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*Dr. Jerry C. McCall\**

The last fifteen years of our space program played an important part in the development of America. The present mood of America indicates that our country needs a major, visible national objective to pursue at all times. The objective needs to be so difficult that only a great, international power can achieve it. It needs to be one that other national powers would like to accomplish, even though they may deny such ambition and declare the objective to be a waste of world resources.

Placing a man on the moon within a predicted time frame was such an objective. It was the largest engineering and technological task ever undertaken by any nation in the history of mankind. The United States was allegedly behind the Soviet Union in the beginning. However, we achieved the objective not only well ahead of the Soviets, but also, in fact, perhaps infinitely farther ahead, as they have not yet reached that mark, and they may never reach it.

This program stimulated the public, the professions, the economy, the universities, and the other nations of the world. Since 1969, when this feat was accomplished, the spirit of the nation has been declining, perhaps coincidentally. For a time, the ecological movement appeared to be destined to establish itself as the next focus of public interest, but that excitement has waned. The energy crisis is now receiving the major attention, and it could become our challenge for the future. Perhaps achieving a balance of attention between these two national requirements will become our challenge. In a larger sense, the improvement of our quality of life in general is what we seek. Yet even that objective is at odds with our desire to assist the peoples of other nations to improve their quality of life without depleting the world resources on which we also depend.

In the past, war has often provided the stimulation that moved the victorious countries ahead. In ancient times, it was the capture of the opponent's assets that enriched the victor. However, in more recent times, the advances of the victorious nations have come from the internal developments which were necessary to win the war. These advances occurred in spite of the enormous waste resulting from the depletion of war materials and the enforced idleness of a large portion of the work force deployed in the military effort.

If the people, the government, and the economy could be stimulated to improve the quality of American life without the advent of war or without the necessity of a program such as the manned lunar landing, then far greater accomplishments could be

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+This presentation is an elaboration of the author's keynote address before a regional conference on "Recent Developments in Space Law" which was held on November 2, 1973 at the University of Mississippi Law Center.

expected. The goal of being the first nation to put a man on the moon was, in itself, an objective worthy of national commitment by the United States. Indeed, it has probably made millions of people throughout the world proud of America.

The Southern section of our country should take special pride in this accomplishment because: the launch vehicles were designed, partially built, and partially tested in Huntsville, Alabama; the subsequent stages of the launch vehicles were assembled in New Orleans, Louisiana, and tested, full-scale, in Bay St. Louis, Mississippi; the space capsule and lunar lander were designed and tested at Houston, Texas; and the entire assemblage was launched and recovered from Cape Canaveral, Florida. Of course, other states played major roles, most notably California and New York. Yet the program was fundamentally carried out in the South, the section of the country which had been previously considered to be behind the nation in technological capability.

In addition to the manned lunar effort, which consumed most of NASA's energy, and which provided the basis of public and congressional support for the space program, many other magnificent developments occurred within the space program. Outer space, beyond lunar distances, was explored. Before this development, the scientific world did not have clear pictures of the planets, the sun, and the stars. With space vehicles, we have been able to get within the vicinity of the planets and even on some planets for close-up photographs. We have retrieved material from the moon, have examined material on Mars, and have obtained direct measurements of Venus. By putting telescopes on space ships which are above the earth's atmosphere, we have obtained information and photographs of the sun and the stars not otherwise achievable even with the largest telescopes on earth due to the filtering effect of the atmosphere on these earth-based telescopes.

We have opened the new fields of earth observations and earth communications, each of which have already achieved exciting and economically important developments. We have photographs of the earth and measurements of the earth that were not obtainable until the advent of satellites. We are observing the clouds every day from a new vantage point to augment measurements and observations from within and below the atmosphere. We see the cities, oceans, mountains, rivers, forests, ice packs, and icebergs as we never have been able to observe before.

These observations and measurements, plus millions of other pieces of data and messages, are communicated instantly around the world by communications satellites floating above the earth at a speed that is synchronized with the earth's rotation. These satellites not only augment the systems, such as the telephone networks and undersea cables, but they also open up new areas of the world for telephone and television which were previously inaccessible due to the prohibitively high costs of laying cables to these remote sites. Even where such cables can be laid or do exist, there is the threat of disruption of these communications systems in time of war. Of course, satellite communications, too, can be interrupted in various ways, including the destruction of the satellites themselves; however, this cannot be done very easily and it generally requires action by a major power. Other considerations prevent such a major power from taking



these hostile steps, especially during minor wars, such as those which have occurred in the Mideast and Vietnam. Even observational satellites do not appear to be as provocative to a major power as high altitude, observational aircraft flying over these countries.

As the countries of the world become more urbanized and economically interdependent, the need for improved space communications will grow. It may well be that space communications will prove to be the key to world peace if we assume that the more we know of each other the less likely we are to fight over our conflicting points of view. This may not resolve world conflicts, but it certainly should make a positive contribution to achieving such resolutions.

Thus, to those who wish to enter into the exciting field of space communications, it can be said that the field is big and the future is unlimited, and they will be making a contribution to the economic development of our nation. The field of satellite communications is virtually unique in the entire space program in that it must compete directly with other systems performing the same function, and this competition is in the form of an economic competition. This is not true of all satellite communications, but it is true of a portion of it, international commercial TV broadcast, for example. Plans are being evaluated by industry for a domestic, commercial communications satellite system which would operate exclusively inside the continental United States.

If one wants to be challenged, one should consider this area where one has all the technical problems plus all the economic and governmental control problems as well.

On a global scale, it is generally believed that better communications will improve international relations and will reduce the risk of war. It is now apparent that a better world-wide understanding of the depletion of world resources and of the destruction of the world's natural environment are becoming concerns of as equal magnitude as war. The communications satellite can make a real contribution to the solution of these problems.

S. Neil Hosenball\*

The purpose of this presentation is to provide some understanding of the United Nations' activities in the area of space law not only from the viewpoint of what has been accomplished today, but also from the point of view of what will be accomplished in the future. It might also be worthwhile to explain briefly the organization of the United Nations Committee on the Peaceful Uses of Outer Space and its two subcommittees. One is a Scientific and Technical Subcommittee; the other is a Legal Subcommittee.

Actually, 1973 has been an anniversary of a sort. Sputnik was launched 15 years ago. The United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), first as an *ad hoc* committee, came into existence in 1958.<sup>1</sup> In addition, NASA last year celebrated its 15th anniversary.

#### WORK OF THE OUTER SPACE COMMITTEE

Let me turn first to what the Committee has accomplished so far by way of treaties.

We have three treaties in force at the present time. These are the products of the Legal Subcommittee. They are: The Outer Space Treaty of 1967,<sup>2</sup> the Agreement on the Rescue and Return of Astronauts and the Return of Space Objects,<sup>3</sup> and the Liability Convention.<sup>4</sup> Interestingly enough, the Liability Convention became binding on the two

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<sup>1</sup>U.N. Res. 1348 (XIII) of Dec. 13, 1958. U.N. Res. 1472 (XIV) of Dec. 12, 1959, created the present Committee on the Peaceful Uses of Outer Space.

<sup>2</sup>Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, signed January 27, 1967, [1967] 18 UST 2410, TIAS No. 6347 (hereinafter referred to as the "Outer Space Treaty").

<sup>3</sup>Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, signed April 22, 1968, [1968] 19 UST 7570, TIAS No. 6599 (hereinafter referred to as the "Rescue and Return Agreement").

<sup>4</sup>Convention on International Liability for Damage Caused by Space Objects was signed by 40 nations on March 29, 1972, and entered into force for the United States in 1973, 68 Dept. St. Bull. 949 (1973) (hereinafter referred to as the "Liability Convention"). For text, see also 1 J. Space L. 86 (1973).

major space powers in 1973 when the instruments of ratification of the USSR and the U. S. were deposited on October 9, 1973.<sup>5</sup>

The Committee on the Peaceful Uses of Outer Space is composed of 28 member states.<sup>6</sup> Its makeup represents all the major blocs and interests that exist in the United Nations as a whole. The permanent members of the United Nations Security Council (except for the People's Republic of China), the United States, France, Great Britain, and the Soviet Union, are members of the Committee on the Peaceful Uses of Outer Space. There is the Eastern bloc group: Bulgaria, Czechoslovakia, Romania, Hungary, Mongolia, and Poland. African nations are also represented: Chad, Morocco, Egypt, and Sierra Leone. There are some South American nations as well: Brazil and Argentina. There are also Australia, Canada, Mexico, Italy, Belgium, and Austria. Albania, Iran, Japan, India, Lebanon, and Sweden are similarly represented. So, it has a broad makeup of the space powers, highly industrialized countries, and many less developed nations as well.

There has been less controversy about activities in space, particularly about the international character of activities in space, than in many other areas of U. N. activities. Nonetheless, the function of the Legal Subcommittee (COPUOS), is not solely legal in nature. The Subcommittee not only performs the function of the drafting of the document, the treaty, the convention, the agreement, and the statement of principle; but it also performs a diplomatic function as well. The Subcommittee must concern itself not only with differing systems of jurisprudence, but also with differing political systems, differing social customs, and differing degrees of economic development, all of which in some way have to come together in a treaty that would be acceptable to at least a substantial majority of the nations of the world.

As we move into the regulation of space activities rather than the establishment of principles, the issues are becoming more economic, social and political, notwithstanding that there may be very substantial legal issues involved as well. These then become very difficult questions to resolve. So as we review the existing treaties, the draft conventions currently under negotiation, and those awaiting negotiation, we should perhaps keep in mind the identity of the issues and their classification as either economic, legal, social, or political. In some issues, there may be a substantial technological question involved. In others, humanitarian considerations emerge. The organizational system for carrying out a particular space activity may be a major topic for discussion and resolution.

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<sup>5</sup>See note 4 above.

<sup>6</sup>In Feb. 1974 the membership of the Committee on the Peaceful Uses of Outer Space was expanded to 37 by the addition of nine new member States: Kenya, Nigeria, Sudan, Pakistan, Indonesia, Chile, Venezuela, Federal Republic of Germany, German Democratic Republic. The developing and less developed nations are thus expressing greater interest and will play a more important role in the future deliberations of the Committee.

## OUTER SPACE TREATY

The Outer Space Treaty is the basic treaty in space law. It established major principles. It was a farsighted treaty. For example, Article I states that the exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind. This is an extremely far-reaching principle.

Article II states that outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use of occupation, or by any other means. Thus, exploring outer space, discovering other planets give no nation a sovereign right in that celestial body.

Article IV provides that the 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, or install such weapons on celestial bodies.

These articles constitute a sample of the critical major political decisions that were embodied in the Outer Space Treaty of 1967. In all, there are some 17 articles in the Outer Space Treaty.<sup>7</sup>

RETURN AND RESCUE AGREEMENT  
AND LIABILITY CONVENTION

The Return and Rescue Agreement was a humanitarian effort. It was generally accepted that if an astronaut were to land on foreign soil, or even if an artificial satellite should land on foreign soil, everybody should assist and return the astronaut or spacecraft immediately. In return for that agreement, many States demanded a *quid pro quo*. They said that they would agree to assist and return astronauts and spacecraft, but they raised questions involving possible damage if caused to their people or property. What if a large fragment destroyed an opera house or an electrical power system? There was concern about liability and payment for such damage. The Outer Space Treaty established the principle that nations operating in outer space will be internationally liable for damage, but this provision had to be implemented by a system for the settlement or resolution of disputes that might arise. How was it going to be resolved, and what mechanism was to be used? What was to be the standard of liability: absolute liability, comparative negligence, or gross negligence? In this connection, it may be recalled that we are dealing with the jurisprudence of the Soviet law system, the civil law system, the common law system, and others with major and minor differences. However, finally in 1972, after nine years of

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<sup>7</sup>For an excellent analysis and compilation of background data on the Outer Space Treaty, see Staff of Senate Comm. on Aeronautical and Space Sciences, S. Doc. No. 74-983, 90th Cong., 1st Ses. (Comm. Print 1967).

constant prodding by the U. N. General Assembly, consensus was reached on a Liability Convention.<sup>8</sup>

#### CURRENT ISSUES BEFORE THE U. N.

What are the current issues before the United Nations? During the past two years, the committee has been considering two draft conventions: The Draft Treaty on the Moon,<sup>9</sup> which was an initiative of the Soviet Union, and the Draft Treaty on the Registration of Space Objects.<sup>10</sup>

##### A. DRAFT TREATY ON THE MOON

The Draft Treaty on the Moon has 21 articles, and a great deal of progress has been made in relation to it. Basically, there are two major outstanding issues. One is the scope of the treaty itself. Should it apply only to the Moon, or should it apply to other celestial bodies as well? One concern is that if it is limited to the Moon, every two years some one will submit a treaty on Mars, then one on Jupiter, Pluto, and so on down the list of planets. The United States' position is that there is not anything in the 21 draft articles currently before the Legal Subcommittee that would not equally apply to any other celestial body within our solar system. There is nothing peculiar about the Moon that requires special treatment. While we do not know what exists in other galaxies of the universe, we know fairly well what exists within our own solar system; and so the United States has proposed that the scope of the Treaty should apply to all other celestial bodies within our solar system.

The other major issue concerns the exploration for and exploitation of lunar material and planetary resources. This is so despite the generally accepted premise that there are no lunar or planetary natural resources yet discovered that can be commercially exploited with the present technology. Why should it be such a major issue? There is a provision in the Draft Treaty on the Moon and Other Celestial Bodies calling for an agreement, when it becomes feasible to commercially exploit the resources on a celestial body, to establish how it could be best exploited in consonance with the Outer Space

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<sup>8</sup>Staff of Senate Comm. on Aeronautical & Space Sciences, 92nd Cong. 2nd Sess., Report on the Convention on International Liability for Damage Caused by Space Objects: Analysis and Background Data (Comm. Print 1972).

<sup>9</sup>Draft Treaty Relating to the Moon, U.N. Doc. A/AC 105 (April 27, 1973). For text, see also 1 J. Space L. 170-179 (1973).

<sup>10</sup>Draft Convention on Registration of Objects Launched into Outer Space, U.N. Doc. A/AC 105/115 (April 27, 1973). For text, see also 1 J. Space L. 165-69 (1973).

Treaty and, in particular, for the benefit of all mankind.<sup>11</sup> It appears that especially the less developed nations are seeking to establish a precedent for the future. They are seeking the establishment now of basic principles about sharing resources so that they can share the benefits of any new space technology that may lead to the commercial utilization of lunar and planetary natural resources. We do not disagree with the basic principle that all nations should share in the benefits that would accrue when it becomes commercially feasible to obtain natural resources from the Moon or other celestial bodies. The proposal, however, that has been made by some of the delegations is that there should be a moratorium on any exploitation and exploration for resources until such time as the agreement concerning the allocation of natural resources and benefits to be given to less developed nations is agreed to. Until then, the only use that one could put lunar resources to would be for scientific purposes only. The net effect of such a moratorium would be to destroy any incentive for the development of the technology, either for use experimentally or for its mass production. There are other delegations trying to meet the middle point by saying that exploration should be limited to experimental and scientific use of lunar or planetary resources and should not extend to commercial endeavors. The issue remains unresolved.

#### B. DRAFT TREATY ON THE REGISTRATION OF SPACE OBJECTS

The second draft convention, the one on registration, would codify an existing international practice that began as a result of a General Assembly Resolution very early in the existence of the U. N. Committee.<sup>12</sup> All countries have generally adhered closely to reporting their space launches. The Draft Treaty on the Registration of Space Objects, like the Liability Convention, is an implementation of one of the articles in the Outer Space Treaty.<sup>13</sup> It appears to be more juridical in nature rather than involving any serious economic or political issues.

The only major unresolved issue is whether and how to mark space objects with a national registry indicator. Some systems of jurisprudence attach a great deal of importance to the need for registration. The French have reminded us that we register cars, ships, planes, and births. It is registration that gives something or someone a national character. France, supported by Canada, has been the prime proponent of a formalized system of registration. Other countries, however, added another requirement: a marking and identification system.

We do place our American flag and U. S. A. mark on our launch vehicles and on many of our spacecraft. They have, however, been pressing for a marking or identification system which would provide for the immediate identification of nationality of an object

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<sup>11</sup>*Supra* note 9, at Article X.

<sup>12</sup>General Assembly Resolution 1721 B (XVI), adopted unanimously on December 20, 1961.

<sup>13</sup>Outer Space Treaty, *supra* note 2, at Art. VIII.

upon inspection. There is one difficulty, however, with such a proposal, notwithstanding that it sounds very logical.

If a space object can cause major damage, why do we not set up a system of identification? It would be very expensive and would require requalification of hardware; but more important, we think it is unnecessary. The best scientific and technical talent in this country, as well as in other countries, tell us that it is not necessary because there are other methods of identifying the original of a space fragment. The United States keeps track of space fragments in orbit. It keeps track of when the object leaves that orbit, and it keeps track of major changes in the orbit. In addition, our scientists and engineers tell us that through metallurgical processes one should be able to identify the nationality of a piece of metal that survived because of the differences in manufacture, in the materials and ores used. From a legal standpoint, marking parts may be the best evidence; but we do not think it is technically or economically feasible since other equally effective methods of proof of origin are available.

### C. OTHER ISSUES BEFORE THE OUTER SPACE COMMITTEE

There are other interesting issues pending before the Committee on the Peaceful Uses of Outer Space, although they are perhaps not likely to be resolved in the immediate future. One is the use of direct broadcast satellites, the second is the definition of outer space, and the third is the remote sensing of the earth by satellites. Direct broadcasting and remote sensing enter the sphere of detailed regulation of space activities and bring into clear focus the social, economic, and political differences among nations in addition to some important legal issues.

#### (a) DIRECT BROADCAST BY SATELLITES

The reference here to direct broadcast by satellite means broadcast into somebody's home radio or home TV. We do have communications satellites that return signals to earth into large antennas and then into other means of distribution of the signal, either through cable or through antennas that cover regional areas; that is not what is meant by direct broadcasting. Direct broadcasting is used here in the sense of putting something into somebody's home in a meaningful way, such as an actual TV program or a radio program. Thus, the experiment that the United States will be conducting very shortly in cooperation with the Indian Government—where signals will be sent to the ATS (Applications Technology Satellite) satellite which will then be returned to community antennas—is not a direct broadcast satellite system. It should be emphasized that there will be community antennas and, in most cases, they will be tied to only one TV set in the community. The cost of such an antenna is expensive, and its installation and location can be controlled within the country. It is not suggested that it will cost hundreds of thousands of dollars, but it will cost about \$1,000-3,000, which is much more expensive than what a mass market would accept. India is controlling the programming for this experiment.

The concern over direct broadcasting is in this program control area. Some nations are concerned that through the use of direct broadcast satellites a nation may be propagandized without its consent, and programs may be sent that are foreign and disruptive to their culture. The concern on the part of many of these countries is not counterbalanced at all, so it appears, by a dedication to the principle of free flow of information across national boundaries, which has become a major issue in the world today. With its strong tradition of and commitment to the principle of the free flow of information, the United States is seriously concerned that this principle will be compromised and eroded by any international agreement that restricts the free flow of information. At the same time, the less developed and developing nations have legitimate concerns over how this new space technology can affect their countries. The political, social, and economic considerations are obvious. The solution is not.

#### (b) BOUNDARY BETWEEN AIR SPACE AND OUTER SPACE

The question of locating the boundary between air space and outer space will probably not be resolved for many years. While outer space, as previously indicated, is not subject to national appropriation by claim of sovereignty, we have questions of national sovereignty involved because we do have international conventions dealing with air space. The boundary does have some obvious significance, but there are many and conflicting approaches to its definition. Some of these approaches involve highly technical considerations. We have had 15 years of space exploration, and in practice it has been possible for space activities, as well as the development of space law, to take place without resolution of the boundary question.

#### (c) REMOTE SENSING FROM SPACE

Remote sensing is not a new development. It has been conducted by means of aerial photography for many years. Remote sensing from spacecraft has been carried out since the earliest days of the space program. The early Applications Technology and Nimbus satellites were equipped with remote sensing devices, and remote sensing was done both by hand-held cameras and by automatic systems from Mercury, Gemini, and Apollo spacecraft. The Earth Resources Technology Satellites, the first of which (ERTS-1) has been in orbit since July 1972, are based on the design of the Nimbus meteorological satellites, which have been successfully returning pictures of the earth's weather state since 1965.

Remote sensing for the purpose of the present discussion may be defined as the investigation of the characteristics of an object without touching or changing it in any way. In the case of remote sensing of earth resources by satellite, it is the earth and its environment whose characteristics are to be explored by the detection and examination of emitted or reflected natural electromagnetic radiation.

All objects, including plants, animals, rocks, metals, liquids, and all other materials



emit or reflect electromagnetic radiation of characteristic wavelengths.<sup>14</sup> The most familiar type of electromagnetic radiation is perceived as light, the visible portion of the spectrum. The human eye is a type of remote sensor. An ordinary optical camera is also a remote sensor—one that has the additional capability of recording visible light as a permanent image on film.

The visible wavelengths constitute only a small portion of the total electromagnetic spectrum. Electromagnetic radiation of wavelengths progressively longer than the visible spectrum includes infrared, micro, and radio waves, while those progressively shorter include ultraviolet, x-ray, and gamma radiation. Just as the eye and an ordinary camera can sense visible radiation there are systems used in aerial and satellite sensing which can detect and record emitted electromagnetic radiation over other portions of the electromagnetic spectrum. Many objects and substances radiate and reflect multiple patterns simultaneously in different parts of the spectrum. These patterns may give much information which is not available about an object from the visual spectrum alone. Infrared sensors can measure thermal characteristics, for example.

Sensors under investigation for use in NASA's Earth Resources Survey Program include photographic film cameras, television systems, multispectral scanners, thermal mapping scanners, radar imaging systems, and microwave radiometers. For the purposes of the present discussion, however, it is sufficient to say that all these devices basically measure and record the radiation emitted or reflected from any scene or object.<sup>15</sup>

After being gathered, either in image or digital form, the data must be reduced and analyzed to be useful. From a legal standpoint the process need not concern us, except to note, first, that it is complex and difficult; secondly, if the program lives up to expectations, it will eventually yield great quantities of useful information. Remote sensing by satellite has potential utility, in part, because of its unique ability to provide repetitive, synoptic views of the earth. ERTS-1 for example, is able to scan ground scenes approximately 100 miles square and to repeat the scan over the same geographic location every 18 days under the same sun-angle conditions. Continuous earth resources surveys by satellite may provide the basis for a large scale inventory of natural resources, and for obtaining presently unavailable environmental information. It is expected that satellite-collected data will find application in topography, cartography, geology, geography, hydrology, agriculture, marine resources, land management, oceanography, and many other fields. It already is apparent that remote sensing will provide much new information of assistance in surveying and managing the earth's environment, including the identification of major geological features, the assessment of hydrological problems, such as snowpack and runoff conditions, the determination of the condition of range land

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<sup>14</sup>"The Earth Resources Survey Program," address by Leonard Jaffe, former Deputy Administrator for Space Science and Applications, NASA; International Earth Resources Survey Workshop, University of Michigan, May 3, 1971.

<sup>15</sup>*Id.*

and agricultural crops, and the study of erosion patterns and changes in coastal areas.<sup>16</sup>

Since the launch of the first Sputnik in 1957, there have been artificial satellites orbiting the earth continuously. The satellites have been of many types, and they have been launched for varied purposes, including communication, meteorology, and navigation. They have been equipped to sense, record, and transmit to earth many kinds of data for analysis. Early satellites carried cameras to photograph such varied subjects as cloud formations and geographical features. These early activities were well publicized.

Artificial earth satellites have been overflying the territory of all countries since the advent of the Space Age. While the first satellite used in the Earth Resources Survey program (ERTS-1) is concentrating on the North American continent, it acquires data from many regions of the globe during each 18-day cycle of its orbit, and overflies the entire globe except for small areas near the poles. The Skylab missions have also involved the study of earth resources, including the use of Earth Resources Experiment Packages (EREP) developed by investigators from many other countries in addition to the United States.

Since 1958, more than 5,000 space objects, most of which have been satellites, have been launched by or on behalf of some 83 nations and international organizations<sup>17</sup> acting either alone or in concert. The overwhelming majority were launched by the United States and the Soviet Union.

Many cooperative agreements for space activity have been entered into. During the period 1958 to 1973 NASA entered into some kind of cooperative arrangement with no fewer than 94 countries and international organizations. Through weather satellites, which photograph cloud formations and record surface temperatures and other weather features, over 70 countries have taken part in and shared the benefits from gathering weather information directly from U. S. satellites.<sup>18</sup>

In view of the wide attention satellites and other space vehicles launched thus far have received, it is especially significant that no country has made any international protest based on an issue of sovereignty or inconsistency with the principles of international law.<sup>19</sup> While questions have been raised about some aspects of future earth sensing systems from space, there have been no diplomatic protests in which any state has

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<sup>16</sup>See *4th Annual Earth Resources Program Review* (5 Vols.), NASA-MSC Publication 05937 (Jan. 1972).

<sup>17</sup>NASA, Office of Public Affairs (Goddard Space Flight Center), "Satellite Situation Report," Vol. 11, No. 8 (Aug. 31, 1971).

<sup>18</sup>For a summary of NASA's international programs and cooperative activities, see NASA, Office of International Affairs, "International Programs" (Jan. 1973).

<sup>19</sup>Brooks, *New Developments in Earth Satellite Law*, 65 Nw. U. L. Rev. 759 (1970) at 772 and citations.

alleged that violations of its sovereignty or other rights have in fact occurred. Since remote sensing in a country's airspace would have been such a violation if conducted without permission, it may safely be concluded that States have not regarded their sovereignty as extending to the altitude of orbiting satellites.

There have been numerous expressions of approval and encouragement of satellite and space ventures by the leaders of many nations of the world, including the USSR, and the United States.<sup>20</sup> Even prior to the Outer Space Treaty, the statements of these nations supported free access to space, free flight, and free exploration as a right capable of being exercised by all nations on an equal basis. These principles were first embodied in the "Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space" of the United Nations General Assembly.<sup>21</sup> The inclusion of the principles in the Outer Space Treaty confirms their important place in international law.

Although remote sensing by earth satellites is not new, it is still in its technical infancy. NASA's ERTS program is designed to explore its further possibilities. Nevertheless, from the standpoint of international customary law, the legal principles applicable to ERTS are already established. An ERTS satellite is nothing more than a conventional satellite equipped with cameras and other sensors to collect and transmit earth resources data. Resource-sensing satellites are peaceful and are in accord with international law. They possess a potential of an order of magnitude unimagined a few years ago for contributing a wealth of data to man concerning his environment.

Article I of the Outer Space Treaty<sup>22</sup> has direct applicability to remote sensing of earth resources by satellite. It states first that outer space activities are to be carried out for the benefit and in the interest of all countries, and that space is the province of all mankind. It goes on to declare:

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<sup>20</sup>The former Secretary General of the United States, Dag Hammarskjold, stated the following in a public address, delivered in 1958:

"The precedents which have been set during the International Geophysical Year would seem to indicate tacit acceptance that outer space, as distinct from air space, is '*res communis*' at least when used for such joint scientific purposes as those of the International Geophysical Year. That means that outer space has been considered as belonging to no one, and as not being subject to appropriation or to sovereignty. In that respect a parallel might be drawn with the high seas, which, likewise, are considered as not capable of appropriation."

"The United Nations and Outer Space," 1961 *Senate Symposium* 263, cited in Morenoff, *World Peace Through Space Law* 182 (1967).

<sup>21</sup>U.N. Gen. Ass. Res. 1721 (XVI), adopted on Dec. 20, 1961.

<sup>22</sup>See Outer Space Treaty, *supra* note 2.

"Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies."

Article III states:

"States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding."

The Outer Space Treaty thus provides unambiguous recognition of the use in accordance with international law of satellites in outer space. Indeed, the treaty states that space activities will be carried out in a nondiscriminatory manner to confer benefits on an international basis.

In order to establish the legality of a data collection program, it is necessary to ensure that the act of collection itself is peacefully conducted. Earth resources sensing satellites are peaceful in nature. They carry out systems specifically designed to collect and transmit data from which can be derived information about the earth's resources and its environment. They carry no weaponry and are entirely nonaggressive in nature.

There are many non-treaty international agreements in effect which reflect a broad consensus on the legality of remote sensing activity. In January 1971, NASA and the Academy of Sciences of the USSR held discussions in Moscow on space cooperation. The results included an agreement<sup>23</sup> to undertake a number of cooperative studies with exchange of data and to conduct further discussions regarding programs of coordinated study and exchange of information concerning the earth and ocean surfaces by means of space as well as conventional technology.

The United States has also entered into cooperative arrangements with a number of other countries, including Brazil, Mexico, and Canada for the implementation of earth-sensing experimentation. In addition, as of January 1, 1973, 37 countries and two international organizations have proposed ERS investigations, which have been agreed to and will be carried out cooperatively with the United States in the ERTS program.<sup>24</sup> In each of these cases, a sponsoring foreign Government agency committed itself to the public dissemination of the data to be collected over the surface area of interest.

Custom was for a long time the basic method by which rules and principles of international law were established. Apart from treaty and other forms of express

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<sup>23</sup>Confirmed by exchange of letters, NASA and Soviet Academy (NASA Announcement, 31 March 1971). For text see 10 Int'l Legal Materials 617 (1971).

<sup>24</sup>See "International Programs," *supra* note 18.

agreement, it remains the chief method. Treaties and other formal expressions of law are often intended principally to record or codify existing customary law.<sup>25</sup>

Customary law is based on the presumed or tacit consent of nations. The rules of navigation and the prohibitions against capture of vessels in peaceful maritime commerce are examples of customary law which have become established over the years. The U. S. Supreme Court, in holding that such rules were a part of the law of the United States, states:

“Undoubtedly, no single nation can change the law of the sea. That law is of universal obligation, and no statute of one or two nations can create obligations for the world. Like all the laws of nations, it rests upon the common consent of civilized communities. It is of force, not because it was prescribed by any superior power, but because it has been generally accepted as a rule of conduct. . . . And it is evident that unless general assent is efficacious to give sanction to international law, there never can be that growth and development of maritime rules which the constant changes in the instruments and necessities of navigation required.”<sup>26</sup>

It is universally accepted that custom is a valid and established method for the creation of rules of international law<sup>27</sup> and is cited as such by the Statute of the International Court of Justice.<sup>28</sup> Although the principle is clear, difficulty may arise in determining whether a specific practice has risen to the status of customary law.

Two elements are generally agreed upon as required for the formation of international customary laws: usage and *opinio juris*.<sup>29</sup> Usage refers to the actual practice of states which is carried on with such consistency that definite and clear expectations concerning normal conduct among nations are thereby created. *Opinio juris* represents the conviction of those applying and assenting to the practice that it is legal and just. Fulfillment of the condition of usage generally requires: (a) a practice, whether by positive act or omission, within the ambit of international relations; (b) that the practice be sustained without significant variation; (c) that it be accepted by the overwhelming majority of the nations concerned (universality of acceptance is not required, a majority being sufficient so long as there is no major or significant dissent); and (d) that the foregoing attributes be developed over a sufficient period of time to establish a firm basis for the expectations of nations in their relations.<sup>30</sup>

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<sup>25</sup>Pollock, *The Sources of International Law*, 2 Colum. L. Rev. 511 (1902).

<sup>26</sup>*The Scotia*, 81 U.S. (14 Wall.) 170 at 187-8 (1871).

<sup>27</sup>M. McDougal, H. Lasswell & I. Vlasic, *Law and Public Order in Space* 116 (1963).

<sup>28</sup>The Statute is reprinted in full in 2 Schwartzberger, *A Manual of International Law* 733 (4th ed., 1960).

<sup>29</sup>Kunz, *The Nature of Customary International Law*, 47 Am. J. Int'l. L. 662 (1953).

<sup>30</sup>*Id.*

Historically, an extensive period of time was required to incorporate a practice or principle into the body of customary international law. This was largely due to the slowness of communication among nations and the relative paucity of international transactions in general. A course of conduct can give rise to the immediate need for nations to express their consent or nonconsent, and today such expression can be communicated instantaneously. Another reason that customary international law can evolve much more rapidly today is the existence of international forums, such as the United Nations, for the discussion of international practices and for full debate of the issues.

The *opinio juris* and recognition of this usage, as expressed in many scholarly writings and in the many cooperative arrangements for space programs, appear to have clearly established remote sensing as a peaceful activity recognized under customary international law.

The remote sensing of earth resources by satellite is entirely in accordance with international law. It is an elaboration of activity initiated in previous space programs and is not a departure from the past. It has been sanctioned by international custom and practice. Not only is it lawful under the Outer Space Treaty, but also remote sensing of earth resources is intended to help fulfill some of the very purposes of the Treaty. It is an entirely peaceful activity. Its intended purpose is to study the natural environment and resources of the earth in order to enhance man's capability to protect and conserve both while making more efficient and safer use of the earth's resources. The beneficial possibilities suggested in this paper are only a beginning. The promise of future benefits from superior knowledge of earth's environment and resources has encouraged interest and study by the United Nations and by broad multinational participation in current remote sensing programs.

The National Aeronautics and Space Administration has conducted all of its program since the beginning of the space age on an open and benefit-sharing basis. This tradition, framed in the National Aeronautics and Space Act of 1958,<sup>31</sup> has been equally applied to NASA's earth resources and environmental remote sensing programs, and is fully consistent with the provisions of the Outer Space Treaty previously discussed. To retreat now to a more restrictive approach, particularly in an area of space applications that shows great promise, is a step in the wrong direction, and it would do serious damage in the long run to the international community of nations. There are regional and global problems that cry for attention, and they can be assisted through the use of this new technology. Pollution, floods, earthquakes, weather, and water resources are no respecters of national boundaries. Neither is it technically feasible now nor in the foreseeable future to shape the reception capability of earth resources and environmental remote sensing to political boundaries. The wide scope of the area covered on each pass and the imagery obtained are for the most part regional in character. States should therefore recognize that the great benefit of remote sensing is not limited to *national* resources and the contribution is in the areas of *natural* resources and the environment. As to *national*

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<sup>31</sup>Act of July 29, 1958, Public Law 85-568, 72 Stat. 426, 42 U.S.C. 2451, *et seq.*

resources that are identified with the assistance of remote sensing data, these resources are within the sovereign control of the nation within whose borders they lie. Any exploration, extraction, or development after their identification, would be wholly subject to the terms and conditions imposed by that sovereign state. This being true, and in light of growing shortages of mineral resources, resources which remain undiscovered will be of no benefit to either the state within whose borders they lie or to any other state which, by purchasing such resources, could convert them into products that could help raise the world's standard of living, particularly of the less-developed and developing nations.

The United Nations has expressly recognized the great potential benefit of remote sensing from space, particularly to the developing countries and in the preservation of the environment. The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space cited such benefits, and recommended the convening of a Working Group on Remote Sensing of the Earth by Satellites. This decision was welcomed and approved in 1971, by the General Assembly in its Resolution 2778 (XXVI). The Working Group's areas of study include the following aspects of remote sensing systems: technical development, user needs, social and economic benefits, legal implications, and organization requirements.<sup>32</sup>

### CONCLUSION

It is apparent that the Outer Space Committee has accomplished a great deal in the past 15 years. It is equally evident that there is much remaining to be done with many important issues to be resolved in the years ahead. The Committee has proceeded, and may be expected to continue to proceed, in an orderly and constructive fashion to reach consensus on workable and acceptable solutions or approaches to many of the problems and issues that have been discussed in this paper. Though others may disagree, the development of outer space law has kept pace with space activities and technology. It is this writer's conviction that the existing widespread international cooperation in space activities, legal as well as scientific, will continue to grow and produce substantial additional benefits for all mankind.

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<sup>32</sup>For a review of the role of the U.N. Working Group, see F. Fiorio, *The United Nations and The Remote Sensing of Earth Resources*, House Comm. on Science and Astronautics, January 26, 1972, H.R. Doc. No. 71-746, 92nd Cong., 2nd Sess. (Comm. Print, 1972).

Martin Menter\*

The subject matter of this article "Jurisdiction Over Man-Made Orbital Satellites" is within the general theme of a joint meeting of the International Astronautical Federation and the International Institute of Space Law to be held in early October 1974 in Amsterdam, Holland. Their topic will be "Space Stations: Present and Future".

By way of introduction, it may be observed that the number of payloads in orbit around the Earth is probably much larger than it is generally believed. As of 0900 "Z" or Greenwich time, November 1, 1973, there were a total of 598 payloads in orbit. Of these, 345 belong to the U.S., 218 to the U.S.S.R., and 35 to other nations. In addition, there are 45 "space probes" speeding even further away from the Earth into outer space. In addition, there is in Earth orbit 2,313 pieces of debris or space junk, over 1,600 of which are of U.S. origin. The total number of man-made objects in space on November 1 was 2,996. While that number may seem high, more than that total number have fallen back toward Earth and have been consumed in the atmosphere.<sup>1</sup>

These satellites and space probes are giving us tremendous knowledge of our Earth and its relation to the universe. Our Milky Way galaxy contains about 100 billion stars; and there are some 100 billion galaxies in the known universe. It is reasonable to assume that some planets in other galaxies may have gone through similar evolutionary development as planet Earth and have animal life tailored to their environment.

When one thinks of life on other planets, one also thinks of the absence of life. Did some planets have life and lose it to become cold dead planets in space? Could this happen to the Earth? Our satellites do show the health of our vegetation and the condition of our atmosphere. It is known that man is fragile and that environmental changes affect his life and survival. We are told that while Earth is perhaps billions of years old, *homo sapiens* evolved, tailored to his environment, about 1 1/2 million years ago; that at about the 4th ice age, only about 8,000 years ago, he began settling down by the shores of lakes and rivers developing clans and tribal villages which have grown into metropolises. The natural law, premised upon man as a sentient being, was the basis for the developing folkways, mores, dictates of the tribal leader or council, and much of later national and international law. It, too, is playing a role in the development of space law.<sup>2</sup>

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+This article is an elaboration of the author's address before a regional conference on "Recent Developments in Space Law" which was held on November 2, 1973 at the University of Mississippi Law Center.

<sup>1</sup>Figures received from the Space Law Center, North American Air Defense Command (NORAD).

<sup>2</sup>See Menter, *Astronautical Law* 5-7, in Staff of Senate Comm. on Aeronautical & Space Sciences, *Legal Problems of Space Exploration: A Symposium*, S. Doc. No. 26, 87th Cong., 1st Sess. 349-97 (1961).



What hath man wrought? We are now experiencing a population explosion and energy and food shortages. Our natural resources are being greatly depleted. With our industrial expansion, we have observed ever increasing water and air pollution. Our fish and animal life, and even that of man, is threatened. Some studies have concluded that unless present trends are corrected we face a catastrophic collapse of world civilization by about the year 2,100. While there are those that do not accept such conclusions, there is a recognizable trend and a need for positive action.

Space satellites may be our major tool in furnishing us the knowledge to brake and perhaps reverse our trend toward self-destruction. The road to a global weather network that constantly pours satellite-obtained data into a computerized prediction system is well on its way toward completion. It will give us a "now-cast" of climate anywhere in the world and accurate forecasts for up to two weeks. This will have enormous value for agriculture, fishing, boating, and other industries. It may lead to purposeful weather modifications, climate control, and development of regional water management systems. Earth Resources Technology Satellites (ERTS) and successor satellites will provide data for better land use, including crop productivity—as to both quality and quantity—on land and in the sea. Satellites will provide a barometer on our environment from which man can devise local, national, and international measures for his protection.<sup>3</sup>

Among the about 600 payloads now in space are ERTS-I and Skylab. The third 3-man crew went aboard Skylab for a record stay of almost 60 days. They remained in what is known as "Near Earth Space". Near Earth Space begins about 100 miles above the earth and extends out to 22,300 miles above the earth. ERTS is about 570 miles out, and Skylab is about half of that distance. Beyond 500 miles, a spacecraft will remain in orbit almost indefinitely. A satellite at 22,300 miles above the Equator will match the speed of the Earth's rotation. It will be in "synchronous orbit". Thus, it appears to be standing still, although it is traveling at 6,875 miles per hour.

Skylab points the way to a new comprehensive class of satellites—the manned space stations. Besides astronauts, civilian scientists and engineers can guide and maintain the various instruments aboard. A work shop or laboratory in space, with zero gravity and almost total vacuum, may permit economical manufacture of many products not now available on Earth, such as new alloys, super-pure vaccines, perfectly round ball bearings and exotic crystals for advanced electronic equipment. If these stations were placed at synchronous altitude, the circumference about the Earth at such altitude would be 165,000 miles. However, such stations can work effectively in lesser altitudes in Near Earth Space. Laboratories or other stations need not be set up on the moon. Space stations can be put anywhere; and with gyrosscopes and computers they will stay in a fixed place. Each will be a place in space as if it were real estate. A TV tower, in orbit or on a space station, would be in a place just as if it were anchored in concrete on a mountain top.

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<sup>3</sup>NASA, *Space and Man's Environment 4-5* (1973) (Address by NASA Administrator Fletcher, National Wildlife Federation, in Washington, March 6, 1973). See also NASA, *Spaceship Earth—A Look Ahead to a Better Life* (1973) (Address by NASA Administrator, Senate Comm. on Aeronautical and Space Sciences, March 6, 1973).

