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Announcement

The Journal wishes to express its sincere appreciation to Dr. I.H.Ph. Diederiks-Verschoor, President of the International Institute of Space Law, for soliciting and contributing articles and reports to this issue.

CONSENSUS DECISIONMAKING BY THE UNITED NATIONS COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

*Eilene Galloway**

I. *Introduction*

The use of consensus as a method for decisionmaking by the United Nations Committee on the Peaceful Uses of Outer Space has proved remarkably successful in bringing about legal agreements for international space cooperation. The high degree of achievement, demonstrated in the drafting of four space treaties which have been ratified by many nations, raises the question—especially in the minds of those who seek international cooperation in other areas—of the reasons why decisions by concensus have been attainable.

II. *What is Consensus?*

Consensus is one method whereby a group reaches a decision. It is not the only way of coming to agreement on an issue or a course of action and, indeed, is somewhat unique as compared to various types of voting. Decisions by voting may require qualified voters to pass measures by a majority, two-thirds, three-fourths, or unanimous vote and each method may be appropriate for the situation in which it is used. The degree of required positive action depends upon advance determination by a group of those situations which range from minimum to maximum requirements for broad-based support. At one end of the scale is majority voting to decide matters which the whole group is willing to accept by that procedure; at the other end of the scale is unanimous voting which may be required in situations identified as so important that the possible non-compliance of one member can jeopardize the attainment of a goal considered essential for the whole membership. Unanimous voting can also take the form of acclamation when such favorable attitudes have been formed prior to voting that they evoke sudden decisions.

The next question concerns the difference between consensus and unanimous voting. There is no difference in the result which produces a legal document, agreement on undertaking a program, appropriating funds, etc. The difference between consensus and unanimous voting lies in the process used to achieve the end result; consensus is achieved without voting whereas voting is required for a unanimous record. The process of consensus can set in motion certain positive attitudes which carry over beyond the agreement and tend to facilitate implementation of formal agreements. This is because consensus is achieved by patient negotiation in reconciling different viewpoints until reaching a point where no member objects to the result. Although the consensus process has been successfully followed by the United Nations Committee on the Peaceful Uses

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of Outer Space, it was not explicitly defined. The "no objection procedure" is used whereby the chairman, sensing that agreement has taken substantial form, states "*if* there is no objection, it is so decided."

The United Nations Juridical Yearbook, 1974, includes an analysis of the "Use of the Term 'Consensus' in United Nations Practice" in connection with a meeting of the Population Commission:

> The Director of the General Legal Division, Office of Legal Affairs, stated that no plenipotentiary conference under United Nations auspices had included in its rules of procedure a provision on consensus, partly due to the fact that it was somewhat difficult to arrive at an exact definition of consensus, and partly because the objective which was usually sought, namely, that every effort should be made to achieve a consensus before a vote was taken, could better be achieved by simply an understanding at the beginning of the conference. In United Nations organs, the term 'consensus' was used to describe a practice under which every effort is made to achieve unanimous agreement; but if that could not be done, those dissenting from the general trend were prepared simply to make their position or reservations known and placed on the record.[1]

The Council of the World Population Conference, 1974, approved provisional rules of procedure and the annex on consensus recommended by the Population Commission states "that it is highly desirable for the World Population Conference, 1974, to reach decisions on the basis of consensus, which is understood to mean, according to United Nations practice, general agreement without vote, but not necessarily unanimity."[2]

The Director of the General Legal Division pointed out that the Third Conference on the Law of the Sea has rules on requirements for voting including a provision whereby taking a vote on a substantive question can be deferred for a period of time during which the President "'shall make every effort, with the assistance as appropriate of the General Committee, to facilitate the achievement of general agreement . . .' If "all efforts at reaching general agreement have been exhausted," the voting procedures adopted by the Conference can be followed.[3]

The Conference on Security and Cooperation in Europe, whose Final Act was signed in Helsinki on August 1, 1975, includes a definition of consensus in its Rules of Procedure—

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[1] U. N. Jurid. Yb. 163-164 (1974).

[2] *Id.* at 164.

[3] *Ibid.*

> Decisions of the Conference shall be taken by consensus. Consensus shall be understood to mean the absence of any objection expressed by a Representative and submitted by him as constituting an obstacle to the taking of the decision in question.[4]

It is evident that consensus is a highly desirable way of achieving international accord because (1) the process of seeking agreement continues with patience and is not cut off suddenly by a vote which may defeat what might have come to fruition had more time been taken with the give and take process of consensus; (2) the situation may be such that a majority vote could not result in the "adoption" of a course of action, particularly if implementation of the decision, in terms of funding, personnel, and technological expertise, depended upon nations which had voted against the measure; and (3) group solidarity in decisionmaking ensures maximum compliance in establishing and maintaining an activity of general benefit. There is also a positive psychological effect when members of a group feel together with sympathy for differing viewpoints, motivated by a desire to bring about harmony in their collective judgment. If a member has not objected, a proposal can be adopted but this unspoken consent should not be interpreted as negativism; there is a positive willingness to settle the issue in question.

Before analyzing the reasons why the United Nations Committee on the Peaceful Uses of Outer Space has succeeded in negotiating four space treaties by consensus, it is necessary to recall the historical background of adopting this rule of procedure.

III. *Adoption of Decisionmaking Procedure by the United Nations Committee on the Peaceful Uses of Outer Space*

On December 12, 1959, the General Assembly adopted resolution 1472 (XIV) creating the permanent United Nations Committee on the Peaceful Uses of Outer Space which followed the Ad Hoc Committee created on Dec. 13, 1958 by resolution 1348 (XIII).[5] Although there was general agreement among the 24- member Committee on some of the most critical issues—the common interest of mankind in the peaceful uses and exploration of outer space, the avoidance of national rivalries, and emphasis on international cooperation—nevertheless, there were three questions which were not resolved for almost two years and the Committee met only once, on November 27, 1961, when little more than a month remained in the two-year terms of the appointed members. The issues which impeded progress in the Committee's work were unanimous versus majority voting, the designation of officers of the Committee, and the

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[4]Conference on Security and Cooperation in Europe. Final Act. 6. Rules of Procedure (69) 4 (August 1, 1975).

[5]A history of the Ad Hoc Committee on the Peaceful Uses of Outer Space and events leading up to the creation of the permanent Committee will be found in "International Cooperation and Organization for Outer Space" by Eilene Galloway. Staff Report Prepared for the Senate Committee on Aeronautical and Space Sciences, Doc. No. 46, 89th Cong., 1st Sess. 183-193 (1965).

international scientific conferences.[6] It is apparent from discussions reported in United Nations documents that unanimous voting was associated with the right to veto which was objectionable to many nations, whereas achievement of agreement by consensus was a non-voting method of procedure. This difference may seem more subtle in theory than in practice. In practice, the main difference is that the process of achieving a consensus can continue so that discussion and negotiation are not ended abruptly by a vote which may produce a negative result no member really wants. Also, in the case of the uses and exploration of outer space, there were originally only two nations with advanced space technology, the United States and the USSR, and even majority voting by non-space countries could not become the deciding factor in the development of national space programs. The difficulty of working out a decisionmaking procedure was expressed by Mr. Demetropoulos of Greece who analyzed the situation as follows:

> Unanimity is certainly something that one should hope for, and delegations make laudable efforts to reach unanimity by private talks, amendments, compromise, avoiding a vote on important resolutions before an acceptable formula has been found. But to require unanimity a priori would impede the work of the Committee and the possibility of any progress. The principle of unanimity goes against the principle of equality, since one State could have greater importance than all the others.[7]

After considerable discussion and negotiation, a draft resolution was sponsored by the 24 member nations on "International Cooperation in the Peaceful Uses of Outer Space"[8] and U. S. Ambassador Adlai E. Stevenson said that the new proposal represented the best thinking on ways to achieve cooperation of benefit to all nations and that—

> We look forward to constructive discussions of these proposals—and to improvement upon them. They do not represent fixed positions. We are prepared to consider constructive suggestions from any member of the committee so that the widest possible measure of common agreement may be reached.[9]

The membership of the Committee was expanded from the original 24 agreed to by the General Assembly on December 12, 1959, to 28 nations on December 20, 1961, and a compromise was reached on the issue of voting. The agreement was that the Committee would try to reach agreement by consensus, *i.e.*, without voting, but if voting is required the decision would be made by majority voting. Mr. Plimsoll of Australia summarized the situation—

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[6]U. N. Doc. A/C.1/PV. 1213 at 41-42 (December 7, 1961).

[7] *Op. cit. supra* note 5 at 198.

[8]U. N. Doc. A/C.1/L.301/Rev. 1 (Dec. 11, 1961). See also Docs. A/4987; A/C.1/857 (21) on Report of the Committee on the Peaceful Uses of Outer Space.

[9]U. N. Doc. A/C.1/PV.1210 at 6 (Dec. 4, 1961). See also Dept. State Bull. 180-186 (Jan. 29, 1962).

> . . . There were discussions over a period of 2 years between the Soviet Union and the United States, each of them from time to time consulting other countries on the Committee so that they could not be regarded as speaking only for themselves but rather each of them speaking for a number of countries. In the end the final position of the United States, before the General Assembly met, was the following one. It was a position that was adopted after consultation with many countries, including Australia. Therefore, it is the position of the Australian Government also.
>
> The position was that there should be statements made at the Committee on the Peaceful Uses of Outer Space by any countries which wish to make them, including no doubt the Soviet Union and the United States, but possibly others, on the principles of voting relating to the Committee, and at the end of it the Chairman of the Committee would make the following statement, agreed in advance with all members. The Chairman of the Committee would say this: "If there is no objection, the Committee takes into account the statements which have just been made by the delegations of the United States and the Union of Soviet Socialist Republics. While there can be no question but that this Committee is governed by appropriate rules of the General Assembly, I interpret what has been said to mean that it will be the aim of the members to conduct the Committee's work in such a way that the Committee will be able to reach agreement in its work without need of voting. . . ."[10]

Agreement on the consensus procedure made it possible for the General Assembly to adopt by unanimous vote resolution 1721 (XVI) on December 20, 1961, a resolution which contains many of the principles which were later included in space treaties.

During the spring of 1962, the Committee on the Peaceful Uses of Outer Space began its practice of using consensus as the method for making decisions. On March 19, 1962, the Chairman, Dr. Franz Matsch (Austria) announced that—

> In the first place, I should like to place on record that through informal consultations, it has been agreed among the members of the Committee that it will be the aim of all members of the Committee and its subcommittees to conduct the Committee's work in such a way that the Committee will be able to reach agreement in its work without need for voting.[11]

IV. *Significance of Space Treaties*

Outer space was added to land, sea, and air as a fourth environment of the world. Space science and technology which brought about this development are inherently international dynamic forces applicable to a great variety of activities. Global systems of space communications and meteorology, progress in navigation and mapping, monitoring of air, land and sea pollution to improve the quality of the Earth's total environment, these are but a few of the peaceful purposes which can benefit all mankind. At the same time, there was early recognition that outer space could become

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[10]U. N. Doc. A/C.1/PV.1211 at 26-27 (Dec. 5, 1961).

[11]U. N. Doc. A/AC.105/OR.2. at 5 (Mar. 19, 1962). See also U. N. Doc. A/5181 at 3-4 (Sept. 27, 1962).

an arena for warfare and fear of this possibility produced the strong and universal motivation to prevent outer space from being used for armed conflict.

The method used to ensure that outer space be used for peace and not for war was the creation of international space law. Patterns of international cooperation developed in accordance with bilateral and multilateral agreements and the texts of space treaties were drafted by consensus among the members of the United Nations Committee on the Peaceful Uses of Outer Space. Instead of the two original space powers, the United States and the USSR, seeking to monopolize the development of space activities, agreement was achieved on international cooperation and participation of all nations.

The use of consensus in the United Nations negotiation of the texts of space treaties did not result in adoption of the least common denominator on which agreement could be reached; that is, on insignificant matters of low-level concern. Instead, we find that the most important issues have been decided and made a part of international law. The outstanding results of the agreements reached by consensus contradicts those who alleged that this type of unanimous support could only be achieved on minor points.

Between 1967 and 1976 four space treaties have come into force, and in each case the consensus method was used by the Legal Subcommittee of the UN Committee on the Peaceful Uses of Outer Space in formulating agreed texts and bringing about this body of space law. The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies entered into force on October 10, 1967.[12] On December 3, 1968 there was entry into force of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space.[13] The Convention on International Liability for Damage Caused by Space Objects of October 9, 1973[14] represents one of the most important international agreements whose detailed provisions are designed to avoid difficulties which could arise in connection with space activities. On this Convention four delegations—Canada, Iran, Japan and Sweden—reserved their positions on the substance of the text because it omitted proposals they favored for full compensation and binding decision of the Claims Commission. Their reservations did not constitute an objection to forwarding the text to the General Assembly but they reiterated their positions in the First Committee and abstained from the General

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[12]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] 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 (effective Oct. 10, 1967).

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

[14]The Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, April 22, 1968, entered into force for the United States on December 3, 1968; [1968] 19 U.S.T. 7570, T.I.A.S. No. 6599, 672 U.N.T.S. 119.

Assembly vote.[15] Later, however, Iran ratified the Convention and accessions were deposited by Canada and Sweden.[16] This episode strengthened the use of consensus as a method of international cooperation, patience and consideration being exercised rather than resort to procedures which could obstruct attainment of some desired objectives.

The process of international cooperation was furthered by the Convention on Registration of Objects Launched into Outer Space which entered into force on September 15, 1976.[17]

These treaties are not the only component parts of international space law which also includes international law, the United Nations Charter, the Nuclear Test Ban Treaty of October 10, 1963 and innumerable bilateral and multilateral agreements made by the National Aeronautics and Space Administration in accordance with the National Aeronautics and Space Act of 1958. Space law also includes agreements by the European Space Agency, applicable rules and regulations of the International Telecommunication Union (ITU), legal agreements establishing the International Telecommunications Satellite Organization (INTELSAT), INTERSPUTNIK, etc.

Although the use of consensus as a decisionmaking mechanism is advantageous and has proved successful when applied to several complicated subjects, it cannot be expected that this method, in and of itself alone, will automatically produce conclusive results in all cases.

V. *Reasons for Difficulty in Attaining a Consensus*

It takes time to reconcile differing viewpoints expressed on issues involved in any problem. The amount of time depends upon a variety of factors: the urgency for decision generated by perceived dangers which must be avoided at all costs; political and economic factors which may be linked to other problems and thus cause delays; irreconcilable elements combined with a sense that the subject has not ripened for final disposition; the frequency with which decisionmaking bodies meet; and the lack of an institutional structure with authority to make final decisions.

For some years there have been several subjects pending before the Legal Subcommittee. Lack of agreement has caused these items to be put forward on the agenda for each successive year, and this was true even before the Committee's

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[15] *Ibid.*, U. N. Gen. Ass. 26th Sess., Supp. 20, Doc. A/8420/1971, para. 35. Report of the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space. Doc. A/AC.105/94, para. 24 (July 8, 1971).

[16] Space Law: Selected Basic Documents, Sen. Comm. on Commerce, Science, and Transportation, 95th Cong. 2nd Session 67-68 (2nd ed., 1978)

[17] The Convention on Registration of Objects Launched into Outer Space, was signed on January 14, 1975 and entered into force on September 15, 1976; T.I.A.S. No. 8480.

membership was increased from 37 to 47 beginning with 1978 sessions. Admitedly, it is more difficult to get agreement from a larger than a smaller group, but the Moon Treaty text had been discussed for seven years prior to the enlargement of the Committee on the Peaceful Uses of Outer Space. Generally speaking, each item on the agenda of the Legal Subcommittee has become a problem with such basically divergent elements that the task of reconciling the differences is difficult and time-consuming. Nevertheless, in each case there are areas of agreement which provide momentum for continuing discussion.

