

# SPACE INDUSTRIALIZATION AND THE LEGAL STATUS OF ASTRONAUTS: START OF A JURISDICTIONAL HEAD-SCRATCHER

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*Treaties, domestic enabling legislation, court decisions, negotiated settlements, and recorded traditions constitute a vast and intricate body of law applicable to officers and other crew members of ships on the high seas, and crew personnel of aircraft in transnational flight. Several hundred years were required to negotiate the jurisdictional status of these crew members with respect to both civil and criminal law. The United States Space Shuttle, which is owned, managed, and operated by the National Aeronautics and Space Administration, is manned both by civilian and military crew members carrying out missions and services for governments, public and private international organizations, private enterprise, as well as military and civilian entities, often during the same mission. The multiplicity of interests, coupled with the vast and intricate body of law applicable to space flight, and the expanding functions and capabilities of astronauts, makes the establishment of jurisdiction over spacecraft personnel a highly complicated task.*

## I. OWNERSHIP, MANAGEMENT, AND OPERATION OF THE SPACE TRANSPORTATION SYSTEM: IMPACT ON THE SPACE SHUTTLE CREW

A comparatively large volume of law review articles, judicial opinions, and scholarly dissertations purports to interpret the legal status of aircraft crew members operating in international and domestic airspace.<sup>1</sup> Despite the abundance of literature, court determinations, international treaties and national implementing legislation, the jurisdictional authority of, and management and operational control

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1. Although the learned treatises on the subject are too voluminous to cite here, it may be interesting for the reader to refer to one of the earliest known works: Wilhelm, *De la situation juridique des aeronauts en droit international*, 18 JOURNAL DU DROIT INTERNATIONAL PRIVE [J.D.I.P.] 440-52 (1891).

over, the aircraft commander and his/her crew do not provide an altogether clear characterization of their status in both civil and criminal law. In certain areas, the legal responsibilities, duties, and rights of the aircraft crew during international flight often remain confusing and conflicting.

The same type of confusion holds true for manned space flights. And the jurisdictional opaqueness will grow as near and deep space become new theaters for military activities, and as the high cost of doing business in space forces the private sector to combine efforts with the military interests in order to industrialize space.<sup>2</sup>

If the scope of consideration is narrowed to the legal status of crew members operating the United States Space Transportation System (the Space Shuttle component) it is important at the outset to be aware of some of the alternative organizational structures for operating the shuttle vehicle:

(a) National Aeronautics and Space Administration (NASA) ownership, management, and operation of the Space Transportation System (STS);

(b) NASA ownership of the STS with management functions contracted out to private firms;

(c) Joint venture between NASA and private firms for ownership and operation of the STS, or an aerospace transport system;<sup>3</sup>

(d) Private market organization of the STS, with the public sector (governments) excluded from ownership, management, and operation;

(e) Market organization of the STS or the aerospace transport system with both the public and private sectors included, but with United States participants only; and

(f) Market organization of the STS or aerospace transport system with both the public and private sectors included, as well as both domestic and international participants.<sup>4</sup>

Based upon the aforementioned suggested alternative structures

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2. In this context, see generally K. LI, WORLD WIDE SPACE LAW BIBLIOGRAPHY §§ 11.2, 11.3, 12.2 (1978).

3. The distinction between the Space Transportation System, in its present stage, and an Aerospace Transport System is basically that the former consists solely of space components, and the latter involves a multimodal movement of people and goods to and from space.

4. For an instructive discussion of alternative marketing structures for the space shuttle, and ultimately the entire Space Transportation System, see W. Good, G. Robinson, M. Shakun, and E. Sudit, *Structuring the International Marketplace for Maximum Socio-economic Benefits from Space Industrialization*, 30th Congress of the International Astronautical Federation (Deutsches Museum, Munich, Germany, Sept. 16-22, 1979). See also 44 Fed. Reg. 36024 (1979).

for the Space Transportation System, it is not difficult to identify some of the interests the space shuttle crew will represent or be responsible for at various stages of pre-flight, in-flight, and post-flight activities. The launching state or organization, the payload owner of space on the shuttle, the owner of shuttle space as opposed to the purchasing user (*i.e.*, factors, entrepreneurs, and the like), insurance companies, experiment investigators, military and non-military governmental interests, and consortium owners of a dedicated shuttle space or an entire flight, are a few such interests. In order to perceive the potential multi-jurisdictional roles of a space shuttle crew, a review of the manner in which United States astronaut pilots and mission specialists are presently selected, trained, and assigned tasks for a space flight is helpful.

