LAW AND SECURITY IN OUTER SPACE: THE ROLE OF CONGRESS IN SPACE LAW AND POLICY

*Eilene Galloway**

I. Introduction

Twenty-five years ago, the first satellite was launched into outer space with such sudden and spectacular success that worldwide attention was directed toward the new frontier. Scientists and engineers had known for some years that rocket technology could be developed to explore outer space and that this new capability could be used for peaceful purposes but also had the potential for warfare.[1] Space experiments were planned by the United States and the USSR as part of the investigation undertaken by scientists of 67 nations in the International Geophysical Year, an 18-month period from July 1, 1957 to December 31, 1958. Global scientific studies were planned for four environments: the earth, oceans, atmosphere and outer space. The United States plan, announced in 1955, called for a modest space program using conventional rocketry. The USSR did not make an advance announcement of its plans which turned out to involve the use of rocketry launching heavy payloads and consequently raising questions of national security.

Congress had played only a minor role up to this point, appropriating funds for the National Advisory Committee on Aeronautics, the National Science Foundation and Defense rocketry research. But with the dramatic first orbiting of a satellite by the Soviet Union, Congress began to give immediate and continuing attention to United States space activities.

Even before the new environment's variety of beneficial uses had developed, the motivation to prevent space wars was paramount. The choice was between Heaven and Hell in modern terms. To attain security in outer space, which includes the Moon and other celestial bodies, immediate attention was given to formulating laws to govern space activities for the benefit of mankind.

Aggression for destructive purposes is among several ways in which outer space could be rendered unfit for use and for the greatest adventure—exploring the Universe. Space debris, some of which might be radioactive, could cause harmful interference with communications, weather prediction and navigation. Contamination could occur between the Earth and outer space; harmful influences could affect the atmosphere of the Earth. Scientists and engineers have been anxious to prevent any type of irreversible damage from experiments or operational systems. We have suffered on Earth from unintentional irreversible damage and the experience compels planning to protect the environment. To guard outer space from all harmful influences is an overriding motive in designing space systems.

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*Honorary Director, International Institute of Space Law; Member, Editorial Board and Advisors, Journal of Space Law.

[1] *International Cooperation and Organization for Outer Space*, S. Doc. No. 56, 89 Cong., 1st Sess. (1965) (staff report by Eilene Galloway for Senate Comm. on Aeronautical and Space Sciences).

National security is a broad term encompassing all those elements essential for maintaining a society in peace and prosperity, including the right of national defense. At a time when the organization of United States civilian and military space activities is being evaluated, a retrospective of some major decisions will be useful in explaining the attention given by Congress to space activities and their implications for the future.

II. Definition of Space Law

Space law has four characteristics: it is national and international and applies both to outer space as a geographic area and to functions performed in that area. Since the space environment is being used to improve many functions required on Earth, it follows that law to regulate these activities applies to the Earth. In fact, the Earth is the location for the manufacture, employment, funding, analysis and use of data and information collected from outer space; the legal problems that arise are the result of the impact upon society of using and exploring this fourth environment which we have added to land, sea, and air.

A codification of all space and space-related law would require several volumes. The purpose of this analysis is to examine some of the main policies embodied in national space law (particularly with reference to the United States), and international space law as presented in the major treaties to which the Senate has given its advice and consent to ratification. After twenty-five years, some of the fundamental policy concepts can be evaluated to determine trends that have been set in motion.

III. Unique Characteristics of Space Science and Technology

Space science and technology have some unique features which facilitate the formulation of laws that ensure compliance whether internationally or within the jurisdiction of nation States. *First,* space vehicles are inevitably international as they orbit the Earth in approximately 90 minutes without regard for national boundary lines. *Second,* all spacecraft require communications which involve allocation of the radio spectrum; non-compliance with assigned frequencies would result in chaos both in terrestrial and space communications. The technical requirement for successful operation enforces legal regulation by the International Telecommunication Union whose authority is derived from a treaty. *Third,* there are special safety and health conditions which must be met by spacecraft entering this unusual environment, and nations engaged in this expensive pursuit realize they must comply with technological imperatives. *Fourth,* the variety and spectacular success of space applications during the first twenty-five years of the space age have strengthened the demand that nothing be allowed to interfere with peaceful pursuits. Perhaps to a greater degree with space activities than with any other subject, noncompliance with the required technology will result in failure whereas adherence to technical regulations will bring success. All technical characteristics must be taken into account initially by those working with any type of space problem. If a technical solution can be found there may not be a legal problem.

IV. Initial Congressional Reaction

Reacting to the knowledge that Soviet rocket technology was capable of launching intercontinental ballistic missiles, the Senate Armed Services Committee's Preparedness Investigating Subcommittee began hearings under its chairman, Senator Lyndon B. Johnson, on November 27, 1957. By July 24, 1958, almost 2,500 pages of testimony had been published, recording the opinions and judgment of experts in science, engineering, industry, and the Government's civilian and military officials.[2]

The Senate and House moved swiftly to pass interim legislation while they figured out how best to organize the Government to achieve preeminence in space for the United States. On February 12, 1958, Public Law 85-325 authorized the Secretary of Defense to engage in advanced research projects, and for one year be responsible for nonmilitary space projects designated by the President. On February 11, 1958, Public Law 85-322 appropriated $10 million to supplement the fiscal 1958 budget, giving transfer authority for advanced research. This temporary legislation was necessary because the Department of Defense did not have statutory authority to develop a nonmilitary civilian space program.