The "Space Shuttle" is the space vehicle to be used to ferry men between the Earth and space stations. It will take off like a rocket and become a manned spacecraft in Earth orbit; it will return to Earth to land like an airplane. It can be used over and over. It will have a large cargo bay—15 feet in diameter and 60 feet long. It will orbit payloads up to 65,000 pounds. Specially-built laboratories like large house trailers will be carried to orbit in the cargo compartment of the shuttle. As the shuttle will not accelerate or decelerate as fast as present spacecraft, there will be no heavy G-forces. Anyone in normal good health will be able to work in space. It has been predicted that the Space Shuttle will advance the space frontier in a manner comparable to the railroads opening up the American continent. Astronaut Harrison Schmitt, the first scientist on the moon, sees after a "pioneering phase" more and more of Earth's people living in space, and taking their civilization with them in large stations and work shops. When will the Space Shuttle be in use and begin the pioneering phase? NASA says that it will be in operation only five years from now, with the first mission to be undertaken one year later. <sup>4</sup>

NASA is only 15 years old. As great as the space program has been to man in the past, it should prove many times more helpful in the next 15 years. Our applications satellites, our space laboratories, and other space stations may well reverse the pollution trend and provide the means of increased sustenance and better health for our Earth's population.

As the United States has crews now in orbit for 60 day periods, and as more and more individuals will travel to space stations and live in space for increasing periods, it is essential that the law to govern man in space be determined at the earliest time.

A good start has been made. The 1967 Outer Space Treaty<sup>5</sup> has obviated the question of sovereignty attaching to land masses in space, or over space, by its express recital in Article II that "Outer Space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means." Article VI directs that activities of non-governmental entities in outer space "shall require authorization and continuing supervision" by the sponsoring State. Further, it stipulates that each State "shall bear international responsibility for national activities in outer space, . . . whether . . . carried on by government agencies or by non-governmental entities. . .". Article VIII of the 1967 Space Treaty is particularly helpful in its application to both space stations and to persons thereon. It provides that "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. Ownership of objects launched into outer space, including objects landed or constructed on a celestial

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<sup>4</sup>Address by Bernard Moritz, Deputy Associate Administrator, NASA, Chautaugua Institution in Chautaugua, New York, July 23, 1973.

<sup>5</sup>Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Signed January 27, 1967, entered into force October 10, 1967, [1967] 18 U.S.T. 2410, T.I.A.S. No. 6347.

body, and their components parts, is not affected by their presence in outer space or on a celestial body or by their return to the earth".

The Agreement on the Rescue of Astronauts, Return of Astronauts and the Return of Objects Launched into Outer Space provides for the return to the launching state of astronauts and space objects found beyond the territorial limits of the launching State.<sup>6</sup> The Convention on International Liability for Damage Caused by Space Objects carries forward implementing provisions to Article VII of the 1967 Outer Space Treaty to assure recovery to a national of a State for injury to his person or damage to his property from another adherent State's space activities.<sup>7</sup>

While the 1967 Treaty provides that the launching State retains jurisdiction over its space objects and over any personnel thereof, such provision under current U.S. law is not self-executing. Congress has yet to generally extend U.S. criminal jurisdiction to U.S. nationals in outer space. Such action, however, is not necessary to personnel subject to the Uniform Code of Military Justice as the Congress in enacting the Code provided that it "applies in all places."<sup>8</sup>

That the U.S. Criminal Code does not generally apply outside the United States is readily apparent in the case of *U.S. v. Cordova*.<sup>9</sup> Here, a passenger was tried in the U.S. District Court for the Eastern District of New York for an assault committed aboard a U.S. air carrier in flight over the high seas. The Court refused to apply the existing law applicable to an assault occurring on a vessel upon the high seas. The Court stated that while the defendant placed the flight in jeopardy, there was no existing law applicable to him. Congress then corrected the situation by extending U.S. maritime and territorial jurisdiction to flights of U.S. registered aircraft over the high seas.<sup>10</sup> No similar extension has yet been made to spacecraft.

At the present time, Congress is considering a revision of the U.S. Criminal Code which will extend identified offenses to outer space. That the Congress may lawfully extend such jurisdiction is beyond legal challenge.<sup>11</sup> A bill drafted by the Senate Judiciary Committee (S.I.) provides that Federal jurisdiction in a court of the United

<sup>6</sup>Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, signed April 22, 1968, [1968] 19 U.S.T. 7570, T.I.A.S., No. 6599.

<sup>7</sup>Convention on International Liability for Damage Caused by Space Objects, signed March 29, 1972 and entered into force for the United States in 1973, 68 Dept. St. Bull. 949 (1973). For text, see also 1 J. Space L. 86 (1973).

<sup>8</sup>Territorial applicability of this chapter, 10 U.S.C. § 805 (1970).

<sup>9</sup>89 F. Supp. 298 (E.D. N.Y. 1950).

<sup>10</sup>Special Maritime and Territorial Jurisdiction of the United States defined, 18 U.S.C. § 7 (5) (1970). Paragraph 5 was added to this section in 1952.

<sup>11</sup>M. Hudson, *The Sixth Year of the Permanent Court of International Justice*, 22 Am. J. of Int'l. L. 1,8 (1928).

States exists to the extent recited in the section of the bill covering the specific offense.<sup>12</sup> For example, in the section on murder,<sup>13</sup> jurisdiction is expressly stated to extend to the "special jurisdiction" of the United States. The definition of such term includes "special aerospace jurisdiction".<sup>14</sup> Such latter term is separately defined to include "any aircraft or spacecraft of the United States, during flight or while in outer space". Also covered by the term "special aerospace jurisdiction" would be "any other aircraft or spacecraft if and to the extent provided by treaty" and "any Federal public servant or citizen of the United States present in outer space", and also "any other person present in outer space, if and to the extent provided by treaty or other international agreement having the force of a treaty".<sup>15</sup>

A further revision of the U.S. Criminal Code, proffered to the Congress by the Administration, is incorporated in another recent Senate bill.<sup>16</sup> This bill (S. 1400) is receiving serious consideration within the Senate Judiciary Committee. Rather than establishing a "special aerospace jurisdiction", the bill seeks to include spacecraft by the simple expedient of defining the term "aircraft" as including "any craft designed for navigation in air or in space."<sup>17</sup>

Thus under the above-mentioned bill offenses aboard spacecraft are embraced within the "special aircraft jurisdiction of the United States". This includes, among others, "an aircraft which belongs in whole or in part to: (a) the United States; (b) a state or local government; (c) a citizen of the United States; or (d) a corporation created by or under the laws of the United States or any State; . . . during the period that such aircraft is in flight. . .".<sup>18</sup> The bill has a further recital that would remove any question of retention of jurisdiction while a crew member or passenger is in outer space. It also would embrace non-nationals of the U.S. under the circumstance recited. This is a recital of "extraterritorial jurisdiction" over an "offense . . . committed by or against a national of the United States outside the jurisdiction of any nation . . .", except as otherwise provided "by statute, treaty or executive agreement."<sup>19</sup> The report of the Commission setting forth the background of the Code revision states that this recital would cover

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<sup>12</sup>S. 1, 93rd Cong., 1st Sess. (1973).

<sup>13</sup>S. 1, 93rd Cong., 1st Sess. §2-7B.1 (1973).

<sup>14</sup>*Id.* §1-1A4 (64).

<sup>15</sup>*Id.* §1-1A4 (62).

<sup>16</sup>S. 1400, 93rd Cong., 1st Sess. §111 (1973).

<sup>17</sup>*Ibid.*

<sup>18</sup>*Id.* §203 (d).

<sup>19</sup>*Id.* §204.

crimes "in Antarctica, or on the moon".<sup>20</sup> The "Working Papers" of the Commission further notes that the provision is based on the nationality, universality and passive personality principles.<sup>21</sup>

The final Senate bill for revision of the U.S. Criminal Code will probably be a combination of both bills (S. 1 and S. 1400) with heavy leaning to the latter. While some interpretive problems as to outer space jurisdiction yet exist in both drafts, it is believed that they will be resolved by language changes in the final bill text, and by explanation in the Senate Judiciary Committee report on such bill. Enactment of these provisions would reflect U.S. assumption and discharge of the responsibility conferred on the State of registry by Article VIII of the Outer Space Treaty.

There is present concern not only with providing criminal sanctions for misconduct in spacecraft or on celestial or man-made orbital bodies, but also with applying appropriate civil law to persons in outer space to cover such subjects as contracts, torts, wills, deaths, and perhaps marriage and births. There is some precedent. In Section 48 of the Hawaii Omnibus Act, Congress provided that "all executive and legislative authority necessary for the civil administration of Palmyra Island, Midway Island and Wake Island" and certain judicial authority be "vested in such person or persons and shall be exercised in such manner and through such agency or agencies as the President of the United States may direct or authorize. . ." <sup>22</sup> Pursuant to such delegation, the President vested the recited authority for Wake Island in the Secretary of the Interior.<sup>23</sup> The latter promulgated a "Wake Island Code" covering civil and minor criminal offenses.

In another statute, Congress provided for the government of the Trust Territory of the Pacific Islands.<sup>24</sup> This responsibility has been accepted by the United States from the United Nations.<sup>25</sup> The Congress provided that all legislative, executive, and judicial authority necessary for the civil administration of the Trust Territory was to be vested "in such person or persons and to be exercised in such manner and through such agency or agencies as the President of the United States may direct or authorize". The authority here provided has been vested in a High Commissioner, who is appointed by the President, with the advice and consent of the Senate. It should be particularly noted that the jurisdiction here provided is over territory which the United States does *not* possess sovereignty. This is particularly apropos as it will be recalled that Article II of the 1967

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<sup>20</sup>National Comm'n. on Reform of Fed. Criminal Laws, Final Report at 22 (1971); The Commission was authorized by Congress, Act of Nov. 8, 1966, Pub. L. 89-801; 80 Stat. 1516.

<sup>21</sup>National Comm'n. on Reform of Fed. Criminal Laws, Working Papers, Vol. 1, at 76 (1970).

<sup>22</sup>Act of July 12, 1960, Pub. L. No. 86-624 §48, 74 Stat. 411.

<sup>23</sup>Exec. Order No. 11048, 14 C.F.R. 165.

<sup>24</sup>Continuance of Civil Government for the Trust Territory of the Pacific Islands; Assistance Programs; Maximum fiscal year costs; Reimbursements, 48 U.S.C. §1681 (1964).

<sup>25</sup>Act of July 18, 1947, 61 Stat. 3301, 8 U.N.T.S. 118, T.I.A.S. 1665.

Outer Space Treaty expressly precludes any claim of sovereignty with respect to outer space and celestial bodies. Under a statutory grant similar to that which provided for the Trust Territories, but excepting perhaps criminal cases prosecuted under the revised U.S. Criminal Code, a comprehensive Code could be drafted for civil law activities and happenings in outer space.

While there remains questions for treaty consideration over man-made orbital satellites, much basic international law is already present. The need here concerns the implementation of such international law by our own domestic legislation extending and providing law over activities of our nationals in outer space.<sup>26</sup>

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<sup>26</sup>See Gorove, *Criminal Jurisdiction in Outer Space*, 6 *Int'l. Lawyer* 313 (1972). As to conflict of law problems relating to civil actions in space, see McDougal, Lasswell, and Vlasic, *Law and Public Order in Space* 666-95 (1963).

PROPERTY RIGHTS IN OUTER SPACE:  
FOCUS ON THE PROPOSED MOON TREATY+

*Stephen Gorove\**

One of the recent subjects under consideration by the United Nations has been the drafting of a treaty relating to the moon. The Legal Sub-Committee of the United Nations Committee on the Peaceful Uses of Outer Space established a Working Group for an article-by-article consideration of proposals relating to such a draft international treaty concerning the moon. The Working Group formulated the text of a preamble and twenty-one articles.<sup>1</sup> However, the Draft Treaty is, as yet, incomplete. There remain several issues to be settled before it can be finalized. Nonetheless, a substantial amount of agreement on several provisions has been reached and, even in its present incomplete state, the draft reflects a number of proposals carrying significant additions to or changes in earlier agreements. The purpose of this paper is to concentrate on those provisions of the Draft Treaty which pertain to natural resources and the interdiction of property rights.<sup>2</sup>

The first and foremost innovation of the draft is in its declaration that the natural resources of the moon and other celestial bodies "shall be the common heritage of all mankind."<sup>3</sup> At first sight this principle seems to be in line with Article I of the Outer Space Treaty<sup>4</sup> which declares outer space to be the "province of all mankind" and with Article II of the Outer Space Treaty which prohibits national appropriation of the moon and other celestial bodies by claim of sovereignty, use, occupation or any other means.

However, upon further scrutiny, the quoted provision appears, at the present stage of our development, by no means without ambiguity. The phrase referring to the common heritage of mankind has presumably been borrowed from a similar phrase used in connection with the exploration and exploitation of the seabed and the ocean floor.<sup>5</sup>

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\*Chairman of the Graduate Program in Law and Professor of Law, University of Mississippi Law Center.

+This article is an elaboration of the author's paper presented at the 16th Colloquium on the Law of Outer Space on October 11, 1973, in Baku.

<sup>1</sup>For text of the Draft Treaty Relating to the Moon, see U.N. Doc. A/AC.105/101 (1972); see also Doc. A/AC.105/115 (1973).

<sup>2</sup>Art. X.

<sup>3</sup>Art. X, par. 1.

<sup>4</sup>Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (briefly referred to as Outer Space Treaty) was signed on January 27, 1967, and entered into force October 10, 1967, [1967] 18 U.S.T. 2410, T.I.A.S. No. 6347, reprinted in 61 Am. J. Int'l. L. 644 (1967).

<sup>5</sup>G. A. Res. 2749 (XXV); U.N. Doc. A/C.1/544 (1970).

It has been pointed out that the inclusion in binding international legal documents of such a vague phrase without any definite content may well be premature. It has also been pointed out that before any rights can be meaningfully vested in mankind, not only the problem of definition but also that of representation will have to be resolved.<sup>6</sup>

The fact that the inclusion of the above quoted phrase was not meant to create immediate property rights for mankind in the natural resources of the moon and other celestial bodies seems implied from the use of the phrase "shall be" rather than "is." In line with this reasoning the United States representative to the Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space stated that while the United States proposed in its draft that the natural resources of the "moon and other celestial bodies shall be the common heritage of all mankind", it was not prepared to accept an express or implied prohibition of the exploitation of natural resources prior to an agreement by a subsequent international conference on appropriate machinery and procedures for the international sharing of benefits of such utilization.<sup>7</sup> In other words, in the view of the United States, the draft treaty on the moon could not reasonably be interpreted to require that exploitation had to await the establishment of a treaty-based regime. According to the United States the main purpose of such regime was to ensure the orderly and safe development and rational management of the natural resources of the moon and other celestial bodies, to expand opportunities in the use thereof and determine an equitable sharing by all parties in the benefits derived therefrom taking into consideration, in particular, the interests and needs of the developing countries.<sup>8</sup>

A second innovation incorporated in the draft is that, unlike the Outer Space Treaty under which the prohibition of appropriation extended "to the moon and other celestial bodies", without a distinction as to surface, sub-surface or natural resources,<sup>9</sup> the draft treaty limits its prohibition to the "surface or sub-surface" of the moon or other celestial bodies.<sup>10</sup> There is no explanation given in the draft of the meaning of the terms "surface or sub-surface" but apparently these terms do not mean to include any natural resources found on the surface or in the sub-surface inasmuch as such resources—no

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<sup>6</sup>Gorove, 'The Concept of 'Common Heritage of Mankind': A Political, Moral or Legal Innovation? 9 San Diego L. Rev. 390 at 402 (1972); cf. Cocca, Mankind as the New Legal Subject: A New Juridical Dimension Recognized by the United Nations, Proc. 13th Coll. on the Law of Outer Space 211 (1971); Magreda, Something More About Humanity as Subject of Law, *id.* at 215; Scifoni, The Principle Res Communis Omnium and the Peaceful Use of Space and Celestial Bodies, Proc. 12th Coll. on the Law of Outer Space 50 (1970).

<sup>7</sup>See statement by Herbert Reis, U.S. Representative to the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space, U.S. Mission to the U.N., Press Release USUN-37 (73), April 19, 1973.

<sup>8</sup>*Ibid.*

<sup>9</sup>Art. II.

<sup>10</sup> Art. X, pars. 2 and 3.



matter where found—are to be the “common heritage of all mankind.”<sup>11</sup>

While the draft treaty prohibits any property claim to the surface or sub-surface of the moon as well as any grants, exchange, transfer, sale or purchase, lease, hire, gift or any other arrangement or transactions with or without compensation pertaining to the surface or sub-surface,<sup>12</sup> it is not entirely clear whether this prohibition is in fact more than a simple paying of lip service to the principle of prohibition of national appropriation enunciated by the Outer Space Treaty.<sup>13</sup>

What makes the prohibition included in the new draft somewhat illusory, if not illogical, is the fact that it also stipulates that the placement of space vehicles, equipment, facilities, stations and installations on or below the surface of the moon, including structures connected with its surface or sub-surface are not to create a right of ownership of parts of the surface or sub-surface of the moon or other celestial bodies.<sup>14</sup> This stipulation in fact means that states or organizations could establish facilities, stations and installations on the moon or other celestial bodies and occupy an area over a long period of time or, if human settlement becomes feasible, perhaps even indefinitely, exercising dominion and control over the area subject only to the limited right of visitation guaranteed under the Outer Space Treaty.<sup>15</sup>

Thus it is difficult to see in what manner the draft treaty's prohibition would become effective. States and other organizations, as well as individuals, could occupy and control the surface or sub-surface of the moon with their vehicles, equipment, facilities and installations, as long as they wished. They could exercise control over it subject only to the aforementioned right of restricted visit. The only thing, therefore, that the draft does is to say that such possession and control will not create a right of ownership over parts of the surface or sub-surface of the moon. But it seems that everything could be exercised by the state, organization or individual much the same way as if such a right of ownership did in fact exist.

The same may be said in relation to the prohibition of grant, exchange, transfer, sale or purchase, lease, hire, gift, or any other arrangement or transaction with or without compensation relating to parts of the surface or sub-surface of the moon or other celestial bodies. Accordingly, nothing would seem to prevent a state from turning over a station, facility and equipment including structures connected with the surface or the sub-surface to another state which could in the same way exercise dominion and control with the exclusion of other states, organizations or individuals and, in fact, exercise what would

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<sup>11</sup>*Id.* at par. 1.

<sup>12</sup>*Id.* at par. 3.

<sup>13</sup>Art. II.

<sup>14</sup>Art. X, par. 2.

<sup>15</sup>Art. XII.

normally amount to property rights in relation to the surface or sub-surface. In sum, it would appear that the draft treaty proscribes only the use of the terms property right or property but does little in relation to prohibiting the very type of dominion and control which, if exercised with the exclusion of others and with no time limitation, is so characteristic of and inherent in the concept of property.

In one respect the draft goes beyond the provisions incorporated in the Outer Space Treaty. The letter prohibited only "national appropriation" but there was no indication of what the phrase was meant to imply. The word "national" could be interpreted to mean reference to the nation-state with the exclusion of international organizations or even of individuals.<sup>16</sup> The draft treaty stipulates that "neither states, international intergovernmental or non-governmental organizations, national organizations having the status of juridical persons or not, nor natural persons may claim the surface or sub-surface of the moon (or other celestial bodies) as their property."<sup>17</sup> Thus it makes it clear that the prohibition of national appropriation at least insofar as it relates to the "surface or sub-surface" is applicable not only to states but also to international organizations as well as national organizations other than states, and to individuals.

Also, by distinguishing natural resources from what is termed "surface or sub-surface", the draft seems to resolve the puzzle created by Article II of the Outer Space Treaty, namely, whether or not the prohibition of national appropriation relates to an area or part of the moon or to its natural resources.<sup>18</sup> (What the draft does not clarify is the depth of the sub-surface, and the question of how any exploitation of natural resources especially of those embedded in the sub-surface could be carried out without the exercise of dominion and control over the surface and sub-surface.)

In conclusion, it may be stated that the present draft treaty is an advancement over the provisions of the Outer Space Treaty pertaining to the prohibition of national appropriation insofar as it attempts to distinguish between the natural resources, surface and sub-surface of the moon and also because it makes it much more definite to whom the prohibition is to apply. It is unfortunate, however, that the attempted distinction is not clear enough and that the status of natural resources has been obscured by reference to the vague concept of the common heritage of mankind. It is also unfortunate that the prohibition in relation to the right of ownership over parts of the surface or sub-surface of the moon appears to be little more than a smokescreen, since the very thing that ownership implies, including indefinite control and exclusion of others from the occupied area (apart from a limited right of visitation provided for by the Outer Space Treaty), does not appear to be outlawed under the draft treaty. It is hoped that the eventual treaty will attempt to overcome the indicated inconsistencies or appear less presumptuous than the current draft which claims to do away with the right of ownership while in fact it appears to do so in an extremely limited fashion, if at all.

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<sup>16</sup>Gorove, *Interpreting Article II of the Outer Space Treaty*, 37 *Fordham L. Rev.* 349 (1969).

<sup>17</sup>Art. X, par. 2.

<sup>18</sup>See comments by Professor Goodhuis in the Report of the 54th Conference of the International Law Association 427 (1971) and my response, *id.* at 409-10.

I.

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Satellites: Furnishing of Launching and Associated Services

*Agreement effected by exchange of notes  
Signed at Washington January 17, 1973;  
Entered into force January 17, 1973.\**

\* \* \*

*The Secretary of State to the British Ambassador*

DEPARTMENT OF STATE  
WASHINGTON

January 17, 1973

Excellency:

I have the honor to refer to the Memorandum of Understanding between the National Aeronautics and Space Administration (NASA) of the United States of America and the Department of Trade and Industry (DTI) of the United Kingdom of Great Britain and Northern Ireland, dated December 18, 1972, concerning the conditions under which launches and associated services for United Kingdom satellites will be furnished by NASA on a reimbursable basis.

The Memorandum of Understanding, the text of which is enclosed as Annex 1 to this note, provides inter alia that it shall be subject to confirmation by the Government of the United States and the Government of the United Kingdom through an exchange of diplomatic notes.

In consideration of the continuing, mutually beneficial relationships between NASA and the agencies of the United Kingdom on peaceful space research endeavors, including the several cooperative scientific satellite projects accomplished to date and the space tracking and communications support provided by the United Kingdom to NASA, I have the honor to inform you that the Government of the United States confirms the provisions of the Memorandum of Understanding referred to in paragraph 1 of this note.

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\*Taken from Treaties and Other International Acts Series No. 7544 (Jan. 17, 1973). For earlier reference, see 1 J. Space L. 185 (1973). Footnotes are omitted.

I further have the honor to propose that the launching and associated services to be provided by NASA for United Kingdom satellite projects shall be consistent with the relevant provisions of the United States launch assistance policy as confirmed by a statement of the President of the United States on October 9, 1972, such provisions being enclosed as Annex 2 to this note.

If the Government of the United Kingdom would also confirm the provisions of the Memorandum of Understanding and concur in the proposals in this note, I have the honor to propose that this note and Your Excellency's reply, together with the Memorandum of Understanding, shall constitute an agreement between our two Governments regarding this matter, which shall enter into force on the date of your reply and shall remain in force for seven years and thereafter subject to six months' notice of termination by either Government.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:

U. Alexis Johnson

Enclosures:

- Annex 1. Memorandum of Understanding
- Annex 2. US Position of Launch Assistance

His Excellency

The Right Honorable  
The Earl of Cromer, P.C., K.C.M.G., M.B.E.  
*British Ambassador*

Ann. 1

MEMORANDUM OF UNDERSTANDING BETWEEN THE UNITED KINGDOM  
SECRETARY OF STATE FOR TRADE AND INDUSTRY AND THE UNITED  
STATES NATIONAL AERONAUTICS AND SPACE ADMINISTRATION CON-  
CERNING THE FURNISHING OF SATELLITE LAUNCHING AND ASSO-  
CIATED SERVICES

In consideration of the continuing, mutually beneficial cooperative relationships between United Kingdom agencies and the National Aeronautics and Space Administration (NASA) on peaceful space projects, the United Kingdom Secretary of State for Trade and Industry and NASA set forth in this Memorandum of Understanding a general understanding between NASA and the United Kingdom Department of Trade and Industry (DTI): (1) as to the conditions under which NASA will furnish to DTI launching and associated services for United Kingdom spacecraft on a reimbursable basis; and, (2) as to the responsibilities of the parties in connection with such launchings.

DTI and NASA intend that, at appropriate times in the future, they will on each such occasion enter into a separate launch services contract which shall express the specific terms and conditions under which NASA will furnish launchings and associated services for individual launchings requested by DTI, and which will be in accord with the general understandings set forth in this Memorandum.

## Article I

### RESPONSIBILITIES

#### A. DTI WILL TAKE THE FOLLOWING RESPONSIBILITIES:

1. The design, fabrication and testing of the spacecraft and of the onboard experiments.
2. Furnishing advice to NASA of its requirements for a particular launching at as early a date as possible and in any event sufficiently in advance of the target date of the launching to accommodate financial, procurement, and operational requirements of both parties. Such advice will include details as to the spacecraft mission, payload description, orbital characteristics, launching parameters, planned launching dates and back-up launching requirements, and other information needed by NASA for planning purposes.
3. Incorporating provisions in the spacecraft design specifications and test programs to assure and demonstrate spacecraft compatibility with the launch vehicle physical constraints and in-flight environment and with tracking and data acquisition facilities.
4. Providing flight-ready spacecraft at the launching range, in accordance with the time schedule established under the launch services contract.
5. Furnishing all ground-support equipment (GSE) peculiar to the mission and personnel required for its operation except for certain items of GSE which NASA may specifically agree to provide and/or operate.

#### B. NASA WILL TAKE THE FOLLOWING RESPONSIBILITIES:

1. Furnishing launch vehicle and tracking and data acquisition specifications necessary for the DTI to carry out its responsibilities under Article I, A.3 above.
2. Scheduling the launching within the general time period requested by the DTI, subject to the requirements of the United States program. If such requirements should arise, NASA will so notify the DTI as soon as possible.

3. Providing appropriate United States launch vehicles. The parties will jointly select the vehicle to meet the mission requirements.
4. Providing necessary facilities and support, including launch crew services, for pre-launch integration of the DTI spacecraft at the launching range, and for DTI check-out of the spacecraft.
5. Launching the spacecraft from a U.S. range.
6. Furnishing tracking and telemetry data reception from the satellite to ascertain achievement of orbit and vehicle performance, using existing U.S. facilities. Additional or unique equipment, if required, will be supplied by the DTI.
7. Performing initial orbital calculations.
8. Furnishing mutually agreed technical consultation, other services, and/or GSE in support of specific or general DTI launch requirements.

## Article II

### IMPLEMENTATION

A. For each launching, each party will designate a Project Manager, to be responsible for coordinating the agreed functions and responsibilities of each party with the other, pursuant to the detailed arrangements established under the launch services contract. The DTI Project Manager will be concerned primarily with the spacecraft and the NASA Project Manager will be concerned with the vehicle, range and ground station. Together they will be responsible for the spacecraft-vehicle, spacecraft-range and spacecraft-ground stations interfaces.

B. NASA will have operational authority over the vehicle, the launching, and associated services. The DTI will have operational authority over the spacecraft until it is mounted on the final stage motor, at which time it will become NASA's responsibility until the DTI assumes responsibility as specified in the launch services contract. In accordance with normal practice, the DTI Project Manager can place a "hold" on the launching operation at any time. In carrying out their respective responsibilities, both parties will be subject to the safety and other operational regulations and procedures of the range from which the launching takes place.

C. Arrangements for the furnishing of supporting services by NASA in connection with the launching will be provided for under the launch services contract. NASA may also furnish, on a reimbursable basis, minor services in support of general DTI launching requirements, at DTI's request and under arrangements to be agreed upon separately.

D. Each party agrees to use its best efforts to facilitate customs free entry into the United Kingdom and the United States of equipment directly related to and required in carrying out each launch services contract.

### Article III

#### FINANCIAL PRINCIPLES

A. The DTI will be responsible for all costs incurred by it in carrying out its own responsibilities, and will reimburse NASA for costs incurred by NASA in connection with furnishing the requested launching and associated services, and any other supporting services provided at the DTI's request. The general principle under which reimbursement will be made will be that the DTI will reimburse NASA for all costs incurred by NASA in connection with and properly chargeable to the services furnished by NASA for the purposes of any scheduled DTI launching, whether or not such launching actually occurs or is successful, including an amount, to be agreed upon in advance, covering NASA's related agency-level overhead and administrative expenses. NASA may also charge a rental to be agreed in advance, for the use of equipment loaned to the DTI.

B. Reimbursement of NASA's costs will be made initially on the basis of an estimate to be furnished by NASA in advance, under a payment schedule to be established in the launch services contract. The amount paid by the DTI on an estimated basis will be adjusted subsequently to reflect the costs actually incurred by NASA in connection with each launching.

C. The financial principles set forth above are subject to any changes in NASA policy affecting the basis of reimbursement for launching services provided by NASA for users other than the U.S. Government.

### Article IV

#### LIABILITY

A. NASA shall be liable for all damage to or the loss of U.S. government-owned property under the control of NASA, except for damage to or the loss of a vehicle or vehicle stage occurring after DTI has assumed the risk of loss, as provided in the launch services contract, for that vehicle or vehicle stage.

B. DTI shall be liable for all damage to or the loss of property under the control of DTI, including U.S. government-owned property which has been made available by NASA for the use of DTI or its contractors.

C. Except to the extent authorized by U.S. laws pertaining to governmental liability for the negligent acts of U.S. employees, the U.S. Government and its contractors

will not be liable for damage to or the loss of a spacecraft or other property which has been delivered by DTI or its contractors into the custody of NASA or its contractors for the purposes of an agreed launch. The U.S. Government and its contractors shall not be liable in any event for damage to or the loss of such DTI property which results as an indirect consequence of damage to, or the malfunctioning or loss of, a vehicle or vehicle stage occurring after DTI has assumed the risk of loss, as provided in the launch services contract, for that vehicle or vehicle stage.

D. As between NASA and DTI, NASA will be primarily responsible for considering and settling claims, arising directly out of the launching and associated services furnished by NASA, for personal injuries or death, or for damage to or loss of property, other than the property referred to in Paragraphs A, B and C of this Article. Where such claims are based on injuries, death, or damage or loss resulting from the acts or omissions of DTI, its servants, contractors or agents, DTI will reimburse NASA for any amounts paid by NASA in settlement of such claims, but such settlement shall be subject to the advance approval of DTI, except under an award by a U.S. court of competent jurisdiction.

E. NASA will assist DTI in the defense against claims for personal injuries, death, or damage to or loss of property brought against DTI, except when such claims resulted from the acts or omissions of DTI, its servants, contractors or agents.

F. DTI will indemnify and hold the U.S. Government harmless against any claims for personal injuries, death, or damage to or loss of property, or for other liability, arising out of the operation of a satellite, or from its failure to operate, after DTI has taken control of the satellite in orbit.

G. DTI shall have no liability to NASA with respect to third party claims against NASA for patent infringement or unauthorized use of proprietary information by NASA in connection with the furnishing of launching services to DTI, except to the extent that such claims may involve patents or information pertaining to a U.K. spacecraft or associated spacecraft ground support equipment. In this latter event, DTI agrees that it will indemnify and hold the U.S. Government harmless against any such claims.

## Article V

### DOCUMENTATION AND REPORTS

A. NASA and the DTI will exchange, through their respective Project Managers, all documents and information relevant to the successful completion of the agreed missions and such documents and information will be used only for the aforesaid purpose.

B. Immediately after each launching, the DTI will provide NASA all data from the satellite relevant to ascertaining the performance of the launch vehicle and such data will be used only for the aforesaid purpose.



C. DTI will, upon NASA's request and at NASA's expense, provide NASA with any raw data received by the DTI from the satellite and any reduced data therefrom. Except with the prior permission of DTI, NASA will not duplicate, disclose, or use any unpublished data so provided.

D. In any use of data passed to NASA under the above paragraphs A-C of this Article, NASA will respect and protect the confidentiality of proprietary information designated as such by DTI, as provided for in the launch services contract.

## Article VI

### CONFIRMATION

This Memorandum of Understanding and any mutually agreed amendments thereto, shall be subject to confirmation by the Government of the United States and the Government of the United Kingdom of Great Britain and Northern Ireland through an exchange of diplomatic notes.

A. Goodson  
*For the Secretary of State  
for Trade and Industry  
Date 15 November 1972*

James C. Fletcher  
*For the National Aeronautics  
and Space Administration  
Date December 18, 1972*

Ann. 2

### UNITED STATES POLICY GOVERNING THE PROVISION OF LAUNCH ASSISTANCE

I. United States launch assistance will be available to interested countries and international organizations for those satellite projects which are for peaceful purposes and are consistent with obligations under relevant international agreements and arrangements, subject only to the following:

- A. With respect to satellites intended to provide international public telecommunications services:
1. The United States will provide appropriate launch assistance for those satellite systems on which Intelsat makes a favorable recommendation in accordance with Article XIV of its definitive arrangements.
  2. If launch assistance is requested in the absence of a favorable recommendation by Intelsat, the United States will provide launch assistance for those systems which the United States had supported within Intelsat so long as the country or international entity requesting the assistance considers in good faith that it has met its relevant obligations under Article XIV of the definitive arrangements.

3. In those cases where requests for launch assistance are maintained in the absence of a favorable Intelsat recommendation and the United States had not supported the proposed system, the United States will reach a decision on such a request after taking into account the degree to which the proposed system would be modified in the light of the factors which were the basis for the lack of support within Intelsat.

- B. With respect to future operational satellite applications which do not have broad international acceptance, the United States will favorably consider requests for launch assistance when broad international acceptance has been obtained.

II. Such launch assistance will be available, consistent with U.S. laws, either from U.S. launch sites (through the acquisition of U.S. launch services on a cooperative or reimbursable basis) or from foreign launch sites (by purchase of an appropriate U.S. launch vehicle). In the case of launchings from foreign sites the United States will require assurance that the launch vehicles will not be made available to third parties without prior agreement of the United States.

III. With respect to the financial conditions for reimbursable launch services from U.S. launch sites, foreign users will be charged on the same basis as comparable non-U.S. Government domestic users.

IV. With respect to the priority and scheduling for launching foreign payloads at U.S. launch sites, such launchings will be dealt with on the same basis as U.S. launchings. Each launching will be treated in terms of its own requirements and as an individual case. When it becomes known when a payload will become available and what its launch window requirements will be, the launching will be scheduled for that time. Should a conflict arise, the United States will consult with all interested parties in order to arrive at an equitable solution.

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*The British Ambassador to the Secretary of State*BRITISH EMBASSY,  
WASHINGTON, D. C.

17 January 1973

The Honorable  
William P. Rogers  
*Secretary of State*  
*Department of State*  
*Washington, D. C.*

Excellency:

I have the honour to acknowledge receipt of Your Excellency's Note of the 17th of January, with attached Memorandum of Understanding, which reads as follows:—

“Excellency:

“I have the honor to refer to the Memorandum of Understanding between the National Aeronautics and Space Administration (NASA) of the United States of America and the Department of Trade and Industry (DTI) of the United Kingdom of Great Britain and Northern Ireland, dated December 18, 1972, concerning the conditions under which launches and associated services for United Kingdom satellites will be furnished by NASA on a reimbursable basis.

“The Memorandum of Understanding, the text of which is enclosed as Annex 1 to this note, provides inter alia that it shall be subject to confirmation by the Government of the United States and the Government of the United Kingdom through an exchange of diplomatic notes.

“In consideration of the continuing, mutually beneficial relationships between NASA and the agencies of the United Kingdom on peaceful space research endeavors, including the several cooperative scientific satellite projects accomplished to date and the space tracking and communications support provided by the United Kingdom to NASA, I have the honor to inform you that the Government of the United States confirms the provisions of the Memorandum of Understanding referred to in paragraph 1 of this note.

“I further have the honor to propose that the launching and associated services to be provided by NASA for United Kingdom satellite projects shall be consistent with the relevant provisions of the United States launch assistance policy as confirmed by a statement of the President of the United States on October 9, 1972, such provisions being enclosed as Annex 2 to this note.

"If the Government of the United Kingdom would also confirm the provisions of the Memorandum of Understanding and concur in the proposals in this note, I have the honor to propose that this note and Your Excellency's reply, together with the Memorandum of Understanding, shall constitute an agreement between our two Governments regarding this matter, which shall enter into force on the date of your reply and shall remain in force for several years and thereafter subject to six months' notice of termination by either Government.

"Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:

U. Alexis Johnson

*Under Secretary of State for Political Affairs*

Enclosures:

Annex 1. Memorandum of Understanding

Annex 2. U.S. Position on Launch Assistance"

I have the honor to state that the Government of the United Kingdom confirm the provisions of the Memorandum of Understanding and concur in the proposals in Your Excellency's Note. The Government of the United Kingdom therefore agree that your Note, together with the Memorandum of Understanding and this reply, shall constitute an agreement between our two Governments in this matter, which shall enter into force on the date of this reply and continue in force for seven years and thereafter subject to six months' notice of termination by either Government.

Accept, Excellency, the renewed assurances of my highest consideration.

Cromer

II.

Tab A

Memorandum of Understanding Between the National Aeronautics and Space Administration and the European Space Research Organization for a Cooperative Programme Concerning Development, Procurement and Use of a Space Laboratory in Conjunction with the Space Shuttle System\*

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\*Taken from Hearing Before the Committee on Aeronautical and Space Sciences of the U.S. Senate on Space Missions, Payloads, and Traffic for the Space Shuttle Era, 93rd Cong., 1st Sess., Cat. No. Y.4. Ac8:Sp, 1/11/pt. 1 at 121-134 (Oct. 30, 1973).

### Preamble

Pursuant to the offer of the Government of the United States of America to Europe to participate in the major U.S. space programme which follows the Apollo programme, and in particular in the development of a new space transportation system (Space Shuttle), the execution of which has been entrusted by the Government of the United States of America to the National Aeronautics and Space Administration (NASA), European States, members of the European Space Research Organization (ESRO), have manifested their desire to develop a Space Laboratory, hereinafter referred to as "SL", in the form of a Special Project within ESRO, for the purpose of participation in the Space Shuttle programme. These States by means of an international arrangement have charged ESRO or its successor organization with the execution of the SL programme. In order to provide for appropriate Association of the two Agencies in the execution of both programmes and in order to assure the necessary coordination between them, NASA, acting for and on behalf of the Government of the United States of America, and ESRO, acting for and on behalf of the Governments of those States participating in this Special Project, have drawn up this Memorandum of Understanding which sets out the particular terms and conditions under which such association and coordination will be effected. This Memorandum of Understanding will be subject to provisions of the Agreement between the Governments of the above participating States and the Government of the United States of America concerning this cooperative programme.

### Article I

#### OBJECTIVES

The purpose of this Memorandum of Understanding is to provide for the implementation of a cooperative programme in which ESRO undertakes to design, develop, manufacture and deliver the first flight unit of an SL, and other materials described in this Memorandum. This flight unit will be used as an element to be integrated with the Space Shuttle. This Memorandum sets out furthermore the provisions for ESRO access for use of the SL and for the procurement by NASA of additional SLs, and establishes the cooperative structure between NASA and ESRO for dealing with all questions concerning interface between the Shuttle and SL programmes and concerning the missions to be defined.

### Article II

#### GENERAL DESCRIPTION OF THE SL PROGRAMME, ITS INTERFACE WITH THE SPACE SHUTTLE, AND ITS USES

##### 1. *Summary description of the SL programme*

The SL programme provides for the definition, design and development of man-

nable laboratory modules and unpressurised instrument platforms (pallets) suitable for accommodating instrumentation for conducting research and applications activities on Shuttle sortie missions. The SL module and SL pallet will be transported, either separately or together to and from orbit in the Shuttle payload bay and will be attached to and supported by the Shuttle orbiter throughout the mission. The module will be characterised by a pressurised environment (permitting the crew to work in shirt sleeves), a versatile capability for accommodating laboratory and observatory equipment at minimum cost to users, and rapid access for users. The pallet, supporting telescopes, antennae and other instruments and equipments requiring direct space exposure, will normally be attached to the module with its experiments remotely operated from the module, but can also be attached directly to the Shuttle orbiter and operated from the orbiter cabin or the ground. Both the module and the pallet will assure minimum interference with Shuttle orbiter ground turnaround operations.

## *2. Interface with Shuttle*

The Shuttle will: serve in missions to deliver payloads to earth orbit; maintain station on orbit for mission durations in the order of seven days or more; provide safety monitoring and control over payload elements throughout the missions; and provide seating and complete habitability for crews, including free movement between the SL module and the Shuttle. In the interest of minimising developmental and operational costs, and maximising reliability, an effort will be made to optimise commonality between SL and Shuttle components.