The formulation of four international legal instruments, by direction of the General Assembly, has occupied the attention of the Legal Subcommittee for some years without resulting in a consensus.

First, the text of the draft treaty on the Moon and other celestial bodies comprises many points of agreement but the major unresolved issue concerns the use and exploitation of the Moon's natural resources. Is the Moon to be declared the common heritage of all mankind and, if so, what type of international regime should apply? And exactly what specifically is meant by "regime"?

Second, the direct television broadcasting by satellite is another item assigned as a high priority by the General Assembly and the proposed principles to govern this activity include some issues which have thus far proved irreconcilable. Although there are agreed provisions, the main undecided questions are whether or not a broadcasting nation must obtain the consent of other nations prior to broadcasting; and whether or not each receiving nation shall exercise control over the content of programs.

Third, the Legal Subcommittee is also required by the General Assembly to give high priority to the legal implications of remote sensing of the Earth from outer space in order to formulate draft principles. The result thus far has been a draft text with numerous square brackets around disagreed points. The major issue is whether or not a sensed State's prior consent must be obtained by a State which conducts remote sensing. Furthermore, there are States which wish to control the dissemination of data and information about their resources, particularly before such information is given to third parties.

Fourth, agreement is being sought on the definition and/or delimitation of outer space and outer space activities including questions relating to the geostationary orbit. Although the distinction between airspace and outer space has been of interest to several nations, and fascinating to individuals, since the beginning of the space age, it has not been discussed as fully as the three problems previously mentioned because the Legal Subcommittee lacked time. Further, lack of a definition has not impeded progress in space science and technology and its applications to beneficial uses, particularly communications and meteorology. In the last two years, however, increased interest has developed concerning a definition of outer space, but a move toward attaining a consensus is not in the same advanced stage of development as in the cases of draft texts relating to the Moon, direct television broadcast satellites, and remote sensing of the

Earth from outer space. The definition of outer space has been discussed sufficiently, however, so that at least one irreconcilable element has been identified: the claim by equatorial countries that the segment of the geostationary orbit over their territory is subject to their sovereignty rather than being in outer space as provided in the 1967 Treaty on Outer Space.

The conclusions which may be drawn from experience with negotiations on unresolved issues before the Legal Subcommittee are that (1) issues require different amounts of time to resolve; (2) when positions are taken on the basis of different political systems, the conflicting assumptions are more difficult to reconcile in an agreed text; (3) while it is more difficult to get agreement in a large committee, a difficulty that increases with size, the increase in the Committee's membership from 37 to 47 is not the basic cause of lack of consensus on the pending issues; (4) when divergent views are rooted in different political and cultural philosophies, lack of agreement cannot be blamed on the *method* of reaching that agreement whether it is by unanimous voting, majority voting, or consensus. It is the *substance* of the goal that is at stake and not the parliamentary mechanism by which the destination is to be reached.[18]

VI. *Reasons for Success of the Consensus Method by the United Nations Committee on the Peaceful Uses of Outer Space*

The Committee on the Peaceful Uses of Outer Space was the first United Nations body to decide to use consensus as the procedure for its work. An analysis of the reasons why the Committee, its Legal Subcommittee and the Scientific and Technical Subcommittee, have been successful in using this method to formulate four space treaties, now ratified by many States, should prove helpful to other United Nations organizations working on complicated subjects. The analysis should also sustain the Committee in the wisdom of its choice.

First, there was at the beginning of the space age a strong and prevailing motivation for international cooperation and agreement because of the realization that space science and technology could be used for peace and war. To promote peaceful purposes and avoid hostile conflicts was an objective which unified those who were responsible for planning guidelines for the future. So strong was the motive to use outer space for the benefit of all mankind that claims of sovereignty, the most critical of issues, could be prohibited by treaty.

Second, the nature of space science and technology contributed to emphasis on peaceful uses, not only because of the wide variety of space applications but also because satellites encircled the Earth every 90 minutes in orbits which disregarded national boundaries and emphasized the necessity for international space cooperation.

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[18]Report of the Committee on the Peaceful Uses of Outer Space. General Assembly, 32nd session, supplement No. 20, Doc. A/32/20 (1977). See also the Committee's report for the 33rd session, supplement No. 20, Doc. A/33/20 (1978) and Reports of the Legal Subcommittee: Docs. A/AC.105/196 (April 11, 1977) and A/AC.105/218 (April 13, 1978).

Third, the problems which could be identified as likely to arise in the future were multidisciplinary and involved the integrated analysis of many factors: scientific, technological political, economic, legal and cultural. It takes time to figure out how best to handle such problems and the process of consensus is attuned to time-consuming analysis. If foresight is to result in a prudent course of action, each element of a problem must be weighed and evaluated with regard to the probable consequences of different options. Sometimes technical or economic factors are weightiest in settling an issue; in other circumstances, political or legal factors may become paramount. Even though all the considerations which go into making a decision are time-consuming, it is noteworthy that the Committee on the Peaceful Uses of Outer Space negotiated by consensus four complicated space treaties which came into force in less than ten years.

Fourth, the chairman of the Committee, as well as the chairmen of the two subcommittees, play a key role in the consensus process. The chairman must be sensitive to the group psychology in sensing when a subject is ripe for agreement, feeling that there is not likely to be an objection, and at exactly the right moment being able to say "If there is no objection, it is so decided." The chairman must not be dictatorial in forcing his own position on the group, but must gain the respect of all Members in recognizing his objectivity in perceiving varying viewpoints. The Committee on the Peaceful Uses of Outer Space has been outstandingly successful in the chairmen who have presided over the full Committee, the Legal Subcommittee and the Scientific and Technical Subcommittee. Much of the successful use of the consensus procedure is due to the outstanding abilities of the distinguished chairmen.

Fifth, for the longest period of its history, the Committee's membership has been small enough to be viable and facilitate personal contacts and negotiation. There is a point beyond which expansion of membership would undoubtedly delay the process of achieving agreement and could even be completely counter-productive.

Sixth, achieving agreement by consensus requires give and take in negotiations. When issues are presented with sufficient margins to allow for developing a common ground, the time of negotiation is shortened. Irreconcilable elements which are sharply drawn can result in unyielding positions which frustrate the achievement of collective group judgment. There are many examples in the history of the Committee on the Peaceful Uses of Outer Space of proposals which were originally far apart but, gradually, differences were narrowed so that ultimately the group could make a collective judgment.

Seventh, some methods have been developed to facilitate the consensus procedure. The Committee, as well as its subcommittees, establish working groups for informal discussions of perplexing matters. The working groups may set up mini-working groups for even more informal consideration of difficulties in identifying elements of problems or the precise wording likely to produce agreement. The practice of preparing a text which indicates areas of agreement, and sets disagreeing sections in square brackets, is valuable to all Members who then know exactly what remains to be done before the whole question is decided. Such texts also project into the future the assignment of a

continuing task which will be considered until a satisfactory conclusion is reached. A certain sense of momentum is created in the group whose members seem psychologically headed toward making a contribution to international cooperation in the peaceful uses of outer space.

THE STRATEGY OF SEMANTICS AND THE "MANKIND PROVISIONS" OF THE SPACE TREATY +

Adrian Bueckling *

I

Semantics,[1] which means making unpleasant things more palatable to the general public by using certain words and ideas, or by embellishing, concealing or exaggerating facts, is as old as time or language itself. Being a vehicle for social communication, language always contains elements capable of intensifying feelings and emotions.[2]

The calculated use of language is widespread in the field of politics, economics and culture. It is impossible to obtain a comprehensive picture or to enumerate all the penetrating advertisement campaigns, information policies, electoral campaigns, propaganda efforts and other manipulations to which the simple citizen is being exposed nowadays by opinionmakers, whether organized or not.[3]

It has been generally recognized that it is the capacity of a language to systematize and accentuate that which has turned statements or commentaries of a certain point of view into battles to find *better* words. This has brought into being all sorts of organizations such as advertising, press agencies, and public relations departments, which by using words cunningly, like daggers hidden under a cloak, attempt to surprise their opponents with new expressions and ideas, or to make generally accepted language serve their own specific purposes by skillful manipulation.[4] It is hardly surprising that the science of linguistics has been devoted increasingly to these phenomena in recent days.

II

Of course, semantics has also found its way into the legal language, especially in the border area between the political and the legal domain. This is noticeable in particular when political matters almost touch the legal domain, when political decisions are given a legal expression, or when the appropriate legal form (article, treaty or law) is still being

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+ The original German title of this article is "Semantische Lenkungsstrategien und die Menschheitsklauseln des Weltraumvertrages."

* Presiding Judge, Landgericht Koblenz, Fed. Rep. of Germany.

[1] *Comp.* Betz, Sprachlenkung und Metaphernstrategie, Sprache im technischen Zeitalter 304 (1977).

[2] *Comp.* Zimmer, Wörter und Waffen, Die Zeit, Oct. 21, 1977.

[3] Lenz, Werden und Wesen der öffentlichen Meinung 97 (1956).

[4] *Comp.* Zimmer, *op. cit. supra* note 2.

searched for. It should be noted, however, that in the legal language manipulations with words and ideas are generally less evident to the eye than in the more colloquial expressions. This relates to the fact that the legal language, like any other technical language with standard terms is more precise and at the same time more lacking in meaning and substance than the colloquial language.[5] At any rate, it is conditioned largely by the terminology of statutory and common law. The words and concepts of the legal language provide definitions and make distinctions. They define where in common parlance no distinctions are made.[6] In doing so the legal language becomes standardized and cannot be manipulated to the same extent as more common words and ideas. The legal language is more foolproof, as it were, because its armor of standardized terms and concepts makes penetration by opinionmakers more difficult.

As the legal language increasingly moves away from clear definitions and closer to the vague and ill-defined expressions of common parlance, in other words the more it borrows from the colloquial, the more it becomes exposed to the influence of semantics. This "rule" applies for instance to such general legal terms as *bona fides, suum cuique,* and so on. In this instance legal terms and concepts are coming under the impact of semantics.

These observations are also valid in international public law. Dealings and communications between States increasingly turn into contests to find better words. Propaganda campaigns and wars of words, in particular those fought between States with different constitutional systems and/or opposing interests in international politics, have long since become a common occurrence in international relations. The deterioration of these relations has not left the linguistic domain untouched.[7]

Ingo von Munch has given a clear definition of the sharp contrast with former days: in the Middle Ages a famous legal authority like Gentilis could raise the point whether insulting behavior towards a citizen of a foreign State could constitute a *casus belli.*[8] In modern international law offense between States has almost become socially acceptable.[9]

Semantic manipulations in international law are increasingly to be found where wide-ranging doctrines are pursued to produce the illusion of establishing rules in international treaties governing areas hitherto uncovered by legal provisions, in particular when their aim is to produce a semblance of political success. Pseudo-

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[5] *Comp.* Duerenmatt, Das Volk ist nicht das Volk, Die Zeit, Dec. 12, 1975.

[6] *Comp.* Schrey, Juristenspiegel 26 (H. M. Schmidt ed., 1959).

[7] Ingo von Münch, Das völkerrechtliche Delikt 74 (1963).

[8] Gentilis, De jure belli, L.I.C. XXI, quoted by Ingo von Munch, *op. cit., supra* note 7.

[9] *Comp.* Ingo von Münch, *op. cit., supra* note 7 at 75.

normative doctrines lacking adequate definitions and delimitations abound. More often than not these doctrines are purely statements of fact containing platitudes which always ring true, but at the same time lacking any sense or substance, like: "tomorrow there will be rain, or no rain".[10]

III

Let us now examine more closely the semantic tendencies which have nestled themselves in space law, the youngest branch of international law. Space law in its present codification tries to give rules for the behavior of States in space in the form of generalized formulas. Time and again it becomes apparent how difficult it is to provide adequately phrased rules for, and to systematize in legal language the extremely complicated subject matter created by the technological explorations in outer space and the resulting multitude of conflicting interest.[11] Therefore, when in the search of a compromise, generalized formulas are resorted to in order to accommodate such basic principles as the exploration and use of outer space. . . "for the benefit and in the interests of all countries;[12] . . ."for peaceful purposes;"[13] . . ."without discrimination of any kind, on a basis of equality;"[14] . . . and in the interest of . . . "promoting international cooperation and understanding;[15] . . . "with due regard to the corresponding interests of all other States Parties to the Treaty",[16] it becomes evident that the law is bound to go off-course on the ocean of facts. Legal accuracy in the sense of the most precise application of legal concepts to existing facts threatens to become arbitrary or a matter of coincidence, like in the sentence "tomorrow there will be rain, or no rain". This is all the more inevitable since, given the poor and inadequate substance of the generalized formulas used in space law, their interpretation has largely been attributed to individual States. As a result, offenses against the provisions of the Treaty, inasmuch as they can be objectively determined as such in the first place, remain

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[10] *Comp.* Topitsch, Die Menschenrechte, Juristenzeitung 3 (1963).

[11] *Comp.* Bueckling, Bemerkungen zur Deutung der Kommunklauseln des Weltraumvertrages, 25 Zeitschrift f. Luft- und Weltraumrecht 94 (1976).

[12] The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (hereinafter referred to as the Space Treaty) was signed on January 27, 1967 and entered into force October 10, 1967, [1967] 18 U.S.T. 2411, T.I.A.S. 6347, 610 U.N.T.S. 205, Art. I.

[13] *Id.* Art. IV.

[14] *Id.* Art. I.

[15] *Id.* Art. III.

[16] *Id.* Art. IX.

unpunished. Consequently, in the field of international law, space law has been largely conceived as international "Softlaw".[17]

Attempts to develop and establish legal rules governing a vast and extremely complex subject matter like space exploration are rather like trying to hack down Mount Everest with a blunt kitchen knife. To begin with, the generalized formulas of the Space Treaty show a clear tendency to conceal reality in that they speak of a harmonious world, while leaving the numerous conflicts of interest largely unsolved ("their words are softer than oil, yet they are drawn swords": Psalm 55, v.22).

Furthermore, the Space Treaty immerses the entire scene of outer space in the ethereal light of a lofty humanity. Its preamble speaks of "concluding the Treaty in recognition of the common interest of *mankind* in the progress of the exploration and use of outer space for peaceful purposes". The provisions of the Treaty (Art. I) declare the exploration and use of outer space to be *the province of all mankind.* While Art. V prescribes that States Parties to the Treaty shall regard astronauts as *envoys of mankind* in outer space, drafts of the Moon Treaty, which the UN has been working at for a number of years,[18] contain a provision stipulating that the natural resources of the moon are the *common heritage of all mankind.*

The Soviet delegation, in a working paper, denied the concept of "common heritage of all mankind" all legal significance, and warned against applying concepts of civil law to international situations.[19] Zhukov adds that the term "a province of all mankind" could not have any wider significance than "a common heritage of all mankind".[20] Kopal is of the opinion that "a province of all mankind" needs clarification by means of special additional provisions.[21]

Admittedly, voices have also been raised in favor of attributing legal significance to the "mankind" provisions. Fasan,[22] for instance, relying on Gorove's line of

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[17] *Comp.* Wengler, Rechtsvertrag, Konsensus und Absichtserklarung, Juristenzeitung 193 (1976); Bueckling, Weltraumrecht - ein System aus völkerrechtlichem Softrecht?, Deutsche Richterzeitung 76 (1977).