Several reasons were advanced for creating a civilian space agency:

1. National security requires an outstanding space program which will ensure preeminent United States leadership in a broad field encompassing many beneficial civilian applications which are not military in nature.

2. Since space technology has become a factor in the position of the United States in the world, the conduct of foreign policy is often more related to the mission of the Department of State than that of the Department of Defense.

3. The space program should be funded on a long-term basis and not depend upon shorter term military appropriations or have to compete for funds within the Department of Defense.

4. The national space effort could not develop its own essential priorities if it were under the administration of one military service or subject to dispersal among the three services.

5. The Department of Defense must prove it has a military requirement for new projects and would be unlikely to undertake space programs which are primarily scientific, commercial, and cultural in nature.[3]

V. Creation of Congressional Special Space Committees

The comprehensive nature of space activities had become evident during the 1957 hearings of the Senate Preparedness Investigating Subcommittee. United States security required consideration of the total aspects, civilian and military. Many different subjects cut across the jurisdiction of a number of existing Senate and House Committees. A focal point for consideration of total United States space concerns was provided by the

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[2]*Inquiry into Satellite and Missile Programs*, 1957-58: *Hearings Before the Subcomm. on Preparedness Investigating of the Senate Comm. on Armed Services*, 85th Cong., 1st & 2nd Sess. (1957-58).

[3]*Peaceful Uses of Outer Space and the Military Role*, 1962: *Hearings on H.R. 10100 superseded by H.R. 11737. Before the Subcomm. on Manned Space Flight of House Comm. on Science and Astronautics*, 87th Cong., 1st Sess. (1962) (statement of Eilene Galloway, Part 2: 1051-1065).

creation, on February 6, 1958, of the Senate Special Committee on Space and Astronautics.[4] The then Senate Majority Leader, Lyndon B. Johnson, was chairman and the other twelve members were either chairmen or ranking minority members of standing committees that could be concerned with various aspects of outer space: the Committees on Foreign Relations, Armed Services, Commerce, Government Operations, Appropriations and the Joint Committee on Atomic Energy.

On March 5, 1958, the House of Representatives followed suit by establishing the House Select Committee on Astronautics and Space Exploration,[5] also with 13 members chosen from committees likely to have legislative authority and oversight responsibility for space activities. Congressman John W. McCormack, then Majority Leader of the House, became chairman.

There was some speculation at first that legislation for atomic energy could serve as a precedent for outer space, but it was pointed out that outer space was a place where a variety of activities could occur whereas atomic energy was a form of energy. Although the advent of each development was sudden and dramatic, and both had the same potential for peaceful and destructive purposes, it was evident that the law for outer space activities had to be considered according to their unique characteristics.[6]

The nation's foremost scientists and engineers had already taken the initiative in recommending to the Congress and the President some basic ideas about goals and organization before the committees began their consideration of legislation for United States space activities. On November 21, 1957, the Rocket and Satellite Research Panel, chaired by James A. Van Allen, proposed *A National Mission to Explore Outer Space.* By January 4, 1958, the American Rocket Society, whose president was George P. Sutton, proposed the *National Space Establishment. America's Role in the Exploration of Outer Space* was published by the National Society of Professional Engineers on February 13, 1958, and the following day the National Academy of Sciences-National Committee for the International Geophysical Year 1957-58 issued its report on *Basic Objectives of a Continuing Program of Scientific Research in Outer Space.*[7]

These proposals favored the creation of a civilian space establishment separate from the Department of Defense and with independent statutory status. The Department of Defense was to have jurisdiction over space activities relevant to its mission. United States leadership and continuity of adequate funds were emphasized as well as scientific, commercial and cultural objectives. The scientists and engineers explained to the Congress in January 1958 that,

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[4]S. Res. 327, Report No. 1925, 85th Cong. 2d Sess., 104 Cong. Rec. 13772, 13772-73 (1958).

[5]H.R. Res. 580, 85th Cong., 2d Sess., 104 Cong. Rec. 3443, 3443-44, 14513-14 (1958).

[6]*The Problems of Congress in Formulating Outer Space Legislation,* 1958 by Eilene Galloway in *Hearings on H.R. 11881 Before House Comm. on Astronautics and Space Exploration,* 85th Cong., 2d Sess. (1958).

[7]*Staff of Senate Special Comm. on Space and Aeronautics,* 85th Cong., 2d Sess., 1 Compilation of Materials on Space and Astronautics 14-22 (Comm. Print 1958).

