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APPENDIX A

NSR-14-041-001
American Bar Foundation

US MILITARY SPACE PROGRAMS

The names used are informal; the Department of Defense now uses code numbers.

Despite its length, this listing is indicative, rather than complete.

N68-37798

ADVANCED RESEARCH PROJECTS AGENCY (ARPA)

BAMBI - An approach to the development of a ballistic-missile interception system using satellite-based spacecraft to intercept and destroy enemy missiles during the boost phase of flight.

ARENTS-ARPA - Environmental Test Satellite to investigate space conditions in 22,000-mile-high orbits, where it might be advantageous to place communications and other satellites.

VELA - A research and development project aimed at devising a satellite system for detecting nuclear explosions in space.

PRESS - Pacific Range Electromagnetic Signature Study for an advanced radar system to detect approaching ICBM warheads.

RBS - Random Barrage System. A study of the feasibility of placing armed satellites into random orbits as a defensive measure against the ICBM.

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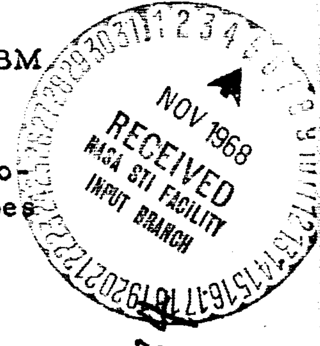
ARMY

SECOR - Sequential Collation of Range. Project to produce a satellite device for geodetic measurements of high accuracy.

NIKE-ZEUS - An antimissile missile designed to destroy ICBM warheads in the terminal phase of flight.

LAMP - Lunar Analysis and Mapping Program. A lunar topographical map produced by using photographs obtained by lunar probes in the scientific space program.




NAVY

TRANSIT - A navigational system designed to enable Polaris submarines and other craft to fix their positions with great accuracy, regardless of weather.

YO-YO - Study for a photoreconnaissance satellite to be launched at sea, to make one orbit, and to be recovered.

Cat 34
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Department of Defense (joint projects)

Communications systems: the Air Force is responsible for the development, production, and launch of these systems, the Army is to develop the required ground communications systems, and the Navy to provide shipborne communications stations.

ANNA (joint with NASA) - A geodetic satellite for intercontinental surveying.

SPADATS, SPASUR, and BMEWS - Surveillance of space is undertaken through the Air Force-operated Space Detection and Tracking System (SPADATS) and the Navy-operated Space Surveillance Facility (SPASUR). The United States maintains a log to help determine the paths of known satellites. These systems are tied to the Ballistic Missile Early Warning System (BMEWS), which uses radar to detect and determine the orbits of space objects over the United States at altitudes of up to 1,000 miles. The surveillance network is being extended to the moon by an intensive examination of space between the earth and the moon for any other natural satellites astronomers may have missed, thus inventorying everything in orbit in earth-moon space so the surveillance system can tell when something is added.

Despite its length, this listing is indicative rather than complete.

## AIR FORCE

AEROSPACE PLANE (ASP) - Research program to develop a manned spacecraft able to take off and land like an aircraft.

DISCOVERER - Designed to probe space conditions, develop means of recovering satellite payloads, and provide a test-bed for satellite research programs such as Midas and Samos.

X-20 (DYNA-SOAR) - Research and development effort to produce a manned orbital "boost-glide" spacecraft with wings. A primary aim is to develop controlled reentry as opposed to the Project Mercury ballistic-type return and to investigate the feasibility of a spacecraft for orbital reconnaissance and defense and offense. Now cancelled.

ORION - Engineering study for a space booster launched by a series of atomic explosions.

SAINT - Satellite Inspector. Research and development program for a spacecraft to inspect unidentified satellites. The name was slightly altered in view of protests by religious groups.

MIDAS - Missile Defense Alarm System of early-warning satellites equipped with infrared sensors to detect ICBM launches.

SAMOS - Surveillance and Missile Observation Satellite. Polar-orbiting satellite equipped with high-resolution cameras.

ALOMAR - Space Logistics, Maintenance, and Rescue craft. Such a vehicle would be needed to support military space operations.

GLOBAL SURVEILLANCE SYSTEM - A study for a manned reconnaissance-strike spacecraft.

ORBITAL WEAPONS SYSTEM - Studies of orbital bombing systems. Note that the U.S. is now pledged not to place weapons of mass destruction in orbit.

# Appendix B*

## JURISDICTION OF THE UNITED STATES OVER "CRIMES" AND CERTAIN OTHER ACTS IN OUTER SPACE

We have noted in Chapter 3 that the Uniform Code of Military Justice (10 U.S.C., Chap. 47 [§§801-940], 70 A. Stat. 37 et seq.) is believed to be clearly applicable to all "members of a regular component of the armed forces" (Art. 2, 10 U.S.C. §802) "in all places" (Art. 5, 10 U.S.C. §805). This would appear to cover all usual "crimes" in outer space, in a spacecraft, or on a celestial body if perpetrated by a member of the United States armed forces. Whatever the status of U S military personnel, a series of Supreme Court decisions has made it clear that civilians, wherever they may be, cannot, at least in peacetime, constitutionally be subjected to United States military court-marital so as to deprive them of the right to trial by jury and other procedural rights guaranteed by the Constitution.[1] Their effect has been largely to nullify the applicability of the Uniform Code to civilians at least for important crimes. Since these cases involved civilians actually employed by or accompanying as dependents United States military forces at United States bases abroad, the situation of United States civilians who are neither employed by, accompanying, nor having any dependent relation with the military, would be even stronger. Whereas the first group of NASA astronauts was selected from military personnel, this is no longer entirely the case.

Another, more general, approach, at least to criminal activities, over which Congress has desired to assert control is used for acts falling within what is called the "special maritime and territorial jurisdiction of the

*This appendix owes much to the study by Richard Bilder, "Control of Criminal Conduct in Antarctica," 52 Va. L. Rev. 231 ff. (1966). See also Haughley, "Criminal Responsibility in Outer Space," 146 ff. (Schwartz ed. 1964).

United States."[2] The areas involved include American ships in interstate state or foreign waters, or on the high seas; federal lands within the several states; guano islands appertaining to the United States; and, most recently, American aircraft over interstate or foreign waters, or over the high seas. And, of course, Congress regularly legislates for territories and possessions of the United States, over which the United States claims sovereignty, and for such interesting hybrids as the Trust Territories of the Pacific over which the United States exercises complete control, but with no claim of sovereignty at all.[3]

After defining the "special maritime and territorial jurisdiction of the United States," other sections of Title 18 provide that certain types of conduct, when committed within this "special jurisdiction," constitute Federal crimes. The proscribed conduct includes arson, assault, maiming, embezzlement, theft, receiving stolen property, false pretenses, murder, manslaughter, attempts to commit murder or manslaughter, malicious mischief, rape, and robbery.[4] Other Federal statutes vest the United States District Courts with jurisdiction over offenses against the United States,[5] and provide that the trial of all offenses begun or committed upon the high seas, or elsewhere, out of the jurisdiction of any particular state of district shall be in the district where the offender is arrested or first brought.[6]

This is not to say that outer space itself or the celestial bodies are within this special jurisdiction nor that spacecraft are within the terms "vessel" or "aircraft" used in the statute. Moreover, the courts have construed Title 18, Section 7, strictly. As enacted in 1948, the section

did not mention aircraft. In 1950, a case arose involving an assault by a passenger on other passengers and members of the crew of a United States flag aircraft which was in flight over the Atlantic Ocean between San Juan, Puerto Rico, and New York. In United States v. Cordova, the New York Federal District Court dismissed the case for want of jurisdiction. Although finding that the accused had in fact committed the assault, the court held that the offense was neither committed on board an American "vessel" nor on the "high seas" within the meaning of the statute predecessor to 18 U.S.C. §7, and that there was consequently no federal court jurisdiction to punish the act.[8] This decision led directly to a 1952 amendment of 18 U.S.C. §7 adding a new paragraph (5) specifically including within the special jurisdiction aircraft in flight over the high seas.[9] Congress could, and may, in time, extend this special jurisdiction. To cover flights in outer space, Congress might well vest plenary authority in the Executive over activities on the moon and the celestial bodies similar to authority vested in the President over the trust territories and Palmyra, Midway, and Wake Island. This would permit, in the name of the President, formulation of regulations governing both civil and criminal acts; while regulations would probably be effective upon publication in the Federal Register. No claim to sovereignty would be involved.

There are, in addition, numerous Federal criminal statutes apparently designed already to deal with certain activities wherever conducted. These include statutes punishing such conduct as treason, espionage, fraud against the government, draft and income tax evasion, counterfeiting, and perjury, even when committed extraterritorially.[10] These presumably are not near-run problems with respect to outer space activities.

Certain obvious problems arise. If one behaves obnoxiously in outer space, but no specific criminal law is applicable, can he be "arrested" or detained? Is this false arrest or assault? Is there a deprivation of liberty without due process of law?[11] There is available, of course, the analogy of the ship's captain's obligation to restrain one who endangers the ship or life on board, yet this does not resolve all the questions.

This leads to the further questions, too, of what law governs more ordinary "transactions," tortious and contractual, in areas not under the jurisdiction of the United States. In traditional practice, for example, courts in the United States normally apply the law of the place where a tort occurs but, where that place has no law, they apply the law of the forum.[12] Speculation on these points seems of little point here for two reasons: their relative remoteness from short-run reality and their excellent treatment in depth in the general coverage of tort and contract problems in McDougal, Lasswell, and Vlasic, Law and Public Order in Space.

It can also be noted that, to the extent that U.S. law covers the actions of U.S. citizens and nationals in remote areas, it covers nonprivileged foreign nationals as well. For example, foreign nationals who are members of the U.S. armed forces or who commit acts within the special maritime and territorial jurisdiction appear to be covered by U.S. law.[13] They would, equally, benefit from limitations imposed by the Constitution, e.g., as civilians accompanying the armed forces. Of course, political considerations might make the United States reluctant to act against a foreign national even if the right to act was asserted. Furthermore, just as the Antarctic Treaty of 1959 provides, in Article 8, that:

> In order to facilitate the exercise of their functions under the present treaty, and without prejudice to the respective positions of the contracting parties relating to jurisdiction over all other persons in Antarctica, observers. . . and scientific personnel exchanged under. . .the treaty, and members of the staffs accompanying any such persons, shall be subject only to the jurisdiction of the contracting party of which they are nationals in respect of all acts or omissions occurring while they are in Antarctica for the purpose of exercising their functions.

The nations now engaged in outer space activities have indicated that the country of nationality would normally have sole jurisdiction over its astronauts.

It seems clear that, if the matter arose, the United States would be unwilling to admit that any U S citizen or national was normally subject to the jurisdiction of another state for acts taking place in outer space. The nationality principle would be inapplicable on its face; the United States would deny any other state's claim based on "territory" for reasons developed in the text. As was said at the hearings on the Antarctic Treaty: "By virtue of recognizing that there is no sovereignty over Antarctica we retain jurisdiction over our own citizens and would deny the right of other claimants to try that citizen."[14] A substitution of the term "outer space" for Antarctica would be appropriate in this context.

Absent a treaty or rule of customary law, jurisdiction might rest in a foreign state if an American's act occurred in a foreign craft or possibly at a foreign base, or was directly detrimental to a foreign state's important interests (the "protective" principle), or constituted a crime against all mankind (piracy, or the like). These problems are also noted in the text and do not relate uniquely to the United States. And to some of these questions, the space treaty, signed in January, 1967, begins to provide some answers for parties in providing, as did Resolution 1962 (XVIII),[15] that:

Article 8

> 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.

Morover, Article 5 provides in part that astronauts who have made a forced landing shall "be safely and promptly returned to the State of registry of their space vehicle." Under the treaty, it is thus the "flag" state (the state of registry) which is of prime importance for jurisdiction, not the state of the astronaut's nationality, although for the foreseeable future these are apt to be identical. Spacecraft manned by crews of mixed nationalities are nevertheless within the realm of possibility.[16] There is further discussion of some of these issues of jurisdiction in Appendix D.

B-1 Footnotes

[1]See Reid v. Covert, 354 U.S. 1 (1957) (capital offense by civilian dependent); Kinsella v. Singleton, 361 U.S. 234 (1960) (other capital offense by dependent); Grisham v. Hagan, 361 U.S. 278 (1960) (capital offense by civilian employee); McElroy v. Guagliardo, 361 U.S. 281 (1960) (other than capital offense by employee); Toth v. Quarles 350 U.S. 11 (1955) (offense while in service by since-discharged ex-serviceman). While these cases have involved only Articles 2(11) and 3(a), the reasoning would probably apply to Art. 2(12) as well. The decisions do not reach "petty offenses," although it is understood that the armed services have refrained from trying civilians for such offenses. See articles in 13 Stan. L. Rev. (May 1961); 46 Va. L. Rev. 576 (Apr. 1960); 28 Geo. Wash. L. Rev. 913 (June 1960); 49 Geo. L.J. 139 (Fall 1960); 1960 Duke L.J. (Summer (1960); 71 Harv. L. Rev. 712 (0000); Falk, 32 Temp. L.Q. 295 (Spring 1959).

[2] See 18 U.S.C. § 7, June 25, 1948, 62 Stat. 685.

[3] Article IV, cl.2, of the Constitution empowers Congress "to make all needful rules and regulations respecting the territory or other property belonging to the United States." This power applies where the U.S. has exclusive jurisdiction. Vermilya-Brown v. Coward, supra at 381. For legislation as to Trust Territories of the Pacific, see 48 U.S.C. 1681 and Executive Orders 9875, 10265, 10408 and 10470. For Guam, see 38 U.S.C. 1421, Pugh v. U.S. 212 F. 2d 761 (1954). Hatchett v. Government of Guam, 212 F. 2d 767 (1954), American Pacific Dairy Products v. Siciliano 235 F2d 74 (1956). For the guano islands, see 48 U.S.C. 1411-19; 1 Moore, International Law §§ 112-15 (1906); I Hackworth § 177 (1940), Jones v. U.S., 137 U.S. 202 (1890), Smith v. U.S. 137 U.S. 224, Biddle v. U.S., 156 F 759 (1907). For Canton and Enderbury Islands, see I Hackworth, 509-10 (1940). O.L. 72 May 24, 1949 (63 Stat. 89) extends the jurisdiction of the District Court of Hawaii to Canton and Enderbury with a proviso that such extension shall not be construed as prejudicial to U K claims to the islands. They are a present US-UK condominium. P.L. 553 of June 15, 1950 (64 Stat. 2[7]) extends to Canton and Enderbury the laws of the US relating to acts or offenses consummated or committed on the high seas on board a vessel belonging to the US.

[4] The Code references are respectively 18 U.S.C. §§ 81, 113, 114, 661, 662, 1025, 1111(b), 1113, 1363, 2031, and 2111.

[5] 18 U.S.C. § 3231.

[6] 18 U.S.C. § 3238.

[7]89 F. Supp. 298 (E.D.N.Y. 1950).

[8]For other cases of narrow construction, see U.S. v. Wittberger, 5 Wheat. 76 (1820) and U.S. v. Tully, 140 Fed. 899 (C.C.D. Montana) (1905).

[9]Act of July 12, 1952, 66 Stat. 589. For Reports, see Sen. Rep. No. 1155 and H. Rep No. 2257 (82d Cong., 2d Sess. 1952). U.S. Code Cong. & Admin. News, 82d Cong., 2d Sess. 1052 p. 2101. See also 80th Cong., H. Rep. No. 304.

On the general problem of crimes on board aircraft, see also Hilbert. "Jurisdiction in High Seas Criminal Cases," 18 J. Air L. & Comm. 427 (Autumn 1951); 19 J. Air L. & Comm. 25 (Winter 1952); articles in 36 Cornell L.Q. 374 (Winter 1951); 99 U. Pa. L. Rev. 1083 (Oct. 1961); 41 Cornell L. Q. 243 (1956); 26 J. Air L. & Comm. 285 (1959); 5 Int'l & Comp. L.Q. 501 (1956); Braun, "Jurisdiction of US Courts Over Crimes in Aircraft," 16 Stan. L. Rev. 45 (Dec. 1962). And see for UK experience: Regina v. Martin (1956) 2 All. E. R. 86.

[10]See, for instance, 18 U.S.C. 2381(treason "within the United States or elsewhere"); 18 U.S.C. 953 (private correspondence with foreign governments by any citizen "wherever he may be") and § 911 and 2001 of the Internal Revenue Code. Under the rule of U.S. v. Bowman, 260 U.S. 94 (1922) a number of provisions of the Criminal Code would probably by applicable to conduct abroad which affects important U.S. government interests, e.g.,bribery and graft of government officers and officials (18 U.S.C. 201-223), offenses involving coins and currency (18 U.S.C. 331-32 and 336) and conspiracy to defraud the U.S. (18 U.S.C. 371-72).

[11]In Reid v. Covert, supra n. 1, at 4, the Supreme Court said that "at the beginning we reject the idea that when the United States acts against citizens abroad it can do so free of the Bill of Rights."

[12]See Goodrich, Conflict of Laws § 92 (1964); Cuba R.R. v. Crosby, 222 U.S. 473, 478 (1912).

[13]See e.g., Restatement of the For. Rel. Law of the U.S., § 31(b). Note the case of Regina v. Anderson [1868] Cox, Crim. Cases 198 (UK). See also 13 Stan. L.R. 155 (Dec. 1960); 45 Cal. L. Rev. 199 (May 1957).

[14] Statement by Phleger, head of the U S Delegation, Hearings on the Antarctica Treaty p. 62 (1959). The President has a statutory duty to take action to protect Americans imprisoned or detained abroad. (22 U.S.C. 1732)

[15] Resolution 1962 (XVIII) provides that:

"7. The State on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, *and any personnel thereon*, while in outer space. . . ." (italics added)

"9. States shall regard astronauts as envoys of mankind in outer space, and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of a foreign State or on the high seas. Astronauts who make such a landing shall be safely and promptly returned *to the State of registry of their space vehicle*." (italics added)

[16] Compare the recent Crimes Abroad Aircraft Convention.

Appendix C

## Domestic Use of Communications Satellites

Domestic aspects of communications utilizing satellites (see Chapter 5) are and will long continue to be matters of substantial controversy and concern. The Communications Satellite Corporation (ComSat) has been established as a privately owned juridical entity, but it is so closely controlled and regulated as to be a quasi-private or quasi-public corporation.[1]

ComSat has three closely related areas of activity:[2] first, as a domestic communications carrier; second, as the United States participant in Intelsat, the International Telecommunications Satellite Consortium for global communications by satellite; and third, as the manager of Intelsat. The distinctions between these functions have not always been kept in mind by the Federal Communications Commission (FCC) and other agencies of the government with the result that the FCC may have at times exercised regulatory or adjudicatory authority over what would appear to have been Intelsat business.[3] This problem is discussed briefly in Chapter 5.

ComSat was incorporated and capitalized at $200 million on the assumption that the cost of establishing a global communications satellite system could be considerably greater than has thus far proven to be the case.[4] It was also not known to what extent other nations would participate in the costs of developing the Intelsat system and if they would provide their own earth stations. About sixty nations have joined Intelsat,and as a result, the United States ComSat now has only slightly more than a half-interest in Intelsat and may have difficulty retaining even this amount of ownership after the new negotiations which are supposed to be completed by the end of 1970 in accordance with the terms of the Interim Arrangement (see p. 000-00

The United States will most certainly continue to be the heaviest single user of Intelsat facilities even without including domestic use. Other participating nations have provided or indicate an intent to provide their own earth station facilities, either individually or in groups.[5] These happy developments in international cooperation have reduced the investment required of ComSat.

Also, at the time it was incorporated and capitalized, it was thought that ComSat might furnish the United States Department of Defense all its communications satellite requirements, but a separate military system has been established and some supplemental circuits have been procured through conventional communications carriers. The military system is orbiting satellites at slightly less than 21,000 miles high, which makes the satellites appear to drift slowly eastward. In mid-1967 there were about twenty satellites in this system and more may possibly be added.[6] The military system, has comparatively small capacity per satellite and at times necessarily has to use shipboard, portable, or other small earth stations. Other government agencies will use the military system under some circumstances.[7] The Department of Defense considered the program necessary because of "problems associated with international control of the commercial system," the "added survivability" of a Defense Communications Satellite System with "multiple uncontrolled satellites," and the requirement for "critical circuitry to remote areas which would not logically be served by other high quality means." Total cost of the initial Defense Satellite Communications System through the Research and Development portion was given at about $140 million in the 1966 Congressional Hearings (see p. ooo). Of this about $55 million relates to the space-borne segment. The same source indicates that total government expenditures for communications research and development is about $500 million to the end of fiscal year 1966.[8]

Establishment of the Military Satellite Communications System has presented comparatively minor domestic legal problems[9], although numerous policy questions relating to government contracts for satellite channels remain the subject of controversies which may finally be resolved in the United States Supreme Court or by further Congressional action.[10] Internationally, the military system's existence can be pointed to as justification for other national systems not part of Intelsat, and domestically it means that a substantial amount of long-distance communications traffic is taken out of the private business sector.

