR.66, at 3, SR.71 and Add. 1 at 8-9. Cf. The statement of the Soviet representative Morozov that the exclusion of outer space was due, in part, to the fact that demilitarization of that environment should be undertaken only in the context of general disarmament. Markoff, *supra* note 18, at 10, states that part of the reason was that COPUOS had no general disarmament authority.

82. Herczeg, *supra* note 80, at 107.

of 1963,⁸³ prohibit the deployment or detonation of nuclear weapons and other weapons of mass destruction.

2. *"Peaceful Purposes" Applies to Outer Space.* The nature of the evidence used by those who continue to insist upon the applicability of the peaceful purposes clause to outer space is varied.⁸⁴ Some contend that it is incongruous to restrict military activity on the moon and other celestial bodies and not apply the same rule to outer space.⁸⁵ The most analytical contentions, however, suggest that the peaceful purposes clause has been expanded to encompass outer space.⁸⁶ This has been accomplished through the preamble and article I, paragraph 1 which calls for the use of space for the benefit of all countries. This position has a certain appeal, particularly in light of the fact that article XIII states that the "*provisions of [the] Treaty shall apply to activities . . . in . . . outer space, including the moon and other celestial bodies . . .*"⁸⁷ One of the provisions of the Treaty is, of course, the peaceful purposes clause.

The whole process of determining whether the peaceful purposes clause applies to outer space is complicated further by the application of article 32(a) of the Vienna Convention on the Law of Treaties. Article 32(a) reads:

Recourse may be had to supplementary means of interpretation, including the *preparatory work* of the treaty and the *circumstances* of its conclusion . . . , to determine the meaning when the interpretation according to Article 31(a) *leaves the meaning ambiguous or obscure*.⁸⁸

Thus, resort to the *travaux préparatoires* of the Legal Subcommittee, which records the rejection of India and Argentina's proposal, should not occur when determining if the peaceful purposes clause applies to outer space unless construction in the context of the other provisions fails to clarify the matter.

Article I, paragraph 1 requires that the exploration and use of outer space, including the moon and other celestial bodies, be carried out for the benefit, and in the interest, of all countries. This mandate is repeated in the preamble, where General Assembly

83. See Limited Test Ban Treaty, *supra* note 16. See also comments by Dr. Kopal and Dr. Roy, *id.* at 114.

84. Schrader, *Space Treaty 1967*, PROCEEDINGS OF THE TENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 151, 152 (1967).

85. Markov, *supra* note 65, at 26.

86. Herczeg, *supra* note 80, at 106.

87. Outer Space Treaty, *supra* note 7, art. XIII (emphasis added).

88. Vienna Convention, *supra* note 13, at 293 (emphasis added).

Resolution 1884, which was designed to prohibit the arms race from spreading to outer space, is recalled.⁸⁹ When article IV, paragraph 2 is construed in this context, the ambiguity may disappear leaving the preparatory documents to be ignored.

Such a construction, however, creates a significant problem. If the scope of the peaceful purposes clause is extended to outer space by a circumlocution of the drafter's actual intent as reflected in the preparatory works, then the result is an obligation clearly inconsistent with the expectations of the drafters. The cardinal rule of treaty construction is to posit an interpretation which embodies the basic objectives of the drafters, and article 32(a) of the Vienna Convention fails in this particular case. If outer space has been demilitarized, the transforming impetus has come from some provision other than article IV, paragraph 2.

IV. ARTICLE I, PARAGRAPH 1: DEMILITARIZATION OF OUTER SPACE

International law consists of two basic types of principles: prohibitive and dispositive. The latter generally are not known in municipal law. Prohibitive principles are those rules which express the consensus of the community of nations that particular conduct does not extend, or, in fact, threatens, universally shared values. Such rules are proscriptive in nature. The peaceful purposes clause permits *only* peaceful uses of the moon and other celestial bodies. In that sense the clause prohibits all non-peaceful or military activities from being conducted on the moon and other celestial bodies.⁹⁰ Outer space is not covered by the prohibitive rule of article IV, paragraph 2.

Dispositive principles, on the other hand, establish prescriptive guidelines to be followed in the exercise of permissible conduct. Frequently they articulate aspirations, but their violation is no less illegal. Article I, paragraph 1 of the Outer Space Treaty is a dispositive principle. It fixes an obligation upon the parties to take all nec-

89. GAOR Res. 1884, U.N. Doc. A/C.1/L.34, A/Res./1884 (1963).

90. Prohibitory principles are of two basic types. The principles may enumerate the conduct prohibited (a state cannot do *A*, *B* and *C*), or they may state that only certain conduct is permitted (a state can only do *A*, *B* and *C*). The latter prohibits all activity of a character other than *A*, *B* and *C*. This is the sense of article IV, para. 2. It states that the moon and other celestial bodies shall be used "exclusively" for peaceful purposes. Thus, neither environment may be used for "non-peaceful" or military purposes. Consequently, while article IV, para. 2 first appears to be a dispositive principle, closer scrutiny reveals its true character as prohibitory.

essary steps to effectuate its objective. According to its express terms, the parties exploring or using outer space must do so in a fashion that benefits the interests of all countries. Activity with a military objective can be designed to benefit only the acting nation.⁹¹

To suggest that international law consists of only prohibitive principles, and that if conduct of a certain character is not prohibited it is permitted, resurrects the logic of the *Lotus* case.⁹² The fact that outer space is not included expressly in the prohibitive rule of article IV, paragraph 2 does not mean that an analogous provision, such as article I, paragraph 1, does not operate to provide similar protection.