> There will be a rich and continuing harvest of important practical applications as the work proceeds. Some of these can already by foreseen—reliable short-term and long-term meteorological forecasts, with all the agricultural and commercial advantages that these imply; rapid, long-range radio communications of great capacity and reliability; aids to navigation and to long-range surveying; television relays; new medical and biological knowledge, . . . and these will be only the beginning.[8]

The exploration of Mars and Venus was foreseen. Manned satellites were predicted along with the landing of a man on the moon and his safe return to Earth.

VI. National Aeronautics and Space Act of 1958[9]

There was unanimity between the Executive and Legislative Branches of the Government on the Declaration of Policy and Purpose in the NASA Act: "The Congress hereby declares that it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind."[10]

Agreement on this policy was solid even before April 2, 1958, when President Eisenhower sent a message to Congress proposing the establishment of a National Aeronautics and Space Agency which would absorb the existing National Advisory Committee for Aeronautics (NACA) while the Department of Defense would be responsible for space activities relevant to its mission.

The hearings before the House Select Committee on Astronautics and Space Exploration dealt with the proposed organization and the nature of Outer Space. Since the Senate Special Committee on Space and Astronautics already had before it the results of the inquiry into the Missile-Satellite Situation by the Senate Preparedness Investigating Subcommittee, its hearings were concentrated on government organization for United States space activities. Dividing space between civilian and defense agencies never became an issue; it was well understood that United States security depended upon developing both approaches.

But a policy concept of organization, different from the Eisenhower proposal and advanced by the Senate Committee, was written into the NASA Act. Instead of an internal advisory committee patterned after the old NACA practice, the NASA Act had a title on "Coordination of Aeronautical and Space Activities" based on the judgment that an internal NASA committee could not exercise authority over other agencies; that numerous agencies would have space and space-related programs which required coordination; and that such coordination should take place at the highest level of government. The National Aeronautics and Space Council was established to allow the President to preside over meetings with the Secretary of State, Secretary of Defense, NASA Administrator, Chairman of the Atomic Energy Commission, an additional member from a Federal department and not more than three distinguished persons from private life. When Kennedy became President, the NASA Act was amended so

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[8] *Id.* at 19.

[9] National Aeronautics and Space Act of 1958, Pub. L. No. 85-568, 72 Stat. 426 (1958) (codified as amended at 42 U.S.C. § 2451 (1976 & Supp. IV 1980)), *reprinted in* 1958 U.S. Code Cong., & Ad. News at 503.

[10] *Id.*

that the Vice President, Lyndon B. Johnson, became chairman, the other members being the Secretary of State, Secretary of Defense, NASA Administrator and the Chairman of the Atomic Energy Commission. The Council's function was to advise and assist the President "as he may request," and although it was not a strong administrative mechanism, there was a permanent expert professional staff to give continuing attention to the Council's functions of surveying all significant aeronautical and space activities, and providing for "effective cooperation among all departments and agencies of the United States" and resolving any differences that might arise.[11]

President Nixon used Reorganization Plan No. 1 of 1973 to abolish the National Aeronautics and Space Council, effective July 1, 1973.[12] This action was evidently part of a general move to eliminate functions from the Executive Office of the President. It is an example of the movement in government between centralization and decentralization as methods of management. Reorganization plans are handled by House and Senate committees with responsibility for government operations in general and are thus not referred to the substantive committees, and unless the Congress takes action against such a plan, it goes into effect. Rejection of such plans has proved difficult. Abolishing the Space Council was the first step taken in the Executive Branch which had the effect of diminishing top-level priority for outer space.

Although the Council as an organization was abolished, together with its functions, the need for overall comprehensive attention to expanding the United States' space activities remained and could not be met by delegating portions to existing agencies; none of these agencies had sufficient authority over other government entities involved in space activities. Thus was lost the analysis made in 1958 by the Senate on the necessity for overall coordination.

Congress provided another method in the NASA Act for overall consideration of United States space activities by requiring the President to send to the Congress each year a report to include—

> (1) a comprehensive description of the programmed activities and the accomplishments of *all agencies* of the United States in the field of aeronautics and space activities during the preceding calendar year, and (2) an evaluation of such activities and accomplishments in terms of the attainment of, or the failure to attain, the objectives described in section 102 (c) of this Act. (emphasis added)[13]

The President was requested to recommend additional legislation if necessary to attain the objectives set forth in the declaration of policy and purpose. This report was valuable both to executive and legislative officials because it revealed in brief form the space activities of every agency engaged in space or space-related programs with descriptions of their activities and an account of specific funding, if any. Some agencies have significant space roles but do not have or need itemized space budgets; for example, the

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[11]*Final Report of the Senate Special Comm. on Space and Astronautics*, S. Rep. No. 100, 86th Cong., 1st Sess. 5-8 (1959).

[12]Reorg. Plan No. 1. of 1973, 3 C.F.R. 1157 (1973), *reprinted in* 87 Stat. 1089 (1973).

[13]Space Act of 1958, *supra* note 9, at Pub. L. No. 85-568, § 206 (a), 72 Stat. at 432 (codified as amended at 42 U.S.C. § 2473 (a) (1976 & Supp. IV 1980)), *reprinted in* 1958 U.S. Code Cong. & Ad. News at 509.