The availability of unused capital funds, for the reasons noted above, undoubtedly has a bearing on the position taken by ComSat in connection with earth-station ownership, other national satellite communication systems, and generally any question relating to domestic investments in long-distance communications. These unresolved questions have great economic and political significance, especially since invested capital is an important criterion in determining the amount of return a regulated industry may have.[11]

ComSat, in common with all communications carriers and because of the terms of the ComSat Act, is subject to extremely detailed control and regulation by various United States government agencies (particularly the FCC[12]), and is in vigorous competition with conventional communications common carriers, which own approximately half interest in it[13] and with representation on the board have access to all of its business plans.

Several domestic questions await policy decisions which cumulatively may have a substantial impact on not only the communications industry but also on the entire economy and social structure of the United States. Neither

the FCC nor any other federal agency has displayed the capability of providing and enforcing authoritative answers.[14]

Another basic policy question is whether or not Congress intended, aside from possible government systems, that ComSat should have a complete domestic as well as international monopoly on ownership and operation of communications satellites. The American Broadcasting Company filed an application with the FCC[15] requesting its own satellite system. ABC's proposal suggested the system should be open to all networks on a shared cost basis. No solution has been found, although numerous interested parties have filed briefs with the FCC[16] in response to its Notice of Inquiry and Supplemental Notice of Inquiry. The inquiry and controversy goes far beyond ABC's request and covers the entire area of domestic communications satellites, educational television, direct broadcast to homes, etc. The uncertainties in the law and the difficulties in establishing approved public policies on the political, economic, and educational aspects of ownership, operation, and control are contributing to delay in the utilization of communications satellites for domestic purposes in the United States. It is unquestionably technically feasible, but to what extent technical factors makes it desirable to delay or move slowly is difficult to determine. Possibly, with the use of higher and higher frequencies, with congestion of the electromagnetic frequencies, and with the construction of ever greater numbers of high-rise buildings to interfere, there will be increased use of community-type antennae to avoid problems of reflected signals and interference. What impact lasers and masers will have on communications is presently unknown. Cables may be used increasingly; this would alleviate to some extent the problems of reflection and congestion,

although the volume of commercial traffic continues to increase at a rapid rate. The FCC is asking everyone for suggestions but does not appear to be providing much leadership in the matter.[17] The political and economic indecision of the United States Government may well be preventing Americans from enjoying domestically all the advantages of satellite communications, but it is only fair to note that the technological uncertainties and the problems of ascertaining a satisfactory format for a domestic system do justify a considerable amount of caution. It has not been possible to ascertain if any international commitments have had a bearing on these delays. Through 1966 and 1967 additional proposals with extensive briefs were filed with the FCC by the Ford Foundation, the Carnegie Foundation, and many others affirming and denying the FCC's right to authorize any entity other than ComSat to operate a communications satellite system for domestic needs, and also arguing that a noncommercial educational and cultural television system should be provided. A name suggested for an educational TV system was Broadcasters' Nonprofit Satellite Service. The Ford Foundation justified financing by the telecommunications industry as a "peoples dividend" from the vast amounts the government has spent on space research and development[18] and proposed that control be vested in a public but nongovernmental board. The proposal suggested from four to six synchronous satellites with capital costs from $80 million to $92 million and annual operating costs from $19.3 million to $22.2 million. Subsequent proposals would increase the size and cost of the system.[19]

ComSat announced a willingness to construct and operate a domestic system with special charges on all commercial users to finance noncommercial broadcasting and filed extensive documents with the FCC describing in some detail its proposal. The Ford Foundation objected vigorously to ComSat's

ownership of such a system.[20] ComSat argues that, "as a matter of law, the Commission [FCC] is without power to authorize any nongovernment entity other than ComSat to operate communications satellites,"[21] and "no legislation seeking such power should be proposed." An opposite view is taken by a number of other submissions to the FCC of which Ford's statement is fairly typical: "The legislative history of Section 102(d) [ComSat Act] shows that Congress considered and rejected the position that further legislation is a prerequisite to FCC authorization of additional domestic communications--satellite facilities."[22] The FCC initially authorized ComSat to take title to all earth stations for two years.[23] ComSat undertook to acquire existing earth stations and commenced planning and construction of additional stations. As the end of the two-year period approached, the FCC suggested at least informally that ComSat and other communications carriers resolve the question of ownership of earth stations by agreement. This failed, as should have been anticipated because of the conflicting economic interests and the desires for rate-base investments, and the FCC, for want of a better solution, ordered ownership of the earth stations to be divided on the basis of use, following a theory previously set forth in decisions relating to cables and justified by the language "public convenience, interest, or necessity."[24]

In theory, at least, the same concept could be applied to ComSat's interest in the space segment.[25] The present arrangement is to be reviewed in 1969. ComSat is to be manager of the earth stations, subject to overall control and guidance by a committee of all owners to be established by agreement, subject to FCC approval. Rates which had previously been computed and approved by the FCC on the basis of ownership by ComSat alone had to be recomputed and approved by the FCC on the basis of divided ownership.[26]

This follows the pattern of ownership of Intelsat, so that in fact the FCC ruling gives the communications carriers other than ComSat a three-quarter ownership of the earth stations, one-half directly and one-fourth stemming from their approximately half-ownership of ComSat. There is no assurance that the FCC will not take another step in 1969 and exclude ComSat entirely from ownership of the earth stations--or restore to it full ownership.

Additional questions might be raised about ownership of the terrestrial communications links tying the earth stations to the regular domestic communications system. Under the arrangements adopted thus far there is little doubt that this link will continue to be owned and operated by the conventional terrestrial communications carriers rather than by ComSat. The ownership of the link may be divided among the carriers according to usage or a single carrier may own a particular line.

Although the action taken by the FCC may be defensible and is not contrary to law, it is difficult to envisage how ComSat can be properly managed and operated if the basic rules under which it operates are to be radically changed every two or three years. It is recognized that the FCC is establishing rules for novel circumstances, but it is difficult to avoid wondering if the FCC as well as Congress is not succumbing to political pressures of economic interests where the best interests of the public might suggest a different result. The division of authority between the FCC and the Executive branch discussed by Metzger and Burrus[27] is doubtless a contributing factor in the FCC's inability to resolve pressing problems.

The identification of "authorized user,"[28] i.e., to what entities may ComSat make satellite circuits directly available has been a subject of considerable controversy, with most of the carriers arguing against direct service to communications users. However, the FCC has found that: "(a) ComSat may, as a matter of law, be authorized to provide service directly to non-carrier entities; (b) ComSat is to be primarily a carrier's carrier and in ordinary circumstances users of satellite facilities should be served by the terrestrial carriers; and (c) in unique and exceptional circumstances ComSat may be authorized to provide services directly to non-carrier users. Therefore, the authorization to ComSat to provide services directly is dependent upon the nature of the service, i.e., unique or exceptional, rather than the identity of the user. The FCC policy recognizes that the United States Government has a special position and that ComSat may be authorized to provide service directly to the government,"if such service is required to meet unique governmental needs or is otherwise required in the national interest, in circumstances where the Government's needs cannot be effectively met under the carrier's 'carrier approach.'"[29] In February 1967 the FCC stated that it would look to the Director of Telecommunications Management for a representation as to whether any services in question are required in the national interest.[30] ComSat, the Department of Defense, and the General Services Administration had taken a position before the FCC that the Executive branch of the government, at its discretion, had the authority under the ComSat Act to obtain satellite services directly from ComSat.[31] But this position seems to have been modified to some extent. A general pattern of rulings is not yet available, but apparently the FCC position limits the situations in which ComSat can make communications satellite circuits

available directly to a noncarrier, even if the noncarrier is a United States government agency and ComSat would make the service available directly at appreciably less cost than similar service through a carrier. The FCC's known attitude on this point may have contributed to the decision of the Department of Defense to establish its own communications satellite system.

A closely related problem involves another aspect of rates.[32] ComSat wants separate rates to be established for circuits utilizing satellites, whereas the terrestrial carriers wish to use composite rates. ComSat wants to encourage the use of satellites and to make clear the economies of the satellite system, whereas the terrestrial carriers do not think it proper to give all the benefit to those customers who are fortunate enough to be able to utilize the satellites and want to spread the savings to all their customers. The terrestrial carriers also want to protect their existing investments and have shown no enthusiasm for expediting the use of satellites for communications since ComSat was established. The FCC adopted the position of the terrestrial carriers on the theory that the satellites should be for the benefit of all.[33] If satellite circuits took business from conventional circuits it is argued that the remaining communications over conventional circuits would be required to pay increased rates and some of the conventional carriers might be forced out of business entirely. To the extent that it is strategically necessary or desirable to have both satellite and conventional communications facilities available and to maintain adequate communications everywhere, the FCC position is justified. But the FCC has not shown a willingness to make decisions which would leave the terrestrial communications carriers excessively unhappy.

FCC Chairman Hyde has stated, "It is national policy in the communications field to promote the maintenance of a diversity of facilities. Accordingly, in the next several years, it will have to be determined under what circumstances the laying of additional submarine cables will be economically justified and supportable consistent with maintaining viable international operations of both the ComSat and the international cable carriers."[34] To the extent that the FCC position is based on protection of investments in a communications system rendered uneconomic by technological advances, it is difficult if not impossible to justify. The true rationale of the FCC position cannot be easily ascertained. The FCC position was unchanged in a reconsideration which emphasized its responsibility to see that no overall deterioration in communications services occurs in a situation where ComSat has "a favored position with respect to a more economical medium [than] have conventional carriers which are at a disadvantage in not being able to acquire such a favored position."[35] Final determinations of these problems will be worked out on broad policy grounds utilizing political, economic, military, and social factors rather than narrow legal arguments.

There is yet another fundamental decision which must be made within the next few years involving whether or not to permit direct radio and television broadcasting from satellite to home receivers.[36] The potential here, both domestically and internationally, is enormous. When and if such systems are developed, one or two television and one or two radio stations could easily blanket the nation--or the world. There would technically be no need for any local radio or television broadcast stations. How these problems are to

be handled will require the greatest possible consideration, and large numbers of people are already deeply concerned and are taking steps to force not only government officials but also the public to recognize the possible consequences. Educational television, for which there have been a number of proposals, with its great potential for influencing thought has become intertwined with the problems of direct transmission from satellites to home receivers. The President has called the dual problem to the attention of Congress in a message which indicates ETV should be free of government control, but he does not purport to set forth any details of operational control or financing.[37] Although no emphasis is being placed on development of direct broadcast, need for policy decisions has acquired some degree of urgency. Short-wave radio transmission from a single station has long been available over a wide area of the earth and presents essentially the same problem, although not so acutely. The only practical international control has been by jamming. A few nations may have or may develop the ability to silence satellites by knocking them out of the sky. Decisions will be based on political and economic rather than legal considerations.[38] (See Chapter [illegible])

The functions and extent of regulatory authority held by the FCC and by the Director of Telecommunications Management and associated offices and the division of authority and responsibility should be extensively reevaluated. The rapidly developing communications satellite technology and the ambiguities of the ComSat Act and the FCC acts have permitted or almost forced the FCC to attempt to exercise authority over ComSat's every action and over its relationships with communications carriers and users. Some of these decisions, which may have practical life-and-death consequences on some of the major communications entities or result in a radical restructuring of the entire

communications industry of the United States, are so important that they should be made by Congress. Whether or not Congress has the capacity to resolve the problems without allowing political pressures to exercise excessive influence in areas which should be resolved on the basis of economic and social welfare of the United States is open to doubt.

[1]Communications Satellite Act of 1962 (ComSat Act) P.L. 87-624, 87th Cong. 2d Sess., approved Aug. 31, 1962; 47 NSC 701-44 (1962).

[2]Established by the Agreement Establishing Interim Arrangements for a Global Commercial Communications Satellite System (Interim Agreement) and Space Agreement, TIAS 5646, 15 UST 1705 and 1745. The triple role is the source of many of the difficulties as it hardly is possible to distinquish technically and legally where one rule ends and another begins. ComSat as a domestic communications carrier is fully subject to the laws and regulations of the United States. It fulfills a quasi-governmental function as the U.S. designed entity in Intelsat and as such is subject to U S. laws and regulations in discharging its heavy responsibility in the international field.

As manager of Intelsat, it is responsible to its members. See 32 Telecommunications Reports 28, 29, 30 (June 20, 1966) [hereinafter cited as T.R.] for an account of a meeting of the Inst. of Elect. Eng. in Phila., Pa., June 15-17, 1966, during which these subjects were discussed. The progress made in a new field of technology and the amount of cooperation achieved is very great, but the way has not been nor will it be smooth in the future.

[3]The confusion which exists in allocation and assignment of frequencies domestically is set forth in some detail in Metzger & Burrus, "Radio Frequency Allocation in the Public Interest: Federal Government and Civilian Use," 4 Duquesne L. Rev. 1 (1965-66). The article emphasizes the division of responsibility between the FCC and DTM-IRAC and the subservience of the FCC: "[T]he present system of dual control is deficient in its failure to afford the means for any

coherent policy planning with respect to allocation needs and usages in the future." The President's Communications Policy Board, Telecommunications, A Program for Progress, n. 4 at 46-50 (1951) said among other things: "The present telecommunications legislation and organization have failed to produce adequate direction, leadership, administration, and control and have fostered dissension between the federal government and industry. Many of these shortcomings could have been mitigated if not avoided." Few independent writers have praise for the existing format of U S. government controls and regulations for domestic and international telecommunications. While not in quite this category, the FCC "authorized" ComSat to make available to Canada units of satellite utilization via the Andover, Me., earth station. "Authorization" implies the right to "deny," a situation almost certain to encourage Canada to develop its own earth stations even if technologically not needed. 33 T.R. 14 (Jan. 23, 1967). See also "Electromagnetic Spectrum Utilization: The Silent Crisis," A Report on Telecommunication Science and the Federal Government by the Telecommunication Science Panel of the Commerce Technical Advisory Board, U S Dept. of Commerce (Oct. 1966).

[4]See II International Legal Materials 395 (Mar. 1963) for ComSat's articles of Incorporation dated Feb. 1, 1963. ComSat's prospectus of June 3, 1964, for sale of stock indicates it had not then been finally determined that synchronous orbits at 22,300 miles elevation rather than nonsynchronous controlled or uncontrolled orbits at lower elevations would be used. The lower orbits require more satellites and even more sophisticated ground equipment, which add substantially to the cost of a system. Communications Satellite Systems Technology, (Marsten ed. Dec. 1966) provides ready access to a collection of technical papers on

communications satellites and the systems which have been established under U S aegis. See also Silberman, "The Little Bird that Casts a Big Shadow," 75 Fortune 108 (Feb. 1967) which suggests Comsat was overcapitalized because of the expectation that nonsynchronous orbits would be used. Communications Satellites: Technical Economic and International Developments, Staff Report, Committee on Aeronautical and Space Sciences, United States Senate, 87th Cong. 2d Sess., at 3 (Feb. 25, 1962) states without clarification: "There appears to be general agreement of the ultimate desirability of a synchronous satellite system, i.e., one situated over the equator and having an orbit corresponding to the period of rotation of the earth, thus making the satellite appear to hang stationary. It is easier to launch a satellite into a lower orbit than into a synchronous orbit. This makes it desirable to use a lower orbit system, particularly in the interim until a synchronous system is available." ComSat has, in fact, used the synchronous system only, except for experimental work. Numerous Congressional and other documents indicate many unresolved technological problems which may have a bearing on the ultimate cost of communications satellite systems. See also ComSat's Report to the President and the Congress, For the Calendar Year 1966, p. 5: "[T]he Interim Communications Satellite Committee agreed formally in early 1966 to provide basic coverage with synchronous satellites. This significant step forward substantially reduced the potential cost of earth stations for the coming system, for earlier concepts of a global system required a number of satellites in a random orbiting or a medium altitude p ttern with tracking antennas at the earth stations.... Since three such [synchronous] satellites can virtually cover the earth, the cost of spacecraft

for a synchronous global system as well as the cost of earth stations could be substantially reduced." At the May 10, 1967 annual meeting ComSat's chairman reported that on May 2, 1967, ComSat had $158,000,000 invested in various securities. ComSat representatives have acknowledged at least a temporary overcapitalization but insist ultimate requirements will equal or exceed available capital. 32 T.R. 15 (Oct. 10, 1966) quoting ComSat financial vice-president and treasurer Mathews. Report filed with the FCC in Nov. 1966 indicated an average net investment in the communications system in 1971 of only $102, 268,000. 32 T.R. 22 (Nov. 14, 1966); id. at 7 (Dec. 5, 1966); 33 T.R. 3 (Jan 9, 1967); id. at 18 (Jan 23, 1967); id. at 12 (Feb. 27, 1967). These are ComSat estimates and are probably too high by several million dollars. The reports all indicate indecision on the part of the FCC over what rules to apply in accounting requirements and for capital expenditures. Much of the indecision is based on lack of experience with communications satellites, the rapidly developing technology, lack of adequate legislative guidelines and political pressures from various communications entities, frequently through Congress.

[5]In some instances financing has been arranged through the Export-Import Bank, 33 T.R. 40 (Apr. 10, 1967). AID, contractor financing, and other borrowing sources have also been utilized.

[6]Chicago Tribune, Jan 18, 1967, at 9 and Jan. 19, 1967, § 1, at 22; Washington Post, Jan 19, 1967, at A7. See Hearings before Committee on Aero and Space Science, United States Senate, 89th Cong., 2d Sess. (Jan 25, 26, 1966) for a description of the military program. See also 32 T.R. 9 (June 20, 1966) for a description of the initial launch specifically for this system.

[7]Capacity could be greatly increased by using larger and more powerful earth stations.

[8]See Hearings before Comm. on Aero & Space Science, U.S. Senate, 89th Cong., 2d Sess., at 76 (Jan 25, 26, 1966). AT&T reports it has spent $78,000,000 in work on satellite communications since 1959 and has spent $2 billion on communications research and development since World War II. Much of this effort has contributed to satellite communications technology. 32 T.R. 27 (Sept. 19, 1967) quoting AT&T Vice-President Hough's letter to Senate Commerce Communications Subcommittee.

[9]It is authorized by the ComSat Act, art. 201 (a) (6). See Government Use of Satellite Systems, 43d Report by the Committee on Government Operations, 89th Cong., 2d Sess., at 23 (Oct. 19, 1966) for a discussion of the various statutes and policies relative to procurement of satellites services. The FCC has very little control over government communications. See Metzger & Burrus, "Radio Frequency Allocation in the Public Interest; Federal Government and Civilian Use," 4 Duquesne L. Rev. (1965066).

[10]The Dept. of Defense initially gave ComSat a contract for 30 channels but under FCC and Congressional pressure the contract was reassigned to the conventional common carriers which purchase satellite channels from COMSAT and resell them at a profit. Although little information is available, it is difficult to avoid wondering how much pressure the members of ComSat's Board of Directors elected by AT&T, IT&T, etc., applied internally. See letter from President's Special Ass't for Telecommunications, Gen. James D. O'Connell June 28, 1966, reprinted in Hearings on Gov't Use of Satellite Communications before the Military Operations Subcommittee of the House Committee on Gov't Operations, 89th Cong., 2d Sess., at 304-5 (1966). H.R. Report 231-38, Gov't Use of

Communications Satellites, 89th Cong., 2d Sess., at 7, 49-56 (1966). FCC 67-163, at 2, 3 (Feb. 3, 1967). The matter has been referred to as a flap, as intergovernmental agency bickering, etc. and is extensively reported in Telecommunications Reports. See for part of the coverage 32 T.R. 18-26 (Oct. 10, 1966); 32 T.R. 13 (Oct. 3, 1966); 33 T.R. 26 (Dec. 12, 1966).

ComSat does furnish service direct to NASA, apparently without particular objection from common carriers, 32 T.R. 1 (July 11, 1966). The very heavy NASA communications requirements are in connection with space exploration.

[11] See 33 T.R. 1 ff.(Apr. 10, 1967) for a discussion of some aspects of rate-making After extensive hearings which received considerable public attention the FCC set 7%-7½% as a rate of return for AT&T. Rate and rate base are both highly controversial and num erous appeals should be expected. The FCC's handling of the matter has, since the hearings were announced, kept AT&T stock prices unstable because of uncertainty over future dividend rates. (Wall Street Journal, July 6, 1967, at 3).

[12] See ComSat Act as a whole and especially §§ 201, 302, 304, 401, 403, and 404, reproduced in Appendix D as item 7.

[13] Communications Common Carriers elect 6 directors, the public stockholders elect 6, and the United States appoints 3 directors. ComSat Act § 303. ComSat dissatisfaction with this arrangement came into the open at the May, 1967, annual meeting, at which time its officers reported that ComSat was considering asking Congress for a change in legislation to remove some carrier representation from the ComSat board if carrier ownership of stock fell below 45%. (Wall Street Journal, May 10, 1967, at 15). Carriers would continue to have access to all of ComSat's business plans, but carrier influence on ComSat decisions would be lessened to some extent. The conflict of interest is patent but was specifically provided for in the Congressional action authorizing ComSat.

