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# Legal Control of Outer Space

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# Notes

## LEGAL CONTROL OF OUTER SPACE

In keeping with the general proposition that many of man's perplexing problems have been caused because physical science has usually advanced at a faster pace than the science by which man governs himself, the modern assault on the vast unknown of space threatens to catch man unprepared. In the very dawn of the day in which man will be both working and living in space, he is without rules by which his life must be governed. It is important that these rules be formulated before that day when living in space for extended periods of time becomes a reality. This note will explore both the unknowns of space and the unknowns of space law as it exists today.

There are nine planets in our solar system, each orbiting around a relatively small star, the sun, which is one of about a hundred billion stars orbiting about a central point in a galaxy known as the Milky Way, which is one of some two hundred million other galaxies.<sup>1</sup> The Milky Way is some ten to twenty thousand light years deep at the center, a thousand light years deep at the edges, and about eighty thousand light years in diameter.<sup>2</sup> The sun orbits about a central point in the Milky Way some thirty thousand light years away and takes two hundred million years to complete. Remembering that light travels at approximately 186,300 miles per second, the distance light would travel in one year is approximately 5,884,471,800,000 miles. All this is only that small portion of the universe which is within range of a 200-inch telescope, the largest at present.

The distance between the sun and the farthest planet, Pluto, is three and a half billion miles. In order from farthest away, the distances from the sun to the other planets are: Neptune, 2,800 million miles; Uranus, 1,783 million miles; Saturn, 886.1 million miles; Jupiter, 483.4 million miles; Mars, 141.5 million miles; Earth, 92.9 million miles; Venus, 67.2 million miles; and Mercury, 36.0 million miles.<sup>3</sup>

At present propulsion capabilities, it is estimated that it would take from one and a half to five days to go from the Earth to the moon,

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<sup>1</sup> Staff Report of the Select Committee on Astronautics and Space Exploration, Space Handbook: Astronautics and its Applications, H.R. Doc. No. 86, 85th Cong., 2d Sess. (1959).

<sup>2</sup> *Ibid.*

<sup>3</sup> 21 The *Colliers Encyclopedia* 174 (1962) [hereafter cited as *Colliers*].

about 110 days to Mercury, 140 days to Venus, 260 days to Mars, 2.7 years to Jupiter, 6 years to Saturn, 16 years to Uranus, 31 years to Neptune and 46 years to Pluto.<sup>4</sup>

The nearest star system, Alpha Centauri, lies beyond reach of our present propulsion capabilities. Alpha Centauri is about 25 trillion miles away, or approximately four light years. It would thus appear that man limit his space travel to the solar system for some time.

Our atmosphere is usually described in terms of five layers, each of which, however, blends into the next so no definite boundary line can be drawn. Even the atmosphere itself has no discernable limit, gradually growing thinner until the existence of gaseous air is imperceptible. It is important to keep in mind that one-half of the entire mass of the atmosphere is below 3.6 miles, and ninety-seven per cent of its mass is below eighteen miles.<sup>5</sup>

The layer closest to Earth is the troposphere, varying in height from about ten miles at the equator to a little less at the poles.<sup>6</sup> Most of all air flight activity has been conducted in this area. Even so, only the first twenty per cent of the troposphere, or the area up to 15,000 feet, has enough oxygen to sustain life.<sup>7</sup>

The next highest layer is the stratosphere, which extends to about fifty miles.<sup>8</sup> It is here that most of the remaining air in the atmosphere is found, and within which the aerodynamic lift needed to sustain winged flight ends. This environment is extremely inhospitable. For example, at 63,000 feet blood within the human body would boil while the atmospheric temperature would be seventy degrees below zero, Fahrenheit.<sup>9</sup>

The next highest layer is the mesosphere, extending to about seventy-five miles.<sup>10</sup> Often this is the thermosphere, extending to about 400 miles.<sup>11</sup> Because of the intense electrical activity in these last two layers, they are often referred to as the ionosphere.

The outer layer, or exosphere, gradually merges into outer space anywhere from 10,000 to 18,000 miles. In this layer the amount of air is almost insignificant, there being only a few traces of hydrogen, oxygen and helium.<sup>12</sup>

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<sup>4</sup> Staff Report, *op. cit. supra* note 1, at 23.

<sup>5</sup> Hogan, *Legal Terminology for the Upper Regions of the Atmosphere and for the Space Beyond*, 51 Am. J. Int'l L. 362, 371 (1959).

<sup>6</sup> 21 Colliers 356.

<sup>7</sup> Menter, *Astronautical Law* 5 (1959).

<sup>8</sup> 21 Colliers 356.

<sup>9</sup> Menter, *op. cit. supra* note 7, at 5.

<sup>10</sup> 21 Colliers 356.

<sup>11</sup> *Ibid.*

<sup>12</sup> *Ibid.*

## I. PROBLEMS

A. *Sovereignty in Space*

Of the three basic problem areas in defining legal controls for outer space to be discussed, the first is sovereignty in space.

