

# DAGGERS IN THE AIR: ANTI-SATELLITE WEAPONS AND INTERNATIONAL LAW

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*Space law is rapidly becoming one of the most important areas in the development of public international law. Arms control issues, the Strategic Defense Initiative and recent developments in military satellite technology make space law particularly relevant to international security issues today. In this paper, Andrew Burton analyzes the relationship between space law and anti-satellite weapons. He places his discussion within the broader context of arms control negotiations and makes several observations about the future of space weapons and law.*

## INTRODUCTION

Thirty years ago, the Soviet Union launched the world's first artificial satellite, Sputnik I. That tiny object was the forerunner of hundreds of other satellites, immensely more sophisticated, which have changed the way people communicate, do business and look upon their world.

On the day Sputnik was launched, space law became a tangible, rather than speculative province for the international lawyer. At the same time, the context of the event — the apparent introduction of a powerful new piece onto the chessboard of the Cold War — meant that space law would, from the moment of its birth, overlap substantially with other branches of international law related to international security. There have been many changes in the subsequent 30 years, political as well as technological, but the question of what nations may and may not do in outer space to further their national security remains one with which students and practitioners of international law are still concerned.

In recent years this question has become still more pressing. Both superpowers rely heavily on their assets in space: satellites are used for photographic reconnaissance, intelligence gathering, navigation and communications. To date, satellites have, in the main, played passive roles in furthering national security; they have acted in support of weapons systems rather than as weapons systems themselves. However, since 1983, the United States has been openly investigating the possibility of using satellites as part of a defensive network

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against missiles launched from the Soviet Union, which has for many years pursued its own strategic defense research program.<sup>1</sup>

In addition to programs designed to intercept enemy ballistic missiles, both the United States and the Soviet Union have tested weapons designed to destroy orbiting satellites. To date, these anti-satellite (ASAT) systems have not progressed beyond a rudimentary stage, but further development is likely. This will add to the cost of the arms race, both in terms of developing, testing and building the weapons themselves and in terms of equipping satellites with countermeasures such as "hardening" and limited maneuverability.

Such development also raises the spectre of further erosion in the balance of terror. Since no state can ever be certain of the exact mission of an enemy's satellite, the decision to attack a satellite might have unexpected consequences if the satellite performed functions that the enemy considered crucial to its national security. For example, the destruction of a satellite essential to communications with national strategic forces might provoke a pre-emptive strike for fear that such an attack from the other side was imminent.

For these reasons, many experts have suggested that the United States and the Soviet Union conclude an agreement which would check the extension of the arms race into space. This paper seeks to address some of the questions which armed conflict in outer space raises for the international lawyer, and will consider the prospects for an "ASAT Treaty." Taking as a framework the sources of international law as defined by the International Court of Justice, it will describe the current state of international law as it regards the subject of ASAT weapons research, testing, development and use.

## ASAT IN CURRENT INTERNATIONAL LAW

### *A. Treaties and International Agreements*

To date, there have been a number of international agreements which limit the activities of states in outer space. Many of these have been bilateral agreements between the United States and the Soviet Union. The major multilateral treaty pertaining to national security in outer space is the 1967 Outer Space Treaty. For the purposes of this paper, the most pertinent parts of the Treaty are Articles III, IV and IX.

Article III of the Outer Space Treaty specifically binds the treaty parties "[to] 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. . . ."<sup>2</sup> Among provisions of the Charter applicable to Space activities are Articles 2(3), 2(4) and Article 51.<sup>3</sup>

1. Frank Blackaby, "Space Weapons and Security," *World Armaments and Disarmament, SIPRI Yearbook 1986* (Oxford University Press, 1986), pp. 89-92.

2. Treaty on the Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, opened for signature Jan. 27, 1967. 18 U.S.T. 2410, TIAS 6347, 610 U.N.T.S. 205.

3. Charter of the United Nations, 59 Stat. 1031, T.S. 993, 3 Bevans 1153.

Article IV of the Outer Space Treaty reads:

State Parties to the Treaty undertake not to place in orbit around the Earth any objects containing 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 maneuvers 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.

It has been argued by Edward R. Finch, Jr. that “. . . express prohibition is intended . . . against ‘the testing of any types of weapons’ in outer space in Article IV.”<sup>4</sup> However, this appears to generalize the provisions of Article IV Paragraph II, concerning the militarization of the moon and other celestial bodies, to cover the whole of outer space. A clearer reading of the Treaty yields the interpretation that the demilitarization of outer space as a whole is limited in Article IV (1) of the Treaty to the prohibition against the stationing of “nuclear weapons or any other kinds of weapons of mass destruction.”

Evidence that this is the correct reading of the Treaty is provided by the negotiation record. During the discussions of the United Nations Committee On the Peaceful Use of Outer Space (COPUOS), preceding the adoption of the United Nations General Assembly (UNGA) Resolution 1962 (SVIII), arguments were put forward urging that outer space should be kept free of military use. The Soviet Union argued that such proposals should be reserved for negotiations on general disarmament.<sup>5</sup> Neither the United States nor the Soviet Union was prepared to accept a ban on satellite launches for military purposes.<sup>6</sup> The American and the Soviet delegations to the Treaty did not intend that all military activity in outer space be proscribed by the 1967 Outer Space Treaty.<sup>7</sup>

Finally, those who helped to negotiate both the above UNGA Resolution and the Treaty are clear on the point that both the United States and the Soviet Union were primarily concerned with prohibiting the stationing of

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4. Edward R. Finch Jr., “Outer Space for ‘Peaceful Purposes,’” *American Bar Association Journal* 54, (April 1968): 366.

5. UN Doc. A/C1/PV 1342, December 2, 1963, Mr. Fahmy of the UAR, p. 62. Ibid., Amb. Fedorenko of the USSR, p. 41.

6. Martin Menter, “Peaceful Uses of Outer Space and National Security,” *International Lawyer* 17 (1983) : 583. See also Dembling and Arons, “The Evolution of the Outer Space Treaty,” *Journal of Air Law and Commerce* 33, : 433-434.

7. Malcolm Russell, “Military Activities in Space: Soviet Legal Views,” *Harvard International Law Journal* 25, (Winter 1984): 161. See also S. Lay and H. Taubenfeld, *The Law Relating to Activities of Man in Space* 97, (1970).

nuclear weapons in orbit.<sup>8</sup> It should be remembered that the technology of the period made this a serious possibility, while the military potentialities of the moon and other celestial bodies were likely to remain science fiction for a good many decades. It should also be noted that the Treaty does not apply to weapons which merely transit outer space before falling back toward the earth. Hence the Intercontinental Ballistic Missile (ICBM) arsenals of the two superpowers were untouched by the provisions of the Treaty.