[14]James D. O'Connell,Director of Telecommunications Management and Special Assistant to the President for Telecommunications stated, "the nation's telecommunications structure lacks strong central authority to meet complex problems, and cannot reach 'must' goals with present arrangements." He went on to declare the need for a Department of Communications. 33 T.R. 1 (Mar. 13, 1967). Seventeen government departments and agencies are involved in various aspects of telecommunications decisions, and the FCC responds to first one pressure and then another. In many, if not most instances, decisions are just compromises attempting to give all competing parties enough to gain acceptance if not approval. Congress, also susceptible to political pressures, has been unable to provide adequate guidelines and has fragmented authority and responsibility. Uncertainties on requirements for FCC approvals where Intelsat is involved are numerous. See, for example, 32 T.R. 3,4,5 (June 27, 1966); 32 T.R. 23 (June 6, 1966) quoting ComSat chairman McCormack as saying some members of Intelsat "are dubious about ComSat's continuing ability as the consortium's manager to spend their money in their interests while being subject to the detailed regulations" of the FCC. Previously, ComSat had requested the FCC to modify rules which, "if literally construed... have the effect of imposing United States regulatory requirements upon public and private entities wholly outside the jurisdiction of the United States...." 32 T.R. 28 (Mar. 28, 1966).

See also 32 T.R. 18 (June 13, 1966) with reference to ownership of earth stations. The confusion in U.S. policy has been recognized by the President who has appointed a task force to review federal communications policy, including the possibility of a merger of all international operations of AT&T, IT&T, RCA,

[15] See New York Times, May 14, 1965,at 1. Application filed with the FCC Sept. 21, 1965. See Wall Street Journal, Sept. 22, 1965, at 2, for an excellent summary of the application which, if granted, would authorize synchronous satellite at 100° west longitude, two transmitting earth stations, and about 200 receiving stations or antennas. Annual cost was estimated at $.9 million paid by ABC to AT&T for the lease of land-transmission facilities for 14 hours a day. This system would provide 5 TV channels on a 24 hour-a-day basis, one channel to be made available without charge to National Educational Television and its affiliated stations. Subsequently ABC indicated it thought radio programs should be included. See Washington Post, Oct. 21, 1965.

[16] In addition to ABC, these include CBS, NBC, AT&T, ComSat, the Ford Foundation, Western Union Telegraph, Western Union International, IT&T, World Communications, National Association of Educational Broadcasters, the NAM, Dow Jones, American Petroleum Institute, American Trucking Association, Carnegie Commission on Educational Television, GT&E Service Corp., Hawaiian Telephone Co., HEW, the JFD Electronics Corp., and many others.

[17]FCC Chairman Hyde, in a speech to state regulatory commissions, said making satellite service available domestically was "among the most profound matters to face FCC" and asked for suggestions but offered no guidance. This is rather typical. The FCC refused a Western Union request for earth stations saying the question was premature. 33 T.R. 8 (Jan 9, 1967).

[18] The proposals received extensive press coverage. For examples see: The Washington Post, Aug. 7, 1966, at E4; New York Times, Aug. 7, 1966, § 4, at E4, E7; Newsweek, Aug. 15, 1966, at 76-77; Wall Street Journal, Sept. 12, 1966, at 11; Barron's National Business and Financial Weekly, Oct. 3, 1966, at 1. As should be anticipated, opinion varies from strong support to bitter opposition. D. W. Smythe, "Freedom of Information: Some Analysis and a Proposal for Satellite Broadcasting," 6 Q. Rev. Econ. & Bus. 7 (1966), criticizes sharply the entire concept of ComSat and Intelsat and recommends a UN-owned and controlled system financed the same way as the UN and controlled by a board similar to that of the BBC. See 33 T.R. #1-5, 30-36 (Jan 30, 1967), for a considerable discussion of the Carnegie report on ETV which offered a plan without definitive suggestions for the FCC's domestic satelllite inquiry.

[19] See Washington Post, Dec. 12, 1966, at A1; Wall Street Journal, Dec. 13, 1966, at 24.

[20] New York Times, Aug. 29, 1966, at 1; Wall Street Journal, Aug. 30, 1966, at 24. See also Chicago Tribune, Apr. 3, 1967, § 1, at 6, reporting a ComSat offer to the FCC to set up an experimental domestic satellite system with free-channel service for demonstrations of educational television; and the Wall Street Journal, Apr. 3, 1967, at 3., for Ford's contrary position asking the FCC to "delay for one year final authorization of any domestic service" to permit "adequate Congressional consideration" and to avoid giving ComSat" "unprecedented control over the development of an emerging technology." See ComSat filings with the FCC dated Aug. 1966; Dec. 16, 1966; Mar. 1967, etc.

[21] Letter dated 16 Dec. 1966, from McCormack of ComSat to Hyde, chairman of FCC, transmitting and summarizing brief prepared by ComSat.

[22] Legal Brief and Comments of the Ford Foundation in Response to Paragraphs 4(a) and 4(b) of the FCC's Notice of Inquiry of Mar. 2, 1966, In the Matter of Establishment of Domestic Non-Common Carrier Communications-Satellite Facilities by Non-Governmental Entities. Docket No. 1649, at 2. Ford's submission is in several parts and the full arguments are developed therein. See FCC Docket 16495 Public Interest Issues; Supp. Legal Brief, Ford Foundation, Vols. I & II dated Apr. 3, 1967, and earlier submissions. Numerous other organizations and institutions also field comments with proposals. The Carnegie institution has made a substantial study of educational television and related subjects. The National Science Foundation and the National Foundation on the Arts and Humanities, both government agencies, endorsed use of satellites for public information and ETV. (32 T.R. 38 (Dec. 5, 1966)).

[23] FCC 66-677 86505 Docket No. 16058, July 21, 1966, para. 37.

[24] ComSat Act Sec. 217(c)(7). The Supreme Court has upheld similar language as being as "concrete as the complicated factors for judgment in such a field of delegated authority permit." FCC v. Pottsville Broadcasting Co, 309 U.S. 134, (1940), but as Davis, Administrative Law 46 (1951) noted, it is no real standard and amounts to saying, "Here is a problem, deal with it." The specific language involved in the Pottsville case was "public convenience, interest or necessity."

[25] FCC 66-1132 91927 Docket No. 15735, Dec. 8, 1966. Intelsat agreements will also be under review. ComSat was given the right to 50% ownership, and the remaining ownership was divided among various American carriers in accordance with anticipated usage. Among the carriers involved are AT&T, Hawaiian Tel., ITTPR-ITTVI, RCAC, and WVI.

[26] Computation of rates is a very inexact science with many factors to be taken into consideration. The FCC has not spelled out in detail how rates are to be computed, but in a recent telephone rate case involving AT&T, the FCC listed a number of items to be considered: (a) book costs of interexchange circuit plant; (b) time, worth, value, nationwide average, or individual area studies; (c) nature and degree of risk from competition, technological change, demand for services, unit changes in costs and revenues; (d) comparative risks of other regulated utilities; (e) authorized rates of return below those requested; (f) comparative rate of return on equity investments; (g) comparative rate of return based on debt structure; (h) whether rate structure should be based on imputed debt structure of current 32% or on the 40% ratio given as objective; (i) what estimated annual rate of growth in capital investment should be assumed; (j) what effect the adoption of liberalized depreciation for tax purposes would have. See 33 T.R. 2,3 (Apr. 10, 1967). A firm philosophy for a ComSat rate structure has not yet been developed, but it would seem that capital investment in the communications system would be an important element. Earlier, ComSat had stated a need for a 12% rate of return in projecting requirements over a five year period, citing high risk involved in the operation of a satellite system. 32 T.R. 1 (July 11, 1966). ComSat has filed extensive documentation with the FCC

and has also suggested that possibly earnings could be based on volume of business rather than on rate base which would eliminate a major cause of controversy over ownership of earth stations. The rate discussions will be more or less continuous. See 32 T.R. 22 (Nov. 14, 1966).

The matter has been considered of such significance that the FCC has permitted NASA to intervene in the rate hearings. 33 T.R. 4 (Mar. 20, 1967). Distinctions between ComSat and Intelsat rates have not always been clear. ComSat files monthly financial reports with the FCC, similar to those submitted by other common carriers. 32 T.R. 14 (May 23, 1966). A member of its board only "half-facetiously" suggested that ComSat acquire the cables from record carriers who complained that ComSat prevented them from expansion. 32 T.R. 20 (Mar. 14, 1966). A Western Union request to build earth stations to provide satellite service was dismissed as premature, 33 T.R. 27,28 (Dec. 12, 1966) since no domestic system was available. 33 T.R. 8 (Jan. 9, 1967). In July 1967 the FCC held AT&T was entitled to a 7 1/2% return but it is quite unclear as to exactly what is included in the base. Wall Street Journal, July 6, 1967, at 3 and July 7, 1967, at 3.

[27] See *supra*, n. 3.

[28] ComSat Act § 305.

[29] FCC Public Notice: C87035 of July 21, 1966, and FCC 66-677 86505 Docket No. 16058 of July 21, 1966.

[30] FCC 67-94725 Docket No. 16058 Feb. 3, 1967. See also Executive Order 11191 assigning certain responsibilities to the Director of Telecommunications Management. This situation is another major example of divided authority and dominance of the DTM over the FCC in certain areas. The FCC indicated clearly that the DTM and not ComSat would advise the FCC on questions of national interest with regard to applications for authority to provide service directly to government agencies. 33 T.R. 3 (Feb. 6, 1967).

[31] ComSat Report to the President and the Congress for the calendar year 1966, at 13.

[32] See <u>supra</u>, n. 26.

[33] FCC 66-677 86505 Docket No. 16058 of July 21, 1966, paras. 31-36 and 37 (d). See also 32 <u>T.R</u>. 24 (Oct. 17, 1966) in which ComSat's concern is expressed over the FCC's "seeming adoption" of fixed views to be applied in determining rates for space services, with a resultant decline in incentive to use satellites for communications.

[34] Quoted in 33 T.R. 15 (Mar. 20, 1967) from testimony before House Interstate and Foreign Commerce Committee, March 14, 1967.

[35] FCC 67-164 94725 Docket No. 16058 Feb. 3, 1967, paras. 7 and 8. It is impossible to ascertain how much the FCC was influenced by a desire to protect investments in the existing communications systems. The fundamental question of who may own communications satellites has been referred to supra at xx-xx.

[36] In the Hearings before the Committee on Aeronautical and Space Sciences, United States Senate 89th Cong. 2d Sess (Jan 25 & 26, 1966), at 80, it is said that direct TV reception may be possible by the late 1970's or earlier. Direct radio reception to home receivers could be ready in three years. More recent estimates reduce considerably the length of time required, but some developments could possibly result in others, such as community antennas. The problems of reflection of high-frequency transmissions from natural and man-made structures is practically an unexplored factor.

[37] See New York Times, Mar. 1, 1967, at 1. Washington Post, Mar. 1, at 1. The Ford Foundation, ComSat, and a large number of other organizations have submitted various proposals to the FCC starting in August, 1966, or earlier. Wall Street Journal, Apr. 13, 1967, at 6, carries an article indicating the political complexity of ETV control and financing and suggests any miscue may defeat proposed legislation. The President's message "was not definitive neither as to financing nor as to the means for providing network service." 33 T.R. 17 (Mar. 6, 1967). The message requested $9,000,000 for the first year of operation

of the proposed Corporation for Public Television. Western Union Vice-president Hilburn suggest use of NASA's ATA satellite as an interim approach for providing satellite service for ETV. 33 T.R. 29-31 (May 1, 1967).

[38] Doyle, "Communications Satellites: International Organization for Development and Control," 55 Cal L. Rev. 431, 445-48 (May 1967), takes the position that the problem is new and peculiar to communications satellites. Preventive actions have been mentioned: "jamming, destruction of satellites, independent economic or political sanctions, and counter broadcasts are means which might be considered by the offended states."

Appendix D

## INTERNATIONAL ORGANIZATIONS AND OUTER SPACE ACTIVITIES

Throughout this study, the role of those international organizations that have already contributed to the emerging law concerned with man's activities in outer space has been developed in some detail. Chief among these are the General Assembly of the United Nations and the International Telecommunications Union (ITU). This appendix is designed therefore:

1. to provide a very brief overview of the role of other international governmental and nongovernmental organizations as background for the study of the legal problems with which we are concerned; and

2. to provide more historically complete and systematic treatment of the past and present role of the United Nations as a form of case study of the prospects and possibilities of international supervision con- trol, and operations in this field.

We exclude here consideration of the ITU, which is covered in Chapter 5. The problem of the return of downed space vehicles and astronauts is used in this context as a special case study. The United Nations materials are presented first.

It is possible to call on a number of excellent recent studies of the development of outer space activities among governments and in intergovernmental and nongovernmental international organizations.[1] With the exception of the United Nations system, these arrangements are not for the most part concerned with general legal regimes or with the creation of norms in any way.

They do form the background against which the law concerning outer space activities has developed, but the existence of the studies

noted above relieves us of doing more than identifying these agencies and arrangements in most cases (see Part B).

## A. The United Nations System And Outer Space Activities

It is interesting and undoubtedly significant that the potentials and threats of outer space activities were first formally brought to international attention in the course of international disarmament discussions.[2] In 1957, President Eisenhower noted the dangers inherent in the development of outer space weapons and stated that the United States was willing "to enter into any reliable agreement which would . . . mutually control the outer space missile and satellite development."[3] A memorandum of January 12, 1957, to the First Committee of the General Assembly next called the world's attention to the need for international inspection and participation in testing earth satellites, long-range unmanned weapons, intercontinental missiles, and space platforms.[4] This theme was reiterated by Secretary of State Dulles in July 1957, and it was formalized as one element of a ten-point program submitted to the UN's Disarmament Subcommittee, meeting in London in late August 1957.[5] This entire disarmament proposal was rejected by the Soviet Union.

On October 4, 1957, Sputnik I achieved orbit. Thereafter, in October and November, the General Assembly discussed disarmament and, on November 14, 1957, a resolution was adopted which urged that an agreement, including provision for the joint study of "an inspection system designed to ensure that the sending of objects through outer space shall be exclusively for peaceful and scientific purposes," be concluded as a matter priority.[6] The need for control of outer space techniques "this time, and in time" was also stressed in letters from President Eisenhower to Premier Bulganin in January and February 1958, but the

Soviet Union proved unwilling to discuss the question outside the context of general disarmament.[7] Outer space continued to be a factor in disarmament discussions both in and out of the United Nations but, in view of the lack of progress and hence the lack of direct relevance to this study, we will not further discuss the proceedings here, although we return to the disarmament question briefly hereafter in connection with the events of 1963.[8]

After the failure to make progress in the disarmament exchange in the winter of 1957-58, and the successful orbiting on January 31, 1958, of the United States Explorer I, the Soviet Union submitted on March 15, 1958 a proposed agenda item for consideration at the thirteenth regular meeting of the General Assembly. In this agenda item, the "banning of the use of cosmic space for military purposes, the elimination of foreign bases on the territories of other countries, and international co-operation in the study of cosmic space" were linked. States were to launch rockets into cosmic space only under an agreed international program, and a United Nations agency for international cooperation in the study of cosmic space was proposed:

> To work out an agreed international programme for launching intercontinental and space rockets with the aim of studying cosmic space, and supervise the implementation of this programme;
>
> To continue on a permanent basis the cosmic space research now being carried on within the framework of the International Geophysical Year;
>
> To serve as a world center for the collection, mutual exchange and dissemination of information on cosmic research;
>
> To coordinate national research programmes for the study of cosmic space and render assistance and help in every way towards their realization.[9]

On September 2, 1958, the United States also proposed that a "programme for international cooperation in the field of outer space" be included in the Assembly's

agenda.[10] On September 22, the General Assembly combined these requested items into a single "Question of Peaceful Use of Outer Space," and included the question in its agenda, referring it to the First Committee (Political and Security) for consideration and report.

On November 13, twenty nations, including the United States, submitted a different draft resolution calling only for the establishment by the General Assembly of an ad hoc committee on the peaceful uses of outer space to report to the Fourteenth General Assembly on:

(a) the activities and resources of the United Nations, its specialized agencies, and of other international bodies relating to the peaceful uses of outer space;

(b) the area of international co-operation and programmes in the peaceful uses of outer space which could appropriately be undertaken under United Nations auspices to the benefit of states irrespective of the stage of their economics or scientific development;

(c) the future United Nations organizational arrangements to facilitate international co-operation in this field;

(d) the nature of legal problems which may arise in the carrying out of programmes to explore outer space."[11]

On November 18, the Soviet Union submitted a drastically revised version of its earlier resolution, which did not mention a United Nations agency and the elimination of military bases but suggested instead the establishment of a United Nations committee for cooperation in the study of cosmic space and of a preparatory group to draft a program for that committee.[12] Members of the twenty-nation group objected particularly to the inclusion of several Soviet satellite nations and "unfriendly" "neutral" nations in the preparatory group, and countered with a revised draft of their own resolution. It named as members of the proposed ad hoc committee Argentina, Australia, Belgium,

Brazil, Canada, Czechoslovakia, France, India, Iran, Italy, Japan, Mexico, Poland, Sweden, USSR, UAR, UK and the USA.[13] In addition, minor changes were made to indicate the interest of small nations in outer space activities.

Compromise on the states to be included and on the Soviet desire to establish a more permanent body at once proved impossible, and the Soviet Union withdrew its draft resolution since no "unanimous" decision was in sight and unanimity, they argued, was essential. The revised twenty-power draft was then adopted as a whole by the First Committee by 54 votes to 9 (Soviet bloc), with 18 abstentions (Arab-Asian group plus Austria, Yugoslavia, Ethiopia, Finland, and Israel). The Soviet Union, Poland, and Czechoslovakia immediately announced that they would not cooperate in the ad hoc committee's work, however.[14] As a consequence, two "neutral" nations, India and the UAR also did not participate, arguing that, without the Soviet Union's presence, no sound action could be taken.

In addition to the "action" paragraph already noted, the resolution recommended by the First Committee recognized "the common interest of mankind in outer space and that it is the common aim that it should be used for peaceful purposes only," and sought "to avoid the extension of present national rivalries into this new field." In the First Committee, a perhaps surprising number of representatives took stands, in the course of discussing these draft resolutions, on one or more of the "legal" issues involved, some of which were noted in Chapter 4.

On the broadest aspects of the use of outer space, there was universal agreement on limiting its use to "peaceful" purposes, a concept which had already

been expressed in General Assembly Resolution 1148 (XII) and in the US National Aeronautics and Space Act of 1958 and which was reaffirmed in the resolution as adopted. Several representatives felt that as yet no legal norms existed to govern occurrences in outer space and that outer space was a "judicial vacuum"; but the Netherlander, Schurmann, argued that "the general principles of law recognized by civilized nations" must be applicable to relations between nations in space. Those speaking to the point at least generally agreed that the rules of the Paris Convention of 1919 and of the Chicago Convention of 1944 related only to "airspace," in the sense of the term "espace atmosphérique" as used in the Paris Convention, but only a few attempted to indicate where "outer space" began. The concept of "usque ad coelum" was characterized as "absurd" with respect to "ownership" of outer space.[15]

It was said that space unlike the seas which are finite in nature, is "indivisible" and hence not subject to the extension of national sovereignty. Representatives of several small nations cited the lack of protests at the passage overhead of Russian and American orbiting satellites as "proof" of the nonexistence of national sovereignty at these altitudes. The concept that space is res nullius and therefore subject to acquisition was rejected by several spokesmen of smaller nations, who termed the "appropriation" of space or of heavenly bodies "impossible" or at least "improper." Others stated that "space,"--the moon, the planets, etc. --were "owned" or "belonged" to or were the "common domain" or the "common property" of the "world" or all nations or all peoples. The Italian representative generously added to this assertion that outer space "belonged" to all states of the world, that it was equally the property of "all other communities of thinking and organized beings living on

other planets.

Equality of access to and the enjoyment of the benefits to be obtained from use of outer space were stated by representatives of several small powers, some of whom formally termed outer space as a res communis omnium or res extra commercium, to be existent rights, or at least essential rules, for man's development of space. Only a few seemed to insist on an unlimited, free, and equal right to "use" outer space, for most of those who discussed this point noted that rights of free use by all would be feasible only under international control, owing to the danger to the rest of the world of abuses of such rights.[16]

Although the representatives of both the United States and the Soviet Union agreed to the need for the peaceful exploitation of man's new capabilities in outer space for the benefit of all mankind, neither at that time took a position on the potential legal status of space and neither country stated a position which would estop future claims from being made. Neither talked in the narrower terminology of rights and obligations employed by many of the representatives of States not having the ability to penetrate into space. All this indicated, as the Canadian and New Zealand representatives pointed out that "in the last resort, the choice between various possible legal arrangements for outer space [will be] a political decision,"[17] an observation which is no less valid today.