Department of State's use of space science and technology in the conduct of foreign policy, particularly in negotiations at the United Nations leading to treaties which become the law of the land. The report was also valuable in informing all government officials with segments of space programs of the United States' total space activities and where they could expect to find others in the government with responsibilities for communications, meteorology, remote sensing, navigation, etc. The report, organized in a convenient form, could be used to supplement information in Congressional hearings. These reports were sent in compliance with the NASA Act beginning with President Eisenhower until the end of the presidency of Gerald Ford. Thereafter, for three years, the reports lost their usefulness because it was decided by the Office of Management and Budget to develop them by topics chosen according to agencies with specific space budgets, perhaps on some basis of cost-effectiveness, thus eliminating programs of most of the federal agencies, including the Department of States' international responsibilities as well as NASA's international space program authorized in Section 205 of the NASA Act. The 1980 annual report, while almost a year late in reaching the Congress, is in compliance with the NASA Act but unfortunately does not include all space agency activities, omitting, for example, the Arms Control and Disarmament Agency at a time when questions are being raised concerning its role in outer space.[14]

The original NASA Act provided that all agencies cooperate and that there should be "no unnecessary duplication" which, of course, implies that there can be some necessary duplication when programs are divided between agencies that have different purposes.[15] Within these general parameters an administration can be flexible in making practicable technical and economic decisions.

Experience with the NASA Act proved the prudence of the foresight with which it was originally formulated except in the provision on "definitions." The definitions in Section 103 lay the basis for NASA as a research and development institution. This concept applied to aeronautics and the National Advisory Committee on Aeronautics which was the nucleus for NASA. The relation between the government and aviation was clear: the government engaged in research and development (development for research purposes) and the aviation industry manufactured and flew planes. The extent to which astronautics would develop a multiplicity of operational programs not centered in any one industry was not foreseen, and the definitions are not equally applicable to astronautics as they are to aeronautics. This fact was not immediately perceived because NASA was able to do research and development for space communications and turn the activity over to a vigorous existing communications industry. Similarly, meteorological space developments could be turned over to that part of the government which had historically been responsible for weather predictions. It was not until remote sensing of the earth by satellites developed into a great variety of applications which were potentially operational that difficulties arose with NASA's role as stated in the Act's

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[14]*The 1980 Aeronautics and Space Report of the President,* U.S. Gov't Printing Office, Washington, D.C.

[15]Space Act of 1958, *supra* note 9, at Pub. L. No. 85-568, § 102 (c) (8), 72 Stat. at 427 (codified as amended at 42 U.S.C. § 2451 (c) (8) (1976 & Supp. IV 1980)), *reprinted in* 1958 U.S. Code Cong. & Ad. News at 503.

definitions. The products derived from remote sensing were of interest to many nations and industries within the United States but there was not one industry to which they could be turned over. The Congressional space committees were enthusiastic about LANDSAT and urged the Executive Branch to make remote sensing operational, and this was true even when there were different chairmen and committee members. NASA's insistence upon its limited role as only a research and development agency was probably one of the factors which prevented an amendment to the NASA Act whereby NASA could operate certain programs as designated by the President or by Congress. Whatever the reasons, the problem of the relation of government to industry in a variety of space applications has still not been worked out. The role of NASA in aeronautics is clear but a comparable report cannot be made at this time for space activities.

International space cooperation is included in the declaration of policy which calls for "cooperation by the United States with other nations and groups of nations in work done pursuant to this Act and in the peaceful application of the results thereof." The international concept is emphasized in Section 205 which provides that— "The Administration, under the foreign policy guidance of the President, may engage in a program of international cooperation in work done pursuant to this Act, and in the peaceful application of the results thereof, pursuant to agreements made by the President with the advice and consent of the Senate."[16] In signing the bill on July 29, 1958, President Eisenhower stated that he regarded "this section merely as recognizing that international treaties may be made in this field, and as not precluding, in appropriate cases, less formal arrangements for cooperation. To construe the section otherwise would raise substantial constitutional questions."[17]

When the Special Committee submitted its Final Report to the Senate on March 11, 1959, it "recognized the need of the Administration to provide for various types of cooperation as approved by the President."[18] Using this legislative directive and with strong support from both House and Senate space committees, NASA developed through the years an impressive international space program with bilateral and multilateral arrangements with most of the world's nations and major international space organizations. Such programs require close cooperation between NASA and the Department of State.

A significant amendment was made to the NASA Act when annual authorizations were required for NASA's funds. On August 21, 1958, two appropriation bills, one on military construction and the other on supplemental appropriations, were amended to provide for an annual authorization. The requirement was at first temporary but became a permanent feature of the legislative process for outer space: "Notwithstanding the provisions of any other law, no appropriation may be made to the National Aeronautics

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[16]Space Act of 1958, *supra* note 9, at Pub. L. No. 85-568, § 205, 72 Stat. at 432 (codified as amended at 42 U.S.C. § 2472 (1976 & Supp. IV 1980)), *reprinted in* 1958 U.S. Code Cong. & Ad. News at 509.