The debate may not end soon, particularly in light of the fact that the major powers agree that peaceful purposes, with all its definitional vagaries, does not apply to outer space. Yet, it is clear that proper construction of article IV, paragraph 2 and article I, paragraph 1 prohibits military activity in all of outer space, including the moon and other celestial bodies, because such activity cannot be undertaken in the manner beneficial to the interests of all countries.⁹³ Realistically, if a nation, in good faith, exhausts the reme-

91. See generally Ambrosini, *The Meaning of the Romantic Enunciations of Article I, § 1 of the Space Treaty of January, 1967*, Further Outlook on Space (No. 11).

92. *The S.S. Lotus*, [1927] P.C.I.J., ser. A, No. 10; 2 M. HUDSON, *WORLD COURT REPORTS* 20 (1935). Commentary on the case includes Beckett, *Criminal Jurisdiction Over Foreigners*, 8 BRIT. Y.B. INT'L L. 108 (1927); Berge, *The Case of the S.S. "Lotus"*, 26 MICH. L. REV. 361 (1928); Brierly, *The "Lotus" Case*, 44 LAW Q. REV. 154 (1928). Though the substantive principle of the *Lotus* case concerns jurisdiction over accidents on the high seas, it is cited here for its faulty analytical methodology. The controlling opinion stated that if no principle of international law exists prohibiting a state from asserting jurisdiction over such accidents, then that state may do so. Applied to the Outer Space Treaty, the reasoning would posit that since nonpeaceful activities are not prohibited in outer space proper, then they are permitted. This reasoning overlooks the dispositive principles of international law. Such principles are also known in other areas of international law. For instance, the Hague Regulations annexed to the Hague Convention prefaces a series of prohibitions by a preamble stating that the

High Contracting Parties deem it expedient to declare that in cases *not included in the Regulations* . . . , the inhabitants and the belligerents remain under the protection and the rule of the principles of the law of nations, as they result from the usages established among civilized peoples, from the *laws of humanity*, and the *dictates of the public conscience* (emphasis added).

The Hague Convention IV of 1907 Respecting the Law and Customs of War on Land, Oct. 18, 1907, 36 Stat. 2277, T.S. No. 539. Thus, the basic rules of chivalry, humanity, and military necessity not only permeate all the articulated prohibitions, but also act as dispositive rules filling those gaps not covered by the regulations. See McDougal and Feliciano, *International Coercion and World Public Order: The General Principle of the Law of War*, 67 YALE L.J. 771 (1958); Downey, *Law of War and Military Necessity*, 47 AM. J. INT'L L. 251 (1953).

93. As discussed previously, article I, para. 1 is a dispositive principle that obligates all

dial provisions of the Treaty and, yet, is unsuccessful in restraining another from transgressing article IV, paragraph 2 or article I, paragraph 1, it would be fatuous to insist upon continued adherence, particularly if the transgression creates a strategic asymmetry that threatens the continuation of world peace.⁹⁴

It is apparent that any future deployment of conventional, non-nuclear, anti-satellite weapons would be violative of the dispositive provisions of article I, paragraph 1 that require nations to use outer space for the benefit and in the interest of all countries. Moreover, to the extent that either the United States or the Soviet Union attempts to characterize a directed-energy weapon as a non-nuclear device, unaffected by article IV, paragraph 1, article IV,

parties to use space for the benefit and in the interests of all countries. In fact, the mandatory nature of the obligation is enhanced by the fact that when the legal subcommittee of COPUOS debated the idea of removing the "benefit" clause from the operational articles and placing it in the preamble, the committee rejected the suggestion. See the proposal of Mr. Rao of India, Summary Report of 63d meeting, 5th Sess. of Legal Subcommittee of Committee on the Peaceful Uses of Outer Space, U.N. Doc. A/AC.105/C.2/SR.63, at 7 (1966). This clearly indicates an intention to create a binding obligation. See the statement of Mr. Darwin of United Kingdom, Summary Report of 10th meeting, 5th Sess. of Legal Subcommittee of Committee on the Peaceful Uses of Outer Space, U.N. Doc. A/AC.105/C.2/SR.70, at 4 (1966). Manfred Lachs, former Chairman of the Legal Subcommittee, in *THE LAW OF OUTER SPACE* 106 (1972), indicates that, if nonaggressive activity is permitted in outer space, there is no need to have the preamble apply peaceful purposes to outer space, nor to include the language of article I, para. 1 in the Treaty.