## *3. Use objectives*

The SL will support a wide spectrum of missions for peaceful purposes and will accept readily the addition of special equipment for particular mission requirements. The SL will facilitate maximum user involvement and accessibility. The flight equipment complement will be capable of augmentation as appropriate to satisfy approved programme needs. It will be possible for users to utilise the SL with or without supplementary equipment for a single experiment or, in the alternative, to utilise only a small portion of the SL in combination with other experiments. The standard resources of the SL may be utilised to any degree appropriate by an experimenter adhering to standardised interfaces which are to be defined and procedures which are to be set forth. Considerable flexibility in equipment and mission structuring shall be available to the user for effective mission operation.

# Article III

## PHASING AND SCHEDULING

### *1. Phase B studies*

Based on present schedules, the Phase B (preliminary design) studies of the SL are expected to be completed around the end of 1973.

## 2. *Phases C and D*

At the completion of the Phase B studies, the parties will mutually agree on a design for immediate implementation and development by ESRO in Phases C and D (final design and hardware development and manufacture).

## 3. *Completion schedules*

It is currently planned that the first operational space flight of the Shuttle will occur in late 1979. To permit adequate time for experiment integration, check-out and compatibility testing, the SL flight unit shall be delivered to NASA about one year before the first operational Shuttle flight.

## 4. *Schedule changes*

Each party will keep the other fully and currently informed of factors affecting the schedules of the Shuttle and the SL respectively and their potential effects on flight readiness.

# Article IV

## PROGRAMME PLANS

The foregoing gross descriptions of the SL programme and of the phasing, scheduling and working arrangements are amplified in greater detail in the preliminary version, dated 30 July 1973, of the Joint Programme Plan. The parties recognise that many issues remain to be resolved in the Joint Programme Plan, which is to be developed and updated as appropriate by the Programme Heads. This plan is to be progress in both Europe and the United States, on the results of independent and joint studies of user requirements, and on the final definition of, and the requirements for integration with, the Shuttle.

# Article V

## RESPECTIVE RESPONSIBILITIES

### 1. *ESRO responsibilities*

Among ESRO's responsibilities are the following:

(a) design, develop and manufacture *one SL flight unit* (consisting of one set of module and pallet sections), *one SL engineering model*, *two sets of SL ground support equipment*, initial SL spares, along with relevant drawings and documentation; and qualify and test for acceptance this equipment according to NASA specifications and requirements;

- (b) deliver to NASA the terms listed above;
- (c) design, develop and manufacture such elements as ESRO and NASA may agree to be necessary for the programme in addition to those listed in (a) above;
- (d) establish in the U.S. and accommodate in Europe agreed liaison personnel;
- (e) provide all necessary technical interface information;
- (f) provide agreed progress and status information;
- (g) following delivery of the above flight unit, *maintain and fund an SL sustaining engineering capability* through the first two SL flight missions, and ensure for NASA's account the future availability to NASA of such engineering capability to meet NASA's operating requirements, on the same conditions as would apply to ESRO;
- (h) ensure the production in Europe and possibility of procurement by NASA of subsequent flight units, components and spares; and
- (i) provide for preliminary integration of experiments which ESRO supports, as well as acquire the corresponding data, within the overall responsibilities of NASA described in paragraph 2(j) of this Article, and process it.

## 2. NASA responsibilities

Among NASA's responsibilities are the following:

- (a) establish in Europe and accommodate in the U.S. agreed liaison personnel;
- (b) provide general technical and managerial consultation;
- (c) provide all necessary technical interface information;
- (d) provide agreed progress and status information;
- (e) monitor ESRO technical progress in selected areas as defined in the Programme Plans;
- (f) review and concur in the implementation of ESRO activities critical to the NASA programmatic requirements for the SL as defined in the Programme Plans;
- (g) specify, in order to assure successful operation of the SL in the Shuttle system, operational plans, and hardware and operational interfaces as defined in the Programme Plans;



(h) conduct systems analyses for development of operational concepts and utilisation plans, and assess the impact of changes at all SL external interfaces;

(i) develop selected peripheral components, not part of, but necessary to the successful operation of the SL (e.g. access tunnel, docking ports); and

(j) manage all operational activities subsequent to the delivery of the SL, including experiment integration, crew training, check-out, flight operations, refurbishment, data acquisition, preliminary processing and distribution of data.

3. By agreement of the NASA Administrator and the Director General of ESRO, changes may be made in the above responsibilities, as may be desirable for the implementation of this cooperative programme.

## Article VI

### COORDINATION—LIAISON—REVIEWS

#### 1. *Programme heads*

Each of the parties has designated in their respective Headquarters an SL Programme Head. They will be responsible for the implementation of this cooperative programme and they will meet and communicate as they require.

#### 2. *Project managers*

In addition, each of the parties will designate an SL Project Manager responsible for day-to-day coordination in the implementation of this cooperative programme.

#### 3. *Joint SL Working Group (JSLWG)*

The two Programme Heads will together establish a Joint SL Working Group with appropriate technical representation from each party. The Programme Heads will be co-chairmen of the JSLWG. The JSLWG will be the principal mechanism for:

(a) the exchange of information necessary to inform both parties fully of the status of both the Shuttle and the SL;

(b) monitoring interface items, problems and solutions;

(c) early identification of issues or problems of either party which may effect the other; and

(d) assuring early action with respect to any problems or requirements.

#### 4. *Liaison*

The parties shall each provide and accommodate liaison representation at levels as mutually agreed. The representation will be such as to assure each party adequate visibility of the other's progress especially with regard to interfaces and their control. ESRO shall have representation on appropriate Shuttle change control boards to assure adequate opportunity to present the views and interests of ESRO with respect to any change. The ESRO representatives on the boards will have a voice but will not vote. NASA will have similar representation on the comparable ESRO SL board. ESRO and NASA will enable and arrange for visits to their respective contractors as required.

#### 5. *Progress reviews*

Each party shall schedule progress reviews of its work in the Shuttle and SL programmes and shall provide access to the other to such reviews. Annual reviews will be conducted by the NASA Administrator and the ESRO Director General.

### **Article VII**

#### **FUNDING**

##### 1. *Costs*

NASA and ESRO will each bear the full costs of discharging their respective responsibilities arising from this cooperative programme, including travel and subsistence of their own personnel and transportation charges for all equipment for which they are responsible.

##### 2. *Availability of funds*

The commitments by NASA and ESRO to carry out this cooperative programme are subject to their respective funding procedures.

##### 3. *Principle on pricing*

Neither party will seek to recover government research and development costs incurred in the development of items procured from the other in connection with this cooperative programme.

### Article VIII

#### NASA PROCUREMENT OF SLS

##### 1. *Principle*

Subsequent to the delivery by ESRO of the SL unit and other items referred to in Article V, 1(a), NASA agrees to procure from ESRO whatever additional items of this type it may require for programmatic persons, provided that they are available to the agreed specifications and schedules and at reasonable prices to be agreed. NASA should give an initial procurement order of at least one SL at the latest two years before the delivery of the SL unit referred to above. Recognising the desirability of gaining operational experience with the first flight unit before ordering additional units, but that the price and availability of production units will be dependent on the maintenance of a continuing production capability, NASA will endeavor to provide significant lead time for any subsequent procurement order.

##### 2. *NASA abstention from SL development*

NASA will refrain from separate and independent development of any SL substantially duplicating the design and capabilities of the first SL unless ESRO fails to produce such SLs, components and spares in accordance with agreed specifications and schedules and at reasonable prices to be agreed. For any NASA SL programme requirements which are not met by SLs developed under this cooperative programme, NASA will have the right to meet such requirements either by making the necessary modifications to the SLs developed under this cooperative programme, or by manufacturing or procuring another SL meeting such NASA requirements.

##### 3. *Notice of prospective requirements*

NASA will endeavour to give ESRO advance notice of any prospective requirements for substantially modified or entirely new SLs so as to provide ESRO with an opportunity to make proposals which might meet such requirements.

### Article IX

#### CONTINGENCIES

##### 1. *Non-completion of first SL or failure to meet specifications*

NASA's obligations with respect to the SL shall lapse and ESRO will turn over to NASA without charge and without delay all drawings, hardware and documentation relating to the SL if ESRO abandons the development of the SL for any reasons, or ESRO is otherwise unable to deliver the SL flight unit prior to the first operational Shuttle flight, or the completed SL does not meet agreed specifications and development

schedules. The right of NASA to use the said drawings, hardware and documentation shall be limited to the completion and operation of the SL programme. ESRO shall ensure that it will be in a position to provide as hardware any proprietary item for which it does not hold transmissible rights of reproduction.

### 2. *Non-availability of subsequent SLs*

If SLs, components and spares required by NASA after the first flight unit are not available to NASA in accordance with agreed specifications and schedules and at reasonable prices to be agreed, NASA shall be free to produce such units in the United States. For this purpose, ESRO will arrange in advance on a contingency basis any necessary licensing arrangements.

### 3. *Design changes*

While it is understood that ESRO will be represented on the Shuttle change control boards, NASA reserves the right to require changes affecting the interfaces or operational interactions between the Shuttle and the SL after hearing and considering ESRO's views with respect to the prospective effect of such changes on the SL design or cost. NASA recognises the desirability of avoiding changes resulting in a disproportionate impact on the SL programme. To the extent that changes affect the Shuttle and SL programmes, NASA and ESRO will bear the increases in the costs of their respective Shuttle and SL development contracts.

## Article X

### ACCESS TO TECHNOLOGY AND ASSISTANCE BY NASA

#### 1. *Principles*

(a) ESRO will have access to technology, including know-how, available to NASA and needed to accomplish successfully its tasks under this cooperative programme; for the same purposes, NASA will have access to technology, including know-how, available to ESRO. NASA will do its best to arrange for such technical assistance as ESRO and its contractors may require for the satisfactory completion of the SL programme. Access to technology and arrangements for technical assistance shall be consistent with applicable U.S. laws and regulations.

(b) NASA will make available to ESRO general information related to the design, development, and use of the Shuttle and orbital system, particularly that required for the understanding of that system.

(c) Requests for use of technology, including know-how, in other than SL development and production tasks will be considered on a case-by-case basis.

(d) To the extent that NASA can make the required information readily available, it will do so without charge; in other cases, NASA will use its best efforts to facilitate its availability on favourable conditions.

(e) The access to technology, including know-how, referred to above will be effected in such a way as not to infringe any existing proprietary rights of any person or body in the United States or Europe.

## *2. Joint definition of areas*

The two parties shall provide for the earliest possible joint definition of areas in which help in the procurement of hardware and technical assistance from U.S. Government Agencies or nationals may be required.

## *3. Form of assistance*

In providing such help to ESRO as may be agreed, NASA may respond on an in-house basis or may refer ESRO and/or its contractors to U.S. contractors. NASA reserves the right to arrange for such assistance in the form of hardware, rather than know-how.

## *4. Quality control and acceptance*

Where ESRO needs to procure U.S. hardware, NASA agrees to use its good offices in connection with arranging the services of U.S. quality control and acceptance and cost control and auditing personnel in U.S. plants where available and appropriate.

## *5. Facilitation of export licenses*

Early advance notification of contemplated ESRO procurements of U.S. hardware or technology, including know-how, will facilitate assistance by NASA in connection with arrangements for export licenses consistent with applicable U.S. laws and regulations.

## *6. Use of U.S. facilities*

Where it is jointly determined that it is appropriate and necessary for the conduct of the cooperative programme, NASA will use its good offices in connection with arranging for the use of U.S. Government or contractors facilities by ESRO and/or its contractors.

**Article XI****PRINCIPLES CONCERNING ACCESS TO AND USE OF SHUTTLE/SL****1. *Planning***

There shall be adequate European participation in NASA planning for Shuttle and SL user requirements, with a view to providing for inputs relevant to both the SL design and to European use of the SL. Appropriate representation and relevant procedures are being jointly prepared and will be subject to agreement by NASA and ESRO.

**2. *Flight crews***

Flight crew opportunities will be provided in conjunction with flight projects sponsored by ESRO or by Governments participating in the SL programme and utilising the SL. It is contemplated that there will be a European member of the flight crew of the first SL flight.

**3. *Special provisions for the use of the first SL flight unit***

(a) In order to assure the integrity of operating and management of the Shuttle system, NASA shall have full control over the first SL unit after its delivery, including the right to make final determination as to its use for peaceful purposes.

(b) With regard to the first flight of the first SL unit, the system test objectives will be the responsibility of NASA. The experimental objectives of this first flight will be jointly planned on a cooperative basis. Thereafter, the cooperative use of this first SL unit will be encouraged throughout its useful life although not to the exclusion of cost reimbursable use. NASA will otherwise have unrestricted use of the first SL unit free of cost.

(c) NASA may make any modifications to the first SL which it desires. Should NASA find it desirable to effect major modifications to this unit, these shall be discussed with ESRO which will be given the opportunity to provide modification kits. With respect to minor modifications, the normal procedures for configuration control will be relied on to provide adequate information on changes.

**4. *Subsequent availability and preferred access to participants***

While it is premature to define the ultimate terms and conditions for operation and use of the Shuttle with the SL after the first SL mission, it is expected that the following principles will apply:

(a) NASA will make available the Shuttle for SL missions on either a cooperative (non-cost) or a cost-reimbursable basis. In the latter case, costs which may be charged include, but are not limited to, integration, check-out, crew training and data reduction,

processing and distribution, as well as the costs of the launching service provided.

(b) In regard to space missions of ESRO and Governments participating in the SL programme, NASA shall provide access for use of SLs developed under this cooperative programme for experiments or applications proposed for reimbursable flight by ESRO and Governments participating in the SL programme, in preference to those of third countries considering, in recognition of ESRO's participation in this cooperative programme, that this will be equitable in the event of payload limitation or scheduling conflicts. Experiments or applications proposed for cooperative flight will be selected on the basis of merit in accordance with continuing NASA policy; such proposals of ESRO and Governments participating in the SL programme will be given preference over the proposals of third countries provided their merit is at least equal to the merit of the proposals of third countries. ESRO and the Governments participating in the SL programme will have an opportunity to express their views with respect to the judgment of merit regarding their cooperative proposals.

## Article XII

### PUBLIC INFORMATION

Each party is free to release public information regarding its own efforts in connection with this cooperative programme. However, it undertakes to coordinate in advance any public information activities which relate to the other party's responsibilities or performance.

## Article XIII

### PATENTS AND PROPRIETARY INFORMATION

Each of the parties and their contractors shall retain unaffected all rights which they may have with respect to any patents and/or proprietary information, whether or not they antedate this Memorandum of Understanding. Where it is mutually determined that patentable or proprietary information should be transferred in the interest of successfully implementing this cooperative programme, this may be done under arrangements which fully recognise and protect the rights involved. In addition, each of the parties shall secure from its contractors the rights necessary to discharge the obligations contained in this Memorandum of Understanding in accordance with its internal rules.

## Article XIV

### STATEMENT OF DISPUTES

1. Any disputes in the interpretation of implementation of the terms of this

cooperative programme shall be referred to the NASA Administrator and the Director General of ESRO for settlement.

2. Should the NASA Administrator and the Director General of ESRO be unable to resolve such disputes, they may be submitted to such other form of resolution or arbitration as may be agreed.

#### Article XV

##### DURATION

This Memorandum of Understanding shall remain in force until 1 January 1985, but at least for five years from the date of the first flight of the SL. This Memorandum shall be extended for three years unless either NASA or ESRO gives notice of termination prior to 1 January 1985, or prior to the expiration of the five years, whichever is applicable. Thereafter, the Memorandum of Understanding shall be extended for such further periods as the parties may agree.

#### Article XVI

##### ENTRY INTO FORCE

This Memorandum of Understanding shall enter into force when both the NASA Administrator and the Director General of ESRO have signed it and it has been confirmed under the terms of the Agreement between the Governments of the participating European States and the Government of the United States of America concerning this cooperative programme.

Dated August 14, 1973.

A. Hocker,  
For the European Space Re-  
search Organisation.

James C. Fletcher,  
For the National Aeronautics and  
Space Administration.

(NOTE BY COMMITTEE STAFF.—The European governments were anxious to have the Government to Government Agreement and the Memorandum of Understanding not reflect a date later than August 15, 1973, as the signature date for committing to the development of the Space Laboratory as this was the deadline date toward which they were working. Consequently, when the final text of the Memorandum of Understanding was prepared (in Europe), the date 14 August 1973 was entered (as 15 August 1973 was a holiday for some of the European countries). The Memorandum of Understanding was actually signed September 24, 1973, after the last European country signed the Government to Government Agreement. See note at end of Government to Government Agreement.)



Agreement Between the Government of the United States of America and Certain Governments, Members of the European Space Research Organisation, for a Cooperative Programme Concerning the Development, Procurement and Use of a Space Laboratory, in Conjunction With the Space Shuttle System

**Preamble**

The Government of the United States of America  
and

the Governments of the Federal Republic of Germany, the Kingdom of Belgium, Spain, the French Republic, the Italian Republic, the Kingdom of the Netherlands, the United Kingdom of Great Britain and Northern Ireland, the Swiss Confederation, parties to the Arrangement between certain Member States of the European Space Research Organisation and the European Space Research Organisation concerning the execution of the Spacelab Programme, opened for signature on 1 March 1973 (the above European Governments and such other Governments as adhere to this Agreement being referred to hereinafter as the "European Partners"),

Conscious of the challenge and potential of space exploration and convinced that international cooperation in the development and use of new mechanisms for space exploration will further strengthen the bonds of friendship between the countries involved and will in general contribute to world peace;

Recalling with satisfaction the considerable amount of cooperation in the space field already conducted and now in progress between the countries involved;

Desiring to extend and expand cooperation already conducted in the space field between the countries involved;

Convinced also that such cooperation will result in scientific, technological and economic advantages to their mutual benefit as well as the benefit of all mankind;

Recalling the invitation extended by the Government of the United States of America to Europe to cooperate in the United States post-Apollo programme;

Considering that the Government of the United States of America has established policies to make available to other nations launch assistance for scientific and applications space missions for peaceful purposes;

Noting the decision of the European Space Conference to participate in the post-Apollo programme as expressed in the Resolution adopted in Brussels on December 20, 1972;

Considering that the European Partners have entrusted to the European Space Research Organisation (hereinafter referred to as "ESRO") to undertake, as a special project, the development of a Space Laboratory (hereinafter referred to as "SL");

Considering that the Government of the United States of America has entrusted to the National Aeronautics and Space Administration (hereinafter referred to as "NASA") the development of the Space Shuttle;

Considering that the SL concept is essential for the full exploitation of the Space Shuttle potential;

Having Noted the Memorandum of Understanding between NASA and ESRO drawn up for the purpose of implementing a cooperative programme concerning the development, procurement and use of an SL in conjunction with the Space Shuttle system;

Have Agreed as Follows:

### Article I

#### PURPOSES AND OBJECTIVES

The Government of the United States of America and the European Partners shall engage in a cooperative programme concerning an integrated space transportation and orbital system to provide: (1) for the design, development, manufacture and delivery of the first flight unit of the SL as an element to be integrated with the Space Shuttle; (2) for the use of the Space Shuttle and SL systems for peaceful purposes; (3) for the production and procurement of additional SLs; (4) for appropriate exchanges and interaction in the development and use of the Space Shuttle and SL systems; and (5) for consideration of the timely expansion and extension of this cooperation as their mutual interest warrants.

### Article II

#### GENERAL DESCRIPTION OF THE SPACE SHUTTLE AND SL PROGRAMMES

A. The Space Shuttle programme refers essentially: to the definition, design and development of a Space Shuttle which will: serve in missions to deliver payloads to earth orbit; maintain station on orbit for mission durations in the order of seven days or more; provide safety monitoring and control over payload elements throughout missions; and provide seating and complete habitability for crews, including free movement between the Shuttle and SL.

B. The SL programme provides for the definition, design, development and procurement of mannable laboratory modules and unpressurised instrument platforms (pallets) attached to and integral with the Shuttle and suitable for conducting research and applications activities on Shuttle sortie missions.

### Article III

#### COOPERATING AGENCIES AND IMPLEMENTATION

A. NASA is designated as the cooperating agency of the Government of the United States of America to implement its side of the cooperative programme. ESRO, or its successor organisation, is designated as the cooperating agency of the European Partners to implement their side of the cooperative programme.

B. Detailed provisions for the implementation of this cooperative programme are set forth in the Memorandum of Understanding between NASA and ESRO, initialed on 15 August 1973, confirmed herewith. Upon formation of a successor organisation to ESRO, the Memorandum of Understanding will be considered as being between NASA and that organization.

### Article IV

#### OBLIGATIONS OF THE EUROPEAN PARTNERS

As their part of the cooperative programme the European Partners shall have among their obligations the following:

(1) to design, develop, manufacture and deliver an SL and associated equipment according to mutually agreed specifications and time schedule;

(2) to establish the necessary means and infrastructure in Europe in order to ensure the possibility of the procurement at reasonable prices by the Government of the United States of America of additional such SLs, components and spares as the Government of the United States of America may need;

(3) to ensure the availability of a sustaining engineering capability for the SL to meet the mission operating requirements of the Government of the United States of America; and

(4) to provide for the necessary contingency arrangements to enable the production in the United States of SLs, components and spares in the event that the European Partners fail to complete the first SL or to produce subsequent SLs for procurement by the Government of the United States of America in accordance with agreed specifications and schedules at reasonable prices.

### Article V

#### OBLIGATIONS OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA

As its part of the cooperative programme the Government of the United States of America shall have among its obligations the following: (1) to provide relevant information and advice; (2) to provide, subject to its availability and applicable United States laws and regulations, such assistance and for export of such technology, including know-how and hardware, as may be mutually agreed is required for the development and manufacture of the SL;

(3) to procure only from the European Partners such additional SLs, components and spares as substantially duplicate the design and capabilities of the first SL, as are needed by the Government of the United States of America, including needs arising from its international programmes, and as are available in accordance with agreed schedules and at reasonable prices; (4) to refrain from separate and independent development of any SL substantially duplicating the design and capabilities of the first SL unless the European Partners fail to produce such SLs, components and spares in accordance with agreed specifications and schedules and at reasonable prices; (5) to use the first SL developed in Europe as an element integrated with the Space Shuttle system for the peaceful exploration and use of outer space; and (6) to keep the European Partners informed of its plans for future use of the Space Shuttle system, and, in particular, of future concepts which may lead to modifications of the present SL concept, with a view to expanding and extending this cooperation beyond the present Agreement.

### Article VI

#### ACCESS TO TECHNOLOGY AND INFORMATION

A. The European Partners will have access to that technology, including know-how which is available to the Government of the United States of America and is needed in order to accomplish successfully their tasks under this cooperative programme; for the same purposes the Government of the United States of America will have access to technology, including know-how, available to the European Partners.

B. The technology including know-how, which the Government of the United States of America and the European Partners will require from the other for successful accomplishment of tasks under this cooperative programme will be jointly defined. However, the Government of the United States of America and the European Partners each reserve the right in exceptional cases to arrange for their respective technology so defined to be made available in the form of hardware, rather than know-how.

C. The technology, including know-how, so identified and transferred under this cooperative programme and normally subject to licensing and proprietary control will not be made available beyond the European Partners, their nationals and ESRO acting in their

behalf in the SL programme without the express prior approval of the Government of the United States of America. If the European Partners, their nationals or ESRO wish to use this technology, including know-how, for purposes other than the development and production tasks under the cooperative programme and other than in connection with their use of the Space Shuttle and SL, such uses may be arranged on a case-by-case basis in accordance with normal commercial practice and the applicable United States laws and regulations.

D. The Government of the United States of America will give consideration on a case-by-case basis to requests for access to United States technology, including know-how, beyond that which is directly necessary for the execution of the SL programme.

E. Any technology, including know-how, transferred under this cooperative programme to the Government of the United States of America or its nationals by the European Partners will be subject to similar conditions as to availability and use.

F. The access to technology, including know-how, referred to above will be effected in such a way as not to infringe any existing proprietary rights of any person or body in the United States or Europe.

G. The Government of the United States of America will make available to the European Partners general information relating to the design, development, and use of the Space Shuttle and orbital system, particularly that required for the understanding of that system.

H. In those cases where the information requested can be made readily available by agencies of the Government of the United States of America, it will be made available free of charge; in other cases, the Government of the United States of America will use its best efforts to facilitate its availability on favourable conditions.

I. While the Government of the United States of America and the European Partners believe that the SL can be developed within existing European capabilities, it is recognised that some commercial procurement of components and services in the United States is likely. In consideration thereof, the Government of the United States of America shall, in procurement of commercially available components and services related to the development of the Shuttle, follow the principle of giving full recognition to advantages offered in Europe in cost, quality or availability.

J. The provisions of this Article shall be subject to applicable laws and regulations.

## Article VII

### USE OF THE SPACE SHUTTLE AND SL

A. The Government of the United States of America shall, consistent with inter-

national agreements and arrangements, make the Space Shuttle available for SL missions (experiments and applications) of the European Partner and their nationals on either a cooperative or cost-reimbursable basis.

B. In regard to space missions of the European Partners the Government of the United States of America shall provide access for use of SLs developed under this cooperative programme for experiments or applications proposed for reimbursable flight by the European Partners, in preference to those of third countries considering, in recognition of the participation of the European Partners, in preference to those of third countries considering, in recognition of the participation of the European Partners in this cooperative programme, that this will be equitable in the event of payload limitation or scheduling conflicts. Experiments or applications proposed for cooperative flight will be selected on the basis of the merit of each proposal in accordance with continuing United States policy; such proposals of the European Partners will be given preference over the proposals of third countries provided their merit is at least equal to the merit of the proposals of third countries. The European Partners will have an opportunity to express their views with respect to the judgment of merit regarding their cooperative proposals.

C. The commercial use of Space Shuttles and SLs will be on a non-discriminatory basis. The establishment by the Government of the United States of America or by the European Partners of standards and conditions for the commercial use of SL units will be the subject of prior exchange of view on such standards and conditions, looking toward the maximum practicable harmonisation of the respective policies. In exceptional circumstances, should this prove impossible, the exchange of views will take place at the first opportunity thereafter.

D. In order to assure the integrity of operation and management by the Government of the United States of America of the Space Shuttle system, this Government shall have full control over the first SL unit, after its delivery to the Government of the United States of America, including the right to make final determination as to its use for peaceful purposes. The Government of the United States of America may make any modifications to the first SL unit it desires. However, in the case of intended major modifications, the European Partners will be given advance notification to permit the opportunity for them to express their views and to provide modification kits.

E. With regard to the first flight of the first SL unit, the system test objectives will be the responsibility of the Government of the United States of America. The experimental objectives of this first flight will be jointly planned on a cooperative basis. Thereafter, the cooperative use of this first SL unit by the European Partners and ESRO will be encouraged throughout its useful life, although not to the exclusion of cost-reimbursable use by them. The Government of the United States of America will otherwise have unrestricted use of the first SL unit free of cost.

F. The Government of the United States of America will provide SL flight crew opportunities to nationals of the European Partners in connection with their space

missions involving an SL. It is contemplated that a European crew member will be included in the flight crew of the first SL flight.

G. The results of NASA and ESRO experiments on cooperative SL missions shall be made freely available to the Parties to this Agreement, subject to any proprietary rights and to the usual priorities to be granted to individual experimenters for the purpose of advance exploitation and publication of the data obtained.

H. The use of Space Shuttles and SLs by European nationals may be arranged through ESRO or by the appropriate European Partner.

### Article VIII

#### COSTS

A. The Government of the United States of America and the European Partners shall bear the costs of their respective participation in the cooperative programme under this Agreement.

B. Neither the Government of the United States of America nor the European Partners will seek to recover government research and development costs incurred in the development of items procured from the other in connection with this cooperative programme.

C. With respect to the financial conditions for reimbursable launch services from United States launch sites, European Partners, their nationals and ESRO will be charged on the same basis as comparable non-government United States domestic users.

D. The obligations of the Government of the United States of America and of the European Partners shall be subject to their respective funding procedures.

### Article IX

#### CONSULTATION AND PLANNING

A. The Parties agree to consult with a view to facilitating a continuing and expanding cooperation in the use of outer space.

B. In order to enhance the opportunities for the European Partners to determine and express their interest in the planning and use of the Space Shuttle system, and particularly the SL, the Government of the United States of America will associate representatives of the European Partners, through consultation and as observers, with mission definition planning for use of the system as well as with planning and management of the overall development of the system.

C. The Government of the United States of America will consult with the European Partners on the appropriate measures to be taken in the event the Space Shuttle programme is not continued, and will, consistent with United States policy and the objectives of Articles VII and VIII, make available to the European Partners or ESRO existing alternative launchers for missions of the European Partners being developed for SL flights.

## Article X

### MOVEMENT OF PERSONS AND MATERIALS

A. The Government of the United States of America and the European Partners shall facilitate the movement of persons and materials involved in the cooperative programme under this Agreement into and out of their territories.

B. The Government of the United States of America and the European Partners shall use their best efforts to accord, to such material as may be government-owned, entry free of customs duties and other charges.

C. The Government of the United States of America and the European Partners shall use their best efforts to accord to non-government-owned material: (1) entry free of customs duties and other charges; and (2) purchase free of national and other taxes.

## Article XI

### LIABILITY

A. The Government of the United States of America shall have full responsibility for damage to its nationals and to its governmental property arising in the course of implementation of this Agreement. The European Partners shall have full responsibility for damage to their nationals, to their governmental property, and, through ESRO, to employees of ESRO and to ESRO property, arising in the course of implementation of this Agreement.

B. In the event of damage, arising from the launch, flight or descent of the Shuttle carrying the SL, to nationals of countries which are not parties to this Agreement, for which damage there is joint liability of the Government of the United States of America and the European Partners under the principles of international law or of the Convention on International Liability for Damage Caused by Space Objects, the Government of the United States of America and the European Partners agree to consult promptly on an equitable sharing of the payment for any settlement required. If agreement is not reached within 180 days, the Government of the United States of America and the European Partners will act promptly to arrange for early arbitration to settle the sharing of such



claims following the 1958 model rules on arbitral procedure of the International Law Commission.

C. In the event of damage to nationals of countries not parties to this Agreement, arising from the implementation of this Agreement and not covered by Paragraph B above, such damage shall be the responsibility of the Government of the United States of America and/or the European Partners depending on where the responsibility falls under applicable law.

D. Notwithstanding Paragraph A above, with respect to the first SL to be provided by the European Partners, the Government of the United States of America shall be responsible for damage to such first SL after its acceptance by the Government of the United States of America, but shall not be liable for damage occurring in connection with a Space Shuttle launch, flight or descent.

## **Article XII**

### **DISPUTES**

The resolution of any dispute as to the implementation of the cooperative programme will be the responsibility of the agencies referred to in Article III of this Agreement. Only a dispute which, in the view of the Government of the United States of America or the European Partners, seriously and substantially prejudices the execution of the cooperative programme may be referred for resolution to a representative of the Government of the United States of America and to a representative of the European Partners. If these representatives are unable to resolve the dispute, it may be submitted for such arbitration as may be agreed.

## **Article XIII**

### **AMENDMENTS**

The present Agreement may, on the initiative of the Government of the United States of America or of the European Partners, be amended by consent of the parties. An amendment will enter into force when the Government of the United States of America and the European Partners have notified their approval to the depositary Government.

## **Article XIV**

### **ENTRY INTO FORCE AND DEPOSITARY**

A. This agreement shall be signed on August 15, 1973 by the Government of the United States of America and European Partners. The Agreement shall enter into force on

this date for the Government of the United States of America and those European Partners which sign not subject to ratification or approval.

#### Article XV

##### ADHERENCE OF OTHER GOVERNMENTS

A. With the consent of the Parties, and subject to such terms as may be agreed by the Parties, other governments may adhere to the present Agreement as European Partners. However, the consent of the Government of the United States of America is not required for the adherence of a present member Government of ESRO.

B. Adherence of a Government may be deposited after the appropriate Parties under Paragraph A above have notified the depositary Government of their consent and shall become effective on the date of deposit of the instrument of adherence.

#### Article XVI

##### DURATION

This Agreement shall remain in force until January 1, 1985, but at least for five years from the date of the first flight of the SL. This Agreement shall be extended for three years unless either the Government of the United States of America or the European Partners give notice of termination prior to January 1, 1985 or prior to the expiration of the five years, whichever is applicable. Thereafter the Agreement shall be extended for such further periods as the Parties may agree.

#### Article XVII

##### REGISTRATION

A. The depositary Government shall notify the signatories and adhering Governments of the signatures, ratification or approvals and adherences.

B. The present Agreement shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

In witness whereof the undersigned, duly authorised thereto by their respective Governments, have signed this Agreement.

Done in Neuilly-sur-Seine, this fifteenth day of August nineteen hundred and seventy-three, in the English, French and German languages, each version being equally authentic, in a single original which shall be deposited in the archives of the Government

of the French Republic which shall transmit duly certified copies thereof to the Government of the signatory and adhering States.

B. The Agreement shall remain open for signature for European Partners, not signing on August 15, 1973, for the period from August 16, 1973 to September 24, 1973. The Agreement shall enter into force for a European Partner which signs the Agreement in this period not subject to ratification or approval, on the date of its signature.

C. For those European Partners which sign this Agreement subject to ratification or approval under Paragraph A or Paragraph B above, the Agreement shall have provisional application upon signature. The Agreement shall enter into force for such a European Partner on the date of the deposit of its instrument of ratification or approval with the depositary Government.

D. After September 24, 1973 participation in the cooperative programme may be effected only in accordance with the provisions of Article XV.

E. The Government of the French Republic shall be the depositary Government.

(NOTE BY COMMITTEE STAFF.—The Government to Government Agreement specifies in Article XIV that the Agreement will be signed on August 15, 1973. However, it was not signed on that date by any of the countries as this was a holiday for some countries. The actual dates of signature are as follows:

*August 14, 1973:*

United Kingdom of Great Britain and Northern Ireland.

Federal Republic of Germany.

France.

Kingdom of Belgium.

Switzerland.

United States.

*August 18, 1973:* Kingdom of the Netherlands.

*September 18, 1973:* Spain.

*September 20, 1973:* Italy.

*September 12, 1973:* King of Denmark.)

Tab C

#### COMMUNIQUE

Today marks the beginning of a new era in space cooperation between the United States of America and member nations of the European Space Conference as arrangements are completed for European participation in the Space Shuttle Program.

The extensive cooperation achieved in space activities in the past has already

brought great satisfaction to the international community. The contributions to science and the welfare of man that have resulted are of considerable significance. It is our conviction that further cooperation will result not only in additional scientific, technical and economic benefits, but should further strengthen the ties of friendship between peoples.

The Agreement between the United States of America and the participating member nations of the European Space Conference signed in Paris August 14, 1973, and the Memorandum of Understanding between the National Aeronautics and Space Administration and the European Space Research Organization signed this date in Washington, pertaining to the development, procurement and use of a space laboratory in conjunction with the Space shuttle extend U.S./European space cooperation to the Post Apollo era in a closer and even more promising form.

Washington, September 24, 1973.

Kenneth Rush.

Acting Secretary of State of the  
United States of America.

Charles Hanin.

Chairman of the European Space  
Conference.

(NOTE.—Signed jointly at 12:00 noon, September 24, 1973, at U.S. Department of State.)

### III.

#### U.S. and Europe To Cooperate in Space Shuttle Program\*

*Following is a Department announcement issued September 24, together with the text of a communique signed at Washington that day by Acting Secretary Rush and Charles Hanin, Chairman, European Space Conference.*

#### DEPARTMENT ANNOUNCEMENT

Press release 342 dated September 24

At a ceremony at the Department of State on September 24, Acting Secretary Rush and Charles Hanin, Belgian Science Minister and Chairman of the European Space Conference, signed a communique noting the completion of arrangements for European participation in the Space Shuttle program and marking the beginning of a new era in U.S.-European space cooperation. In the same ceremony Dr. James C. Fletcher, NASA Administrator, and Dr. Alexander Hocker, Director General of the European Space

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\*Taken from 69 Dept. St. Bull. 487-8 (1973).

Research Organization (ESRO), signed a memorandum of understanding to implement this unprecedented international cooperative project.

Nine European countries, through ESRO, undertake to design, develop, manufacture, and deliver a "spacelab" flight unit which will be an important element of the U.S. Space Shuttle system. The Spacelab will be carried in the Space Shuttle Orbiter, which will look like a delta-winged airplane about the size of a large jetliner. The Spacelab will have two elements: a pressurized manned laboratory module permitting scientists and engineers to work in a normal shirt-sleeve environment and an instrument platform, or pallet, to support telescopes, antennas, and other equipment requiring direct space exposure.

The Spacelab module and pallet will be transported, either separately or together, to and from orbit in the orbiter payload bay and will be attached to and supported by the Space Shuttle Orbiter throughout missions lasting seven to thirty days. At the end of each flight the orbiter will make a runway landing, and the Spacelab will be removed and prepared for its next mission.

The NASA-ESRO agreement represents a major step in the sharing of space costs between the United States and European countries participating in this cooperative project. The estimated cost of \$300-\$400 million for the Spacelab will be borne by the ESRO countries involved.

The European Spacelab represents a significant contribution to the space transportation system in an area not funded by the United States. It provides for the timely availability of a supporting system important to realizing the full potential of the shuttle; it will also facilitate joint use programs, many entailing the activities of U.S. and European astronauts.

Under the terms of the memorandum of understanding, NASA will procure from ESRO any additional Spacelab units of the same basic design which may be needed for U.S. programs. The United States will not develop any unit of its own which would substantially duplicate the design and capabilities of the first Spacelab.

It is currently planned that the first operational space flight of the shuttle will occur in late 1979. To permit adequate time for experiment integration, checkout, and compatibility testing, the Spacelab unit will be delivered about one year earlier.

Subsequent to the delivery of the Spacelab by ESRO, NASA will manage all operational activities, including crew training and flight operations. Flight crew opportunities will be provided in conjunction with flight projects sponsored by ESRO or by governments participating in the Spacelab program and utilizing the Spacelab. It is contemplated that there will be a European member of the flight crew of the first Spacelab crew.

While it is too early to define detailed terms and conditions for subsequent operation and use of the shuttle with the Spacelab, the United States will make the shuttle available for Spacelab missions on either a cooperative (noncost) or a cost-reimbursable basis. In the latter case, the costs of the launching services provided would be charged as they are at present for reimbursable launches of foreign satellites.

The memorandum of understanding is subject to and implements a government-level agreement between nine European nations and the United States which was opened for signature at Paris August 14.

Belgium, Denmark, France, the Federal Republic of Germany, Italy, the Netherlands, Spain, Switzerland, the United Kingdom, and the United States have signed the intergovernmental agreement. The agreement makes provision for participation by additional nations.

## XVIth Colloquium on the Law of Outer Space, Baku, October 7-13, 1973

This Colloquium which took place during the 24th Congress of the International Astronautical Federation in the well-known oil-town of Baku (U.S.S.R.) devoted four of its sessions to space law. Lawyers from all over the world, among them many Russian lawyers, were present. Also, during one morning session the teaching of space law was the subject of a lively discussion.

At the first session, following an introduction by Dr. Pépin and a survey by Prof. Zhukov on the development of space law, Mr. Gál gave a summary of the Introductory Report written by Mr. Herczeg on the theme of "International Space Law and General International Law." Added to the profound report of Mr. Herczeg were nine questions for discussion.

Several papers were delivered relating to this subject, including those by Mr. Dekanozov (U.S.S.R.) on the relationship between the status of outer space and other spaces withdrawn from the sphere of state sovereignty, Mrs. Diederiks-Verschoor (Netherlands) on the influence of space law on general international law, Mr. Fasan (Austria) on space law and definition of justice, Miss Kamenetskaya (U.S.S.R.) on the role of international organizations in the formation of international space law, Mr. Kolosov (U.S.S.R.) on the interrelationship between rules and principles of international outer space law and general rules and principles of international law.

A discussion followed, among others, about the possibility of intelligent beings in cosmic space, the role of the ICAO in space matters, the term "international organizations" and the phrase "for the benefit of all mankind". It was felt it would be desirable to study more thoroughly the interpretation of the terms of the 1967 Space Treaty. The conclusion was that space law can stimulate international law.

The second session has been devoted to the very interesting problem of direct television broadcasting. An Introductory Report by Mr. Busak was a good base for further discussion.

Other papers included reports by: Mr. Dersi (Hungary) on the legal aspects of direct television broadcasting from outer space, Mr. Dudakov (U.S.S.R.) on the legal aspects of direct television broadcasting, Mr. Gál (Hungary) Mr. Zhurakhov (U.S.S.R.) on the legal framework for the regulation of social consequences of the direct television broadcasting, Mr. Patermann (Germany) on the question of applicable law in case of damages caused by direct TV transmissions (read by Mr. Knorri), Mr. Sarkar (India), on the requirements for establishing a broadcast satellite service, Mr. Vasil'eva (U.S.S.R.) on the social consequences of spillover and the problem of the regulation of direct television broadcasting by means of artificial earth satellites in international law, and Mr. Ruddy (U.S.A.). In the discussion Mr. Blizensko (U.S.S.R.) asked about material or nonmaterial

damage caused by satellites. There was also some discussion about the law applicable in case of damage caused by space objects and on indirect and direct international damage. It was pointed out that there were three kinds of bands; informational, investigational and cultural. The question about jurisdiction in case of difficulties has not been answered.