Most of the discussion since 1967 concerning the demilitarization provisions of the Outer Space Treaty have focused on Article IV, but Article IX is also of interest. It provides, in part, that:

. . . [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.

This provision suggests that the maximum response available to a state observing the conduct of a test or experiment which might cause damage to its space artifacts is a request for consultation with the state conducting the test (actual damage to the property of another state is covered by Article VII of the Treaty). Since the signing of the Outer Space Treaty, there have been no further multilateral treaties which limit the military uses of outer space by either the United States or the Soviet Union.

Other measures limiting the activities of states have been a multilateral treaty concluded before the Outer Space Treaty, and several bilateral measures concluded between the United States and the Soviet Union. The multilateral 1963 Limited Test Ban Treaty prohibits (in Article 1):

. . . 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.<sup>9</sup>

Of the bilateral measures between the United States and the Soviet Union, the two related treaties making up the SALT I agreement are the most relevant. The Interim Agreement on Certain Measures with Respect to the Limitation of Strategic Offensive Arms (Interim Agreement, 1972) forbids interference

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8. For a discussion of this question, see Raymond L. Garthoff, "Banning the Bomb in Outer Space," *International Security* 5, (Winter 1980-1981) : 33-36. Garthoff argues that President Kennedy made skillful use of the General Assembly resolution to gain support for a treaty which would have been acceptable to the USSR in 1963, but which might not then have been ratified by the U.S. Senate.

9. Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, signed Aug. 5, 1963, 14 U.S.T. 1313, TIAS 5433, 480 U.N.T.S. 43.

with "national technical means of verification,"<sup>10</sup> the main types of which at the time were known to be artificial satellites.

The Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty, 1972) includes similar provisions (Article XII, Paragraphs 1 and 2).<sup>11</sup> In addition, Article V Paragraph 1 of the ABM Treaty states 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," where an ABM system is defined (Article II Paragraph 1) as "a system to counter strategic ballistic missiles or their elements in flight trajectory," in 1972 "currently consisting of" interceptor missiles, launchers and radars. Article VI of the Treaty forbids each party to give other missiles, launchers and radars "capabilities to counter strategic ballistic missiles or their elements in flight trajectory" or "to test them in an ABM mode."

Other bilateral agreements between the United States and the Soviet Union include the Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War (Accident Measures Agreement, 1971), by which the parties agree to notify each other immediately in the event of "signs of interference with [missile warning] systems or with related communications facilities,"<sup>12</sup> and the Agreement on the Prevention of Nuclear War, 1973, by which both sides agree not to interfere with the early warning systems of the other.<sup>13</sup>

The United Nations has been a continuing forum for debate and discussion over the uses of outer space, although the Outer Space Treaty remains the high-water mark of that organization's sponsorship of the demilitarization of outer space. The Soviet Union has placed draft proposals for the prohibition of ASAT systems before the General Assembly. In addition, the Group of 77 (now composed of some 120 states, mostly from the Third World) issued a declaration at the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, 1982, stating in part that "The position of the Group 77 Nations is that testing, stationing and deployment of any weapons in Space should be banned."<sup>14</sup>

However, the marked decline in the regard to the United Nations paid by the United States in recent years makes it unlikely that a significant repeat or extension of the Outer Space Treaty will be negotiated under the aegis of that body.

The 1979 Moon Treaty does contain provisions which prohibit the use of force on the Moon relating to the Earth, the Moon, spacecraft, their personnel,

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10. Interim Agreement on Certain Measures With Respect to the Limitation of Strategic Offensive Arms (Agreement between the United States and the Union of Soviet Socialist Republics), signed May 26, 1972, 23 U.S.T. 3462, TIAS 7504.

11. Treaty on the Limitation of Anti-Ballistic Systems (Treaty between the United States and the Union of Soviet Socialist Republics), signed May 26, 1972, 23 U.S.T. 3435, TIAS 7503.

12. Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War (Agreement between the United States and the Union of Soviet Socialist Republics), signed Sept. 30, 1971, 22 U.S.T. 1590, TIAS No. 7186, 807 U.N.T.S. 57, Article 3.

13. Agreement on the Prevention of Nuclear War (Agreement between the United States and the Union of Soviet Socialist Republics), signed June 22, 1973, 24 U.S.T. 1478, TIAS 7654.

14. U.N. Doc., A/CONF. 101/5, Aug. 13, 1982.

and other man-made objects.<sup>15</sup> It also proposes a regime for the distribution of the Moon's natural resources similar to that adopted in the 1982 Law of the Sea Convention.<sup>16</sup> Although the Treaty came into force in July, 1984, with the deposit of the fifth instrument of ratification, it remains unratified by either the United States or the Soviet Union.<sup>17</sup>

It seems clear that, insofar as the positive law of outer space is concerned, the specific provisions limiting the development, testing and deployment of ASAT systems are few. Although arguments have been made that a device like the X-ray laser is not a nuclear weapon for the purposes of the 1963 Test Ban Treaty,<sup>18</sup> they have been half-hearted. To date no nation has announced plans to test nuclear-based ASAT systems in space (the United States has argued that the GALOSH ABM missiles surrounding Moscow could be used in an ASAT mode, but the potentiality of such a system is clearly limited). On the other hand, both the United States and the Soviet Union have conducted ASAT tests using non-nuclear destructive methods. This practice warrants an examination of the *opinio juris* (general practice accepted as law) concerning a phrase which appears a number of times in treaties binding on both nations; the condition that outer space be reserved for "peaceful purposes."

#### B. "Peaceful Purposes": General Practice Accepted as Law?

The practice of states has been to expand, rather than contract, their military use of space. The Soviet Union has some 150 satellites in orbit, of which over nine-tenths are believed to fulfill a military function. The United States has fewer (but more long-lived) satellites, approximately 100, of which over 40 are military in nature. These satellites perform a wide variety of tasks for both superpowers, including (but by no means limited to) photographic reconnaissance, electronic eavesdropping, navigational position-fixing and communications.

Great Britain and France also have advanced military communications satellite programs, and China has its own military space capacity. Irrespective of an "active" militarization of space, it is clear that space is being used for military purposes. Whether this means that military use of space is a "practice accepted as law" is, of course, another matter. The traffic officer is rarely favorably disposed to the argument that speeding is legally justified by the behavior of the car that just overtook the one that has been pulled over.

15. Draft Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 134 U.N. GAOR, 34th Sess. Supp. (No. 20) pp. 33-41, U.N. Doc. A/34/20 (1979).