Of some benefit in discussing this problem is an examination of the development of the law of the sea. The early maritime powers interested in exploration—such as Spain, Portugal, Venice and England—first asserted sovereignty over enormous sections of the sea.<sup>13</sup> For example, after Columbus had sailed to discover the New World, Pope Alexander issued Bulls separating this discovery into two parts, one under the exclusive control of Spain, the other under Portugal.<sup>14</sup> Perhaps the first to claim that the sea was open to all and could not be apportioned to any nation was Queen Elizabeth. Her purpose was to enable the English to sail in waters given to Spain by the Papal Bull, and in order to accomplish this, she declared that the sea was open to all nations.<sup>15</sup> A little later, it was reasoned that the sea by its very nature was not subject to sovereignty; that it was of such character as to permit a general use by all nations without discrimination.<sup>16</sup> King Charles I, however, shifted from the freedom of the seas philosophy of Queen Elizabeth, and England again asserted control over a large portion of the sea.<sup>17</sup> Freedom of the seas, then, seemed to depend upon the inclination of the leading naval powers to grant this freedom. Gradually, however, this principle changed with the growth of commerce among nations. Over a substantial number of years a rule of international law providing for freedom of the open seas evolved and became firmly established. It is now one of the oldest rules of international law. Even so, it is not universally followed, for the rule is fully operative only in times of peace. Freedom of the seas has always been subordinated to the security interests of the various nations.<sup>18</sup>

Along with the development of freedom of the high seas came the doctrine that states may exercise sovereignty over a small portion of the sea extending a short distance from their coastlines, known as the territorial sea. That a government must protect itself from the dangers arising from conflicts waged too near its coast seemed to be the primary reason for declaring sovereignty over this area of the sea.<sup>19</sup>

Various limits have been asserted. The United States has followed

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<sup>13</sup> Schick, *Who Rules the Skies: Some Political and Legal Problems of the Space Age* 10 (1961).

<sup>14</sup> Menter, *op. cit. supra* note 7, at 13.

<sup>15</sup> I. Oppenheim, *International Law* 92 (8th ed. 1955).

<sup>16</sup> Grotius, *Commentary of the Law of Prize and Booty* ch. 12 (1950 ed.).

<sup>17</sup> Schick, *op. cit. supra* note 13, at 10.

<sup>18</sup> *Ibid.*

<sup>19</sup> *United States v. California*, 332 U.S. 19, 35 (1947).

a policy of claiming sovereignty over the first three miles from the coast. Thomas Jefferson noted that this limit was established because it was the utmost range of a cannon ball.<sup>20</sup> The majority of the other countries have also followed the three-mile rule, including Great Britain. The Soviet Union, however, has asserted since the days of Tsarist Russia a twelve-mile limit, while Chili, Equador and Peru contend that their limit is 200 miles.<sup>21</sup>

In the conference on the law of the sea of the United Nations in 1958, the conferees accepted unanimously the freedom-of-the-seas doctrine, but could not resolve the confusion among nations over a standard width of the territorial sea. This is shown by the final draft of the conference report which provides, "The sovereignty of a state extends beyond its land territory and its internal waters, to a belt of sea adjacent to its coast, described as the territorial sea."<sup>22</sup>

Other doctrines have been established in international law concerning the sea. First, there is the well-settled doctrine of the right of innocent passage through territorial sea, where passage is not prejudicial to the peace, good order or security of the coastal state.<sup>23</sup> Second, many nations claim jurisdiction over a contiguous sea-belt for special purposes up to twelve miles from their coasts. This is usually to protect customs, fiscal, immigration or sanitary regulations.<sup>24</sup> Third, the United States, in 1945, issued a proclamation asserting jurisdiction over the continental shelf for purpose of exploiting natural resources. By general acceptance throughout the world, these are now established rules of international law.<sup>25</sup>

Sovereignty in the air dates back to the legal maxim developed by Roman jurists, *cujus est solum ejus usque ad coelum et ad inferos*, or "to whomsoever the soil belongs, he owns also to the sky and to the depths."<sup>26</sup> The purpose was to protect a property owner from interference which might occur from overhanging trees or adjacent buildings.<sup>27</sup> This rule is misleading when taken out of context without reference to the purpose of the *cujus est solum* doctrine in Roman private property law. To stretch the real meaning of the doctrine to the extent of allowing a nation to assert sovereignty to an infinite height is illogical, although numerous attempts have been made to do

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<sup>20</sup> 1 Moore, *Digest of International Law* 702 (1906).

<sup>21</sup> Menter, *op. cit. supra* note 7, at 11.

<sup>22</sup> U.N. Convention on the Territorial Sea and the Contiguous Zone, part I, sec. 1, par. 1, Conference on the Law of the Sea, Geneva, Switzerland, February 24-April 27, 1958.

<sup>23</sup> Menter, *op. cit. supra* note 7, at 15.