[18] *Comp.* Knoerich, Direktfernsehen - Fernerkundung-Mondvertrag, Vereinte Nationen 173 (1977); Dauses, Zur Rechtslage des Mondes und anderer Himmelskörper, 24 Zeitschrift f. Luft- und Weltraumrecht 281 (1975).

[19] *Comp.* Dauses, *op. cit.. supra* note 18.

[20] *Comp.* Heymer, Bericht über die Tagung der International Astronautical Federation (IAF), vom 29.9. bis 5.10.1974, in Amsterdam, 24 Zeitschrift f. Luft- und Weltraumrecht 31, 35 (1975).

[21] *Comp.* Heymer, *op. cit. supra* note 20.

[22] Fasan, The Meaning of the Term "Mankind" in Space Legal Language, 2 J. Space L. 125 (1974).

argument[23] regards the prominent place occupied by the term "mankind" in the Space Treaty as a step towards allowing "mankind" to become a new subject of international law. Marcoff[24] clearly tends to regard "mankind" within the scope of space law as a subject of international law. Cocca[25] attributes a purely normative significance to "common heritage of mankind", this concept having more substance than "province of all mankind" because it reflects the basic notion of justice of all peoples. Kuchenhoff links the concept of "mankind" to the idea of a State acting in space as a trustee for mankind (trustee theory).[26]

It is debatable whether these interpretations will provide guidance in attempting to clarify the "mankind" provisions of the Space Treaty. The opinion of the Soviet delegation that these provisions have no precise significance cannot be dismissed out of hand.[27]

The basic tenets of the Enlightenment, attributing rational powers to mankind and regarding it as endowed with a legal conscience, have become unreal since the objective spirit of international law has found its expression in the State ("*jus inter gentes*," instead of "*jus gentium*").[28]

It should also be noted that "mankind" may be perceived as either a social and legal system with the individual at the center, or as a common interest of peoples, states or groups of states, or as a politically - ideologically oriented composite body.[29] These differing perceptions of mankind will further complicate the interpretation of the "mankind" provisions. In addition, the fact remains that concepts like State or people

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[23]Gorove, The Concept of Common Heritage of Mankind. A Political, Moral or Legal Innovation? 9 San Diego L. Rev. 390 at 393 (1972).

[24]Marcoff, Traité de droit international public de l'espace 272 (1973); also Marcoff, Sur l'interprétation juridique de l'article 4 du traité regissant les activités des états, Revue Général de l'Air et de l'Espace 4 (Nr. 1, 1968).

[25]Cocca, The Principle of the "Common Heritage of All Mankind" as Applied to Natural Resources from Outer Space and Celestial Bodies, Proc. 16th Colloquium on the Law of Outer Space 172 (1973).

[26]Gunther Kuchenhoff, Naturrecht und Liebesrecht 30 (1962); see also Kuchenhoff, Rechtsphilosophische Grundlagen des kosmischen Rechts, Archiv fur Rechts und Sozialphilosophie 467 (1965); Wollenschlager/Hablitzel, Der Weltraumvertrag vom 27. Januar 1967, Festschrift für G. Kuchenhoff, 2 Recht und Staat 877, 883 (1972).

[27] *Comp.* Dauses, Neuere Fragen des Weltraumrechtes, 17 Archiv f. Völkerrecht 69 (1976) and also UN Working Paper: Question of the Common Heritage of Mankind, U.N. Doc. PUOS/C.2 (XII), WG I/ Working Paper 7 (March 28, 1973).

[28]Binder, Philosophie des Rechts 559 (1925).

[29] *Comp.* Geck, Menschenrechte - Schein und Wirklichkeit, Frankfurter Allgemeine Zeitung, Nov. 21, 1977.

always are, and always will be, a source of errors leading to political abuse.[30] As a result, the "mankind" concept is not a juridical cathedral built in a uniform style and capable of transferring its creative characteristics to the juridical edifice of our time. It is rather like a body of a cathedral with many spires, countless facades and the most diverse altars. The question may therefore be raised whether "mankind", which at present is not a subject of international law, will ever become one, or even whether it seems desirable for it to become one. In other words, the "mankind" provisions of the Space Treaty can be regarded as positive evaluation clauses containing on the one hand ideas concerning a state of affairs in the community of nations yet to be attained, while on the other hand designed to conceal under a flow of fine words the imperfections of the Space Treaty provisions, in particular those regarding the largely uncovered and unsolved conflicts of interest.

Underneath the "mankind" syndrome the relevant clauses of the Space Treaty offer little guidance as to what rights States may derive from them. Neither can it be satisfactorily established what rights a State not involved in space exploration might have in the achievements of the space powers. Here also, the veneer in the generalized provisions stating that the exploration and use of outer space is the *province of all mankind,* is of little or no avail. The failure of the "mankind" provisions to further the development of law is evidenced by the fact that the lengthy United Nations efforts to draft substantial follow-up treaties dealing with direct television and remote sensing devices in space, as well as the legal situation on the moon, are threatened increasingly with deterioration by the special interests of individual States.

In the concept, *common heritage of all mankind*, the semantic element is even more manifest. This term has been used in the UN Resolution No. 2949 (XXV) of Dec. 17, 1970 regarding the legal status of the ocean floor.[31] Space law could evidently borrow this expression from maritime law for the benefit of the Moon Treaty. The much debated Art. X para. 4 of this Draft Treaty[32] provides for the moon and its resources to be declared "a common heritage of all mankind". Quite a number of States, such as Argentina, Brazil, Chile, Ecuador, Indonesia, Sweden and Turkey have pronounced themselves in favor of this term.[33] The discussions surrounding the question of how to define the real substance of the term have led to nothing but generalized interpretations. One school of thought suggested for instance that "common heritage of all mankind" precluded any exploitation of resources extending beyond (scientific) exploration without the consent of an international authority, while the benefits were to

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[30]Kimminich, Völkerrecht und internationale Beziehungen, 16 Archiv f. Völkerrecht 133 (1974-75).

[31] *Comp.* Dauses, *op. cit. supra* note 18; also Dauses, *op. cit. supra* note 27.

[32]U.N. Doc. A/AC. 105/115 (1973).

[33] *Comp. inter alia;* UN Docs. A/AC.105/C.2/SR 285 (March 15, 1978); A/AC.105/ C.2/SR 287 (March 16, 1978); A/AC.105/ C.2/SR 288 (March 20, 1978); A/AC. 105/C.2/SR 289 (March 21, 1978).

be shared among all States.[34] How this "sharing among all States" was to be put into actual practice has remained basically an unsolved problem. Other States have shown more restraint with regard to incorporating the relevant term in the Moon Treaty. The German Democratic Republic sees at present no point in defining the legal status of the moon and its natural resources.[35] The Australian delegate wonders whether there is any point in giving priority to further clarification of the complex problems connected with the concept of "common heritage of all mankind".[36] The Belgian delegate is apprehensive of semantic discussions regarding the real substance of this term.[37]

In its original meaning the term "common heritage of mankind" signifies positive values such as jointly acquiring, fostering and increasing what has been inherited. What remains hidden under the glamor of such lofty principles, when one attempts to translate them into actual international practice, is shown clearly by the development of the law of the sea. There one perceives a struggle for every square meter of the ocean floor in order to legalize an *exploitation system* and a progressive limitation of the open sea in favor of ever larger coastal zones of national sovereignty and larger economic zones under the motto, *The Land dominates the Sea*!

There is no denying that "common heritage of mankind" comprises elements of juridical, mythical and ancient thought deeply rooted in men's consciousness.[38] The very notion of heritage, taken in relation to the concept of mankind, marks the birth of an ancient human norm. At the same time the notion of "common heritage of mankind" is not sufficiently precise to be put into legal practice because it is *purely declaratory,* in the sense that it is open to *all* interpretations - acquiring, fostering or increasing an inheritance - *but also* exploiting an inheritance, because an heir is entitled to both. No wonder that until now no agreement could be reached as to the way in which the exploitation of lunar resources is to be given a legal basis. The conflicting opinions and interests of the industrial nations and the developing countries regarding the exploitation of lunar resources are as yet too divergent to be reconcilable.[39]

IV

Only in the event of a supranational legal framework governing the international community as it reaches maturity will the mankind provisions be able to gain real

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[34] *E.g.*: Indonesia, U.N. Doc. A/AC.105/C.2/SR 288 (March 20, 1978).

[35] U. N. Doc. A/AC. 105/C.2/SR 289 (March 21, 1978).

[36] U. N. Doc. A/AC. 105/C.2/SR 289 (March 21, 1978).

[37] U. N. Doc. A/AC. 105/C.2/SR 289 (March 21, 1978).

[38] *Comp.* Topitsch, *op. cit. supra* note 10 at 2.

[39] *Comp.* Knoerich, *op. cit. supra* note 18 at 177.

substance. This would, however, imply a permanent limitation of national sovereignty. But an effective limitation of national sovereignty is still far away, and the strategies of foreign policy result time and again in crisis-management carrying built-in hazards.[40] It is no use pointing out that in other spheres regional and global organizations and the need for cooperation for different purposes are already imposing marked limitations on the sovereign rights of States, and are leading to a kind of international decision-making process already becoming apparent in world politics.[41] More weight in this context seems to be attributable to Tenbruck's observation - also valid in international law - that the legal structures of our time are no longer adequate, that generally speaking they are less adequate than they used to be.[42]

The characteristic features of the international legal system of our time are:

> remorseless exploitation of our planet and the resulting battle for the dwindling resources of the earth, which turn the pursuit of the interests of national sovereignty into political virtue;[43]
> equally remorseless laceration of the face of our earth in the shape of worldwide pollution and destruction of scenery;
> instability in the international community, in particular in the Third World, characterized by frequent changes of governments and constitutions, which gives rise to ever-changing love-hate relationships with incalculable consequences;
> lack of homogeneity in the international legal system, resulting from integration on a regional basis (re-shaping international relations into a system of alliances), and furthered by the emergence of a large number of new sovereign nations in the Third World which usually guard their sovereignty with extreme jealousy.[44]

Who could therefore foster any serious doubt, in such a state of affairs, that the concept of "mankind" does not at present represent a workable legal term? As long as there is no supranational constitution one can only hope that the tendency to conceal unsolved legal problems under beautiful legal phrases will be put to an end, and that the generalized concepts will be replaced by more specific and substantial legislation which might gradually coalesce into a practicable body of rules.

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[40] Tenbruck, Friede durch Friedensforschung, Frankfurter allgemeine Zeitung, Dec. 22, 1973.

[41] *Comp.* Kimminich, *op. cit. supra* note 30 at 147.

[42] Tenbruck, *op. cit. supra* note 40.

[43] Kimminich, Der internationale Schutz des Einzelnen, 15 Archiv f. Völkerrecht 413 (1971-2).

[44] *Ibid.;* see also Ingo von Münch, *op. cit. supra* note 7 at 6.

SOME PROBLEMS OF STATE RESPONSIBILITY IN OUTER SPACE LAW

*Krystyna Wiewiorowska**

I. General Remarks

The expansion of man's activities into outer space and celestial bodies constitutes a new and important phase in the history of our civilization. With the beginning of the Cosmic Era it has become obvious that these activities require specific legal regulations that take into account the dangers that threaten not only the interest of individuals or particular countries, but life on Earth as a whole. One source of danger is created by scientific and technical experiments which can lead to biological, chemical or radioactive contamination of the air space, outer space, or contamination of the Earth. A form of contamination in outer space is done by satellites which have already fulfilled their mission, but are still orbiting the Earth and emitting useless signals.[1]

At present the greatest potential danger is the launching of artificial space objects. Prior to January 1978 more than 10,000 objects had been placed in outer space and the number is increasing rapidly. The risk connected with this activity, even if performed with great accuracy and strict observance of international law, is enormous. It should be noted that on several occasions parts of outer space objects have already fallen to Earth. Other problems may arise when direct television broadcasting by satellite is implemented, for serious concerns exist that some countries may use this means of communication for subversive propaganda or interference in the internal affairs of other countries.[2] Also, remote sensing of the Earth from space opens the possibility of exploiting information obtained by these means in a way not compatible with the interests of other countries. The necessity for special legal regulation of outer space results from the fact that these activities are conducted in an area that is not subject to the State's sovereignty and could threaten the entire international community.

The first step in the process of establishing outer space law and also in establishing principles of State responsibility was made in 1963 when the General Assembly of the UN adopted the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space.[3] These principles of international responsibility

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[1]G.P. Zhukov, Kosmicheskoye pravo (Outer Space Law) 160 (Moscow, 1966).

[2]K. Wiewiorowska, Prawnomiedzynarodowe i polityczne aspekty bezposrednich transmisji satelitarnych (Legal and Political Aspects of Direct Television Broadcasting by Satellites), *Sprawy Miedzynarodowe* (International Affairs), No. 3 (1974).

[3]Paragraphs 5 and 8 of the UN General Assembly Resolution of 1962/XVIII dated December 13, 1963, state:

were stated in Articles VI[4] and VII[5] of the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies; and in a separate Convention on International Liability for Damage Caused by Space Objects, signed March 29, 1972.[6]

The question of States' responsibility has become an important issue in the discussions (aimed at the elaboration of new international agreements) conducted within the forum of the UN Committee on the Peaceful Uses of Outer Space (COPUOS) and its Legal Sub-Committee. Controversies have arisen during the discussions of the Draft Moon Treaty, the legal implications of remote sensing of the Earth from space, and on the draft principles governing the use by States of artificial earth satellites for direct television broadcasting. The question was, who should be responsible for activities conducted in outer space; States only, or also international organizations and

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5. States bear international responsibility for national activities in outer space, whether carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried on in conformity with the principles set for in the present Declaration. The activities of non-governmental entities in outer space shall require authorization and continuing supervision by the State concerned. When activities are carried on in outer space by an international organization, responsibility for compliance with the principles set forth in this Declaration shall be borne by the international organization and by the States participating in it.

8. Each State which launches or procures the launching of an object into outer space, and each State from whose territory or facility an object is launched, is internationally liable for damage to a foreign State or to its natural or juridical persons by such object or its component parts on the earth, in air space, or in outer space.

[4]Article VI states:

States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the State Parties to the Treaty participating in such organization.

[5]Article VII states:

Each State Party to the Treaty that launches and procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts in the earth, in air space or in outer space, including the moon and other celestial bodies.

[6]The Convention on International Liability for Damage Caused by Space Objects, March 29, 1972, [1973] 24 U.S.T. 2389, T.I.A.S. No. 7762 (effective Oct. 9, 1973). Hereinafter referred to as Convention of 1972.

nongovernmental entities that have appeared since the beginning of the outer space era. The VIth Article of the Outer Space Treaty of 1967 leaves no doubt that only States and international organizations can bear international responsibility for activities in outer space.[7] It should be stressed however, that the statement "outer space activities" can create difficulty in establishing whether the activity which engaged the responsibility was actually conducted in outer space. This results from the fact that binding outer space agreements lack: one, a definition and a delimitation of outer space, and two, a definition of outer space objects and of outer space activities. Therefore, do harmful experiments conducted in the upper layers of the ionosphere infringe upon the principles of Outer Space Law which either oblige restraint from activities that could cause harmful interference in the peaceful activities of other countries in outer space, or those which require that exploration of outer space be in the interests of all countries and for the benefit of mankind as a whole?[8] Problems of this kind were partly eliminated by the Convention of 1972.