In the third session two themes have been treated. First the subject of "Teledetection of Earth Resources by Satellites" was introduced by the very sound report of Mrs. Galloway. On this subject papers were delivered by: Mr. Bordunov (U.S.S.R.), on the practical use of space means in the light of the principles of the sovereignty of states over the natural resources, Mr. Christol (U.S.A.) on the monitoring of ocean pollution by sensing satellites: proof of damages in international law, Mr. Hery (Belgium) on the legal aspects of research of earth resources and environment, Mr. Pikus (U.S.A.) on the possibility of technical control over resource surveying from space. From the discussion it could be concluded that remote sensing from space was still in an experimental stage.

The second subject treated in the third session was the Moon and other celestial bodies. Mrs. Vasilevskaya (U.S.S.R.) gave the introductory report. Several papers were delivered on this subject, namely, by Professor Gorove (U.S.A.) on the legal status of the natural resources of the moon and other celestial bodies, Mr. Kopal (Czechoslovakia) on juridical problems concerning the moon, Mr. Szalsky (Hungary) on the legal problems of the moon and other celestial bodies, and Mr. Wolff (France) on the Draft Moon Treaty. There was no more time left for discussion. In general the authors were in favor of concluding a treaty concerning the Moon.

The fourth session was devoted to "Orbital Earth Stations", introduced by Mr. Ferrer. The paper of Mr. Bueckling (Germany) on the formal legal status of space station in orbit was read by Mr. Bodenschatz, whereas Mr. Gál (Hungary) spoke on the juridical regime of orbiting stations, Mr. Rudev (U.S.S.R.) on the legal problems of the use of orbital manned space stations, Tamm (U.S.A.) on the further reflections upon the legal aspects of skylab and the space shuttle, Mr. Toufar (Czechoslovakia) on the legal aspects of orbital stations. Several other papers included reports by: Mr. Gorove (U.S.A.) on the Convention on International Liability for Damage Caused by Space Objects, Mr. Magno and Mr. Verdacchi (Italy) on "Piraterie aeriene et pirieterie spatiale", Mr. Robinson (U.S.A.) on scientific renaissance of legal theory: the manned orbiting space station as a contemporary workshop, Mr. Stoebner et Mr. Tchernonog (France) on "Programme spatial national et cooperation internationale", Mr. Tchernonog (France) on "Le projet de convention sur l'immatriculation des objets spatiaux", and Mr. Sarkar (India) on the implication of space activities on human environments. There was no discussion after this session because of lack of time.

After opening the IIIrd International Symposium on the teaching of space law, Mr. Pépin gave an introductory report mentioning the sources of space law. He asked the question if the documentation has been sufficient and if it has reached technical high schools. Several professors responded and spoke of their work. At the end of the meeting, Prof. Zhukov gave a summation by emphasising that in the future we will need an



exchange of experiences with technical colleagues. For now, it appeared better to link space law with air law than to teach it as a division of international law as is done in most universities.

I. H. Ph. Diederiks-Verschoor

President, International Institute of Space Law

#### Other Events

The Third ERTS Symposium was held in Washington, D. C. on December 10-14, 1974, under the auspices of NASA's Goddard Space Flight Center. Topics of discussion included: agriculture, forestry, range resources; land use and mapping; mineral resources, geological structure and landform surveys; water and marine resources; environment surveys, and interpretation techniques.

Officials of NASA and the European Space Research Organization (ESRO) met at ESRO facilities in the Netherlands during the week of February 11, 1974, to discuss future cooperative space programs between the United States and Europe. ESRO and NASA are now working jointly on several space projects, including the Space Shuttle, the Spacelab, the International Ultraviolet Explorer (IUE) satellite and the International Magnetospheric Explorer (IME).

The Association of the U.S. members of the International Institute of Space Law sponsored a Space Law Workshop on "Space Stations—Present and Future" which was held as part of the Annual Meeting of the American Society of International Law on April 26, 1974 in Washington, D. C. Under the co-chairmanship of Professor Carl Christol of the University of Southern California and Brigadier General Martin Menter, U.S.A.F. (Ret.) and with the core participation of Dean George J. Alexander of the University of Santa Clara, Eilene Galloway of the Library of Congress and NASA's Deputy General Counsel S. Neil Hosenball, the meeting covered a wide range of topics of current interest and relevance to space stations.

Also on April 26, 1974, under the co-sponsorship of the Association of the United States Members of the International Institute of Space Law and the Federal and Inter-American Bar Associations another conference was held at the University of Pennsylvania in Philadelphia. The conference was chaired by Judge Harold Berger and dealt with Aerospace, Environmental and International Law and Trade. The major keynote addresses were given by William D. English, Vice President and General Counsel of COMSAT, Roy D. Jackson, Jr., president of Oil Insurance Ltd. of Bermuda, Manuel F. Cohen, former General Counsel of the Securities and Exchange Commission and Professor Stephen Gorove of the University of Mississippi Law Center.

In the summer of 1974, a NASA space vehicle, under a cooperative program between the Netherlands Government and NASA, is expected to put into Earth orbit an

Astronomische Nederlandse Satelliet (ANS) designed and constructed for astronomical research by a consortium formed by Fokker-VFW B.V. of Amsterdam and Philips Research Laboratories of Eindhoven, Holland. There will be three observation systems: one from the University of Groningen, one from the University of Utrecht, and one from the United States.

The XVIIth Colloquium on the Law of Outer Space will be held in Amsterdam, Holland (not in West Germany as previously reported), on September 30-October 5, 1974, during the annual Congress of the International Astronautical Federation. Over five hundred space scientists, technologists, lawyers and students from 48 countries are expected to attend the congress which is organized by the Netherlands Astronautical Association under the High Patronage of H. R. H. Prince Bernhard of the Netherlands. The general theme of Colloquium will be: Space Stations, Present and Future. Additional subjects on the program include: direct broadcasting by satellites, prospects of space law and interpretations of space treaties (consultations, international organizations, etc.). Detailed information regarding travel and other arrangements may be obtained from the Organizing Committee of the XXVth IAF Congress, c/o N.I.V.R. Kluiverweg 1, P. O. Box 35, Delft, the Netherlands.

*Die Grenze des Staatsgebietes im Raum* (The Frontier of the State's Territory in Space), by Dr. Manfred A. Dausies, Series: Schriften zum öffentlichen Recht (Writings on Public Law), Vol. 204, with summary in English and French (Dunker and Humblot; Berlin and Munich, 1972, pp. 141. DM 33.60).

Dr. Dausies, a well-known name in the field of international space law and space politics, discusses in his new book a highly controversial subject. Admittedly, the issue of the upper limit of territorial airspace is of primary importance in the interpretation of the 1967 Outer Space Treaty and has been dealt with by several writers. A solution, however, has not been found by the community of nations thus far. The author's solution is somewhat arbitrary; however, as has been correctly stated by Dr. Dausies in his preface, any question of delimitation is not only an adaptation of existing rules of law, but also a creation *de novo*.

In this perspective, the author's reasoning is clear and consistent. Contrary to former analyses, he bases his conclusions on the platform of existing law as a pertinent demarcation. It is not a mere scientific question, but primarily one of legal interpretation of the terms to be defined, namely airspace and outer space—terms to be found in international air and space law conventions, as well as in rudimentary rules of international custom.

On this basis, namely the understanding of the legal terms, the next step may be taken: the interpretation of the legal terminology in the light of political necessities and technical-scientific requirements. The problem of state security as a yardstick of the upper extent of national sovereignty is extensively ventilated. Dangers resulting from possible advanced space rocket systems or space espionage devices are recognized as deserving consideration in the process of demarcation. The criteria provided by state security are, however, correctly found to be too vague to serve as a working basis for legal demarcation.

Scientific and technical criteria, on the other hand, which are analyzed by the author in profound scientific detail, seem to be more appropriate in view of drawing up a clear-cut frontier line. Notably the often-cited median line between the airflight and space flight regimes (the von-Karman primary jurisdictional boundary line), and the aerological structure of the upper atmosphere indicate a caesura between airspace and outer space located between 80 and 90 km above sea level.

The third and final segment deals with the geometric construction of the frontier and its legal regime. In light of the foregoing considerations, the author persuasively suggests a frontier surface, to be agreed to in an international convention, "every point of which is at a distance of 80,000 meters from the nearest point of the International Ellipsoid of Reference", which is the geometrically idealized working shape of the Earth.

The merit of Dr. Dausés' study is not only the richness of the literature compiled, but also its juridico-logical consistency and its pragmatic sense of the vital necessities and requirements of states. It is these same states, who on the one hand have pledged themselves to the rule of freedom of space exploration for exclusively peaceful purposes and in the interest of all mankind and, on the other hand, are still regrettably reluctant to waive their sovereign rights by definitely recognizing an upper limit of territorial jurisdiction.

I. H. Ph. Diederiks-Verschoor

President, International Institute of Space Law

*Traité de Droit international public de l'espace*, by Marco G. Marcoff (Editions Universitaires, Fribourg, Switzerland, 1973, pp. 835.)

The author of this book is professor of international law at the University of Fribourg (Switzerland). His textbook, written in the French language, contains a very solid and rich documentation. It also presents much more than the title suggests. Not only the public law of outer space has been treated by the author but he also deals with subjects of private law, such as the liability for damage caused by spacecraft.

The book contains three parts subdivided into 14 Chapters. The three parts have the following headings:

- 1) The base of international public law in space law,
- 2) The legal construction of the domain of cosmic space, and
- 3) The legal order of cosmic space.

The existing space conventions are treated and set in a wider scope of historical development than previous texts on the subject. The author has taken great pains to give exact definitions. He introduces, for instance, the French word "spationef", and compares it with spacecraft.

Professor Marcoff stresses the legal status of cosmic space, which he treats in detail. He also extensively examines telecommunication by satellites. Interesting observations are made on the subject of registration. The author mentions, for example, that the proposal of the Committee of Space Law of the International Law Association to register the spacecraft in the national register of the State whose territory has served for the launching for spacecraft is not compatible with Article VIII of the Space Treaty of 1967. Article VIII states that 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.

Professor Marcoff examines the essential details for the registration of spacecraft, mentioning the different systems that exist in this regard. The draft treaty on registration prepared by the United Nations is not yet accepted. The subject of remote sensing satellites—another draft not yet agreed on—is also touched upon. All the subjects discussed are treated with great precision and with an admirable skill. The book contains so much documentation and so many thoughts on space law that it is not possible to go into more detail. From the foregoing observations, however, it may be clear that it is a rich source for space lawyers.

The three Annexes contain the text of the treaties of space law that have already been concluded. Furthermore, a list of abbreviations, an extensive bibliography, a list of studies written by the author, an index on subjects, and a list of spacecraft and space programs have been added.

This textbook will keep its value even when space law advances with giant strides.

It can be recommended highly to everyone who wishes to be informed about the progress in the field of space law and in the background of its problems.

Dr. Dieter O. A. Wolf

Munich, Germany

A. Books

- J. Kish, *The Law of International Spaces* (Leiden, Sijthoff, 1973).
- W. Kliner, *Satellitenrundfunk und die Problematik des internationalen Urheber und Leistungsschutzes* (Berlin, Schweiter, 1973).
- M. Lachs, *The Law of Outer Space* (Leiden, Sijthoff, 1972).

B. Articles

- Berendzen, *Search for Life in the Universe: In All the Enormity of Space and Time, Is Life on Earth Alone*, 22 *Vital Issues* (1973).
- Bhatt, *International Problems Concerning the Use of Space*, 12 *Int'l Studies* 256 (1973).
- Bloemendal & Kramer, *The Netherlands Astronomical Satellite (ANS)*, 33 *Philips Technical Rev.* 117 (no. 5, 1973).
- Bueckling, *The Formal Legal Status of Lunar Stations*, 1 *J. Space L.* 113 (1973).
- Busak, *The Need For An International Agreement on Direct Broadcasting by Satellites*, 1 *J. Space L.* 139 (1973).
- Cocca, *Incidencia de la Teledeteccion de Recursos Naturales en el Derecho, La Economia y la Politica de Los Estados*, *Revista Juridica de San Isidro* (Otono 1973).
- Cocca, *Commentary on the Draft Convention Against the Unauthorized Distribution of Programme-Carrying Signals Transmitted by Satellites*, 9 *Copyright (Swi.)* 16 (1973).
- Courteix, *La Cooperation americano-sovietique dans le domaine de l'espace extra atmospherique*, 18 *Annuaire francais de droit international* 731-51 (1972).
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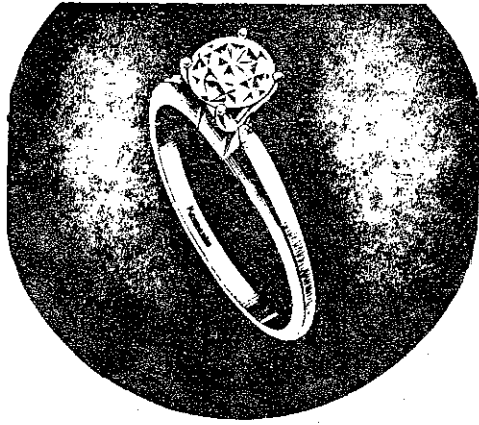
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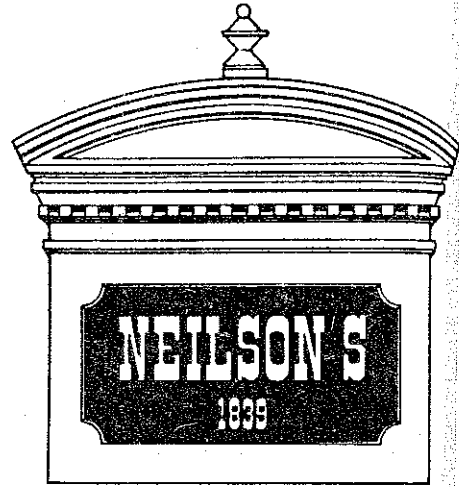


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## ANNOUNCEMENT

The Journal of Space Law is pleased to announce the addition of United States Senator Frank E. Moss of Utah to the Editorial Advisory Board. Senator Moss has been a member of the United States Senate since January, 1959, and is the Chairman of the Senate Committee on Aeronautical and Space Sciences. His committee is the Senate body responsible for overseeing United States nonmilitary scientific research, development, and administration of all matters in the field of space and aeronautical activities. He has been associated with the aeronautical and space sciences for more than 30 years, beginning with his service in the United States Army Air Force in World War II and continuing through his subsequent service as an officer of the United States Air Force. He is a graduate of the University of Utah and received his Juris Doctor degree from George Washington University where he was an editor of the George Washington Law Review. Prior to his election to the Senate, he engaged in the public and private practice of law in Utah for a number of years. We cordially welcome this outstanding lawyer and public servant to membership on the Editorial Advisory Board.

The Journal is equally pleased to welcome the addition of Dr. I.H.Ph. Diederiks-Verschoor to the Editorial Advisory Board. She is a native of Holland and a teacher and scholar by profession. Since the beginning of the space age she has shown a keen interest in the legal problems arising out of man's activities in outer space as exhibited by her lectures at several European and American institutions of higher learning, her participation in many international conferences, and her publications. She is an active member of the International Institute of Space Law of the International Astronautical Federation and was recently elected its President.

THE SUPREME INTERESTS OF MANKIND VIS-A-VIS  
THE EMERGENCE OF DIRECT BROADCAST

*Dr. Aldo Armando Cocca\**

I. INTRODUCTION

In the present state of interdependence of peoples, all national activities extending beyond the frontiers of the country of origin must be limited and conditioned according to law. The international community is steadily progressing in the elaboration of a more perfect law of mankind, independently from the law of States individually considered. Those areas of specialization which are most developed at the moment, such as human rights, atomic energy law, the law of the sea-bed and ocean floor, the protection of the environment and, particularly, the law of outer space, are contributing toward this new expression of man in society and in a planetary dimension. Within the field of space law, the so-called "law of social communication" has lately been breaking new ground in such a way and to such an extent as to potentially affect the supreme interests of mankind.

From time immemorial, man has endeavored to obtain the recognition of those rights that are inherent in his human condition and connected to his social relationship. Nevertheless, in the face of every new technological achievement, it not only appears that the rights of persons are stagnant, but also that they are receiving less consideration. Furthermore, a tendency to ignore them may even be felt.

An example of this anti-legal situation may be observed among such intergovernmental organizations as the United Nations. Here, paradoxically, the Universal Declaration of Human Rights was born.

For this reason, it is understood that the firmest premise to be adopted by the jurist, when dwelling upon the idea of technological progress, is that law should not only march hand in hand with technique, but its scientific nature should also enable it to anticipate the technical facts. Its evolutionary tempo should be rapid since it is not subject to any experimentation phase whatsoever.

It is undeniable that we are living in a technological era which has not brought the welfare expected by man. One of the causes for this lack of harmony between the spiritual ambitions and material comforts is in fact a certain evasion of law.

Professor Federico N. Escalado, on the occasion of his admission to the National Academy of Law and Social Sciences of Buenos Aires, on October 23, 1973, entitled his dissertation "A Time of Law." He developed the thesis that all the contemporary

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problems of civilization, including violence in any of its form, are due to a departure from law and that today, more than ever before, man lives in a time of law. Man undoubtedly needs this for himself, for self-preservation and subsistence.

## II. LAW AND TECHNOLOGY IN DIRECT BROADCAST

The national and international academic institutes which have dealt with the legal problems of direct broadcast have unanimously established the necessity of regulating such an individually and socially transcendental activity.

The meetings of broadcast associations and unions, together with professional considerations, emphasize a very significant role for the law, and have also pointed to the necessity of regulation.

Within the United Nations' specialized agencies which have a competence other than legal, such as UNESCO and ITU (International Telecommunication Union), formal declarations and regulations have been agreed upon, indicating very much the presence of law. Perhaps it could be said that law is presiding, in spite of the technical nature of the documents.

At its 17th session, the UNESCO General Conference adopted a previously prepared Draft Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, and Spread of Education and Greater Cultural Exchange.<sup>1</sup>

The World Administrative Radio Conference on Space Telecommunications (WARC-ST) has taken measures and adopted resolutions concerning the definition of broadcasting-satellite service. It revised the Table of Frequency Allocations; determined the necessity of concluding agreements among countries affected by the transborder radiation, and the necessity of introducing new provisions in regard to the use of the geostationary orbit; adopted Resolution *Spa 2-1* relating to the use of the frequencies of space radio-communications services by all countries on a basis of equality,<sup>2</sup> and voted Resolution *Spa 2-2* relating to the establishment of agreements and associated plans for the broadcasting-satellite services which provides that stations in the broadcasting-satellite service shall be established and operated in accordance with agreements and associated plans adopted by World or Regional Administrative Conferences.<sup>3</sup>

Likewise, UNESCO and WIPO (World Intellectual Property Organization) prepared a draft convention that prohibits the unauthorized distribution of program-carrying signals transmitted by satellites. The draft was revised in Nairobi in 1973 during the third

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<sup>1</sup>UNESCO, Docs. 16 C/Res. 4. 132(b) and 17 C/76.

<sup>2</sup>Partial Revision of Radio Regulations and Final Protocol: Space Telecommunications, signed at Geneva on July 17, 1971, entered into force on January 1, 1973, T.I.A.S. 7435 at Res. Spa 2-1.

<sup>3</sup>Partial Revision of Radio Regulations, *supra* note 1, Res. Spa 2-2.

meeting of the Governmental Experts' Committee. A diplomatic conference for dealing with the subject is expected to be held in 1974.

Finally, private industry has been considering the possibility of using direct broadcast in the not too distant future, and such possibility may well be appreciated by anyone who witnessed the Aeronautical Show at Le Bourget in the Summer of 1973.<sup>4</sup> Some weeks later, however, one of the delegations participating in the U. N. Working Group on Direct Broadcast Satellites questioned the proximity of such an event.<sup>5</sup>

### III. THE QUESTION BEFORE THE UNITED NATIONS

Owing to the fact that the Committee on the Peaceful Uses of Outer Space (briefly, Outer Space Committee or COPUOS) is the "focal point" of international cooperation as regards to the exploration and use of outer space for peaceful purposes, pursuant to Resolution 1721/XVI (1961) of the General Assembly, its activity within this area is most significant. The Outer Space Committee established a Working Group on Direct Broadcast Satellites in accordance with Resolution 2453 B/XXIII (1968) of the General Assembly.

Even though the United Nations is the politico-legal organization *par excellence* of the international community, none of these questions were examined at the Working Group's first meeting. The Working Group limited its task to the study of the technical feasibility of communications by direct broadcast from satellites and to the examination of the current and foreseeable evolution in this sphere, including users' costs and, in certain cases, other economic considerations.<sup>6</sup>

In the second session, social, cultural, legal, and other questions were examined by the Working Group.<sup>7</sup> At this second meeting, Argentina submitted a paper which was discussed by the Group.<sup>8</sup> On this occasion, the Working Group arrived at some conclusions on international questions of a juridical nature, such as general legal framework, protection of copyright and related rights, protection of transmissions as well as certain aspects regarding the content of the programs (political, social, and cultural questions, and commercial aspects). The Group also reflected on international cooperation in connection with broadcasters and countries which have not yet completed their development.

On the occasion of the Group's third meeting in New York in 1970, there existed already among the delegations a clear recognition of the necessity to make appropriate

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<sup>4</sup>The air show was held at Le Bourget Field, Paris, France on August 3, 1973.

<sup>5</sup>U.N. Doc. A/AC.105/L.71 (June 22, 1973).

<sup>6</sup>U.N. Doc. A/AC.105/51 (1969).

<sup>7</sup>U.N. Doc. A/AC.105/66 (1969).

<sup>8</sup>U.N. Doc. A/AC.105/WG.3/WP. (1969).

adjustments in the law with respect to every present and future activity in the field of direct broadcast by satellites. In the report of this meeting<sup>9</sup> not only are important references on concrete legal aspects included in the conclusions and recommendations, but also there are some annexes as well; one of them is in the form of a working document submitted by the USSR on Model General Principles For the Use of Artificial Satellites for Radio and Television Broadcasting (Annex IV), and another in the form of a paper on Proposed Principles to Govern Direct Broadcast From Communications Satellites, submitted by France (Annex V).

This hesitation to approach the juridical field openly and decisively was made evident at the Fifteenth Session of COPUOS (New York, September 1972), where the UNESCO Declaration turned out to be the most vividly discussed topic. Following long deliberations, a text was finally adopted whereby it was established that the Committee "had the obligation to comment on the UNESCO draft declaration." It was added that: "The Committee regretted that it had not been able to comment thereon during the present session. Nevertheless, many delegations felt that the Committee should comment and that those comments should be made at a stage where UNESCO can usefully take account of the Committee's views. They expressed the hope that the General Conference of UNESCO would favorably consider giving the Committee on the Peaceful Uses of Outer Space further opportunity to comment before finally adopting the text of the draft declaration. However, some delegations did not share this view."<sup>10</sup>

The slightly regulatory nature of the text of the UNESCO Declaration led some delegations to take a very firm position against any attempt to regulate direct broadcast. It was the most controversial topic of the session, and if the minutes are read unemotionally, one may validly conclude that no legal ground exists for supporting the position of those states which squarely opposed the UNESCO text. Apart from the fact that this question was seen as one of deep crisis within the Committee where, as it is known, decisions, recommendations, and documents are adopted by general consensus, the possibility arose of a conflict involving a specialized agency of the system and the United Nations itself. The text which was eventually adopted resulted from a concession on the part of most delegations toward the position upheld by a few, with a view to overcoming the obstacle.

On the above-mentioned occasion, the present writer expressed what may be considered as a summary of his view directed toward the resolution of this question:

"Firstly, I should like to say that I notice a kind extension of the functions for which the Working Group on Direct Broadcast was set up. As representatives will remember, in that Group's first two sessions we dealt with questions which were fundamentally scientific and technical, and at the third session we added political, legal, and cultural questions. Thus those questions, too, should appear in the Working Group's agenda. But

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<sup>9</sup>U.N. Doc. A/AC.105/83 (1970).

<sup>10</sup>Report of the Committee on the Peaceful Uses of Outer Space, Suppl. No. 20, U.N. Doc. A/8720 at 11, para. 57 (1972).



from the statements made this morning it would seem that the fundamental task of the Group is of a legal and political nature. So this question immediately comes to mind: Does the Working Group have more competence than the plenary Committee, in which we are now, to give an opinion requested by UNESCO, for example—or must the plenary Committee refer it to the Working Group, which was initially a technical body, but later was vested with the right to consider political and legal matters?

I think this is a question of procedure, which has a certain scope and which we should bear in mind. We are giving the Working Group wider competence than a working group should really have; it is more like the competence of our Sub-Committee and even of this Committee. And if my memory serves me well, originally there were 11 members of the Working Group, and at the last session the number was increased to 15. Accordingly, we would have to submit all problems of substance in legal and political areas to this small group, which is to be reconvened, before solving them ourselves in a session like this one or during a week of meetings in the plenary Committee. That is one aspect.

The other aspect concerns the co-ordination of tasks between United Nations specialized agencies and the parent organization. Here emphasis has been laid on UNESCO'S 10 years of work in preparing this document, but now we would ask UNESCO to wait two years more so that a working group could have an opportunity to comment on its work. I think that any specialized agency, such as UNESCO, ILO or WMO, could ask us to study what those organizations had sent to us in proper time, at least among the working papers circulated prior to the session in which we are participating. Moreover, I think we would be running a serious risk of going backward in the task of codification of questions concerning direct radio broadcasting if we ask UNESCO for this waiting period. From a reading of the document that has been circulated to us, nothing seems to emerge that is contradictory to anything that the Working Group has said or to anything that has been said in the Sub-Committee of this Committee or in the Committee itself. I cannot see any special reason for asking for such a sacrifice—delaying for two years the adoption of a declaration. We must have very special reason for this, and I do not see any such reason.

In the drafting of this document, as can be noted in the preamble in particular and in the brief background paper on the formulation of the draft, everything that has been worked out within the United Nations family and especially in areas that are specifically within UNESCO'S competence is mentioned. This specific jurisdiction of UNESCO has political and legal characteristics, but not to such a degree that we can justifiably ask that specialized agency, which has worked intensively to achieve these results, to make the sacrifice of holding this up for two years. I am referring only to questions of substance. First, has a working group more competence than this Committee? Second, can a Committee such as ours ask for such a sacrifice from a specialized agency when there is no serious reason for doing this? The third issue that I should like to raise is also fundamental, and it concerns the need to make progress in this evolutionary process and in the matter of the progressive codification of space law.

Without any doubt, the preparation of this Soviet Draft—also circulated as a document prior to this session—would be made more difficult, or at least delayed, if in this year we did not accept the UNESCO draft declaration. There is no doubt that the question of direct broadcasting is a very delicate issue that requires adequate codification. But to work out such an adequate codification in a binding text we must, first of all, set out on the course toward the consolidation of principles; and if we do not have a declaration or a resolution either from UNESCO or from the General Assembly, it is going to be very difficult to arrive at a binding text of an agreement, convention, or treaty.

Thus, there are four points of concern to my delegation. First, are we not somewhat distorting the specific functions of the Working Group on Direct Broadcasting Satellites? Second, is the competence of that Group such that it can paralyze the activity of the main Committee? Third, can we ask such a sacrifice of a specialized agency when there are apparently no substantive reasons for doing so? And fourth, would we not thus be taking a step backward instead of toward the codification of space law?"<sup>11</sup>

Some weeks later, however, on November 9, 1972, the United Nations General Assembly adopted Resolution 2916/XXVII concerning the elaboration of an international convention on the principles governing the use by states of artificial satellites of the earth for direct broadcasts by television. On that same day Resolution 2917/XXVII was voted on concerning the preparation of international instruments or United Nations agreements on the principles governing the use by states of artificial earth satellites for direct broadcast by television. Consequently, the international community was in favor of the legal regulation of direct broadcast.

In order to make some progress, a meeting of the Working Group, which had not been together since 1970, was fixed. This fourth session took place in New York during June, 1973. The working documents were more complete on this occasion: there existed a draft international convention prepared by the USSR, composed of a preamble and 17 articles; and a draft declaration of principles submitted by Canada and Sweden, composed of a preamble and ten points.<sup>12</sup> To this, the Twelve Tables of Law on Direct Broadcast may be added.<sup>13</sup>

Unfortunately, none of these important documents were dealt with in the June, 1973 meeting because of the opposition of some countries to regulate the activity. As it usually happens in these cases, the main difficulty lay in the fact that the conclusions and recommendations of the report of this meeting<sup>14</sup> were discussed at a high level at the session of the Working Group. The formula appearing in the report in paragraphs 77-79 was reached after a long process of negotiation, where the parties used every possible effort to draft a text in harmony with the views of the different governments.

The path toward conciliation was begun by Argentina in a text circulated and analyzed on June 20:

"The Working Group noted that, having in mind that in the present meeting information has been compiled concerning relevant facts and technical and economical issues related to direct broadcast, it is necessary now to focus attention on the arising juridical and

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<sup>11</sup>U.N. Doc. A/AC.105/PV.117 (1972).

<sup>12</sup>U.N. Doc. A/AC.105/117 (1973).

<sup>13</sup>The Twelve Tables on Direct Broadcasting proposed by Argentina in 1970 were printed in "La Prensa," Buenos Aires, May 25, 1970; see also La enseñanza del derecho internacional aplicado al espacio y a las comunicaciones espaciales, CNIE-UNESCO, Buenos Aires (1972); cf. U.N. Doc. A/AC.105/83 (1970).

<sup>14</sup>U.N. Doc. A/AC.105/117 (1973).

political problems. In this regard, it expressed its view that, at the present stage of its work, another meeting should be convened before the thirteenth session of the Legal Sub-Committee on the Peaceful Uses of Outer Space takes place. In that session, the Working Group should specifically be committed with dealing—within the framework of its competence as established by Resolution 2453B (XXIII) of the General Assembly—with the implication of issues considered in the present meeting from a juridical and political point of view, trying to attain a consensus. Such general agreement should be related to basic principles governing the activities of the States in the field of direct broadcast, in such a way as to permit the next session's report to reflect a general sharing of views that could be considered by the Legal Sub-Committee as a basis for its drafting work."<sup>15</sup>

Canada and Sweden, who shared the same current of opinion, promptly submitted another text to the same end:

"While the Working Group considers that the finalization of principles governing the use of satellites for television broadcasting according to the General Assembly Resolution 2916 (XXVII), should be entrusted to the Legal Sub-Committee, the Group is of the opinion that it would be necessary for the Group to consider at another meeting the elaboration of such principles. The Working Group therefore recommends to the Committee on the Peaceful Uses of Outer Space that the Group be reconvened in 1974 with the specific task of considering, in view of its interdisciplinary character, the elaboration of principles governing the use of satellites for broadcasting. In this work the Group should take into account the basic assumptions which would underlie such principles as well as the implications of the decisions of the World Administrative Radio Conference for Space Telecommunications, Geneva, 1971."<sup>16</sup>

It was very opportune that Argentina, Sweden, and Canada should unify their proposals, thus, a draft proposal was circulated by these three countries:

"The Working Group has, pursuant to General Assembly Resolution 2915 (XXVII), reviewed substantive material on the technical, economic and other issues related to direct satellite broadcasting made available since its last session. Accordingly, the Working Group now considers it necessary to focus attention on the relevant legal and political problems. In this connection, it expressed the view that another session of the Working Group should be convened before the thirteenth session of the Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space. The Working Group should be specifically requested to consider, at that session, the elaboration of principles governing the use by States of artificial earth satellites for direct television broadcasting, as provided in General Assembly Resolution 2916 (XXVII), with a view to achieving general consensus on this subject. This would permit the Legal Sub-Committee to effectively discharge such responsibilities as may be conferred upon it for the final formulation of appropriate principles on this subject. In its work, the Working Group should take into account the basic assumptions which would underlie such principles as well as the implications of the decisions of the 1971 World Administrative Radio Conference for Space Telecommunications."<sup>17</sup>

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<sup>15</sup>U.N. Doc. A/AC.105/W.G. 3(V)/CRP.3.

<sup>16</sup>U.N. Doc. A/AC.105/WG. 3/L.4 (1973).

<sup>17</sup>Most of the points in this proposal became part of the final text incorporated in U.N. Doc. A/AC.117, paras. 77-79 (1973).

An informal text submitted by the United States followed this joint proposal:

"It is recommended that the Committee on the Peaceful Uses of Outer Space consider reconvening the Working Group on Direct Broadcast Satellites in 1974, directing it to perform the following tasks: (1) Analysis of the basic assumptions—technical, economic and otherwise—which would underlie possible future principles concerning international satellite broadcasting. (2) Examination of possible official or non-official arrangements concerning international satellite broadcasting on a regional basis. (3) Consideration of developments in the technological state of the art of satellite broadcasting, including timing, costs, and prerequisites for the establishment of operational satellite broadcast systems, keeping in mind the similarities and differences between utilizing community and individual receivers. (4) Examination of the results and implications of the application of the 1971 ITU WARC-ST rules, regulations and decisions concerning satellite broadcasting."<sup>18</sup>

Belgium, Japan, the U.K., and the U.S. immediately submitted a joint proposal—to which Italy adhered afterwards—in the following terms:

"IV. Conclusions and recommendations. It is recommended that the Committee on the Peaceful Uses of Outer Space consider reconvening the Working Group on Direct Broadcast Satellites in 1974, directing it, within its existing mandate, to perform the following tasks: (1) Analysis of the basic assumptions—technical, economic, legal and political—which would underlie future principles concerning international satellite broadcasting which might be formulated. (2) Examination of appropriate arrangements concerning international satellite broadcasting on a regional basis. (3) Consideration of developments in the technological state of the art of satellite broadcasting, including factors such as timing, costs, and technical requirements for the establishment of operational satellite broadcasting systems. (4) Study of ways to enhance international cooperation with the aim of deriving maximum benefit from broadcast satellite technology."<sup>19</sup>

The above-mentioned delegations then submitted the following conciliatory text:

"The Working Group has, pursuant to General Assembly Resolution 2915 (XXVII), reviewed substantive material on the technical, economic and other issues related to direct satellite broadcasting made available since its last session. The Working Group considers it necessary to give attention to relevant legal and political problems, while continuing to study new developments in satellite broadcasting technology and relevant economic factors. If it is reconvened, the Working Group could be requested to consider and discuss, *inter alia*, at that session principles bearing upon the use by states of artificial earth satellites for direct television broadcasting, as provided in the Working Group, noting that another session could be convened before the thirteenth session of the Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space. This could permit the Legal Sub-Committee to discharge more effectively such responsibilities as may be conferred upon it. In its work, the Working Group should take into account the basic operational and juridical assumptions, on both global and regional levels, which would underlie such principles as well as the implications of the decisions of the 1971

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<sup>18</sup>Working paper presented by the United States, U.N. Doc. A/AC.105/L.71 (1973).

<sup>19</sup>Informal text distributed exclusively among member states and mimeographed in purple paper. Publications in this color are neither official nor definitive texts.

World Administrative Radio Conference for Space Telecommunications. The Working Group should also study ways to enhance international cooperation with the aim of deriving maximum benefit from broadcast satellite technology."<sup>20</sup>

Finally, the text negotiated by the authors of proposals by Argentina, Canada and Sweden, who were later joined by the USSR on one side and Belgium, Italy, Japan, the U.K., and the U.S. on the other appeared in paragraphs 77-79 of the report:

"77. The Working Group considers it necessary to give its primary attention to relevant legal and political problems, while continuing to study new developments in satellite broadcasting technology and relevant economic factors. 78. In this connection, the Working Group considers that another session should be convened before the thirteenth session of the Legal Sub-Committee on the Peaceful uses of Outer Space. During the course of that session, the Working Group should be requested to consider and discuss principles on the use by States of artificial Earth Satellites for direct television broadcasting, in accordance with General Assembly Resolution 2916 (XXVII), with a view to making specific recommendations for the work of the Legal Sub-Committee in this field. This would permit the Legal Sub-Committee to discharge more effectively such responsibilities as may be conferred upon it. 79. In its work, the Working Group should take into account basic legal and operational assumptions, on both legal and regional levels, as well as the implications of appropriate international instruments including the decisions of the 1971 World Administrative Radio Conference for Space Telecommunications. The Working Group should also study ways to enhance international co-operation with the aim of deriving maximum benefit from broadcasting satellite technology, in particular for the developing countries."<sup>21</sup>

Within the Committee on the Peaceful Uses of Outer Space, which met immediately afterwards, this text was qualified by one of the delegations as a "lukewarm compromise."<sup>22</sup>

It must be noticed, however, that the fact that the Working Group convened a meeting before the Legal Sub-Committee on Outer Space in 1974 shows a hope, in the sense that the Group will be submitting considerations and juridical conclusions sufficiently clear as to allow the beginning without delay of the codification task of said Sub-Committee on the matter.<sup>23</sup>

#### IV. OTHER EFFORTS IN FAVOR OF THE REGULATION OF DIRECT BROADCAST DURING THE RECESS AT THE UNITED NATIONS

In addition to the United Nations and related international agencies, other

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<sup>20</sup>See footnote 19.

<sup>21</sup>U.N. Doc. A/AC.105/117 (1973).

<sup>22</sup>The expression was taken from the notes of the Argentine delegate.

<sup>23</sup>Editor's note: In the meantime, the Working Group's fifth session was held from March 11-22, 1974; see U.N. Doc. A/AC.105/127 (1974).

institutions, both national and international, have continued giving priority to the treatment of the matter.

Chronologically, some of them are mentioned hereunder:

(a) *International Broadcast Institute (IBI)* meeting, Nicosia, Cyprus, September 13-19, 1973. This Institute, defined as "a non-governmental organization concerned with the function and implications of communications through electronic media and their effects on human society," organized its academic work in Nicosia by means of several committees: I, recent trends in mass communication research in relation to the use of media in different socio-cultural contexts; and III, participation, access, and democratization. One of the Institute's top priorities is "to continue work already started on satellite communications, cable systems and other technological development." The Institute recognizes that "to exploit fully the strong emphasis that is placed on the potential of satellite technology many tasks have to be carried out on the ground as well as in the air."<sup>24</sup>

(b) *Meeting of the Inter-American Broadcast Association (AIR)*, Mar del Plata, September 26-29, 1973. The Legal Committee of AIR, which during those days had a preparatory meeting of the Second World Inter-Broadcasting Unions Conference held in Rio de Janeiro in November, 1973, dealt with many topics which appear in the documentation of the Working Group of the United Nations. Among them, mention should be made of the 1971 Rome Convention, the WIPO-UNESCO draft convention, the drafts on the regulation of direct broadcast for individual reception and the relations among international broadcasting unions. On that occasion, the legal committee of ARPA-ATA (Argentina), chaired by Professor Manuel Augusto Ferrer, Jr., prepared a highly detailed report on the draft convention on direct broadcast by satellites submitted by the USSR to the United Nations, and the WIPO-UNESCO draft dealing with the prohibition of non-authorized signals carrying programs transmitted by satellites.<sup>25</sup>

(c) *Sixteenth Colloquium of the International Institute of Space Law*, Baku, USSR, October 7-13, 1973. The 9th of October was devoted to the subject "Direct Television Broadcasting."<sup>26</sup>

(d) *Eighth Session of the Group of Experts of UNESCO on Space Communications*, Paris, November 6-8, 1973.<sup>27</sup>

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<sup>24</sup>International Broadcast Institute, Report to Trustees (Documentation circulated among participants, Briefing Notes 1 to 7, September 14, 1973).

<sup>25</sup>Documentation distributed at the Conference of Mar del Plata, Sept. 26-29, 1973 (mimeo).

<sup>26</sup>Proc. Sixteenth Colloquium on the Law of Outer Space (1974).

<sup>27</sup>UNESCO, Doc. COM/SPACE PANEL VIII/1 (1973).

(e) *University of Mississippi Symposium on "Direct Broadcast Satellites and Space Law,"* November 1, 1974.<sup>28</sup>

A joint meeting has likewise been held between the American Society of International Law and the International Broadcast Institute in February, 1974, on the Principles Satellite Broadcasting.<sup>29</sup>

## V. THE RIGHT OF MAN TO COMMUNICATE MUST BE REGULATED

As Jean D'Arcy has rightly pointed out in Nicosia not long ago:

"Here two forces can be seen at work: one that pushes man to communicate and unite with his kind to form a society and another which induces a thus formed society to set up for its own operation and its very expression, ever more perfect communication methods leading to constantly more evolved social structures. Successive freedoms result from the tension between the individual's need to communicate and the societal need to establish its own channels of communication and expression."<sup>30</sup>

And he concludes his paper presented at the Cyprus IBI meeting by saying:

"New thinking is now due. A new philosophy as a new approach to communication issues would lead to studies for the reshaping of both national and international communication structures. To propose already at this stage the future recognition of this right of man and of nations to communicate would give fresh insight to research on such problems as the declaration and convention on freedom of information now pending at the UN, access and participation, the multilateral flow of information and the preservation of the cultural heritage."<sup>31</sup>

We hereby insist that the right of man to communicate is to be regulated, as every right should be. It would be out of place to look for an improved formula to enforce such right and ensure its permanent exercise if we are not all in accord on an agreement of a universal scope to that end. So far as doubts exist on the part of certain governments on the advisability of proceeding to such regulation, no progress at all will be reached in this field and technology will overcome juridical science.