[17]*Final Report, supra* note 11, at 18.

[18]*Id.* at 18, 31.

and Space Administration unless previously authorized by legislation hereafter enacted by the Congress."[19] This provision gave the House and Senate space committees authority to make an in-depth annual review of NASA's programs and budgets. These hearings constitute an overview of United States space policy and programs year by year, including the interaction with Department of Defense space programs. The legislative process involves hearings by the House and Senate space committees as well as the House and Senate Appropriations Committees, resulting in two laws each year.

VII. Congressional Organization for Space Activities

After the NASA Act had been signed on July 29, 1958, the House and Senate special and select space committees considered how to organize the Congress for legislation on space matters. Four alternatives were studied: (1) a joint House and Senate space committee; (2) division of jurisdiction among existing committees; (3) referring space legislation and review to the Joint Committee on Atomic Energy; and (4) establishing new separate standing committees in the House and Senate. The fourth option was chosen and the House established its Committee on Science and Astronautics on July 21, 1958. The jurisdiction defined in the House rules was broader than that adopted by the Senate, including the addition to space matters of the Bureau of Standards, National Science Foundation, science scholarships, scientific research and development. Most of the subcommittees dealt with various parts of NASA's programs, but experience during succeeding years indicated increased concern with aeronautics and a number of different scientific and technological subjects. A new name and an expanded jurisdiction were adopted by the 93rd Congress in House Resolution 988 so the committee became the Committee on Science and Technology on January 3, 1975.[20] Added to the committee's jurisdiction were research and development for civil aviation, environment, energy and the National Weather Service. Outer space became one among numerous subjects included in science and technology generally and this was reflected in the composition of the subcommittees, resulting in loss of the highest priority for space matters.

The Senate passed resolution 327 on July 24, 1958 creating the new standing Committee on Aeronautical and Space Sciences with jurisdiction over aeronautical and space activities and its scientific aspects except those

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[19]Act of 1959, Pub. L. No. 86-45, § 4, 73 Stat. 73, 75 (1959) (codified at 42 U.S.C. § 2460 (1964)). *See also Senate Comm. on Commerce, Science, and Transportation,* 95 Cong., 2d Sess., National Aeronautics and Space Act of 1958, as Amended and Related Legislation (Comm. Print 1978) (document prepared so all laws pertaining to NASA would be available in single document).

[20] *House Select Comm. on Comms.,* 93rd Cong. 2d Sess., *Monographs on Committees of the House of Representatives* 133 (Comm. Print Dec. 13, 1974). *See Staff Report of the House Select Comm. on Comms.* 93rd Cong., 2d Sess., *Committee Reform Amendments of 1974: Explanation of H. Res. 988* 49. 215 (Comm. Print Oct. 8, 1974). *See generally Constitution, Jefferson's Manual and Rules of the House of Representatives,* H.R. Doc. No. 663, 94 Cong., 2d Sess. 390 (1977) (by Wm. Holmes Brown, Parliamentarian) (stating jurisdiction of House Comm. on Science and Astronautics).

> . . . peculiar to or primarily associated with the development of weapons systems or military operations; . . .
> Such committee also shall have jurisdiction to survey and review, and to prepare studies and reports upon, aeronautical and space activities of *all agencies of the United States*, including such activities which are peculiar to or primarily associated with the development of weapons systems or military operations. (emphasis added)[21]

Legislative jurisdiction over defense matters remained with the Senate Armed Services Committee but the new space committee could include military space matters in its overview of the executive branch. There was thus a focal point for overall consideration of all space-related questions of the United States in the legislative branch comparable to that originally planned for the executive branch when the National Aeronautics and Space Council was created. This concept was lost, however, when the Senate Committee on Aeronautical and Space Sciences was abolished and its functions transferred to the Committee on Commerce, Science and Transportation on February 4, 1977. At that time the Senate passed Committee System Reorganization Amendments of 1977.[22] Jurisdiction over outer space became a function of several subcommittees with authority over communications, oceans, the weather, and "science, engineering, and technology research and development and policy."[23]

The House and Senate Armed Services and Appropriations Committees play the same role in space national defense as the committees with jurisdiction over civilian programs. The authorization and appropriation processes for defense result in two laws each year. NASA's appropriation for fiscal 1981 was $5,541,000,000; plans for fiscal 1982 called for $5,940,000,000; and the 1983 request was for $6,613,000,000. The Department of Defense funding for space-related items grew from $4,797,000,000 in fiscal 1981 to $6,362,300,000 in fiscal 1982 while the request for fiscal 1983 rose to $8,451,700,000.[24]

In addition to the Space and Armed Services Committees which handle the bulk of space legislation and oversight, in any given session of Congress there are other committees which include space items on their agendas. If there is a space treaty, the Senate Foreign Relations Committee has jurisdiction; if aid to developing countries by means of space technology is proposed, both the House Foreign Affairs Committee and the Senate Foreign Relations Committee may become involved; House and Senate Committees on Agriculture can have legislative concerns when space technology is required for land management problems. Surveillance satellites used as a national means of verification for the SALT treaty could concern numerous Congressional Committees: Armed Services, Appropriations, Foreign Affairs, Foreign Relations and the Select Committee on Intelligence. The greatest dispersion can occur with space

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[21] 104 Cong. Rec. 13772, 13772 (1958).