## II. SELECTING ASTRONAUTS AND ASSIGNING RESPONSIBILITIES: WHO REALLY CONTROLS THE CREW?

The authorization for converting appointments of command pilots, pilots, and mission specialists for NASA's Space Shuttle Astronaut Program to career or career-conditional status in the Federal Civil Service came in the form of a Presidential Executive Order in 1977.<sup>5</sup> NASA had previously requested from the Civil Service Commission<sup>6</sup> 40 Command Pilot, Pilot, and Mission Specialist positions, which were granted with the constraint that employment was not to exceed 3 years.<sup>7</sup>

NASA subsequently announced the Astronaut (Pilot) Candidate Program and gave a brief description of the duties and responsibilities of Astronaut Pilots:

Shuttle pilot astronauts will serve as both Shuttle Commanders and pilots and in some cases mission specialists or payload specialists. During flight the Shuttle Commander will have onboard responsibility for the space vehicle, crew mission success and safety of flight. The Shuttle pilot will assist the commander in controlling and operating the Shuttle. In addition, Shuttle pilots may deploy and retrieve payloads . . . participate in extravehicular activities, and support spe-

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5. Exec. Order No. 11995, 3 C.F.R. 127 (1978).

6. The request was made in a letter from R.A. Metcalf, Acting Director of Personnel, NASA, to A.S. Ramsay, Director of the Bureau of Recruiting and Examining, Civil Service Commission (Apr. 26, 1976). The Commission was reorganized and is now called the Office of Personnel Management. See Civil Service Reform Act of 1978, 5 U.S.C. §§ 1101-4703 (Supp. II 1978).

7. Granting of the positions and terms, and the conditions thereof are set forth in a letter from A.S. Ramsay of the Civil Service Commission to R.A. Metcalf of NASA, (July 15, 1976). See note 6 *supra*.

cific payload operations. . . .<sup>8</sup>

The non-pilot Mission Specialists were described as having overall responsibility

for the coordination, with the commander and pilot, of Shuttle operations in the areas of crew activity planning, consumables usage, and other Shuttle activities affecting experiment operations . . . [and] may . . . assist in specific experiment operation at the discretion of the experiment sponsor.<sup>9</sup>

It is clear that the non-pilot Mission Specialists, in particular, will be involved in activities whereby he or she may simultaneously serve many masters and be subject to a variety of jurisdictions and legal régimes. For example, they may be responsible for handling two or more payloads involving different sponsors and owners of different nationalities, and whose interests may be diametrically opposed in the event that damage, death, or injury should occur.

An important jurisdictional aspect of astronaut selection arises under an agreement which became effective in 1976 between NASA and the Department of Defense.<sup>10</sup> It was NASA's stated policy that of the 30 shuttle crew members to be selected, "a substantial number . . . might be selected from the DOD."<sup>11</sup> The Memorandum of Understanding provides that lists of candidates for space shuttle crew members will be prepared by the Army, Navy, Air Force, and Marine Corps and that "NASA will select potential shuttle crew members from these

8. The undated announcement appeared as a publication issuing from the Lyndon B. Johnson Space Center in Houston, Texas, and was entitled "Opportunities as Candidates for Pilot Astronaut." The quotation appears on the second page of the publication. (Copy on file with *Houston Journal of International Law*.)

9. Quotation appears on the second page of an undated publication issuing from the Johnson Space Center in Houston and entitled "Opportunities as Candidates for Mission Specialist Astronaut." (Copy on file with *Houston Journal of International Law*.)

10. This agreement, still in effect, is entitled "Memorandum of Understanding Between the Department of Defense, the Army, the Navy, and the Air Force, and the National Aeronautics and Space Administration Concerning the Detailing of Military Personnel for Service as Shuttle Crew Members" (1976) [hereinafter cited as DOD-NASA memorandum]. (Copy on file with *Houston Journal of International Law*.) In addition, NASA has signed a Memorandum of Understanding with the European Space Research Organization (September 24, 1973) in which it is anticipated that the first space lab flight will consist of a crew with at least one citizen from a Western European country. (Copy on file with *Houston Journal of International Law*.)

11. This policy derives its authority from § 203(c)(12) of the National Aeronautics and Space Act of 1958, which provides:

In the performance of its functions the Administration [NASA] is authorized . . . (12) with the approval of the President, to enter into cooperative agreements under which members of the Army, Navy, Air Force, and Marine Corps may be detailed by the appropriate Secretary for services in the performance of functions under this Act to the same extent as that to which they might be lawfully assigned in the Department of Defense. . . .