The Convention states that a launching State bears international liability for damage caused by its space objects. According to Article I of the Convention the term "launching state" means:

> A state which launches or procures the launching of a space object; A state from whose territory or facility a space object is launched. The term 'space object' includes component parts of a space object as well as its launch vehicle and parts thereof.[9]

But still the problem of defining a space object remains unsolved.[10]

II.The Subject of Responsibility

States bear responsibility for their activities in outer space whether such activities are conducted by governmental agencies or by non-governmental entities. The imputing to a State of a particular act or omission is indispensable to determining the States' responsibility. It is a generally recognized principle of international law that States bear the responsibility for acts or omissions of their agencies, officers and employees of all kinds.[11] The problem of a State's responsibility for activities of their

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[7]The problem of responsibility of international organizations will be postponed as it is beyond the scope of the subject of this article.

[8]On the problem of the definition and delimitation of the Outer Space, see M. Lachs, The Law of Outer Space: An experience in Contemporary Law Making 55 (Leiden, 1972).

[9] *Supra* n. 6, Art. I.

[10]See International Space Law 127 (Piradow ed., Moscow, 1975).

[11]On the "Act of State" theory, see Raport R. Ago, le délit international, 2 Revue de droit contemporain 415-554, (1939); UN Doc. A/CN. 4/246 Add. 1, 3-37 (April 7, 1971).

natural and juridical persons or even foreigners seems more controversial.[12] According to the prevailing opinion,[13] a State is responsible for a person's activities only when: it approves his illegal acts; when a State, as the result of a lack of supervision to which it is obliged, did not prevent the damage; or when a State does not search for the guilty person.[14] Some authors also take into account a State's responsibility for the activities of juridical and natural persons conducted on behalf of the State.[15] It is recognized that a State may authorize an institution to fulfill certain governmental functions and thus the State will be responsible for it as well as for the activities of its own organs. In this situation the behavior of these persons is subject to the general rule that a State is responsible for the acts and omissions of its organs.[16]

That portion of Article VI of the Outer Space Treaty of 1967 which reads:

> States Parties to the Treaty shall bear international responsibility for national activities in Outer Space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities

has been interpreted in several different ways. J. Rajski states that "The Treaty of 1967 set a principle, according to which the exploration and exploitation of the outer space and celestial bodies can be carried on only by subjects of international law."[17] The quoted author believes that the need for such a solution is justified on one hand by the international implications of this kind of activity, and on the other, by the need for assuring that it will be carried on exclusively for purposes advantageous to mankind as a whole. A country may conduct this activity either directly or indirectly by authorizing subordinated natural or juridical persons.

> The authorization confines the country with definite obligations. The basic ones concern the continuing supervision of those natural and juridical persons and the bearing of international responsibility if these persons conduct activities contradictory to the international law.[18]

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[12]See the conclusions of the International Law Commission; U.N. Doc A/8010, at 99 (August 4, 1970).

[13]See Article 4 of the Draft of the International Law Commission, UN Doc. A/CN 4/246, at 103 (1970).

[14]J. Symonides, Odpowiedzialnosc panstwa w prawie miedzynarodowym (The State's Responsibility in International Law). *Studia Prawnicze* (Law Studies) 54-55 (1971).

[15] *Supra* n. 11.

[16]B. Greafrath, E. Oeser, P.A. Steiniger, Völkerrechtliche Verantwortlichkeit der Staten 88 (Berlin, 1970).

[17]J. Rajski, Odpowiedzialnosc miedzynarodowa za szkody wyrzadzone przez obiekty kosmiczne (International Liability for Damages Caused by Space Objects) 58 (Warsaw, 1974).

[18] *Id.*

It seems to follow from the above that Mr. Rajski recognizes the concepts aspoused in Article VI of the Outer Space Treaty of 1967 for conducting outer space activities by natural persons and nongovernmental entities in the State's name, or by order of the State, which according to the accepted view of international law, involves the State's responsibility.

M.G. Marcoff believes that in space law a broadening of a State's responsibility has taken place and changes have occurred in previously accepted principles concerning the possibility of imputing to a State a certain act of omission of a natural or juridical person.[19] M. Lachs rightly states that in space law, States bear direct responsibility, and that "the acceptance of this principle removes all doubts concerning imputability. The importance of this will be appreciated by those familiar with the serious difficulties to which this issue has so frequently given rise in practice."[20]

It seems that in assessing whether the given activity or omission can be imputed to a State, the interpretation of the statement, "national activities" is of great importance. In the doctrine of outer space law the term "national activities" is interpreted as meaning that States bear international responsibility for the activities of its citizens and nongovernmental entities under its jurisdiction and control or, that States bear international responsibility only for activities of such persons and entities in the limits of its territorial jurisdiction. J. Fawcett[21] believes the second view is correct. J. Rajski is of the opinion that the criterion for a State's responsibility should be the granting of an authorization to conduct certain activities in Outer Space.[22] M.G. Marcoff states that "*le terme activites nationales, peut designer, a part les activites etatiques, celles de toute personne soumise a sa competence territoriale ou personnelle.*"[23]

The following problem concerns the requirements provided by the Outer Space Treaty for granting of authorization to nongovernmental entities to carry on space activities. None of the outer space agreements define the form of the authorization nor the forms of supervision. There is an opinion expressed that an authorization of this kind can be granted "in any way, even per facta includienta, although in principle such situations should not take place."[24] The matter of a time limit, for which such an

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[19]M.G. Marcoff, Droit International Public de l'Espace 532 (Paris, 1973).

[20]M. Lachs, *op. cit. supra* n. 8 at 122; see also Tendentcyea razwiteya Kosmicheskogo ptava (Trends of the development of the Outer Space Law) 237 (Moscow, 1971).

[21]J. Fawcett, International Law and Use of the Outer Space, 44-45, (Manchester, 1968).

[22]J. Rajski, *op. cit. supra* n. 17 at 57-59.

[23] M.G. Marcoff, *op. cit. supra* n. 19 at 553; see also I.A. Csabafi, The Concept of State Jurisdiction in International Space Law (The Hague, 1971).

[24]J. Rajski, *op. cit. supra* n. 17 at 59.

authorization may be granted, falls within the internal competence of a State. However, the authorization procedure should cover continuing State supervision as an indispensable condition for non-governmental entities to carry on outer space activities.[25]

The events of the past few years have stressed the significance of international cooperation in the framework of non-governmental organizations.[26] The problem of responsibility for the activities of these organizations has not been explicitly formulated in the instruments of outer space law. But since the Declaration of 1963, the Outer Space Treaty of 1967 and the Liability Convention of 1972 relate only to the responsibilities of State and intergovernmental organizations there exists a convergence of opinions in the doctrine that States whose institutions or citizens participate in non-governmental organizations will bear the responsibility for activities carried on by these organizations.[27]

Considerably more complicated questions are posed by outer space activities carried on by the so-called mixed enterprises[28] or public-private users.[29] In these ventures States can participate (through their organs), as well as the non-governmental entities, intergovernmental organizations and multinational corporations. According to I. Diederiks-Verschoor and P. Gormley:

> At such time as financial contributions, insurance coverage, production facilities, technological contributions and even consultation are added to the list of participation, the possible combinations of governmental and non-governmental entities, as they cooperate with intergovernmental organizations, seem endless.[30]

The increasing role of cooperation among governmental agencies, international organizations and non-governmental entities should be stressed. They cooperate not only in outer space activities but also in a number of other domains, for example, in the exploitation of the sea bed beyond the limits of national jurisdiction. It seems then, that the problem of responsibility for this kind of activity calls for detailed examination.

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[25]International Space Law, *op. cit. supra* n. 10 at 97.

[26]I.H.Ph. Diederiks-Verschoor, W. Paul Gormley, *The Future Legal Status of Nongovernmental Entities in Outer Space,* 5 J. Space Law. 125 (1977).

[27]See International Space Law, *op. cit. supra* n. 10 at 98, J. Rajski, *op. cit. supra* n. 17 at 53, I.H.Ph. Diederiks-Verschoor, W. Paul Gormley, *op. cit. supra* n. 26 at 129, G.P. Zhukov *op. cit. supra* n. 1 at 149.

[28]M. McDougal, H. Lasswell, I. Vlasic, Law and Public Order in Space 10 (1963).

[29]C. Christol, The International Law of Outer Space U. S. Naval War College International Law Studies [1962], 86-88 (1965).

[30]I.H.Ph. Diederiks-Verschoor, W. Paul Gormley, *op. cit. supra* n. 26 at 142.

The Liability Convention of 1972 aside from stating principles concerning individual States' liability also contains principles regulating joint liability. This liability occurs in three cases:

1) In case a jointly launched object causes damage;
2) In case damage is caused to a third State by an object launched individually by different countries;
3) If the liability is born by an international organization and States members of such an organization.[31]

According to Article V of the 1972 Convention, if two or more countries launch a space object together they are jointly charged with liability for any resulting damage. The Convention though does not specify the contents of the notion of "solidarity". But paragraphs 2 and 3 of Article V can serve as guidelines to an interpretation.[32] These paragraphs allow the conclusion that the content of the notion "joint liability" means that a State party claiming compensation has the right to full indemnification from all States of the joint launching or each one separately, and that the payment of the compensation by one of them frees the obligation of all others. The State which has payed the compensation then utilizes the law of recourse to recover from the remaining members of the joint launching.

This formula provides adequate protection for the interests of the claimant State. But during the sessions of the Legal Sub-Committee of the COPUOS, it was noted that the equal treatment of all States participating in the joint launching can lead to unfair consequences. At the present state of development the participation of a number of countries may be minimal. Therefore it was proposed that principles be established determining the priority of liability.[33] The principles contained in Article V, paragraph 2 of the Convention are based on the reasonable assumption that the problem of the priority of liability should be solved by the launching States rather than by the claimant

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[31]The problem of joint responsibility of States and international organizations is not discussed as it is beyond the scope of this article. See Article XXII of the 1972 Convention.

[32]Paragraphs 2 and 3, Article V of the Convention on International Liability for Damage caused by Space Objects of 1972 state:

> 2. A launching State which has to pay compensation for damage shall have the right to present a claim for indemnification to other participants in the joint launching. The participants in a joint launching may conclude agreements regarding the apportioning among themselves of the financial obligation in respect of which they are jointly and severally liable. Such agreements shall be without prejudice to the right of a State sustaining damage to seek the entire compensation due under this Convention from any or all of the launching States which are jointly and severally liable.
>
> 3. A State from whose territory or facility a space object is launched shall be regarded as a participant in a joint launching.

[33]J.D. Theraulaz, *op. cit. infra* n. 47 at 265.

States. To avoid ambiguity in this area the article states that the agreement signed by States cooperating in joint launching does not infringe upon the rights of the claimant State.

The second of the cases of joint liability foreseen by the Convention could take place as a result of the collision of two space objects belonging to two States which in turn harms a third State. The basis of the joint liability of these States will vary. According to the principles of the Convention of 1972, States bear absolute liability for damages caused to the third States on the Earth's surface or to an airplane in flight. On the other hand, in the case of damages caused beyond the Earth's surface, liability is based on fault. According to Article IV, paragraph 2 of the Convention:

> In all cases of joint and several liability referred to in paragraph 1, the burden of compensation for the damage shall be apportioned between the first two States in accordance with the extent to which they were at fault; if the extent of the fault of each of these States cannot be established, the burden of compensation shall be apportioned equally between them.

III. *Responsibility for Wrongful Acts*

According to the prevailing view in outer space law, the term "international responsibility" means all forms of new legal relations which might arise as a result of a wrongful act imputed to a State.[34] These relations might arise among a State, which committed a wrongful act and a State or States or other subjects of international law which are passive subjects of responsibility. There is a question, however, as to whether every wrongful act committed by a State is followed by international responsibility or only those wrongful acts as a result of which the damage arose. It is accepted in the doctrine of international law that violating the law means not only violating the treaties or international customary law but also the general principles of international law.[35] The violation of the decisions of international organizations and unanimously adopted resolutions of the General Assembly of the UN containing the confirmation and broadening of principles of international law is also considered a violation of law.[36]

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[34]R. Ago, *op. cit. supra* n. 11; Oppenheim, International Law: A Treatise, ed. by H. Lanterpucht, Vol. I, 356 (1955), A. Verdross, Völkerrecht 398 (Wien, 1964); D.B. Levin, Otwietstviennost gosudarstv w. sowremiennom miezdunarodnom prawye (States' Liability in Contemporary International Law) 9-10 (Moskwa, 1966).

[35]Schwarzenberger International Law, Vol. I, 6 (3rd edition, London, 1957), A Manual of International Law 110, (London, 1960); H. Briggs, The Law of Nations 45 (London, 1952); K. Strupp, Wörterbuch des Völkerrecths, Bd. I, 330 (Berlin, 1960); Tunkin, Forty Years of Coexistence and International Law 15 (A.S.D.I., 1958).

[36]On the legal character of the UN resolution, see among others: I.A. Csabafi, The UN General Assembly Resolution on Outer Space as Source of Space Law. *Proceedings of the VIII Colloquium on the Law of Outer Space* 336 (1966); Y.O. Asamoah, the Legal Significance of the Declarations of the General Assembly of the United Nations (The Hague, 1966).

These statements can be fully justified on the basis of outer space law. According to the UN Declaration of 1963 and Article III of the Outer Space Treaty of 1967, international law, along with the United Nations Charter is applied in outer space. There are some doubts though as to the extent which international law is applied in outer space. The doctrine of international law uniformly holds that because of the variety of activities in outer space, international law cannot be applied mechanically.[37] I.A. Csabafi states, that Article III of the Outer Space Treaty of 1967 should be interpreted as:

> 1. Certain rules and principles of general international law directly (ipso jure) govern activities in space including celestial bodies;
> 2. Certain concepts of general international law are applicable to and indispensable for international space law;
> 3. Certain principles of general international law are applicable or analogous.[38]

According to the quoted author the following principles of general international law are not applicable in outer space and on celestial bodies:

> - those which as lex specialis govern one or some of the other environments only,
> - those which have been replaced or modified by a rule of international space law.[39]

In the doctrine of outer space law the view has been expressed that some bilateral or multilateral agreements could be applied in outer space after certain adaptations. I.A. Csabafi, as an example, states that the Chicago Convention of 1944 on International Civil Aviation, if modified, could be applied to the transportation of cargos, passengers and mail in outer space.[40] M. Lachs sites treaties on non-aggression[41] and I. Brownlie the Fifth Hague Convention of 1907, the NATO Pact and the Warsaw Treaty.[42]

In outer space law then, the violation of law which entails international responsibility is the violation of the rules of international law (taking into account the above mentioned considerations) as well as the specific rules of the outer space law contained in the Outer Space Treaty of 1967, the Convention of International Liability for Damage Caused by Space Objects of 1972, the Agreement on the Rescue of

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[37]See M. Lachs *op. cit. infra* n. 8, G.P. Zhukov, Problems of Space Law at the Present Time, *Proceedings of the V Colloquium on the Law of Outer Space* (1962); D. Krivickas, A. Rusis, Soviet Attitude Toward Space Law, *Soviet Space Program* 493-528 (1962-65).

[38]I.A. Csabafi, The Concept of State Jurisdiction, *op. cit. supra* n. 23.

[39] *Id.*

[40]*Id.* at 40.

[41]M. Lachs, *op. cit. supra* n. 8 at 42.

[42]I. Brownlie, The Maintenance of International Peace and Security in Outer Space, British Yearbook of International Law 25 (1964).

Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space of 1968,[43] and the Convention on the Registration of Space Objects,[44] as well as bilateral and multilateral agreements and the resolutions of the UN General Assembly related to outer space.