[22] S. Rep. No. 4, 95 Cong., 1st Sess. 1 (1977).

[23] *Senate Comm. on Aeronautical and Space Science, Tenth Anniversary 1958-1968*, S. Doc. No. 116, 90th Cong., 2d Sess. 109 (1980). *See generally Senate Comm. on Rules and Administration*, 95th Cong., 1st Sess., 30-31 (1977) (stating jurisdiction for Senate Comm. on Aeronautical and Space Science).

[24] *Space Policy and Funding: NASA and DOD, Cong., Research Serv.*, Issue Brief No. IB 78093, 16 (May 14, 1982) (By Marcia S. Smith).

communications which cuts across numerous committee jurisdictions. The dispersion within the Legislative Branch reflects not only that within the Executive, but is to be expected from the nature of space science and technology as its application has expanded into numerous areas. The implications for the lawyer, the political scientist and the economist are that the assumption must be made that all space problems are multidisciplinary and every element must be identified and weighed, and then analyzed in terms of all the institutions involved. It is seldom that a space problem can be completely handled by analayzing one institution and it is therefore necessary to follow the ramifications wherever they may lead.

VIII. The Communications Satellite Act of 1962, as amended[25]

This Act provides for the establishment, ownership, operation, and regulation of a commercial communications satellite system. The Communications Satellite Corporation (COMSAT) was created and the relationship between government and the communications industry was worked out. The Act recognized the interrelations between national and international influences. It was the second act passed to establish an institution specifically designed for a space application; the NASA Act is general in its application while the COMSAT Act deals foresightedly with what has become an economically successful enterprise providing a variety of communications services. Legal problems arising from using outer space for communications on the Earth have become a unique specialty in the legal profession. The Act was unusual in providing in Section 102 the basis for international cooperation: U.S. policy is to cooperate with other countries and establish as soon as practicable a global commercial communications satellite system, serving the United States and other countries, and the services are to be directed toward provision for "economically less developed countries and areas as well as those more highly developed. . ."

Creation of the COMSAT Corporation provided an effective means for the United States to play its role in INTELSAT. The act was amended on November 4, 1978, to provide national authority for the United States to participate in the International Maritime Satellite Organization (INMARSAT).[26]

IX. National Science and Technology Policy, Organization, and Priorities Act of 1976[27]

This was the third major law establishing policy and institutions which affect the conduct of the United States' space activities. In this act, Congress recognized "the profound impact of science and technology on society, and the interrelations of scientific, technological, economic, social, political, and institutional factors."[28] Among

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[25]47 U.S.C. §§ 701, 702, 721, 731-735, 741-744 (1962) (codified as amended at 47 U.S.C. §§ 701, 702, 721, 731-735, 741-744 (1976)).

[26]Pub. L. No. 95-564, 92 Stat. 2392, 47 U.S.C. §§ 751-757 (1978) (currently codified at 47 U.S.C. §§ 751-757 (Supp. 1980)).

[27]42 U.S.C. § 6601 (1976).

[28]42 U.S.C. § 6601 (101) (a) (1976).

the priority goals to which science and technology should contribute are "advancing the exploration and peaceful uses of outer space."[29] The other twelve priority objectives would benefit from or require the application of space science and technology, such as the objectives of fostering leadership for international peace; contributing to economic opportunity; assuring an adequate supply of food, materials, and energy; contributing to national security; improving health care; preserving the environment; promoting full employment through technological innovations; increasing the quality of educational opportunities; conserving natural and human resources; improving housing, transportation and communications; and eliminating air and water pollution.

A number of organizations provided by Congress in this Act were considered unnecessary by President Carter who changed them by Reorganization Plan No. 1 of 1977. While the plan abolished some units or transferred them to different agencies, the Office of Science and Technology Policy (OSTP) was retained in the Executive Office, being one of the ten units that President Carter decided to work with directly because he needed "their constant advice and counsel, almost on a daily basis."[30]

X. The Role of Congress in the Peaceful Uses of Outer Space

Congressional leadership emphasizing the policy of peaceful uses of outer space was demonstrated not only by the enactment of laws but in actions taken by the Majority Leaders and others. On January 14, 1958, Senator Lyndon B. Johnson addressed the Columbia Broadcasting System Affiliates:

> We should, certainly, make provisions for inviting together the scientists of other nations to work in concert on projects to extend the frontiers of man and to find solutions to the troubles of this Earth. . . . Further, it would be appropriate and fitting for our Nation to demonstrate its initiative before the United Nations by inviting all member nations to join in this adventure into outer space together. The dimensions of space dwarf our national differences on earth.[31]

Congressman John W. McCormack introduced a resolution which passed the House on June 2, 1958 (and the Senate on July 23) calling attention to "the devout wish of all peoples everywhere, in every nation, in every environment, that the exploration of outer space shall be by peaceful means and shall be dedicated to peaceful purposes." The resolution stated "That it is the sense of the Congress that the United States should strive, through the United Nations or such other means as may be most appropriate, for an international agreement banning the use of outer space for military purposes . . . ."[32]

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[29] 42 U.S.C. § 6601 (101) (a) (13) (1976).