National Aeronautics and Space Act of 1958, 42 U.S.C. § 2473(c)(12) (1976) (emphasis added).

lists.”<sup>12</sup> In fact, the vast majority of pilot-astronauts selected to serve as astronaut commanders during shuttle operations were military personnel.<sup>13</sup>

Although the NASA-DOD agreement provides that a military member of the shuttle crew assigned to NASA shall not be subject to direction or control by his service or any officer thereof either directly or indirectly, the separation of jurisdictional control over military astronauts is limited to those situations in which he or she is exercising NASA responsibilities “in the position to which detailed.” Furthermore, it must not be overlooked that active military personnel are always subject to instant duty recall when operating a civilian space vehicle which also can serve as a tactical military weapon.<sup>14</sup>

The agreement characterizes military personnel serving as shuttle astronauts in such terms as to leave very little doubt that they serve military objectives, as well as the civilian objectives of NASA, in roles of equal importance. For example, the agreement contains the following provisions:

1. The detail of Military members to NASA shall in no way affect the status, office, rank or grade which they may occupy or hold. . . .<sup>15</sup>
2. Military personnel detailed in accordance with this agreement will be subject to all *appropriate* regulations and directives of NASA. While detailed to NASA . . . military members will be subject to NASA regulations concerning standards of conduct of NASA employees *as well as those*

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12. DOD-NASA Memorandum, *supra* note 10, para. II(a) at 1.

13. See *NASA News*, Press Release Nos. 77-205; 77-171; 77-161; 77-176; 77-192; and 77-215 for a cumulative listing of astronaut candidates which provides data on active duty military affiliation of candidates selected by NASA. Civilians, even those with experience as pilots of high performance jet aircraft, are inordinately low in number. No special effort was made in the recruiting process to encourage interest in and involvement by airline flight crew personnel, a good source of highly qualified astronaut pilot and Mission/Payload Specialist applicants representing the private sector of the national economy. It would have been, and could be, an excellent procedure for cultivating investment interest in the industrialization of space by a major American industry.

14. For a discussion of the variable nature of the Space Shuttle, see Robinson, *In the Matter of Space Law*, OMNI, June 1979, at 76-78, 114, wherein the author remarks at page 78 that “[t]he shuttle is a peaceful research vehicle to hear us tell it. Yet the Soviet Union sees it as a manned satellite killer, a versatile space weapon, potentially the most deadly military tool ever devised.” In fact, development of an independent manned spacecraft capability for the military seems to be confirmed in the recently proposed “NASA Astronaut Candidate Recruitment and Selection Program.” That proposal emphasizes special considerations given to Department of Defense interests in the Space Shuttle by establishing separate rosters for civilian and military applicants from which astronauts will be selected. 44 Fed. Reg. 36024-25 (1979). It is not unreasonable to assume that the Department of Defense is developing not only a separate military astronaut corps and operational capability, but is attempting to soften the public impact of that form of space militarization by tying it to NASA’s “peaceful civilian efforts” image as well as its budget.

15. DOD-NASA Memorandum, *supra* note 10, para. IV(a) at 3.

*of the Department of Defense* [and presumably those standards which relate to duties and responsibilities under the military line of command].<sup>16</sup>

3. Military personnel detailed to NASA will remain subject to the Uniform Code of Military Justice and to the policies and directives of the Military Department concerned with regard to military disciplines . . . and other policies and directives which do not affect responsibilities exercised in NASA. . . .<sup>17</sup>

The provision that "NASA will prepare each military member's fitness, efficiency or effectiveness report in accordance with the regulations of the member's service"<sup>18</sup> further commits NASA to the military component and ultimate control of the space shuttle operation. Although there is a provision of the agreement stating that "the position, duties, or duty station of a person detailed to NASA may be changed only upon mutual agreement of the service concerned and NASA,"<sup>19</sup> it is at best a housekeeping measure of relative insignificance with respect to the issue of the military or civilian legal status of military personnel of shuttle crews, as well as their activities performed during flight.

Without passing judgment on the wisdom of this legal symbiosis between NASA and the Department of Defense, involving the space shuttle component of the civilian space transportation system, it is certainly appropriate to question the domestic legal status of shuttle crew members both with respect to their activities on behalf of shuttle space consumers and with respect to the asserted civilian or military status of a given shuttle flight. Compounding this problem is the highly interpretative international law applicable both to international or multinational manned spaceflight crews and those flights which are "international" in the traditional geographic, and perhaps "astrographic," sense.<sup>20</sup>

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16. *Id.* para. IV(d) (emphasis added).

17. *Id.* para. IV(e).