16. United Nations Convention on the Law of the Sea, U.N. Doc. A/CONF/62/122 (1982). Opened for signature Dec. 10, 1982. For a discussion of the "common heritage of mankind" principle as it applies to the 1979 Moon Treaty and the 1982 Law of the Sea Convention, see generally Janusz Stanczyk, "Exploration and Exploitation Activities in Sea and Space Law: A Parallelism of Principles," 28 *Colloquium*, 1985, pp. 157-164.

17. Carl Q. Christol, *American Journal of International Law* 79, (1985), : 163.

18. Nathan C. Goldman, "The Strategic Defense Initiative: Star Wars and Star Laws," *Houston Journal of International Law* 9, (Autumn 1986): 118.

There are important legal questions relating to the activities of states in outer space, including the activities of satellites, jurisdiction over satellites, and jurisdiction over the portion of space through which satellites travel. The discussion which follows concerns jurisdiction to prescribe, rather than to enforce.

Prior to the 1957 launching of Sputnik I, positive international law concerning overflight of territories applied to vehicles traveling in air space, powered by aerodynamic lift. Article 1 of the 1944 Chicago Convention<sup>19</sup> provides that "every State has complete and exclusive sovereignty over the airspace above its territory," where such territory is defined in Article 2 as "the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such State." Although the Chicago Convention is only applicable to civil aircraft (Article 3(a)), state aircraft are forbidden to fly over the territory of another state without authorization (Article 3(c)); in addition, it can be argued that Articles 1 and 2 represent a codification of customary international law applicable to both state and civil aircraft insofar as sovereignty over airspace is affirmed.

Hence, when Sputnik I was put into orbit, there was a well-defined body of law regulating the overflight of territory by vehicles moving through air space, but no such body for outer space. The question was complicated by the fact that there was no clear legal definition of the boundary between the two regions. And indeed, notwithstanding the vast technological progress that has been made in the last 30 years, the question is, in legal terms, as moot now as it was then. Although Stanley Rosenfield has argued that "to the present there is no need and no advantage to an answer to the question,"<sup>20</sup> it continues to attract a good deal of attention, particularly from Soviet jurists, and from states on the equator.

Several solutions have been made for fixing the boundary. They include: sovereignty to extend without limit into outer space; the height at which a state may exercise "effective control;" the end of the atmosphere; the maximum height at which a vehicle receives aerodynamic lift, or the von Karman line; the lowest perigee attained by a spacecraft in Earth orbit; and an arbitrary line reflecting one or more physical principles.<sup>21</sup>

It is the last of these arguments that has found most favor with Soviet jurists, who have in recent years lobbied for the fixing of the boundary at 100 km,  $\pm 10$  km. A central feature of these arguments has been the contention that the absence of protests from those states not yet capable of launching spacecraft against space activities carried out just above their terrestrial air space implies a tacit consent in these activities, and that such consent creates legal consequences.

19. Convention on International Civil Aviation, 61 Stat. 1180, TIAS 1591, 15 U.N.T.S. 295, 3 Bevans 944 (1944). See, for example, R.Y. Jennings, *British Yearbook of International Law* 22, 1945, especially pp. 195-196.

20. Stanley B. Rosenfield, "Some Thoughts on the Distinction between Air Space and Outer Space," *Proceedings of the Twenty Sixth Colloquium on the Law of Outer Space, International Institute of Space Law of the International Astronautical Federation* (hereafter 26 Colloquium), 1983, : 94.

21. *Ibid.*

Gennady Danilenko has argued that 25 years of constant and uniform practice is sufficient for the creation of a customary rule. He states that the space activities represent "an implied legal claim to the right to carry out the exploration and use of various altitudes over the territories of the subjacent states . . . and the right of other states of the international community to carry out similar activities over their territories."<sup>22</sup>

However, this argument is not totally compelling. According to G. Schwarzenberger, "it is possible to interpret tacit conduct as consent only if no other explanation of passive conduct is possible."<sup>23</sup> States may have decided not to protest the overflight of their territory for a number of reasons. Absence of protest might reflect the state's lack of capacity to interfere effectively with the overflight, an awareness of the common benefits to be derived from space activities, a desire not to offend a powerful ally or potential enemy, or the contemplation of similar activities in the future.<sup>24</sup>

Notwithstanding the absence of any formal boundary between air space and outer space, the 1967 Outer Space Treaty (Article II) declared that "Outer Space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use of occupation, or by any other means." It bears noting that several states situated on or close to the equator are non-signatories to the Treaty, including Colombia, the Congo, Indonesia, Kenya and Zaire. The orbital position some 36,000 km above the earth's equator is a particularly useful one; satellite orbits at this altitude match the planet's rotation, and hence are stationary with respect to a given position upon the earth's surface (such satellites are called geosynchronous).

In December, 1976, a group of equatorial states, including those named above, issued the Declaration of Bogota, which laid claim to the portions of the geosynchronous orbit projecting radially onto their territory. The Declaration makes a direct analogy between satellites in non-geosynchronous orbit and ships on the open sea, but goes on to declare that devices placed in the geosynchronous orbit above a state "*require previous and expressed authorization on the part of the concerned state, and the operation of the device should conform with the national law of that territorial country over which it is placed.*"<sup>25</sup> According to the equatorial states, "the lack of definition of outer space in the Treaty of 1967 . . . implies that Article II should not apply to geostationary orbit."<sup>26</sup>

No space-capable state currently accepts this claim. The positions of the United States and the Soviet Union on this subject are, to all intents and purposes, identical: the geosynchronous orbit is part of outer space, and the

22. Gennady M. Danilenko, "The Boundary Between Air Space and Outer Space in Modern International Law & Delimitation on the Basis of Customary Law," 26 *Colloquium*, 1983, : 73.

23. G. Schwarzenberger, *A Manual of International Law* (London, 1967) p. 131.

24. Jiri Malenovsky, "Some Topical Problems of the Formation of and Ascertaining Customary Rules in Space Law," 27 *Colloquium*, 1984, : 78.

25. Edward R. Finch, Jr., "The Geostationary Orbit and 1967 Outer Space Treaty," 20 *Colloquium* (1977): 219-220. Emphasis in original. Mr. Finch's article contains that portion of the Declaration which establishes the legal claim of the equatorial states to the geosynchronous orbit.

26. *Ibid*, p. 220.



relevant provisions of the Outer Space Treaty apply equally to satellites in all parts of outer space. As Jonathan Galloway has pointed out, arguments over this question "cannot be divorced from the overall issues concerning interdependence, dependence and independence in international political economy," in particular the demands of many Third World countries for a New International Economic Order (NIEO).<sup>27</sup> However, the Declaration of Bogota has yet to be accepted by any non-signatory states including those from the "South."