When this general and universalized conscience is achieved, with the support of those states possessing an advanced technology and wide broadcast networks, the task of the jurist will no longer be delayed. Conversely, he will push forward with enthusiasms

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<sup>28</sup>The papers submitted at the conference are expected to be published in the 1975 issue of the JOURNAL OF SPACE LAW.

<sup>29</sup>Bellagio, Italy, February 20, 24, 1974. See Summary of Discussions published in INTERMEDIA, No. 6, 1974, by the International Broadcast Institute, London.

<sup>30</sup>See note 24 above.

<sup>31</sup>*Ibid.*

and hope, because, as von Ihering has so rightly observed, jurists all over the world speak the same language. It will be the best contribution to this unavoidable time of law.



George S. Robinson\*

"What are astronauts?  
And what am I? . . .  
In outer space or here on earth  
I accept all as due my birth . . .  
I do my job way out in space  
But, God forgive, the friends erased."<sup>1</sup>

I. BIO-ECOLOGICAL AND PSYCHOANALYTIC METHODOLOGIES FOR  
EVOLVING SPACE STATION LEGAL REGIMES

Over the past few years, at least one student of the law has groped privately and publicly to establish an effective articulation reflecting the biological foundations of space law. Specific emphasis has been upon the biological underpinnings of value-forming processes occurring in the unique life-support environment of long duration, confined space flight.<sup>2</sup> Now, it is essential to focus on the very important complementary methodology of studying law as a response to bio-ecological dictates. That complementary approach is the technique embodied in what has been referred to as psychoanalytic jurisprudence.<sup>3</sup>

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<sup>1</sup>Quotation from the poem, "What are Heroes?" in A. Worden, *Hello Earth—Greetings From Endeavor 78* (1974). Several of the poems in this particular collection reflect the sense of separateness and alien philosophy shared by many astronauts who return to their friends and acquaintances, but who retain what they believe is a perspective on Earth existence which is unfathomable by non-participants in manned space flights. This is a growing phenomenon that apparently tends to make it difficult for astronauts to identify with certain Earth values while functioning in space. The "we—they" frame of mind is verified by empirical data through actual situations of long duration, isolated, and confined existence with manipulable sensory deprivation/overload capability. *See generally*, C. May, *The Man-Related Activities of the Gulf Stream Drift Mission*, NASA TMX-64548 (1970).

<sup>2</sup>*See* the following articles by G. Robinson: *NASA's Space Station and the Need for Quantifiable Components of a Responsive Legal Regime*, 6 *Int'l Lawyer* 292 (1972); *Man's Physical and Juridical Relationships in Space: A Key to Quantification of His Cultural Activities on Earth*, 2 *Man-Environment Systems* (1972); *Scientific Renaissance of Legal Theory: The Manned Orbiting Space Station as a Contemporary Workshop*, 8 *Int'l Lawyer* 20 (1974); *Metalaw-Prolegomena to Quantification of Jus Naturale*, 40 *Geo. Wash. L. Rev.* 709 (1972).

<sup>3</sup>*See generally*, A. Ehrenzweig, *Psychoanalytic Jurisprudence* (1971). Also by A. Ehrenzweig: *A Psychoanalysis of the Insanity Plea—Clues to the Problems of Criminal Responsibility and Insanity in the Death Cell*, 73 *Yale L.J.* 425 (1964); *A Psychoanalysis of Negligence*, 47 *Nw. U.L. Rev.* 855 (1953); *Psychoanalytical Jurisprudence: A Common Language for Babylon*, 65 *Colum. L. Rev.* 1331 (1965). *See specifically*, Bienenfeld, *Prolegomena to a Psychoanalysis of Law and Justice (Parts I and II)*, 53 *Calif. L. Rev.* 957, 1245 (1965).

Despite the leveling nature of Christianity and the United States Constitution, both of which "create" all men equal and all women equal with men, there are certain basic biological dictates distinguishing man from men, and women from all the others, every bit as much in the neurophysiology of value-forming processes as in the obvious morphological distinctions. The objective question whether these quantifiable distinctions must be preserved or suppressed by law is integral to determining how to engineer social behavior to satisfy ultimate goals and objectives set by a given community. Unfortunately, it often is impossible to determine the success of the laws imposed without observing the long-range bio-ecological responses to them by the community individuals acting in concert or dissonantly. In any event, whether societal groupings are Earth indigenous, space station, or lunar surface oriented, the economically and politically induced intellectual panaceas do not work—as the great blood baths of history have shown us, and the lessons of which civilizations as a whole seem inclined to ignore.<sup>4</sup> Such panaceas will not be fruitful for establishing effective and accurately responsive legal regimes among space station and lunar community inhabitants.

Inferences must be drawn from facts which are known (no matter how transitory in the evolution of scientific knowledge), *i.e.*, in the present context, inferences and extrapolations must be drawn from the biomedical data derived from long-duration, confined space missions, in order to formulate responsive social engineering principles, and consequent legal regimes. Disciplined inferences also must be drawn through psychoanalytic techniques to provide the complementary perspective of individualistic and collective interpretation of the bio-ecological data. At best, this approach is elusive; at worst, it is probably no more than premature and quite ineffectively articulated by the instant layman in psychological and psychoanalytic disciplines.<sup>5</sup> Under any circumstances, it must be kept in mind for the moment that these two techniques are more readily applicable to analyzing interpersonal relationships, such as those characterized by command structures, than the less personal relationships, such as those encompassed by commercial law.

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<sup>4</sup>It is fallacious to refute this type of observation by pointing to the human atrocities performed by the Third Reich in the name of science. Increasing knowledge deriving from science research—basic and applied in the form of technology—permit us now to detect and understand such atrocious abuse of scientism. To detect and understand is to permit effective corrective action. As observed by Margery W. Shaw, Director, Medical Genetics Center, Health Sciences Center at the University of Texas, Houston, "I am not afraid that genetic screening will lead to genocide, nor that abortion will lead to infanticide, as many have warned. If we need checks on our behavior the law will provide them." Shaw, *Genetic Counseling*, 184 *Science* 751 (1974).

<sup>5</sup>Historically, it is interesting to note that the legal profession has studiously ignored (not rebutted) psychoanalysis as a technique in understanding the effectiveness of legal regimes *vis-à-vis* individuals and societal groupings. See the emotional reaction in Mechem, *The Jurisprudence of Despair*, 21 *Iowa L. Rev.* 669 (1936), wherein he discusses (and according to Ehrenzweig, misinterprets) the innovative work set forth in E. Robinson, *Law and the Lawyers* (1935). R. Bienenfeld, *Rediscovery of Justice* (1949), a commendable work, is still largely ignored in the United States, as are some of Ehrenzweig's principal works. The book reviews of A. Ehrenzweig, *Psychoanalytic Jurisprudence* (1971) which have been prepared by lawyers and jurists receive this particular work of Ehrenzweig very well. Unfortunately, there is very little on-going juridical discussion, and almost no interest shown by clinical psychologists.

Quite basically, psychoanalytic techniques encompass the theory that all internally sensed and externally experienced phenomena are never forgotten by an individual; rather, they are retained in limbo in the unconscious mind, and consist principally of wishes, impulses, inclinations, flashes of insight, and the like. They are constantly at the threshold of the conscious mind in varying degrees, depending upon the intensity of the experience, and suppression of distractions and other inhibiting factors. Many of the so-called subconscious compulsions which are inhibited, are squeezed into other channels of expression which often lead to departure from the norms of behavior and reasoning. Psychoanalysis employs techniques to identify such subconscious drives for expression, and if those drives become too far removed from the norm a given psychoanalytic technique may assist in helping an individual recognize and embrace acceptable behavior patterns in a community. This corrective facet is very important for space societies where behavior patterns and value-forming norms are affected significantly by the life support environment, alien nature of a mission and unknown risks involved, confined and totally functional architecture, unique command-structuring relationships among space society members and with Earth oriented control and management units, *ad infinitum*.

Psychoanalysts are much at variance in the techniques they use, as well as in their interpretations of the natures of these subconscious drives. Sigmund Freud believed the basic nature of such drives to be sexually oriented. However, with the passage of time and work by disciples of Freud, a precursory nature of sex lost its fashionable appeal and become only one factor—albeit an important one—influencing the character of a much greater overall drive.

Essentially, it is Freud's technique which remains clinically important to two basic theories in psychiatry: (1) the perspective or methodology which observed the personality as the synthesized sum of numerous separate and distinct subconscious drives, a theory which has yielded to the present *gestalt* methodology, and described as (2) an approach which considers both the individual and communal, or societal, personality as a whole. This approach responds sensitively to the evidence that all human behavior patterns reflect one complex primitive drive, *i.e.*, the "expression of the total personality in a satisfying way." One of the principal purposes of contemporary psychiatry is to find the source of guilt in a subconscious drive or set of drives and remove it as a means of assisting the individual in putting abnormal behavior and thought patterns in acceptable perspective. This is particularly true and beneficial for space station inhabitants whose concepts of the norms of behavior can be *abnormal*, according to the values and standards of Earth dwellers.

Assuming the Earth-orbiting space station is a very efficient example of a self-contained legal system,<sup>6</sup> the two principal areas of juridical interest—other than the unique considerations that must be given the need for isolated and integrated command structures—are the situations involving civil negligence and criminal responsibility. To

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<sup>6</sup>From the present author's personal experience, it is interesting—although certainly discouraging—to observe lawyers and jurists at various domestic and international legal fora consistently re-inventing the jurisdictional wheel of "space law." One indication is that all are discussing the same subjects, but none are using the same symbols of communication, perhaps as in the instant discussion.

evaluate these two legal regimes and their applicability to activities of space station participants, one must first recognize—if not accept—the unique effects on value-forming processes of the multifaceted influences of an alien life-support system. It is within this unique framework that the benefits of psychoanalytic techniques for space jurisprudence must be examined. Only two of many examples are discussed below, *i.e.*, the natures of negligence and of criminal insanity.

## II. PSYCHOANALYSIS OF NON-CRIMINAL WRONGDOING BY SPACE STATION PARTICIPANTS

In many ways it can be said that the body of criminal law derived from its much more primitively-oriented progenitor we refer to as “the law of torts.” Laws surrounding the typical slip-and-fall case, last-clear-chance doctrine, defective merchandise, etc., appear on the surface to indicate that western society at least has evolved beyond the unbridled revenge-seeking of certain primitive societal groupings which sanction the individual’s demand of an eye for an eye, and a tooth for a tooth. Presumably, we are at that stage in the development of civil negligence law where the principal concern is for the protection of an individual’s physical integrity, *i.e.*, we seek protection and remedy rather than punishment.

Any psychological desire for revenge is presumed to be mitigated—if not totally dissipated—by the knowledge of the forthcoming soothing effects of legal remedies. *Prima facie*, this objective is embodied in the concept of no-fault automobile insurance.<sup>7</sup> For example, at this point it has been determined that the economic damage of automobile accidents is so great that the total repression of individual revenge must be assured. This is the result of no easy intellectual exercise. One need only to observe how long contemporary civilizations have struggled with the no-fault insurance concept, and how narrow its present scope, to confirm that it is not considered a popular panacea even among the most liberal jurists.

However, even though broad and sophisticated concepts of absolute and strict liability have been exploited in areas other than automobile accidents to minimize the economic burdens of proof and lengthy litigation, the basic need for revenge still exists. It is an integral component of the “bosom of justice” as reflected in the fact that fault of one party or the other still must be determined. Even in the most innocent of situations, the most unavoidable of accidents, tortious fictions and presumptions continue to be relied upon in our insistence on finding fault of one or more parties—even “where there is

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<sup>7</sup>Although totally different socio-economic conditions presently exist from those of the 19th century, fault is still considered the real basis for civil liability just as it was in the 19th century. Liability without fault is still anathema to our legal thinking and language, and with relative ease one could find some theory of fault inherent in no-fault automobile liability insurance legislation evolving in Canada and the United States. In this respect, see A. Ehrenzweig, *Negligence Without Fault* (1951).

no fault in any moral sense."<sup>8</sup> And once we embrace fault-finding we embrace also the "reasonable man" criterion with its plethora of subjective, factual, and mythical interpretations. In any event, the need for finding fault, for seeking revenge, is ever present. The subsequent reliance on the reasonable (or normative) man has a particularly important bearing on how fault is found, or effective vengeance exacted, in the unique environment of manned space stations, lunar communities, or similar habitats with synthetic and alien life-support systems.

Retributive vengeance, in the form of tort principles designed to illuminate some fleeting and amorphous subconscious need to ascribe guilt, can be seen throughout legal history.<sup>9</sup> Even though economic and social intercourse among peoples and nations has become so extensive and sophisticated that numerous unintended hazards can be shown to derive from factors much more innocent than fuzzy allegations of individual or corporate malice, the law "has never quite abandoned its primitive assumption and presumption of fault."<sup>10</sup> Even today, the *true* accident is nothing less than the oft-quoted, unexplainable, and rarely proved "act of God." Negligence, although objectively conceived and designed to provide a basis for recovery from innocently-caused harm, still directly implies blame for subconscious fault. Its genesis is in the physiological shaping of an expressed need of an individual to protect himself (and ultimately a societal grouping with which he identifies) by seeking retributive vengeance, or blame in another for harm suffered.<sup>11</sup>

At the onset of the industrial revolution, the mechanical enterprises and ensuing increase in hazards to individuals and communities logically should have encouraged recognition of new principles of loss distribution by focusing on the results of the damages rather than the causes—or fault—of the losses. Instead, fault finding in the form of strict and absolute liability became even more entrenched. The rationale lay in holding the community harmless from innovative, unknown, and risky activities by making the initiator of the hazardous activity negligent in his conduct. The consequence was the

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<sup>8</sup>Ehrenzweig, *A Psychoanalysis of Negligence*, 47 *Nw. U.L. Rev.* 855,857 (1953), where the author observes at 856 that "the tremendous increase of 'hazardous activities' requiring adjustment of both avoidable and inevitable loss rather than a 'wrongdoer's' admonition, and the spread of liability insurance serving primarily the former, have created a discrepancy between reality and law which seriously endangers our administration of justice." It is submitted that this type of discrepancy between the fictional foundations of law and reality cannot be accommodated efficiently in the small and tightly controlled societies of space stations and lunar habitats. The consequence may well be the total ignoring of essential behavioral facts that need conscious accommodation.

<sup>9</sup>For only a few of the many interesting histories addressing the role of "guilt" in civil negligence law, see generally, O. Holmes, *The Common Law* (1881); Winfield, *The Myth of Absolute Liability*, 42 *L. Q. Rev.* 37 (1926); 1 Thorpe, *Ancient Laws and Institutions of England* 85 (1840); and A. Kocourek & J. Wigmore, *Primitive and Ancient Legal Institutions* (1935).

<sup>10</sup>Ehrenzweig, *supra* note 8, at 861.

<sup>11</sup>For a discussion of practical examples of this problem, see generally Malone, *Damage Suits and the Contagious Principle of Workmen's Compensation*, 12 *La. L. Rev.* 231 (1952).

self-imposition of strict standards of conduct to avoid financial losses from claims.<sup>12</sup> The "reasonable man" reached his full maturity in the ensuing decades of judge-made law. There is no indication that in the era of building long-duration space societies none of that fault-finding bloom of maturity would fade from the "reasonable astronaut."

Despite all the evolutionary reforms in the law of torts and the retribution rationale of fault finding in negligence, all such principles and reforms will prove under close scrutiny to be at best no more than a simple shift in the character of subconscious societal aggression. Further, where we obtain satisfaction in aggression, both Freudian and Jungian psychoanalytic techniques show that the individual and/or society pays for that satisfaction with feelings of guilt derived from empathy. It often seems that confession by a wrongdoer or admission of a crucial fact by a witness, whether in a criminal or civil case is the only relief for a punishment-seeking aggressor with guilt feelings. In short, proper blame for a wrongdoing is every bit as important, and perhaps more so, to the aggrieved person or community than the recovery or effective distribution of losses. As observed by Mr. Justice Holmes, and equally as applicable to civil as criminal law, "a law which punished conduct that would not be blame-worthy in the average member of the community would be too severe for the community to bear."<sup>13</sup>

The foregoing observations offer three basic points about the foundations of tort law, and which are formulated by psychoanalytic techniques:

1. The law of torts, particularly as it embodies the fault-finding concept of negligence, does not rest alone on intellectual recognition of the protective need to make an injured individual or community physically and/or economically whole; rather it is an acceptable vehicle for an injured party to seek what appears to be a genetically-coded form of retributive vengeance.

2. The "reasonable man" criterion necessitates not only extrinsic knowledge of an individual's behavior patterns (*i.e.*, physiologically induced aberrations, etc.), but the ability as well to have a certain empathy with a harmful situation and the wrongdoer involved in order to make application of that criterion less comparative and more stable.

3. Any primitive law in tortious situations, to be acceptable and successful, must punish blameworthy tortious conduct with which the average member of the sanctioning community can identify.

It can be determined from these three conclusions that the most effective evolution of space station or lunar community legal regimes dealing strictly with the interpersonal relations of space society members will come from valuations and judgments only of those members, themselves.

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<sup>12</sup>For a discussion that touches on the struggle between reform of negligence law and the "yearning backward toward morality" as the basis of fault liability, see Malone, *This Brave New World—A Review of "Negligence Without Fault,"* 25 S. Cal. L. Rev. 14, 16-17 (1951).

<sup>13</sup>O. Holmes, *The Common Law* 50 (1881).

With respect to the applicability of these three observations to noncriminal, wrongful behavior of long-duration space station or lunar community inhabitants, it must be thoroughly understood that a compelling facet of man's nature (as recognized through a methodological synthesis of biological data and psychoanalytic techniques) is to seek and obtain retribution for an actual or sensed grievance imposed by another. The need goes much deeper than the satisfaction of some amorphous, prevailing concept of morality or ethic, or an equitable and fair distribution of economic losses. The problems of engineering civil "fault laws" to meet the needs of space station or lunar community inhabitants become very acute and unique in a confined, long-duration flight where the alien life-support system produces definite neuro-physiological anomalies reflected in changes in the norms usually attendant to human value-forming processes.

Use of the "reasonable man" criterion, to determine whether fault or negligence of an Earth dweller or space station inhabitant is the causative factor of certain damages or harm suffered by a station inhabitant, is an extremely precarious undertaking. The bio-physical influences on value-forming processes of station inhabitants are alien to those on Earth. These influences are significant to the point of rendering any comparison of the *reasonable* man in a normal Earth environment with a speculative vision of the reasonable man on a long-duration space mission, totally useless. Further, psychological synthesis of anomalous physiological data, deriving from the alien bio-ecological influences of a space station's synthetic life-support system, would vitiate any effectiveness of comparative psychoanalytic techniques relying on Earth-indigenous values or norms. Totally new psychoanalytic technique guidelines would have to be established by space station participants, themselves, in order to help formulate effective principles of tort law responsive to those particular alien environments and interpersonal relationships.

Finally, both Freudian and Jungian psychoanalytic techniques need to be employed to ensure that proper space station community values evolve relating to blameworthy (negligent) conduct of station participants. Integral to this is the development of a second set of values by Earth inhabitants which will permit them to accommodate, if not accept, the alien community values controlling fault finding for certain detrimental, non-criminal, behavior among space station inhabitants. Perhaps even a third set of values will be necessary to establish guidelines for negligent behavior between space station inhabitants and those on Earth. In any event, the methodological synthesis of bio-ecological data and psychoanalytic techniques could prove critical to an effective and timely engineering of this particular corner of exceedingly neglected space-station jurisprudence.

### III. PSYCHOANALYSIS OF CRIME AND CRIMINAL RESPONSIBILITY RELATING TO SPACE STATION INHABITANTS

In discussing the use of psychoanalysis to assist in establishing an effective body of criminal law for space stations and lunar communities, two questions should be kept in mind: (1) why do societal groupings punish criminal activity, *i.e.*, why do they secure social integrity, enforce *moral* or *ethical* principles, or exercise genetically coded individ-

ual (and perhaps communal) retributory vengeance; and (2) is there a unique nature of insanity in a space environment to serve as the basis for criminal excusability?

One of the principle issues integral to determining the appropriateness and effectiveness of criminal sanctions is whether the alleged offender's prescribed punishment is preferable to enlightened reformation of his criminal behavior patterns, or even to his complete release from formal community custody. It is submitted that the question cannot be answered by either psychiatrist or jurisprudent until psychoanalytic techniques have helped both in comprehending why civilizations create crimes for which violators are punished, and why the communities in fact apply such punishment.

Indeed, Professor Ehrenzweig has stated that a "rational answer to this question would require the weighing of such conflicting factors as the victim's, the offender's and, most important, society's conscious and subconscious wishes and interests." He continues by observing that:

Neither the judge nor the psychiatrist is willing or indeed able to do that weighing . . . [since] one of the factors determining the issue between punishment and release has always been . . . irrational: namely society's urge for retributory vengeance.<sup>14</sup>

Although Ehrenzweig is correct about the role of retributory vengeance in application of criminal sanctions, such vengeance is not so easily characterized as irrational. It is not too difficult to define vengeance as a quantifiable, characteristic pattern of morphophysiological behavior responding to the hereditary/environmental interplay which, at a given time, dictates individual self-preservation—or perhaps even collective, communal preservation. Psychoanalytic techniques can assist in the synthesizing and articulation of the meaning of basic biological data manifest as "retributory vengeance." In fact, it can assist in determining whether such vengeance is biologically mandated or *culturally* retributory.

Concisely, bio-ecological data synthesized by psychoanalytic techniques can provide a common and workable understanding of precisely what retributory vengeance means. For the sake of brevity, it is submitted here that retributory vengeance is not solely an intellectually articulated method (influenced by prevailing cultural values) for maintaining a cohesive societal grouping; nor is it a genetically dictated, impassively neutral, morphophysiological response of an individual or society to physical threat. Rather, it is a synthesis of both; and the synthesis is recognizable in large part through the application of historicism and certain classic, if not obsolete, techniques of psychoanalysis introduced by Freud, Jung, and certain of their disciples.

Increasing quantity and quality of scientific data, and insight provided by relatively sophisticated scientific methodologies, have lifted much of the veil of ignorance surrounding behavior patterns of certain criminal deviants. They have permitted psychiatrists and jurists to cooperate fruitfully in helping to establish effective criminal reform actions.

<sup>14</sup>Ehrenzweig, A Psychoanalysis of the Insanity Plea—Clues to the Problems of Criminal Responsibility and Insanity in the Death Cell, 73 Yale L.J. 425 (1964).



Those actions, often considered *irrational* by jurist and psychiatrist alike, have become quite rational in the sense of manifesting a recognizable/quantifiable, cause/effect conclusion. With respect to the need to punish, retribution is required to help bear the blow to the individual's or community's physical integrity and security, as well as counteract certain temptations of the individual or community, *i.e.*, prove to themselves that crime really does not pay.<sup>15</sup> The concomitant of this self-identity and the need to punish is that:

[t]he greater the pressure coming from repressed impulses, the more aware becomes the Ego that it needs the institution of punishment as an intimidating example, acting against one's own primitive world of repressed instinctual desires . . . . In other words, the louder man calls for the punishment of the lawbreaker, the less he has to fight against his own repressed impulses.<sup>16</sup>

In view of this, the nature of insanity as a defense must be sufficient to satisfy the so-called retributory revenge impulses. Again, as observed by Ehrenzweig:

Where aggression or vengeance are thus involved, we must be on our guard when "humanitarians" attempt to expand the defense of insanity by a progressive identification of crime and sickness. They are asking society to forego its primitive satisfactions . . . .<sup>17</sup>

The history of the insanity rule in the United States is a study of medical science and juridics grappling and sparring with each other to shift the burden of defining criminal insanity. Ehrenzweig asks:

Do we call insane one who fails to recognize as a "wrong" what was wrong by the standards of his community, or only what was wrong by his own standards? If the latter, any error should negate criminal responsibility (which we make depend on the faculty not the fact of cognition). Or is it enough if the accused was aware of the ethical wrongness of his act, though he thought it legally unobjectionable?<sup>18</sup>

These questions bring the discussion to the posing of three basic inquiries: (1) what does retributory vengeance have to do with space station legal regimes; (2) what is the relative importance of the essence of criminal insanity to space station inhabitants; and (3) what is the importance of psychoanalytic techniques in formulating legal principles applicable to space station inhabitants?

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<sup>15</sup>*Id.* at 435. Ehrenzweig quotes in n. 41 from 1 S. Simpson & J. Stone, *Law and Society* 132 (1948): "When the Areiopagos pronounced a capital sentence on a murderer it was carried out by the public executioner in the presence of the relatives of the deceased."

<sup>16</sup>Alexander & Staub, *The Criminal, the Judge, and the Public* 215 (rev. ed. 1956).

<sup>17</sup>Ehrenzweig, *supra* note 14, at 438.

<sup>18</sup>*Id.* at 428-29.

Responding to the last question first, psychoanalytic jurisprudence as a methodology for establishing space station legal regimes uses basic bio-ecological data and interprets it through techniques of psychoanalysis. In this fashion, predictive value is given to individual and community synthesis of this data into manifest judgments and conduct.

With respect to the first area of inquiry, it is important to grasp the intense difficulty of establishing interpersonal relationships in a confined, long-duration space mission carried out in an alien and synthetic life-support system. The intensity of difficulty in establishing these relationships becomes critical when Earth-formulated values and consequent legal positivisms are imposed as keystones of such interactions. Autonomic reactions and their intellectually articulated trappings, as well as the more genetically precipitated primitive drives, can become dominant in such a morpho-neurophysiological stress situation and manifest themselves as aberrant behavior patterns within the unresponsive or improper context of Earth indigenous values and judgment perspectives.

Without recognition of the bio-ecological deviations of retributory vengeance in both the individual and communal nature of man, repression of any need to express a sense of vengeful retribution could precipitate incredibly destructive violence. The need, then, is to establish a space station legal regime(s) based upon (1) cultural values peculiar to space station participants, and (2) effective reorientation of attitudes of Earth inhabitants to the alien—perhaps even abhorrent—values formulated by such space station personnel.

The second of the three areas of inquiry dealing with the essence of criminal *mens rea* and its role in legal regimes of space societies, probes such difficult problems as programmed priority of personnel expendability and survival homicide.<sup>19</sup> The importance of this area of inquiry becomes even more evident where certain activity or behavior of individuals or groups in space stations and lunar communities is criminal according to Earth indigenous values and legal positivisms, but is carried out in a predictable, repetitive fashion as essential to maintaining the space society and accomplishing its mission objectives.

#### IV. CONCLUSION

A conclusion to this type of discussion is at best offensively presumptive. On the other hand, there is nothing unacceptably presumptive in the observations that (1) interactive behavior patterns and value-forming processes of individuals in space stations and future lunar communities, may depart substantially from normative behavior and

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<sup>19</sup>See Fuller, *The Case of the Speluncean Explorers—In the Supreme Court of Newgarth*, 4300, 62 Harv. L. Rev. 616 (1949). See also, P. Read, *Alive* (1974), in which the multitude of shifting legal, political, theological, and personal attitudes surrounding the survival values adopted by the Uruguayan rugby team are described in some detail.

values of Earth indigenous communities; and (2) it would be incredibly out of step and contrary to reality to continue to consider space station and lunar community behavior patterns as simply an extension of Earth evolved value-forming processes, *i.e.*, to continue extending our own legal positivisms to all outer-space activities.

One of the principal tasks for mankind to undertake in anticipation of long-duration manned space stations, lunar communities, etc., and a task which at best has been given only cursory consideration, particularly in international fora, is the determination by general or specific consensus of just why mankind is extending his societal capabilities into outer space. Some of the obvious questions, the complete exploration of which would precede a consensus and form a good part of the complexion of consequent space legal regimes are: (1) Why does mankind wish to inhabit outer space? (2) Are the reasons strictly profit oriented? (3) Is there a genetically-compelling drive for man and society to inhabit outer space? (4) Should Earth-indigenous societies or management/control units continue to regulate or control all facets of long-duration, manned missions? (5) Regardless of any alien value-forming processes of space-station or other long-duration-flight participants, should space societies be encouraged to evolve their own cultures restricted to space existence, and develop legal regimes accordingly? (6) Should mankind consider space societies as consisting of *homo alterios* and further designate them as carriers of mankind's cultures? (7) If so, should intense efforts be undertaken to determine and select by general and/or specific consensus cultural characteristics to be carried into space and expanded upon there in a manner compatible with the realities of a unique (as opposed to hostile) space environment? (8) To what extent can and should Earth-indigenous attitudes be altered to accommodate alien—perhaps repugnant—values evolved by space societies? (9) Are these factors being considered, even in an embryonic fashion, by the United States and the Soviet Union in preparation of the Apollo-Soyuz Test Program scheduled for 1975? (10) Are Earth societies and cultures prepared to sever the umbilical with an established space society?

All of these questions and their innumerable implications must be studied and consensus reached in each case to ensure a stable framework for the evolution of Earth-Space relationships and consequent legal regimes. Biomedical and other environmental data available from the Skylab Program and related projects are sufficiently comprehensive and definitive to permit us a certain existential posture for observing and evaluating space-station societies. It is necessary not to confuse such data with amorphous, transitional issues of prevailing morality and ethic.

Such issues, as reflections of the requirements and desires of Space and Earth societies, can be observed and evaluated by the various psychoanalytic techniques available. Concisely, bio-data systems and psychoanalysis constitute two very helpful and complementary methodologies for determining the true nature of sentient space existence, the relation of such to Earth cultures, and the consequent legal regimes effectively responsive to these relationships. Psychoanalysis, at a minimum, can be an

extremely helpful tool in determining the nature of evolving separateness between space station participants and "Earth sitters."

"Umbilicals

Breaking free

Being born

Eternity . . . ."<sup>20</sup>

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<sup>20</sup>Quotation from the poem, "Cycle" in A. Worden, Hello Earth 62 (1974).

THE INFLUENCE OF COMMUNICATIONS SATELLITES  
ON NATIONAL COMMUNICATIONS LAWS AND  
REGIONAL ARRANGEMENTS IN THE AMERICAS

*Katherine Drew Hallgarten\**

The first specific United States legislation that gave official recognition to the fact that we had entered the Space Age was the National Aeronautics and Space Act of 1958<sup>1</sup> (the "NASA Act").

By February 7, 1962, space technology had advanced to the point where legislation in a particular field, the field of telecommunications, was considered necessary. On that date, President Kennedy submitted to the Congress a proposal calling for the establishment of a privately owned communications satellite corporation. The result was the Communications Satellite Act of 1962<sup>2</sup> (the "COMSAT Act").

Both of those laws contain provisions which evidence acknowledgement by the United States of the international responsibility it bears for its activities in the exploration and use of outer space.

The NASA Act provides 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,"<sup>3</sup> and cites as one of the objectives of activities thereunder, "[c]ooperation by the United States with other nations and groups of nations in work done pursuant to [the] Act and in the peaceful application of the results thereof."<sup>4</sup>

One of the earliest of the peaceful applications of those results was in the field of communications.

The COMSAT Act provides in Section 102(a) and (b) that:

(a) [I]t is the policy of the United States to establish, in conjunction and in cooperation with other countries, . . . a commercial communications satellite system, as part of an improved global communications network, . . . which will serve the communi-

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<sup>1</sup>42 U.S.C. § 2451 (1970).

<sup>2</sup>47 U.S.C. § 701 (1970).

<sup>3</sup>Sec. 102(a).

<sup>4</sup>Sec. 102(b)(7).

ation needs of the United States and other countries, and which will contribute to world peace and understanding.

(b) [I]n effectuating this program, care and attention will be directed toward providing such services to economically less developed countries and areas as well as those more highly developed, toward efficient and economical use of the electromagnetic frequency spectrum, and toward the reflection of the benefits of this new technology in both quality of service and charges for such services.

These provisions are a reflection of views expressed in Resolution 1721(XVI) adopted by the United Nations General Assembly on December 20, 1961, "that communications by means of satellites should be available to the nations of the world as soon as practicable on a global and non-discriminatory basis."<sup>5</sup>

It is the purpose of this paper to demonstrate how, with respect to communications, these provisions have been put into operation as the advance in technology has permitted ever widening activities. It will also be shown, how, in turn, technological developments have given birth to a growing body of treaties and other international arrangements, and to the enactment of national legislation in the Americas.

Long before the advent of satellite communications, international telecommunication arrangements have been entered into. In 1959 an organization which had been established in Madrid in 1932, the International Telecommunication Union (ITU), had allocated frequencies for space telecommunication purposes.<sup>6</sup> As a result of action taken at the Plenipotentiary and Administrative Conferences of the ITU in Geneva in 1959, two new radio communication services identified in article 1 of the Radio Regulations were defined as follows:

Space Service: A radio communication service between space stations.

Earth-Space Service: A radio communication service between earth stations and space stations.<sup>7</sup>

At successive ITU Extraordinary Administrative Radio Conferences more and more frequency allocations for special space services have been defined to keep pace with

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<sup>5</sup>G.A. Res. 1721, 16 U.N. GAOR Supp. 17, part D. U.N. Doc. A/5026 (1961). The resolution is entitled International Cooperation in the Peaceful Uses of Outer Space.

<sup>6</sup>See Glazer, *ITU: Through Time and in Space*, 60 Mich. L. Rev. 269, 285, note 56 (1962): "Delegates to the ITU Plenipotentiary and Administrative Conferences held in Geneva in 1959 did not hesitate to add to this classification (of the United Nations Charter and the Statute of the International Court of Justice as being not limited in their operation to the confines of the Earth), the law making treaties of the ITU."

<sup>7</sup>Radio Regulations, done at Geneva, Dec. 21, 1959, entered into force for the United States Oct. 23, 1961 [1961] 12 U.S.T. 2377, T.I.A.S. 4893.

expanded satellite communications uses.<sup>8</sup> Among allocations made in the "Partial Revision" in 1971 were those for "Broadcasting-Satellite Service" and for "Community reception (in the Broadcasting-Satellite Service)."<sup>9</sup>

These allocations are essential prerequisites for the orderly operation of the global satellite communications system envisaged by the COMSAT Act. The nature of the international arrangements which should bring that global system into being and operation was not prescribed by the Act. Thus, those arrangements were worked out through negotiations among the international participants in the enterprise, as intended. After considerable negotiation, two interrelated agreements, the "Interim Agreement" and the "Special Agreement,"<sup>10</sup> which established an international partnership for the financing, ownership and operation of the space segment of the system, were entered into. Early signatories to these agreements in the Western Hemisphere were Brazil, Argentina, Chile, Colombia, Canada, and the United States.

For a period of seven years, the International Telecommunications Consortium (INTELSAT), which was thus created operated under the mentioned arrangements. The Communications Satellite Corporation (COMSAT), the private corporation organized pursuant to the Comsat Act, furnished the technical and operating management services for INTELSAT. Pursuant to Article IX of the agreement establishing *interim* arrangements for a "Global Commercial Communications System," a conference was called in February 1969, for the purpose of negotiating *definitive* arrangements for INTELSAT. After a period of intensive negotiations over a period of almost two and one-half years, two agreements were produced: the *Agreement Relating to the International Telecommunications Satellite Organization "INTELSAT"* and the *Operating Agreement Relating to the International Telecommunications Satellite Organization "INTELSAT."*<sup>11</sup> Following

<sup>8</sup>Glazer, *supra* note 6, remarks in note 62 on page 287 that "The formal activities of the ITU in the area of space telecommunication, however, antedate the Geneva Conferences of 1959. During 1958, CCIR (International Radio Consultative Committee) Study Groups holding sessions in Moscow studied questions involving protection of frequencies used by artificial satellites."

<sup>9</sup>Partial Revision of Radio Regulations (Geneva, 1959), as amended, on Space Telecommunications, done at Geneva July 17, 1971, entered into force for the United States Jan. 1, 1973 [1973] 23 U.S.T. 1527, T.I.A.S. 7435 at 8-293.

<sup>10</sup>Agreement Establishing Interim Arrangements for a Global Commercial Communications Satellite System, August 20, 1964 [1964] 15 U.S.T. 1705, T.I.A.S. 5646. The *interim* arrangements consist of two separate but related agreements: Agreement Establishing Interim Arrangements for a Global Communications Satellite System (Interim Agreement) and a Special Agreement, done in Washington on August 20, 1964, and entered into force August 20, 1964. Provisions for settlement of disputes are contained in the Supplementary Agreement on Arbitration, done at Washington on June 4, 1965, and entered into force November 21, 1966 [1966] 15 U.S.T. 1705, T.I.A.S. 5646. The name "INTELSAT" was adopted on October 28, 1965, and appears in copies of T.I.A.S. 5646 (reprinted in January, 1967).

<sup>11</sup>Agreement Relating to the International Telecommunication Satellite Organization "INTELSAT" with Annexes, August 20, 1971, entered into force for the United States, February 12, 1973, T.I.A.S. 7532; Operating Agreement Relating to the International Telecommunications Satellite Organization "INTELSAT" with Annexes, August 20, 1971, entered into force for the United States Communications Satellite Corporation, February 12, 1973, T.I.A.S. 7532.

the pattern of the *interim* arrangements, these *definitive* arrangements consist of two separate but interrelated agreements: the Agreement, concluded among governments, and the Operating Agreement, concluded among governments or their designated telecommunications entities, public or private.

An outstanding event of the year 1973 was the entry into force of the definitive arrangements for INTELSAT on February 12. This date marked the required sixty days after December 14 when the requisite number of 54 countries had ratified the new agreements.

As of the February 12 date, 79 countries had adhered to the new agreements, and additional countries were in the process of ratification. The new organization thus superseded the partnership arrangement which had been operating since August 1964 under *interim* arrangements.

The first meeting of the Board of Governors, the governing body of the permanent INTELSAT, was held in Washington, D. C. on March 14, 1973.

No attempt will be made here to give a detailed description of INTELSAT, which has already been amply covered in legal publications, but a few remarks illustrating recent developments are in order.<sup>12</sup>

In addition to the Board of Governors, other components of a four tier structure of INTELSAT are the Assembly of Parties (Governments), Meeting of Signatories (Governments or telecommunications entities—investors in INTELSAT), and an Executive Organ responsible to the Board of Governors.

COMSAT is required to furnish technical and operating management services under a contract with INTELSAT which has a firm six year term from the time the agreements enter into force, or until February 1979. These services are to be performed under policies of the Board of Governors.

The Agreement calls for the Director General to be appointed no later than December 31, 1976. He will be responsible to the Board for all management services, including supervision thereafter of COMSAT's performance of technical and operating management services. After the expiration of the six-year term of the management contract with COMSAT, the INTELSAT organization will still continue to contract out to one or more competent entities, technical and operational management functions to the maximum extent practicable with due regard to cost and efficiency.

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<sup>12</sup>See, for instance, Mizrack, *The Impact of Communication Satellites Upon the Law: Definitive Arrangements for the International Telecommunications Satellite Organization-INTELSAT*, paper submitted on behalf of the Communications Section of the Inter-American Bar Association to the XVII Conference of the IABA at Quito, Ecuador, April 24-28, 1972. Ed. note: An elaboration of the paper may be found in 1 J. Space L. 129 (1973).



The Assembly of Parties, composed of a representative of the government of each member state, is to meet every two years, unless it determines otherwise from meeting to meeting. The Meeting of Signatories, composed of representatives of Signatories, is to take place annually. The Assembly of Parties is to provide a forum for governments to consider matters of concern to them, while the Meeting of Signatories is to consider operational matters and other matters of interest to investors and participants in INTELSAT. Voting in both the Assembly of Parties and the Meeting of Signatories is to be on the basis of one member, one vote.<sup>13</sup>

INTELSAT, the international organization which operates the global commercial communications satellite system, today provides full-time satellite service to nearly 90 countries of the world. There are satellite earth stations owned by various national entities located in 49 countries. At present, satellites are capable of providing the standard public telecommunications services. Satellites are also capable of performing numerous other services and functions, such as communications with surface ship and airborne modes of transportation, flight and maritime safety services, as well as services for remote sensing of earth resources.<sup>14</sup> While INTELSAT may provide facilities for specialized telecommunications service in space segments, it may do so only if such service does not diminish the efficient and economic operation of its regular services. Furthermore, prior authorization from the Assembly of Parties is required.<sup>15</sup>

A significant development in the United States of America was seen this year in the organizational changes made in the Communications Satellite Corporation (COMSAT) to strengthen its new roles in domestic and international satellite communications. The Federal Communications Commission's Order of December 22, 1972, which authorized COMSAT to provide domestic satellite capacity to the American Telephone and Telegraph Company (A.T. & T.) and to participate in a joint venture, also required COMSAT to establish a subsidiary to carry out its domestic programs. COMSAT has thus formed a new subsidiary, COMSAT General Corporation (COMSAT General), for all of COMSAT's U.S. domestic satellite programs, including COMSAT's providing satellite capacity to A.T. & T., and COMSAT's participation with Lockheed Aircraft Corporation and MCI Communications, Inc., in a separate corporation (CML Satellite Corporation) to develop a multipurpose domestic satellite system. COMSAT has also formed a new International System Division under which COMSAT will consolidate all of its activities related to the INTELSAT global satellite system. These include the provision of services through the global system and the U.S. earth stations, COMSAT's role as manager for INTELSAT, and COMSAT's role as the U.S. participant in INTELSAT.