A resolution setting up the ad hoc committee was adopted by the General Assembly on December 13, 1958, as Resolution 1348 (XIII), but the Soviet position of noncooperation remained unchanged. The Ad Hoc Committee operated through the Technical Subcommittee and the Legal Subcommittee. By mid-June these two Committees had completed their reports and the Secretariat had also prepared one on "the activities and resources of the United Nations, of its specialized agencies and of other international bodies related to the peaceful uses of outer space." These reports

set much of the tone of all that has followed in the United Nations and are worthy of brief note even at this date.

The Technical Subcommittee concluded, in general, that the exploration of space was "a task vast enough to enlist the talents of scientists of all nations." Just as there was no way to limit the definition of "atmosphere" for WMO's weather purposes, there was general agreement that outer space was scientifically indivisible. The usefulness of participation in space efforts by nations lacking launching capabilities, particularly through such voluntary cooperative scientific arrangements as the IGY's successor in this field, COSPAR, was emphasized, and the United States was complimented several times on its offers to permit scientists from other nations to design experiments to be carried out by US-launched satellites. The stress was on cooperative efforts of the COSPAR type, although it was generally agreed that when the research stage was passed, functional intergovernmental arrangements of the WMO, ITU type were probably essential. The possibility of international launching sites was also raised.[18]

The Technical Subcommittee's report emphasized these points in stating that to make best use of all available talent and in some cases owing to the costs involved, "space activities, scientific and technological...even more than...astronomy...inherently ignore national boundaries. Space activities must to a large extent be an effort of Planet Earth as a whole." The connection between military activities and space research with its hampering effect on exchange of information was also noted, but it was concluded that the development of space vehicles had reached the point in several countries where it wa a question of engineering only, not of science. Some of the potentially useful scientific studies were outlined, as were the techniques available for use and the possibilities for application of new knowledge to improvement in weather

forecasting, radio communications, mapping, and navigation. International cooperation was felt to be scientifically desirable or even essential for such matters as orderly use of radio frequencies, registration of orbital elements at a central point, removal of spent satellites, termination of transmissions, reentry, recovery, and return of equipment, identification of origin and contamination both of outer space and of earth on return. The allocation of radio frequencies for space activities was here suggested as "the first technical area in which immediate international action is required." The ITU was urged to act on the radio problem, and stress was laid on the usefulness of COSPAR, the World Data Centers, and WMO in promoting international cooperation. A need was felt for a suitable center related to the United Nations to act as a focal point for cooperative efforts in outer space. It was suggested that the United Nations Secretariat might include a small section to keep cooperation under review, or a new UN body might be created to do that job. There was, however, no need yet for "an international agency for outer space."

The Legal Subcommittee, which, even without Soviet participation, had a more difficult time in achieving consensus, observed that the provisions of the United Nations Charter and of the Statute of the International Court of Justice were, as a matter of principle, not limited in their operation to the confines of the earth. It was generally agreed that not enough was known about the actual and prospective uses of outer space to make a comprehensive code practicable or desirable, but that it was necessary to take "timely, constructive action and to make the law of space responsive to the facts of space."[19]

> It was unanimously recognized that the principles and procedures developed. . .to govern the use of such areas as the air space and the sea deserved attentive study for possibly fruitful analogies. . .[though] outer space activities were

distinguished by many specific factual conditions. . . that would render many of its legal problems unique.

It was suggested that among legal problems susceptible to priority treatment was the broad problem of freedom of outer space for exploration and use. The Legal Committee, in mentioning the flight of space vehicles "over" countries during the IGY, suggested that

> with this practice, there may have been initiated the recognition or establishment of a generally accepted rule to the effect that, in principle, outer space is, on conditions of equality, freely available for exploration and use by all in accordance with existing or future international law or agreements.

Other priority problems noted by the Committee were liability for injury or damage caused by space vehicles, including the need for machinery to determine liability and ensure payment of compensation. Here, the committee suggested the compulsory submission to the International Court of Justice of disputes between states over liability and considered relevant ICAO's experience with respect to the 1952 Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface.[20] Allocation of radio frequencies, termination of transmissions, avoidance of interference between space vehicles and aircraft, identification and registration of vehicles through markings, call signs and orbit and transit characteristics, registration and coordination of launchings, and reentry and landing problems were also considered of current importance.

Problems the Committee felt could be ignored for the present because they were too remote from the point of view of technological development or because activities could be conducted without their resolution included the determination of precise limits between airspace and outer space, the provision of regulations against contamination of outer space or from outer space, the promulgation of rules covering sovereignty, exploration, settlement, and exploitation

of celestial bodies, and rules for the avoidance of interference among space vehicles.[21] Some of these have by now already become more pressing. It was obvious that the Committee was perhaps overly cautious about several problems, which many then felt were more imminent than the committee was willing to acknowledge.

The general conclusions of the Ad Hoc Committee may be briefly summarized:[22] no autonomous intergovernmental agency should be created at this time nor should any such existing agency be asked to undertake overall responsibility for space matters; a small unit in the Secretariat might serve as a focal point for cooperation and a small committee there would advise the Secretary-General; a special committee of the General Assembly could be set up (although the criteria for its composition could not then be agreed upon):[23]

> (a) To provide a focal point for facilitating international co-operation with respect to outer space activities undertaken by governments, specialized agencies, and international scientific organizations;
>
> (b) To study practical and feasible measures for facilitating international co-operation, including those indicated by the Ad Hoc Committee in its report . . .;
>
> (c) To consider means, as appropriate, for studying and resolving legal problems which may arise in the carrying out of programs for the exploration of outer space;
>
> (d) To review, as appropriate, the subject matter entrusted by the General Assembly to the Ad Hoc Committee. . . .

Thus, the Committee stressed for the United Nations a role of coordinator or promoter of cooperation, although the Swedish representative feared an increasing gap between the great forward surge of space activities and the efforts of the United Nations to promote the use of space for the benefit of all

mankind, unless immediate action was taken within the United Nations.[24] Others, including the United States, insisted on "modest proposals" to meet only the most pressing needs.[25]

At the fall meeting of the General Assembly, the Ad Hoc Committee was transformed into a twenty-four member permanent committee, the Committee on the Peaceful Uses of Outer Space.[26] This Outer Space Committee had five "neutral" states and seven Eastern European states, thus giving the Soviet Union the "soft" parity it had sought.

The Committee was charged anew with the task of studying "means. . . for giving effect to programmes in the peaceful uses of outer space which could appropriately be undertaken under United Nations auspices," and with studying the legal problems involved in space exploration. It was also to plan a world scientific conference on the peaceful uses of outer space to be held in 1960 or 1961.

The Committee was unable to meet at all in 1960 or 1961 because of conflict between the United States and the Soviet Union over unanimous versus majority voting, over the designation of the committee's officers, and over the mechanics of planning the proposed space conference.[27] The Soviet Union firmly insisted on a special arrangements subcommittee with equal representation for East and West. The United States, fearing the creation of a "hard" parity precedent, was unwilling to yield on this issue. Neither country wanted the space committee to meet until this issue was resolved.

Despite this major problem, in an effort to make progress, at the meeting of the United Nations in the fall of 1961, the United States, Italy, Canada, and Australia jointly sponsored a resolution in the First Committee, which for the first time formally suggested principles to govern the exploration and use of

outer space. It also focused attention on advances and problems in the fields of meteorology and telecommunications, provided for a registry in the Secretariat of outer space launchings, continued and added members fo the Outer Space Committee, and requested that Committee "to meet early in 1962."

In the course of ... Committee's consideration, certain changes were made. The role of the Secretary-General was deemphasized; Chad, Mongolia, Morocco and Sierra Leone were added to the space committee rather than Nigeria and Chad alone; and a firm date for a Committee meeting ("not later than 31 March 1962") was set. A compromise on voting was achieved; the Committee was to try to move by consensus; if it failed, majority voting would be used. The statement of principles and the general tenor of the resolution, as adopted by the General Assembly on December 20, 1961 as Resolution 1721 (XVI) including the votes of the United States and Russia, were along the lines suggested by the United States and constituted an interesting success for American diplomacy in this area.

In the first part of the resolution, the General Assembly recognized "the common interest of mankind in furthering the peaceful uses of other space and the urgent need to strengthen international co-operation in this important field," and commended to states the principles that:

> (a) International law, including the Charter of the United Nations, applies to outer space and celestial bodies;
>
> (b) Outer space and celestial bodies are free for exploration and use by all States in conformity with international law are not subject to national appropriation. . . .

This has been discussed in general in the text in Chapters 3 and 4. Other parts of the resolution dealt with the problems of organizing to further the study of meteorological phenomena and to provide better weather forecasting, of continuing

and intensifying the international approach to the problems and potentials of communications satellites, and, as noted above, of formulating the future efforts and responsibilites of the Outer Space Committee. In addition the Secretary-General was requested to maintain the public registry of launchings "into orbit or beyond" through information supplied by states, a matter discussed in Chapter 4.[29]

By the spring of 1962, various factors including, in all probability, the orbital flight of Col. Glenn, led both to bilateral meetings on space science between the United States and the USSR and to a real beginning of the work of the Outer Space Committee. That Committee met eight times in March 1962 under an agreed formula by which work was to be done "in such a way that the Committee will be able to reach agreement. . .without need for voting."[30] Discussion in March was focused on the role of the UN's Secretary-General and the Secretariat, while the US pressed for at least a limited role as a "clearinghouse" for space information and the Soviet Union insisted that no operating role, even to that extent, was appropriate.[31] Two sub-committees of the whole were also established, one on scientific and technical matters, the other on legal problems.

At these meetings, in considering the prospective wrk for the Legal Subcommittee the United States' representative suggest that early attention be given to state responsibility for accidents and to "return-to-earth" arrangements. The Soviet representative offered as priority items the problems of harmful space experiments, a limitation of space use to "responsible governments, and return arrangements.[32] As we have noted, suggestions from other representatives ra ged anew over the field of the law of space activities. Bernard of France wanted an examination of the definition of outer space and its relation to airspace, an investigation of just which rules of international law were applicable to outer space activities, and an immediate effort to create rules on contamination.[33] Others favored one or another of these items as of prime importance.[34] There was also wide agreement on the general utility of having

the parent group, the Committee on the Peaceful Uses of Outer Space, serve as a coordinator of space activities already being performed by other agencies and organizations including, especially, the WMO, ITU, and COSPAR.[35]

The Scientific and Technical Subcommittees thereafter began a series of relatively successful periodic meetings which still continue but are not chronicled here largely because studies of these meetings are available in other sources.[36] Moreover, their subject matter, while involving political considerations, is generally less controversial than that with which the Legal Subcommittee had to deal. As van de Hulst put it in describing the work of COSPAR:

> Scientists among themselves have fewer problems than perhaps the Governments have among themselves, and generally are facing very well-defined common [objectives] in the pursuit of research, and this introduces a natural point of convergence, namely the correct result. Although occasionally rivalries occur and different methods or schools of thought may prevail in a certain scientific approach, this has never cut very deep, and they can exist as well within one country as within different countries. There is no correspondence at all to the political situation there. . . .[37]

As the Soviet representative Morozov commented: "Let us say that in science we can cooperate, but in law we cannot."[38]

At the meeting of the Legal Subcommittee in the spring of 1962 the political overtones of the space race were again evident. The United States was formally attacked by the Soviet Government for conducting high-altitude nuclear tests, for example.[39] Nevertheless, some progress was made in considering the problems of assistance to and return of space personnel and vehicles, of liability for space vehicle accidents, and of the nature of a draft declaration of basic principles. Attention was centered on proposals advanced by the two space powers.[40]

At this time, the Soviet proposal included several items unacceptable to the United States, including a requirement for advance consent by "concerned" countries to any use of space that might prove harmful, a limitation of space use to states alone (thus presumably barring companies and international organizations), a prohibition on intelligence-gathering, and a proposal permitting non-return of spacecraft used for intelligence activities. The United States in turn offered draft resolutions which it considered more suitable.[41]

The other states present sought to find some common ground between the two chief rivals, but at this time no formula could be found. At most the chairman was left to report that "the meetings offered the possibility for a most useful exchange of views."[42]

The full Committee on the Peaceful Uses of Outer Space met in September 1962, with further US-USSR charges and countercharges concerning high altitude nuclear tests and secrecy in launching vehicles into space.[43] At the time, the Soviet Union appeared reluctant to give up any of the points noted above, and no further progress was made toward agreement on legal issues. Perhaps the most interesting single session was that in which the United States produced a part of a Soviet vehicle which had fallen, without injuring anyone, on Manitowoc, Wis., on September 5, 1962.[44] The proposals made by the major space powers and a draft code prepared by the UAR were simply attached to the committee's report to the assembly.[45]

In the First Committee in December, further draft declarations were submitted by the United Kingdom and the United States.[46] The British statement was brief and included a provision giving each state and its nationals equal rights in the exploration and use of outer space. The United States continued to press for a resolution, while the Soviet Union urged more formal treaty arrangements.[47]

There was an extended debate on surveillance from space, the Communist countries arguing, as we have noted before, that such information-gathering is espionage and hence illegal. The United States, however, has uniformly insisted that observation from space, of all types, "is consistent with international law...."[48] Many other representatives supported the position of the United States. As at other times, the progress in scientific cooperation was more notable.

By the end of 1962, the United Nations thus had before it seven proposals concerned with the legal problems of outer space activities. These included: (1) USSR proposal containing a draft declaration of basic principles governing the activities of states pertaining to the exploration and use of outer space; (2) a USSR proposal containing a draft international agreement on the rescue of astronauts and spaceships making emergency landings; (3) a United States draft proposal on assistance to, and return of, space vehicles and personnel; (4) a United States draft proposal on liability for space vehicle accidents; (5) a proposal by the United Arab Republic containing a draft code for international cooperation in the peaceful uses of outer space; (6) a proposal by the United Kingdom containing a draft declaration of basic principles governing the activities of states pertaining to the exploration and use of outer space; (7) a United States proposal containing a draft declaration of principles relating to the exploration and use of outer space. In Resolution 1802 (XVII) of December 14, 1962, the General Assembly stressed the need for the progressive development of law for outer space and requested the Committee on the Peaceful Uses of Outer Space to continue urgently its work on the further elaboration of basic legal principles governing these matters.

The Legal Subcommittee met in April and May of 1963 and made little formal progress, though differences were to some extent narrowed.[50] Agreement was reached, for example, that the form of a UN statement on the general principles governing state activities should be that of a declaration, but no consensus existed as to the legal form of the instrument in which the principles were to be embodied. The Communist bloc representatives urged that the declaration of general principles should be adopted in the form of an international treaty. Others, including the representatives of Argentina, Australia, India, Japan, Lebanon, and the United States, took the view that a General Assembly resolution would be the most appropriate instrument for the declaration at that time, and that later an international treaty based on such a declaration might be elaborated.

Australia observed that a survey of the proposals on general principles set forth in General Assembly Resolution 1802 (XVII) disclosed a substantial area of agreement, and felt that the quick way to break away from the stalemate in which the subcommittee's first session had ended in 1962 was to accept the fact of certain disagreements and adopt a text embodying the elements on which agreement existed.

The representative of Belgium argued again that the sphere of application of space law should not be based on a demarcation between outer space and airspace, but rather on the means employed --the space vehicle--and that therefore space law should be applicable in both atmospheric and outer space whenever the activities of space vehicles or the consequences of their activities were concerned. In his view, an internationally agreed upon legal definition of space vehicles should be included in any settlement of specific problems, such as liability for damage or assistance to astronauts, and also in any general statement of principles.

Several representatives, including those of Czechoslovakia, Hungary, Mongolia, Rumania, and the USSR pointed out that agreement on the general principles governing the outer space activities of states was an essential prerequisite for the preparation of detailed international agreements on assistance to and return of astronauts and space vehicles and on liability for space vehicle accidents. In all, the chairman could at most report that there had been a "certain rapprochement and clarification of ideas."[51]

The outer space committee itself made little progress in its September meeting, but the US-USSR thaw had already resulted in the Nuclear Test Ban Treaty of August, 1963.[53] Then, while discussions were continuing over a statement of legal principles, the General Assembly, on October 17, 1963, adopted Resolution 1884 (XVIII), (noted in Chapters 3 and 4) which recorded the understanding achieved during the Geneva disarmament negotiations between the United States and the Soviet Union, not to station nuclear or other weapons of mass destruction in outer space. The nations were solemnly called upon to abide by this principle. Ambassador Stevenson, for the United States, said that this policy had already been adopted by the United States and pointed out that it would certainly "seem easier not to arm an environment that has never been armed than to agree to disarm areas which have been armed."[54] The resolution was adopted unanimously. The probable reasons for this rapid progress are noted in this study.

Members of the Outer Space Committee met informally during the fall UN session and, on November 22, 1963, the committee met rather hastily to consider a nine-point draft declaration of legal principles prepared by the members.[55] The Committee agreed unanimously to submit this draft to the General Assembly, stating that it represented the maximum area of agreement possible at the time.[56]

In the full Outer Space Committee and in the First Committee in the late fall, discussions were renewed; we have drawn on some of these statements in this study.[57] Bulgaria, Hungary, Italy, the United Kingdom, and Yugoslavia, among others, considered that the legal principles contained in the draft declaration could serve as a basis for the development of the law of outer space. Italy, the USSR the United Kingdom, and the United States were among those declaring their intent to conduct their activities in outer space in conformity with the principles of the declaration.

The representative of France, however, called the draft declaration only a declaration of intention and stressed that a General Assembly resolution, even though adopted unanimously, could not create juridical obligations incumbent upon member states.[58] He and the delegations of Hungary, India, Japan, Poland, the USSR and Yugoslavia, all expressed the opinion that certain provisions of the declaration would have to be further developed in the form of international agreements. The view was also expressed that the draft declaration should not be regarded as a comprehensive and final list of legal principles covering all the problems created by the exploration and use of outer space, but rather, as Japan expressed it, as a starting point for further work of expansion and elaboration.

Voicing reservations about the draft declaration, both in substance and in form, the USSR representative emphasized that his government still considered that the declaration of principles should be set out in a form similar to a treaty containing firm legal obligations on the part of states.

The representatives of Belgium and Rumania emphasized the importance of a clear-cut definition of the terms and concepts to be used in the legal

principles relating to space law, while the representative of the United Kingdom stressed the need for defining the concept of registry as used in the draft declaration.

Brazil suggested that the declaration should incorporate a ban on the utilization of a communications system based on satellites for purposes of encouraging national, racial, or class rivalries and also as a reference to international scrutiny of global satellite communication. The representatives of Australia, Austria, Brazil, India, Pakistan, and the United Arab Republic expressed regret that the draft declaration did not contain a legal principle designed to preclude the placing in orbit of weapons of mass destruction on the lines formulated in assembly Resolution 1884 (XVIII). The representative of Japan said that the agreement to refrain from stationing weapons of mass destruction in outer space should be embodied in a binding international instrument, including provisions for verification as soon as possible.

In the course of discussion, the UAR representative referred to the Antarctic Treaty of 1959 as an appropriate analogy. It proclaimed that Antarctica could be used only for peaceful purposes and prohibited all measures of a military nature on that continent. Commenting on this analogy, the representative of Canada urged that the present situation concerning outer space differed from the situation which existed when the treaty was negotiated making Antarctica an arms-free area. At that time, no states had weapons systems which could have involved Antarctica in case of war. Now, however, intercontinental ballistic missiles, which represent the primary strategic weapon, could presumably pass through outer space on their way to a target. His government felt that Resolution 1884 (XVIII), together with the

Moscow Treaty, constituted one of the most important disarmament measures for limiting the means of using outer space for military purposes. Insofar as intercontinental ballistic missiles were concerned, it felt the problem was not to prohibit their use in outer space but to negotiate an agreement reserving outer space for peaceful uses only.

The representative of India cited General Assembly Resolution 1884 (XVIII), which prohibited the stationing in outer space of weapons of mass destruction but did not make specific provision for verification, as in other disarmament proposals. He maintained that a legal principle on the same lines which forbade military uses of outer space and which did not provide for verification measures would not entail any added risk.

The representatives of France, Brazil, and the United Arab Republic expressed doubts concerning an unqualified extension to outer space of international law and the United Nations Charter. The representative of France noted that traditional international law, whose principles in matters relating to land, sea, and air were well established, could not be applied as it stood with regard to outer space. The representatives of Brazil and the United Arab Republic suggested that a study should be made to determine precisely what rules of international law or practice were applicable to outer space.

Application of the declaration of legal principles to international organizations taking part in activities in outer space was also discussed. In the opinion of Australia, Nigeria, and the United Kingdom, the omission from all paragraphs of the declaration, except the fifth, of any reference to international organizations conducting activities in outer space was not to be regarded as excluding such organizations from the scope of the declaration or as prejudicing their position in any way.

Concerning the stipulations providing for consultations about potentially harmful experiments in outer space, the representatives of Australia, Brazil, Canada, India, and Nigeria, among others, considered that the system of consultations should be made more precise and more binding. Australia, Brazil,and India suggested that the system could be explicitly linked with presently existing international forums, such as the Consultative Group on Potentially Harmful Effects of Space Experiments established by the Committee on Space Research (COSPAR) of the International Council of Scientific Unions. On the other hand, the representative of the United States, although considering the consultative group of COSPAR as an appropriate forum, said that it would be inappropriate to specify one particular mode of conducting international consultations exclusively and for all time.