<sup>24</sup> *Ibid.*

<sup>25</sup> Myers, *Sea Law Revamped*, 121 *World Affairs* 49 (1958).

<sup>26</sup> Black, *Law Dictionary* 453 (4th ed. 1957).

<sup>27</sup> Schick, *op. cit. supra* note 13, at 4.

so. Even though the United States Supreme Court has declared that the doctrine has no place in the modern world,<sup>28</sup> its influence remains.

The opposing theory, that the air is *res communis*—free to all men—was advocated by Grotius.<sup>29</sup> This theory was popular before controlled movement in the air became a practical reality. Even as late as 1910 the International Conference on Air Navigation agreed that an airplane of one nation had the right to fly over another nation so long as no threat to security was presented.<sup>30</sup> During World War I all countries declared their air boundaries closed, and in 1919 nations at the Paris Convention specifically declared the full and absolute sovereignty of each state over the airspace above its territory and territorial water.<sup>31</sup> Later, at Chicago, in 1944, this principle was again reaffirmed. In neither convention was airspace defined.<sup>32</sup>

The Soviet Union, since the days of its revolution, has asserted a complete and exclusive sovereignty of the airspace over its territory, and this principle is today embodied in its Air Code.<sup>33</sup>

It is interesting to note that Fauchille, who at the turn of the twentieth century advocated the free use of airspace, later admitted the basic right of a country's protection from attack from the air and proposed an upper limit to space sovereignty of 300 meters.<sup>34</sup> With technical improvements in aircraft design and reconnaissance photography Fauchille extended this limit to 1500 meters, while continuing to emphasize that international commerce and the need for friendly relations among states required agreement on a zone beyond which the air—like the open sea—is *res communis*.<sup>35</sup>

A review of the development of sovereignty in airspace shows the marked influence of the demand for national security. It must be remembered that national security was the primary reason for states claiming sovereignty over their territorial waters. Thus the Roman *cujus est solum* doctrine which was, after all, a private property right of a land owner, was not a primary reason for the evolution of sovereignty in airspace.

The most often-discussed and one of the most perplexing problems of the legal control of outer space is the determination of the outer limits of sovereignty. No country has ever announced a limit to

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<sup>28</sup> United States v. Causby, 328 U.S. 256, 260-261 (1946).

<sup>29</sup> Grotius, *op. cit. supra* note 16.

<sup>30</sup> Jessup and Taubenfeld, Controls for Outer Space 201 (1959).

<sup>31</sup> Menter, *op. cit. supra* note 7, at 16.

<sup>32</sup> Jessup and Taubenfeld, *op. cit. supra* note 30, at 202.

<sup>33</sup> Kislovand Krylov, *State Sovereignty in Airspace*, 1956 International Affairs 35 (1956).

<sup>34</sup> Schick, *op. cit. supra* note 13, at 9.

<sup>35</sup> *Ibid.*

which their sovereignty extends. Two basic questions arise: first, should sovereignty be limited at all; second, if so, where?

A few arguments have been made that national sovereignty extends upwards indefinitely. This hypothesis is accomplished by projecting a nation's boundaries upward perpendicularly to the earth's surface from the center of the earth through the nation's boundaries to infinity. Since the basic reason for such an extension of sovereignty is national security, it has also been suggested that if sovereignty does not extend outward indefinitely it should at least extend as far as is required for a country to control the air above its borders.<sup>36</sup>

There are many objections to this unlimited extension of sovereignty. The most fundamental is that any unlimited projection of territorial sovereignty is inconsistent with basic astronomical facts. As one writer explains:

The revolution of the earth on its own axis, its rotation around the sun, and the motions of the sun and the planets through the galaxy all require that the relationship of particular sovereignties on the surface of the earth to space beyond the atmosphere is never constant for the smallest conceivable fraction of time. Such a projection into space of sovereignties based on particular areas of the earth's surface would give us a series of irregularly shaped cones with a constantly changing content. Celestial bodies would move in and out of these cones all the time. In these circumstances, the concept of a space cone of sovereignty is a meaningless and dangerous abstraction.<sup>37</sup>

A practical argument against the unlimited extension of sovereignty is that no country has protested to either the United States or the Soviet Union about satellites or missiles violating their sovereignty. It would thus appear that through implied consent an international doctrine of the free use of outer space is already developing.

Realizing the futility of arguing for an unlimited extension of national sovereignty into outer space, nations have made efforts to arbitrarily establish boundaries to air sovereignty, just as sea sovereignty is limited by the territorial sea. There have been almost as many proposals for determining this limit of sovereignty as there have been writers on the subject, and none have met with any wide acceptance. Some of the more logical suggestions are the following;<sup>38</sup>

- 1) Height to which aircraft or other instrumentalities requiring

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<sup>36</sup> Cooper, *High Altitude Flight and National Sovereignty*, 4 Int'l L.Q. 411, 418 (1951).

<sup>37</sup> Jenks, *International Law and Activities in Space*, 5 Int'l & Comp. L.Q. 99, 103-104 (1956).