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<sup>13</sup>For further details, see Mizrack, *supra* note 12.

<sup>14</sup>See statement of Arnold Frutkin, Assistant Administrator for International Affairs, National Aeronautics and Space Administration in Hearings on a General Review of International Cooperation in Science and Space Before the Subcommittee on International Cooperation in Science and Space of the House Committee on Science and Astronautics, 92d Cong., 1st Sess. 72 (1971).

<sup>15</sup>Definitive Arrangements Art. 111 (c); *supra* note 11.

In 1972 the INTELSAT IV series established a vastly expanded, global system. From the single satellite pathway linking experimental earth stations in four countries at the time of INTELSAT I, the network of earth stations around the world by the end of 1972 included 80 antennas at 75 station sites in 49 countries which provide for more than 225 satellite pathways. These satellite pathways carry more than two-thirds of all long-distance international communications; provide high quality telephone service to many countries not reached by cable; and make it possible for one out of every four people on earth to see an important event on TV as it happens, live via satellite.

Before discussing the extent of participation by the countries of the Americas in the use of communications satellites and the accompanying legal developments, it may be well to take a backward glance.

Shortly before the commencement of the Space Age, certain events were taking place in the Americas that, unwittingly or not, were creating an organizational structure which was to facilitate the participation of the Americas in satellite communications. Those events culminated in the First Meeting of the Inter-American Telecommunications Commission (CITEL) convoked upon the invitation of the Executive Secretary of the Inter-American Committee on the Alliance for Progress. One of the resolutions adopted at that First Meeting was concerned with exploring the possibilities for regional cooperation within the Latin American countries for the establishment and financing of ground stations that would be used with the communications satellite system to serve the communications requirements of Central and South America.<sup>16</sup>

The extraordinary technological development in communications media in the Americas, as exhibited in the increasing use of satellites for communications in Latin America, has been paralleled by the continued activities of the Inter-American Telecommunications Conference (CITEL), the successor to the temporary Commission mentioned above.<sup>17</sup> The first meeting of the Permanent Executive Committee of that body (COM/CITEL) in Caracas, Venezuela, February 2-4, 1972,<sup>18</sup> was followed by a second period of sessions in Mexico City, Mexico, October 23-27, 1972,<sup>19</sup> and a third, in Rio de Janeiro, Brazil, July 9-13, 1973.<sup>20</sup> At the same time, the first meetings were held of the Permanent Technical Committee IV on Special Services and Radioelectric Spectrum, and

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<sup>16</sup>CITEL resolution 13/65 of the First Meeting of the Inter-American Telecommunications Commission (CITEL).

<sup>17</sup>The First Inter-American Telecommunications Conference was held concurrently with the VI (and last) Meeting of the Inter-American Telecommunications Commission in Caracas, Venezuela, in 1971.

<sup>18</sup>Final Act, OEA/Ser. L/XII COM/CITEL/12 rev. (28 febrero 1972; original in Spanish).

<sup>19</sup>Final Report, OEA/Ser. L/XII COM/CITEL/39 rev. 2 (18 enero 1973; original in Spanish).

<sup>20</sup>Final Act, OEA/Ser. L/XII COM/CITEL (30 agosto 1973; original in Spanish).

of the Permanent Technical Committee II on Radio Broadcasting.<sup>21</sup>

The following countries are members of COM/CITEL: Argentina, Brazil, Costa Rica, Chile, Ecuador, Guatemala, Panama, the United States of America, and Venezuela.<sup>22</sup>

The ITU has actively cooperated with CITEL throughout the years. For example, the ITU Seminar on the Planning of Broadcasting Systems opened on Monday, June 11, 1973 at Sao Paulo, Brazil.<sup>23</sup> There were participants from 28 countries of Latin America and the Caribbean. This Seminar was the first concrete result of the work of Committee II of CITEL. The Seminar took place at a most appropriate time, when the Latin American and Caribbean countries, after several years of experience, were feeling the need to examine the structures of their broadcasting services. Joint efforts are required to provide broadcasting in Latin America with the technical conditions needed to function more and more efficiently as a means of information and *rapprochement* between countries. The main objective of the Seminar was the dissemination of information and the improvement of techniques.<sup>24</sup>

One of the principal duties of CITEL is to promote or undertake studies for organizing the orderly development of telecommunications networks. (Art. 3, subpar. c, CITEL draft regulations).<sup>25</sup>

The important role which the ITU plays in the development of communications of the Americas was made manifest by a resolution adopted at the Third Meeting of COM/CITEL, the permanent executive committee of CITEL.<sup>26</sup> In the resolution it was recommended that all the member countries of CITEL support, at the conference of Plenipotentiaries of ITU in Málaga-Torremolinos, Spain, in September 1973, replacement of the present ITU Convention with a Charter which sets forth basic principles that meet the needs of the member countries, particularly the developing countries.<sup>27</sup> That conference ended on October 25, 1973 and a report on the final action taken there has not yet

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<sup>21</sup>Final Report, OEA/Ser. L/XII, CITEL/COM. IV/19 rev. (11 enero 1974; original in Spanish). Final Report, OEA/Ser. L/XII, CITEL/COM. II/18 rev. 2 (21 enero 1974; original in Spanish).

<sup>22</sup>Res. CITEL-41/71. For text, see Final Act of the First Inter-American Telecommunications Conference, OEA/Ser. K VI 7-1 CITEL/57 rev. (28 enero 1972; original in Spanish).

<sup>23</sup>Press Release, ITU/73-24 (June 18, 1973).

<sup>24</sup>*Id.*

<sup>25</sup>Art. 3 subpar. (c) of CITEL draft regulations, see OEA/Ser. K/VI. 7.1 CITEL/5 (July 19, 1971; original in Spanish).

<sup>26</sup>Res. COM/CITEL 14/73. For text, see Final Act of the Third Meeting of COM/CITEL, *supra* note 20.

<sup>27</sup>*Id.*

become generally available.<sup>28</sup>

Another agency of the ITU in Latin America is the Regional Plan Committee for Latin America which is charged with the responsibility of assisting the development of telecommunications in Latin America. It met in Brasilia from June 25 to July 6, 1973. This Plan Committee is a joint committee of the International Telegraph and Telephone Consultative Committee (CCITT) and the International Radio Consultative Committee (CCIR), which are permanent organs of the International Telecommunication Union.<sup>29</sup>

Some 150 delegates, representing the countries of Latin America, and other administrations as well as recognized private operating agencies particularly interested in the region's network, attended the meeting. The purpose of the meeting was to draw up the outline of a General Plan for the Latin-American telecommunications network covering the years 1974, 1976, and 1982. The Plan is intended to help telecommunication administrations and recognized private operating agencies to improve international services.<sup>30</sup>

Consideration was given at the meeting to requests from the World Meteorological Organization (WMO), the International Civil Aviation Organization (ICAO), and the International Air Transport Association (IATA) concerning their leased circuit requirements.<sup>31</sup>

The ITU has also collaborated actively with UNESCO in the implementation of a project for studying the possibility of a regional educational telecommunication network for certain South American countries.<sup>32</sup> The legal basis for the use of satellites for such purposes was laid at the World Administrative Radio Conference on Space Telecommuni-

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<sup>28</sup>The ITU Plenipotentiary Conference is the supreme organ of the Union responsible for revising the International Telecommunication Convention and making such changes in the structure of the Union as may prove necessary in the light of telecommunication developments. In this connection, see Leive, *The Future of the International Telecommunications Union*, in *American Society of International Law, Studies in Transnational Legal Policy*, No. 3 (1972). Among the recommendations made in that study, at 4, are that "the 1973 Plenipotentiary Conference should adopt a permanent Constitution, but it should not do so before making basic changes in the Union structure," that "Measures should be taken to enhance the participation of the developing countries in the ITU," and that "Deficiencies in the law-making process of the Administrative Conference and in the comprehensibility and usefulness of the resulting product should be corrected."

<sup>29</sup>Press Release, ITU/73-24 (June 15, 1973).

<sup>30</sup>*Id.*

<sup>31</sup>*Id.*

<sup>32</sup>See "Report by the United Nations Educational, Scientific and Cultural Organization" (UNESCO) to the Committee on the Peaceful Uses of Outer Space, Working Group on Direct Broadcast Satellites, Fourth Session, U.N. Doc. A/AC.105/W6.3/L.5 at 6 (1973).

cations (WARC) in Geneva, Switzerland in 1971.<sup>33</sup> Among the legally binding rules adopted by participating states to which WARC gave approval was the allocation of narrow bands for distribution of radio/television programs to community type earth stations for educational and public service functions in remote regions. The educational and public service is to be limited to domestic or regional uses, and is required to be coordinated with adjacent countries if there could be interference with their terrestrial radio links.<sup>34</sup>

The principle that "Each country has the right to decide on the content of the educational programmes broadcast by satellite to its people, and, in cases in which such programmes are produced in co-operation with other countries, to take part in their planning and production on a free and equal footing" is expressed in Article VI of the UNESCO "Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange." This Declaration of Principles was proclaimed by the General Conference of UNESCO at its seventeenth session (October-November 1972).<sup>35</sup> Also of importance are Article X of the Declaration which states the principle that "In the preparation of programmes for direct broadcasting to other countries, account shall be taken of differences in the national laws of the countries of reception," and Article IX, par. 1, which states: "In order to further the objectives set out in the preceding articles, it is necessary that States, taking into account the principles of freedom of information, reach or promote prior agreements concerning direct satellite broadcasting to the population of countries other than the country of origin of the transmission."<sup>36</sup>

The adoption of principles such as that stated in Article IX, par. 1, has been proposed as a step toward solving the problem of protecting broadcast signals transmitted by satellite against unauthorized retransmission. This matter has been the subject of active and thorough scrutiny by UNESCO since 1971. This question is closely linked to the interrelated problems of copyright and of the so-called "neighboring rights" (the rights of performers, record producers, and broadcasters).

The committee of governmental experts which had been convened by the General Conference of UNESCO and the Permanent Committee of the Berne Copyright Union, the Directors-General of UNESCO and the World Intellectual Property Organization

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<sup>33</sup>Partial Revision of Radio Regulations and Final Protocol: Space Telecommunications, signed at Geneva, July 17, 1971, entered into force January 1, 1973, T.I.A.S. 4735.

<sup>34</sup>*Id.*

<sup>35</sup>The text of the Declaration, together with a letter of transmittal to the Secretary General of the United Nations from the Director General of UNESCO are produced in U.N. Doc. A/AC.105/109 (1973).

<sup>36</sup>*Id.* See also the text of the Draft Convention of Freedom of Information, Arts. 1-4 as adopted by the Third Committee of the General Assembly at its thirteenth session, U.N. Doc. A/AC.105/WG.3/L.2, Annex I (1973). (Articles 5-19, at the time not yet considered by the Third Committee were reproduced as Annex II).

(WIPO) in 1971 had a second meeting at UNESCO headquarters in Paris from May 9 to 17, 1972.<sup>37</sup> At the close of this session, the Committee adopted a resolution recommending that after the secretariat of UNESCO and WIPO had prepared explanatory notes on the draft convention drawn up at the first meeting of the Committee, and comments had been obtained from governments and interested organizations, a third Committee should be convened in 1973.<sup>38</sup>

The third Committee of Governmental Experts was convened in Nairobi in July 1973. That committee concluded that there should be a new "Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite" and that a diplomatic conference be held in 1974 to formulate such a Convention. A draft Convention was prepared by the committee at the meeting in Nairobi. The basic purpose is set forth in Article 1 which provides:

(1) Each Contracting State undertakes to take all appropriate measures to prevent the distribution on or from its territory of any programme-carrying signal by any distributor for whom the signal emitted to or through the satellite is not intended. This obligation shall apply where the originating organization is a national of another Contracting State and where the signal distributed

(i) is the emitted signal or is derived therefrom, or

(ii) is derived from a fixation of the emitted signal or of a signal derived therefrom.

(2) The obligation provided in paragraph (1) shall not apply to the distribution of signals derived from signals which have already been distributed by a distributor for whom the emitted signals were intended.<sup>39</sup>

Article 4 excepts from operation of the Convention excerpts consisting of current events or short quotations "compatible with fair practice," but only to the extent justified by the informatory purpose of such excerpts. It also makes exceptions for developing countries as applied to teaching and scientific research.

Article 6 safeguards the rights of authors. It provides:

This Convention shall in no way be interpreted to limit or prejudice the protection secured to authors, performers, producers of phonograms, or broadcasting organizations, under any domestic law or international agreement.<sup>40</sup>

There is also a suggestion that the Convention may include an express provision concerning monopolies. Article 7 provides (the brackets indicate that there was a division of opinion on this among the experts):

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<sup>37</sup>For the Report by UNESCO, see U.N. Doc. A/AC.105/WG. 3/L.5 (1973).

<sup>38</sup>*Id.*

<sup>39</sup>Informal report in the files of the author. Official report not available at time of writing.

<sup>40</sup>*Id.*

This Convention shall in no way be interpreted as limiting the right of any Contracting State to apply the domestic law in order to prevent [international abuse of monopolies.]<sup>41</sup>

Inasmuch as the status of cable television under domestic law is not clear in some countries, Article 11 provides in part:

(3) (a) Any Contracting State which, on the date on which this Convention enters into force for that State, limits or denies protection with respect to the distribution of programme-carrying signals by means of wires, cable or other similar communications channels to subscribing members of the public may, by a notification deposited with the Secretary General of the United Nations, declare that, to the extent that and as long as its domestic law limits or denies protection, it will not apply this Convention to such distributions [, provided that:

(i) the distribution in question takes place simultaneously with or after a distribution of the programme-carrying signals by wireless means on the territory of the State, or

(ii) if the distribution in question is derived from a distribution made by the satellite itself, the signal can be received by the general public in that State, or any section of that public.]

(b) Any State that has deposited a notification in accordance with sub-paragraph (a) shall notify the Secretary-General of the United Nations, within six months of their coming into effect, of any changes in its domestic law whereby the reservation under that sub-paragraph becomes inapplicable or more limited in scope.<sup>42</sup>

It seems that the draft convention is somewhat of a compromise among the interests of broadcasters, authors, performers, phonograph manufacturers, and performers. There was apparent unanimity to the effect that poaching on satellite signals should be condemned, but there was no unanimity as to who among the group mentioned should have what rights of enforcement. Accordingly, such remains to be done at the diplomatic conference.

The need for preparation of an international convention on principles governing the more general subject of the use by states of artificial earth satellites for direct television broadcasting was the subject of Resolution 2916(XXVII), adopted on November 9, 1972, by the General Assembly of the United Nations. The recorded vote showed 102 States for the Resolution, 1 against (the United States of America), and 7 abstentions. American countries voting in favor of the Resolution were Argentina, Bolivia, Brazil, Canada, Chile, Costa Rica, Cuba, El Salvador, Guatemala, Jamaica, Mexico, Panama, Paraguay, Peru, Uruguay, and Venezuela. Nicaragua was the only American country abstaining. Absent were Colombia, the Dominican Republic, Ecuador, Haiti, and Honduras.<sup>43</sup>

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<sup>41</sup>*Id.*

<sup>42</sup>*Id.*

<sup>43</sup>U.N. Gen. Ass., Off. Rec., Report of 2081st plenary meeting, Nov. 9, 1972; agenda item 37 (1972).

Resolution 2916 requests the Committee on the Peaceful Uses of Outer Space to undertake "as soon as possible" the elaboration of "principles governing the use by States of artificial earth satellites for direct television broadcasting with a view to concluding an international agreement or agreements."

The United States gave its reasons for being opposed to Resolution 2916, among which were its opinion that the Resolution as drafted did not put sufficient emphasis on the central importance of the free flow of information and ideas in the modern world. It noted lack of the Resolution's mention of the Universal Declaration of Human Rights, among the international legal instruments referred to, as forming a basis for the Resolution. The United States expressed its willingness to have the matter studied in the Outer Space Committee, but stated that it was not ready "at this juncture" to agree that the goal of the study ought to be either principles or a treaty.<sup>44</sup>

A related resolution, 2917(XXVII), also adopted on November 9, 1972, noted that "the work done on the draft Convention on Freedom of Information and deliberations thereon in the General Assembly may be useful in the discussions and elaboration of international instruments or United Nations arrangements relative to direct television broadcasts" with the use of artificial earth satellites. The vote on this resolution was 65 in favor, 9 against, and 32 abstentions.<sup>45</sup>

The technical feasibility of communication by direct broadcast from satellites and the current and foreseeable developments in this field, including comparative user costs and other economic considerations, as well as implications of such developments in the social, cultural, legal, and other areas, was studied at the fourth session of the Working Group on Direct Broadcast Satellites of the Committee on the Peaceful Uses of Outer Space at the United Nations Headquarters, New York, between June 11 and 22, 1973, under the chairmanship of Ambassador Olof Rydbeck of Sweden.<sup>46</sup> The countries of the Americas represented at that meeting were Argentina, Canada, Mexico, and the United States of America. Representatives of the Food and Agriculture Organization (FAO), the International Telecommunication Union (ITU), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the European Space Research Organization (ESRO) also attended the session. Among the views expressed by the Working Group was the view that further studies and experimentations were required in the technical and economic aspects of direct broadcast satellites, with particular reference to their use on a regional basis, so that this newly emerging technology could be of the widest possible benefit to the international community.<sup>47</sup>

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<sup>44</sup>U.N. Doc. A/PV 2081 (1972).

<sup>45</sup>U.N. Gen. Ass., Off. Rec., Report of 2081st plenary meeting Nov. 9, 1972; agenda item 37

<sup>46</sup>U.N. Doc. A/AC.105/117 (1973).

<sup>47</sup>*Id.*



Certain delegations at the meeting expressed the view that international legal norms regarding illegal programs already existed and that they stemmed from principles contained in United Nations and other international agreements; other delegations expressed the view that States may utilize the means at their disposal in order to counteract direct broadcasts from satellites which are considered illegal. Still other delegations took the view that settlement of differences should, in all cases, be sought through established procedures for settlement of disputes, such as conciliation, mediation, arbitration, or judicial settlement.<sup>48</sup>

At a general level, the Working Group reaffirmed the applicability to satellite broadcasting of such binding instruments as the United Nations Charter. They concluded that the Outer Space Treaty, the Liability Convention, the International Telecommunication Convention, and Radio Regulations are applicable also. Account should also be taken of the Declaration on Friendly Relations, the United Nations Declaration of Human Rights, the UNESCO Declaration on Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, Spread of Education and Greater Cultural Exchange, and General Assembly Resolution 1721(XVI).<sup>49</sup>

In light of the various views expressed, the Working Group recognized that, in the elaboration of principles governing direct television broadcasting by satellites, it would be essential to harmonize the various interests involved and establish an appropriate and realistic balance between the protection of sovereign rights of States, the principle of the free flow of communications, and the facilitation of other obvious benefits for all countries which this important new technology could offer.<sup>50</sup>

The discussions of the Working Group with regard to further elaboration of legal norms were summarized as follows in the Group's report:

—international principles of a binding character should, in the opinion of some delegations, be formulated and adopted as soon as possible before satellite broadcasting has come into extensive use;

—referring to Resolution 2916(XXVII), other delegations felt that it would be timely to adopt fundamental legal principles at the international level to be supplemented by specific agreements at the bilateral or regional levels as may be required;

—the view was also advanced that it would be premature at this stage to elaborate and adopt globally applicable principles; also, further study was needed concerning regional approaches which might involve States and broadcasting agencies or unions; and further analysis of basic assumptions underlying future principles was required;

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<sup>48</sup>*Id.*

<sup>49</sup>*Id.*

<sup>50</sup>*Id.*

—in the discussion, a further view was advanced according to which action might best be undertaken in distinct phases: in a first stage, principles should be adopted in an appropriate form, and, in a second stage, these principles might form the basis for the elaboration of later binding agreements in a form to be decided.<sup>51</sup>

As far as the Americas are concerned, it is interesting to note that in a paper submitted by the Governments of Canada and Sweden to the Working Group, there was a description of the Brazilian educational satellite system, designed to provide educational and communications services.<sup>52</sup> There was also a description of an experimental project begun in 1971 by the Canadian Department of Communications in cooperation with NASA.<sup>53</sup>

Canada now has the first communications satellite system solely for domestic needs, with two satellites making it possible for the whole country, including remote Arctic regions, to have a 24-hour dial telephone service and to watch national television programs. Canada is also active in the use of satellites for remote sensing.<sup>54</sup>

There are many legal problems still to be solved in connection with the use of remote sensing satellite surveys of earth resources.

In 1970 Argentina submitted to the Legal Sub-Committee of the United Nations Committee on the Peaceful Uses of Outer Space a "Draft International Agreement on Activities Carried Out Through Remote-Sensing Satellite Surveys of Earth Resources."<sup>55</sup> This draft noted that surveys using such satellites raised urgent legal problems. The draft agreement provides for the "internationalizing" under an international body of such surveys and the establishment of a data bank to that end. The information stored in the data bank would be disseminated on a worldwide basis, with special reference to the interests and needs of developing countries. At the same time, in recognition of the right of each nation to freely distribute its own natural resources, the draft provides that the exploitation of the natural resources of each State in "its territory and jurisdictional waters" shall be governed by national laws and regulations. Provision is made for efforts to be made by means of international agreements to improve the distribution of the resources.<sup>56</sup>

The Argentine proposal was followed in April 1973, by a proposal made by the Union of Soviet Socialist Republics. The U.S.S.R. submitted a Model Draft of Principles

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<sup>51</sup>*Id.*

<sup>52</sup>U.N. Doc. A/AC.105/W.G.3/L.4 (1973).

<sup>53</sup>U.N. Doc. A/AC.105/115 at 3-4 (1973).

<sup>54</sup>U.N. Press Release OS/537 (May 8, 1973).

<sup>55</sup>U.N. Doc. A/AC.105/C.2/L.73 (1970).

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

Governing the Use of Space Technology by States for the Study of Earth Resources.<sup>57</sup> The fourth principle provides that a State which makes use of space technology for the purpose of studying the natural resources of the earth shall be required to transmit the information so obtained to the State from which it was obtained. The fifth principle provides that a State so obtaining such information shall not be entitled to make it public or transmit it to third States or international organizations without the "clearly expressed consent" of the State to which the natural resources belong, "nor shall it be entitled to use the information in any other manner to the detriment of the latter state."<sup>58</sup>

Bilateral arrangements with Mexico and Brazil have been used by the United States National Aeronautics and Space Administration (NASA) for its Earth Resources Satellite (ERS) program in the aircraft phase of its program. Provisions in these arrangements follow NASA guidelines which recognize the interests of United States and foreign scientists, establish a basis for sound programs of mutual value, and contribute substantively to the objectives of international cooperation. The guidelines provide for:

- (1) Designation of each participating government of a central civilian agency for the negotiation and supervision of joint efforts;
- (2) Agreement upon scientific projects rather than generalized programs;
- (3) Acceptance of financial responsibility by each participating country of its own contributions to joint projects.
- (4) Projects of scientific validity and mutual interest;
- (5) General publication of scientific results.<sup>59</sup>

The legal aspects of remote sensing were considered when the Scientific and Technical Sub-Committee of the U.N. Committee on the Peaceful Uses of Outer Space held its Tenth Session in May 1973. Members of the Sub-Committee represent the following countries of the Americas: Argentina, Brazil, Canada, Mexico, and the United

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<sup>57</sup>Proposal Relating to the Activities Carried Out Through Remote Sensing Satellite Surveys of Earth Resources, U.N. Doc. A/AC.105/C.2/L.88 (1973). In its Report of February 14, 1973, on the work of its Second Session, the Working Group on Remote Sensing of the Earth by Satellites declared *inter alia* that the many unknowns still existing in experimental scientific and technical development made the formulation of concrete suggestions or recommendations on the substance of legal matters at this stage difficult. However, a number of delegations considered that broad and systematic examination of the legal implications of remote sensing by satellites was necessary, and documents such as the Soviet preliminary draft were submitted. See U.N. Doc. A/AC.105/111 (1973).

<sup>58</sup>U.N. Doc. A/AC.105/C.2/L. 88 (1973).

<sup>59</sup>Senate Comm. on Aeronautical and Space Sciences, "International Cooperation in Outer Space: A Symposium," edited by E. Galloway, S. Doc. No. 92-57, 92nd Cong., 1st Sess. 25 (1971). NASA's international programs are listed on pages 26-50.

States of America.<sup>60</sup> A highlight of the discussions at this meeting was the Soviet Model Draft mentioned above.<sup>61</sup>

On the legal aspects of remote sensing of the earth by satellites, the French representative said that this new technology could be dangerous and could create tensions between states if it were developed without control or international regulation, and that remote sensing should be carried out in accordance with legal principles.<sup>62</sup> He recalled that in the Working Group his delegation had spoken in support of the principles proposed by the Soviet Union to govern the activities of states in this field. Since then, he said, his delegation had formulated additional principles which it would present as an extension of the Soviet proposal.<sup>63</sup> Among the points covered were prior notification to the "sensed" states and information to the Secretary-General of the United Nations on sensing activities. The French draft also referred to the sensing of areas not under any national sovereignty.<sup>64</sup>

Other views expressed at this meeting may be summed up as follows: existing legal instruments are not sufficient to deal with this new technology. It is essential to ensure that sovereign rights of states are not infringed upon (Austria). It is absolutely necessary to obtain the prior consent of the "sensed" state. Moreover, the "sensing" state has an obligation to communicate the results to the other state (Morocco). In addition to the need for prior consent of the "sensed" state, the "sensed" state should be in charge of the interpretation of the data on its own territory, although it could agree to joint or regional interpretation (Argentina).<sup>65</sup>

Another issue referred to in the discussion at the Tenth Session was the question of establishing a task force to study the alternatives for the dissemination and use of environmental and resource data, with special reference to the needs of the developing countries.<sup>66</sup>

At the conclusion of the Tenth Session of the Outer Space Scientific and Technical Sub-Committee a report to the Outer Space Committee was adopted. The report recom-

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<sup>60</sup>U.N. Press Release OS/535 (May 7, 1973).

<sup>61</sup>See note 57 *supra*.

<sup>62</sup>U.N. Press Release OS/541 (May 10, 1973).

<sup>63</sup>*Id.*

<sup>64</sup>*Id.* The United States Representative saw the prospect of a gap of a year or more between ERTS-1 and a second earth resources technology satellite now planned for launching in 1976 by the United States. After a second one, he said, there were no further plans relating to ERTS satellites for an operational system.

<sup>65</sup>U.N. Press Release OS/542 (May 11, 1973).

<sup>66</sup>*Id.*

mends endorsement by the parent Committee of the proposal by the Working Group on Remote Sensing of the Earth by Satellites that a task force of the Working Group be established to study and report on the alternatives for dissemination and optimum use of environmental and resources data from remote sensing, keeping in mind the data requirements of the developing countries.<sup>67</sup>

Annexed to the report is the text of a questionnaire recommended for circulation to Member States, along with background material, seeking information on their present use of remote sensing data, their potential uses of such data, and their views on the organizational and legal aspects of remote sensing.

From the studies and arrangements that have been discussed, we already have some hint of the views which may be expressed as to such organizational and legal aspects.

As we have seen, international bodies concerned with satellite communications, particularly when used for educational and remote sensing purposes, have concluded that in many instances, for technical as well as economic reasons, regional arrangements are advisable. There are instances, however, as we have seen from examples cited, when bilateral arrangements are preferred for the execution of certain scientific programs.

Technological advances in communications have fostered not only international and regional arrangements, but also the revision of or enactment of new national laws by the countries of the Americas. In the United States, to name but one instance, we have the COMSAT Act. In other countries of the Americas the establishment of earth stations for satellite communications has brought forth new laws. Satellite communications operations have, in turn, prompted expansion of terrestrial communications with an accompanying influence on national laws.

Canada, for example, has a "Telesat Canada Act" under which a company with share capital is incorporated as "Telesat Canada." The objects of the company are to establish satellite telecommunication systems, providing telecommunication services on a commercial basis between locations in Canada.<sup>68</sup>

In Brazil, pursuant to legislation enacted in 1962, there was established within the Ministry of Communications an autonomous entity known as EMBRATEL (Empresa Brasileira de Telecomunicações). One of its purposes is to facilitate participation by Brazil in the global communications satellite system.<sup>69</sup>

To cite but one more example, in Bolivia, there was created in 1965, an organization known as ENTEL (Empresa Nacional de Telecomunicaciones), whose purpose is to

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<sup>67</sup>U.N. Press Release, OS/550 (May 18, 1973).

<sup>68</sup>Telesat Canada Act, c. T-4 Revised Statutes of Canada (1970).

<sup>69</sup>Lei No. 4.117 (Codigo Brasileiro de Telecomunicacoes), de 27 de agosto de 1962.

provide Bolivia with an efficient and modern telecommunications system.<sup>70</sup> The Director General of Telecommunications is the President of ENTEL. Under an agreement between Bolivia and Argentina known as "ACTA DE SALTA" (the Act of Salta), Bolivia, acting through ENTEL, enjoys worldwide communications through the Balcarce earth station in Argentina.<sup>71</sup> Thus, in May 1971, Bolivia inaugurated international telegraph services via satellite.<sup>72</sup>

Because of limitations of space, no attempt has been made to consider these laws in detail. Such laws are, however, being given detailed study by the Communications Section of the Inter-American Bar Association's Committee VII. Under the sponsorship of the Inter-American Bar Foundation the Section is carrying out a project for preparing digests of the communications and related laws of the Americas. It is hoped eventually that these digests will be published in a looseleaf service to be kept up to date periodically.

Man's ingenuity in outer space constantly challenges the law to match that ingenuity here on Earth.

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<sup>70</sup>Decreto Supremo, No. 07441 de 22 diciembre 1965, as amended.

<sup>71</sup>Informe de "ENTEL-BOLIVIA" a la Sexta Conferencia Interamericana de Telecomunicaciones (CITEL), OEA/Ser. H/XIII, CIES/Com X/465 at 471 (8 septiembre 1971; original in Spanish).

<sup>72</sup>*Id.* at 53.

Dr. Ernst Fasan\*

## I. INTRODUCTION

The law of outer space has introduced a new term into legal language; it is the term, "mankind." This short survey will attempt to define the legal meaning of this term as it relates to outer space.

Mankind, Humanité, Menschheit, Humanitas, is at first, like every noun, a piece of language, and as such, it is a term with a semantic meaning. This meaning is not difficult to grasp; "mankind" is the notion for the whole of all human beings, the whole of humanity. The question is, therefore, whether there is a special *legal* meaning for the term "mankind;" that is, whether "mankind," the "societas humana" of Cicero,<sup>1</sup> is really a legal notion of its own, and if so, in what sense.

## II. USE OF THE TERM IN OUTER SPACE TEXTS

As early as 1956, Haley claimed that outer space should be utilized only for the benefit of all mankind,<sup>2</sup> and one year later Ikeda demanded that outer space be opened "to all humanity."<sup>3</sup> When in 1959, Soviet Premier Khrushchev was asked about the legal consequences of the successful impact by Lunik 2 on the moon, he stated:

We regard the sending of the rocket into outer space and the delivering of our pennant to the moon as our achievement, and by this word "our", we mean the countries of the entire world, *i.e.*, we mean that this is also your achievement and the accomplishment of all the people living on earth [emphasis added].<sup>4</sup>

Yet, one year before 1959, the United Nations began to use the term "mankind" in an obviously special sense. On December 13, 1958, the United Nations General Assembly recognized "the common interest of mankind in outer space."<sup>5</sup> On December 15, 1959,

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<sup>1</sup>De Officiis I, c. 7.

<sup>2</sup>Haley, Basic Concepts of Space Law, 26 Jet Propulsion 951 (1956).

<sup>3</sup>Ikeda, Who Owns Outer Space?, Bungei Shunju 4 (1957).

<sup>4</sup>See G. Gál, Space Law 189 (1969) [hereinafter cited as Gál].

<sup>5</sup>U.N. G.A. Res. 1348/XIII (1958).

the General Assembly went further, recognizing "the common interest of *mankind as a whole* [emphasis added] in furthering the peaceful use of outer space," and expressing the belief "that the exploration and use of outer space should be only for the betterment of mankind . . . ."<sup>6</sup>

A special landmark for the development of space law was United Nations Resolution 1721/XVI of 1961, which prohibited national appropriation in outer space and applied international law to outer space and celestial bodies. This resolution also recognized the common interest of mankind in the peaceful uses of outer space and stated that space exploration and use should only be for the betterment of mankind.<sup>7</sup> The United Nations Resolution of October 17, 1963, repeated the phraseology of the preceding resolution,<sup>8</sup> as did the Resolution of December 12, 1963.<sup>9</sup> However, the Resolution of December 12, 1963, went further. It was inspired "by the great prospects opening up before mankind as a result of man's entry into outer space." It stated the belief "that the exploration and use of outer space should be carried on for the betterment of mankind" and solemnly declared as the first principle for space use and exploration that: "The exploration and use of outer space shall be carried on for the benefit and in the interests of all mankind."<sup>10</sup> It declared in a subsequent principle that: "States shall regard astronauts as *envoys of mankind* [emphasis added] . . . ."<sup>11</sup>

The space treaties were formulated in pursuance of and based upon these General Assembly Resolutions. Thus the Outer Space Treaty of January 27, 1967, states:

- a) that "all mankind" has a "common interest" in "the progress of the exploration and use of outer space for peaceful purposes;"
- b) that "the exploration and use of outer space should be carried on for the benefit of all peoples" (which is a new formulation broadening the idea of the whole of mankind);
- c) that "the exploration and use of outer space, including the moon and other celestial bodies . . . shall be the province of all mankind [emphasis added] (this seems to be a very basic and important concept);" and

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<sup>6</sup>U.N. G.A. Res. 1472/XIV (1959).

<sup>7</sup>U.N. G.A. Res. 1721/XVI (1961), see § A.

<sup>8</sup>U.N. G.A. Res. 1884/XVIII (1963).

<sup>9</sup>U.N. G.A. Res. 1962/XVIII (1963).

<sup>10</sup>*Id.*, principle no. 1.

<sup>11</sup>*Id.*, principle no. 9.



d) that astronauts will be regarded "as envoys of mankind."<sup>12</sup>

On July 20, 1969, United States astronauts successfully landed on the Moon. Neil Armstrong's first words upon stepping from the Lunar Module onto the surface of the Moon, *i.e.*, the first words of an envoy of mankind expressed after walking upon another celestial body, were: "That's one small step for a man. One giant leap for mankind."<sup>13</sup>

Having been introduced by space law, the term "mankind" was also used in the U.N. General Assembly Resolution of December 17, 1970, which states that:

The sea-bed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction (hereinafter referred to as the area), as well as the resources of the area, are the common heritage of mankind [emphasis added].<sup>14</sup>

### III. INDICATIONS OF A NEW LEGAL DEVELOPMENT

The quoted passages of international treaties and United Nations General Assembly Resolutions cannot be deemed to be mere eulogy, phrases without any legal meaning. In law, and especially in the legal language of such a supreme body as the United Nations, every word counts; "*even . . . general formulae have their meaning* (emphasis added)."<sup>15</sup> Following this trend of thought, space legal literature has clearly expressed that "mankind" really means "MANKIND," and that this very mankind really benefited from the new legal field of space law. To repeat, mankind—mankind *per se*—acquired something from space law. In support of this point, some recent statements from outstanding space lawyers are presented. Zhukov states that the scientific exploration of outer space shall serve toward a better standard for all mankind; outer space is deemed the domain of the whole of mankind.<sup>16</sup> He states that the successes of some countries shall serve the whole of mankind.<sup>17</sup> Jenks dedicates one entire chapter to "space as a common interest of mankind." He states:

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<sup>12</sup>Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, January 27, 1967, [1967, pt. 3] 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 (effective October 10, 1967). See Preamble, Article I, and Article V.

<sup>13</sup>Apollo XI mission to the Sea of Tranquility, the Moon. Statement made at 9:52 P.M. C.D.T. July 20, 1969.

<sup>14</sup>U.N. G.A. Res. 2749/XXV (1970).

<sup>15</sup>See M. Lachs, *The Law of Outer Space* 117 (1972) [hereinafter cited as Lachs]; H. Lauterpacht, *The Development of International Law by the I.C.J.* 227 (1958).

<sup>16</sup>G. Zhukov, *Space Law* 39 (1966) [hereinafter cited as Zhukov].

<sup>17</sup>*Id.* at 41.

Whether the law applicable in space is a projection of the law of a world community in which the law is in a *phase of vigorous growth reflecting that of the community itself* [emphasis added] or a limited body of rules binding only by specific assent, may be of fundamental importance; the principle of the common interest of mankind in space answers these questions in favour of interdependence and growth.<sup>18</sup>

His opinion on the notion that astronauts are envoys of mankind is very strong when he says:

Presumably an "envoy of mankind" can act as such only on behalf of mankind; he cannot therefore, in his capacity as an "envoy of mankind," exercise the public authority of a particular State on its behalf, by any symbolical taking of possession as an assertion of a claim of sovereignty (in any case prohibited elsewhere in the Declaration) or in any similar way.<sup>19</sup>

Zhukov criticizes the strong opinion of Jenks.<sup>20</sup> However, he himself deals with the notion of mankind openly. Gal discusses the notion of space exploration and use as being the joint venture of all mankind and therefore deems outer space to be a *res communis omnium*.<sup>21</sup>

The anthropothenic character of the law of outer space is the obvious result of man's being its sole architect. Far from reducing, this increases his responsibilities. Not only must he see to it that the law be established in the interest of mankind as a whole, and prevent whatever dangers human action in outer space may produce to life and security on our globe, but he is also bound to provide adequate safeguards to ensure that nothing be done to upset the balance of nature or possibly jeopardize non-terrestrial life whether or in whatever the form in which it may exist.<sup>22</sup>

Sometimes he sees in the notion of "all mankind" a substitute for all countries,<sup>23</sup> and sometimes a substitute for "all peoples."<sup>24</sup> However, he later writes:

In view of the far reaching consequences implicit in outer-space activities, it is the more imperative that adequate legal safeguards should be developed in good time, in order to protect the rights and interests of all concerned—and above all, those of *the international community as a whole* [emphasis added].<sup>25</sup>

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<sup>18</sup>W. Jenks, *Space Law* 192, 194 (1965).

<sup>19</sup>*Id.* at 246-47.

<sup>20</sup>Zhukov, *supra* note 16, at 82.

<sup>21</sup>Gal, *supra* note 4, at 123.

<sup>22</sup>Lachs, *supra* note 15, at 23.

<sup>23</sup>*Id.* at 45.

<sup>24</sup>*Id.* at 54.

<sup>25</sup>*Id.* at 118.

In the latest developments, statements and opinions are even more strict. Herczeg states the following:

In this way, in space law somehow the future of mankind and its conscience lie buried, and this fact by itself will of necessity tend to exert its influence on general international law.

After what has been set forth, it is by no means exaggerated to attribute Article 53 of the Vienna Convention on Treaties of 1969, which in the form of a pre-emptory norm for the first time recognizes the international community of states as a whole, to this influence. Nor is the connection in which the Convention refers to the notion of "international community" a matter of indifference. It is the same Article 53 which introduces into international law the notion of *ius cogens* as a norm from which departure is not permitted and which may be modified only by a subsequent norm of general international law. Article 53 declares any treaty conflicting with a pre-emptory norm of general international law valid at the moment of signature of the Convention null and void. Article 64 goes even beyond this as in the event of the birth of a new pre-emptory norm, it declares null and void any treaty in conflict with the new norm.<sup>26</sup>

One of the strongest advocates of the rights of mankind is Cocca, who introduced the notion of "*res communis humanitatis*."<sup>27</sup> He states:

The moon and other celestial bodies are, by virtue of the mentioned treaty the subsequent Outer Space Treaty of [1967], a *res communis humanitatis*, which is a legal condition especially elaborated by law for this new field of human activity, and which is derived from the community of interests and benefits recognized in favour of mankind in outer space and celestial bodies.<sup>28</sup>

In his latest book he claims meteorites to be

extratelluric matters that fall on the surface of the Earth and are of interest to Humanity, the study and analysis of which must not be prevented by any State or private person, alleging that they fell or were found in some territory under their sovereignty or land on their property.<sup>29</sup>

Finally in his paper before the International Astronautical Federation (IAF) Congress in Baku, U.S.S.R. in 1973,<sup>30</sup> he summarizes the discussions between himself, representing Argentina, and the U.S.S.R. regarding the notion of the "common heritage of all mankind." While both sides discussed the meaning of "heritage," neither side questioned

<sup>26</sup>I. Herczeg, International Space Law and General International Law, Introductory Report, Proc. 16th Colloquium on the Law of Outer Space 3 (1974).

<sup>27</sup>Proc. 6th Colloquium on the Law of Outer Space 3 (1963).

<sup>28</sup>*Id.* at 3-4.

<sup>29</sup>A. Cocca, *Universo Y Sociedad* 121 (1967).