The representative of Japan considered that the provision of the draft declaration providing for the return of space divices found outside the state of registry and for furnishing identifying data upon request prior to return was ambiguous and legally untenable. The obligation to return space devices, he felt, should be conditional upon a corresponding obligation on the part of launching states to provide in advance adequate information concerning these devices. The views expressed by the Japanese representative were supported by the representatives of Nigeria, Pakistan, and the United Arab Republic. The United States representative emphasized that the provision in question did not seek to cover every conceivable situation and did not contain details for precise application. In his opinion, such matters would need further elaboration in subsequent instruments.

Referring to the provision of the draft declaration which dealt with the question of liability for damage, the United Kingdom's spokesman said the terms

were so broad that application might well give rise to difficulties and, consequently, considerable amplification would be needed when a detailed agreement concerning liability for space vehicle accidents came to be drafted. The representatives of both France and the United Kingdom stressed that further and more detailed provisions would be needed relating to liability of international organizations, particularly for the purpose of confirming what was already implicit in the draft declaration, namely, that international organizations as well as their constituent states could be internationally liable for damages resulting from outer space activities.

It was in these debates, too, that the United States representative called for greater international cooperation while stating that "these legal principles reflect international law as it is accepted by the Members of the United Nations."[59] It should be noted that the Soviet Union had now agreed to omit certain items for which it had long argued: there was no "veto" of experiments by any nation; there was no limitation of space activities to states; the question of information-gathering satellites was ignored, both as to their legality and their return to a launching state.

On December 5, the draft declaration of legal principles was unanimously approved by the First Committee and, on December 13, it was unanimously adopted by the General Assembly as Resolution 1962 (XVIII), which has been discussed at length earlier in this study. On December 13, the Assembly also unanimously adopted a five-part Resolution 1963 (XVIII) on international cooperation in the peaceful uses of outer space. This resolution had been recommended by the First Committee, which had approved it by acclamation on December 5, on the proposal of twenty-seven of the twenty-eight members of the Committee on the Peaceful Uses of Outer Space.[60]

In the first part of Resolution 1963 (XVIII), the General Assembly recommended that consideration be given to the future incorporation in international agreement form of appropriate legal principles governing the activities of states in the exploration and use of outer space. It requested the committee to continue to study and report on legal problems which might arise in the exploration and use of outer space, and in particular to arrange for the prompt preparation of draft international agreements on liablity for damage causes by objects launched in outer space and on assistance to, and return of, astronauts and space vehicles. Other parts of the resolution:

(1) endorsed the recommendations contained in the report of the Committee on the Peaceful Uses of Outer Space concerning exchange of information, encouragement of international programmes, international sounding rocket facilities, education and training and potentially harmful effects of space experiments: (2) welcomed the decision of the Committee on the Peaceful Uses of Outer Space to undertake, in cooperation with the Secretary General: (a) the preparation of a working paper on the activities and resources of the United Nations, the specialized agencies, and other competent international bodies relating to the peaceful uses . outer space; (b) the preparation of a summary of national and of cooperative international space activities; (c) the preparation of a list of available bibiographic and abstracting services covering scientific and technical results and publications in space and space-related areas; (d) the compilation, in cooperation with the United Nations Educational, Scientific and Cultural Organization, of reviews of information on facilities for education and training in basic subjects related to the peaceful uses of outer space; and (e) the establishment, at the request of the Government of India, of a group of six scientists to visit the sounding rocket launching facility at Thumba and advise on its eligibility for United Nations sponsorship; (3) noted that the Secretary-General was maintaining a public registry of objects launched into orbit or beyond on the basis of information being furnished by Member States of the United Nations; (4) noted that certain Member States had, on a voluntary basis, provided information on their national space programmes and invited other Member States to do so;[61] (5) invited Member States to give favorable consideration to requests of countries desirous of participating in the peaceful exploration of outer space for appropriate training and technical assistance; (6) noted the considerable measure of cooperation in the peaceful exploration

> and use of outer space under way among Member States; (7) noted that the USSR and the United States have reached an agreement looking towards cooperation in the fields of satellite meteorology, communications, and magnetic field mapping; (8) encouraged Member States to continue and extend cooperative arrangements so that all Members could benefit from the peaceful exploration and use of outer space; and (9) expressed the belief that international cooperation could be beneficial in furthering the exploration of the solar system.

In part V, the General Assembly requested the Committee on the Peaceful Uses of Outer Space to continue its work.[62]

The problem of liability for space vehicle accidents was also discussed at length in 1963 (see Chapter 6). As suggested above, the issue of assistance to and return of astronauts and space vehicles was also considered. Both the US and the USSR agreed that action was now necessary and that, later on, a treaty would be. In Resolution 1963 (XVIII) the General Assembly requested that this problem be given prompt treatment.

Meeting in March 1964 the Legal Subcommittee devoted its time to new or revised proposals concerning assistance and return of astronauts and of space vehicles and liability.[63] Neither at the spring nor at the fall meetings in 1964 were full drafts of either agreement completed[64] nor, in fact, despite the friendlier climate for a period after mid-1963, was the work finished when in 1965 the Vietnam crisis again exacerbated relations between the major powers.

The March 1964 meeting opened with a new request by the Soviet Union for further study of "general principles" as well as of conventions covering liability and return, but this proposal received little non-Soviet-bloc support. Two working groups, each open to the full membership of the Legal Subcommittee, were established to deal with the two proposed treaty areas.

On the draft treaty for the return of space vehicles and astronauts, there was general agreement on the humanitarian concern for the plight of astronauts who missed their proper landing place and on the scientific utility of returning to the appropriate state a fallen spacecraft or its parts. In the 1964 meetings, the United States suggested[65] that the state of registry or the international organization responsible for a launching should have prime responsibility but that all parties should take

> . . .all possible steps to assist or rescue promptly the personnel of spacecraft who are the subject of accident or experience conditions of distress or who may make emergency landing by reason of accident, distress, or mistake.

It was also suggested that each party should permit, subject to control by its own authorities, the launching authorities to provide such measures of assistance as might be necessitated by the circumstances (based on Article 25 of the Chicago Convention on Civil Aviation). In addition, it was proposed simply that:

> Upon request by the State of registry or international organization responsible for launching, a Contracting Party shall return to that State or international organization an object launched into outer space or parts thereof that have returned to Earth. Such State or international organization shall, upon request, furnish identifying data.

A reading of these March 1964 discussions leads then to certain conclusions:

1. The major space powers were in agreement[66] that a party should be under a mandatory obligation to request the launching authority's assistance on its own territory if it proved unable to carry out necessary rescue operations.

2. Non-launching states were concerned with provisions regarding assistance on the high seas or elsewhere beyond territory under national jruisdiction or control,. lest a launching authority claim an exclusive right to conduct rescue operations on the high seas.

3. There was a split over whether or not an astronaut was to be returned promptly to the launching state or whether, simply, his departure was not to be opposed in normal cases.

4. There was a split over whether or not a vehicle would be returned in all circumstances (US view), only if there were prior compliance with some rules (e.g., announcement of the launching, USSR-Japanese view), or if the purpose of the mission were "peaceful" and, especially, if it were not engaged in "espionage" activities (USSR view).

5. There was near universal agreement that expenses incurred in recovering a space object should be reimbursed by the launching state, but that there should be no reimbursement for expenses incurred in fulfilling the humanitarian duty of rescuing astronauts, although India and certain states seemed to suggest otherwise.

6. Suggestions for peaceful settlement of disputes under the proposed treaty ranged from use of the International Court of Justice for all disputes (US), , or only after other means failed (UK) or only by special agreement of the parties (USSR) The USSR's position is of course entirely consistent with its overall lack of trust in international adjudication.

7. The problem of the "cold war" was again evident in the discussion of potential parties to the treaty. The United States proposed that member states of the United Nations family, and any other state invited by the General

Assembly, should be entitled to become a party to the agreement. The USSR felt that "all States" should be eligible, its usual formula.

Revised versions of the various proposals were discussed at the second part of the third session in the fall of 1964,[67] and agreement was reached on a preamble and three articles on assistance and return.[68] It is interesting to note in these negotiations the multiple, shifting conflicts of interest and points of view over the issue; while the Soviet-US confrontation has led to some of the disagreements, other controversies have distinctly involved the "rich" against the "poor," and some saw the United States opposed by its European friends and allies. The United States and Russia seemed in general agreement, however, on such issues as: a universal duty to rescue astronauts; a duty to notify the state of "launching" or "registry" of the retrieval of astronauts or a vehicle; and a mandatory obligation on a state unable to render proper assistance to request assistance and the obligation of others to respond.

There was nevertheless general disagreement over the following.
(1) In the matter of rescue on the high seas, most states felt that a joint search would be appropriate. The Soviet Union urged, initially, an exclusive right in the launching state to effect or control the rescue, thus excluding all other states, presumably for security reasons.[69] This arrogation of an exclusive jurisdiction on the seas was resisted by the United States and by the other non-Communist members. It was later somewhat modified, as we will see, to a concept of "direction" of the operations.

(2) The Soviet Union sought to limit the duty to return space vehicles, etc., to those launched with prior announcement. The Japanese suggested a return only of objects registered with the United Nations.[70] The United States objected to any need for prior registration, etc., as a precondition to return.

(3) The Soviet Union sought to limit the return to objects (and astronauts) launched for "peaceful" purposes, presumably as determined by the rescuing state; the United States opposed any such limitation. This is perhaps the clearest continuation of a pre-1963 argument--that concerning observation satellites. The Soviet Union later proposed a return only if the launching was for purposes in accord with the 1963 Declaration of Legal Principles, but this was also considered too uncertain by the United States and others, since determination would again presumably be made by the rescuing state.

(4) There was also disagreement over the use of the International Court of Justice. The United States suggested a general use, whereas the Soviet Union insisted that it be only with the consent of all parties. Russia also insisted that "all states" be eligible parties to the proposed treaty; the United States desired to limit treaty membership to members of the United Nations or states invited by the UN General Assembly, thus seeking to exclude Communist China.

(5) There was also an "East-West" split over the question of whether international organizations should be permitted to possess rights and duties under the convention independent of the states comprising such organizations.

Among other objections raised by the nonspace powers were: a demand for right to refuse entry to security-important areas to officials of launching states;[71] a demand for a right to hold an astronaut if he committed a crime after landing;[72] a demand that, prior to a return, the launching state accept

the obligation to compensate for damage done; a demand for full reimbursement for costs incurred in rescuing vehicles and personnel (the major powers and most other states had earlier seemed to agree that assistance to astronauts was a humanitarian duty and should not require reimbursement). Some states now argued that the expenses of locating astronauts should be fully reimbursed since, unlike rescues at sea where all seafaring nations may have personnel in distress, the rescue of astronauts would be for the benefit of only a few states.

Despite major disagreements, by the end of the third session a preamble, one partial and two complete articles were approved by Working Group I. Article 2 of the agreed draft required a state learning of an accident or of the distress of space personnel of another state to notify immediately both the state which announced the launching and the Secretary-General of the United Nations. Article 3 provided that where space personnel made an emergency landing in territory under the jurisdiction of a contracting party, "it shall immediately take all possible steps, within the limits of the means at its disposal, to rescue the personnel and render them the necessary assistance." The assistance was to be that which would be furnished to its own personnel; and the state rendering it what technical assistance from the state announcing the launching, as long as it remains "under the direction and control" of the rendering party.

Article 6 concerned return of space objects, as distinguished from assistance to personnel, and covered landings which take place within the territory or jurisdiction of a contracting party, on the high seas, and elsewhere. As in Article 2, the same duties of notification were put upon the party learning that

such a landing had taken place. The state announcing the launching was obligated upon notice to take "prompt and effective steps" to remove or render harmless a space object or component thereof which is of a "hazardous and deleterious nature." In addition, if the state announcing the launching knows that a space object which has landed on the territory of a contracting party is hazardous, it must immediately notify the contracting party and, upon request, remove the object or render it harmless. The party recovering the space object was to request the technical assistance of the state announcing the launching, which in turn was to furnish identifying data upon request.

There remained, at this time, disagreement on the Soviet proposal which conditioned the return of space objects upon whether the launching was for purposes in accord with the Declaration of Legal Principles.

The fourth session of the Legal Subcommittee was not held until September 20-October 1, 1965. The working group procedure, which had not apparently expedited matters much, was abandoned in favor of formal sessions. At this session, some further consensus was achieved on the rendering of assistance to the crews of spaceships,[74] but no broad progress was visible. The key issue of national security was clearly involved as a limiting factor and, doubtless, international tension over Vietnam made agreement on any problem more difficult to achieve.

These sessions threw additional light on the meaning of and outlook for the principles stated in Resolution 1962. Over the years, for example, the Soviet Union shifted from an insistence that only space objects launched for "peaceful" purposes need be returned, to a return only of objects "launched in accordance with the Declaration of Legal Principles Governing the Activities of

of States in the Exploration and Use of Outer Space."[75] It was still suggested by Communist representatives that this meant for "peaceful" purposes[76] and was resisted by the United States[77] which suggested as a maximum requirement that the responsible state furnish identifying data if requested. Other representatives noted, too, the problem involved in permitting the state holding the vehicle to decide unilaterally as to the compliance of the launch,[78] but mediating suggestions were insufficient to achieve an agreement in 1965.[79]

Soviet proposals[80] for the return of astronauts also referred to launchings in accordance with the same principles. The duty to return persons and objects made by the West was not so limited.[81] Several representatives again objected to placing in any state's hands the unilateral right to make such a determination of propriety as a condition of return and they argued that Paragraph 9 of the declaration itself imposed an unconditional duty to return astronauts landing in distress.[82]

In this context, the Canadian representative stated that the declaration was intended to constitute "a set of guidelines, to be taken into account in the drafting of rules on specific matters, but not having themselves the character of treaty provisions."[83] On the other hand, the Communist representatives argued that launchings which did not comply with the declaration (presumably as interpreted by them) were hostile and could be dealt with as such.[84] Again, no easy solution was then at hand for the divergent points of view.[85]

The contention over control of the seas was equally difficult.[86] The Soviet Union continued to insist that the launching authority should at least direct the operations if it did not fully control them;[87] the West argued that

the state with closest facilities for rescue was the one best suited to take prompt measures and that, while cooperation with the launching state was appropriate, no state should be bound by orders from another.[88] Russia did finally offer a compromise by which the launching state would "undertake general coordination of the rescue operations" while other states, if any, carrying out the operations would do so "in accordance with the recommendations and technical advice" of the launching state.[89] No further agreement was reached at that time however, and the language suggested left much room for interpretation.[90]

In May 1966, in a dramatic advance, both the United States and the Soviet Union pressed new initiatives toward an outer space treaty in the United Nations. On May 7th, President Johnson proposed that the UN's Committee for the Peaceful Uses of Outer Space consider a treaty for the moon and the celestial bodies similar to the "open" regime agreed to for Antarctica in 1959.[91] Two days later, the U.S. asked consideration of a treaty by the Legal Subcommittee of the UN's Outer Space Committee.[92] On May 30th the Soviet Union, by letter to the Secretary-General, proposed that the agenda of the twenty-first session of the General Assembly include the question of concluding a treaty covering legal principles governing space exploration.[93] While the basic proposals were similar to those of the United States, the Soviet initiative was different in proposing to make rules for all space activities through initial work in the General Assembly while the United States proposed dealing only with the celestial bodies, using the Outer Space Committee letter of June 16th, the United States sent a draft treaty to the Outer Space Committee and asked for a meeting of the Legal Subcommittee on July 12.[94] By letter of that same date, the Soviet Union

submitted its proposed treaty to the Secretary-General for circulation.[95] The Soviet Union proved amenable to consideration of the drafts by the Outer Space Committee and meetings of that Committee's Legal Subcommittee in fact were held in Geneva in July 1966.

At these meetings, the United States accepted the idea of a broader treaty applicable to space activities in general.[96] All twenty-eight members accepted some nine draft proposals along the lines of the UN resolutions of 1961 and 1963 to the effect that: exploration should be carried out in accordance with international law and the UN Charter; no state can claim sovereignty over outer space or the celestial bodies by any means; weapons of mass destruction should not be orbited or placed on celestial bodies; space powers are internationally liable for damage caused other states by objects launched into outer space; military activities and bases on the celestial bodies were barred.

At the close of the Geneva session, the Committee agreed to meet just before the General Assembly in September. Major unresolved disagreements were the anticipated ones: the United States proposed to have full reports on all activities on the celestial bodies presented by the space explorers; the Soviet Union said that reporting should be on a "voluntary basis"; the United States suggested that all bases on celestial bodies should always be open to visits; the Soviets proposed that visits should be by prior agreement; the United States wanted disputes to be referrable ultimately to the International Court of Justice; Russia suggested negotiation; the United States wanted to limit signatories to UN members and nonmembers invited by the General Assembly; Russia wanted the treaty available to "all nations," with Communist

China perhaps in mind. There were also the questions of whether "military" equipment could be used for space exploration; whether a provision requiring cooperative use of tracking facilities should be included; whether a United Kingdom proposal on international organizations should be adopted.

The Legal Subcommittee met again in New York beginning on September 12.[97] Some differences proved amenable to reasonably rapid resolution: the United States, for example, stated that it would not insist that space stations and vehicles be "open at all times for inspection" but agreed that visits be made "on a basis of reciprocity" with "reasonable advance notice" to host governments, and that reports be submitted by governments only "to the extent feasible and practicable."[98] The Soviet Union, which had insisted that states granting tracking facilities to any space power make them equally available to all powers, continued to press for this privilege but now agreed to meet expenses incurred in tracking. The US and most other states continued to insist that compulsory access was unacceptable.[99] A revised Soviet draft in early October accepted the US revisions about information and access to bases and also now agreed that equal access to tracking facilities should be arranged by bilateral negotiations.[100] In early December, President Johnson was able to announce that agreement had been reached on the final form of a treaty.[101] This treaty was approved by the United Nations on December 19, 1966[102] and, as we have noted in Chapters 3 and 4, was signed by more than sixty nations in January 1967. Its meaning has been discussed extensively in this study.

In the rush to prepare the 1967 treaty, the UN's Outer Space Committee could give no further attention to the drafts on rescue and return and on liability.

The General Assembly expressly requested further work on these subjects.[103] At its sixth session, held in Geneva between June 19 and July 14, 1967, the Legal Subcommittee resumed its work on the basis of the draft treaty proposed earlier by the US (as noted above herein), a revised Australia-Canada working paper,[104] and a revised Soviet draft,[105] which still omitted coverage of the return of astronauts and space objects. This basic divergence in views prevented further progress at that time.

In the fall of 1967, the Soviet Union dramatically shifted its position and stated that it had no objection to including provisions on return.[106] By the end of 1967, a Treaty on Rescue and Return was a reality.[107]

That Treaty has been reviewed as to most of its substance in Chapter 4. Briefly, it will be recalled that it provides for the notification of accidents; the rescue of astronauts on the territory of a party and the high seas or anywhere else not under the jurisdiction of any state; the return of astronauts without any qualifications; the recovery and return of space objects, on identification and on assisting in the expenses of recovery; and a definition of "launching authority" which for the first time expressly covers international organizations as well as states.[108] Two additional points, one now fairly typical: It was agreed by the parties, in order to reach agreement overall, that no express provision would be included for the settlement of disputes arising from the Agreement.[109] This was also true of the Outer Space Treaty of 1967. The solution of disputes is thus left to normal diplomatic procedures or by other applicable international agreements. Second, the Treaty is open to signature by "all states" to carry out its humanitarian purposes. As the US carefully pointed out, acceptance of the Treaty by the governments of East Germany or

Communist China would of course not constitute formal recognition by other parties.[110]

The United Nations has thus already served as an official focus for the discussion of basic issues of outer space activity and has played a major part in the creation of the emerging law relevant to such activity. It has nevertheless itself been given only a small role in the actual conducting and control of outer space operations. The field of outer space is so intimately connected with national power and prestige that nations have been unwilling to consider international operations or controls. As with other areas, we have even today basically only the assurances of states that outer space will in fact be used for the benefit of all men.

## THE SPECIALIZED AGENCIES

In addition to the contributions to the development of the law of outer space activities made by the General Assembly, the UN's specialized agencies have also played some role in the field.[111] We have already noted, in Chapter 5, the activities of the International Telecommunications Union (ITU) and its subsidiary bodies in assigning radio channels for space activities, space communications, and radio astronomy.[112]

The International Civil Aviation Organization (ICAO) with over 110 members, already exercises responsibilities which may prove relevant to space operations.[113] The organization now coordinates planning of technical programs for improving air navigation facilities; it promulgates international standards and recommends practices (the ICAO Annexes) which parties are generally bound to observe; it has established jointly supported ocean weather stations; it administers (with the UN) a large technical assistance program. In important matters, ICAO is a lawmaking body; none of its Annexes or Amendments has ever been disapproved by a majority or even by a large number of states.