IV. *Responsibility for Risk*

Aside from responsibility arising as a result of wrongful acts, international law also considers responsibility for lawful acts. This kind of responsibility, the so-called responsibility for risk is connected with very dangerous activities. However, while in the doctrine of general international law responsibility resulting from lawful acts is still being questioned, in the doctrine of outer space law the existence of such responsibility is without question. It is even stated that "the scientific and technical progress will inevitably lead to the multiplication of cases of such responsibility."[45]

J.M. Kolosov expresses similar views.[46] I.D. Theraulaz underlines the significance of the new concept of objective responsibility which appears in outer space law and which is being more and more broadly applied in international law.[47] Responsibility for risk appears in conventions concerning the use of nuclear energy, in agreements concerning the protection of the environment, and is postulated in reference to the exploitation of the sea bed and ocean floor beyond the limits of national jurisdiction.

In the case of responsibility for risk the most important factor is the determination of the term "damage" as an inevitable premise of the responsibility. In the doctrine there exists a great divergence of opinions on this matter.[48]

According to the definition accepted in Article I, paragraph (a) of the Convention of 1972:

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[43]The Agreement on the Rescue of Astronauts, The Return of Astronauts, and The Return of Objects Launched into Outer Space. April 22, 1968 entered into force for The United States on December 3, 1968, [1968] 19 U.S.T. 7570, T.I.A.S. No. 6599, 672 U.N.T.S. 119.

[44]Convention on Registration of Objects Launched into Outer Space. U.N.G.A. Res. 3235 (XXIX) (1974). For text of the Convention, see 3 J.Space L. 99 (1975).

[45]See *Myeshdunarodnye Pravo* (International Law) 558 (Moscow, 1974).

[46]J.M. Kolossov, Otvietstviennost v miegdunarodnom pravye (Responsibility in International Law) 51-52 (Moskwa, 1975).

[47]J.D. Theraulaz, Droit de l'espace et responsabilité 217-220 (Lausanne, 1971).

[48]This divergence of opinions is presented by A. Favre, Cours de droit de gens professe à l Université de Fribourg, 213 (Vol. 2, 1967-68).

> The term damage means loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations;

The problem of defining damage was the subject of several controversies during the development of the text of the 1972 Convention by the Legal Sub-Committee of COPUOS.[49] The accepted definition of damage is of a general nature. This approach seems reasonable because damage that can be caused by space objects varies and due to the rapid development of technology, is often unpredictable.[50] The formulation of the term "damage" accepted in the Convention of 1972 includes the concepts of *damnum emergens* as well as *lucrum cessans.*[51] The inclusion of *lucrum cessans* in the term damage is in full concordance with the recent international judicature.[52] Furthermore, the securing of effective defense of the rights of the injured, was a base of the Convention of 1972. Because nuclear sources of energy are being placed on board satellites, it is important to include in the notion of "damage caused by space objects" the so-called nuclear damages. This regulation, stated in the Convention of 1972, departs from the past tendency to separately regulate the liability for damages caused due to exploitation of nuclear energy.[53] This had been one of the reasons why the definition of damage was subject to severe controversy.[54]

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[49]See G.P. Zhukov, *op. cit. supra* n. 1 at 121; J.D. Theraulaz, *op. cit. supra* n. 47 at 237; A.A. Rubanow, Mezdunarodnaja kosmiczesko-prawowaja imuszczestwiennaja otwiestwiennost (International Liability in Outer Space Law) 61 (Moskwa, 1977), M.G. Marcoff, *op. cit. supra* n. 19 at 549; J. Rajski, *op. cit. supra* n. 17 at 73.

[50]The broad definition was postulated in the legal doctrine. See among others, J.D. Theraulaz, *op. cit. supra* n. 47 at 237.

[51]See J. Rajski, *op. cit. supra* n. 17 at 73. A different stand is held by J.D. Theraulaz, Le projet de convention sur la responsabilité internationale pour les dommages causés par les objets spatiaux - resultat des travaux du sous-comité juridique des Nations-Unis, Revue Générale de l'Air et de l'Espace 271 (No. 3, 1971); and M. G. Marcoff, *op. cit. supra* n. 19 at 550. O. Ogunbanwo, International Law and Outer Space Activities 153 (The Hague, 1975), points out the interpretational difficulties connected with the including in term "damage" the so-called indirect damage.

[52]E. Jimenez de Arechaga, International Responsibility in Manual of Public International Law, ed. by M. Srensen 569-570 (London, 1968); D. O'Connell, International Law, Vol. II, 1114 (London, 1970); G. Schwarzenberger, International Law as Applied by International Courts and Tribunals, Vol. I, 671 (3rd ed. London, 1957) and judicature quoted in these works. See also: Ch. Rousseau, Droit international public. 130 (3rd ed., Paris, 1965); and I. Seidl-Hohenveldern, Völkerrecht 263 (Koln-Bonn-München, 1965).

[53]J.D. Theraulaz, *op. cit. supra* n. 47 at 238; O. Ogunbanwo, *op. cit. supra* n. 51 at 153; Bin Cheng, Liability for Spacecraft, Current Legal Problems 230 (London, 1970).

[54]See U.N. Doc. A/AC.105/C.2/SR.48, SR 67, SR 92, SR 94; I. Diederiks-Verschoor, The Convention on International Liability for Damage Caused by Space Objects, Proc. of the XV Colloquium on the Law of Outer Space 96 (1972); M. Grzegorczyk, Odpowiedzialnosc za szkody kosmiczne (Responsibility for Damages Caused by Space Activities), *Nowe Prawo* (New Law), No. 11 at 1672 (1972). O. Deleau, La convention sur la responsabilité internationale pour les dommages causés par les objets spatiaux 17 Ann. fran. droit int'l 78 (1971).

Aside from the broad scope of the term "damage", the Convention of 1972 covers damages caused by space objects in all environments - on the Earth's surface, in the atmosphere and in outer space.[55] The limitations of the scope of the Convention are on one hand the application of it to damages caused only by space objects and on the other hand only to damages caused to States (their property or persons) or the property of their natural and juridical persons[56] and international organizations.

Absolute liability is the basic principle of the Convention. This term however is not precise because as the Convention provides in Article VI, paragraph 1;

> . . . . exoneration from absolute liability shall be granted to the extent that a launching State establishes that the damage has resulted either wholly or partially from gross negligence or from an act or omission done with intent to cause damage on the part of a claimant State or of natural or juridical persons it represents.

This rigorous regime of liability, which has as its goal the assurance of an effective defense of the interests of States endangered by outer space activities, cannot be justified in the case of damage caused in outer space. The acceptance of the principle of fault as the basis of liability for damages caused in outer space was postulated in the doctrine[57] and is accepted in Article III of the Convention.[58] In the doctrine of outer space law it is disputable whether damage may be only the collision of space objects,[59] or may also be the interference of the activities of these objects; e.g. forcing the change of the flight

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[55]The acceptance of such a solution allowed the signing of the Convention without the necessity of the previous solving of the disputable question of the delimitation of the air space and outer space.

[56]According to the article VII of the 1972 Convention:

> The provisions of this Convention shall not apply to damage caused by a space object of a launching State to:
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> a. Nationals of that launching State;
>
> b. Foreign nationals during such time as they are participating in the operation of that space object from the time of its launching or at any stage thereafter until its descent, or during such time as they are in the immediate vicinity of a planned launching or recovery area as the result of an invitation by that launching State.

[57]See L. Goldie, Liability for Damage and the Progressive Development of International Law, 4 Int'l and Comp. L. Q. 1223 (1965). W. Jenks: Space law 288 (London, 1965); V. Kopal, Problems of Legal Responsibility for Space Activities. *Studie z miezinarodniho pravo* (Studies on International Law) 94 (No. 4, 1971).

[58]According to the article III of the 1972 Convention:

> In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.

[59]See M. Grzegorczyk, *op. cit. supra* n. 54 at 149; J.D. Theraulaz, *op. cit. supra* n. 47 at 253-254; O. Deleau, *op. cit. supra* n. 54 at 878.

route.[60] It seems that because of the wide scope of the term "damage" accepted in the Convention, the second of the two stands is more justified. Some authors feel that liability based on fault can also be applied in the case of damages caused on the Moon's surface (for example by harming a Moon station of another State) or on other celestial bodies. "In such a case the risk would be carried by the authority launching the space object and the authority leading the activities held on the Moon."[61] Questions concerning responsibility for activities held on the Moon or other celestial bodies will probably be solved by the Treaty on the Moon, which is currently under consideration by COPUOS.[62]

V. *Exoneration from Responsibility and the Effects of Responsibility*

The possibility of exoneration from liability for damages caused by space objects depends on the place where the damage was caused. As was already stated for damages caused by space objects on the Earth's surface or to an aircraft in flight, States bear absolute liability. According to Article VI, paragraph 1;

> . . . . exoneration from absolute liability shall be granted to the extent that a launching State establishes that the damage has resulted either wholly or partially from gross negligence or from an act or omission done with intent to cause damage on the part of a claimant State or of natural or juridical persons it represents.

The objectional behavior of a State was determined in the Convention to be "gross negligence" and "an act or omission with intent to cause damage". There is no clarification of these terms in the Convention which leads to difficulties in their interpretation. To eliminate all doubts it is necessary to accept a criterion distinguishing "gross negligence" from "negligence". In civil law either rules of neat behavior or psychological elements concerning the behavior of the injured are accepted as the criteria.[63] In the context of international responsibility the first criterion seems more adequate. The adoption of this criterion requires the determination of the kind and measure of neat behavior. This problem was not solved in the Convention and up to now was more broadly considered in space law doctrine.

According to Articles III and IV of the 1972 Convention;

> In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space

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[60]See J. Rajski, *op. cit. supra* n. 17 at 107.

[61]M. Gregorczyk, *op. cit. supra* n. 54 at 149.

[62]For text of the Draft Treaty Relating to the Moon, see U.N. Docs. A/AC.105/101 (1972), A/AC.105/115 (1973), reprinted in 1 J. Space L. 170 (1973).

[63]See J. Rajski, *op. cit. supra* n. 17 at 99.

> object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.
>
> In all cases of joint and several liability the burden of compensation for the damage shall be apportioned between the States in accordance with the extent to which they were at fault; if the extent of the fault of each of these States cannot be established, the burden of compensation shall be without prejudice to the right of the third state to seek the entire compensation due under this Convention from any or all of the launching States which are jointly and severally liable.

It should be stressed that the discussed principles of exoneration do not cover situations where the damage was caused by a wrongful act. According to Article VI, paragraph 2 of the Convention of 1972;

> No exoneration whatever shall be granted in cases where the damage has resulted from activities conducted by a launching State which are not in conformity with international law including, in particular, the Charter of the United Nations and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

An example of this may be the shooting down of a space object on which were placed weapons of mass destruction. The State which shot down the object and then was damaged deserves the right to compensation from the State which placed on board the space object the weapons of mass destruction.

According to the doctrine of space law, the result of liability is compensation. The type of damage caused determines the form of compensation. The compensation may have the form of *restitutio in integrum* or may be natural or financial. However, *restitutio in integrum* is the main form of compensating damages and application is not always possible. Therefore in practice considerably more financial compensation may take place. This form of compensation is also treated prioritatively in the 1972 Convention. According to Article XIII of the Convention "Unless the claimant State and the State from which compensation is due under this Convention agree on another form of compensation, the compensation shall be paid in the currency of the claimant State. . . ."

Financial compensation has several practical advantages since it allows a quick compensation of claims and allows the claimant to fix the damages caused to its natural or juridical persons. Some doubts may arise concerning the convertibility of various currencies. The Convention of 1972 solves this problem by stating in Article XIII ". . . . the compensation shall be paid in the currency of the claimant State or, if that State so request, in the currency of the State from which compensation is due." During the last few years, in a number of conventions on liability for damages resulting from lawful acts, a principle of compensation limited to a certain ceiling has been introduced. This principle is not applied to damages caused by space objects.

Article XII of the Convention of 1972 provides:

> The compensation which the launching State shall be liable to pay for damage under this Convention shall be determined in accordance with international law and the principles of justice and equity, in order to provide such reparation in respect of the damage as will restore the person, natural or juridical, State or international organization on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred.

According to what was stated above on the notion "damage", the compensation should cover *lucrum cessans* as well as *damnum emergens* which the injured State could have obtained if the damage had not been caused.

VI. *Final Remarks*

The goal of the above considerations, due to their limited scope, was only to point out some of the problems connected with the responsibility of States for activities carried on in outer space.

First of all, attention is called to the fact that although the stipulation of Article VI of the Outer Space Treaty of 1967 that "States bear international responsibility for national activities in outer space . . ." seems to be absolutely clear, some doubts may arise in connection with the imputing of a given act or omission to a State.

It was also pointed out that joint responsibility of States is becoming of greater importance due to the development of international cooperation in outer space. This problem is becoming more complex because of the involvement of multinational corporations and non-governmental entities, aside from States and international organizations, in outer space activities. In case of various contributions in the joint undertaking, the signing of special agreements on the sequence of responsibility may be necessary.

The next problem discussed in the article is the problem of responsibility for wrongful acts connected with outer space activities. The reflections are focused on the notion of "violation of the law", which entails State responsibility. It should be stressed that due to the rapid development of outer space activities the problem of State responsibility for wrongful acts (for example contamination of outer space), deserves further detailed consideration.

The main aspects of responsibility based on risk were presented in the article in relation to the principles of the Convention of 1972. But since the Convention concerns only liability for damages caused by space objects, a problem arises whether responsibility for risk in outer space is limited only to damages caused by space objects. Will a State bear responsibility for damage not caused by the launching or attempted launching of a space object which is not a wrongful act? The interpretation of the documents of international law does not lead the author to a concrete conclusion.

In relation to the problem of exoneration, there is lacking a clear explanation of the term "gross negligence" as it is used in Article VI, paragraph 1 of the Convention of 1972. Therefore the necessity of working out criteria which would allow the differentiation of the terms "negligence" and "gross negligence" was stressed. This determination seems of great importance for the exoneration of the State which caused the damage.[64]

[64]The only case of limiting compensation is when the damage has resulted from gross negligence or intentional fault of claimant State or of natural or juridical persons it represents.

SPACE LAW AS IT EFFECTS DOMESTIC LAW

*Dr. I.H.Ph. Diederiks-Verschoor**

I. *Introduction*

In general, international law may effect national law in such a way that States give up sovereign powers in favor of international bodies or the realization of international purposes.[1]

Considering the title of out subject "Space Law As It Effects Domestic Law", one could discern a direct and an indirect legal impact of international space law on domestic law. Direct impact means a situation where rules of international space law are made applicable within a national territory in pursuance of measures taken by a state. An indirect impact means a situation where international space law plays a certain role during the domestic law-making process or during the updating with respect to already existing national rules. It is not always easy to make this distinction.

The United States of America is, according to the information available at present, the only country which set up national space legislation: i.e. the National Aeronautics and Space Act of 1958 and the Communications Satellites Act of 1962.[2] Some attention will be given to the relationship of this United States space legislation to international space law in part V of this article.

Furthermore, an attempt will be made to analyze the extent to which space law does have an indirect impact on domestic law through its principles and its more concrete international conventions.

II. *Space Law as a Law of Peace*

Before looking more precisely at international space law and its eventual effect on domestic law, a few words should be said on the unique character of space law as a branch of international law.

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[1]Compare the remarks of Manfred A. Dauses, on The Relative Autonomy of Space Law: "the imperative requirements of growing international interdependence curtail states' freedom of action de facto and the resulting delegation of sovereign powers to international and supranational organizations entails new decision-making processes de jure which are, in return, at least rudimentarily reflected in the actual changes of world politics", *Proc. 18th Colloquium on the Law of Outer Space* 75 (1975).