18. *Id.* para. IV(f) at 3.

19. *Id.* para. IV(h) at 4.

20. Regarding the Treaty on Principles Governing 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, T.I.A.S. No. 6347, 610 U.N.T.S. 205 (entered into force with respect to the United States, Oct. 10, 1967) [hereinafter cited as Outer Space Treaty], it is interesting to note that beginning with the Treaty the international community has emphasized the critical requirement that near and outer space, or any specific portions of it, not be nationalized or subjected to claims of sovereignty by one or more nations. Space, from the outset, was to be considered a *res communis* entity. However, the so-called "Declaration of Bogota" was signed in Bogota on December 3, 1976 by Brazil, Colombia, Congo, Ecuador, Indonesia, Kenya, Uganda, and Zaire, and asserted that geostationary orbits (highly desirable astrographic locations for the placement of certain satellites, including manned manufacturing facilities and very large space communities) are scarce natural resources and "are part of the territory over which equatorial states exercise their national

### III. INTERNATIONAL LAW AND THE SPACE SHUTTLE CREW

Vladlen S. Vereshchetin, a space law scholar and Vice Chairman of the Soviet Union's INTERKOSMOS, has voiced his concern over the "growing number of joint [manned] flights, and flights of longer duration . . . . [E]laboration will be needed of a legal régime governing activities directly in outer space. . . ." <sup>21</sup> His interpretation of the current legal régime applicable to national and international space crews rests heavily upon his analysis of Article 8 of the Outer Space Treaty of 1967:

A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. . . . <sup>22</sup>

From his interpretation of this provision and the existing and foreseeable realities of human occupation of space, Vereshchetin reaches several conclusions upon which some commentary is offered:

(a) The application of this principle of international space law includes personnel "only when they are in outer space . . . and not while transiting airspace of Earth." <sup>23</sup>

(b) Jurisdiction, as used in Article 8, is one manifestation of sovereignty which, according to the Soviet Union, means "the right and authority to exercise not only judicial power . . . but also legislative and executive power with regard to personnel and objects in outer space. . . ." <sup>24</sup>

(c) The main tangible components of a state's sovereignty are territory and population; therefore, these components are also bases for exercising jurisdiction over space personnel by a sovereign state. By analogy with international maritime law, a spacecraft and its personnel would be a chunk of sovereign territory subject to the jurisdiction of the State of registry. But when is a spacecraft a spacecraft? And when does a spacecraft become permanent extraterrestrial territory—either as a colony or as a new sovereign? At this point, the analogy with international law and customs associ-

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sovereignty." The full text of the Declaration of the First Meeting of Equatorial Countries, Dec. 3, 1976, reprinted in N. JASENTULIYANA AND R. LEE, II MANUAL ON SPACE LAW 383-87 (1979).

21. Vereshchetin, *Legal Status of International Space Crews*, 3 ANNALS OF AIR AND SPACE LAW 545 (1978). For a more tangential, but still excellent, legal review of space crew jurisdictional issues, see GOROVE, *Legal Aspects of International Space Flight*, 3 ANNALS OF AIR AND SPACE LAW 409-19 (1978).

22. Outer Space Treaty, *supra* note 20, art. VIII. The remaining portion of Article VIII deals solely with jurisdiction and control over objects and not personnel.

23. Vereshchetin, *supra* note 21, at 546.

24. *Id.* at 547.

ated with the "floating territory" of ships and the "flying territory" of aircraft begins to break down.

(d) Despite the fact that traditionally "an act of registry appears to be merely evidence" of national belonging with "no independent juridical meaning,"<sup>25</sup> the Outer Space Treaty appears to bind jurisdiction over personnel in space to the state of registry to the exclusion of other jurisdictional assertions, such as nationality of space crew members. In fact, jurisdiction is applied to the crew or society, and not to the members who may be of different nationalities on Earth.

(e) Article 8 also asserts that the State of registry shall "retain jurisdiction." It does not speak of exercising jurisdiction. In this context, Vereshchetin emphasizes that spacecraft and personnel "do not automatically lose legal connections with Earth and do not pass under the realm of any supranational power."<sup>26</sup> This phraseology, he maintains, is probably designed to ensure that an object and its crew are not in a legal vacuum while in outer space. In fact, Vereshchetin's interpretation of the phrase "retain jurisdiction" has greater political overtones than one might suspect at first glance, since spacecraft and personnel would not be functioning in a legal vacuum if the crew involved exercised its own jurisdiction.