Equatorial states continue to maintain that they are bound neither by earlier practice to their detriment nor by the Outer Space Treaty. It is well established in international law that treaties between parties benefiting from such an agreement create obligations for third parties only with their consent.<sup>28</sup> At this time, in the absence of any clear resolution of the above questions, it seems clear that positive international law does not provide final answers to the delimitation of outer space or to the sovereignty extending over it. Some attempts to answer the question from a natural law perspective will be outlined in the next section.

It will be recalled that the Outer Space Treaty promoted a different legal regime for outer space and for the moon and other celestial bodies in Article IV, Paragraphs 1 and 2; only the latter are "to be used by all States Parties to the Treaty exclusively for peaceful purposes," which excludes specific categories of military activity. Nevertheless, the preamble to the Treaty describes "progress of the exploration and use of outer space for peaceful purposes" as being in "the common interest of all mankind." It is important to consider how space-capable states, in particular the United States and the Soviet Union, have understood the legal implications of the term "peaceful purposes," and how their practice has borne out this understanding.

Both states have emphasized their commitment to the exploration and use of space for peaceful purposes. The National Aeronautics and Space Act of 1958 states that "The Congress hereby declares that activities of the United States shall be for peaceful purposes for the benefit of all mankind."<sup>29</sup>

In July 1961, the American Bar Foundation submitted a "Report to the National Aeronautics and Space Administration." In its analysis of the U.N. Charter, the Foundation Report (prepared by Professor Leon Lipson of Yale Law School and Nicholas Katzenbach, then of the Chicago Law School) defined the term "peaceful" as being employed in contradiction to "aggressive." It argued that the United States was justified in conducting non-aggressive

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27. Jonathan F. Galloway, "Telecommunications, National Sovereignty and the Geostationary Orbit," 20 *Colloquium* (1977), : 235.

28. Vienna Convention on the Law of Treaties, U.N. Doc. A/CONF. 39/27, (1969), 63 *American Journal of International Law* 875 (1969), Article 34. Note that Article 38 of the Convention contains the provision that a third state may become bound if the rule set forth in the treaty becomes recognized as a customary rule of international law. See also North Sea Continental Shelf Cases (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands), International Court of Justice, (1969). Summarized in *American Journal of International Law* 63, : 591-636.

29. The National Aeronautics and Space Act, 1958 (Sec 102(a), 72 Stat. 426, 42 U.S.C. 2451).

military activities in outer space, provided that these activities were consistent with the terms of the Charter.<sup>30</sup>

The American governmental position has consistently followed this definition. For example, in 1982, the Reagan administration issued its statement on National Space Policy, which contained the assertion that "peaceful purposes . . . allow activities in pursuit of national military goals."<sup>31</sup> The same document referred to the need to develop an ASAT capability to deter a known Soviet capability, and "within such limits imposed by international law, to deny any adversary the use of space-based systems that provide support to hostile military forces."<sup>32</sup>

The clear implication of the statement is that the development of an ASAT capability does not, in the eyes of the U.S. government, run counter to its commitment to the use and exploration of outer space for peaceful purposes. Inasmuch as such capability contributes to the maintenance of peace by the furtherance of deterrence on Earth, the U.S. government would argue that military tests in outer space fall under the rubric of "peaceful purposes."

The Soviet jurists' analyses of the term have undergone a more interesting evolution.<sup>33</sup> Soviet writers in the late 1950s and early 1960s wrote concernedly about the growing American military satellite effort, especially in the field of photographic reconnaissance. Initial writings made direct comparisons between aerial and space reconnaissance. To one commentator in 1960, "it makes absolutely no difference from what altitude espionage . . . is performed."<sup>34</sup> However, advances in Soviet satellite capabilities led to a relaxation in Soviet strictures. By 1968, a Soviet writer admitted that, with regard to satellite reconnaissance, "[i]t seems hardly likely that it will be possible in the future to establish limitations in this respect, inasmuch as an artificial satellite is in essence a global object and cannot but go beyond the boundaries where it is launched."<sup>35</sup>

Indeed, by the time of the SALT I agreements, the Soviet Union was more willing to see verification by national technical means than by national inspection teams to ensure compliance with the two treaties: "[A satellite] facilitates the achievement of agreement because it eliminates the question of international on-the-ground inspections, which had been a stumbling block in earlier considerations."<sup>36</sup> This change of heart by Soviet jurists was probably motivated by more than improvements in Soviet space capabilities. The early 1960s was a period of substantial imbalance in strategic weaponry, which the Soviet leadership under Khrushchev attempted to conceal with bluster and

30. "Report to the National Aeronautics and Space Administration," American Bar Foundation, Chicago, Ill., July 1961, pp. 25-26.

31. White House Fact Sheet, National Space Policy, July 4, 1982. Public Papers of President Ronald Reagan, 1982, Book II, p. 895.

32. *Ibid.*, p. 897.

33. Russell, *op.cit.*, pp. 171-172. Malcolm Russell's article is an excellent introduction to Soviet legal thinking on Space Law.

34. G. Zhukov, "Space Espionage Plans and International Law," *International Affairs* (USSR), (Oct. 1960): 56.

35. Anyutin, "Surveillance of Outer Space," *Military Thought*, (March 1968): 667.

36. V. Viktorov, "Agreements of Historic Importance," *International Affairs* (USSR), (August 1972): 19.

rhetoric. Soviet political and military leaders were deeply concerned lest the U.S. intelligence services discover the actual weakness of the Soviet deterrent.<sup>37</sup>

In similar fashion, the Soviet Union's position on the general issue of the military uses of outer space subtly altered as its advantages to be derived from, and capability to perform, such activities became greater. Where U.S. jurists have defined peaceful as "non-aggressive," their Soviet counterparts have employed the term "non-military."<sup>38</sup> Prior to 1967, this meant that "the 'peaceful use' of outer space excludes any measures of a military nature."<sup>39</sup>

However, following the signing of the Outer Space Treaty, the Soviet position on the demilitarization of outer space moved from the argument that military uses of outer space were forbidden by international law to the argument that such a state of affairs was a desirable goal for the future: "Since there is no such agreement as yet, international documents refer to the exploration and use of outer space for peaceful purposes *exclusively* merely as a goal to be pursued."<sup>40</sup> In the views of some writers, this modification has made it hard for Soviet jurists to distinguish their views on military activities in orbit from Western formulations. The increasing importance of space systems in Soviet national security policy has resulted in some convergence between Soviet and Western conceptions of the term "peaceful purposes."