[2]See *Space Law*, Selected Basic Documents, Staff Report Prepared for the Use of the Committee on Aeronautical and Space Sciences 417-19 (Dec. 30, 1976).

The International Geophysical Year (1957-1958) focused attention on Antarctica. At that time, fear existed that Antarctica might be used for military purposes. On December 1, 1959, the Antarctica Treaty was signed.[3] In its preamble, it is recognized "that it is in the interest of all mankind that Antartica shall continue for ever to be used exclusively for peaceful purposes". Furthermore, article I, paragraph 1 of the same treaty stipulates that "Antarctica shall be used for peaceful purposes only", although no unanimity existed on the definition of the term "peaceful".

Also as regards outer space, the same fear existed, *i.e.,* that the armaments race would be extended to this area.[4] In the same period, the basic principle of peaceful use was made applicable to outer space and a notable United Nations General Assembly Resolution of December 12, 1959 declared that it recognized "the common interest of mankind as a whole in furthering the peaceful use of outer space" and "the great importance of international cooperation in the exploration and exploitation of outer space for peaceful purposes".[5]

Finally, after a long period of preparation and struggle, an official international convention incorporated this principle. It was the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, hereinafter to be called the Outer Space Treaty which was signed and entered into force in 1967.[6]

From this year on, an official international convention limited the use of outer space to peaceful purposes. This was a very significant step, especially for the Great Powers. The slow treaty-making process was caused by the unwillingness of States to give up some of their rights concerning the use of outer space and not in the least because of the latter's possible use for military purposes.

As activities in outer space affect all countries of the world, it would be most ineffective to leave it to the United States to regulate the different legal aspects of outer space activities in their national legislations. Joseph Kroell points out that space law can

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[3]For the text of the Antarctic Treaty, see 12 U.S.T. 794, T.I.A.S. No. 4780, 402 U.N.T.S. 72.

[4]Staub, "The Antarctica Treaty as Precedent to the Outer Space Treaty", *Proc. 17th Colloquium on the Law of Outer Space* 282 (1974); Faria, "Draft to an International Covenant for Outer Space, 122 (1960) and Mouton, "The Antarctic Treaty", Recueil des Cours 252-268 (III, 1962).

[5]Gen. Ass. Res. 1472/XIV of December 12, 1959, part A, paras. 1 and 4 of Preamble.

[6]The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, was signed on January 27, 1967, and entered into force October 10, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205.

neither be national nor international but only world-wide, according to the universal nature of outer space itself.[7]

Having explained the unique character of international space law and its reason for existence, it must be stated that in international space law the freedom of movement of States concerning outer space activities is rather limited.

The basic convention of international space law is the Outer Space Treaty of 1967. In this treaty, the main principles of space law are laid down. First, some attention will be paid to the eventual influence of these principles on future state (legal) activity. Later on, the discussion will center around the three conventions and a draft treaty which form elaborations of the Outer Space Treaty and which are much more concrete in their formulating rights and obligations of States. The three conventions and the draft treaty are: the Agreement on the Rescue and Return of Astronauts and Space Objects of 1968, the Conventions on International Liability for Damage caused by Space Objects of 1972, the Convention on Registration of Objects Launched into Outer Space (1975) and finally the Draft Treaty Relating to the Moon (1975)[8].

III. *Principles of Space Law*

As has been stated by Zhukov[9], the principles of space law extend to the most general rules of conduct by which the states must be guided in their space activities. What will follow now is a short analysis of the principles of space law as especially laid down in the 1967 Outer Space Treaty.

(a) *Freedom of exploration, use and scientific investigation in outer space: Article I, Outer Space Treaty*[10]

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[7]Kroell, "Einem Weltraumrecht entgegen", 1 *Zeitschrift für Luftrecht.* 246 and *seq.* at 249, (1952).

[8]Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, April 22, 1968, [1968] 19 U.S.T. 7570, T.I.A.S. No. 6599, 672 U.N.T.S. 119.

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

The Convention on Registration of Objects Launched into Outer Space, was opened for signature on January 14, 1975, and entered into force on Sept. 15, 1976; T.I.A.S. No. 8480. For text of the Draft Treaty Relative to the Moon, see: UN Doc. A/AC. 105/196, Annex I, Appendixes D and E (Apr. 11, 1977).

[9]Zhukov, "Tendencies and Prospects of the development of Space Law: The Soviet Viewpoint" in E. McWhinney and M.A. Bradley (eds.), *New Frontiers in Space Law* 73-88 (1969).

[10]One could ponder the question whether this principle, the concept of international cooperation, solidarity and peaceful uses, is binding upon noncontracting parties. According to Dauses, *supra* note 1 at 77, it is sufficient for the creation of rules of international customary law if the great majority of states adopt the law creating usage while the remaining minority do not oppose it.

Article I belongs, together with Articles II and III to the so-called fundamental principles of outer space law. This freedom is limited by Article I itself as it prescribes that states, in the exploration and use of outer space, must consider the benefit and interests of all countries.

(b) *Nonappropriation of outer space: Article II of the Outer Space Treaty*

The consequence of this principle for the conduct of states is that no sovereign power is admitted or permitted in outer space, neither is private property. This concept is the key rule of the law of outer space.

(c) *The activities of states must be in accordance with international law, including the Charter of the United Nations: Article III, Outer Space Treaty*

In order to maintain international peace it is necessary also in the field of State activities in outer space that States be guided by fundamental principles of international law such as the universally recognized principle of nonagression, the principle of pacific settlement of disputes which is contained in the United Nations Charter (Article 2, para. 3 and Chapter VI), the principle of prohibition of war propaganda and last but not least the principle of disarmament. This last principle is contained in Article II of the United Nations Charter.

(d) *Limited use of military means in outer space and on celestial bodies: Article IV, Outer Space Treaty*

Insofar as far as states are concerned, this principle means a clear limitation on their freedom of military activities.

(e) *Providing for all assistance to astronauts in the event of accident, distress, or emergency landing; their safe and prompt return and the mutual assistance between astronauts of different States in Outer Space and on celestial bodies: Article V, Outer Space Treaty*

This principle contains obligations for states in the aformentioned cases.

(f) *International responsibility for national activities in outer space*

This principle includes international liability for damage caused by space objects incorporated in Articles VI and VII of the Outer Space Treaty.

(g) *The principle of states' retention of jurisdiction and control over an object and its personnel launched into outer space: Article VIII*

The consequences of this principle are that the State of registry has jurisdiction arising beyond its territory.

According to Lachs, the term "control" implies that "the State of registry has a right to require other States to refrain from interfering with the direction and supervision of the object or with any of the technical arrangements necessary for the fulfillment of its mission of exploration and use of outer space." It should also be interpreted as implying certain obligations for the State concerned, in particular those of insuring (a) that the object or the personnel thereof do not infringe the legitimate rights of other States and (b) that the mission they are intended to perform does not conflict with the rules of law of outer space.[11]

(h) *The principle of international co-operation in the exploration and use of outer space and celestial bodies and solidarity*

This principle is codified by the preamble, Article I and Articles IX-XI of the Outer Space Treaty. As it has been stated before, for the first time in legal history, international law imposes on States the obligation to carry out the exploration and use of outer space in the common interest of all mankind (*bonum commune*).

These principles have to be materialized in state practice and eventually in national law. It must not be forgotten, however, as Meuwissin[12] points out that there is no such thing as a sharp distinction between a principle and its realization: what represents the realization of a principle may, in turn, serve as a principle for further materialization.

IV. *The Rights and Duties of States According to the International Space Conventions Following the Outer Space Treaty.*

(a) *The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space*

This agreement is the first example of an elaboration of the principles of the Outer Space Treaty and is broader than the provisions of that treaty dealing with assistance to distressed astronauts. This agreement mentions in detail the rights and obligations of the Contracting Parties relating to the rescue, assistance, and return of distressed astronauts and the return of space objects.

National rescue services are to be engaged in the realization of the obligations contained in this agreement.

(b) *The 1972 Convention of International Liability for Damage Caused by Space Objects*

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[11]Manfred Lachs, *The Law of Outer Space* 69 (1969).

[12]Meuwissen, "The relationship between international and municipal law and fundamental rights", 24 *Netherlands Int'l L. Rev.* 191 (Special issue 12, 1972).

The impact of space law on international law and on national law can be made clear by the 1972 Liability Convention. The negotiations concerning this space law convention make perfectly clear why the 1972 Convention prescribes an international liability for States engaged in space activities. It would be a rather complicated situation if it were left to every State to deal with damage claims in this field according to their national legislations.

Article XI, paragraph 1 of the Liability Convention stipulates that the convention does not require the prior exhaustion of any local remedies which may be available to a claimant state or to natural or juridical persons it represents. However, paragraph 2 of this article allows the respective person or State to pursue a claim in the courts or administrative tribunals or agencies of a launching State. States may not act simultaneously under the convention and under national law. The convention's impact on international law in general can be analyzed as follows:

The Convention has set forth the traditional remedy of diplomatic protection of nationals,[13] though with significant modifications; first, by eliminating the classical requirement of exhaustion of all domestic remedies, and second, by permitting States to press claims before an international claims commission.

The Liability Convention does not prevent a State "from pursuing a claim in the courts or administrative tribunals or agencies of a launching State". Those courts will have to act in conformity with this convention.

A question which arises in this respect is whether the regulation of liability as contained in the convention must not be incorporated in national legislation in order to enable municipal courts to settle claims in accordance with the convention. This concerns to a lesser degree those States where ratified conventions are considered to be integral parts of national legislation, *i.e.*, in the United States of America treaties are the law of the land.

(c) *The Convention on Registration of Objects Launched Into Outer Space of 1975*

This convention is closely connected with liability for damage; otherwise it is not possible to check the identity of a certain space craft.

Of primary importance is the requirement that "Each launching State shall inform the Secretary General of the United Nations of the establishment of such registry"

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[13]Claims are to be presented by a State or an international organization (having assumed the rights and obligations under the convention). In such case, the injured natural or judicial person must request its' State to present its' claim through diplomatic channels (*i.e.* diplomatic protection of nationals).

(Art. 1). The subsequent articles require that States furnish supplementary information relative to any changed circumstances, such as a previously registered object which is no longer in earth orbit.

(d) *The Draft Treaty Relating to the Moon and other Celestial Bodies*

According to the Draft Treaty,[14] all military installations and activities on the moon (and other celestial bodies) shall be forbidden, while the use of military material and personnel for peaceful goals shall not be prohibited. This treaty also provides for freedom of scientific investigation and freedom to establish stations. Also in this treaty one finds the basic principle of international space law that space exploration is exercised for the benefit of all.

V. *The United States National Aeronautics and Space Act of 1958 and the United States Communications Satellite Act of 1962*

The United States together with the Soviet Union were the only countries capable of initiating outer space activities. In the United States, the National Aeronautics and Space Act of 1958 was created "to provide for research into problems of flight within and outside the earth's atmosphere and for other purposes."[15]

The influence of the existing international space law on United States legislation can be shown by citing some parts of sections of the above-mentioned acts.

Title I, Sec. 101 (a) of the National Aeronautics and Space Act of 1958 reads:

> "The Congress declares that it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind."

Section 102 (c) (7) provides for:

> "Cooperation by the United States with other Nations and groups of nations in work done pursuant to this Act and in the peaceful application of the results thereof."

The Communication Satellite Act of 1962 made it possible that commercial communications by satellite would be developed by a private company for profit. Title I, Sec. 102 (a) and (b) reads:

> "The Congress hereby declares that it is the policy of the United States to establish, in conjunction and cooperation with other countries, as expeditiously as practical a commercial communications satellite system, as part of an improved global communications network, which will be responsive to public needs and national

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[14] *Supra* note 8.

[15] See *Space Law, op. cit. supra* note 2 at 417.

> objectives, which will serve the communication needs of the United States and other countries, and which will contribute to world peace and understanding. " . . . [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 . . . "

The basic principles of peaceful use of outer space and the principle of international cooperation are embodied in the aforementioned two Acts.

Furthermore the objectives of the National Aeronautics and Space Administration International Programs are as follows:

> "The international activities of the national aeronautics and space administration are planned to demonstrate the peaceful purposes of space research and exploration by the United States, to provide opportunities for the participation of scientists and agencies of other countries in the task of increasing man's understanding and use of his spatial environment, and to support operating requirements for the launching and observation of space vehicles and craft".[16]

VI. Final Remarks

Regarding subjects which are discussed within the Committee on the Peaceful Uses of Outer Space, such as remote sensing and direct communication satellites, States could have great influence in forbidding remote sensing of their territories or the use of detailed information obtained by remote sensing without their express consent and in the prohibition of certain programs broadcast by direct broadcasting satellites.

There is a possibility that national laws will be created to protect the populations against unwanted consequences of the above-mentioned activities. Even if,as could be seen in the previous pages, space law is mainly international law nowadays and its influence on domestic law is still limited, in my opinion its impact will grow in accordance with its development. One also has to take into consideration the development of the space shuttle and the cooperation between States, for instance, the European Space Agency. In this respect, rules of general law shall be applicable and not specific rules of space law.

Spacecraft have just started to become more common vehicles. Their future influence will be great, also upon municipal law, even though, just as in air law, international conventions will probably play the most important role.

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[16] *Id.* at 449.

I.

U.S. PRESIDENTIAL DECISION MEMORANDUM 37*

The President directed under a Presidential Review Memorandum that the NSC Policy Review Committee (PRC) thoroughly review existing policy and formulate overall principles which should guide our space activities. The major concerns that prompted this review arose from growing interaction among our various space activities.

The review examined and the resultant Presidential Directive establishes:

> A government policy oversight system to review and revise space policy as needed;
>
> Ground rules for the balance and interaction among our space programs to insure achievement of the interrelated national security, economic, political, and arms limitation goals of the U.S.; and
>
> Modifications to existing policies, the appropriate extent of the overlapping technology, and product dissemination by the sectors.

This Presidential Directive establishes an NSC Policy Review Committee to provide a forum to all Federal agencies for their policy views, to advise on proposed changes to national space policy, to resolve issues referred to the Committee, and to provide for rapid referral of issues to the President for decision as necessary. This Committee will be chaired by the Director of the Office of Science and Technology Policy, Frank Press. Recognizing that the civilian space program is at the threshold of change, the President has asked the PRC to assess the needs and aspirations of the nation's civil space program. The United States has built a broad national base in space and aeronautics. At issue is how best to capitalize on prior investments and set the needed direction and purpose for continued vitality in the future.

Under the Presidential Review Memorandum the emphasis was to resolve potential conflicts among the various space program sectors and to recommend coherent space principles and national space policy. In focusing upon these issues, the Policy Review Committee concluded that our current direction set forth in the Space Act of 1958 is well founded and that the preponderence of existing problems was related to interactions and resultant stresses among the various space programs. For this reason, the classified portion of the recently signed Presidential Directive concentrates on overlap questions. It does not deal in detail with the long-term objectives of our defense,

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*White House Press Release, June 30, 1978.

commercial, and civil programs. Determining our civil space policy, outlined above, will be the next step.

As a result of this in-depth review, the President's Directive establishes national policies to guide the conduct of United States activities in and related to space programs. The objectives are (1) to advance the interests of the United States through the exploration and use of space and (2) to cooperate with other nations in maintaining the freedom of space for all activities which enhance the security and welfare of mankind. The space principles set forth in this Directive are:

> The United States will pursue space activities to increase scientific knowledge, develop useful commercial and government applications of space technology, and maintain United States leadership in space technology.
>
> The United States is committed to the principles of the exploration and use of outer space by all nations for peaceful purposes and for the benefit of all mankind.
>
> The United States is committed to the exploration and use of outer space in support of its national well-being.
>
> The United States rejects any claims to sovereignty over outer space or over celestial bodies, or any portion thereof, and rejects any limitations on the fundamental right to acquire data from space.
>
> The United States holds that the space systems of any nation are national property and have the right of passage through and operations in space without interference. Purposeful interference with space systems shall be viewed as an infringement upon sovereign rights.
>
> The United States will pursue activities in space in support of its right of self-defense and thereby strengthen national security, the deterrence of attack, and arms control agreements.
>
> The United States will conduct international cooperative space activities that are beneficial to the United States scientifically, politically, economically, and/or militarily.
>
> The United States will develop and operate on a global basis active and passive remote sensing operations in support of national objectives.