<sup>38</sup> For a general list of suggestions that have been proposed, see Cooper, *Space Above the Seas*, 1959 JAG J. 33; Haley, *The Law of Space*, 4 N.Y.L.F. 262, 264-265 (1958).

aerodynamic lift can ascend (approximately twenty-five miles). This limit is still above the point where current air navigation occurs.<sup>39</sup>

2) Height at which aerodynamic lift ceases entirely and centrifugal force commences (approximately fifty miles), or the upper levels of the stratosphere. This limit would allow future development of aircraft which would still depend on the air for some lift and control.

3) Height at which an artificial satellite may be put in orbit (approximately seventy-five miles). This is the lowest level at which a vehicle can orbit for any extended period due to the pull of gravity and drag induced by the heavier atmosphere.

4) Height where no molecules of gaseous air are found, or the outer extremity of the exosphere. As previously noted, this area is scarcely discernable from outer space, estimates on its height varying from 500 to 18,000 miles.<sup>40</sup>

Of course any limit could be set, however arbitrarily chosen, simply by an agreement among the various states. One writer has suggested a zonal approach, with national sovereignty extending up to fifty miles, then a zone up to 600 miles which would be free to all for any non-military purpose, then free space for any purpose because operations beyond this limit are not closely earth-associated, but are more related to interplanetary travel.<sup>41</sup>

Other writers stress that it is not necessary, practical, or even desirable to establish a precise limit to sovereignty at the present time.<sup>42</sup> They assert that first, none of the proposals for establishing a precise limit is acceptable. Protection from outside interference was the main reason for the assertion of sovereignty in both the territorial sea and the airspace, and protection remains the main reason for asserting sovereignty in outer space. With only a twenty-five, fifty or even seventy-five mile limit, satellites used for reconnaissance and for military purposes orbiting far above this level would be a definite threat to security. Another suggested limit, the height at which no gaseous molecules of air are found, is so indefinite as to be impossible to establish. Indeed, data collected by Explorer IX, launched February 16, 1961, indicated that the outer fringes of the earth's atmosphere have shrunk in the last few years so that the atmosphere at 420 miles is only a tenth as dense as it was in 1958-1959, due to the diminishing solar activity as the present solar cycle wanes from the 1957-1958

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<sup>39</sup> 21 Colliers 356. The record altitude for propeller-driven aircraft is 10.6 miles; for jet-propelled fighter aircraft, 17.3 miles; and for manned balloons, 18.9 miles.

<sup>40</sup> 21 Colliers 356.

<sup>41</sup> U.S. Congress, Senate Special Committee on Space and Astronautics, Space law: a symposium, 85th Cong., 2d Sess., part 3 at 128, December 31, 1958.

<sup>42</sup> Jessup and Tauberfeld, *op. cit. supra* note 30, at 208.



peak.<sup>43</sup> Even if an arbitrary boundary for the outer limits of the atmosphere could be established, it would accomplish little because of the oval shape of a satellite's orbit. These orbits have a perigee (the lowest point of the orbit) and an apogee (the highest point of an orbit). Vanguard I, for example, had a perigee of 409 miles and an apogee of 2,513 miles. An even more amazing example, Explorer VI has a perigee of only 156 miles and an apogee of 26,357 miles!<sup>44</sup> Any boundary line drawn in between would be meaningless, for a satellite would be in free space for a part of its orbit and be in violation of sovereignty in another.

Second, some writers express great doubt that any agreements as to sovereignty limits could be reached in the near future. Nations have agreed for over a century on the concept of the free use of the open sea, and yet have never been able to agree on the outer limits of the territorial sea. It is very doubtful, then, that at such an early stage of development of so gigantic an undertaking as mastering outer space, any boundary lines of sovereignty could be finalized.

Third, some writers state that any settlement of so far reaching a problem would be imprudent at this time. Scientific knowledge of the physical nature of space is still meager, and the establishment of any rules would be premature and could possibly prove to be a threat to national security. A former legal advisor to the State Department, Mr. Loftus Becker, in testimony before the House Committee on Science and Astronautics, stated, "I am opposed, at this moment, to any attempt to have an international agreement that says our sovereignty extends so far up and no farther, because I say we don't have enough facts to know that is in the national interest of the United States."<sup>45</sup>

The objections to establishing limits to sovereignty at this time are persuasive if for no other reason than that they postpone the solution of many problems which might better be solved at some later date. The proponents of this school of thought urge a case by case approach based upon the type of space activity undertaken—the type of space craft, its purpose, possible contamination effects, and potential threats to national security—rather than on the area in which this activity occurred.<sup>46</sup> Each problem would be solved as it arose, primarily upon the test of whether or not the activity was for a peaceful purpose, and thus a common law of space would develop.

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<sup>43</sup> 1962 Colliers Yearbook 569.

<sup>44</sup> 21 Colliers 356.