<sup>30</sup>Cocca, The Principle of the "Common Heritage of All Mankind," Proc. 16th Colloquium on the Law of Outer Space 172 (1974).

the meaning of "mankind." Cocca continues, quoting the "Conclusion of the VIII Hispano-Luso-American Congress on International Law, Buenos Aires, 1969:"<sup>31</sup>

In view of what has been expressed, we arrive at a first conclusion. In the present state of consideration of the Treaty on the Moon and of the legal problems related to the sea-bed and ocean floor, the first question to be solved is not only to enounce the principle of the "common heritage of mankind" but to give it a juridical content. The law of outer space being normative and conventional, its codification offers a myth which was unknown to international law.<sup>32</sup>

All these papers and many other learned statements deal with the notion of mankind. However, I have found only one author who gave a definitive of the term. That author is Professor Gorove, who correctly said:

The word "mankind," in the common every-day usage, refers to all human beings wherever they may be found and thus it includes both men and women.

However, mankind as a concept should be distinguished from that of man in general. The former refers to the collective body of people, whereas, the latter stands for the individuals making up that body. Therefore, the rights of mankind should be distinguished, for instance, from the so-called human rights. Human rights are rights which individuals are entitled to on the basis of their belonging to the human race, whereas, the rights of mankind relate to the rights of individuals making up that entity.<sup>33</sup>

Gorove is of the opinion that if the term mankind is to be a legal concept, the question of its representation must be answered. Here, Gorove finds solution only *de lege ferenda*; however, he concludes:

In fact, perhaps the time has come for the law to move in the direction of recognizing mankind's interests, its rights and obligations, as distinct from those of the nation state, and provide for a fully representative international body with appropriate authority to act in its behalf.<sup>34</sup>

#### IV. MANKIND AS A NEW SUBJECT OF INTERNATIONAL LAW

Thus, the term "mankind" is used openly and clearly as a beneficiary of space exploration, as a bearer of a domain and a heritage, and as having "envoys." Is it therefore possible and legitimate to consider the whole of mankind as a new subject of international law?

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<sup>31</sup>*Id.*

<sup>32</sup>*Id.*

<sup>33</sup>Gorove, The Concept of "Common Heritage of Mankind": A Political, Moral or Legal Innovation?, 9 San Diego L. Rev. 390, 393 (1972).

<sup>34</sup>*Id.* at 402.

Let us first consider what a legal subject of international law is. It need not be a state or states; that much is obvious. It is commonly recognized that subjects of international law are persons (physical or legal) who are themselves capable of being bearers of rights and/or obligations of international law, even though it is only in individual situations.<sup>35</sup> The International Court on April 11, 1949, followed this direction of thought:

Les sujets de droit, dans un système juridique, ne sont pas nécessairement identiques quant à leur nature ou à l'étendue de leurs droits . . . .<sup>36</sup>

We believe that this sentence provides the solution to our problem. The necessities of the community are obvious. Space law and other modern international laws do give "mankind" new rights, as demonstrated above. We agree with Gorove's paper at the Baku Congress of the IAF that the space treaties do not yet make available the property rights of space resources to "mankind as a legal subject."<sup>37</sup> We agree with this because mankind does not yet have an administrative organ to receive and to exercise such rights.

However, in the same treaty in which mankind is mentioned as the beneficiary of space exploration and use, national appropriation of space and celestial bodies is prohibited. Mankind has become a community of fate and fortune,<sup>38</sup> but it cannot be denied that this development has legal significance.

Thus, we come to the conclusion that the legal notion of "mankind" has a special meaning which indicates that mankind is just undergoing the painful process of becoming a new legal subject of international law. This idea may seem revolutionary; however, it is now up for discussion.

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<sup>35</sup>A. Verdross, *Völkerrecht* 128 (1959).

<sup>36</sup>(The subjects of law, in a legal system, are not necessarily identical in the nature and extent of their rights, editor's translation.) *Recueil des arrêts, avis consultatifs et ordonnances de I.C.*, at 178 (1949).

<sup>37</sup>Gorove, *Legal Status of the Natural Resources of the Moon and Other Celestial Bodies*, Proc. 16th Colloquium on the Law of Outer Space 177 (1974); Gorove, *Property Rights in Outer Space; Focus on the Proposed Moon Treaty*, 2 *J. Space L.* 27-30 (1974).

<sup>38</sup>L. Messner, *Naturrecht* 545 (1966).

## I.

## Background on Rendezvous and Docking Agreements\*\*

## 1. Summary of Results, April 6, 1972

*Summary of results of a Meeting Between Representatives of the U.S. National Aeronautics and Space Administration (NASA) and the U.S.S.R. Academy of Sciences (the Academy) on the Question of Developing Compatible Systems for the Rendezvous and Docking of Manned Spacecraft and Space Stations of the U.S.A. and the U.S.S.R.*

During April 4-6, 1972, in Moscow, the Deputy Administrator of NASA, Dr. George M. Low, and the Acting President of the Academy, Academician V. A. Kotelnikov, met to continue discussions of questions relating to the development of compatible rendezvous and docking systems for manned spacecraft and space stations. Official representatives of both sides participated.

Both sides confirmed the desirability of (a) continuing further work to develop such systems and (b) conducting a test mission of such systems during 1975.

NASA and the Academy agreed that the first joint experimental testing of compatible rendezvous and docking systems should be conducted with the use of Apollo-type and Soyuz-type spacecraft employing systems developed by both sides in accordance with the Summaries of Results and related documentation resulting from previous meetings.

During the meeting, the Soviet side presented technical materials on the Soyuz-type spacecraft. Technical materials relating to the proposed joint flight of Apollo and Soyuz type spacecraft shall be forwarded to the American side in May 1972.

NASA and the Academy agree that a common understanding of basic principles for organizing, developing, scheduling, and conducting such a test mission is required as a necessary prerequisite to the possible approval by their governments of such a test mission.

To provide a basis for understanding and developing such principles, the U.S. side has prepared a number of draft documents including, particularly, the following ones:

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\*Because of the readers' likely interest in some of the relevant documents and background of the impending U.S.-U.S.S.R. manned space mission, the editors decided to include them in the Current Documents even though they date back to 1972.

\*\*Taken from U.S. Senate Comm. on Aeronautical and Space Sciences, Hearing on Space Agreements with the Soviet Union, 92d Cong., 2d Sess. 58-60 (Comm. Print, June 23, 1972).

- A. Proposed Organization Plan for the Apollo/Soyuz Test Mission.
- B. Apollo/Soyuz Test Mission Considerations (brief summary of document A).
- C. A Project Technical Proposal Document.
- D. A Project Schedule Document.

These documents are accepted as the basis for the development of jointly prepared documents.

Both sides agree that the specific content of these documents will be jointly developed and agreed upon at the next meeting of working groups in July 1972, to provide the necessary basis for successful implementation of a joint mission, should such a mission be approved by the two governments.

The following points, to which both sides agree, while not comprehensive, illustrate in summary fashion some of the major requirements which are contained in document B:

- A. For the preparatory (pre-launch) period—
  1. Regular and direct contact will be provided through communication links and visits as required.
  2. A complete project schedule will be developed and commitments will be made on both sides to meet this schedule in order to avoid costly delays to either party.
  3. Arrangements will be made for necessary contact and understanding between specialists engaged in developing and conducting the project.
  4. A comprehensive test, qualification, and simulation program will be developed.
  5. A sufficient level of familiarization and training, where applicable, with the other country's vehicle and/or normal training equipment must be defined and provided for safety-of-flight assurance. The necessary training exercises will be conducted in each country for the other country's flight crew and ground operations personnel.
  6. The parties recognize in particular that they must jointly make a concerted effort to arrive at a full agreement on the engineering aspects of the mission during the meeting of working groups in July 1972.
  7. Two years prior to the flight, responsible persons who will directly participate in the flight operations should be included in the working groups in order to assure a proper level of mutual understanding and a continuity of personnel into the real-time operation.

B. For the mission operation—

1. Control of the flight of the Apollo-type spacecraft will be accomplished by the American Control Center and that of the Soyuz by the Soviet Control Center, with sufficient communication channels between centers for proper coordination.

2. In the course of control, decisions concerning questions affecting joint elements of the flight program, including countdown coordination, will be made after consultation with the control center of the other country.

3. Joint elements of the flight will be conducted according to coordinated and approved mission documentation, including contingency plans.

4. In the conduct of the flight, pre-planned exchanges of technical information and status will be performed on a scheduled basis.

5. The host country control center or host country spacecraft commander will have primary responsibility for deciding the appropriate pre-planned contingency course of action for a given situation in the host vehicle. Each country will prepare detailed rules for various equipment failures requiring any of the pre-planned contingency courses of action.

6. In situations requiring immediate response, or when out of contact with ground personnel, decision will be taken by the commander of the host ship according to the pre-planned, contingency courses of action.

7. Any television downlink will be immediately transmitted to the other country's control center. The capability to listen to the voice communications between the vehicles and the ground will be available to the other country's control center on a pre-planned basis and, upon joint consent, as further required or deemed desirable.

8. Both sides will continue to consider techniques for providing additional information and background to the other country's control center personnel to assist in mutual understanding (including the placement of representatives in each others control centers).

9. As a minimum, flight crews should be trained in the other country's language well enough to understand it and act in response as appropriate to established voice communications regarding normal and contingency courses of action.

10. A public information plan will be developed which takes into account the obligations and practices of both sides.



Done in Moscow, April 6, 1972, in English and Russian, both languages having equal force.

George M. Low,  
Arnold W. Frutkin,  
Glynn S. Lunney.

V. A. Kotelnikov,  
B. N. Petrov,  
I. P. Rumyantsev,  
K. D. Bushuyev.

## II.

### Text of Space Agreement Signed by President Nixon and Chairman Kosygin on May 24, 1972\*

*Agreement Between the United States of America and the Union of Soviet Socialist Republics Concerning Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes. May 24, 1972*

The United States of America and the Union of Soviet Socialist Republics;

Considering the role which the U.S.A. and the U.S.S.R. play in the exploration and use of outer space for peaceful purposes;

Striving for a further expansion of cooperation between the U.S.A. and the U.S.S.R. in the exploration and use of outer space for peaceful purposes;

Noting the positive cooperation which the Parties have already experienced in this area;

Desiring to make the results of scientific research gained from the exploration and use of outer space for peaceful purposes available for the benefit of the peoples of the two countries and of all peoples of the world:

Taking into consideration the provisions of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, as well as the Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space;

In accordance with the Agreement between the United States of America and the Union of Soviet Socialist Republics on Exchanges and Cooperation in Scientific, Technical, Educational, Cultural, and Other Fields, signed April 11, 1972, and in order to develop further the principles of mutually beneficial cooperation between the two countries:

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\*Taken from U.S. Senate Comm. on Aeronautical and Space Sciences, Hearings on Space Agreements with the Soviet Union, 92d Cong. 2d Sess. 41-2 (Comm. Print, June 23, 1972); T.I.A.S. No. 7347.

Have agreed as follows:

#### Article 1

The Parties will develop cooperation in the fields of space meteorology; study of the natural environment; exploration of near earth space, the moon and the planets; and space biology and medicine; and, in particular, will cooperate to take all appropriate measures to encourage and achieve the fulfillment of the Summary of Results of Discussion on Space Cooperation Between the U.S. National Aeronautics and Space Administration and the Academy of Sciences of the U.S.S.R. dated January 21, 1971.

#### Article 2

The Parties will carry out such cooperation by means of mutual exchanges of scientific information and delegations, through meetings of scientists and specialists of both countries, and also in such other ways as may be mutually agreed. Joint working groups may be created for the development and implementation of appropriate programs of cooperation.

#### Article 3

The Parties have agreed to carry out projects for developing compatible rendezvous and docking systems of United States and Soviet manned spacecraft and stations in order to enhance the safety of manned flights in space and to provide the opportunity for conducting joint scientific experiments in the future. It is planned that the first experimental flight to test these systems be conducted during 1975, envisaging the docking of a United States Apollo-type spacecraft and a Soviet Soyuz-type spacecraft with visits of Astronauts in each other's spacecraft. The implementation of these projects will be carried out on the basis of principles and procedures which will be developed in accordance with the Summary of Results of the Meeting Between Representatives of the U.S. National Aeronautics and Space Administration and the U.S.S.R. Academy of Sciences on the Question of Developing Compatible Systems for Rendezvous and Docking of Manned Spacecraft and Space Stations of the U.S.A. and the U.S.S.R. dated April 6, 1972.

#### Article 4

The Parties will encourage international efforts to resolve problems of international law in the exploration and use of outer space for peaceful purposes with the aim of strengthening the legal order in space and further developing international space law and will cooperate in this field.

**Article 5**

The Parties may by mutual agreement determine other areas of cooperation in the exploration and use of outer space for peaceful purposes.

**Article 6**

This Agreement shall enter into force upon signature and shall remain in force for five years. It may be modified or extended by mutual agreement of the Parties.

Done at Moscow this 24th day of May 1972 in duplicate, in the English and Russian languages, both equally authentic.

For the United States of America:

Richard Nixon,  
*President of the United States.*

For the Union of Soviet Socialist Republics:

A. N. Kosygin,  
*Chairman of the Council of Ministers of the U.S.S.R.*

1. *American Society of International Law Workshop on "Space Stations: Present and Future," April 26, 1974, Washington, D.C.*

(The following is a detailed account of the discussions which were, as best as they could be, reconstituted from recordings at the Workshop.)

*Dr. Carl Christol:* I am Carl Q. Christol, Professor of International Law and Political Science at the University of Southern California and I am serving this morning along with Brigadier General Martin Menter of the U.S. Air Force (ret.) of counsel Haffner and Meiser as the co-chairman of this Workshop.

The ground rules will be to ask the core participants to present short positions and then to invite you to come along and make whatever comments and questions you care to make. First, I am going to ask Mr. S. Neil Hosenball, Deputy General Counsel of NASA to make his presentation.

*Mr. Hosenball:* I thought perhaps the best way I could contribute is to outline the current status of NASA programs and agreements which might help us focus in discussing some of the practical legal problems, domestic and international, which will have to be faced when space stations or their equivalents operate in outer space, in the short term, primarily in orbit around the earth.

I think you are all aware that NASA has just completed a very highly successful Skylab program which basically demonstrated that man could live and work in outer space for extended periods of time. The total Skylab mission activities covered a period of in excess of eight months. Three U.S. astronaut crews occupied Skylab for periods of 28 days, 59 days, and 84 days in a relatively comfortable shirt-sleeve environment. Skylab was managed and operated in the United States. There was some international participation by principal investigators of some foreign countries. I can report that no domestic or international legal problems have arisen specifically associated with the now completed Skylab operation.

In the very immediate future, sometime in 1975, there is a planned, joint U.S.-U.S.S.R. manned mission plan. The purpose of this is to demonstrate compatibility of rendezvous and docking systems of manned spacecraft and space stations. A U.S. Apollo-type spacecraft and a U.S.S.R. Soyuz-type spacecraft will rendezvous and dock in space and, thus joined, will orbit the earth. As part of the mission, U.S. and U.S.S.R. crews will visit together in their respective spacecraft. Thus, for the first time in space, crewmen from two different countries will be orbiting the earth in the same spacecraft.

Last year most significant events toward the development and utilization of a Spacelab occurred. Agreements were signed between the governments of the United States and certain members of the European Space Research Organization (ESRO) for

cooperative programs concerning the development, procurement, and most important, the use of a space laboratory in conjunction with a space shuttle system. The Governments of the Federal Republic of Germany, Belgium, Spain, France, Italy, The Netherlands, United Kingdom, Switzerland and Denmark are the participating members of the ESRO group. The Spacelab is truly an international program. The Spacelab itself is to be European funded and manufactured but must work effectively with the space shuttle manufactured here in the United States. While NASA will have responsibility for payload integration and operation control of actual missions, payload and crews are to be international in origin. Spacelab will be reusable. It will fly in the space shuttle payload bay and will remain attached to and be dependent upon the shuttle orbiter throughout the mission.

Estimates running through the late 1980's indicate more than 30 space flights a year, each lasting between 7 and 30 days. Up to 4 Spacelab crew members, the so-called payload specialists, will be able to fly with their experiments, in addition to a normal complement of 3 professional astronauts to operate the shuttle and Spacelab systems. Thus you can have anywhere from a 4 to 7 member crew. The present plans are that men and women scientists and engineers with only very limited astronaut-type training (20-week training program) will be able to work in a Spacelab module and again in a shirt-sleeve environment. They will eat, sleep, and take care of their personal needs in the shuttle orbiter cabin. Spacelab is to be delivered by ESRO early in 1979 and the first mission in early 1980 will carry both European and American experiments and crew members. A unique characteristic of the Spacelab is that it must accommodate the needs of as many types of users as possible and even as yet unforeseen users which is contrary in part to prior manned or unmanned space missions.

The uses of spacecraft appear to fall into two general categories: research and development, and practical applications. With respect to the latter, we are talking also in terms of pursuit of commercial interests. Illustrations of possible commercial uses by again both foreign or domestic industrial concerns are experimental or commercial manufacture of low volume, high value items such as crystals, biological preparations, small scale chemical and physical processes and experimental or commercial testing of components, materials or preparations to prove quality and value. In all cases the use of a Spacelab would be for those purposes which either require or enhance the space environment. The current Spacelab Agreement may lead to later discussion and agreement on the conditions for the commercial use of spacelabs. The Agreement is silent on the question of jurisdiction and control over personnel on board the shuttle orbiter and Spacelab. However, it does contain an article on liability, including liability for damages to nationals of countries which are parties to the agreement and does in fact make reference to the Convention on Liability for Damage Caused by Space Objects. Finally, it does make clear that Spacelab missions are to be conducted for peaceful purposes. The discussion today is, therefore, no longer academic. By 1980 there will be multinationals traveling, eating, working, and living together in space for periods of 7 to 10 days on a fairly routine and regular basis.

*Dr. Christol:* We now turn to Mrs. Eilene Galloway who is Senior Specialist in International Relations, Congressional Research Service in the Library of Congress who like Mr. Hosenball has represented the U.S. in international negotiations relating to space law developments.

*Mrs. Galloway:* I would like to bring up issues for discussion in connection with questions of the applicability of the space treaties to space stations. The reason why we have chosen "Space Stations: Present and Future" is that this is the same title as that of the International Astronautical Federation's meeting in Amsterdam in the fall.

We have three treaties at the present time. The 1967 Treaty on guiding principles, the 1968 Treaty on the Rescue and Return of Astronauts, and the Return of Space Objects and the 1972 Convention on Liability for Damage Caused by Space Objects. We also have relevant sections in the Nuclear Test Ban Treaty.

There are four other treaties that are being discussed at the present time. There is one on the moon, one on the registration of space vehicles, another on remote sensing of the earth by satellites, and also there is a discussion of an international agreement on direct broadcast satellites.

The number of nations that have ratified each of the treaties in force is different in each case. In case of the Treaty on Outer Space, there are 55 ratifications and 11 accessions. The Astronaut Agreement has 46 ratifications and 13 accessions and the Liability Convention has 24 ratifications and 4 accessions. If you decided that a space station was a space object then all of the 3 treaties that are now in force would apply to space stations. If, on the other hand, you said that a space station was something so peculiar and so new that it was not a space object, then you would raise a considerable number of questions for discussion.

The treaty provisions that would apply if you say space stations were space objects are that—all activities would have to be for peaceful purposes (this applies not only to the exploration of outer space but to all uses of outer space) and activities would have to benefit mankind, irrespective of the degree of economic or scientific development, and there would be freedom of exploration without any discrimination and freedom of scientific investigation. In addition, since states undertook not to place in orbit around the earth any object carrying nuclear weapons, if you had a space station, you would not be allowed to use it for military purposes or carry weapons of mass destruction, or as the Treaty says, "station such weapons in outer space in any other manner". The astronauts who are on a space station would come under the Treaty on the Rescue of Astronauts, and they would have to be rescued and assisted if anything happened to them and every provision in that agreement would apply to the astronauts whether they were on a space station or in some other kind of craft. Similarly, if a space station is a space object and a nation has launched it into outer space and there was any damage done, the Convention on Liability would apply not only to the station but to its component parts.

So we already have a number of guiding principles and agreed-upon declarations and provisions that apply to space stations. However, there are some people who think that a space station is so unusual that it is not a space object and this is one of the things I think we should discuss here. My own feeling was that the reason the treaties used the word space object was that knowing that we were facing a technology that was expanding, they used a broad and general term.

A space object could be a spacecraft, a space vehicle or anything you would put in space. It is not limited because of its shape or size. However, there are some activities that could take place in outer space or in connection with the use of outer space for peaceful purposes not only on some other kind of space vehicle which you might say was an object but also on a space station. Some space station might be used for remote sensing of the earth or it might be used for direct broadcast by satellite or might be used for many activities that have lately raised the question of sovereignty.

We went through many years without being bothered with the question of sovereignty and we got this main treaty passed so that in case of air space we have sovereignty and in outer space there is no sovereignty. No nation has objected to the overflight of satellites over its territory. But then as soon as the earth resource satellites came into being, questions were raised as to whether or not a nation had the right to orbit over the territory of another nation and whether that nation had the right of prior consent before this happened.

The same issue is raised with regard to direct broadcast satellites. So if you have decided that a space station is a space object, then you can make a list of all the provisions in the 3 treaties that already apply and might apply if we had the treaty on the registration of space vehicles, but then you would come to a number of problems that were not covered by any of the treaties and you would have to decide whether or not you wanted to have another space treaty.

The problems that might arise are those between persons on the space station, that is, the jurisdiction over any kind of activities, including any criminal acts; also, industrial activities on space stations, whether they would come under that provision of the Outer Space Treaty that says that the benefits should apply irrespective of the economic level of the country and apply to all mankind and be the province of all mankind; but how would you distribute that?

There are various other uses to which a space station might be put. For example, it might be a base for the exploration of the moon and celestial bodies. There is also the question of access to space stations, whether other nations would have access, and the question of whether the treaty provisions which refer to the moon and other celestial bodies should be made applicable to artificial earth satellites such as space stations. You can see that this is quite a problem because we have the three treaties that are in force. They are talking about four others. While it does not look likely that we would have one on direct broadcast satellites, it is likely that we would have one on the moon and the registration of space vehicles. Therefore, we would have five. Each of these would have a

different membership so that if you went through and got the common denominator of all of these, you would have a very small number of nations. So, it would not necessarily follow that the more space treaties we would have, the better off we were. If, for any reason, some people wanted to develop the idea that all of these provisions that had been worked out do not apply to space stations, then you would really be in great difficulty because it would raise the question: What is a space object and what is not? So I think that is the main question that we would want to discuss.

*Dr. Christol:* I would like to turn to the third core participant who is going to speak along domestic as opposed to international lines, Dean George J. Alexander of the University of Santa Clara School of Law.

*Mr. Alexander:* Since Eilene Galloway has already mentioned several of the problems that arise generally, I would like to deal with the problem that strikes me as important and generic to the space stations and the earth resource satellites which have just recently become operational and that is the problem of the use of either of these kinds of equipment as a base for observation of the earth below and especially of the domestic space flow and a number of problems that have been raised there.

Three problems, as I see it, are worth mentioning and I am really limited to ticking off the problem rather than saying very much about it. The first is, of course, NASA's obligation to insure that the information whatever it be, be made available to the public at large: an obligation which derives both from its Organic Act and from the Freedom of Information Act provision which really does not allow it to retain very much information that it gathered. I mentioned these legal requirements not to suggest for a moment that NASA has ever had a policy other than the policy of disseminating all of this information freely, but simply to say that they could choose no other policy and having said that to say that it really is not that simple but, at the moment, it is rather simple because the experiments are fairly well controlled.

Two things are likely to change fairly quickly with both ERTS and space stations. The first with ERTS is the sophistication of the inquiry; the second with space stations is the inability totally to control the experiment. The one thing that you can anticipate with a nonpersonal experiment is that it will more or less behave, if it behaves at all, within the parameters set forth. The one thing you can expect from a human being is that he or she will have half an opportunity not to behave totally within the parameters set for him or her, leaving open the possibility that information will be acquired in a manner somewhat unanticipated.

The first problem is the information that you obtain. The second is the question of how you make it available. Much of the information that could be obtained from remote sensing is information that would be (in its raw form) absolutely unusable, by an unsophisticated consumer group that might have great use for the information it really gets.



The next question then is, is there a secondary obligation, that really comes from the first, not only to make it available in the form in which the experiments make it available but to explain it in a way that would make it intelligible. I suspect that both the question and how that might be done, and who would bear the cost, and in what way, are questions that would require some thought. These are questions incidentally that relate not only to the use of spacelabs as information platforms, but also to any information developed in the unique atmosphere of a scientific laboratory in outer space.

A secondary problem that I think we have not faced which, in my judgment, is more difficult to face is the problem of the impact of rapid information on a variety of legal rights that are developed in a system in which that type of information was not previously possible. And again here the technology threatens fairly quickly to get well ahead of the abilities of lawyers and legislators to anticipate problems. The most obvious is mineral and oil exploration which, we learn, is considerably easier to carry out from space than it is from the ground in many respects.

A number of rights in land presumably vested under domestic law include the right for people to explore. I think we have no answer to such simple questions as who pays for the destruction of that right if in fact it is destroyed by the information made available through a space platform observatory. The number of legal rights, I suspect I should leave for further discussions if there is interest in them. I suggest commodities futures as again an area in which the ability to make more accurate assessments of the availability of crops has not yet been fully analyzed. This is both the problem of the vested right in the speculation and the lack of careful planning with the dissemination of the information. Two things can happen. One is simply the destruction of the speculative right. The other is a selective advantage to those able to use sophisticated information to their advantage against the interests of other people. Both things are worth noting and one could hardly come to Washington in this desperate time without observing that there is a third problem with any new substantial capacity to observe life and that is the protection of the privacy of those of us who inhabit the globe.

I suggest that if the problem of wiretapping has eluded us as a legal problem all these many years, unsophisticated, crude wiretapping, that the problems that we are about to face from the potential, though not the planned, use of either space stations or ERTS is a problem to which we have got to give a good deal more thought than most of the people that I have had an opportunity to talk with, have yet been able to provide. The things I said a couple of years ago when I was talking about this problem was for all I knew what people had found out about spectral signatures, each plant having a unique spectral description. Somebody would sooner or later realize that the answer to the marijuana problem was to get a good program for a satellite of some sort to search for marijuana and everybody chuckled and thought that was rather cute, until somebody took me aside at some meeting and said that they developed that 4 years ago.

My suggestion simply is that if we continue to value privacy (the expectation that we will not be observed or overheard), we have got to give a lot of thought not only to the Big

Brother physically attached to the telephone line but to the potential Big Brother and opposite sex's sister sitting up there in a space station with equipment that we know in military hands is capable not only of identifying individuals but reading their rank. I just suggest that these are the kinds of things to which we need to pay some attention.

*Dr. Christol:* Before I call upon General Menter to chair the program of discussions, I would like him to read a paper which was submitted by Professor Stephen Gorove of the University of Mississippi Law School who is in attendance at the meeting, but was unexpectedly called away this morning.

*Gen. Menter:* The following statement is by Dr. Stephen Gorove, Chairman of the Graduate Program in Law and Professor of Law at the University of Mississippi Law Center.

*Dr. Stephen Gorove's statement:* One of the initial but important functions of any legal analysis pertaining to space stations is a clarification of the meaning of the concept. Depending on the meaning that we attach to the phrase "space station", different principles and rules may be applicable.

Normally, in the ordinary use of the term, "station" refers to a regular stopping place which may be a structure of a more permanent character. In relation to outer space such a structure may be a lunar station or station located elsewhere in outer space. In both cases, the stations would have to exhibit at least some characteristics of durability if not permanence in order to function as stations in the true sense of the word. Most likely, a spaceship traveling in outer space without returning to its former pathway, will not be regarded as a space station, unless it is maintained for successive, repetitive use as a base of operations. This line of thought seems to indicate that a spaceship or spacecraft could become a space station if the indicated criteria are met.

A lunar station may be a station on or below the surface of the moon or a station in circumlunar space. There may be similar stations in relation to other celestial bodies in the future.

Out of the above-mentioned three categories of stations, namely the lunar stations, other-celestial-body-related stations, and stations elsewhere in outer space, the Outer Space Treaty of 1967 only refers to stations on the moon, specifically, when it provides in its Article XII for free access to such stations, on a basis of reciprocity, to representatives of other States parties to the Treaty. There is no such stipulation made with respect to the other categories of stations in any of the international agreements pertaining to space law. Only the hitherto not-agreed-to Draft Treaty Relating to the Moon makes references to stations on other celestial bodies.

The net effect, therefore, of the current international legal rules governing space stations is that such stations, except for stations on the moon, remain under the unimpaired jurisdiction and control of the state party on whose registry they were carried

into outer space. This is made clear by Article VIII of the Outer Space Treaty. At the same time, jurisdiction and control over stations on the moon is limited by the conditional free access and visitation provisions of Article XII of the Treaty.

*Dr. Christol:* Let me turn the direction of the Workshop over to General Menter.

*Gen. Menter:* This is going to be very informal. The idea of a Workshop is novel to the American Society of International Law annual meeting. It is intended to induce us to have a roundtable discussion and please feel free to enter the discussion, put forth your ideas and to have them commented on, if you like.

*Mr. Paul Dembling:* I just wondered if the United States has taken a position on space stations and the definition of space stations.

*Mr. Hosenball:* In fact we have not. I am inclined to agree with Professor Gorove's statement that the permanency of a station is the very element as far as access is concerned. I believe it would be our position as a matter of policy. In fact, under the Spacelab Agreement, there will be nondiscriminatory access to that Spacelab with certain limited restrictions on the earlier flights since there is an investment being made by the Europeans and by the United States Government. So there is a sort of priority in some of the first flights. But as it becomes routine, as a matter of agreement between the ESRO group and the U.S. group, there will be nondiscriminatory access to the Spacelab. That is an awful lot of difference as to the right to access. As you know in the Treaty, it is a reciprocal right: if you let me visit yours, I will let you visit mine. It is not an absolute right that if you have a space station somebody can demand that they come in. There is a reciprocity involved in the Outer Space Treaty. That same concept is contained in the Draft Moon Treaty: the right of access and again the reciprocal right of access. That is if you want to visit mine and you have one up there as well, then there has to be a mutual kind of a thing. I think that Professor Gorove's analysis is a very, very good one. I think we have had no discussions about it because it frankly has not come up in the context of a Spacelab, other than in the Agreement.

*Mr. Dembling:* If I may follow that up with a corollary question: if a space station is not covered under any of the treaties what does the term "celestial body" mean in the Treaty if it does not mean space station or some other man-made body placed in space?

*Mr. Steven Doyle:* I think that the other space treaties apply to all activities conducted in outer space whether they be on a station, on another celestial body, on the surface of moon, if the activities are beyond the territorial environment and the atmosphere of the earth. It seems to me that they are under the jurisdiction of the 1967 Space Treaty if they are activities conducted by man in outer space. So once we get beyond the atmosphere we are under the regime of at least one treaty; from there the extent to which subsequent treaties are going to apply, I think is the question that we want to ask, but I would say that there is one that applies almost *ipso facto* beyond the atmosphere.

*Mr. Hosenball:* If the thrust of the question was that a man-made body is turned into a celestial body because it is in outer space then I think the answer is no. I think we all assume that celestial bodies are defined to mean the moon, the planets and non-man-made objects. I agree with what Steve Doyle said. That does not mean that the Outer Space Treaty does not apply to any man-made object, quite the contrary, I think its thrust was to apply in many cases to man-made artificial orbiting or traveling bodies in outer space, beyond the atmosphere.

*Miss Amanda Lee Moore:* In the situation of a personnel on a space station and the jurisdiction you are going to have over it, you think that (since for the Liability Treaty you have a state which is liable, the launching state) when it comes to jurisdiction over personnel on a space station, the country to whom that space station is registered will be the jurisdictional source for the personnel? Or do you think there is going to be a need for a law for activity in outer space, meaning that for any activity that goes on in outer space there will be a new law to govern that activity which is not associated with a particular launching state?

*Mrs. Galloway:* I think that the launching state concept could apply except that most of these endeavors will be international. As Neil Hosenball pointed out the Spacelab will be international and an international organization like ESRO would be responsible and the nations that are members of that organization; but, in detail, that is not covered, that is, what happens to the people on the space station. So this might be one of the things you want to spell out. In other words, the theory was, that we have this sort of mother Treaty of 1967 on guiding principles. In that there were certain articles that dealt with astronauts, the return of objects and liability. Then we made two other treaties that spelled out more details. I think that it would be the launching state concept or all the provisions in the Convention on Liability that apply to an international organization and, if you thought that was not enough, then you would have to have another treaty that applies for just that. That would be one of the things that you would have taken up like, for instance, criminal law.

*Mr. Hosenball:* Under the proposed Registration Treaty and in the discussions of the proposed registration, a great deal was made by the Europeans, particularly the French, of the concept of a juridical link between a national registration and the laws that might flow from that juridical link. So in the Registration Treaty that concept is at least in the legislative history. If you read the language in the Registration Treaty, to the best of my recollection, there is a provision that the parties are to decide who should register the space object in a joint program. There will be a single registration but the parties, who decide what state shall register it, can agree as to any other matters as between themselves, including such things as jurisdiction over their nationals. So the question is an open question, as far as I am concerned, but there was a great deal of discussion that cars are registered, boats are registered, and airplanes have a national registry. The concept in European law is that it is very important, that everything has some sort of national identification.

*Dr. Wybo P. Heere* (from The Netherlands): There are many big objects which are not registered at all and where there are problems in international law. For instance, big objects get tugged across the oceans to be cut into pieces. Nobody knows very well what happens when two people just drink too much aboard a battleship and kill each other. Until now, they always said that the captain of the tugboat is the only one who decides what to do with the bodies and the survivors. The same is true with other objects you tug across the ocean, for instance, objects where nobody knows what to do. This much about unregistered objects.

*Mr. George Robinson*: With long duration flights, we find, it is a lot easier to have space station participants adjust to alien, synthetic life support systems than it is to readapt to their familiar life support systems. So it seems the tendency will be to have many more longer flights, with longer lasting space stations systems than shorter flights.

The question I thought you were pointing at was: has anybody given thought to a legal gem? I think we all assume a multifaceted regime approach to space stations. Has anybody given any thought to the establishment of legal regimes by the space station systems themselves? I think a lot of people will find it more and more, particularly after the Skylab program, that value forming processes have definitely been affected by the synthetic and alien life support systems in the space station.

*Gen. Menter*: With respect to the development of law to govern activities aboard space stations or outer space generally, both in Senate Bill 1 of the current Congress and in Senate Bill 1400 which is a revision of Title 18, there is a method of extending jurisdiction to events in outer space and aboard a spacecraft. S. 1 does it by having a new term "exclusive aerospace jurisdiction", I think that's the phrase. S. 1400 does it by a more simple way. It defines the term "aircraft" as used in the act as including spacecraft. Therefore, all your criminal statutes that apply to aircraft today will apply to spacecraft. That is a very small part of the total thing you were just talking about.

*Professor Houston Lay* (of California Western School of Law): One point I would like to suggest initially is that the general rules of international law apply to outer space. The treaties that we have been discussing cover specific aspects of it to give particular detail to the very unusual situations that we find in space. So far as the cluster type of space module is concerned, the probabilities are that, as any such cluster is put up, there will be agreements worked out by the nations which participate in that particular project as to their individual control over their part of the cluster. If they do not so provide, I would assume in all probability, that insofar as any problems arise within an individual part of the cluster, the nation which had put up that particular part of it will control as long as the problem did not involve the cluster as a whole. But if the problem involved the cluster as a whole, in all probability, the nation which had put up the mother unit of the cluster would insist that it had some right to step in and exercise jurisdiction in order to maintain discipline to prevent serious untoward incidents that would arise. This has not been worked out in detail in any of the treaties that I know of. But, for example, in the discussions that have gone on in connection with the joint project of linking up of

Soviet and U.S. spacecraft, this has been an aspect of it. Each nation would be responsible for the maintenance of discipline on their own part of the unit.

With specific reference to military personnel of the United States, the Uniform Code of Military Justice applies to a military person wherever he is, whether it be in space, in air, or on the ocean. I think General Menter here is particularly familiar and I think Ed Finch also is very familiar with that aspect of it. However, it will take specific legislation, such as has just been mentioned, to give criminal jurisdiction to the United States over American civilians in space. There is certainly nothing in international law that prevents the exercise of criminal jurisdiction, social jurisdiction, whatever you wish to call the matter, over American citizens in outer space. It is purely a lack of domestic legislation that does not, at the present time, give us adequate control over our individuals in outer space unless the U.S. Supreme Court (and I think there is definitely a possibility that if we had two civilians in a spacecraft and one murdered the other, the U.S. Supreme Court) might interpolate the status of a spacecraft to that of an aircraft saying that it had to go through the air to get to space and in order to avoid a lack of jurisdiction it would be treated as though it were an aircraft. Of course, if the legislation that has been mentioned, is adopted, which seems fairly probable after a period of time, it has specific coverage.

*Gen. Menter:* You remember the Cordova case in 1950, the air carrier flying over the Atlantic, where an individual assaulted another individual over the high seas, the federal court in New York where criminal action was brought held that there was no jurisdiction that would attach. That led to the Congress amending 18 U.S.C. §. 7 to extend the maritime territorial jurisdiction to events aboard aircraft so I think you would need a congressional act to extend it any further.

*Mr. Edward R. Finch:* Since Houston Lay has drawn me into this discussion, I would like to mention that, during conferences with Soviet space officials in Moscow in October last year, they expressed an interest in trying to figure out what general categories would be used in the international law of outer space. There have been articles written by me and Mrs. Galloway. Both of these were mentioned across the table in Moscow. I would like to set forth the three general categories of international law that I think apply to ground, atmosphere and outer space and then ask Mrs. Galloway to set forth the four categories that she has postulated.

The three categories that I mentioned are published in my article in the January 1973 issue of *International Lawyer on the United Nations and Earth Resources Satellites*. The first category is law which applies solely to outer space which raises jurisdictional questions and other questions we have been discussing here about space stations. The second category is the law which applies to outer space and airspace, that is, the atmosphere, the ionosphere, the stratosphere, all of that area. Finally, the third category is the law which applies essentially to activities performed on earth as a consequence to the exploration and uses of outer space.

*Mrs. Galloway:* I distinguished law that applied to just airspace, just to outer space, to airspace and outer space, and law on the earth that applies to space activities. Airspace is where we have all the air laws and where we have sovereignty. Above that, while we don't have a definition of where one ends and the other begins, it is generally agreed that anything that can go into orbit would be in outer space. So, really the concept is not as clear as a geographic dividing line, but you know that the aircraft has certain laws, air laws, and for outer space, we have no sovereignty but we have these treaties and general international law, including the U.N. Charter.

*Mr. Lay:* In addition, I think you might distinguish between airspace above your territory where the nation has sovereignty and airspace above high seas which is beyond the sovereignty of a particular nation.

*Mrs. Galloway:* That is important because where the nation has sovereignty, it is able to shoot down an aircraft that it does not like because it is inimical to its interest. The first proposal that the Soviet Union made on remote sensing and on direct broadcast gave the impression as if they were going to shoot down one of these things they did not like, even though it might be only over the high seas and not over their own territory. They changed that later and said that they would only use legal means. But, I think when I first thought of that, it was because there were so many people writing who thought that space law was something that just applied to outer space and it was something quite distinct and not related to airspace.

The point I would make, because of the treaties, is that ultimately what the lawyers did was to follow the concept of aerospace which is an engineering concept. When an engineer is told to put something upon the moon or into orbit he doesn't really care where airspace ends and where it begins; he has an engineering project. So, when we first started negotiations for the Treaty on Outer Space, we could have been held up indefinitely by saying "we do not know where outer space begins and we do not know where outer space ends and it involves sovereignty and, therefore, we cannot have a treaty." We could have taken this negative attitude and never had a treaty. But instead of that, essentially what we did was to say that we do not take the geographic concept but take the functional concept, that is, here is a vehicle, it goes through airspace, outer space, and comes back to the earth, and all of that time, it is under the jurisdiction and control of the country that launched it or the international organization that launched it.

*Dr. Christol:* First, as to the alternatives which Ambassador Finch proposed: three as opposed to four. It strikes me that professor Matte in Canada has just suggested one area, namely the aerospace area, taking the functional approach. He would make it much simpler than the others which have been indicated. My second general comment addresses itself to the point which Mrs. Galloway has just made in relation to the U.S. and Soviet outlooks with respect to the exercise of the authority and jurisdiction in areas beyond national sovereignty. In terms of inherent right of self-defense, it would appear that a nation state can engage in activities beyond its sovereign jurisdiction in order to protect itself and the quality of sovereignty, at this point, is relatively unimportant insofar as the inherent right of self-defense is involved.

