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# PROSPECTS FOR THE DEMILITARIZATION OF THE MANNED SPACE STATION

by

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## ABSTRACT

An incremental approach to the complete disarmament of outer space could continue with the prohibition of any type of military activity on board earth orbiting manned space stations. The U.S. and the USSR are committed to placing such stations in permanent orbit within the next decade. An international agreement giving demilitarized status to them would be a major achievement.

Article IV of the Outer Space Treaty prohibits the establishment of military bases, installations, and fortifications on the moon and other celestial bodies. Manned space stations in earth orbit should be subject to the same limitations, with military personnel permitted for scientific research only.

## INTRODUCTION

In January of this year, President Reagan directed NASA to develop a permanently manned space station and to do it within a decade.<sup>1</sup> In anticipation of this directive NASA had already organized a Space Station Task Force and a Space Station Technology Steering Committee to begin the task of developing both a strategic plan for the use of the space station and the practical aspects of designing its configuration and programming for its use.<sup>2</sup>

Mr. James Beggs, the NASA Administrator, recently wrote in the *Aerospace Magazine* that while NASA does not yet have a space station design, the concept is established.<sup>3</sup> This concept contemplates a multipurpose station in low earth orbit, maintained there on a continuing basis. Its components will consist of both a manned base platform and at least two independently orbiting unmanned ones. One of these will be inserted into polar orbit and the other will be placed in a flight path closely following the main station, with an orbital inclination of 28.5 degrees.<sup>4</sup> Also contemplated is an intra space transport vehicle which will ferry supplies and equipment from the base station to the unmanned ones.

Current proposals provide for the base station to consist of a cluster of

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<sup>1</sup>N.Y. Times, Jan. 26, 1984, at 12, Col. 1.

<sup>2</sup>W. Olstad, *Targeting Space Station Technologies*, 21 ASTRONAUTICS AND AERONAUTICS 30 (1983).

<sup>3</sup>J. Beggs, *Space Station: The Next Logical Step*, 9 AEROSPACE AMERICA 47 (1984).

<sup>4</sup>J. Hodge, *The Space Station Program Plan*, 9 AEROSPACE AMERICA 57 (1984).

modules which would perform independent functions. One module would house a solar power unit, another would serve as the habitat for the onboard spacefarers, a third as the servicing and resupply unit. Other modules could be added, or included initially, to function as research laboratories, or manufacturing facilities.<sup>5</sup>

Mr. Beggs has stated it will take NASA three years to define the space station.<sup>6</sup> Presumably this means it will take that long to decide on the totality of its functions and the exact nature of its design specifications. Since it will be so costly to build, and because it is intended to keep it operational for at least twenty years, it is essential the final determination as to how to build and equip it should take into consideration not only the present state of the art in technology and science, but also the long range progress of these two disciplines. With estimates in the fourteen billion dollar range as to the cost for its construction, NASA wants to insure that the station will provide full return from its performance before it becomes obsolete.

The Soviet Union has taken the acknowledged lead in advancing the concept of a permanent manned presence in space with its ongoing Soyuz-Salyut program.<sup>7</sup> But other nations as well, in particular Canada, France, the Federal Republic of Germany, and Japan have exploratory studies concentrating on the feasibility of placing manned stations in orbit.<sup>8</sup>

#### HISTORICAL ANTECEDENTS

Placing man in space on a longterm and repetitive basis has fascinated writers at least since 1869. Novelists such as Jules Verne and Kurd Lasswitz were writing in some technical detail about space settlements in the nineteenth century.<sup>9</sup> One notable, early twentieth century visionary was Konstantine Tsiolkovsky who was not primarily a writer but a mathematician and rocket expert. Tsiolkovsky was largely self-educated, having lost his hearing at an early age. His principal work was *The Investigation of Outer Space by Means of Reaction Apparatus* which he presented in 1903. In this thesis, he described the problems concerned with overcoming the earth's gravity. Later, he proposed the fabrication of manned space platforms to be used as way stations in interplanetary travel.<sup>10</sup> Other scientists writing in the second decade of this cen-

<sup>5</sup>Information based on interview with Dr. Joseph Sharp, Deputy Director, Office of Life Sciences, NASA Ames Research Center, November 18, 1983.

<sup>6</sup>J. Beggs, *supra* note 3, at 48.