<sup>45</sup> *Hearings on International Control of Outer Space of the House Committee on Science and Astronautics*, 86th Cong., 1st Sess. (1959).

<sup>46</sup> Jessup and Tauberfeld, *op. cit. supra* note 30, at 208.

## B. *Jurisdiction over Celestial Bodies*

Assuming that sovereignty must be limited to some upper limit above the earth, and that outer space beyond that limit must be free for all to use, the problem arises of jurisdiction over the bodies in space. Of the two types of celestial bodies, that is, man-made and natural, questions arising over the former are not difficult to resolve.

Current international law recognizes that ships and aircraft lost at sea still remain the property of the government which built them.<sup>47</sup> Similarly, aircraft unintentionally invading the airspace of another country remain in the ownership of the original sovereign, even after being forced down and thus being removed from the effective control of that sovereign.<sup>48</sup> Thus it would be reasonable to argue that a satellite launched by one nation would remain the exclusive property of that nation for the entire duration of its orbit and recovery, even if it should fall into the territory of another nation.

Of course, the descent and landing in foreign territory of space vehicles or their fragments, if destroyed, raise many perplexing problems apart from ownership of the vehicle. To be considered are problems of violations of the sovereignty of the foreign state, possible damages resulting from the landing or from falling fragments, and the ever present possibility that an unexpected, sudden descent of a rocket or similar vehicle could very well trigger an accidental nuclear war. These questions are not as academic as they may seem. Reports have already indicated that an American missile fired in 1956, was lost over the Brazilian interior, and that in December, 1960, a Thor-Able-Star rocket was destroyed for malfunction, and pieces fell on Oriente Province in Cuba, bringing stiff diplomatic protests.<sup>49</sup> Less substantiated reports have indicated that a Soviet nose cone fell in Alaska, that fragments from some rocket fell in South Africa, and that a Soviet rocket barely missed an Australian airplane.<sup>50</sup>

Jurisdictional problems over man-made space platforms would be resolved in much the same way. But other problems arise because these platforms would serve as stepping stones in space travel. An interesting analogy has been drawn by one writer to seadromes, which were artificial structures planned in 1920 to serve as floating auxiliary air fields in the middle of the ocean to enable transoceanic flights.<sup>51</sup> Each seadrome was to be under the exclusive dominion of the country who built and maintained it, and this country could

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<sup>47</sup> Address by Mr. Johnson, Juristic Society of Philadelphia, March 17, 1959.

<sup>48</sup> *Ibid.*

<sup>49</sup> Schick, *op. cit. supra* note 13, at 25n.

<sup>50</sup> *Ibid.*

<sup>51</sup> Heinrick, *Air Law and Space*, 5 St. Louis U.L.J. 11, 50 (1958).

forbid its use by other states. Once other countries were allowed accessibility, however, sovereign nations had a duty to allow accessibility to all states.<sup>52</sup>

Jurisdiction over natural celestial bodies raises more complex legal questions. Several methods for claiming sovereignty over previously undiscovered territory have been used. The oldest method was simply discovery by sighting. The only requirement was that the discovery had to have the character of state action. Even before the nineteenth century, however, mere discovery by sighting, without taking possession in any form, did not result in acquisition of sovereignty over the territory sighted.<sup>53</sup> A little later, the further requirement that possession must be an effective occupation was recognized. Former Secretary of State Hughes in 1924 stated the current position of international law on this when he said, ". . . the discovery of lands unknown to civilization, even when coupled with a formal taking of possession, does not support a valid claim of sovereignty unless the discovery is followed by an actual settlement of the discovered country."<sup>54</sup>

What is effective occupation of one area might not be effective occupation of another. As difficulties of settlement increase, less effective control is required. Thus effective occupation is any occupation reasonable under all circumstances in view of the extent of territory claimed, its nature and the uses to which it is adapted.

Perhaps the best example of the occupation and development of new territory in recent years is the Antarctic. The example gives some insight into the difficulties that might occur in the exploitation of celestial bodies.

The Antarctic, which lies principally south of the sixtieth parallel, is a completely lifeless mass containing almost six million square miles.<sup>55</sup> It has little military or economic importance at the present time.

Claims to portions of the Antarctic are based on discovery, occupation, performance of various acts, such as making decrees or setting up post offices, and on continuity and contiguity. The latter is a means of extending sovereignty over adjoining land by drawing extensions from the outer extremities of a country to some point in the new territory—in the case of Antarctica, the South Pole.

Conflicting claims to the Antarctic have been made by several countries. Great Britain made the first claim in 1908, based on dis-

<sup>52</sup> *Ibid.*

<sup>53</sup> Simsarian, *The Acquisition of Legal Title to Terra Nullius*, 53 Pol. Sci. Q. 111 (1938).

<sup>54</sup> 2 Foreign Relations 519-520 (1939).