### *C. General Principles of Law Recognized by Civilized Nations*

Prior to 1957, the positive law applicable to territorial overflight, as stated in the 1944 Chicago Convention, assigned sovereignty over the air space above a territory to the state sovereign in that territory. This provision was also embodied in the earlier Paris Convention of 1919, and was a codification of the Roman Law principle *cuius est solum eius est usque ad coelum et ad sidera* (or, "the owner of the land owns the sky above it").<sup>41</sup> Although some commentators argued that the principle *usque ad coelum* was a rule of customary international law applicable to outer space, the subsequent development of space law has moved away from this idea. Indeed, as David Goedhuis has pointed out, it appears logically inconsistent that an understanding concerning "air space" could be applied to "airless space."<sup>42</sup> With the exception of those satellites placed in geosynchronous orbit, celestial mechanics constrains bodies moving around the Earth to pass over different territories at different times. With regard to the geosynchronous orbit itself, its very altitude — 36,000 km — makes it difficult to give great weight to the argument that the region below

37. In fact, the Kennedy administration discovered soon after the 1960 election that the postulated "missile gap" was in fact in favor of the United States, and the Rand Corporation did indeed present the politicians with a "first-strike option" at the time of the 1961 Berlin Crisis. Fortunately, the Kennedy administration had already decided that war was too important to be left to generals or "civilian strategists." See *The Wizards of Armageddon*, Fred Kaplan, (New York: Simon and Schuster, 1983) pp. 299-301.

38. Russell, *op. cit.*, p. 172.

39. G. Zhukov, "Practical Problems of Space Law," *International Affairs* (USSR), (May 1963): 28-29.

40. A. Piradov ed., *International Space Law*, 1976, p. 93. Emphasis in original.

41. Ryszard Hara and Janusz Stanczyk, "Space Law and the Roman Law Concepts," 27 *Colloquium* (1984): 51.

42. D. Goedhuis, "Air Sovereignty and the Legal Status of Outer Space," International Law Association, New York University Conference, 1958, p. 4.

(by radial projection) has some relation to the space in the orbit by "adjacency" or "proximity," the Declaration of Bogota notwithstanding; and by all known tests the atmosphere is non-existent at that height, rendering the argument that the orbital region is some natural continuation of the land territory projected via the medium of the atmosphere hard to sustain.<sup>43</sup>

During the early period of space exploration, it was suggested that outer space, including the moon and other celestial bodies, might be better classified as *res nullius*,<sup>44</sup> by analogy to the period of discovery, occupation and extension of sovereignty over "uninhabited" territories (that is, territories uninhabited by Europeans) by persons acting on state authority. States might claim bodies if they were capable of showing "their intention and will to practice authority, and accordingly, they have set up some kind of domination by which they can achieve an appreciable degree of effective control."<sup>45</sup>

In the early 1960s, it was clear that effective and continuous control over the moon or any other celestial body would not be achieved for some decades. In the nearer term, both the United States and the Soviet Union were concerned to deny the other the potential military advantage of claiming the moon or portions of outer space. Hence, in 1960, President Eisenhower told the U.N. General Assembly that, "celestial bodies are not subject to national appropriation by any claim of sovereignty."<sup>46</sup> Subsequent U.N. resolutions and the 1967 Outer Space Treaty have largely conformed to this viewpoint. Article II of the Treaty states that "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."

Some commentators have argued that Article II of the Outer Space Treaty amounts to an acknowledgement of outer space as *res communis omnium*.<sup>47</sup> An alternative classification would be *res extra commercium*, the larger set of objects which, by their intrinsic nature, may not be owned by individuals: *res communis omnium* is that subset of objects which fall into common ownership.

However, as Andrzej Gorbiel has pointed out, the Treaty in fact uses no term explicitly taken from civil law.<sup>48</sup> More persuasive are writers such as Hara and Stanczyk, who have analyzed the relationship between Roman Law and Space Law, and Gorbiel and Henry H. Almond, Jr., who discuss the attempts to find in the evolution of the law of the sea precepts to guide the growth of the law of outer space. The similarities are largely superficial, the differences overwhelming. As Almond has written, "The application of general principles of law of the sea to activities and relations in outer space can only be made at the highest order of abstraction."<sup>49</sup>

43. For a discussion of these questions in a different setting, see the North Sea Continental Shelf Cases, note 28 above, pp. 610-611.

44. The property of no one, but open to extension of sovereignty by individual states.

45. G. Gal, *Space Law*, (Dobbs Ferry, N.Y.: A. W. Sijthof-Leiden, Oceania Publications, Inc., 1969), p. 191.

46. Dwight D. Eisenhower, Address before the 15th General Assembly of the United Nations, New York City, Sept. 22, 1960. *Public Papers of the Presidents, Dwight D. Eisenhower* (1960-1961), p. 714.

47. For example, Gal, *Space Law*, p. 123.

48. Andrzej Gorbiel, "Questions of Analogies between Sea and Space International Law," 28 *Colloquium* (1985), p. 142.

49. Henry H. Almond, Jr., "General Principles of Law: An Appraisal of the Correspondence of Principles relating to the High Seas to Outer Space," 28 *Colloquium* (1985): 118.

If nations have chosen to designate outer space, including the moon and other celestial bodies, as part of the "common heritage of mankind," that represents decisions guided by political accommodation rather than a legal calculation of the intrinsic character of that realm. Space law has developed overwhelmingly on lines reflecting positive law. If ASAT systems then are to be allowed or forbidden, they are so because of the agreements between states, either explicitly through treaty or implicitly in custom as evidence of practice required by law, rather than because of some intrinsic non-military character of the environment in which they are designed to operate.

#### INTERLUDE: ASAT SYSTEMS PAST, PRESENT AND FUTURE

Before considering the history of negotiations directly aimed at banning ASAT systems and the prospects for such a ban in the near future, it might be useful to digress briefly on the past, present and future capabilities of these systems.

The Soviet Union has tested a "co-orbital interceptor" on several occasions since 1968. The device is mounted on an SS-9 ICBM. Following launch, it is maneuvered into an orbit where it can approach within a short distance of the target satellite, which it destroys in a conventional explosion. The highest altitude so far recorded for a Soviet interceptor is 1,250 nautical miles.<sup>50</sup> The system's limited maneuverability and reliability mean that, in the event of a crisis or war, it could take days or weeks before an entire U.S. satellite network is put out of action.