<sup>7</sup>A Congressional study on Soviet space goals made by the Office of Technology Assessment concluded that the Soviet Salyut space station programs are the "cornerstone of an official policy which looks not only toward a permanent Soviet presence in low earth orbit but also toward a permanent Soviet settlement on the Moon and Mars. *Soviets End Winged Spacecraft Orbital Test*, AVIATION WEEK, January 2, 1984, at 14.

<sup>8</sup>AVIATION WEEK 26 (Japan), May 28, 1984, 9 Aerospace America 78 (France, Germany, Italy, ESA, Canada (September 1984).

<sup>9</sup>J. VERNE, OFF ON A COMET (1878), AROUND THE MOON (1870), K. Lasswitz, On Two Planets (1897).

<sup>10</sup>K. TSIOLKOVSKY, THE ROCKET INTO COSMIC SPACE, SCIENCE SURVEY (1903).

tury were the German writers Herman Oberth and Herman Noordung. Oberth in 1923, provided a detailed design for a manned space station.<sup>11</sup> Noordung conceived of the station as a giant rotating wheel, or *Wohnrad*, in which the hub would connect separate functional modules, including the habitat, and the spokes would be power hoses fanning from a central power unit.<sup>12</sup> Even the idea of having space taxis, which today would be called orbital transfer vehicles, was foreseen in the early part of the century by Willie Ley, a noted German rocketeer.<sup>13</sup>

All of these early visions will begin to be realized in the last decade of this century and mark the beginning of a new period of manned space exploration. The NASA Administrator writes that starting with the early nineteen nineties, there will always be men living and working in outer space.<sup>14</sup>

### MARITIME PRECEDENTS

Transformation of outer space into a workplace and habitat on a continual and repetitive basis will require much greater implementation of the law of outer space. Heretofore, outer space has developed by reaching consensus as to the great fundamental principles of law which should obtain there. These foundation rules have been set forth in the Outer Space Treaty of 1967<sup>15</sup> and implemented in the succeeding major multilateral treaties on outer space. These are the Astronauts' Agreement of 1968,<sup>16</sup> the Liability Convention of 1971,<sup>17</sup> the Registration Agreement of 1973,<sup>18</sup> and the Moon Treaty of 1979.<sup>19</sup>

None of these core agreements for developing space law ascribe any particular legal status to space objects, nor discriminate their status according to function, design, or ownership. Yet, if maritime practice establishes a precedent for the exploitation of outer space, the special status of the vessel in maritime law cannot be ignored. The vessel is endowed not only with a distinct nationality in admiralty law, but is charged with a responsibility for its own commitments and endowed with a fictitious personality.<sup>20</sup> It is liable for the

<sup>11</sup>H. OBERTH, *THE ROCKET INTO INTERPLANETARY SPACE* (1923).

<sup>12</sup>H. NOORDUNG, *THE PROBLEM OF SPACE FLIGHT* (1928).

<sup>13</sup>W. LEY, *ROCKETS AND SPACE TRAVEL* (1947), (revised edition 376 (1959)).

<sup>14</sup>J. Beggs, *supra* note 3, at 48.

<sup>15</sup>18 UST 2410.

<sup>16</sup>19 UST 7570.

<sup>17</sup>24 UST 2389.

<sup>18</sup>28 UST 695.

<sup>19</sup>Not in force in the U.S. Adopted by the General Assembly December 5, 1979 UN GA OR 34th Sess, Supp No. 46 (A/34/46) 77.

<sup>20</sup>Justice Reed in *Canadian Aviator v. U.S.* 324 U.S. 215 (1945) HOLMES, *THE COMMON LAW* 26, 27 (1881). "A ship is the most living of inanimate things . . . only by (endowing the ship) with personality can maritime law be made intelligible . . ." *Id.*

torts committed through its management and navigation, and is responsible for the debts incurred on its resupply and repair. It can be sued independently without recourse against the ship owner personally. It is the cornerstone of all maritime law, just as the aircraft is the foundation for air law.

It is recognized that all objects on the sea are not vessels, and dry docks, moored oil rigs, and floating debris (flotsam and jetsam) are examples.<sup>21</sup> All man made objects beyond the earth are, of course, space objects, from space debris to the most sophisticated satellite.<sup>22</sup> As space law matures, it is probable that its focus will be on the manned space systems, particularly the transport system and the station.