94. Any ambiguity in an international convention may be clarified by subsequent "state practice." Though some may suggest that the use of reconnaissance satellites by both the United States and the Soviet Union has militarized outer space, the practice, in actuality, has operated merely to legitimize the specific activity of reconnaissance. New, futuristic military uses still are prohibited. The accepted use of space for a single military objective does not transform all of space and thereby legitimize all military uses. To the extent that reconnaissance increases a nation's ability to keep track of military development and deployment, it increases that nation's willingness to enter into arms control agreements. This is so because the degree of adherence to present or contemplated agreements is readily verifiable. Moreover, if one of the factors contributing to the arms race is the concept of action/reaction, then reconnaissance has taken responses in reaction to imagined buildups out of the dark. Thus, not only is it possible that subsequent state practice has legitimized the use of reconnaissance satellites, see Stein, *supra* note 39, at 263, but the use actually has operated to conserve the values of well-being and security by enhancing the likelihood of efficacious arms control agreements. The deployment of anti-satellite weapons will not only be a new use of space for a military objective prohibited by article I, para. 1, but will also threaten the values conserved by the use of reconnaissance satellites. Destruction of the power to observe will dampen the desire to enter into new, or abide by existing, arms control agreements. Worse, the nation using the ASAT weapon may be tempted to launch a disarming first strike in order to neutralize the most recent location data of the other nation. The nation making such a decision may do so thinking that a quick relocation of its forces will permit it to emerge victorious from a nuclear conflict. The converse, however, may also be true. A nation that recently has had its reconnaissance satellites destroyed may decide it is imperative to quickly launch an attack to take advantage of the latest location data.

paragraph 2 renders such a characterization an ineffective method of circumventing the Treaty. Both article IV, paragraph 2 and article I, paragraph 1 strike at non-nuclear devices. Additionally, both prohibit any activity with a military objective from being undertaken lawfully in outer space, including the moon and other celestial bodies.

V. RECOMMENDATIONS

As long as disputes over the meaning of peaceful purposes and the clause's applicability to outer space proper continue, nations possessing the technological capability to do so surely will continue to use outer space for military objectives. If this is to be prevented, the nations of the world, behind the leadership of the United States and the Soviet Union, should endeavor to reaffirm their commitment to the mandate of article I, paragraph 1.⁹⁵ Activity inuring to the benefit of a sole nation should be prohibited. Only activity designed to distribute the benefits of space use to the largest number of participants should be permitted. Such a distribution will guarantee almost universal support for the Outer Space Treaty and will insulate the celestial realm from the depredations of military activity. The most perfect method for accomplishing this objective would be to amend the specific problem provisions of the Outer Space Treaty. But, in light of the fact that the United States and the Soviet Union are the major military users of outer space, a bilateral arrangement prohibiting the use of outer space for military purposes may prove adequate.

An amended draft of article IV, designed to promote as well as conserve the values of security and well-being, might read:

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

Outer space, including the moon and other celestial bodies, shall be used by all States Parties to the Treaty exclusively for

95. The United States and the Soviet Union continue to attempt extension of the peaceful purposes clause to outer space for certain activities. *See* Agreement Between the United States of America and the Union of Soviet Socialist Republics Concerning Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes, May 24, 1972, [1972] U.S.T. 867, T.I.A.S. No. 3747. *See also* a similar agreement in 76 DEP'T STATE BULL. 644 (1977).

peaceful purposes. There shall be prohibited, *inter alia*, any measures of a military nature such as the establishment of military bases, installations and fortifications, the testing of any type of weapons, and the conduct of military maneuvers, *provided* that nothing contained in this article shall prohibit any States Parties to the Treaty from undertaking measures of military assessment and arms-control verification. The use of any equipment or facility necessary for peaceful exploration of outer space, including the moon and other celestial bodies, shall not be prohibited.

Language to this effect would successfully eliminate controversy over the international legality of the deployment of nuclear and other weapons of mass destruction. By the express terms of the first paragraph, parties to the Treaty would be prohibited from placing nuclear or comparable weapons of mass destruction in orbit in outer space, whether around the earth, the moon, or any other celestial body. Similarly, the stationing or installation of such weapons in outer space, or on the moon or any other celestial body, would be prohibited.

The second paragraph, moreover, would fix upon all parties the obligation to use the entire celestial realm exclusively for peaceful purposes. The second sentence of article IV, paragraph 2 would clarify the confusion over the meaning of peaceful purposes by prohibiting all activity of a military nature, no matter how characterized. Nevertheless, the proviso following the general prohibition would permit military assessment and arms control verification measures. This not only takes into account the present existence of orbiting reconnaissance satellites, but also, in the nuclear age, the inherent value promoting, value conserving aspects of such activity.

If these values are to be protected in the future with a minimum of controversy, then any arrangement—amendment of article IV or bilateral treaty between the United States and the Soviet Union—should contain language similar to, and at least as comprehensive as, that suggested above. Notwithstanding a clarification of sorts, however, the Treaty's present language, as the foregoing discussion has revealed, prohibits deployment of anti-satellite weapons.