<sup>55</sup> Jessup and Tauberfeld, *op. cit.* supra note 30, at 137.

covery and formal acts of taking possession, and on extensive whaling operations.<sup>56</sup> Sometime before World War II, Chile and Argentina made claims (part of which included British claims) based on proximity and contiguity, and also historical principles. New Zealand has made claims based on discovery and occupation. France has made claims based on several expeditions, but as of late have no permanent year-round stations. Australia has made claims based primarily on exploration and proximity. Norway has made claims based on explorations and these territories were made dependencies of Norway. The Union of South Africa has made claims to numerous islands in the area and has maintained stations on some of them. Most of these claims conflict.<sup>57</sup>

The United States has never formally asserted any claims to territory in the Antarctic, although it has made numerous explorations and settlements. The United States, as early as 1924, made its position in the Antarctic very clear—that it resolved all rights in the area, would make no claims of sovereignty and would refuse to acknowledge any claims of other governments. However, individual United States citizens in the Antarctic have been considerably more zealous. Flags have been raised and pamphlets dropped. With the threat of German interference in Antarctica during World War II, the United States prepared formally to claim vast areas of the continent. Even after the war this was the underlying motive for several large expeditions.<sup>58</sup>

The Soviet Union has never claimed any Antarctic territory, although it too has made expeditions and settlements. Most of these, however, have been made only recently. The Soviet Union has also made it quite clear that they intend to be a part of any conference discussing possible solutions to the many conflicting claims.

All of these countries have interests in the Antarctic which they feel must be protected. Argentina and Chile have been almost fanatical on the point. Weather forecasting makes the Antarctic valuable for Australia, New Zealand, South Africa and South America and important to the entire world because of its value in the scientific exploration of the earth itself, and of outer space.

Cooperation in the control of the Antarctic was begun with the 1957-1958 International Geophysical Year (IGY) and as such was a non-governmental, non-political effort. After the termination of the IGY, suggestions were made for continuing cooperation, at least in scientific endeavors. A Special Committee on Antarctic Research

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<sup>56</sup> *Id.* at 143.

<sup>57</sup> *Id.* at 153.

<sup>58</sup> *Id.* at 156-157.

(SCAR) was organized in 1958 and extensive mapping was accomplished. Many other scientific expeditions were completed. All in all, the feasibility and advantages of international scientific cooperation which has disregarded to a large extent national political designs has been demonstrated.<sup>59</sup>

On the other hand, proposals for solution of conflicting claims in the Antarctic have failed. So far the attempts of the United Nations have usually failed as disagreeing countries have refused to debate the issues. In 1959, however, an Antarctic treaty was drafted and signed by most of these competing nations. The treaty called for no military designs of any kind, the principle of free elections, and a principle of "agreed solutions," which is equivalent to a requirement of unanimity on any actions.<sup>60</sup> It is indeed fortunate that the Antarctic has little present value, for were the contrary true there might be an all out power grab with far-reaching effects. So long as the Antarctic remains unimportant strategically, and competing countries do not have a "life or death" interest, there remains an excellent opportunity to experiment with a comprehensive, international system of government, preferably under United Nations control. It would be far better to experiment here than in outer space.

The Antarctic does at least demonstrate that cooperation among competing states is possible, even if only in scientific endeavor. This is, after all, a place to start. Because scientific investigation of outer space is more closely aligned with the ultimate struggle between the United States and the Soviet Union than is any scientific investigation of Antarctica, it seems that cooperation in space efforts will be vastly more difficult to obtain.

There are some writers who flatly reject the feasibility of any attempt to apply international law rules on acquisition of sovereignty to celestial bodies.<sup>61</sup> These writers feel that the example of the United States in not claiming territory in Antarctica should be followed in outer space and would be the most progressive approach to modern discovery. Senator Keating, who has for some time been prominent in space affairs, has said, "I don't think it is in the interest of humanity or in the broadest interests of our own country to try to gain dominion over the celestial bodies at the expense of other nations."<sup>62</sup>

There is much to be said for this position. Certainly it is not desirable for the world to carry those differences which have not been

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<sup>59</sup> *Id.* at 170-171.

<sup>60</sup> Crane, *Soviet Attitude Toward International Space Law*, 56 Am. J. Int'l L. 685 (1962).

<sup>61</sup> Address by Mr. Munro, June 11, 1958.

<sup>62</sup> Hearings, *op. cit. supra* note 45, on March 5, 1959.

resolveable on earth into space. Should the United States announce that it sought no sovereignty over natural celestial bodies to the detriment of any other nation, and that it would join with others to seek formulation of international law governing celestial bodies, a definite moral and propaganda victory would be won. But the long-range advantage of such a victory is questionable. The Soviet Union has not asserted any claims of sovereignty in the Antarctic—but this is because of their inability to substantiate such claims rather than their desire for international cooperation. A more practical idea would be to submit the question of extraterrestrial sovereignty to the United Nations, and try to work out an appropriate solution there.