> The United States will maintain current responsibility and management relationships among the various space programs, and, as such, close coordination and information exchange will be maintained among the space sectors to avoid unnecessary duplication and to allow maximum cross-utilization of all capabilities.

Our civil space programs will be conducted to increase the body of scientific knowledge about the earth and the universe; to develop and operate civil applications of space technology; to maintain United States leadership in space science, applications, and technology; and to further United States domestic and foreign policy objectives within the following guidelines:

> The United States will encourage domestic commercial exploitation of space capabilities and systems for economic benefit and to promote the technological position of the United States; however, all United States earth-oriented remote sensing satellites will require United States government authorization and supervision or regulation.
>
> Advances in earth imaging from space will be permitted under controls and when such needs are justified and assessed in relation to civil benefits, national security, and foreign policy. Controls, as appropriate, on other forms of remote earth sensing will be established.
>
> Data and results from the civil space programs will be provided the widest practical dissemination to improve the condition of human beings on earth and to provide improved space services for the United States and other nations of the world.
>
> The United States will develop, manage, and operate a fully operational Space Transportation System (STS) through NASA, in cooperation with the Department of Defense. The STS will service all authorized space users—domestic and foreign, commercial and governmental—and will provide launch priority and necessary security to national security missions while recognizing the essentially open character of the civil space program.

Our national security related space programs will conduct those activities in space which are necessary to our support of such functions as command and control, communications, navigation, environmental monitoring, warning and surveillance, and space defense as well as to support the formulation and execution of national policies; and to support the planning for and conduct of military operations. These programs will be conducted within the following guidelines:

Security, including dissemination of data, shall be conducted in accordance with Executive Orders and applicable directives for protection of national security information. Space-related products and technology shall be afforded lower or no classification where possible to permit wider use of our total national space capability.

The Secretary of Defense will establish a program for identifying and integrating, as appropriate, civil and commercial resources into military operations during national emergencies declared by the President.

Survivability of space systems will be pursued commensurate with the planned need in crisis and war and the availability of other assets to perform the mission. Identified deficiencies will be eliminated and an aggressive, long-term program will be applied to provide more assured survivability through evolutionary changes to space systems.

The United States finds itself under increasing pressure to field an anti-satellite capability of its own in response to Soviet activities in this area. By exercising mutual restraint, the United States and the Soviet Union have an opportunity at this early juncture to stop an unhealthy arms competition in space before the competition develops a momentum of its own. The two countries have commenced bilateral discussions on limiting certain activities directed against space objects, which we anticipate will be consistent with the overall U.S. goal of maintaining any nation's right of passage through and operations in space without interference.

While the United States seeks verifiable, comprehensive limits on anti-satellite capabilities and use, in the absence of such an agreement, the United States will vigorously pursue development of its own capabilities. The U.S. space defense program shall include an integrated attack warning, notification, verification, and contingency reaction capability which can effectively detect and react to threats to U.S. space systems.

II.

U.N. GENERAL ASSEMBLY, COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

REPORT OF THE LEGAL SUB-COMMITTEE ON THE WORK OF ITS EIGHTEENTH SESSION (12 MARCH-6 APRIL 1979)*

INTRODUCTION

Opening of the session

1. The Legal Sub-Committee opened its eighteenth session at the United Nations Headquarters on 12 March 1979 under the chairmanship of Mr. Eugeniusz Wyzner (Poland).

2. The Chairman, in his opening statement, referred to the continuing and impressive achievements of an ever-increasing number of individual and collective participants in outer space and drew attention to the necessity for a parallel evolution of the law of outer space. The Legal Sub-Committee had an important and central role in the formulation and development of law in this field. The record of the Sub-Committee in the preparation of treaties and other legal instruments relating to the peaceful uses of outer space was impressive. Yet much remained to be done.

3. The Chairman congratulated all countries which had, since the Sub-Committee's previous session, either individually or collectively begun or made new progress in their space programmes. The space programmes of the Union Soviet Socialist Republics and the United States of America continued to develop. Cosmonauts of the USSR had remained last year for a record period of 139 days in outer space. Aboard the still operative Salyut-6 space station two USSR cosmonauts are at present in orbit around the earth. On flights of Soyuz spacecraft, cosmonauts of Czechoslovakia, the German Democratic Republic and Poland had accompanied USSR cosmonauts into outer space. The development by the United States of its space shuttle-orbiter was now in its final stage. The first manned orbital flight was scheduled for November 1979 and shuttle-flight bookings had been made into 1983. The deep-space flight of the United States spacecraft Voyager I around Jupiter and its moons was current and dramatic news.

4. The General Assembly, in its resolution 33/16 of 10 November 1978, had noted with satisfaction the work accomplished by the Sub-Committee at its seventeenth session and had recommended that the Sub-Committee at its present eighteenth session should: (a)continue, as matters of priority: (i)its efforts to complete the elaboration of draft principles governing the use by States of artifical earth satellites for direct television

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*Taken from U.N. Doc. A/AC.105/248 (1979). The annexes are omitted.

broadcasting; (ii)its detailed consideration of the legal implications of remote sensing of the earth from space, with the aim of formulating draft principles; (iii)its efforts to complete the draft treaty relating to the moon; (b)continue to discuss matters relating to the definition and/or delimitation of outer space and outer space activities, bearing in mind, *inter alia,* questions relating to the geostationary orbit; and (c)include in its agenda an item entitled "Other matters".

5. The Chairman, concluding his opening statement, expressed the hope that the Sub-Committee would be successful in completing, at its present session, its work on one or more of the three subjects to which the General Assembly had requested the Sub-Committee to accord priority. He did not wish to underestimate difficulties and was conscious of the juridical, practical and political complexity of the issues that still remained outstanding. Yet he was confident that the Sub-Committee could search for and identify, on the various issues, the highest common denomination of agreement and then record that level of agreement in acceptable language. It was true, as it was indeed true of most, if not all, multilateral treaties and other multilateral instruments, that each delegation might not have its own point of view reflected in the treaty or other instrument as fully as it may have wished. Yet such was the essence and nature of international co-operation, compromise and accord.

Adoption of the agenda

6. At its opening meeting the Sub-Committee adopted the following agenda for the session (A/AC.105/C.2/L.116):

1. Statement by the Chairman

2. Elaboration of draft principles governing the use by States of artificial earth satellites for direct television broadcasting

3. Legal implication of remote sensing of the earth from space, with the aim of formulating draft principles

4. Draft treaty relating to the moon

5. Matters relating to the definition and/or delimitation of outer space and outer space activities, bearing in mind, *inter alia,* questions relating to the geostationary orbit

6. Other matters

Organization of work

7. The Sub-Committee decided to organize its work as follows:

(a) The Sub-Committee would devote the first week of its session to agenda item 3 (Legal implications of remote sensing of the earth from space, with the aim of formulating draft principles); the second week to agenda item 2 (Elaboration of draft principles governing the use by States of artificial earth satellites for direct television broadcasting); and the third week to agenda item 4 (Draft treaty relating to the moon). The Sub-Committee would, at the end of the third week of its session, consider how, in the light of the progress made up to that point, the remaining time at its disposal could best be utilized, having regard to the time required for consideration of agenda item 5 (Matters relating to the definition and/or delimitation of outer space and outer space activities, bearing in mind, *inter alia,* questions relating to the geostationary orbit) and agenda item 6 (Other matters). The Sub-Committee agreed that a certain degree of flexibility should be observed in the allocation of time between agenda items in order that all available time be in fact utilized.

(b) The Sub-Committee would maintain its practice of setting up working groups, open to all members of the Sub-Committee, for consideration of the priority items on its agenda. The Sub-Committee, accordingly, re-established its Working Group I on the draft treaty relating to the moon; its Working Group II on direct television broadcasting; and its Working Group III on remote sensing. The Sub-Committee agreed that Mr. Haraszti, representative of Hungary, would continue as Chairman of Working Group I on the draft treaty relating to the moon, that Mr. El Araby, representative of Egypt, would be Chairman of Working Group II on direct television broadcasting; and that Mr. Winkler, representative of Austria, would be Chairman of Working Group III on remote sensing.

(c) The Sub-Committee would each day begin with a plenary meeting to provide for a general exchange of views during the first week of its session and to enable delegations to address the Sub-Committee on the specific items of its agenda in the remaining weeks of the session. The Sub-Committee would each day after the conclusion of its plenary meeting reconvene as a working group.

8. The Chairman informed the Sub-Committee, at its 303rd meeting on 13 March 1979, that he had received a request from Peru to participate in meetings of the Sub-Committee. The Sub-Committee agreed that, since the granting of observer status was a perogative of the Committee on the Peaceful Uses of Outer Space, the Sub-Committee could take no decision on the matter but that the representative of Peru might attend the formal meetings of the Sub-Committee and could direct to the chair a request for the floor should he wish to make a statement.

9. Working Group I on the draft treaty relating to the moon held 5 meetings. Working Group II on direct television broadcasting held 12 meetings. Working Group III on remote sensing held 8 meetings. There were also a number of informal consultations in the course of the deliberations of the three Working Groups.

10. The Chairmen of the three Working Groups reported to the Sub-Committee at its 317th and 318th meetings on 4 and 5 April 1979. The Sub-Committee took note with appreciation of the work done in the Working Groups.

11. The Sub-Committee considered item 5 of its agenda at its 314th to 318th meetings on 2 to 5 April 1979.

12. The Sub-Committee considered item 6 of its agenda at its 314th to 316th meetings on 2 to 4 April.

13. The Sub-Committee held a total of 18 meetings. The views expressed in the Sub-Committee are summarized in documents A/AC.105/C.2/SR.302 to 319.

14. A list of the representatives of the States members of the Sub-Committee attending the session, of the observers for specialized agencies and other organizations, and of the secretariat of the Sub-Committee, is to be found in document A/AC.105/C.2/INF. 11.

Adoption of the report

15. The Sub-Committee adopted the present report unanimously and concluded its work at its 319th meeting on 6 April.

I. LEGAL IMPLICATIONS OF REMOTE SENSING OF THE EARTH FROM SPACE, WITH THE AIM OF FORMULATING DRAFT PRINCIPLES

16. The Chairman made an introductory statement on agenda item 3 (Legal implications of remote sensing of the earth from space, with the aim of formulating draft principles) at the 303rd meeting of the Sub-Committee on 13 March 1979. He referred to the work of the Sub-Committee on this item at its seventeenth session.

17. The Chairman drew attention to the fact that the General Assembly at its thirty-third session, in resolution 33/16 dated 10 November 1978, had recommended that the Sub-Committee should at its present session continue, as a matter of priority, its detailed consideration of the legal implications of remote sensing of the earth from space, with the aim of formulating draft principles.

18. The Sub-Committee noted that all texts of draft principles formulated by the Sub-Committee's Working Group on remote sensing, as of 1978, were set out in an appendix to the report of the Chairman of the Working Group on remote sensing at the seventeenth session of the Sub-Committee.

19. The Sub-Committee noted further that the Scientific and Technical Sub-Committee, at its recently concluded sixteenth session, continued, in accordance with the recommendations of the Committee on the Peaceful Uses of Outer Space as approved by the General Assembly in resolution 33/16, to stress the importance of co-ordination of its work relating to remote sensing of the earth by satellites with the work of the legal Sub-Committee. The Scientific and Technical Sub-Committee, accordingly, drew the attention of the Legal Sub-Committee to the views expressed in this connexion in annex I to its report (A/AC.105/238).

20. As noted in paragraph 7 (b) above, the Sub-Committee, at its opening meeting on 12 March 1979, re-established its Working Group on remote sensing as Working Group III.

21. At the 312th meeting of the Sub-Committee on 28 March 1979 the following working papers were submitted to the Sub-Committee by the delegation of Romania: a working paper proposing an alternative text for principle XII (A/AC.105/C.2/L. 122, reproduced in annex IV to this report); and a working paper proposing an alternative text for principle XIII (A/AC.105/C.2/L.123, reproduced in annex IV to this report).

22. At the 317th meeting of the Sub-Committee on 4 April 1979, the Chairman of the Working Group reported to the Sub-Committee. The Sub-Committee took note, with appreciation, of the report and work of the Working Group. In accordance with the decision taken by the Sub-Committee at the same meeting, the report of the Chairman of the Working Group is reproduced in annex I to the present report.

II. ELABORATION OF DRAFT PRINCIPLES GOVERNING THE USE BY STATES OF ARTIFICIAL EARTH SATELLITES FOR DIRECT TELEVISION BROADCASTING

23. The Chairman made an introductory statement on agenda item 2 (Elaboration of draft principles governing the use by States of artificial earth satellites for direct television broadcasting) at the 306th meeting of the Sub-Committee on 16 March 1979. He referred to the Work of the Sub-Committee on this item at its seventeenth session.

24. The Chairman drew attention to the fact that the General Assembly at its thirty-third session, in resolution 33/16 dated 10 November 1978, had recommended that the Sub-Committee at its present session should continue, as a matter of priority, its efforts to complete the elaboration of draft principles governing the use by States of artificial earth satellites for direct television broadcasting.

25. The Sub-Committee noted that all text of draft principles formulated by the Sub-Committee's Working Group on direct television broadcasting, as of 1978, were set out in an appendix to the report of the Working Group on direct television broadcasting at the seventeenth session of the Sub-Committee.

26. The Sub-Committee also had before it a working paper, entitled "Principles governing the use by States of artificial earth satellites for direct television broadcasting", submitted to the members of the Sub-Committee before its present session by the delegations of Canada and Sweden (A/AC.105/C.2/L.117, reproduced in annex IV to this report).

27. As noted in paragraph 7(b) above, the Sub-Committee at its opening meeting on 12 March 1979 re-established its Working Group on direct television broadcasting as Working Group II.

28. At the 310th meeting of the Sub-Committee on 23 March 1979 the following working papers were submitted to the Sub-Committee: a working paper by the delegation of the United States proposing an alternative text for present paragraphs 1 and 2 of the principle entitled "Consultation and agreements between States" (A/AC.105/C.2/L.118, reproduced in annex IV to this report); a working paper by the delegation of Belgium proposing that the principle entitled "Consultation and agreements between States" be replaced by an alternative text entitled "Agreements between States on the exchange of programmes" (A/AC.105/C.2/L.119 , reproduced in annex IV to this report); and a working paper by the delegation of Belgium proposing the addition of a further paragraph to the preamble to the principles (A/AC.105/C.2/L.120, reproduced in annex IV to this report).

29. At the 318th meeting of the Sub-Committee on 5 April 1979, the Chairman of the Working Group reported to the Sub-Committee. The Sub-Committee took note, with appreciation, of the report and work of the Working Group. In accordance with the decision taken by the Sub-Committee at the same meeting, the report of the Chairman of the Working Group is reproduced in annex II to the present report.

30. The Sub-Committee recommended that the Committee on the Peaceful Uses of Outer Space, while considering the question of direct television broadcasting at its next session, should also consider whether the elaboration of draft principles on this subject could be concluded, or whether further progress could be achieved, during that session.