[30] *Science and Technology in Policy Formulation at the Presidential Level: Recent Developments, Cong. Research Serv.*, Issue Brief No. IB 78927, 20 (1979) (By Dorothy M. Bates).

[31] Address by Senator Johnson, *Columbia Broadcasting Affiliates,* Shoreham Hotel, Washington, D.C. (Jan. 14, 1958).

[32] *Final Report, supra* note 11, at 7-8.

Senator Hubert Humphrey, chairman of the Subcommittee on Disarmament of the Senate Foreign Relations Committee, was responsible for a report on "Control and Reduction of Armaments" (October 13, 1958) which included a section on "Arms Control in the Space Age." Foreseeing that space weapons would have to be considered in plans for arms control, the subcommittee pointed out that the United Nations would be a favorable place to promote United States policy on international cooperation for peaceful space exploration and development, outlawing military purposes in space; and prohibiting nations' claims to any area or body in space.[33]

On November 17, 1958, Senator Lyndon B. Johnson, on behalf of President Eisenhower, addressed United Nations Committee No. 1 (Political and Security) in support of a United States sponsored resolution which was destined to pass the General Assembly on December 13, 1958. This resolution established the Ad hoc Committee on the Peaceful Uses of Outer Space. Pointing out the dangers of nations proceeding unilaterally and aggressively, Senator Johnson said that "Today outer space is free. It is unscarred by conflict. It must remain this way. . . . We know the gains of cooperation. We know the losses of failure to cooperate. . . . Men who have worked together to reach the stars are not likely to descend together into the depths of war and desolation." He emphasized the unanimity of the government on this policy: "On the goal of dedicating outer space to peaceful purposes for the benefit of all mankind there are no differences within our Government, between our parties, or among our people. The executive and the legislative branches of our government are together."[34]

XI. Law and Security Through Treaties

U.S. delegations from the Department of State, NASA and other departments participated in the formulation of space treaties in the United Nations Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee. Following consideration by the Senate Foreign Relations Committee, the Senate has given its advice and consent to four space treaties which have been ratified by the President. The USSR and many other nations have ratified these treaties.[35] The Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water went into force on October 10, 1963, before the COPUOS treaty-making which led to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies. This Treaty, which entered into force on October 10, 1967, was the subject of considerable analysis by the Senate Foreign Relations Committee which decided to report understandings to the Senate. The report states that:

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[33] *Senate Comm. on Foreign Relations, Subcomm. on Disarmament, Control and Reduction of Armaments*, S. Rep. No. 2501, 85th Cong., 2d Sess. 14 (1958).

[34] *Final Report, supra* note 11, at 58-62.

[35] *Senate Comm. on Commerce, Science, and Transportation, Space Law: Selected Basic Documents 2d ed.*, 85th Cong., 2d Sess. 600 (Comm. Print, 1978).

> Article I of the treaty provides that "the exploration and use of outer space . . . shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind."

The reaction of the Committee was that—

> It is the understanding of the Committee on Foreign Relations that nothing in article I, paragraph 1 of the treaty diminishes or alters the right of the United States to determine how it shares the benefits and results of its space activities.

In examining Article VII on international liability for damage to another state party to the treaty,

> The committee wishes to record its understanding that article VII pertains only to physical, nonelectronic damage that space activities may cause to the citizens or property of a signatory state.

This was before the Convention on International Liability for Damage Caused by Space Objects had been formulated and the Committee took note of its negotiation and stated that a separate convention was needed "to establish detailed rules."

Particular concern was expressed about "the implications for American security of the first sentence of article IV: 'States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner'." Pointing out that inspection privileges, provided in article III, do not apply to objects in orbit, the committee questioned whether the U.S. was "committing itself to an arms control measure that was not safeguarded from violation by either the right of physical inspection or an effective national detection system."

Secretary of Defense McNamara testified that "We have looked at the implications for weapons development programs and at verification considerations, and we have concluded that this treaty will enhance our national security." The Joint Chiefs of Staff stated their preference for a "national verification of bodies in orbit." Secretary of State Rusk testified that, "We have no doubt we can monitor effectively a weapons system placed in outer space." With these assurances the Committee approved the Treaty.[36]

The next three space treaties to which the United States is a party are: Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (December 3, 1968);[37] Convention on International

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[36]Treaty on Principles Governing the Activities of States in the Exploration and use of Outer Space, Including the Moon and Other Celestial Bodies, Oct. 10, 1967, 18 U.S.T. 2410, 2412, T.I.A.S. No. 6347, 610 U.N.T.S. 205, 207; *see generally* 133 *Cong. Rec.* 10, 593-10, 598 & 10, 677-10, 687 (1967) (detailed debates regarding whether treaty should be ratified).