### SPACE STATIONS AS TERRITORIAL

The scientific community already appreciates the need to distinguish between categories of space objects. In a recent article by NASA scientists and engineers on designing the space station, it was stated that the space station is more a facility than a vehicle.<sup>23</sup> Now it is up to the lawyers to define in precise terms, the indicia and implications of various classes of space objects. One of the most fundamental questions to address will be whether any space objects fall within the laws pertaining to personal or to real property. This writer has previously suggested that earth orbiting stations will develop both a permanence and a social internal system which will liken it more to a territorial possession than to an instrumentality of flight.<sup>24</sup> The shuttle orbiter, being of short duration insertion into space, and used primarily for transport, would on the other hand resemble an *instrumentality*, one for transport, such as the aircraft or the vessel. If this hypothesis is borne out by state practice, legislative enactment, and judicial decision, then space stations will be covered by the rules of International Law pertaining to territory, rather than the private law of chattels. Jurisdiction over territory is one of the most important subjects in the field of International Law.<sup>25</sup>

Sovereign power is exercised to its fullest extent over territory. Territory is also the most fundamental basis for the exercise of legislative, judicial, and enforcement jurisdiction. Territorial sovereignty, wrote Max Huber, Arbitrator in the Isle of Palmas case, involves the exclusive right of the host state

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<sup>21</sup>See *Cope v. Vallette Dry Dock Co.* 119 U.S. 625 (1887).

<sup>22</sup>See LIABILITY CONVENTION, *supra* note 17, at Au4.1.

<sup>23</sup>L. Powell, A. Cohen, and M. Craig, *Space Station Design: Innovation and Compromise*, 9 AEROSPACE AMERICA 70 (1985).

<sup>24</sup>H. DeSaussure, *The Impact of Manned Space Stations on the Law of Outer Space*, 21 SAN DIEGO L. REV. (1984).

<sup>25</sup>See Brierly, *LAW OF NATIONS* 142 (4th ed 1949). "At the basis of International law lies the notion that a state occupies a definite part of the surface of the earth, within which it normally exercises exclusive jurisdiction."

to control all activities within its borders.<sup>26</sup> Justice Marshall in the U.S. Supreme Court case, *Schooner Exchange v. McFadden*<sup>27</sup> wrote that "the jurisdiction of the nation within its own territory is necessarily exclusive and absolute. It is susceptible of no limitation not imposed by itself."<sup>28</sup> While Article II of the Outer Space treaty sets forth the fundamental rule that outer space is not subject to national appropriation by claim of sovereignty, this does not prevent the assignment of a territorial status to a category of space objects which serve as a place for human occupation and community life.

### HIGH SEAS ANALOGIES

The freedom of the high seas has been recognized at least since the seventeenth century when Hugo Grotius proclaimed the *mare liberum* as a basic principle of the law of the sea. Article 2 of the Geneva Convention on the High Seas of 1958 codified this principle by providing that the high seas are open to all nations and no State can subject any part of them to its sovereignty.<sup>29</sup> However, according to many jurists, ships on the high seas are regarded conceptually as a territorial extension of the state in which they are registered. In the celebrated Lotus case involving a collision on the high seas between a French steamer and a Turkish collier in which thirteen Turkish nationals drowned, Turkey exercised its criminal jurisdiction over the officer of the watch of the French vessel. The Permanent International Court of Justice, in deciding whether it violated any Principle of International Law for Turkey to try the French officer, wrote that it was a corollary to the principle of the freedom of the seas that a ship on the high seas was assimilated to the territory of the state of nationality. The opinion of the court was that while only the flag state could exercise its authority over conduct on the vessel, the negligence of the French officer took its effect on the assimilated territory of Turkey, the Turkish vessel.<sup>30</sup> This principle was modified in the Geneva Convention on the High Seas of 1958. Article 6 provides that, save in exceptional cases, ships shall be subject to the exclusive flag state jurisdiction on the high seas.<sup>31</sup> Article VIII of the Outer Space treaty provides that the registry (flag) state shall retain jurisdiction and control over its objects while in outer space or on a celestial body, but does not specify this to be exclusive.<sup>32</sup> In the case of *manned space* objects, a greater amplification of jurisdiction is needed. The disciplinary authority of the shuttle or station commander is necessarily exclusive and ab-

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<sup>26</sup>2 U.N. REP. INTL. ARB. AWARDS 829 (1928).

<sup>27</sup>11 U.S. (7 Cranch) 116 (1812).

<sup>28</sup>*Id.* at 136.