*Mrs. Galloway:* I would like to explain why I happened to be thinking of categories in addition to what I have already said. The first time I got out the Symposium for the Senate Committee on Aeronautical and Space Sciences, I called it Space Law. We had about 500 more orders for it than we had copies, so I had to get out another one and when I got out the second one I changed the title to the Legal Problems of Space Exploration. The reason I did it was because people had such a narrow concept of space law; it was only that concept that applied to outer space itself. In fact, one of the European lawyers said to me: "I have written and said just about everything there is to say on space law, there is nothing more to be said." This was about eight or nine years ago. He did not consider that the international telecommunication allocation of radio frequencies was, for example, a form of law. So a whole lot of people were thinking that we were leaving out these other things and I felt that they should think about the legal problems that arise as a result of using the space environment.

*Gen. Menter:* No doubt, there are more problems today than there were before the U.N. Resolution 1721 and they are getting even more complex. I would like to go back to Mr. Robinson raising the question of legal regime aboard spacecraft and space stations. We have only touched upon criminal jurisdiction and generally otherwise. It seems to me Professor Alexander that this is something you had expressed yourself on.

*Mr. Alexander:* I have got to admit that I find Houston Lay's remarks totally persuasive.

*Gen. Menter:* I was thinking of the application of civil law to activities aboard space stations. I suppose you could even talk about marriages and births and deaths. I will not go into that; but powers of attorney, wills, agency, which law might apply to different activities.

*Mr. Alexander:* The criminal jurisdiction question, the question from which the other questions arise, is, in some sense, the most important question in civil law because it deals with the fundamental question of civil order aboard the craft. With respect to most of the problems that can be encountered, I think, if you resolved the question of what jurisdiction would apply in criminal law, you also resolved the fundamental question as to the appropriate source of application of domestic law.

*Gen. Menter:* I thought you just might want to supplement Houston Lay's remarks.

*Mr. Alexander:* I am never up to that.

*Charles Okulier:* I am a student from Nigeria at Harvard Law School. I was interested in the question of the different kinds of stations raised by Professor Gorove and also the question of registration. What I wanted to know relates to the concept of space station. Does this mean that any state that has the ability can use the outer space station, or does it mean specifically that the state that had launched it is the only one that has authority and jurisdiction over the use of the station? And if that is the case, would this not be in direct conflict with the terms of the 1967 Treaty? This problem of



the use of space is also central to the law of the sea, in relation to the ocean floor and the concept of the common heritage of mankind. If people will be able to live for a year in a space station, the problem of residence arises. Will residence create jurisdiction? Is the station a part of the common heritage or is it under the jurisdiction of the launching state? This requires some kind of clarification.

*Mr. Hosenball:* I think there are some precedents as far as jurisdiction is concerned. The Antarctic Treaty certainly provides that each country retains jurisdiction over their nationals in Antarctica. I would assume that's even when they are visiting each others' stations. The proposed Moon Treaty does provide explicitly for retaining jurisdiction over their own nationals.

Directing the question to the common heritage, that question is being discussed in the Legal Subcommittee in connection with the Moon Treaty and is, probably, one of the unresolved questions today and one of the key issues that is holding up the completion of that treaty. It is related to a question other than jurisdiction and the right to visit. In that case, it is related to the issue of exploitation of natural resources on celestial bodies or on the moon.

My own personal opinion is that there will probably be bilateral agreements or multilateral agreements that will develop which will resolve the questions from the point of view of immediate urgency. Whether that would subsequently be followed by an international treaty having brought an application, I suspect that will also happen; when, I do not know. The technology is moving forward.

I believe the Outer Space Treaty was a very far-reaching treaty and a very farsighted treaty. If we didn't have it, perhaps a lot of these issues would have prevented our moving into space the way we have, and it has not been a major area of dispute at least until now. The questions are becoming more difficult but, again at this point, they have not prevented the development of communication satellites which have been a major contribution. They have not prevented the development of international programs and, as I indicated earlier as far as Spacelab is concerned, in the introductory language of that agreement there is reference clearly made to international cooperation, this is for the benefit of all mankind. So even in the bilateral agreements, it has been recognized that activities in space, whether in a Spacelab or otherwise, must comply with the Outer Space Treaty. I am not sure if I fully answered your question.

*Gen. Menter:* Part of the question was the right of the state overflown to utilize the spacecraft. Is it the launching state or the owning state the only one that can determine the full use of the spacecraft? I think that in NASA's activities NASA has always invited other states to recommend experiments. That is a recommendation, that is not saying, they can or cannot, but the logic, of course, would be that it is owned by the U.S., so the U.S. would determine if it would permit another state to make use of the spacecraft. The U.S. has entered into a number of agreements permitting other states to participate in experiments, legally being subject to the U.S., asking the other state to bear its share of

the cost although I don't believe that's done always. I think they are just asking them to bear their share of the cost if they want a print-out so to speak of the information that they gathered.

*Mr. Robinson:* I am just thinking about the parallel that exists in the territorial waters problem in terms of effect and impact it has on the nature of basic research: the difficulty of determining the difference between basic research for the sake of basic research data as opposed to exploration research, minerals and so forth. The only thing that I can recall, and my knowledge is obviously embryonic about it, is the plan that was put forth, maybe six or seven years ago focusing on a kind of international structure, private or public, or a combination of both, which consists among other things, of experts in the area of determining when research can be undertaken, under what circumstances, when switch-on or switch-off type of things take place; when it is in fact the political science experts who determine when the information is detrimental to a particular country. It may be data for one country and very essential data for a hostile neighbor. But perhaps in the final analysis you might have a minimum of a double-structured international organization involving the commercial aspect and also involving the security aspect.

*Dr. Christol:* I would like to come back to the question which was asked earlier and which Neil Hosenball responded to. I am thinking of some of the general principles contained in the 1967 Space Treaty. Mrs. Galloway referred to the fact that there is a proliferation of treaties: those proposed and others which may be standing in the wings. I do have a concern that in the process of accumulating new treaties one may possibly detract from some of the contents of the original Treaty on principles.

I find, for example, in attending some of the meetings of the International Institute of Space Law that non-Americans are saying: "Well, the Principles Treaty is just a bunch of principles and therefore has no great significance and, therefore, we are free to go in whatever direction our political policy and interest would suggest." I do have that concern and would be very much interested in knowing whether or not there is going to be in the future an effort to protect the principles of the Principles Treaty as one goes into a proliferation of more specialized treaties. I have this in mind not only because of the "common heritage" concept which was referred to a moment ago but also because of the term "mankind" which is a general term and also the "peaceful uses" concept which is again a general term. I would certainly be hopeful that our policy people would not lose sight of the general concepts as they look toward future treaties and, in particular, I would like to find out, possibly from Mr. Hosenball, why there is any difficulty in introducing the "common heritage" notion into the space treaties of the future.

*Mr. Hosenball:* In answer to your first question, there is complete recognition at least by the U.S. delegation and many of the other delegations of the importance of preserving the integrity of the Outer Space Treaty in 1967. We are very careful and have given to the matter a great deal of attention in the Liability Convention to make sure that in repeating many of the things that were being said, that they were fully consistent and not only consistent but the same. So you find a repetition of words and the reason for

that is that we are afraid if we attempt to change a single word, we will be undercutting those principles. I, personally, and others who have participated in the space law field in the U.N., are very conscious that it is very important not to revoke in any way or cast any shadow of doubt or interpretation by using different words or attempting to interpret or rephrase what is basically contained in the Outer Space Treaty.

The difficulty with the phrase "common heritage" has been basically raised by the Soviet Union in the discussions. Actually, I believe it was introduced by some of the less developed nations in the discussion of natural resources. The problem, as I see it in common heritage, is the attempt to draw parallels with the law of the sea and the problems associated with the law of the sea. I see those as two separate problems. I don't think outer space and the law of the sea are necessarily at the same stage of development or at the same status of solving problems. The law of the sea is probably a more realistic and a more urgent issue. So there is that problem of tying the two together but basically as I indicated there has been primarily the Soviet Union and other delegations, not necessarily the U.S. delegation, which have raised the question of "common heritage." I have some difficulty in knowing whether that is anything more than the "province of all mankind" or the "benefit of all mankind." I am not sure that I know what the term at this stage means. When it gets into the context of a treaty, such as the law of the sea treaty, maybe it would have some more meaning. To me it doesn't have that much more meaning now than the other expressions of general principle that I find in the Outer Space Treaty.

*Dr. Christol:* The problem is that there are those who would affect a definition in advance of the "common heritage of mankind" and then say there is no precedent of affecting such a definition and therefore let us throw the whole thing out the window. The other side of the argument would obviously be that you accept the concept and then try to plough into it a lot of specific meaning over time which seems to me the common law or American way of approaching it.

*Mr. Finch:* I think Professor Christol's statement that we have to watch out for basic principles not only in the 1967 Treaty, was brought very solidly home to me by Academician Petrov and Dr. Vereschetin in the Soviet Academy of Sciences when they even questioned what to me were very specific provisions in the Treaty on the Rescue and Return of Astronauts. So I would like to underline what Professor Christol has said. It was very appropriate that we be most careful in protecting basic principles.

I would like to ask Neil Hosenball to comment from his knowledge of the status of matters in the United Nations on the draft article that Brazil presented on February 1, 1974 which seems to be flying in the face of freedom of outer space, freedom of information and many other basic principles. The third sentence in that proposed draft treaty which Brazil presented to the United Nations reads (and it is very appropriate to the language we have been discussing here): "State parties shall refrain from undertaking activities of remote sensing of natural resources belonging to another state party, including the resources located in maritime areas under national jurisdiction, without the

consent of the latter." This and other statements in that proposed draft treaty presented to the Legal Sub-Committee of COPUOS, in my own view, are very clearly regressive.

*Gen. Menter:* That seems to open up a question of policy versus law. We might say that the law is that you can take the information by earth satellite. We may want to agree, as a matter of international comity, that we will not do it without the consent of the state overflown. So it would be a matter of policy as to whether or not you would want to enter into such an agreement.

*Mr. Hosenball:* I would like to really identify my comments as personal comments because my comments do not necessarily represent the views of the U.S. government certainly in this area which is a very difficult area. I agree with you wholeheartedly, personally, that it is extremely regressive. No two ways, that is my own personal opinion. I also think, personally, that it is a red herring. There is no doubt in my mind that the more information is made available (again you have the question that Dean Alexander raised), in a useful form for the less developed nations or any other nation that will help them know where those resources lie, the more it is a step forward in international cooperation, not a step back. We do have a policy of open dissemination; the reverse of that, to me, is clandestine observation and that again to me is a regressive step in the peaceful uses of outer space.

Even if a nation has ERTS information, you still need ground truths, and ground exploration; and all that is well recognized to be within the control of the sovereign nation involved. They do have control over their own destiny. It seems to me from a personal standpoint, that you get greater competition for the resources and if you have more people bidding for them, you ought to be able to make a much better deal or you can decide that you want no deal at all and you want to exploit it for yourself. Now again this is my personal opinion, I can't speak in this area for the U.S. Government as a whole.

*Mr. Finch:* I hope that the Brazilian draft will not go very far.

*Mr. Doyle:* I would like to tie together some of the things that have been said, starting with Mr. Finch's comment about the regimes of law and division geographically and Professor Lay's comment that it is essential to deal with law on a functional basis. I think that historically we can demonstrate that since Mrs. Galloway's mother treaty was adopted in 1967, essentially setting forth the lowest common principle, we have had an evolution of legal regimes applicable to activities in space.

However, recognizing also Mr. Finch's suggestion of the delineation of geographical areas, I only would observe that the two subsequent agreements, the Treaty on the Rescue and Return of Astronauts and the Convention on Liability deal much more with activities on the surface of the earth, responsibilities and liabilities of states as states on the surface of the earth, exercising sovereignty in the international community than with anything else going on in outer space. The reason is that these treaties are triggered by impact on the surface of the earth, by loss of control of space flight, by landing of a spacecraft, be it in someone's territory or outside of national territory, by the necessity to

rescue an astronaut either from a terrestrial or ocean environment. The great bulk of this Treaty on Rescue and Return actually deals with the surface of the earth, activities on the surface of the earth, and responsibilities of states to one another in their terrestrial environment. Yet we tend to refer to that Treaty as a part of space law. The same applies in relation to the prevention of liability. So the idea that we can neatly pigeonhole geographical categorizations of law flies in the face of necessities of the functional approach. I think the answer is not either; it is the solution. But the combination of two: an assessment of where you are and what you are doing will have to determine what law is applicable to the particular activity.

I would like to come back to the question asked by a participant from Nigeria. What is the relevance of all this to a space station moving above national territories, and it is a very fundamental question, what is the right of the underlying state, the overflowed state. For historical background, I would refer to the two very important early books on space law: Andrew Haley's *Space Law and Government*, and McDougal, Lasswell and Vlasic's *Law and Public Order in Space*, both of whom devote a large part of a chapter to the concept of consent and the evolution of concept of tacit consent as it relates to spaceflight and anticipating the Treaty on the peaceful uses of outer space. Both declare the apparent emergence of a universally recognized freedom of use of space for peaceful purposes. This then was codified and placed into the Treaty as a principle of law and adopted by or signed by a great many states, close to a 100 I guess, in the form of a treaty.

Does the state on the surface of the earth have the right to have something to do with what is going on in space? This very question arises, for example, in the direct broadcasting satellite context. We have seen the assertion by some states of the declaration that the regulatory regime essential for control, what is transmitted via satellite, should be based upon two principles of law. These are the principle of respect of national sovereignty and the principle of nonintervention in the internal affairs of states. They do not have an awful lot to do with space for regulating an activity in space, yet these are legitimate claims. This brings me to my final point: Mr. Finch's recognition and securing the stability of the principle agreed. I think I have added the word "agreed" to what they said and I want to stress that what is a principle to one man or to one nation in a given situation may in fact be a prohibition to another, and that when you talk principles in international law, one should examine them as to whether or not they are affirmative principles, encouraging actions, facilitating activity or whether they are essentially negative principles, prohibitory in nature, which restrain states from freedom of activity and establishing road blocks to the exploration and use of space for peaceful purposes. I think the positive or negative aspects of particular principles are very critical in that connection.

The principles that are embodied in the Treaty on Outer Space are essentially the consensus of the international community on what are "agreed" principles. I just want to stress and underline that word "agreed." I think it is a very important concept in the context of principles. Therefore, I am coming back to Professor Gorove's proposal that when you want to establish and discuss a legal regime to deal with manned space activities or space stations, manned or unmanned, you need to start with a definition of space

station. Then you need to define what are the legal requirements for such an activity and you yourself, Mr. Chairman, identified the number of potential legal problems that might arise in personal relations, contract relationships, torts, estates, marriage and criminal actions. We would have to define the need for legal regime or regulation and, then, having defined what it is we are talking about in the terms of the subject matter of the law, to whom and to what it would apply. Then we could look for the best vehicle, the best instrument, the best embodiment of that declaration of law.

So I see it essentially as a three-step approach which would begin with Stephen Gorove's proposal to try to define what is a space station, then identify your needs for law in that context (which is something quite different from being on the moon, quite different from being in a manned, low-orbiting craft with two people under the law of one state) and then try to find the best vehicle to carry that body of law into being and gain the endorsement of the international community, the recognition necessary for its enforcement and application.

*Mr. Alexander:* I think Mr. Doyle's statement has helped a great deal. I must admit, I took certain exception to the statements made by Mr. Finch. The notion that one should approach the problem of ERTS resource information, without first of all the clear idea as to what its economic impact is, is by itself faulty. It is essential that we identify the potential of ERTS, before we start making sweeping statements about the right of the nation overflowed to the information taken. I think the fact that we, at the moment, need ground truth is a transitory fact around which we cannot base long-range policy and I am not even sure if it is true at the moment. In military applications, I am sure it is untrue and, consequently, I doubt it is true in other applications.

I am upset by the notion that we should develop policy because, in the event that we are denied the legal right of overflight without permission, we would be able to obtain that information by clandestine means. I suppose that this would be a rationale that we would all immediately reject in almost any other context.

Finally, I am very much concerned about the rationale that free overflight is necessary because it is better for the overflowed nation because its resources will then be developed in a way that we in our wisdom and with technological superiority can determine. It strikes me if that caricature comes close to the description, it is obviously not quite the way we want to approach the problem. All of that leads me to suggesting that while I think an absolute prohibition by the overflowed nation might be counter-productive, I, for one, am concerned that we have not yet sufficiently examined the legal rights of the overflowed nation in specific contexts to throw them all into the pot and say the developed principles of international law bar the overflowed nation from prohibiting any use of outer space above its territory.

*Dr. Heere:* I want to point out that at the annual meeting of the Latin American Air and Space Society last year, they dedicated several days to the problem of what should be done with information developed by earth resource satellites and, at the end of it, a general declaration came out which was to be put forth to the United Nations. When

I hear from the Brazilian proposal, I can say it is only a tame reflection of what was said in this Latin American convention and that people felt rather hotly about all this. To say this is a regressive attitude, well from a certain point of view, yes. But if you had heard all the discussions, and they were not purely commercial, I don't know whether you would maintain the statement that everybody who is against his own country being let out into the world, is regressive. I must say the words of Dean Alexander console me a little bit.

*Mr. Finch:* The matter was discussed at the Inter-American Bar Space Law Committee in Rio last fall and some of the very points you make here, were made there. However, the Council and the nations of South America participating in that Inter-American Bar meeting did come out pretty much on the side of nonregressiveness favoring freedom of information and freedom of obtaining natural resources information.

*Dr. Heere:* I must say that at the meeting where I was they even discussed to what degree a country can prohibit being let open by earth resource satellites and whether it would be possible to have an organ to decide when a country cannot help to partake in the technical development of all this. They said after a certain time and under certain conditions, the international community should take over and the country cannot indefinitely keep back but they also said we want to discuss it for ourselves and how far this shall go.

*Mr. Hosenball:* I agree with everything you have said and the last point particularly. It may very well be that the best way to solve the problem is not necessarily a legal solution, but rather an organizational one. There are things that are either regional or international in scope that ERTS deals with, such as the environment, regional problems and rivers that flow through several countries. If one country can block a development, I am not sure that's the right thing. So I agree with you completely. The reason I personally think the Brazilian proposal is regressive is that I would prefer to see these other avenues explored from an international organizational standpoint rather than to put a prohibition on and a consent requirement on now, without seeing whether you cannot get the benefits and yet all the protections that you want to insure that might flow.

I just don't think that the use of ERTS is a sovereignty question. ERTS does not operate that way. You can't have a camera that just restricts itself to borders. There is loss of information and if that is important information, the international community should have, through an organizational sense, to decide whether this is in furtherance of international cooperation and understanding and for the benefit of our planet. I do want to put my statement in proper context. I think Ambassador Finch would agree with me. I do think there are other solutions that ought to be very deeply explored before we start proceeding with a treaty that, as Steve Doyle says, puts a prohibition into international law. It is very hard to change treaties later.

*Mr. Doyle:* I just wanted the opportunity, since everybody had agreed with everyone else, to join in with those agreeing with each other and to make one additional suggestion because, whether the motion be stated as a legal problem as I think it is, or as

an organizational problem, as you think it is, obviously a good deal of work has to be done. I would suggest that perhaps one of the remaining problems in the discussion is that we are still taking a universal approach to ERTS and I, for one, want to urge that consideration be given to types of information. I think there are clearly types of information, which I am not prepared to identify now, regarding which a nation must have a right of privacy. I am not at all sure if that has anything to do with anything that is presently operational. But I can certainly distinguish in my own mind between a kind of information that is required by the scientific community and some economic information that is crucial for the entire world and things that are uniquely economic and domestic. If somehow they develop a principle that immediately governs in the same way the whole spectrum, it does not seem to me exactly right.

*Mr. Heymer (Germany):* I'd like to know what you think about the principle that all space activity should be for the benefit of all mankind. How far does this principle go? Do you believe that all advantages space nations get from a space activity should be divided? Is it not impractical for a state and people of a state to answer such a problem of dividing the advantages between all mankind? Does this principle go so far that you should divide even financial or commercial advantages?

*Mr. Lay:* I think that a good deal of the discussion here is pointing up the problem between the theory and the practical aspect. Theoretically all activities in space are to be for the benefit of all mankind and this is a bit like many of the Latin American constitutions that say motherhood is to be cherished. True, it is to be cherished and everything that can be done to protect motherhood is to be done, but as a realistic matter, as a practical matter, while this is the goal to have benefits for all mankind, the nations which finance and have the technology to carry on these space activities are going to have control of it and there is just no way to get around it, unless we set up an international regime of some kind to take charge of the various space activities. Where will the financing for such an international regime come from? Again, you have the hard practical question because, generally, nations that have the technology and the money available are not going to turn it over to an international regime where they lose control over it.

So, I think we want to keep in mind that "for all mankind" is the goal. This is the *desiderata*. We want to have that as much as we can. But as a practical matter, we are going to have to recognize that a great deal of the space activity is going to be carried on by an individual nation for the benefit of that nation and secondarily to give the advantage to other nations. An example of this is the weather satellites that are launched or operated by the United States. The weather satellites will give a read-out to any nation that wants to take it. The U.S. does furnish to any nation that wishes it, the key and the guidance on how to interpret the read-out to their benefit. But if the U.S. chose not to do that, not to make the readout available to other nations and not to give the key to interpretation of the read-out to the other nations, as of the present time, I do not believe there is anything specific enough in any of the treaties, or in general space law, customary space law, or in customary international law to enable a nation that feels deprived to go to the International Court of Justice and compel the U.S. to make that available. So, we



have this distinction between the theoretical, desirable aspect of it and the realistic and practical aspect of it.

*Mrs. Galloway:* I think that it was unfortunate at a time when we were developing a technology for remote sensing that has so many beneficial purposes and uses and potentialities for the common good of all mankind, in monitoring global air pollution, land pollution, water pollution, and doing 99 things that you can mention, seeing where there are locusts landing or forest fires burning or when there's going to be a flood because you know how fast the ice is melting, that when all these things become available that are world-wide and global and are in tune with the Space Treaty of '67, that a rather small group of very vocal people, should simply hit upon this one negative aspect of earth resources. It is partly the name of it, it is partly because the word "resources" is in there that they think of natural resources. They then get back to the 19th century imperialism and you would think we are living a hundred years ago or more. They then emphasize this very negative aspect and even when you are talking with them, they do not admit that they control imports, they control exports, they control what is bought and sold on their land. Some of these things are sort of argumentative points and are not in line with the program, for example, of the Food and Agriculture Organization. If you see the kinds of projects that FAO has put forth for the use of ERTS-B, you get an idea of all potentials that come under this general concept of the benefit of mankind. One other small point: I have had correspondence with a number of people in Latin America who are worried about the meaning of the "province of all mankind." Because in Spanish the word "province" meant a territory of Spain and is used in other places. I have looked up the meaning of province in Russian, German, and other languages to see if I could straighten this out, but they are still worried about it.

If we cannot solve this, which is being done pragmatically at the present time by NASA regulations, if we can't solve this for ERTS A and B, for Skylab and for other space stations to come and Spacelab, we are going to run into the same kind of roadblock we ran into in connection with direct broadcast satellites in the U.N. I hope we don't but that could create again negative roadblocks in the evolution of the entire world of international law which is so important for the benefit of all mankind.

*Mr. Robinson:* I'd just like to make a comment after listening to Steve Doyle's remarks which seemed to be close to the edge of my way of thinking and some of the other remarks. There seems to be a bit of truth here and a bit of truth there. There seems to be some sort of righteous indignation about very realistic aspects of running a nation of people, not at all come together. The first impression I got was that there are a lot of places involved in space activities where law doesn't have any business. I think Neil Hosenball touched upon the theme that an organizational structure can be a good deal more responsive and kindly responsive to changing values of society brought about by communications and intercommunications brought about by the sheer technology of space-oriented activities itself. These values were touched upon by Stephen Doyle who talked about prevailing consensus. I think that means just that: prevailing at one particular time. It doesn't mean it is going to prevail very long.

I got a little concerned when everybody seemed to be of the general consensus that we are not talking about geographic demarcations at all. We are really talking about relationships: purposes, objectives, and relationships, and that's why we could take in five or six different types of regimes. That is more difficult to deal with but it has to be dealt with. It is easy, based on your own cultural heritage to say, I think the Brazilian concept of this particular national interest is regressive, but at the same time it is something that must be dealt with. It is a very real and legitimate interest to those people who are trying to protect their strong-felt rights and you can't dismiss it out of hand as regressive. On the other hand, it is certainly unrealistic if you do not recognize that some of these may come up as a leverage to obtain something else which may be strictly economical. It is done in negotiations for trade routes and other negotiations all the time. A small Caribbean nation can invoke the wrath of the world against the U.S. for some moral issue in order to gain something else of more immediate importance to them and it is legitimate and has to be dealt with. It makes me a little concerned. Maybe, I misunderstood a couple of people to say that the principles embodied in the 1967 Treaty are inviolate. I can see it as an organic act but I would hate to see us reluctant to use some imagination in anticipating disciplined creativity to interpret it.

*Gen. Menter:* You come to a good point to close. I appreciate your attention. I would like to turn the meeting back over to our Chairman.

*Dr. Christol:* Thank you very much, Gen. Menter, for chairing this portion of the meeting. My profound thanks to all of you who participated in or attended this meeting. I declare this Workshop to be closed.

2. *XVIIth Colloquium on the Law of Outer Space, Amsterdam, September 30-October 5, 1974*

The new President of the International Institute of Space Law, Dr. I. H. Ph. Diederik-Verschuur of the Netherlands presided over the XVIIth International Colloquium on the Law of Outer Space. She was assisted by a panel consisting of the Honorary President, Dr. Eugène Pépin (France), who served as President of the International Institute of Space Law for the past ten years, and the two Vice Presidents of the Institute: Mrs. Eilene Galloway (USA) and Dr. G. Zhukov (USSR).

Many nationalities were represented at the well-attended sessions and there were lively discussions of issues involving the combination of space technology and space law. Major problems discussed in the session on direct broadcast satellites were the role of the United Nations, the relationship of sovereignty to the free flow of information and ideas, and the coordination of international organizations which have responsibilities for space communications. The session on prospects of space law dealt with the new European Space Agency and the institution of consultation and space treaties. The last two sessions concentrated on the legal aspects of space stations and the problems involved in an operational earth resources satellite system.

Since the Institute is composed of individual members expressing personal views, which may not necessarily represent governmental attitudes, it is the practice not to vote on resolutions or take positions on issues as a body. The purpose of the colloquium is to present individual professional papers and exchange views.

Four sessions of the Colloquium were held: Direct Broadcasting by Satellites, on October 1, and Prospects of Space Law, International Organizations, and various other subjects, on October 3.

It was decided that the XVIIIth Colloquium, to be held in 1975, would be devoted to four sessions on:

1. Legal Aspects of the Utilization of Energy from Space,
2. Legal Status of the Geostationary Orbit,
3. Legal Aspects of International Space Cooperation,
4. Other Subjects.

The first session on energy from space will feature a round table of the International Academy of Astronautics and the International Institute of Space Law, organized by Dr. V. Kopal (Czechoslovakia) with invited papers, two legal and two technical, to start the discussion. This is to be a joint cooperative effort of the Scientific-Legal Liaison Committee of the Academy and the Institute. Additional papers may be contributed by other authors for discussion purposes, and all papers will be published in the Proceedings of the International Institute of Space Law for 1975.

Sessions on the Geostationary Orbit and miscellaneous subjects will follow the usual practices with authors being asked to limit remarks and not read their papers.

The Legal Aspects of International Space Cooperation is a general subject which may be developed by papers on Space Law Theory, the Draft Moon Treaty, the meaning of such general terms as "common heritage," "province of all mankind," etc.

Under the International Institute of Space Law system of voting, five members are elected to the 15-member Board of Directors every year for a three-year term. Those elected in Amsterdam were: Dr. Michael Bourelly (France), Prof. V. Kopal (Czechoslovakia), Dr. Nicolas M. Matte (Canada), Dr. Pompeo Magno (Italy), and Prof. G. Reintanz (German Democratic Republic).

Eilene Galloway  
*Vice-President, International  
Institute of Space Law, Member  
of the Editorial Advisory Board,  
Journal of Space Law*

### 3. *Other Events*

The fifteenth International Conference on Aerospace, Environmental and International Law and Trade took place on April 26, 1974, at the University of Pennsylvania under the chairmanship of Judge Harold Berger. The core participants in the space law field included Professor Stephen Gorove of the University of Mississippi Law Center who spoke on the Sources of Space Law, Judge Harold Berger who touched upon the theme of Space Law and World Government, and William D. English, Vice-President and General Counsel of COMSAT General Corporation who addressed himself to the legal problems of satellite communications.

Current problems of space law were discussed during the annual convention of the Federal Bar Association, held in Washington, D.C. on September 3-7, 1974. On Wednesday, September 4, the Space Law Committee, chaired by Harold Berger, held a panel discussion on the problems of direct broadcast satellites and earth resources satellites. The panelists were Edward R. Finch, Jr., Chairman of the American Bar Association Committee on the Law of Outer Space; Mrs. Eilene Galloway, Senior Specialist in International Relations, Congressional Research Service, The Library of Congress; and Carl F. Paul, Jr., Chief Trial Counsel, National Aeronautics and Space Administration.

A Regional Conference on Direct Broadcast Satellites and Space Law sponsored by the American Society of International Law and the L.Q.C. Lamar Society of International Law was held at the University of Mississippi Law Center on November 1, 1974 under the chairmanship of Professor Stephen Gorove. The papers and presentations included: A Keynote Address on Direct Broadcast Satellites by Eilene Galloway of the Library of Congress; Current Community Broadcast Programs Using Space Satellites by Arnold W. Frutkin, Assistant Administrator for International Affairs at NASA; Broadcasting Satellites—Prospects and Problems by James J. Gehrig, Professional Staff Member of the Committee on Aeronautical and Space Sciences of the U.S. Senate; Legal Impact of Direct Broadcast Technology by Dr. Irwin M. Pikus, Consultant in Science and Law, of Elkins Park, Pennsylvania; The Question of the Law Applicable in Cases of Damage Caused by Direct Broadcast Satellites by Dr. Christian Patermann, Scientific Attache at the Embassy of the Federal Republic of Germany in Washington, D.C.; Direct Broadcast Satellites: Issues of Law and Policy by Professor Stephen Gorove, Chairman of the Graduate Law Program at the University of Mississippi Law Center. The papers and presentations as well as the panel and open discussion are expected to be published in 1975 in the *Journal of Space Law*.

### 4. *Brief News*

The United States' first commercial domestic communications satellite, Westar-1, was launched by NASA for Western Union in April 1974. A few months later, Western Union inaugurated the first all-U.S. domsat service, offering rates up to 50 per cent below terrestrial communications costs. Westar-2, launched in October 1974, is expected

to transmit more than 12 color television channels or 14,400 one-way telephone circuits through five Earth stations located near the metropolitan areas of New York, Atlanta, Chicago, Dallas and Los Angeles. A third spacecraft launching is planned at a later date.

Written plans for the NASA Space Shuttle have been completed. The initial operation will be based on a combination of aircraft and spacecraft control techniques and will feature fully automatic command for launch, to orbit, reentry, and landing phases. The plan gives the crew members the option of manual control and full responsibility for primary control while the shuttle is in orbit. The orbiter will have large aerodynamic surfaces which will permit the crew to fly it back to conventional landings following reentry. It is presently configured to be 122 feet long and have a wing span of 72 feet.

The initial development of what could evolve into a world-wide, space-based navigation system is under way at the Space and Missile System Organization (SAMSO). Navastar, or Global Positioning System, as it is called, will be capable of providing airborne, ship, or ground users with highly accurate position and/or velocity information at any time of the day. Navastar, in its full, operational capability, will consist of a complex of 24 satellites, grouped into three rings. The system is to be completed within a decade.

Thirty-nine scientists will provide experiments aboard two Pioneer spacecraft which NASA will send to Venus in 1978. The primary objective of the twin mission is a detailed investigation of Venus' atmosphere. One spacecraft will orbit Venus transmitting data for a full Venus year (8 months). The other spacecraft will launch probes into the Venus atmosphere and descend to the planet's surface.

European Space Technology Center (ESTEC) officials are working to maintain their time-table on the development of Spacelab, a \$370,000,000 orbital laboratory, so that it may be ready to be on board the first U.S. Space Shuttle in April, 1980. Present efforts at ESTEC are in the "consolidation" phase in which efforts are being made to improve the weaker areas of Spacelab.

NASA is starting a major study to chart a space program from 1980 through the year 2000. A twenty-member NASA team under the direction of Donald Heath of Goddard Space Flight Center will work with industry, other government agencies and universities on the project, entitled "Outlook for Space." Included in the study will be considerations of the potential commercial and operational uses of outer space. The project will also cover the following space activities: the search for extra-terrestrial life; interstellar probes; planetary exploration; manned bases and laboratories in Earth orbit, on the moon, and on the planets, and space colonization; monitoring of terrestrial weather; space processing and manufacturing; and the use of outer space for terrestrial energy supply.

*The Law of Outer Space*, by Manfred Lachs (Sijthoff, Leiden, 1972, pp. 196).

Outer space law is a new branch of law which, with some exceptions, began its development after the first Soviet satellite was placed in orbit on October 4, 1957. The first works on the subject of space law were generally monographs authored by specialists in air law. However, it soon became apparent that broader descriptions of the principles of space law were in order, so the first general works on the subject began to be published in the sixties. With further developments in space research and capabilities, the need for even more comprehensive works became clear, and many interesting general legal texts on space law have been published in recent years.

One of the most interesting and best documented of the recent general works is the subject of this book review. Professor Lachs possesses the qualities of a brilliant lawyer in the field of general international law plus those of a specialist in the particular discipline of space law. He is the author of many important works of general international law on such subjects as multilateral treaties, revision of the United Nations Charter, the armistices, the contribution of the United Nations to the development of international law, and problems of substance and form in international law. As President of the Legal Subcommittee of the United Nations Committee for the Peaceful Uses of Outer Space, Professor Lachs had the opportunity to participate in the formulation and development of the international conventions of space law in the Legal Subcommittee. Consequently, he has been able to prepare what is probably the most complete documentation of the law of outer space ever to be published in a single book. This book has tremendous utilitarian value for both students and experts in space law as the text treats of almost every problem that was encountered in the development of current space law. The international lawyer will find in this book an example of the progression of law-making in a specialized area which could be useful to law-makers in other branches of international law, especially when the special character of space law and its rapid development are considered. The author emphasizes this special character in the first chapters and in the conclusions of this book.

The author restricts his analysis to discussion of the problem of responsibility in space. Since the publication of this book, many new problems have arisen in space law, e.g., those relating to direct broadcast from satellites, discovery of the earth's resources by satellites, and registration of space vehicles. It is unfortunate that the author's comments are limited to the problem area of responsibility. The new problems of space law and the author's extraordinary capacities in treating problems of space law justify, in our opinion, a new edition of this book to aid those who need comments on the most recent problems of space law.

Dr. Michael Smirnoff  
*Member of the Board,*  
*International Institute of Space Law,*  
*Member of the Editorial Advisory Board*  
*of the Journal of Space Law*

*The INTELSAT Definitive Arrangements: Ushering in a New Era in Satellite Telecommunications*, by Richard R. Colino (Monograph No. 9, European Broadcasting Union, Geneva, Switzerland, 1973, pp. 196).

*INTELSAT: Policy-Maker's Dilemma*, by Judith T. Kildow (D. C. Heath & Co., Lexington, Mass., Toronto, London, 1973, pp. 118).

*Global Communications Satellite Policy: INTELSAT, Politics and Functionalism*, by Joseph N. Pelton (Lomond Books, Mt. Airy, Maryland, 1974, pp. 183).

These three studies add to and deepen our understanding of INTELSAT, a unique international organization, which provides, on a commercial basis, the space segment required for international public telecommunications services. Furthermore, these three works approach the common subject matter from different perspectives and are thus not redundant additions to the literature. However, they are not of equivalent merit.

Colino's monograph contains 108 pages of text plus footnotes and copies of the two INTELSAT Definitive Agreements which entered into force on February 12, 1973. Colino is the Assistant Vice-President for International Affairs of the Communications Satellite Corporation (Comsat). His study is the most detailed and meticulous of the works reviewed. Unlike the other two books, his effort is that of an experienced insider. However, it is not official Comsat history; it is not dry and dull, but is informed by a lively practical perspective as well as occasional theoretical asides.

Colino discusses the establishment of INTELSAT on an interim basis in 1964, its growth from 14 nations to over 80, and the evolution of the technology to a point where global service was achieved in 1969. The Interim Arrangements called for negotiation of Definitive Arrangements and these talks lasted from February 24, 1969 till May 21, 1971. Colino discusses the politicized climate which surrounded these efforts. He points out that "whereas the interim arrangements were based upon and reflective of a commercial policy orientation and a pragmatic approach, the definitive arrangements do not represent as clearly a particular philosophy." There is a mix of commercial and public interest objectives.

Colino compares the Interim and Definitive Arrangements by examining seventeen issue areas. Among the most salient were: (1) voting power, in which the U.S. share was lessened to 40%; (2) procurement policies, in which the desire of certain European countries to award contracts on a world-wide basis rather than on purely merit considerations was compromised by allowing for international procurement in case of equal bids; and (3) the structure of INTELSAT which evolved from a two-tier format having a governing body with weighted voting and a manager, Comsat, to a four-tier arrangement in which there is a Board of Governors with weighted voting and operational responsibilities, an executive organ with which Comsat has a six year management contract, an Assembly of Parties or states, and a Meeting of Signatories or operating telecommunications entities. The latter two organs are new and have principally recommendatory powers.

Colino continues with an analysis of two pressing issues which can affect the very viability of INTELSAT: (1) the relation of INTELSAT to other satellite systems; and (2) the specialized services controversy. The proliferation of additional communications satellite systems could undermine INTELSAT, but Colino does not see this as a likely possibility because of the investments of over 80 states in its existence. INTELSAT has provided point-to-point public services but, in the future, technology will allow for specialized maritime, aeronautical, and other services. Colino appears to favor having INTELSAT provide some of these services, although the Definitive Arrangements do not designate it as the primary international organization in this area.

Colino concludes his monograph with the observation that INTELSAT is unique in content if not in form. INTELSAT is "man's first major international cooperative venture in space," and Colino provides the reader with an essential study of its evolution.

Kildow's book has less facts but more political evaluation than Colino's study. Kildow is a research associate at M.I.T. She is interested in Comsat and INTELSAT as a case study of U.S. foreign technology policy. She asks whether U.S. policy has been made rationally and whether INTELSAT promotes international cooperation. Comsat is not seen as a unique corporation with Presidentially-appointed directors as well as carrier and public directors, but as analogous to an aerospace contractor solely dependent upon government contracts. Since Comsat contracts with private common carriers, this analogy is misleading.

Kildow sees the establishment of INTELSAT in 1964 as representative of not only the primacy of the United States in communications satellite technology, but the dominance of the U.S. and Comsat. The inclusive rather than exclusive uses to which the new technology has been put are not emphasized. This perspective sometimes leads her to overstate the case. For instance, under the Interim Arrangements, decisions were arrived at by consensus, but Kildow contends that Comsat determined the outcomes.

At other times Kildow's perspective enables her to shed light on the opponents of U.S. primacy in communications satellite technology as well as the factors driving Comsat to become a hardware manufacturer as well as a carrier's carrier. However, the benefits of a comparative perspective are lacking. Is there any other U.S.-developed technology which through global access and use has been used to undermine colonial patterns of dependency rather than create neo-colonial ties? Could one imagine an INTELSAT for oil, copper, or air transport?

Kildow concludes that "U.S. foreign policies are less and less the products of diplomats and more and more the policies of corporate directors and technicians." Yet there is no general, much less specific, evidence to support this proposition. In the beginning of her book, she mentions the diverse governmental and nongovernmental actors in the policy-making process, but in the end she makes it appear as if policy was entirely made by Comsat rather than being the outcome of consensus-building processes, both nationally and transnationally. In short, Kildow's evaluations and propositions are often not supported by the facts or reasoned analysis. The degree to which the U.S. has



shared communications satellite technology in a beneficial manner is not recognized. Nor is the inclusiveness of INTELSAT as compared to other existing and proposed satellite communications systems.

Pelton's book evaluates INTELSAT from two principal perspectives—the functional theory of David Mitrany and Ernst Haas and the relation of INTELSAT to the growth and spread of multinational enterprise. Pelton is now Executive Assistant to the Secretary General of INTELSAT.

Pelton sees INTELSAT as only superficially resembling a true international functionalist organization because it does not perform welfare functions. This analysis leads him to compare INTELSAT to multinational corporations (MNC's) as non-welfare-oriented commercial entities. Pelton concludes that MNC's integrate nations more than transnational professional associations which have been the traditional subject of functionalist literature. The reason for INTELSAT's international success, compared to EURATOM or ELDO, is specifically because it is managed on a commercial basis rather than being based on legal equality and devotion to broad political goals. However, the success of INTELSAT and other commercially oriented international functional organizations such as IATA does not undermine nationalism. These organizations integrate nations in a restricted and specialized manner with hardly any spill-over effects. However, Pelton does see INTELSAT serving as an organizational prototype for new scientific and technological ventures in space, maritime matters, etc.

Pelton's book is the most theoretical of those reviewed, yet it also contains a well-written and informative narrative of the evolution of INTELSAT. It ideally combines theory with practical concerns.

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