[37]Agreement on the Rescue of Astronauts, the Return of Astronauts and The Return of Objects Launched in Outer Space, April 22, 1968, 19 U.S.T. 7570, T.I.A.S. No. 6599 (effective December 3, 1968).

Liability for Damage Caused by Space Objects (September 15, 1976); [38] and the Convention on the Registration of Objects Launched into Outer Space (September 15, 1976).[39]

The fifth treaty negotiated by the United Nations Committee on the Peaceful Uses of Outer Space—the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies,—was approved by the UN General Assembly on December 5, 1979, and opened for signature. Neither the United States nor the USSR has signed this treaty, and although ratification by only five nations is required for entry into force, such actions had not been taken during 1982. The reasons for this lack of enthusiasm are probably (1) lack of imminent plans for using the natural resources of the Moon and other celestial bodies; (2) differences of opinion on the provision declaring the Moon and other celestial bodies to be "the common heritage of mankind;" (3) differences over the concept and timing of establishing an international regime; and (4) lack of agreement on the implications of "equitable sharing" of the resources covered by the treaty.

Even though the United States has not signed the Moon Agreement, and thus it has not been sent to the Senate, nevertheless its provisions became issues in the Congress because of lobbying against some of its provisions. The issues were of interest to a number of committees and the Congress needed objective analytical studies. The Senate Committee on Commerce, Science, and Transportation arranged for staff reports and three volumes in four parts were published in 1980.[40]

The Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems, with Associated Protocol was favorably reported by the Senate, ratified by the President and entered into force on October 3, 1972.[41] Article V, paragraph 1 of this treaty provides that, "Each Party undertakes not to develop, test, or deploy ABM systems of components which are sea-based, air-based, space-based, or mobile land-based."

Article XII of the SALT treaty provides:

1. For the purpose of providing assurance of compliance with the provisions of this Treaty, each Party shall use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.
2. Each Party undertakes not to interfere with the national technical means of verification of the other Party operating in accordance with paragraph 1 of this Article.
3. Each Party undertakes not to use deliberate concealment measures which impede verification by national technical means of compliance with the provisions of this Treaty. This obligation shall not require changes in current construction, assembly, conversion, or overhaul practices.

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[38]Convention on International Liability for Damage Caused by Space Objects, March 29, 1972, 24 U.S.T. 2389, T.I.A.S. No. 7762 (effective October 9, 1973).

[39]Convention on Registration of Objects Launched into Outer Space, January 14, 1975, [1976] 28 U.S.T. 695, T.I.A.S. No. 8480 (effective September 15, 1976).

[40]*Senate Comm. on Commerce, Science, and Transportation, Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, 96th Cong., 2d Sess. (1980).

[41]*Salt Verification, Cong. Research Serv.* Report No. 78-142F 92 (1979) (by Mark M. Lowenthal).

The International Telecommunication Convention and Radio Regulations have guided the conduct of nations for many years prior to the use of satellites. Since space technology has been applied to national and global space communications systems, an extensive body of law, rules and regulations has developed.[42] Space communications are highly technical and generate legal problems. Congressional committees with jurisdiction over communications play an active and continuous role in monitoring this complex activity.

XI. Conclusions

When space technology suddenly reached the state where outer space could be opened for use and exploration, the Congress quickly reacted by passing interim legislation to ensure United States progress while attention was given to the problem of how best to organize the government for conducting a space program. Special committees were established in the House and Senate and the National Aeronautics and Space Administration was created, thus dividing institutional management between the Department of Defense, NASA and all other federal agencies that could have space and space-related programs. Permanent standing committees were created in the Senate and House so that continuous attention was given by means of annual authorizations for space funds and programs. This legislative process was in addition to consideration for annual appropriations and resulted both in steady oversight by Congress and in expertise on space matters by Members of the House and Senate.

The concept of overall coordination of United States total space activities was lost in the Executive Branch by elimination of the National Aeronautics and Space Council. With the rise in power of the Office of Management and Budget (OMB) and the delegation of overall functions to various agencies, there was no one central place for a permanent professional staff to analyze continuously interacting forces. The functions legislatively planned for the Office of Science and Technology Policy have not yet been fully implemented. In both the Executive and Legislative Branches, space activities have lost their original high priority at the top level of government and outer space matters have become one among many scientific and technical subjects.

If space technology were just another invention similar to the telephone which can be used by many without unusual difficulties, peculiar problems would not be expected. But space activities have unique characteristics which make them an integral part of any assessment of national security. They cannot be evaluated without taking into account the overriding responsibility of the Federal Government for supervision of launchings, health and safety standards, defense requirements, and the full development of peaceful space applications for universal benefit. All these unique elements place demands upon the legal community for laws, for policies which can be feasibly implemented by programs which are funded. Harmony between national and international space activities must be achieved, not only because of laws already enacted and treaty provisions to which the United States is a party, but because avoiding conflicts is the only way of achieving the full potential of using and exploring outer space.

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[42] *Space Law: Selected Basic Documents*, *supra* note 35, at 77-173.