<sup>29</sup>13 UST 2312.

<sup>30</sup>The S.S. Lotus (Fr. v. Turk.), P.C.I.J. Ser A (1927), 2 Hudson, World Court Reports 20 (1935).

<sup>31</sup>High Seas Convention, *supra* note 28.

<sup>32</sup>Space Treaty, *supra* note 15.

solute. This is not necessarily true as to legislative, judicial, or enforcement jurisdiction which may radiate from more than one earthbound Sovereign. The Outer Space Treaty negotiators clearly did not regard space objects as territorial, at the time the treaty was drafted, but the establishment of manned facilities which circumnavigate the near earth space on a permanent basis was not seriously analyzed at that time. Nothing in the treaty precludes territorial assimilation for particular *manned* space objects and the practice of states will, in this writer's view, support a special status for manned space stations. The same reasoning will apply to those provisions of the new Moon Treaty which apply to space objects on the moon. Article 12 provides that party States retain jurisdiction over their space vehicles, equipment, facilities, stations and installations on the moon. No distinction is made between the several mentioned categories, yet stations and installations may come to be classified as real property while vehicles and equipment remain personal property.

### THE NEED FOR SPACE ARTIFACT CLASSIFICATION

Until the emergence of the space station, and the serious objective of inserting permanent habitats into space, no necessity arose for a refined classification of space objects. A comparable analogy would be the attempts to define the status of aircraft before there was manned flight. If we consider the space station as the cornerstone of a new space law, it now becomes necessary to draw legal parallels to the law of the air and the law of the sea, and specifically classify space objects as extensions of territorial domains or as new types of instrumentalities. It is beyond the scope of this paper to inquire into all the ramifications of designating space stations as sovereign enclaves, except as to one aspect. That one aspect pertains to the use of earth orbiting manned stations for military purposes. The Outer Space Treaty itself does not prohibit the establishment of military stations (manned or unmanned) in earth orbit. Article IV does prohibit their establishment on celestial bodies, but is silent as to military installations and facilities circling the earth. The Treaty has been considered defective by some writers in failing to provide a ban on all military use in outer space.<sup>33</sup> There is no prescription, for example, against the establishment of manned military complexes in orbits about our globe, so long as weapons of mass destruction are not carried or independently orbited. There is a general prohibition as to the use of the moon or other celestial bodies for any military purpose.<sup>34</sup> And the Outer Space as well as the Moon Treaty seem to ban all military activity there.<sup>35</sup> Many authors have suggested that the Outer

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<sup>33</sup>Moon Treaty, *supra* note 19.

<sup>34</sup>See C. CHRISTOL, ARTICLE IV OF THE 1967 PRINCIPLES AGREEMENT 29 COLLOQUIUM 192-210 (1976).

<sup>35</sup>This is the conclusion to draw from the provision in Art. 14 banning all types of military maneuvers, weapons testing, bases, installations and fortification, and in specifically mentioning that military personnel *may be* used for scientific research and other peaceful purposes, (only) parenthesis mine. Space Treaty, *supra* note 15.

Space Treaty needs to be expanded, specifically Article IV, to cover the prohibition against all weapons in orbit, not just nuclear and other weapons of mass destruction.<sup>36</sup>

### SOVIET INITIATIVES

Soviet proposals before the United Nations General Assembly in 1981 and 1983 have recommended a new multilateral treaty which would prohibit the stationing of weapons of any kind in outer space or placing them in orbit around the earth.<sup>37</sup> Their 1983 proposal would specifically interdict the use of force or threat of force in space, or any interference with the space objects of other countries. These proposals have not been well received by the United States, largely because of their vagueness, but they do reflect the concern, worldwide, for the expanding military use of outer space.

A basic defect in the Soviet proposals, is the failure to define what constitutes a *weapon* as contrasted to other space objects of a benign nature. Many space objects lend themselves equally to combatant and peaceful missions. The shuttle orbiter is an example. It can serve as a laboratory engaged in peaceful research, or as a platform for the launch of antisatellite missiles. By any ordinary definition of the term *weapon*, the shuttle would not seem to qualify as one. Rather it is a multipurpose platform capable of both military and civilian activity. However, in time of armed conflict, its military potential is vast. Apart from being a staging area for guided missiles, it could become a command post for communications and control of military forces in the field. It is perhaps unrealistic to begin the demilitarization process by seeking to disencumber existing space programs, such as the space transport system, from all military plans and programs.