The United States has in past years tested several potential ASAT techniques, beginning with the SAINT system (which was canceled in 1962), and continuing with the placing of nuclear warheads on THOR IRBMs during the 1960s. In the 1980s the U.S. Air Force tested a "direct-ascent interceptor," a two-stage rocket and miniature homing vehicle (MHV) launched from an F-15 aircraft.<sup>51</sup> Hence, at the present time neither the United States nor the Soviet Union has a weapon capable of reaching the higher orbits, including the geostationary orbit. In addition to pure weapons systems, the United States has demonstrated the capability to intercept satellites in low-earth orbit using its space shuttle, which was explicitly designed to provide NASA with a retrieval and repair capability. The approach of one space vehicle to another for observation, interference or even seizure has caused greater concern to the Soviet Union than to the United States, and the former has argued on several occasions that the space shuttle must be included in ASAT negotiations.<sup>52</sup>

Beyond these measures we move into the realm of hypotheses. One frequently postulated method of attacking a particular satellite involves stationing another satellite close by in the same orbit; upon activation, this "space mine" would use thrusters to move closer and then destroy the target satellite

50. Donald L. Hafner, "Averting a Brobdingnagian Sket Shoot: Arms Control Measures for Anti-Satellite Weapons," *International Security* 5, (Winter 1980-1981): 47

51. Clarence A. Robinson, Jr., "U.S. Spurs Strategic Weapon Advances," *Aviation Week and Space Technology*, March 12, 1984, p. 23.

52. Russell, op. cit., pp. 183-184.

in an explosion. To date, no "space mines" have been identified as such. That is not to say that none exist, but rather all currently tracked satellites have other plausible missions.<sup>53</sup> Satellites could conceivably be destroyed by Soviet GALOSH ABM missiles, or even by American or Soviet ICBMs or SLBMs detonated above the atmosphere. However, such methods rely upon a nuclear explosion, and tests would be a clear breach of the 1963 Limited Test Ban Treaty.

Of course, ASAT is not the only game in town. The strategic debate in the 1980s has been transformed by the revival of U.S. interest in high technology ballistic missile defense (BMD), embodied in the Strategic Defense Initiative (SDI). And, as George Bunn has written, "[t]he overlap between ASAT and Ballistic Missile Defense technology is striking."<sup>54</sup> Nor is he alone in this viewpoint. According to former U.S. Defense Secretary Caspar Weinberger, space-based lasers ". . . could perform a variety of missions such as anti-satellite or ballistic missile defense."<sup>55</sup> This judgment could also be applied to high-powered ground-based lasers. There is some doubt as to whether weapons of this type could damage communications satellites in geosynchronous orbit, but it is very possible that low-earth orbit photo reconnaissance satellites would be vulnerable.<sup>56</sup>

#### NEGOTIATIONS TOWARD ASAT ARMS CONTROL: THE RECORD

The first phase of bilateral negotiations between the two superpowers aimed directly at concluding an ASAT agreement was instituted, at an American suggestion, in 1978. Three major obstacles blocked progress in these talks. The Soviet Union asked that the space shuttle be considered an ASAT device for the purposes of the talks, and asked for shuttle testing to be ended as part of a comprehensive ASAT testing moratorium. It further demanded that only satellites registered by the two countries be protected by any treaty concluded between them; the United States hoped to extend the ban to actions against NATO- or other allied-owned satellites. In addition, the Soviet negotiators asked that protection be denied to satellites engaged in hostile action which could violate national sovereignty — an extremely broad definition. The talks made little progress on these issues before they were broken off in the wake of the Soviet invasion of Afghanistan.<sup>57</sup>

In 1981 the Soviet Union reinvigorated the subject of space arms control when it submitted a draft treaty to the United Nations.<sup>58</sup> Article 1, paragraph 1 of the draft treaty declares that:

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53. Ashton B. Carrer, "Satellites and Anti-Satellites: The Limits of the Possible," *International Security* 10, (Spring 1986): 76.

54. George Bunn, "Satellites for the Navy: Shielded by Arms Control?" *Naval War College Review* 38, (Sept.-Oct. 1985): 60. See also D. Kerr, "Implications of Anti-Satellite Weapons for ABM Issues," in *Space Weapons — The Arms Control Dilemma*, B. Jasani ed., (Philadelphia, PA: Taylor and Francis, 1984), p. 107.

55. Bunn, op. cit., p. 60.

56. Carter, op. cit., p. 76.

57. Russell, op. cit. pp. 187-188.

58. Draft Treaty on the Prohibition of the Stationing of Weapons of Any Kind in Outer Space, U.N. Doc. A/RES/36/97, Annex A/36/192, Aug. 11 1981, pp. 1-3.

States Parties undertake not to place in orbit around the earth objects carrying weapons of any kind, install such weapons on celestial bodies, or station such weapons in outer space in any other manner, including on reusable space vehicles of an existing type or of other types which States Parties may develop in the future.

Article 3 requires States Parties "not to destroy, damage, disturb the normal functioning or change the flight trajectory of space objects of other States Parties, if such objects were placed in orbit in strict accordance" with Article 1 Paragraph 1.

Both the 1981 draft treaty and its 1983 successor have been analyzed at some length by Malcolm Russell. The 1981 treaty contains a number of vague elements, and it is hard to believe that even its sponsor saw its value as being any greater than propaganda. "Weapons of any kind" (Article 1, Paragraph 1) is a very broad definition indeed, and might conceivably encompass the space shuttle itself. The draft treaty would not require the destruction of ASAT systems then currently held by parties — and in 1981 the Soviet Union was the only nation with an operational ASAT system. Moreover, that system was a ground-to-space weapon, and neither it nor air-to-space systems (including lasers or beam weapons) would be covered by the proposed ban. Finally, Article 3, in referring back to Article 1 Paragraph 1, appears to permit interference in certain cases, an apparent retreat to the traditional Soviet concern over satellites engaged in hostile activity violating national sovereignty.<sup>59</sup>

The 1981 draft treaty was given no great weight by either the United States or its sponsor. In 1983 a new version was introduced by the Soviet Union,<sup>60</sup> coinciding perhaps with the greater arms control activism of the Andropov government. This second version adopted an "actions" rather than a "systems" approach: in other words, where the first draft treaty had prohibited the deployment of certain (loosely defined) weapons systems, the new draft treaty proposed a ban on certain types of activity. Article 1 of the 1983 draft treaty prohibits the use of force, "with respect to space objects orbiting the Earth, stationed on celestial bodies, or deployed in space in any other manner." Article 2 calls for a comprehensive ban on the testing, deployment and use of "space objects orbiting the Earth, stationed on celestial bodies, or deployed in space in any other manner as a means for hitting any targets on the Earth, in the atmosphere, and in space." In addition to these proposals, signatories are required to destroy ASAT systems they already possess, and to refrain from developing and testing new systems.