We have noted earlier both that ICAO's regime is limited to airspace[114] and that the Soviet Union is not a member of the ICAO. Until recently, the organization had been reluctant to attempt to assume a large role in space activities,[115] although several commentators have at times suggested such an expansion.[116] Moreover, certain space developments--satellite communications systems, for example--may well affect civil aviation. It is also clear that the status of space vehicles and their relationship to ICAO's concerns while in airspace on ascent or descent may in time require clarification.

ICAO has sporadically considered the problems of outer space activities since 1956, particularly in its Legal Committee.[117] The United States, joined by other countries including the United Kingdom, have nevertheless been firm in arguing that ICAO should not attempt any general approach to outer space through broad legal and technical studies, that it should deal with specific problems only as they arise, and that the question of the upper limit of airspace is a political rather than a legal question.[118] Other states' representatives urged a more active role, at least where space activities impinged on airspace activities, as in the problem of liability.[119]

In 1965, in a change of pace, the ICAO Assembly resolved to move beyond its passive role and to begin the study of the aspects of space activities which will affect civil aviation.[120] In fact, in the fields of telecommunications and meteorology, ICAO has become active to a limited extent since arrangements in these fields are directly important to air transport.[121] Other roles for ICAO -- administration of a navigational satellite system for the benefit of aircraft,[122] regulation of the aeronautical use of communications satellites, the creation of workable definitions for "aircraft, airspace," etc -- have all been suggested.[123] All would raise political problems and legal issues as well. Of course, the existing organization is not designed to undertake direct exploration, exploitation, or control of a new area; it is a device for the orderly use of existing opportunities in a commercial field. As an entity, ICAO has continued to move most cautiously in this new field.

Although several other agencies have a direct interest in space activities, they are not themselves primarily operating entities and, hence, their effect on the law is necessarily indirect. The World Meteorological Organization (WMO) for example, with

some 127 members in early 1966, , essentially coordinates and promotes cooperation among national weather services. The WMO has concerned itself with space technology since 1958 through studies, the creation of a panel of experts, reports on space activities of special significance for meteorology, the preparation of a World Weather Watch (a cooperative global observing and prediction system), etc.[124] It has participated in the International Geophysical Year (IGY), the Years of the Quiet Sun, and the work of the UN Outer Space Committee.

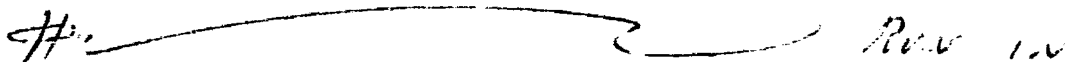
UNESCO and the World Health Organization (WHO) have played some similar part. UNESCO[125] was mentioned in the 1959 Ad Hoc Committee Report and has undertaken to assist in the coordination of basic research by giving financial support to international scientific organizations interested in space, by helping to organize international meetings, and by organizing training courses in science. It has also urged and encouraged an interest in space communications as a technique for mass global communications, a subject discussed elsewhere in this study.

WHO has also been represented at meetings of the UN's Outer Space Committee.[126] It is interested in the effects of space flight on health, on contamination and so forth. It has not yet had an active program connected with outer space activities but could play a larger role in time.

In addition, the International Atomic Energy Agency (IAEA) has evinced some interest in technological problems of space activities (propulsion, other energy requirements, shielding, contamination, etc.) and in some biological aspects (effects of radiation, etc.).[127] It has assisted to a limited degree in

organizing meetings and has prepared some research papers. The idea of using the IAEA as an analogy for the regulation of at least certain outer space activities has also been broached in the literature.[128]

In all, despite the potential inherent in each of these organizations, they have to date played little or no part in space developments; at most they have helped fill the need for the exchange of information, the coordination of programs, and the creation of prospective programs. The nations have been as unwilling to give these agencies any operating role (except inevitably for the essential but limited functions of the ITU) as they have been unwilling to give the United Nations itself any major part in the conduct of space activities.



## OTHER INTERNATIONAL ARRANGEMENTS

### Bilateral

One of the most striking aspects of the movement of the major powers into outer space activities is the extent to which other nations have, by one program or another, been brought into formal legal arrangements with a launching state, to date almost exclusively with the United States. In addition to the general treaties discussed at length in the text of earlier chapters, agreements made by the United States have taken the form of executive agreements and memoranda of understanding.[129] Under Section 205 of the National Aeronautics and Space Act of 1958, as amended,[130] the administration was encouraged to engage in a "program of international cooperation" and by mid-1967 NASA had developed formal contacts with some eighty-four countries or separate jurisdictions.[131] Intergovernmental executive arrangements have been negotiated by the Department of State on behalf of and with the assistance of NASA, while NASA has entered into memoranda of understanding and letter agreements with cooperating foreign agencies after consultation and concurrence by the Department of State.[132] Other relevant arrangements have been made by the Smithsonian Institute's Astrophysical Observatory.

Among the areas covered, the United States had entered into bilateral tracking and data acquisition agreements with Australia, Canada, Chile, Ecuador, Malagasy, Mexico, Nigeria, South Africa, Spain, and the United Kingdom.[133] Experimental communications satellite testing agreements were in effect with Brazil, Canada, France, the Federal Republic of Germany, India, Italy, Japan, the

Scandinavian countries, Spain, and the United Kingdom.[134] Cooperative project agreements, including some fourteen for jointly created satellites and the launching of satellites prepared in other countries, were in existence with Argentina, Australia, Brazil, Canada, Denmark, France, the Federal Republic of Germany, India, Italy, Japan, Mexico, the Netherlands, New Zealand, Norway, Pakistan, Sweden, the United Kingdom, the Soviet Union, and with the European Space Research Organization (ESRO) as an entity.[135] The Smithsonian Institute has also made certain space-related arrangements with Argentina, Australia, India, the Netherland Antilles, Peru, Spain, and South Africa.[136] There are now several score of stations throughout the world engaged in reading out pictures from U.S weather satellites;[137] many Resident Research Associates from dozens of countries working at NASA centers; International Fellows from numerous countries study at American universities. In addition, many technical trainees from other countries were in training in the United States as part of NASA's cooperative projects. By mid-1967, the United States had cooperative agreements with 34 countries and ESRO, and had space agreements of one sort or another with 84 nations.[138] There were, in addition, the special US-USSR arrangements in the fields of meteorology and communications which we have described earlier.[139]

Typically, executive agreements concerning cooperative projects outline the basic nature of the experiment, list the specific responsibilities of each party for providing equipment and technicians, and call for the exchange of scientific data recovered from the experiment. The cooperating country usually provides part or all of the scientific payload. There is ordinarily no exchange of funds and each party finances its part of the activity.. In

almost all instances the United States provides the rockets which may be launched by NASA or by a cooperating country from a United States range or from a range of a cooperating country. Ownership of a rocket may be retained by the United States, or it may be transferred on the basis of grant or purchase. Launching and tracking equipment is frequently made available on a loan basis. Technicians may be either American, or from the cooperating country, or both, and US training of personnel may be included.

Only a few agreements make any reference to liability in the event of an accident resulting in damages, and in those cases the initiative for such provisions seems to have come from the cooperating country rather than from the United States. Most tracking station agreements--the second most numerous category--include a clause providing that "all costs of constructing, installing, equipping and operating the station will be borne by the Government of the United States.[140]" which is probably broad enough to include damages. However, a few agreements do contain specific liability provisions.[141] Agreements relating to communications satellite experiments include no reference to liability. Such agreements usually provide for experimental use of a satellite for communication, with each party providing its own transmitting and receiving equipment, personnel, and an exchange of data.

The cooperative project agreements, fairly similar in form regardless of the nature of the particular activity they seek to implement, are frequently reached in two steps: an exchange of formal diplomatic notes between governments--represented by their respective foreign offices--[142] and memoranda of understanding or letters of agreement between agencies of governments. The diplomatic notes may serve as an umbrella agreement for several cooperative space activities. They are usually general in nature and express an intent to achieve

further cooperation by making possible joint projects, which may not be further specified or are named without explanatory detail. The exchange of diplomatic notes is usually supplemented by memoranda of understanding about each specific project entered into by the cooperating agencies of the states which were parties to the exchange of notes.

NASA has stated[143] that in developing its international activities it has observed the following guidelines:

1. Designation by each participating government of a central civilian agency for the negotiation and supervision of joint efforts

2. Agreement upon specific projects rather than generalized programs

3. Acceptance of financial responsibility by each participating country for its own contributions to joint projects

4. Projects of scientific validity and mutual interest

5. General publication of scientific results.

Leaving the details of specific activities for coverage in memoranda of understanding or letters of agreement between NASA and the foreign cooperating agency provides flexibility and ease of modification which would not exist if changes could be effected only by the exchange of formal diplomatic notes. However, in some instances it appears that the entire arrangements may be included in the formal notes; in other instances the formal notes have been dispensed with entirely, although there is no clear pattern of situations in which this has been done.[144] Presumably the constitutional and policy requirements of the cooperating countries account in part for the differences. It might be observed that a diplomatic note exists in every instance where the United States is authorized to build or utilize facilities on foreign soil. Sometimes a letter of agreement between an official of

NASA and a counterpart in the cooperating state has been used rather than a memorandum of understanding. Letters have been used for agreements to include some non-US experiments with an American launching.[145] Sometimes, too, letters of agreement are used for a project proposed at the last minute, and there is not time to permit the preparation of the slightly more formal memorandum of understanding.[146]

The convenience and practical common sense of using the simplest form of executive agreements to cover temporary arrangements for single and perhaps only minor space experiments is obvious. Formal treaties might be out of date by the time they are ratified without ever having been utilized. Government-to-government exchanges are occasionally used to confirm agency-to-agency agreements already made and, in some instances, already carried through to completion of the experiment. Whether confirmation occurs before or after completion of the experiment is apparently based on the problems of the moment rather than on narrow policy or legal rules. In other instances, agency-to-agency agreements contain no reference to governmental approvals.[147] Even the NASA-Soviet Academy of Sciences Memorandum of Understanding for Cooperation in Space of June 8, 1962, stated no requirement for confirmation of the exchange, but on August 29, 1962, an exchange of diplomatic notes was accomplished.[148]

The procedures and policies being used in connection with agreements for cooperative activities in space present no significant departures from those of the past used by the United States in connection with treaties and executive agreements. Congress authorized and directed NASA to engage in cooperative activities in space, and the legislative history of the Act creating NASA indicates an anticipation that executive agreements would be used extensively.[149] These usually

do not call for an exchange of funds, as each agency is usually responsible for its own costs, although in a number of instances there have been provisions for a loan of equipment. A few observers and technicians may be temporarily in the country where the launching takes place, but numbers are small, visas are handled routinely, and no special arrangements are necessary for them. The limited number of personnel involved is unlikely to create any incidents or have any impact on the local community. The only exceptions are a few of the tracking stations. In those instances where construction of facilities and stationing of personnel are involved, considerably more detail is included since acquiring the use of land and stationing personnel in the host country is involved. Free and full exchange of scientific information acquired through cooperative endeavors is called for in almost every instance.

Note: Bilateral Space Agreements Involving The Soviet Union

In addition to US-USSR agreements involving communications and meteorological links,[150] Russia has also entered into arrangements with other states for cooperative space activities. In June 1966, a ten-year arrangement involving common experiments was made with France, for example.[151] Russia has also established stations in the United Arab Republic and in Mali to be jointly operated to photograph artificial satellites[152] and has agreed to aid Cuba's meteorological service and hurricane detection system.[153] No doubt other specific agreements exist; in late 1965, Radio Prague disclosed that, at a meeting of Soviet-bloc countries in Moscow in November 1965, Russia had agreed to launch Communist nations' artificial satellites, sounding rockets, and probes for scientific research.[154]

Although very small in comparison with American cooperative programs to date, there is ample evidence that the Soviet Union has also moved in the field of bilateral arrangements.

Multilateral Space Agreements Involving the Soviet Union

At least in Western Europe a determined effort to move collectively into the field of space activities has developed.[155] France, the United Kingdom, the Netherlands, Switzerland, West Germany, Belgium, Sweden, Denmark, Spain, and Italy have joined forces in the European Space Research Organization(ESRO), which aims at the development and construction of space vehicle launchers and their equipment. Initially, work involved vehicles and satellites contributed by Britain, France, West Germany, and Italy, while the Netherlands and Belgium furnished radio and other equipment and Australia was responsible for some of the range and support facilities.

ESRO is designed to promote the training of European experts in space technology, to help with the exchange of scientific and technical information, and to assure national research groups of launching arrangements. Sounding rocket experiments began in July 1964, and the first ESRO satellites were set for NASA launching in 1967-68.[156] Also planned are a European Space Technology Center (ESTEC), a computing center at Darmstadt, and an institute in Italy to do research on physical and chemical processes in outer space.

In the spring and summer of 1966, certain dissatisfaction was evident with respect to cost-sharing as costs rose steadily. Britain, in particular, threatened to withdraw, but the matter was at least temporarily resolved by late summer.[157]

Regional European cooperation in the field of communications satellites is effected through the European Conference on Satellite Communications. There is also some machinery available in NATO[158] and a special Scandinavian Committee for Satellite Telecommunication.

In addition to the European governments, space efforts are supported as well by Eurospace, a combination of over a hundred commercial firms seeking to participate in the new space technology.[159] In Britain space industries have formed a British Space Development Company (BSDC), a consortium of interested companies which has, among other things, advocated (at least at one time) a Commonwealth satellite communications system.[160]

In the Western hemisphere, an Inter-American Committee on Space Research was established in November 1960. It was designed to encourage and coordinate space-related research and activities in Latin America, but it is still apparently in the planning stage.[161]

## Nongovernmental Space Agreements Involving the Soviet Union

A number of nongovernmental (using the term formally in some cases) arrangements and organizations have played and are playing an important role in outer space research. Despite their importance, here we note them only briefly; some have been extensively reported on elsewhere, while others have little or no direct role in the creation of the law governing space activities.

Those familiar with space achievements to date will readily recall that the space age was begun in the period known as the International Geophysical Year (1957-58). That remarkable, quasi-governmental, cooperative achievement by scientists from sixty-six countries provided the means for coordinating nationally prepared scientific programs, especially for the Antarctic and outer space. The

IGY has been thoroughly chronicled,[162] and its impetus with respect to space research and to a feeling of a shared world interest in outer space developments is apparent. Yet of all the IGY programs, that for space achieved the poorest record for the exchange of information, a tribute to the delicacy of the interconnection between scientific and military prestige considerations in this new arena.[163] The influence of the IGY on the development of a regime for space activities was discussed in Chapter 4.

The coordinating function for national space programs partially achieved by the IGY was continued in the Committee on Space Research (COSPAR).[164] COSPAR was at first composed of representatives from countries engaged in launching rockets or satellites (Australia, Canada, France, Japan, the USSR, the UK, and the USA together with three from states engaged in tracking space vehicles, chosen on a rotational basis, plus representatives from the nine international scientific unions interested in space research. Here, too, the political realities of space progress required changes; the Soviet Union, within the first year, demanded a form of "veto" in this formally nongovernmental organization and, under the threat of a Soviet boycott, the arrangements were changed to permit, in fact, either great space power to "veto"[165] proposed activities of the organization. Thus, each in effect controls the election of three of the seven members of COSPAR's Bureau of the Executive Council, and a vote of two-thirds of this bureau is neccessary to confirm decisions made by the Executive Council.[166] Despite this perhaps inevitable handicap, COSPAR has been active in arranging for the exchange of information and in reporting national space activities. Both major powers have been actively concerned with the questions of radio frequencies for space research and operations, of potentially harmful space experiments, and of the sterilization of space vehicles. Annual meetings are held with an increasingly

large attendance of scientists from several dozen nations.[167]

Coordinated scientific programs patterned on the IGY have also been continued through International Geophysical Cooperation 1959 (IGY - 1959) and the International Years of the Quiet Sun (IQSY).[168] The latter took place in 1964-65, and a special "watch on the sun" was kept by scientists around the world.

The International Astronautical Federation (IAF) is a federation of national societies interested in space exploration and rocketry. It was actually founded seven years before Sputnik I. It enjoys consultative status with UNESCO. In 1960, it in turn founded the International Institute of Space Law (IISL), a group of legal scholars interested in legal and governmental problems created by space activities, and the International Academy of Astronautics (IAA), a distinguished group of individuals drawn from the basic, engineering, and life sciences, with special interests and expertise in the space field.[169]

These organizations, together with national groups, are important for the exchange of information and for the generation of ideas; being nongovernmental, they do not create international norms directly, although in some cases their studies and activities may be highly relevant to the positions assumed by governments.[170]

APPENDIX D FOOTNOTES

[1]See "International Cooperation and Organization for Outer Space," Staff Report prepared for the Senate Committee on Aeronautical and Space Sciences, 89th Cong., 1st Sess., Doc. No. 56 (Galloway ed., Aug. 12, 1965) [hereinafter cited as Staff Report]; Frutkin, International Cooperation in Space (1965) [hereinafter cited as Frutkin]; Haley, Space Law and Government (1963) [hereinafter cited as Haley]; "United States International Space Programs: Texts of Executive Agreements, Memoranda of Understanding, and Other International Arrangements, 1959-1965," Staff Report prepared for the Senate Committee on Aeronautical and Space Sciences, 89th Cong., 1st Sess., Doc. No. 44 (July 30, 1965) [hereinafter cited as Texts]; Christol, The International Law of Outer Space, chap. 3-6, passim (1966); Van Dyke, Pride and Power, chap. 14 (1964); Lipson, "Space Technology and the Law of International Organization," Report of the Space Law Committee of the Int'l Law Assoc., Annex II (Tokyo, 1964) [hereinafter cited as Lipson]; Kash, The Politics of Space Cooperation (1967).

For suggestions on the need and utility of international cooperation, see also Ambassador Goldberg, "International Cooperation in Outer Space," 54 Dept. St. Bull. 163-67 (Jan. 31, 1966); Subcomm. on Int'l Orgs. and Movements, Comm. on For. Aff., 89th Cong., 2d Sess., at 35-40; "Report on Activities of the International Cooperation Years," (June 1966); Bloomfield, "Outer Space and International Cooperation," 19 Int'l Org. 603 (1965); Bourely, "International Organizations for Cooperation in Space and the Problem of Liability for Space Activities," Proceedings, 8th Colloq. 1-9 (1965); Lipson 702-709.

[2] In addition to the official documents the matters covered in this section are also reported and/or analyzed in varying degrees in, among many: Jessup & Taubenfeld, Controls for Outer Space and the Antarctic Analogy, 252-65 (1959); Staff Report, 163-552; Jessup & Taubenfeld, "The United Nations Ad Hoc Committee on the Peaceful Uses of Outer Space," 53 Am. J. Int'l 877-81 (1959) [hereinafter cited as "UN Ad Hoc Committee. . ."]; Taubenfeld, "Considerations at the United Nations of the Status of Outer Space," 53 Am. J. Int'l L. 400-405 (1959); Frutkin, 141-85; Haley 298-328; Cooper, "Aerospace Law: Progress in the UN," a Astro. & Aero. 42-66 (May 1964); Zemanek, "The United Nations and the Law of Outer Space," 1965 Yrbk. World Affairs 199-222, [hereinafter cited as Zemanek]; Simsarian, "Outer Space Co-operation in the United Nations," 57 Am. J. Int'l L. 854-67 (1963); Dembling and Arons, "Space Law and the United Nations: The Work of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space," 32 J. Air. L. & Com. 329-86 (1966) [hereinafter cited as "Space Law..."]; Dembling & Arons, "The United Nations Celestial Bodies Convention," 32 J. Air L. & Com. 535-550 (1966); Dembling & Arons, "The Evolution of the Outer Space Treaty," 33 J. Air. L. & Com. 419-456 (1967); and Dembling & Arons, "The Treaty on Rescue and Return of Astronauts and Space Objects," 9 Wm. & Mary L. Rev. 630- 63 (1968); Bloomfield, "Outer Space and International Cooperation," 19 Int'l Org. 603-21 (1965).

[3] 36 Dept. State Bull. 124 (1957).

[4] See Documents on Disarmament, 1945-1949, 33 (Dept. of State Pub. 7009, 1960) and, for Ambassador Lodge's statement, 36 Dept. State Bull. 227 (1957).

[5] See *Documents on Disarmament*, *supra* n. 4, at 832, 871; 37 *Dept. State Bull.* 271, 453 (1957).

[6] General Assembly Resolution 1148 (XII) (Nov. 14, 1957).

[7] See *Documents on Disarmament*, *supra* n. 4, at 938-40, 1047; 38 *Dept. State Bull.* 126 (1958); *Background of Heads of Government Conference (1960): Principal Documents, 1955-59*, 159, 163 (Dept. State Pub. 6972)

[8] For an account of the disarmament discussions from 1957-64 with respect to outer space activities, see *Staff Report* 163-83.

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[9]A/3818, Mar. 17, 1958.

[10]A/3902, Sept. 2, 1958.

[11]A/C. 1/L. 220. Other countries were Australia, Belgium, Bolivia Canada, Denmark, France, Guatemala, Ireland, Italy, Japan, Nepal, The Netherlands, New Zealand, Sweden, Turkey, Union of South Africa, United Kingdom Uruguay, and Venezuela.