### CONCLUSION

It is easier to preclude the initiation of a military use on a novel space system, such as the incipient space station, than it is to dislodge one which has already been programmed and funded. The U.S. Defense Department has specifically asserted there is no present military requirement for a manned space station.<sup>38</sup> It apparently does not fit into any strategic planning of the military establishment. Implicit in the Soviet proposal for banning all spaceborne weapons is the concept of a demilitarized space station. There is an apparent mutuality of views that at least this new system for exploring and exploiting space could remain free of all military activity. This provides an open-

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<sup>36</sup>C. Christol *supra* note 33.

<sup>37</sup>Draft treaty on the Principles of the stationing of weapons of any kind in outer space, 36th Session on the UNGA, August 20, 1981; A treaty on the prohibition of the use of force in Outer Space and from Space against Earth, 38th Session of the UNGA A/38/194 Aug 23, 1983.

<sup>38</sup>Beggs, *supra* note 3, at 49; AVIATION WEEK January 30, 1984, at 16.

ing wedge for the incremental demilitarization of the outer space environment closest to earth. The legal process for neutralizing the military potential of space stations, however, is first, to characterize them as floating islands or enclaves. Then, by international agreement, declare them to be demilitarized areas, which under International Law, may not be used by the armed forces for any purpose. (Not precluded of course would be the use of military personnel for scientific research and other peaceful purposes.)

The 1959 Antarctic Treaty prohibits military installations, maneuvers, weapons, and weapons tests in that area.<sup>39</sup> As noted above, the Outer Space Treaty effectively demilitarizes the moon and all other celestial bodies. The implementing Moon treaty virtually incorporates the language of the Antarctic treaty in making this demilitarization process specific (Article 3). It also provides, following the Antarctic Treaty, that all facilities, stations, and installations within the treaty area shall be open to visits by the other party States.<sup>40</sup> Earth orbiting manned space stations could also be made subject to a special regime embracing the principle of open inspection and visitation, and their exclusion from any military activity whatsoever.

As these stations become more sophisticated and extensive, and community life on board transitions from the bare necessities for survival to a developed social system, it will become the practice of states to regard these habitats as extensions of their own sovereign system on earth and endowed with all the aspects of territory expressed by Justice Marshall in the *Schooner Exchange* case. The exercise of jurisdiction over them will be complete and exclusive, not merely concurrent with other States, and ultimately marriages, births, and a system for on board disputes resolution will result in the long arm authority of the registry state extending not only its disciplinary, but its judicial, legislative and enforcement jurisdiction to manned space stations as well.<sup>41</sup>

It seems the wisest course to sanitize these stations by making them free from all use by the armed forces *prior* to their becoming operational. These stations, undoubtedly will, if not made the subject of a special legal regime, demonstrate a clear potential for military use, such as a base for weapons, a spaceborne command and control center for the disposition of forces on earth, and a logistical resupply base for other military vehicles and personnel units.

In retrospect, worldwide nuclear disarmament has become more difficult than it would have been if such an agreement had been proposed prior to 1945. Conferring a demilitarized status on all manned space stations in earth orbit will be easier to achieve now than a decade from now when the uses of the sta-

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<sup>39</sup>Article 1, signed on December 1, 1959, 12 UST 794.

<sup>40</sup>*Id.*, Article 7(3).

<sup>41</sup>S. MARCH, CIVIL DISPUTE RESOLUTION IN OUTER SPACE, at 35 (1983). On file NASA/Ames Research Center, Hastings College of Law.

tion as a practical space system begins to unfold. Its permanent disarmament would represent an incremental move toward the total demilitarization of outer space. While other space objects, manned and unmanned, would not be covered by this special regime, the precedent would be a foothold for further progress. A new treaty would define the space station in legal terms, and distinguish it from all other categories of artifacts in space. It could draw the distinction between *enclaves* and *instrumentalities* in space. The treaty would avoid any attempt to define peaceful, as opposed to non peaceful, uses of outer space. Rather it would define what constituted a military as opposed to civilian activity, leaving discretion in the launching state to use military personnel for scientific research and other peaceful purposes.

Time may be running out for the disarmament of outer space. If the habitable space station assumes a predominant role in the further expansion of space activity and exploration, as many believe, it must be subjected to a legal regime which identifies its unique status and prevents its use for any military purpose.

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