These proposals go some distance to address the concerns raised by the 1981 draft treaty. They brought forth an unofficial counterproposal from a group sponsored by the Union of Concerned Scientists in 1984, which proposed a "no-new-types" ban, leaving both superpowers with the currently

59. Russell, op. cit., pp. 189-191.

60. "Draft Treaty on Banning the Use of Force in Space and From Space With Respect to the Earth," *Pravda*, 22 August 1983, p. 4. For another detailed analysis of the 1983 draft treaty, see David S. Meyers, "Soviet Proposals on the Militarisation of Space," *Space Policy* 2, (August 1986): 244-247.

tested ground-based ASAT system effective against satellites in low-earth orbit. (The Soviet Union would retain its SS-9 co-orbital interceptor, while the United States would complete its testing of the MHV launched from an F-15). All further weapons tests, "in space or against space objects" would be banned, where such weapons were used for ". . . destroying, damaging, or rendering satellites inoperable, or for changing their flight trajectory."<sup>61</sup>

Within the United States, considerable pressure has been exerted on the Reagan administration by members of Congress who favor restrictions on ASAT weapons and testing.<sup>62</sup> Partly as a response to this pressure, the administration has softened its stance on negotiations, but it continues to express concern over the need for adequate verification.<sup>63</sup> Congress restricted further tests against objects in space, and has asked for a review of the current program.<sup>64</sup>

### AN ASAT BAN: FEASIBLE? LIKELY?

Two fundamental rationales have been put forward for attempts at qualitative disarmament, that is, attempts to outlaw methods of war such as using poison gas on the battlefield, using submarines as commercial raiders or aerial bombardment of population centers.<sup>65</sup> One is humanitarian concern; the attempt to minimize the suffering caused to victims of war, whether civilian or combatants put out of action through injury or capture.<sup>66</sup> The second may be characterized as a negotiated modification in the "rules of the game." A "player," (the military and political leaders of a negotiating state) is convinced that the advantages to be derived from another "player" or set of "players" accepting a set of restrictions outweigh the disadvantages of its own acceptance of those restrictions.<sup>67</sup> The unique position of satellites makes the negotiating rationale transparent; ASAT negotiations are quintessentially "rules of the game." And since 1983, the game and the rules have become considerably more complex.

61. Hans Bethe et. al., *Space-Based Missile Defence*, (Cambridge, MA: Union of Concerned Scientists, March 1984), pp. 73, 84-85. Note that in this counterdraft, vehicles like the space shuttle are explicitly excluded as ASAT systems.

62. Carl Q. Christol, "Arms Control and Disarmament in Space: The Rocky Road to Vienna," *Space Policy* 1, (August 1985): 265-272.

63. *Los Angeles Times*, 12 June, 1984, Part 1 p. 3.

64. Edward C. Aldridge, Jr., "The Myths of Militarization of Space," *International Security* 11, (Spring 1987): 154.

65. As opposed to quantitative disarmament, where restrictions are placed upon the number of instruments, not their purpose. An example of quantitative disarmament would be the battleship ratio of 5:5:3 agreed between the United States, Great Britain and Japan at the 1922 Washington Conference. The SALT I agreements contain a qualitative disarmament treaty (the ABM Treaty) and a quantitative disarmament treaty (the Interim Agreement).

66. See, for example, Article 23 of the 1907 Hague Convention Concerning the Laws and Customs of War on Land, 1 Bevans 631, for provisions intended to prevent unnecessary suffering in war.

67. An example of this kind of agreement might be the 1925 Geneva Protocol (Protocol for the Prohibition of the Use in War of Asphyxiating, Poisoning or Other Gases, and of Bacteriological Methods of Warfare) relating to the use of poison gases in warfare.



In March, 1983, a speech by President Reagan offered a challenge to American scientists, to use American technology to reduce the vulnerability of the United States to atomic attack. President Reagan's vision, described variously as a "peace shield" or, somewhat more cuttingly, as a cinematic "Star Wars," revived the strategic debate over the relative merits of defense and deterrence. The new feature of the defensive measures proposed by SDI was the requirement that Soviet missiles be intercepted in the initial or boost phase of their flight in addition to the terminal phase which had characterized former BMD proposals. In nearly all SDI systems proposed so far, this task has required stationing interceptor devices in space. The legal debate over proper interpretation of the 1972 ABM Treaty — regarding the legality of developing and testing space-based BMD systems and their components — has been lengthy and need not be reviewed at great length here.<sup>68</sup>

However, one aspect of the debate has received comparatively little public attention — the potential loophole provided for testing ABM systems or components against satellites. In the near future, the momentum for ASAT testing, and consequently opposition to arms control in space, may come for reasons which have little to do with the merits of such questions in isolation.

The possibility that ABM components and systems could be tested in an "ASAT mode" underlies a number of statements by George A. Keyworth II, scientific advisor to President Reagan. According to Dr. Keyworth, "[i]t may not necessarily be the best way for the ASAT mission, but a geosynchronous anti-satellite capability is important to test the technology to destroy missiles."<sup>69</sup> For this reason, Dr. Keyworth has argued before the Senate Foreign Relations Committee against ASAT agreements which might impede research and development under the SDI through the creation of "a previous patchwork of obligations."<sup>70</sup>

Even if the SDI was to disappear from consideration, much doubt has been expressed by a number of commentators and within the U.S. military as to whether a uniform ban against ASAT activity is wise or feasible. The U.S. Navy is concerned over satellites like the Soviet radar ocean reconnaissance satellite (RORSAT), whose main function is to provide intelligence on U.S. naval movements, and has argued that an American ASAT system increases Soviet wariness of American and allied naval capabilities.<sup>71</sup> U.S. military personnel have also argued that ASAT actions can be an effective show of resolve in a crisis: "Under certain circumstances, space may be viewed as an attractive area for a show of force. Conflict in space does not violate national

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68. The Reagan administration's position on the legal status of BMD tests in outer space using ABM systems or components using "other physical principles relies on what has been termed a "broad interpretation" of the 1972 ABM Treaty, focusing specifically on Articles II and V and Agreed Statement D. See, for example, statements made by Judge Abraham D. Sofaer reproduced in *International Legal Materials* 26, (January 1987): 283-297. But see also Alan B. Sherr, "Sound Legal Reasoning or Policy Expedient? The 'New Interpretation' of the ABM Treaty," *International Security* 11 (Winter 1986-87): 71-93.

69. Clarence A. Robinson, Jr., "Beam Weapon Advances Emerge," *Aviation Week and Space Technology*, July 18, 1983, p. 21.