[12]UN Doc. A/C. 1/L. 219/Rev. 1, Nov. 18, 1958.

[13]UN Doc. A/C. 1/L. 220/Rev. 1, Nov. 21, 1958.

[14]See A/C. 1/SR. 955, at 15 (Nov. 24, 1958), and see, generally, Report of the First Committee, A/4009, Nov. 28, 1958.

[15]Compare the comment of the Supreme Court of the United States that, with respect to private claims in airspace, this "doctrine has no place in the modern world." United States v. Causby, 328 U.S. 256, 260-61 (1946).

[16]For the position of the various delegations, see A/C. 1/SR. 982-90 and Taubenfeld, supra n. 2, at 400, 402-405.

On the first few years of discussion at the UN, see also Staff Report 183-203; Zemanek 199-204.

[17]A.C. 1/SR. 986, at 9, and SR. 988, at 9.

[18]The Technical Committee's Report is A/AC. 98/3.

[19] The Legal Committee's Report is A/AC.98/2.

[20] See S. Latchford, "The Bearing of International Air Navigation Conventions on the Use of Outer Space," 53 Am. J. Int'l L. 405 ff. (1959).

[21] The United States had also suggested that the problem of relations with extraterritorial life had a very low priority. UN Doc. A/AC/98/L.7.

[22] The Report of the Ad Hoc Committee, submittdd to the General Assembly on June 25, 1959, is A/4141. On the Committee's work, see Jessup & Taubenfeld, "The United Nations Ad Hoc Committee . . .," at 877 ff.; Staff Report, 186-93.

[23] The Australian representative suggested that not only geographical distribution but the present distribution of capabilities and active interest in outer space also be considered. A/AC.98/SR.5 (PROV), at 4.

[24] A/C.98/SR.4 (PROV), at 6.

[25] See, e.g., id. at 4-5.

[26] Res. 1472 (XIV), Dec. 12, 1959.

[27] On the committee from 1959-62, see Staff Report, 194-227.

[28] See A/C.1/L.301 (Dec. 2, 1961).

[29] For other brief comments, see Staff Report, 260-66.

[30] A/AC.105/OR.2., at 5 (Mar. 19, 1962) This "decision" was itself taken by the technique of having the chairman (Matsch) state it, without objection, thus avoiding a vote. On this period, see Staff Report 203-8; 1962 UN Yearbook at 37-55.

[31] See e.g., A/AC. 105/PV. 8, at 41-42, 49-50 (8th meeting, Mar. 27, 1962) (May 15, 1962) and PV. 9, at 3,4 (9th meeting, Mar. 29, 1962) (May 9, 1962).

[32] See, e.g., A/AC. 105/PV. 8, at 34-41 (8th meeting, Mar. 29, 1962) (May 15, 1962) (U.S.); id. at PV.3 at 23-35 (3d meeting, Mar. 20, 1962) (May 7, 1962) (U S S R ). On the work of the First Session of the Legal Subcommittee, see Dembling & Arons, "Space Law . . ." supra n. 2, at 331-33.

[33] A/AC. 105/ PV/3 (3d meeting, Mar. 20, 1962) 23-27. (May 7, 1962)

[34] See, e.g., A/AC. 105/ PV/4, at 23-37 (4th meeting, Mar. 21, 1962) (May 7, 1962), (Canada); id. at PV/5, at 12-17, 32, 38-40 (5th meeting, Mar. 22, 1962) (May 7, 1962) (Australia) (Iran); id. at PV/6 (6th meeting, Mar. 23, 1962) (May 7, 1962) (Poland).

[35] A/AC. 105/L. 1 at 3 (Mar. 29, 1962).

[36] See, e.g., on the meetings in May-June 1962, Staff Report 208-10.

[37] A/AC. 105/PV. 14, at 32 (Sept. 13, 1962) cited in Staff Report 208.

[38] A/AC. 105/PV. 12, at 52 (Sept. 12, 1962).

[39] See A/AC. 105/C. 1/1; A/AC. 105/C. 2/1, at 1 (June 5, 1962). For the U S response, see A/AC. 105/C. 2/SR. 4 at 8 (4th meeting, June 4, 1962). The U.S. later noted that the Soviet Union had also conducted such tests. See A/AC. 105/PV. 11 at 7-10 (Sept. 11, 1962) and see statement of Pres. Kennedy, Mar. 2, 1962, Dept. State Bull. 445 (Mar. 19, 1962) and AEC press releases of Oct. 23, 29, and Nov. 1, 1962, Nos. E-384, E-394, and E-446.

[40] See Report of the Legal Subcommittee, A/AC. 105/6 (July 9, 1962). For the May-June, 1962, meetings, see also Staff Report 211-16.

[41] See A/AC. 105/C. 2/SR.7 (7th meeting, June 7, 1962) (Aug. 21, 1962).

[42] See Report of the Legal Subcommittee, A/AC. 105/6, at 9 (July 9, 1962).

[43] On the meetings, see Staff Report 216-21.

[44] For an account, see A/AC. 105/PV.15, at 56-61; Washington Post, Jan. 8, 1963, at 1.

[45] A/5181 (Sept. 27, 1962).

[46] See A/C. 1/879 (Dec. 4, 1962) (U.K.) and A/C. 1/881 (Dec. 8, 1962) (U S A ).

[47] See, e.g., A/C. 1/PV. 1289, at 12 (Dec. 3, 1962) (U.S.A.); at 58-60 (U S S R ); and A/C. 1/PV. 1296, at 3-12 (Dec. 10, 1962) (U S A )

[48] See statement of Senator Gore, A/C. 1/PV. 1289, at 13 (Dec. 3, 1962) For a Soviet comment, see id. at 57.

[49] See, e.g., statement of Belaunde (Peru), U.N. Doc. A/C. 1/PV. 1290, at 58 (Dec. 4, 1962).

[50] The Outer Space Committee proper met in Feb. - Mar. 1, 1963, but devoted most of its time to deciding on meeting places for its Subcommittees. This, too, involved arguments over a Soviet "veto" on proceedings. After much argument, the Legal Subcommittee met in New York; the Scientific Committee met in Geneva. See Staff Report 227-28. On the work of the Second Session of the Legal Subcommittee, see Dembling & Arons, "Space Law. . . ," *supra* n. 2, at 333-36.

[51] See Report of Legal Subcommittee on Work of Its Second Session, 16 Apr. 16, May 3, 1963, A/AC. 105/12. For a summary, see Staff Report 229-31. For the views of the U.S. representative, Meeker, see VIII Dept. State Bull. 923-25 (June 10, 1963).

[52] See report, A/5549, (Sept. 24, 1963).

[53] For a discussion of this period, see Staff Report, 231-33.

[54] U.S. Arms Control and Disarmament Agency, Docs. on Disarmament, 1963, 535-37 (Pub. No. 24, Oct. 1964).

[55] The chairman introduced the draft which was not formally sponsored by any state.

[56] See the additional Report of the Committee on the Peaceful Uses of Outer Space, A/5549/Add. 1 (Nov. 27, 1963). See also Staff Report 233-235.

[57] See First Committee meeting 1342-46; draft declaration, A/C.1/L.331; Report of First Committee, A/5656. See also Report of the Committee A/5549 and Add. 1. See also Staff Report 235-37.

[58] For a full discussion of the legal effect of ten resolutions, see <u>supra</u> chap. 4.

[59] See A/C. 1/PV. 1342., at 12 (Dec. 2, 1963).

[60] See UN Doc. A/C. 1/L. 332 and Rev. 1.

[61] In 1963, there were 30 U S and U S S R notifications concerning 52 successful launchings. See A/AC. 105/INF. 25-AC. 105/INF.55.

[62] As noted previously, the important work of scientific and technical coordination is not surveyed herein. See UN Yearbook, 1963, passim, and sources and documents cited therein.

[63] On assistance and return, see: A/AC. 105/C. 2/Rev. 1 and . 2 (Soviet drafts); A/AC. 105/C. 2/L. 9 (U.S. draft); W.G. I/17 and Rev. 1 and W.C.I/30 (Australian and Canadian proposals).

On liability, see A/AC. 105/C. 2/L.8 and Rev. 1 and 2 (U/S. drafts); A/AC. 105/C. 2/L.10 (Hungarian draft) A/AC. 105/C. 2/L.7 and Revs. 1 and 2 (Belgian working paper).

[64] See Reports on the Legal Subcommittee, A/AC. 105/19 (covering Mar. 9-26, 1964), A/AC. 105/21 (covering October 5-23, 1964) and Adds. and the Report of the Full Committee, A/5785, Nov. 13, 1964. This latter report and U S. drafts on assistance (A/AC. 105/21/add. 1, Oct. 27, 1964) and liability (A/AC.105/C.2/L.8/Rev. 2, Oct. 20, 1964), a Soviet draft on rescue (A/AC.105/21, Annex I, at 2-6, (Oct. 23, 1964), and a Hungarian draft on liability (A/AC. 105/21 Annex II, at 2-6 [Oct. 23, 1964]) are conveniently reproduced in Staff Report 241-60. On the Mar. 1964 meeting, see Dembling, "Status of the Law of Outer Space in the United Nations," paper presented at the 1964 Annual Convention, Federal Bar Assoc. (mimeo, Sept. 11, 1964). On the Third and Fourth Sessions of the Legal Subcommittee, see Dembling & Arons, "Space Law and the United Nations: The Work of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space," 32 J. Air L & Com 336-71 (1966).

[65] A/AC 105/C.2/L.9.

[66] See Soviet draft A/AC.105/C.2/L.2/Rev. 2 and Australia-Canada proposal WG.I/17.

[67] See revised Soviet draft, A/AC. 105/C. 2/L. 2/Rev. 2, and the revised Australia-Canada draft, W.G. I/30.

[68] The agreed draft appears as Annex III, Report of the Legal Subcommittee, UN Doc. A/AC. 105/21.

[69] For criticism of this view on humanitarian grounds, see the statement of the Italian delegate, SR. 29-37, at 56.

[70] See WG. I/9.

[71] Sweden, SR. 29-37, at 56. Note the delicate position caused by Sweden's geographic proximity to the U S S R.

[72] France, WG. I/17.

[73] Japan, WG. I/23. Other proposals sought to achieve the same end by linking the rescue and return convention to the proposed liability convention. The Soviet Union insisted that claims should not lead to sequestration of space vehicles.

[74] See, e.g., statements of various delegates SR.42, at 8 (France), SR.42, at 9 (Rumania), SR. 42, at 4 (Argentina; SR.42, at 7 and SR.43, at 3 (Mexico).

[75] See A/AC. 105/C. 2/L. 2/Rev. 2 (Soviet draft).

[76] SR.44, at 8 (Hungary).

[77] SR.44, at 3.

[78] SR.43, at 3 (Mexico).

[79] See comments of Mexico, SR.43, at 3, SR.44, at 5; Rumania and Austria, SR. 44, at 4-5.

[80] See UN Doc. A/AC. 105/C. 2/L.2/Rev.2.

[81] See UN Docs. A/AC. 105/C.2/L. 9 (U.S. draft) and WG. 1/30 (Australia-Canada Working Group draft).

[82] SR. 46, at 3-4 (U.S.); SR. 47, at 3(Canada); SR. 47, at 6-7 (Australia).

[83] SR. 47, at 3.

[84] This was the view expressed by the Soviet (SR.46, at 3), Bulgarian (SR 46, at 4), and Rumanian (SR 47, at 5-6) delegates.

[85] For other suggestions, see the Mexican statements, SR 45, at 8 and SR 46, at 5.

[86] The fourth session had three drafts before it: Art. 4 of the Soviet draft UN Doc. A/AC. 105/C. 2/L2/Rev.2), Art. 2 of the U.S. draft (UN Doc. A/AC. 105/C.2/L9), and Art. 4 of the Australia-Canada draft (WG. I/30).

[87] See SR. 45, at 3,4, 7-8.

[88] See the statements by the delegates of France (SR. 45, at 9) and of the United States (SR. 45, at 5).

89 SR. 45, at 3.

90 The Report of the Legal Subcommittee on the Work of Its Fourth Session is A/AC.105/29 (1 Oct. 1965).

91 For text of the speech, see 54 Dept. State Bull. 900 (1966) or New York Times, May 8, 1966, at 66. This had been foreshadowed by speeches of Ambassador Goldberg at the UN on Sept. 23 and Oct. 18, 1965. See, e.g., Washington Post, Dec. 20, 1965, at A 15.

92 See 54 Dept. State Bull. 900 (1966) or New York Times, June 17, 1966.

93 For text, see A/6341 (1966) and New York Times, June 1, 1966, at 27. For comment, see Washington Post, June 1, 1966, at A1; New York Times, June 3, 1966, editorial.

94 See A/AC. 105/32(June 17, 1966).

95 See A/6352 (June 16, 1966).

96 On the Geneva meetings, the documentation for which is difficult to obtain, see the detailed account in Dembling and Arons, "The United Nations Celestial Bodies Convention,"32 J.Air L. & Com. 535, : 538-48 (1966). See also, for newspaper accounts, e.g., New York Times, July 22, 1966 July 31, 1966 . For Ambassador Goldberg's opening statement, see LVI Dept. State Bull 249-52 (Aug. 15, 1966).

[97] See Dembling & Arons, supra n. 96, at 548-50: New York Times, Sept. 14, 1966.

[98] See New York Times, Sept. 14, 1966.

[99] See New York Times, Sept. 17, 1966; Sept. 23, 1966. The U S offered to make tracking facilities the U.S. available to the U S S R. by means of a "mutually beneficial agreement."

[100] See New York Times, Oct. 6, 1966.

101
See *New York Times,* Dec. 9, 1966; Pres. Doc. 178-82 (Dec. 12, 1966).

102
See also *New York Times,* Dec. 20, 1966.

103
Gen. Assem. Res. 2222 (XXI) January 25, 1967.

104
A/AC.105/C.2/L.20 (1967). On developments in 1967-68, see chapters 3 and 4, *passim* and Dembling and Arons, "The Treaty on Rescue and Return of Astronauts and Space Objects," 9 *Wm. & Mary L.R.* 630-63 (1968).

105
A/AC.105/C.2/L.18 (1967).

106
See statement of Amb. Morozov, A/AC.105/PV.49 at 61 (1967).

107
See Dembling & Arons, *supra* n. 104 at 639-641.

108
On the meaning of the treaty, see chapter 4, *passim,* and Dembling & Arons, *id.* at 641 ff.

109
The U S drafts included recourse to the International Cov of Justice; the Soviet Union suggested a limit to consultation between the parties.

110
See statement of Amb. Goldberg, Dec. 16, 1967, US/UN *Press Release*-246 (Dec. 16, 1967).

[111] See generally, Jessup & Taubenfeld, Controls for Outer Space and the Antarctic Analogy 87-92 (1959) [hereinafter cited as Jessup & Taubenfeld]; Staff Report 263-784; Haley, Space Law and Government 304-12 (1963); UN, Review (by the Secretariat) of the activities and resources of the UN and its specialized agencies, A/AC.105/L.29 (1966).

[112] See also Staff Report 263-84. For UN information on the ITU and space activities, see, e.g., A/AC. 105/L.12, A/AC. 105/L.16, E/4037/Add. 1, A/AC.105/L.24 (Fifth Report, 1966).

[113] See Staff Report 331-48; Schenkman, The International Civil Aviation Organization (Geneva, 1955); Billyou, Air Law 263-66 and sources cited, (2d ed. 1964); Jessup & Taubenfeld 87-89.

[114] See supra, Chap. 3 for a relevant discussion. ICAO Annexes, it will be recalled, define an aircraft as "Any machine that can derive support in the atmosphere from the reactions of the air." (Annex 6) Present space vehicles, at least, seem to be excluded.

[115] See, e.g., ICAO, Legal Comm., 12th Sess., Doc. 8111-LC/146-2, at 204 (1960).

[116] See, e.g., Staff Report 340 and sources cited, esp. in notes 1-3.

[117] See Staff Report 340-47.

[118] See Report and Minutes of the Legal Commission, 12th session of the ICAO Assembly, ICAO Doc. 8010, A12-LE/1, at 26, 32.

[119] See id. at 30 (France, Mexico).

[120] See, e.g., A/AC. 105/PV.40, at 105-7 (statement of Mr. Heierman of ICAO) (Oct. 7, 1965).

[121] See Staff Report 342-44.

[122] For a comment on a joint approach by ICAO and the Inter-Governmental Maritime Consultative Organization (IMCO) to the problems of navigation satellites, see A/AC. 105/PV. 37, at 15.

[123] See Staff Report 344-47. In general, see also J. H. Heierman, "The International Civil Aviation Organization and Outer Space," 2 ICAO Bull., 3-5 (1966); Larsen, "Space Activities and their Effect on International Civil Aviation" (mim[illegible] paper prepared for the 10th colloquim of the IISL, 1967).

124 See WMO, First Report on the Advancement of Atmospheric Sciences and heir application in the Light of Developments in Outer Space, Geneva, Secretariat of the WMO, June, 1962. See also Second (1963), Third (1964), etc. reports. For a summary, see Staff Report 284-308. See also Reports of WMO to the Outer Space om., e.g., A/AC. 105/PV., at 63-68 (6 Oct. 6, 1965) and A/AC.105/L.31 (Fifth Report). For President Johnson's statement on the WMO and the World Weather Watch, see Pres. Doc. 439 (Mar. 25, 1966).

In considering the need for international cooperation in scientific affairs, Harlan Cleveland, then Asst. Secy of State for Int'l Org. Affairs, said, in 1964: "The technological imperative--the impulse to build worldwide technical agencies--comes of course from the headlong pace of scientific discovery. A world technical community is in the making because international communications, international transport, and international economics demand international organizations--and because you can't deal with world health or world weather or radio frequencies and a lot of other things except on a world basis....

"Taken together, three new kinds of technology--weather satellites, communications satellites, computer technology--now make it technically possible to work out a global weather reporting and forecasting system, a prospect too valuable to all nations to leave unexploited. The United States is now engaged in a very large program of research and development in this field that will involve the cooperation of more than 100 other countries. This, together with what other countries are doing, will fit into an overall plan for a World Meterological Organization, a specialized agency of the U.N.

"In just 2 years our first Tiros satellites discovered 20 hurricanes, typhoons, and tropical storms and observed the behavior of 62 others. And world data centers to process these and other reports and issue warnings have been established in Washington and Moscow. . . ." See Cong. Rec. 5462-64 (Mar. 18, 1964); 1964 Astro & Aero 83-84 (1965).

[125] See Staff Report 308-19.

[126] See, e.g., A/AC.105/C.2/SR. (Aug. 21, 1962).

[127] See Staff Report 319-31 and e.g., statement by the IAEA representative, A/AC.105/L.21 (Oct. 8, 1965).

[128] See remarks of Secretary of State Dulles, 1959; 2 Documents on Disarmament, 1945-59, 942 (Dept. of State 7008; 1960). For detailed comments, see Staff Report 323-30.

[129] Texts, passim. See generally Frutkin, International Cooperation in Space, Chap. 2 (1965) [hereinafter cited as Frutkin] and A/AC.105/L.25 (National and Cooperative International Space Acitivities).

[130] Public Law 85-568, 72 Stat. 426. For national arrangements within other states, see Staff Report 63-101, which covers space program in 39 other countries.

[131] See e.g., NASA Report of Apr. 28, 1966; New York Times, Apr. 28, and Apr. 29, 1966; speech of Meeker, Aug. 17, 1967 at 9-10 (mimeo).

[132] Texts 3.

[133] These are reproduced in Texts 9-227. In general, see also NASA, "NASA International Activities Summary," NASA International Programs 16-17 (1966).

[134] These are reproduced in Texts 229-79. This section does not include discussion of commercial communications arrangements developed through Comsat Corp. See Chap. 5.

[135] See Texts 281-427. On the Soviet-U.S. arrangements, see also id. at 5-6. On European-U.S. cooperation in deep space research, see remarks of then-Chancellor Erhard, Dec. 1965, Washington Post, Dec. 21, 1965, at A1.

The NASA-ESRO arrangement affirms "a mutual desire to understand a cooperative program of space research by means of satellites" and a willingness to make the results "freely available to the world scientific community."

On joint US, UK, French, Dutch and private company experiments in OGO V, see New York Times, March 5, 1968, at 17.

[136] See Texts 509-25.

[137] On the 80 stations in 24 countries which received pictures directly from ESSA II, see New York Times, March 1, 1966, at 15.

[138] See generally speech of Meeker, at 9-10 (Aug. 17, 1967).

[139] For an account and documents, see also Staff Report 134-61; Frutkin, chap. 3; Space Bus. Daily, March 20, 1968, at 109 (on the first meteorological pictures received by ESSA from COSMOS CCVI).

140 Agreement with Spain on Tracking Stations, Jan. 29, 1964, 15 U S T 153, T I A S No. 5533.

141 Cooperative Agency Agreement with DOS (Dept. of Supply, Australia) for the Establishment of a NASA Deep Space Radio Tracking Facility near Canberra, Australia, June 10,1963.