### C. *Peaceful Uses of Space*

As previously noted, many writers have stressed that the place to begin international agreement on the controls for outer space is with some specific agreement on the use of space for peaceful purposes. It should be noted at the outset that both the United States and the Soviet Union have announced that their space activities will be for peaceful purposes.<sup>63</sup> Also, because no country has protested violation of sovereignty by satellites, and no satellites have yet carried any instruments which posed an offensive military threat, the apparent trend of international law is that only when a satellite is carrying instruments which pose an offensive threat, or would unduly interfere with the normal activities of the subjacent state, would a nation be warranted in taking action against the offending satellites. This is an area where early agreement seems possible even though many problems remain unsolved.

The peaceful use of outer space is but one facet of the immense problem of disarmament. For centuries the world has tried to solve this problem, and with little success. All the roadblocks which have prevented a workable solution to the disarmament problem loom just as large in discussions of outer space. Any solution of the larger problem must necessarily include solution of the smaller.

The most obvious difficulty is defining the term "peaceful." It is most difficult to determine whether a certain space activity is for military or peaceful purposes. Orbiting satellites have furnished invaluable data for weather forecasting, more accurate mapping, space communication, relay systems, etc. Yet these "peaceful" activities render invaluable military information. Communications systems could be used for military transmissions, radiological warfare, and jamming

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<sup>63</sup> The Congress of the United States declared the policy of the United States was "that activities in space should be devoted to peaceful purposes for the benefit of all mankind." Pub. L. No. 568, 85th Cong. (1958).

enemy communications; weather information could be used to determine troop movements; and more accurate maps could pinpoint enemy targets. It is thus obvious that the most peaceful uses may be fraught with military potentials.

Conversely, would a military satellite launched for the purpose of maintaining our vigilance against surprise attack be peaceful? For example, the Samos satellite now being developed is equipped to survey vast areas to a highly efficient degree—even more efficiently than did the U-2.<sup>64</sup> Such a satellite would be of enormous advantage in learning of surprise attack, but could it be justified as peaceful?

This difficulty does not seem insurmountable. These space activities at least have a peaceful use. It is not difficult to draw a distinction between these activities and an orbiting satellite equipped with hydrogen bombs. So long as a satellite is not equipped with instruments capable of offensive military action, or does not unduly interfere with the physical activities of another nation, it should be allowed even though it may also have indirect military benefits.

Difficulties over determining what is or is not a peaceful purpose must not overshadow the enormous areas where scientific cooperation is an attainable goal. The Antarctic proved that such scientific cooperation is possible, and this should be stressed in negotiations concerning outer space. Because astronomy involved the observation of the skies from many different angles, it, more than any other science, has required the close cooperation of people everywhere, and this is as true today as it was centuries ago. It is here that the first steps could be taken towards establishing a peaceful space.

## II. SOVIET ATTITUDES ON SPACE LAW<sup>65</sup>

Before discussing possible solutions under United Nations control to the foregoing problems, a word concerning the attitude of the Soviet Union on the legal controls of outer space will be very helpful.

The Soviet Union has become increasingly interested in international law. They believe that present shifts in the world balance of political and economic power enable them to shift from a defensive to an offensive strategy, not only in economic and political fields, but in the field of international law as well. Thus the Soviets are trying to create a system of international law which no longer serves capitalist, but communistic interests. Because the Soviets are convinced that the balance of power in space technology has shifted in their favor more

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<sup>64</sup> Schick, *op. cit. supra* note 13, at 24.

<sup>65</sup> The following was taken from Crane, *Soviet Attitudes Toward International Space Law*, 56 *Am. J. Int'l L.* 685 (1962).

than in any other field, they feel that the possibilities of starting a new international law are greatest in the space area.

The Soviets have always considered that lack of national sovereignty is the distinguishing feature of outer space. So in determining the delimitation of outer space the Soviets only consider where national sovereignty stops. They have shifted their position on this question several times in recent years and several theories have been advanced and rejected. At present the Soviets contend that the delimitation of outer space can best be accomplished by first considering the status of outer space.

In discussing the status of outer space, the Soviets have drawn heavily on the analogies of the open sea and the Antarctic. This, in effect, means that the Soviet Union is concerned with determining the applicability in outer space of existing international law, and existing international law is in dispute.

In arguing disputes in international law, the Soviet Union has been careful to stay within the framework of their "peaceful coexistence" doctrine. In attempting to build this new international law, the only test has been whether the new law will strengthen peaceful coexistence, and thus lead eventually to the ultimate communist goal of proletariats internationalism.

In applying the law of the seas, the Soviets have not yet resolved the conflict of whether the sea is *res communis*. In applying the laws of Antarctica, the Soviets draw heavily on certain aspects of the Antarctica Treaty of 1959. The cardinal analogy agreed upon is the principle of "agreed solutions," which is the same thing as a principle of unanimity, which gives the Soviets a right of veto. Nevertheless, they are careful enough to say that neutralization of Antarctica cannot serve as an exact analogy for outer space, because Article VII of the Antarctica Treaty gives the right of free inspections—something the Soviets do not want in space.