70. Bunn, op. cit., p. 55.

71. Ibid., p. 60.

boundaries, does not kill people, and can provide a very visible show of determination at a relatively modest cost."<sup>72</sup>

Ashton Carter has pointed out the need to be careful to distinguish between means and ends in contemplating such a ban. Concentration on methods of damaging or destroying satellites rather than assessing the missions those satellites perform and deciding whether those missions should be protected by law may be counterproductive. Carter argues that some satellites, which serve a military purpose, may nevertheless be termed "benign" in that they perform functions which under defined circumstances bring benefits to both sides in a time of crisis: one example might be early warning satellites, the destruction of which might destabilize the nuclear balance. Other satellites, for example Soviet RORSATs, perform a clearly "threatening" function, and the benefits from their protection would accrue to only one side. It is important to note that the classification of a satellite as "benign" or "threatening" depends on the circumstances as well as the function of its mission. Thus, a photo reconnaissance satellite, performing a "benign" function during peacetime by serving as a national technical means of verification of treaty compliance, may perform a "threatening" function during wartime by reporting on troop movements.<sup>73</sup>

The potential for a change in the classification of a satellite according to circumstances underlines the difficulty of negotiating a treaty based on such classifications. For example, who would decide at what moment during a crisis a previously protected satellite became "fair game?" On the other hand, if arms control is applied indiscriminately to satellites irrespective of their function, then increased deployment of "threatening" satellites invites abrogation of the agreement and a return to an ASAT arms race. This suggests that applying arms control measures to ASAT systems might require some agreement on the deployment of other kinds of satellite systems — which would be a task of fiendish complexity.

Even if an ASAT ban were judged to be desirable, the question of whether such a ban would be verifiable remains unanswered. It might be possible to monitor a ban on orbital activities, but the dual purpose of launchers like the SS-9 and the F-15 aircraft would make it very difficult to ensure that a promise to dismantle existing ground-to-space and air-to-space ASAT systems was being observed. In the absence of a treaty limiting ABM activity even more sharply than the 1972 ABM Treaty does, the question of the use of ground-based lasers for ASAT purposes will further complicate negotiations for an ASAT treaty.<sup>74</sup>

It has been argued that an ASAT ban would be in the interests of the United States, since "[a]n ASAT exchange that removed or degraded the

72. Lt. Gen. Thomas Stafford, Hearings before the Senate Committee on Armed Services, 1980. Quoted in Russell, *op. cit.*, p. 157.

73. Carter, *op. cit.*, pp. 73, 67-68.

74. See Note 11 above. Agreed Statement D refers to the need for discussions towards specific agreements on numerical limits of ABM systems based on "other physical principles." Irrespective of the effects of Article V on space-based systems, development and tests of ground-based lasers would not be prohibited by the 1972 ABM Treaty.

space-based support systems of both sides would only emphasize . . . asymmetry [between American and Soviet space resources] and make the balance of forces even more unfavorable to the United States."<sup>75</sup>

These asymmetries are based on differences in the geographic, technological and strategic requirements of the two superpowers. Soviet forces are deployed closer to the Soviet Union, and can make use of shorter lines of communication. The Soviet Union puts fewer ballistic missile submarines at sea than the United States at any one time and has a considerably smaller intercontinental bomber force. Soviet strategic thinking places great emphasis on the need for offensive momentum and the decisive value of the "first blow." In times of crisis, the Soviet Union has developed a "surge capacity," whereby a considerable number of satellites can be placed in orbit in a short period of time, during which period they might be protected by U.S. fears of tipping the balance from crisis to war. Finally, the Soviet concentration on launching many relatively small and relatively unsophisticated satellites every year means that the Soviet Union would have an advantage over the United States, which launches a smaller number of more complex satellites in the same period, in a contest to maintain depleted satellite networks. According to a former Undersecretary of Defense for Research and Development for Space Systems, "the Soviets have a very redundant communications system to their forces. . . . So taking out a communications satellite is not going to extract much of a price from them. If they took out one of our communications satellites, it would be quite different."<sup>76</sup>

It should, however, be recalled that these arguments are based on the current state of technology. National consent, in a positive law agreement like a "rules of the game" arms control agreement, depends on a large number of factors, among which are military assessments on the current "balance of power" or "correlation of forces." Yet the future balance and correlation must also be factored in if the agreement is to be of durable value. It is worth recalling the negotiations which led to the SALT I treaties in 1972.

In these agreements, the American negotiators accepted unequal numerical ceilings on the number of missile launchers each side was permitted to deploy. The Soviet Union was permitted more launchers than the United States. However, the American negotiators and their political superiors accepted these terms because of the American lead in warhead technology. This permitted them to mount multiple independently targetable re-entry vehicles (MIRVs) on their missiles, giving the United States a substantial advantage in deployable warheads when the treaties were signed.<sup>77</sup>

Following the signature of these treaties, the Soviet Union perfected its own MIRV technology. This permitted a rapid increase in the number of

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75. Louise Hodgeson, "Satellites at Sea: Space and Naval Warfare," *Naval War College Review* 37 (Jul.-Aug. 1984) Quoted in Bunn, op. cit., p. 55.

76. Seymour Zeiberg, Hearings before the Senate Subcommittee of the Committee on Armed Services, 1980. Quoted in Hafner, op. cit., p. 52.

77. A thorough discussion of MIRV technology and its effects on the then-current and future strategic balance is given by John Newhouse in *Cold Dawn: The Story of Salt*, (Holt, Rinehart and Winston, 1973).

Soviet warheads, cutting the American advantage and, in the important category of land-based ICBMs, reversing it. These developments have in turn led to the renewed call for missile defenses and, in some quarters, a repudiation of the results of previous arms control efforts and distrust for the arms control process.

Arguments based on technology are therefore a double-edged sword. On the one hand, it can be argued that failure to outlaw ASATs will lead to another twist in the technological arms race; that those powers making military use of space will be forced both to increase their potential for destroying their opponent's satellites, and to spend large sums of money on protecting their own from attack. On the other hand, arguments can be made that a ban on ASAT activity will increase the costs of protecting non-space military activities because of the enhanced threat which protected space assets create.

### CONCLUSION

A number of results flow from the above analysis of the existing state of international law as it affects ASAT activities. First, ASAT activities are not unregulated by international law: a number of activities, such as the stationing of nuclear weapons in orbit and the testing of nuclear-tipped missiles in space are forbidden by multilateral agreements binding on the signatories. Second, although some disagreement exists whether state practice in space in the 30 years since Sputnik I was launched has been sufficient to create universally binding legal rights and obligations, *opinio juris* does not prohibit ASAT testing and development where such testing conforms with existing agreements. Third, the legal character of any agreements emerges from consent between the negotiating parties, rather than their recognition of some intrinsic character of the medium in which ASAT systems operate. Within this framework, then, states have considerable discretion in seeking an accommodation which will serve their mutual interests.

Beyond this point, the lawyer must give way to the technician and the politician, who are better qualified to assess the technical and political merits of an agreement. Yet those men and women charged with the actual negotiation of a treaty, then building the political consensus behind it, would do well to remain aware of the history of earlier agreements, and the likely effects of their work on agreements still to come.