142 For the United States, the Department of State. One or the other of the parties is customarily represented by an ambassador or other senior official who may have been visiting in the country at the time. Thus, then Vice-President Johnson while on a visit to Italy, signed a U.S.-Italian exchange of notes entitled Outer Space Cooperation; Space Science Research Programs (Sept. 5, 1962) TIAS 5172; 13 U S T 2120. Occasionally a prime minister may elect to sign such an agreement as with a tracking station agreement with Nigeria.

143 NASA, NASA International Programs 1 (1965).

144 NASA-Argentine Comision Nacional De Investigaciones Espaciales, Memorandum of Understanding (June 14, 1961) covering cooperation in launching upper atmosphere probes and a similar agreement, also with Argentina, dated May 18, 1965, make no reference to being based on an exchange of diplomatic notes. NASA-Brazilian Comissao Nacional De Atvidades Espaciais, Memorandum of Understanding (Mar. 14, 1963, and July 1, 1965) covering probes of the upper atmosphere make no reference to an exchange of diplomatic notes. Similar activites with Australia are provided for by memoranda of understanding, each of which refers to an underlying diplomatic note.

145
A number of letters from Dryden and Frutkin, both from NASA, to various research institutions in Europe, especially England, testify to the popularity of this method of agreeing on the inclusion of foreign experiments in U.S. launchings.

146
As an example, India indicated an interest in participating in communications experiments to be conducted on a U.S. satellite then almost ready for launching. NASA suggested a "simple exchange of letters, thereby dispensing with the more formal memo of understanding which calls for confirmation by an exchange of diplomatic notes." Letter from Frutkin, Assistant Administrator for International Programs for NASA to Shroff, Deputy Secretary of the Department of Atomic Energy of India (Oct. 23, 1964).

147
Memoranda of Understanding between NASA and the Argentine Comision Nacional de Investigaciones Espaciales of June 14, 1961 and May 18, 1965; Memoranda of Understanding between NASA and Brazilian Comissao Nacional De Atividades Espaciais of Mar. 14, 1963 and Apr. 21, 1965; and Memorandum of Understanding between NASA and Department of Atomic Energy of Dec. 31, 1963.

Memorandum of Understanding, NASA-Scandinavian Commission for Satellite Telecommunications (May 22, 1963); Memorandum of Understanding between Dept. of Posts and Telego Communications of the U.S. of Brazil and NASA (July 13, 1961); and Agreement between NASA and Japanese Ministry of Posts and Telecommunications (Nov. 6, 1962) and others.

148
LII Dept. of State Bull. 964-65 (Dec. 24, 1962).

149 President Eisenhower, on signing the bill into law on July 29, 1958, took note of the fact that Sec. 205 of the act says that the new agency "may" enter into cooperative agreements with the advice and consent of the Senate; this he said was a permissive provision, allowing the space agency to seek Senate advice and consent where this was appropriate but not precluding executive agreements without recourse to the Senate. Eisenhower indicated that to interpret Sec. 205 otherwise would be to raise serious constitutional questions. See Documents on International Aspects of the Exploration and Use of Outer Space (1954-62), Staff Report of the Senate Committee on Aeronautical and Space Sciences, 88th Cong. 1st Sess. (May 9, 1963), Doc. No. 18. See also Frutkin 28-35.

150 For more recent reports on the meterological exchange, see New York Times, Sept. 27, 1966; Av. Wk., Sept. 26, 1966, at 26-27; Space Bus. Daily, Mar. 20, 1968 at 109. In Aug. 1966 the U.S.S.R. transmitted to the U.S. for the first time information obtained from its own know meterological satellite, COSMOS CXXII, launched June 25. Previously, the U.S.S.R. had relayed only conventional observations from land stations, ships and balloons. Direct telecommunications channels between Moscow and Washington, D.C., were established after the Mar. 1963 signing of a bilateral agreement for the exchange of meterological satellite data under a June 1962 space cooperation accord. See New York Times, Aug. 20, 1966. On possible Soviet-U.S. relations, see also Frutkin, 4 Astro. & Aero. 20 (Feb. 1966)

[151] See, e.g., 4 Astro. & Aero. 15-16 (Aug. 1966); Space Bus. Daily, June 28, 1966, at 344; New York Times, Dec. 6, 1966; Dec. 10, 1966. For more recent developments, see New York Times, Oct. 4, 1967, at 3 and Jan. 18, 1968, at 52; Av.Wk., Oct. 30, 1967, at 13.

[152] See New York Times, Apr. 16, 1966.

[153] New York Times, May 19, 1966.

[154] New York Times, Dec. 12, 1965. On joint Soviet Blue program, see also New York Times, Dec. 14, 1967, at 26C.

[155] For brief accounts of the European activities, see Staff Report 103-32; Frutkin 132-41. The ESRO and ELDO Conventions are reprinted in Staff Report 509-41. On Europe's interest in space technology, see also New York Times, July 13, 1966. For more recent comments on and studies of ESRO and ELDO, see also Walsh, Science and International Public Affairs (1967), passim; Walsh, "Space Sciences Research in Europe Suffers Growing Pains," 158 Science 242 (Oct. 13, 1967); Av.Wk., Aug. 28, 1967, at 29.

[156] In Dec. 1966, NASA and ESRO signed the first agreement under which a foreign country or organization would obtain satellite launchings from the U.S. on a reimbursable basis. See NASA Release 66-3322 (Dec. 30, 1966). See also Stubbs, "ESRO's First Satellite," 33 New Scientist 10-11 (Jan. 5, 1967). On reported fears that prospective launching of rockets in northern Europen might cause injury among the Lapp population of Sweden, see New York Times, Oct. 21, 1964,

[157] See e.g., New York Times, Apr. 28, 1966, Apr. 29, 1966, June 10, 1966; Tech. Wk., July 18, 1966, at 20; 4 Astro. & Aero. 23-25 (Sept. 1966); Av. Wk., Sept. 5, 1966, at 21, 29. See also, U K Embassy, Inform. Bull. 195/66 (June 1966) and Note, "A Space Policy for Britain," 10 Spaceflight 56 (Feb. 1968).

[158] See Staff Report 120-22.

[159] See Staff Report 12-28.

[160] See Fennessy, "The British Space Development Co.," Interavia, 765 (1965).

[161] See Staff Report 133-140.

[162] See, e.g., Sullivan, Assault on the Unknown: The International Geophysical Year (1961); Jessup & Taubenfeld, Controls for Outer Space and The Antarctic Analogy 110-16, 228-32 (1959) [hereinafter cited as Jessup & Taubenfeld]; Staff Report 353-73; Christol, The International Law of Outer Space 127-35 [hereinafter cited as Christol]; Wilson, I.G.Y., The Year of the New Moons (1961); McDougal, Lasswell, & Vlasic, Law and Public Order in Space 202-206 (1963); see generally Schwartz, International Organizations and Space Cooperation (1962). The Statutes and Rules of the International Council of Scientific Unions (ICSU), the "father" of the IGY, are conveniently reprinted in Staff Report 478 ff. That report also reprints (at 493 ff.) the constitution of the Committee on Space Research (COSPAR), the constitution of the International Astronautical Federation, the States of the International Institute of Space Law, and the International Academy of Astronautics, and the ESRO and ELDO conventions. For an earlier report on the IGY, see The International Geophysical Year and Space Research, Staff Report of the House Select Committee on Astronautics and Space Exploration, 86th Cong., 1st Sess., House Doc. No. 88 (1959).

[163] See Jessup & Taubenfeld 229.

[164] See Staff Report 378-400; Jessup & Taubenfeld 231-32; Christol 136 ff.

[165] See articles in New York Times, Apr. 28, 1959, at 8 (Hamilton) and at 28 (Sullivan).

[166] See Staff Report, 380-81.

[167] See generally id. at 378-400 and Peavey, "International Cooperation in Space Science," 89-101 (Schwartz ed. 1964). For a recent report by COSPAR on training and education, see A/AC. 105/L. 27 (1966).

[168] See Staff Report 373-78 and sources cited.

[169] On the IAF, the IISL and the IAA, see Haley, Space Law and Government, Chap. 2 (1963); Staff Report 410-19. Haley was actively concerned in the organizations from their beginning.

[170] In resisting Soviet demands for a national "veto" over potentially disruptive space activities conducted by other nations, for example, the United States suggested the utility of discussion in COSPAR's Consultative Group on Potentially Harmful Effects of Space Experiments. That group has in fact reported on Project West Ford, on upper atmospheric pollution and on contamination of planets. See, e.g., Staff Report 390-99.

# A GUIDE TO THE STUDY OF THE LEGAL AND POLITICAL ASPECTS OF SPACE EXPLORATION INCLUDING A SELECTIVE TOPICAL BIBLIOGRAPHY

by

Kenneth Anderson Finch* and H. Peter Kehrberger**

This Guide is offered primarily to stimulate further research and study by those interested in space law, and consists of (1) a comprehensive list of legal and non-legal research aids available, (2) an enumeration of the major publications of non-governmental institutions, international organizations, and the U S Government, and (3) an extensive, 'ut still selective, current topical bibliography of American and foreign sources on the law of space.

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GENERAL BIBLIOGRAPHIES ON SPACE LAW

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RAND Report P-1290 (Santa Monica, California, RAND Corporation, 1958), 59 p. Reprinted in full at pp. 291-345, "Space Law: A Symposium," Senate Special Committee on Space and Astronautics, 85th Congress, 2d Session, December 31, 1958, Committee Print (Washington: Government Printing Office,1959); and in part at pp. 330-44, "Legal Problems of Space Exploration: A Symposium," Senate Committee on Aeronautical and Space Sciences, 87th Congress, 1st Session, March 22, 1961, Senate Document No. 26 (Washington: Government Printing Office, 1961), 1967 GPO Catalog No. 87-1: Senate Document 26.

(The latter work is hereinafter referred to as 1961 Senate Symposium).

"Bibliography of Space Law, compiled by K. A. Finch, R. C. Hagan et al, at pp. 37-60 in Survey of Space Law, Staff Report of House Select Committee on Astronautics and Space Exploration, 86th Congress, 1st Session, House Document No. 89 (Washington Government Printing Office, 1959), 1967 GPO Catalog No. 86-1: House Document No. 89. The above-cited sources are acknowledged by L. Lipson and N. deB. Katzenbach in their bibliography at pp. 155-78 in The Law of Outer Space (Chicago: American Bar Foundation, 1961), reprinted at pp. 954-82 in 1961 Senate Symposium.

"Guides to the Study of Communist Views on the Legal Problems of Space Exploration and a Bibliography," compiled by R. D. Crane, at pp. 1011-36 in 1961 Senate Symposium.

"Selected References on the Legal Problems of Space Exploration," compiled by K. A. Finch, at pp. 1329-92 in 1961 Senate Symposium.

Revised and reprinted as "Space Law Bibliography," Air Force Pamphlet 110-14, July 20, 1961 (Washington, Department of the Air Force, 1961), 79 p.

World Bibliography of Space Law, compiled by M. Smirnoff (Belgrade, Institut za medunarodnu politiku i privredu, 1962), 162 p. (This covers the principal works published from 1910 to the end of 1959, with titles translated into English and Serbo-Croatian).

Worldwide Bibliography for Year 1964 of Space Law and Related Matters, compiled by the International Institute of Space Law of the International Astronautical Federation, edited by E. Pepin, IISL Bibl. No. 1 (Paris, IAF Secretariat, 1965), 33 p.; No. 2, 1966, 64p.; No. 3, 1967, 43 p.; No. 4, 1968, 48 p.

Legal and Political Implications of Space Research, compiled by H. P. Kehrberger (Hamburg, Verlag Weltarchiv GmbH., 1965), 421 p. (A bibliography of materials published through 1965 on space law and associated political, military, economical and socio-technological aspects of astronautics, contains 6421 citations, and covers literature from 55 nations in 30 languages, with titles translated into English.)

International Space Bibliography, Outer Space Affairs Group of the Secretariat of the United Nations: U.N. Doc. No. A/AC.105/33, December 1966, 166 p. Thirty-five member states have provided a comprehensive list of books published in their individual countries

dealing in general with space exploration, international cooperation in space activities, the impact and economic , social, political, and legal implications of space activities. English titles in translation are provided.

PERIODICAL INDEXES, GUIDES, AND OTHER REFERENCE WORKS

The more important legal and political indexes and reference guides are:

Index to Foreign Legal Periodicals

Index to Legal Periodicals

Index to Periodicals Related to Law

Index to Publications (RAND Corporation)

Index to United Nations Documents

Monthly Catalog of United States Government Publications

American Journal of International Law (Quarterly bibliographies)

Journal of Air Law and Commerce (Quarterly bibliographies)

Useful non-legal indexes are:

Air University Periodical Index

Bulletin of the Public Affairs Information Service

International Index to Periodicals

International Political Science Abstracts

Index to the Times (London)

New York Times Index

Reader's Guide to Periodical Literature

The Current Digest of the Soviet Press

East European Accessions List

Monthly List of Russian Accessions (a monthly record of monographic and periodical publications received by the Library of Congress from these Communist nations.)

NON-LEGAL PERIODICALS FOR LAWYERS INTERESTED IN POLICY BACKGROUND AND GLOBAL IMPLICATIONS OF NATIONAL SPACE RESEARCH PROGRAMS

The following periodicals are among the best published in the English language:

Air Force and Space Digest (monthly)
Air Force Association
1750 Pennsylvania Avenue, N. W.
Washington, D. C. 20006

Air University Periodical Index (Quarterly)
Air University, Maxwell AFB, Alabama

Astronautics and Aeronautics (Monthly)
Journal of Spacecraft and Rockets (Monthly)
AIAA Bulletin (Monthly)
AIAA Journal (Monthly)
American Institute of Aeronautics and Astronautics
1290 Sixth Avenue
New York, New York 10019

Aviation Week and Space Technology (Weekly)
Space Technology International (Quarterly)
McGraw-Hill Publishing Company
330 West 42nd Street
New York, New York 10036

Journal of the British Interplanetary Society (Bi-monthly)
Spaceflight (Monthly)
British Interplanetary Society
12 Bessborough Gardens
London, S. W. 1, England

Broadcasting (Business Weekly of Television and Radio)
1735 DeSales Street, N. W.
Washington, D. C. 20036

Missile/Space Daily (Daily)
Technology Week, including Missiles and Rockets (Weekly)
American Aviation Publications, Inc.
1001 Vermont Avenue, N. W.
Washington, D. C. 20006

Space Business Daily
Space Business Weekly
1426 G Street, N. W.
Washington, D. C. 20005

Space/Aeronautics (Monthly)
Conover-Mast Publications, Inc.
205 East 42nd Street
New York, New York 10017

Space World (Monthly)
Palmer Publications, Inc.
P.O. Box 388
Amherst, Wisconsin 54406

Telecommunications Journal (Monthly)
International Telecommunications Union (ITU)
Place des Nations
1211 Geneva 20, Switzerland

Telecommunications Reports (Weekly)
1208-1216 National Press Building
Washington, D.C. 20004

UNIVERSITY COURSES OFFERED DEALING WITH SPACE LAW

Dr. Eugene Pepin, President of the International Institute of Space Law of the International Astronautical Federation has conducted a survey of the teaching of Space Law throughout the world. Preliminary reports were issued, and the final report can be obtained upon request. The reports indicate that elements of space law are now incorporated in the teaching of courses in public international law on four continents, in at least the following countries: Argentina, Australia, Belgium, Brazil, Canada, Colombia, Czechoslavakia, France, Germany, Italy, Mexico, Netherlands, Rumania, Spain, Switzerland, United Kingdom, United States, Uruguay, USSR, and Venezuela.

The following university law schools

devote or have devoted part of their international law curriculum to space law or have held seminars on specific legal problems of space exploration: California Western, Columbia, Georgetown, George Washington, Harvard, Loyola of Los Angeles, Northwestern, Oklahoma, Rutgers, Saint Louis, Southern California, Southern Methodist, Stanford, Yale, and McGill University in Canada. Professor L. F. E. Goldie describes his syllabus, "Teaching a Course in Space Law," 19 Journal of Legal Education 89-101 (1966).

ORGANIZATIONS ACTIVE IN THE STUDY OF LEGAL AND POLITICAL ASPECTS OF SPACE

Information concerning committee membership, publications, and future schedule of meetings may be obtained by writing:

American Astronautical Society
1629 K Street, N. W.
Washington, D. C. 20006

American Bar Association
Section on International and Comparative Law
Committee on Law of Outer Space
1155 East 60th Street
Chicago, Illinois 60637

American Institute of Aeronautics and Astronautics
Techical Committee on Law and Sociology
1290 Sixth Avenue
New York, New York 10019

American Society of International Law
2223 Massachusetts Avenue, N. W.
Washington, D. C. 20008

The David Davies Memorial Institute of International Studies
Thorney House, Smith Square
London, S. W. 1, England

Federal Bar Association
Committee on Space Law
1815 H Street, N. W.
Washington, D. C. 20006

Institut de Droit International (Institute of International Law)
88 Rue de Grenelle
Paris 7, France

Inter-American Bar Association
1730 K Street, N. W.
Washington, D. C. 20006

International Institute of Space Law
International Astronautical Federation
250 Rue Saint-Jacques
Paris 5, France
International Law Association
3 Paper Building, Temple
London, W. C. 4, England

World Peace Through Law Center
839 17th Street, N. W.
Washington, D. C. 20006

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AMERICAN ASSEMBLY (Columbia University, New York):

Outer Space--Prospects for Man and Society, edited by L. P. Bloomfield. London and Englewood Cliffs, N.J.: Prentice-Hall, 1962. 203 p.

AMERICAN BAR ASSOCIATION, SECTION OF INTERNATIONAL AND COMPARATIVE LAW, COMMITTEE ON LAW OF OUTER SPACE:

Report of the Committee on Law of Oucer Space. ABA 81st Annual Meeting, Los Angeles, August 25-29, 1958. Published in 1958 Proceedings, pp. 143-53. Reprinted in 1959 Senate Symposium, pp. 472-84.

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(Editor Note: 1966 and 1967 Proceedings not available in Library of Congress. Please Check American Bar Foundation Library.)

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Report to the National Aeronautics and Space Administration on the Law of Outer Space, Project Reporters: L. Lipson and N. deB. Katzenbach. Chicago: American Bar Foundation, Chicago, 1961 179 p. Reprinted in "Legal Problems of Space Exploration: A Symposium," Senate Document No. 26, 87th Congress, 1st Session. Washington, D.C.: Government Printing Office, 1961. Pp. 779-983.

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INSTITUT DE DROIT INTERNATIONAL ("INSTITUTE OF INTERNATIONAL LAW"):

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INTERNATIONAL ASTRONAUTICAL FEDERATION, INTERNATIONAL INSTITUTE OF SPACE LAW (IISL):

First Colloquium on the Law of Outer Space, The Hague, Netherlands, August 29, 1958; edited by A. G. Haley and W. Heinrich. Vienna: Springer-Verlag, 1959. 126 p.

Second Colloquium on The Law of Outer Space, London, England, September 4, 1959; edited by A. G. Haley and W. Heinrich. Vienna: Springer-Verlag, 1960. 176 p.

Third Colloquium on The Law of Outer Space, Stockholm, August 15, 1960; edited by A. G. Haley and K. Gronfors. Stockholm: AB AETATRYCK, Ahlen & Akerlunds Trycherier, 1961. 160 p.

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Report of the Air Law Committee on the Limitations of Air Sovereignty D. Goedhuis: Rapporteur. Forty-Seventh Conference, Dubrovnik, Yugoslavia. 1956, pp. 163-75. 196-215 (includes Report, Discussion, and ILA Resolution).

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NORTHWESTERN UNIVERSITY, SCHOOL OF LAW:

Proceedings of the Conference on the Law of Space and of Satellite Communications: A Part of the Third NASA Conference on the Peaceful Uses of Space, Chicago, May 1-2, 1963. 58 Northwestern University Law Review 215-76, 618-43 (1963); NASA SP-44 (Washington, D. C., Government Printing Office, 1964), 205 p.

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WORLD RULE OF LAW CENTER, DUKE UNIVERSITY:

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RAND CORPORATION

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UNITED STATES AIR FORCE, OFFICE OF THE JUDGE ADVOCATE GENERAL:

The Legal, Socio-Technological Problems of Space Exploration: A National Colloquium. Presented by the United States Air Force Judge Advocate General's Department, Reserve, in Conjunction with the First Annual Meeting of the American Institute of Aeronautics and Astronautics, Washington, D. C., July 2, 1964. Summary published 6 USAF JAG Bulletin 11-23 (September-

October 1964). Full proceedings to be published.

"Symposium on the Law of Outer Space," Special International Law Issue 7 USAF JAG Law Review 1-45 (September-October 1965); 9 USAF JAG Law Review 3-56 (September-October 1967).

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"Legal Problems of Space Exploration: A Symposium," edited by E. Galloway. Senate Committee on Aeronautical and Space Sciences, 87th Congress, 1st Session, Senate Document No. 26, March 22, 1961. Washington, D. C.: Government Printing Office, 1961. 1392 p. GPO Catalog No. 87-1: Senate Document 26.

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