(f) Under Article 8, crew members of different nationalities are subject to the jurisdiction and control of the state of spacecraft registry, but may well be subject to laws of their own or other countries while on Earth or in transit to and from space. This interpretation recognizes a jurisdictional distinction between space crews and Earth-sitters, some sort of difference while existing in space, albeit the distinction is for purposes of satisfying juridical needs of individuals and the organizations they represent while on Earth. Query: Why not determine at least some of the jurisdictional characteristics based on the specific psychophysiological needs of individuals existing in the quasi-closed ecosystem of a space shuttle or larger habitat?

(g) Vereshchetin believes that although all astronauts enjoy the same status under international law, regardless of "whether they are servicemen or civilians, whether they operate a space vehicle or perform some research," the era of regular space journeys might require a legal distinction between

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25. Vereshchetin refers to John Cobb Cooper as the well-known expert on air and space law who asserted that "a registration does not confer nationality but is merely evidence thereof," in J. COOPER, *EXPLORATIONS IN AEROSPACE LAW* (1968). However, Cooper's view was stated more in the context of evidence of liability to third parties and the problems of duplicitous registration of aircraft than in the framework of jurisdictional control of the craft and its on-board personnel.

26. Vereshchetin, *supra* note 21, at 550.

spacecraft crew members and passengers.<sup>27</sup> Although this interpretation recognizes the potential juridical differences of individuals living in space, it is nevertheless based on perceived political needs or conflicts of law affecting people, organizations, and nations on Earth, which are involved in a particular manned space venture, and not upon the special legal jurisdictional needs of individuals in space.

(h) Article 8 will require elaboration and specification with respect to jurisdiction in order to cover those circumstances in which crew members of one state of registry visit or inhabit a permanent station registered under the name of a different State. Further, "the problem will be more acute in the event of future construction of permanent international space colonies, where questions of exercising legislative, judicial, and executive power will require special regulation."<sup>28</sup> On the surface, it appears that Vereshchetin recognizes that space communities may exist under such alien and unique circumstances that relevant Earth law, such as Article 8 of the Outer Space Treaty, may have to be amended in order to accommodate a transition of space habitats, including the space shuttle, from colonial status to an autonomous status (in certain respects) while in space. Vereshchetin implies this socio-political evolution in terms of traditional conflicts between people and nations on Earth and maverick representatives or agents in space.

(i) Finally, Vereshchetin discusses Article 5 of the Outer Space Treaty which characterizes astronauts as "envoys of mankind in outer space." In his opinion, the Soviet Union accepts "a certain juridical significance of this provision in the Treaty but, in our opinion, it is not a reason for recognizing mankind or astronauts as subjects of international law . . . . [A]stronauts are, first and foremost, representatives of their countries. . . ." <sup>29</sup> What then becomes of "international space law," particularly as it may apply to astronauts in their individual capacities and as agents for a number of different masters, serving in a variety of roles simultaneously?<sup>30</sup>

#### IV. CONCLUSIONS

It is difficult to draw meaningful and constructive conclusions re-

27. *Id.* at 551.

28. *Id.* at 552. Cf. G. ROBINSON, *LIVING IN OUTER SPACE* (1975); J. GLENN, and G. ROBINSON, *SPACE TREK: THE ENDLESS MIGRATION* (1978); and S. GOROVE, *STUDIES IN SPACE LAW: ITS CHALLENGES AND PROSPECTS* 141-51, 213-20 (1977).

29. *Id.* at 553.

30. In this context, we tend to think more of the humanitarian spirit behind such "space law" documents as the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, *done* Apr. 22, 1968, 19 U.S.T. 7570, T.I.A.S. No. 6599 (entered into force with respect to the United States, Dec. 3, 1968).

garding the legal status of spacecraft personnel functioning in both a private enterprise and a governmental mode for the purpose of industrializing space. The picture is even more confusing with the ambience of a lurking and integrated military interest in the selection of active duty military astronauts for NASA's civilian space shuttle program.

It is almost impossible to negotiate meaningful international law regarding the status of spacecraft and astronauts in flight, both in air-space and outer space, if lawyers and statesmen, particularly in the United States and Western Europe, proceed on the basis of one set of assumed facts, while NASA and DOD function on the basis of a totally different set of facts. Moreover, as long as the United States Government, through NASA, continues to own, operate, manage, and regulate a manned space transportation system which mixes free enterprise objectives with official governmental activities, the legal status of manned space vehicles and their crews will remain uncertain. In fact, the lawyer serving the astronaut and the space industrialist may well end up wearing a gray flannel suit with the lapel insignia of the Judge Advocate General and possessing substantial expertise in the Uniform Code of Military Justice.