The Soviet Union believes that the status of celestial bodies in space is different from the status of space itself. They have refused to draw an analogy to *res nullius* (belonging to no one), have debated the analogy of *res communis*, and have only insisted that regardless of status, celestial bodies must be demilitarized. As to the problem of territorial claims, they have opposed any thought of territorial claim over celestial bodies because they (1) maintain that international law of territorial acquisition does not apply in space, and (2) feels any such territorial acquisition conflicts with the doctrine of peaceful coexistence.



The chief concern of the Soviet Union is the demilitarization of space, based upon the peaceful coexistence doctrine. This would allow them much leeway in planning communist advances and at the same time hinder any efforts of the free world. As a more immediate goal, the Soviets hope to shift the balance of power. Demilitarization of outer space would prohibit the use of intercontinental and intermediate range ballistic missiles and so would result in a withdrawal of missile bases in Europe, and the recalling of Polaris submarines. With such a large land army, the balance of power in Europe would shift in the Soviet favor.

### III. SOLUTION OF THESE PROBLEMS

The United Nations has played a vital role in world affairs since its creation. Although its basic usefulness has been questioned, there is little doubt that it can still serve the world community.

At first the space issue was merely an incident in the general disagreement over disarmament. It was then brought to the front in 1957 by a letter from President Eisenhower to Soviet Premier Bulganin, and a short time later by a proposal from Secretary of State Dulles.<sup>66</sup> Both the Soviet Union and the United States made proposals to the United Nations to urge joint cooperation for the peaceful uses of outer space, although the Soviet proposal was coupled with the removal of all foreign military bases. The United States resolution called for the establishment by the General Assembly of an *ad hoc* committee to study the peaceful uses of outer space. This committee was to report back to the Fourteenth General Assembly. The *ad hoc* committee was then established over the objection of the Soviet bloc, and the Soviet Union immediately announced that it would not cooperate with the committee. When the committee met on May 5, 1959, the Soviet Union was not present.<sup>67</sup>

The work of the *ad hoc* committee was subdivided because the subject matter was concerned in part with scientific questions and in part with legal questions. The committee finished its work and reported to the General Assembly in June 1959, being cautious in its approach due to the non-participation of the Soviet Union. In general, most of the delegates reached agreement that space was indivisible, and thus free for all men to use. Also specific suggestions were made as possible areas of future study and cooperation, and various legal

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<sup>66</sup> Jessup and Tauberfeld, *op. cit. supra* note 30, at 253-254.

<sup>67</sup> *Id.* at 259.

questions were discussed. Discussion of some of the more major problems was postponed, however, because of the absence of a Soviet delegate. Some of the questions postponed were the determination of limits of sovereignty, contamination, jurisdiction over celestial bodies, and rules for avoidance of interference among space vehicles.<sup>68</sup> The ad hoc committee was replaced in 1959 by the permanent Committee on the Peaceful Uses of Outer Space.

It will not be easy to find a workable solution to these many and varied problems. Past experience in dealing with the Soviet Union has demonstrated the difficulty of finding solutions to any problems. But the time has come for some effort to be made, for problems often grow less soluble and positions become less flexible with age. Experience with the Antarctic shows how difficult a solution can be if we wait. It will be far more difficult, for example, to arrive at a workable solution to the problem of jurisdiction over celestial bodies when one country has already landed on the moon.

It is therefore imperative that the United States take an aggressive leadership in advancing proposals to meet the needs of the world community in the development of outer space. These proposals should include the recommendation for the establishment of some permanent international agency to supervise all space activity. This could be accomplished by a universal treaty.

The immediate goal of such an agency should be the demilitarization of outer space. Agreements should be reached on those activities which are military and those which are peaceful. Inspection systems should be maintained to assure nations that agreements are being fulfilled. Of course there are difficulties. Any proposal for the restriction of a particular space activity will most certainly be rejected whenever the legal limitations would be considered as a risk to national security. Also it seems doubtful that air and space activities can be separated from the general problem of disarmament. Wide areas of disagreement will therefore probably continue to exist over what is peaceful and what is not. But such an organization would be a start towards resolution of such disagreement.

The agency could also encourage agreement and cooperation on many space activities where controversy would not be as acute. Such an organization could thus attempt to allocate radio frequencies for monitoring satellites, provide for standard identification methods, and even launch and maintain space platforms and weather stations for central weather forecasting.

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<sup>68</sup> *Id.* at 263.

It is most discouraging to look back over the recent years of broken treaties and broken promises, of mutual distrust and fear. Perhaps the recent nuclear test ban treaty represents a reversal in attitude. In any event the coming of the space age has given the world an opportunity for a fresh start. When nations enter outer space they have an opportunity to leave behind all the bickering of the past. New efforts can be made without inherent pessimism. There is no reason why the United States should not take immediate action in proposing the establishment of an international organization to control space activities. Although progress would be slow, it would be a step forward.

*Joe C. Savage*