III. DRAFT TREATY RELATING TO THE MOON

31. The Chairman made an introductory statement on agenda item 4 (Draft treaty relating to the moon) at the 310th meeting of the Sub-Committee on 23 March 1979. He referred to the work of the Sub-Committee on this item at its seventeenth session.

32. The Chairman drew attention to the fact that the General Assembly at its thirty-third session, in resolution 33/16 dated 10 November 1978, had recommended that the Sub-Committee should at its present session continue, as a matter of priority, its efforts to complete the draft treaty relating to the moon.

33. The Sub-Committee noted that it had in 1972 approved the texts of a preamble and 21 articles including final clauses, and that in 1973 it had taken note of the texts of six provisions which were formulated that year in its Working Group. It had not as yet succeeded, however, in resolving the three main outstanding issues: the scope of the treaty, the information to be furnished on missions to the moon, and the natural resources of the moon. The question concerning the natural resources of the moon was generally recognized to be the key issue whose solution could facilitate agreement on the two other remaining issues.

34. The Sub-Committee at its present session also had before it the text of the tentative draft agreement which the delegation of Austria had, at the seventeenth session of the Sub-Committee, elaborated through informal consultations in the hope that it could serve as a basis for finalizing preparation of an international instrument relating to the moon and other celestial bodies. Consideration of the draft agreement had not been possible in the Working Group last year for want of time but the hope had been expressed that the draft agreement would facilitate the reaching of a consensus on an international instrument relating to the moon and other celestial bodies; and that work on the draft agreement could be taken up again at the twenty-first session of the Committee on the Peaceful Uses of Outer Space in June-July 1978 or at the present session of the Sub-Committee. The text of the draft agreement was annexed to the report of the Chairman of the Working Group on the draft treaty at the seventeenth session of the Sub-Committee (A/AC.105/218, annex I).

35. The Committee on the Peaceful Uses of Outer Space, at its twenty-first session, had established an informal working group to review the outstanding matters. Nevertheless, it had not been possible for want of time and as further consultations with home-Governments were necessary for any substantive discussions to take place. The Committee had, however, expressed its appreciation to the delegation of Austria for the efforts the delegation had made to facilitate a compromise on the unresolved issues with a view to reaching a consensus, and was of the view that the text of the draft agreement could facilitate the reaching of a consensus on an international instrument relating to the moon and other celestial bodies. In this connexion, the Committee had noted that there were other proposals presented at previous sessions which could facilitate the work of the Legal Sub-Committee.

36. As noted in paragraph 7(b) above, the Sub-Committee at its opening meeting on 12 March 1979 re-established its Working Group on the draft treaty relating to the moon as Working Group I.

37. At the 317th meeting of the Sub-Committee on 4 April 1979, the Chairman of the Working Group reported to the Sub-Committee. The Sub-Committee took note, with appreciation, of the report and work of the Working Group. In accordance with the decision taken by the Sub-Committee at the same meeting, the report of the Chairman of the Working Group is reproduced in annex III to the present report.

38. The Sub-Committee recommended that the Committee on the Peaceful Uses of Outer Space, while considering the question of the draft treaty relating to the moon at its next session, should also consider whether further progress could be achieved, during that session.

IV. MATTERS RELATING TO THE DEFINITION AND/OR DELIMITATION OF OUTER SPACE AND OUTER SPACE ACTIVITIES, BEARING IN MIND, *INTER ALIA*, QUESTIONS RELATING TO THE GEOSTATIONARY ORBIT

39. The Chairman made an introductory statement on agenda item 5 (Matters relating to the definition and/or delimitation of outer space and outer space activities, bearing in mind, *inter alia*, questions relating to the geostationary orbit) at the 314th meeting of the Sub-Committee on 2 April 1979. He referred to the work of the Sub-Committee on this item at its seventeenth session.

40. The Chairman drew attention to the fact that the General Assembly at its thirty-third session, in resolution 33/16 dated 10 November 1978, had recommended that the Sub-Committee should at its present session continue to discuss matters relating to the definition and/or delimitation of outer space and outer space activities, bearing in mind, *inter alia*, questions relating to the geostationary orbit.

41. The Sub-Committee noted that the subject of the "physical nature and technical attributes of the geostationary orbit" was an item on the agenda of the Scientific and Technical Sub-Committee at its recently concluded sixteenth session and was considered in chapter VI of its report (A/AC.105/238).

42. The Sub-Committee also had before it a working paper, entitled "Approach to the solution of the problems of the delimitation of air space and outer space", submitted to the Sub-Committee at its present session by the delegation of the USSR (A/AC.105/C.2/L.121, reproduced in annex IV to this report).

43. The Sub-Committee considered agenda item 5 at its 314th to 318th meetings on 3, 4 and 5 April 1979.

44. Some delegations were of the view that a definition and/or delimitation of outer space and outer space activities was necessary at the present time for legal and practical reasons. The number of space objects and the number of States participating in space activities were increasing and the absence of a definition and/or delimitation caused uncertainties in outer space law and in air law. Some delegations favoured the establishment of a conventional boundary between outer space and air space at a certain altitude. Some delegations expressed support in this connexion for the proposal contained in the working paper submitted by the delegation of the USSR with regard to the establishment of a conventional boundary between outer space and air space not higher than at 100 to 110km above sea level. The view was expressed that the approach suggested by the delegation of the USSR in its working paper could be set forth in a resolution of the General Assembly. Some delegations, while favouring the establishment of a conventional boundary between air space and outer space, were of the view that the USSR working paper merited further study.

45. Other delegations expressed the view that the definition and/or delimitation of outer space was not necessary at the present time. They pointed out that the Scientific and Technical Sub-Committee had concluded that there were no scientific or technical characteristics of the earth's upper atmosphere that would make it a basis for a definition and/or delimitation, that past estimates of the lowest altitude at which satellites could survive had been too high, as noted by COSPAR in document A/AC.105/164, and, as the Committee on the Peaceful Uses of Outer Space had been unable to identify practical problems which would require a definition and/or delimitation, the question of defining the lower limit of outer space was no longer on the agenda of the Scientific and Technical Sub-Committee.

46. A statement on the question of definition and/or delimitation of outer space was also made by the observer for the International Civil Aviation Organization who stated that his agency considered this matter important and was prepared, if so requested, to undertake relevant studies.

47. The question of the geostationary orbit was also discussed and, in this connexion, some delegations expressed the view that a definition and/or delimination which did not take account of the question of the geostationary orbit was not acceptable. These delegations expressed the view that the geostationary orbit, due to its physical characteristics and technical attributes, constituted a limited natural resource over which the equatorial countries exercised sovereign rights in accordance with international law. These delegations were of the opinion that the unique nature of the geostationary orbit should be taken into account in any definition of outer space. Some of these delegations called for an equitable legal regime to regulate utilization of the geostationary orbit for the benefit of all and especially the developing countries. Other delegations, however, expressed the view that geostationary orbit was inseparable from outer space and all the relevant provisions of the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies that were applicable to it. According to this view, the geostationary orbit cannot be

subject to national appropriation by claim of sovereignty, by means of use or occupation or by any other means. These delegations considered that the geostationary orbit was free for use by all States without discrimination of any kind on a basis of equality and in accordance with international law. They considered that the placing of satellites in geostationary orbits by States created no right of ownership over the respective orbital positions of satellites or over segments of orbits. The view was expressed that the outer space Treaty of 1967 did not preclude the elaboration of a specific legal regime for the geostationary orbit. The view was also expressed, however, that the outer space Treaty and the ITU Convention and Radio Regulations already contained necessary provisions to ensure equitable use of the geostationary orbit and that, therefore, the formulation of new legal principles relevant to the use of the orbit was not necessary.

V. OTHER MATTERS

48. Under agenda item 6 (''Other matters'') at the 314th, 315th and 316th meetings of the Sub-Committee on 2, 3 and 4 April 1979, statements were made by delegations on the use of nuclear power sources in outer space.

49. Some delegations were of the view that the Sub-Committee at its next session should commence work on a separate item entitled ''Legal aspects of the use of neclear power sources in outer space''. In their view, the fact that the Scientific and Technical Sub-Committee was considering the technical aspects and safety measures relating to the use of nuclear power sources in outer space should not, in accordance with the existing practice, prevent the Legal Sub-Committee from commencing the consideration of legal aspects. They did not feel that consideration of legal aspects would creat difficulties for the work of the Scientific and Technical Sub-Committee since the programme envisaged would not interfere with that work. These delegations were of the view that the Sub-Committee ought to begin consideration of four aspects: (a)further development of the existing outer space legal regime to require the launching State to provide notification prior to the launch of a satellite carrying a nuclear power source; (b)elaboration of an obligation to provide early warning of a possible re-entry or malfunctioning of a satellite containing a nuclear power source; (c) emergency assistance; and (d) radiation exposure levels. They expressed the view that although a foundation for consideration of some legal aspect had been established, a great deal remained to be done.

50. The view was expressed that an agenda item on legal aspects of the use of nuclear power sources in outer space ought to be given priority. The view was expressed that consideration by the Legal Sub-Committee of the legal aspects of the use of nucelar power sources in outer space should commence with consideration of issues (b) and (c) above and that consideration of issue (d) above concerning radiation exposure levels should be delayed until more clearly defined technical guidance was achieved. The view was also expressed that the Legal Sub-Committee ought to review international legal instruments to determine in what areas further international provision would be desirable with respect to the use of nuclear power sources in outer space.

51. Other delegations, while acknowledging that the proposals put forward require serious and profound study, stated that some of the points raised were already reflected in international documents, in particular, General Assembly resolution 33/16 of 10 November 1978. They also expressed the view that most of the problems involved had complicated technical aspects that were discussed by the Scientific and Technical Sub-Committee and that it would not be desirable to further complicate the task of that Sub-Committee by taking legal positions on the questions before it was timely. In this connexion, these delegations were of the opinion that the inclusion of the topic proposed as a separate item in the agenda of the next session of the Legal Sub-Committee was not warranted. They also referred to the fact that the Legal Sub-Committee had a heavy agenda which included a number of questions requiring priority consideration.

52. In view of divergences of opinions expressed during the debate, the Sub-Committee considered that the parent Committee at its next session should, unless it decided otherwise, resume discussion of the matter, in particular, whether it was advisable to include in the agenda of the nineteenth session of the Legal Sub-Committee a separate item dealing with the use of nuclear power sources in outer space. The Sub-Committee recommended that the item "Other matters" should remain on the agenda of its next session unless the Committee decided otherwise.

EVENTS OF INTEREST

A. Past Events

1. *Space Law Session, Manila Conference of the International Law Association (I.L.A.). August 28, 1978.*

At the 58th Conference of the I.L.A., held at Manila from August 27 to September 2, 1978, the problem of the demarcation of airspace and outer space was discussed, on the basis of a Report and Annex prepared by the Chairman of the Space Law Committee and answers to a questionnaire contained in the Report.

Before considering certain aspects of the demarcation problem, the session focused its attention on the legal value of the principle of freedom of outer space, confirmed by the Outer Space Treaty of 1967. The session considered the Colombian delegate's remarks relating to the Bogota Declaration of December 3, 1976, during discussions in the United Nations Committee on The Peaceful Uses of Outer Space. The delegate expressed the view that freedom of outer space did not constitute a norm of international law whose binding nature was independent of the formal conclusion of the international treaty. In this context the Chairman of the Session referred to the Resolution adopted by the 53rd Conference of the I.L.A. which stated that the principle of freedom of outer space was a general principle of international law and as such valid independently of any treaty. The Manila Conference decided to re-emphasize the view expressed in this Resolution.

Turning to the question of the urgency of a solution to the demarcation problem, the great majority of the members present at the Session considered that the intensification and diversification of space activities had increased the need of arriving at a conventionally-based international rule by which these two areas, subject to two fundamentally different legal regimes, were clearly defined.

The Session welcomed the growing acknowledgement and desire by states as well as experts in the field of space activities, that the whole of space at and above the altitude of approximately 100 km. should be defined as outer space. Originally doubts had been expressed as to the possibility of pinpointing the delimination of outer space on the basis of scientific criteria. The Session agreed with the view expressed in a recent article by the Chief of the Outer Space Affairs Division of the U.N., Mr. Lubos Perek, that in space science the region of the lowest perigee of satellites in orbit was quite definite.[1]

A discussion took place on the question of whether an agreement on the lower height of outer space would imply that the states could exercise sovereignty over the air space above their territory up to that height. Reference was made to statements made by several states from which the conclusion could be drawn that they considered the entire zone above their territory up to the agreed limit of outer space as national air space over which they could exercise sovereignty. It was, however, realized that before a universally acceptable agreement on this issue could be reached, an in-depth study of all its aspects

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[1] 5 J. Space L. 114 (1977).

was needed. It was decided that this study should be made by the Space Law Committee in conjunction with the Air Law Committee of the Association and with the I.C.A.O.

Another problem under discussion concerned the right of passage for spacecraft through foreign airspace in order to reach outer space or to return to Earth. Reference was made to the Reports of former I.L.A. Conferences in which attention was drawn to this problem. A statement on this issue made by the Soviet delegate, Mr. Kolossov, during the 1978 meeting of the U.N. Committee on Outer Space, was considered to be of great significance. Mr. Kolossov suggested that, when laying down a treaty rule regarding the frontier between the air space and outer space the right to send space objects through the air space of other states for the purpose of putting them in orbit and for returning them to Earth, should simultaneously be acknowledged.[2]

The Conference, though warmly welcoming the growing support for the establishment of a right of free passage, expressed its awareness that the final formulation of such a rule should take into consideration the political and economical implications involved.

Finally it was decided that the problem of the settlement of space law disputes should be studied by the Space Law Committee on the basis of a Report by Professor Bockstiegel.

Prof. Dr. D. Goedhuis
Chairman of the Space Law
Committee of the I.L.A.

2. *Symposium on "Space and International Law," Annual Convention of the Federal Bar Association, Washington, D.C., September 14, 1978.*

A symposium entitled "Satellites, Space and International Law" was held on September 14, 1978, in Washington, D.C. as part of the annual convention of the Federal Bar Association (FBA). The session, moderated by Judge Harold Berger, Chairman of the FBA Aerospace Law Committee, attracted a large and distinguished audience of government officials, educators and diplomats.

Papers were delivered by Eilene Galloway, Former President, Association of the United States Members of the International Institute of Space Law; S. Neil Hosenball, General Counsel, National Aeronautics and Space Administration; Judge Berger; Paul G. Dembling, General Counsel, United States General Accounting Office; and Lawrence R. Caruso, Counsel, Aerospace Group, Strategic Planning and Programs Operation, General Electric Company. Professor Stephen Gorove, Chairman of the Graduate Program of the School of Law, University of Mississippi, acted as Symposium Consultant. Brigadier General Martin Menter submitted his annual count of space objects.

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[2]UN. Doc. A/AC.105/PV.185 at 42 (1978).

Topics covered included solar energy, communication satellites, aerospace law deliberations, remote sensing, Cosmos 954 and the space treaties.

Judge Harold Berger
Chairman, FBA
Aerospace Law Committee

3. *Twenty-first Colloquium on the Law of Outer Space. Dubrovnik, Yugoslavia, October 1-8, 1978.*

The Twenty-first Colloquium on the Law of Outer Space was held during the XXIXth Congress of the International Astronautical Federation in the historic surroundings of Dubrovnik, Yugoslavia. The Colloquium had a true international character due to the attendance of a great number of jurists from many different countries.

Under the auspices of the International Academy of Astronautics a round-table was organized, chaired by Dr. Contensou (France) and Dr. Kopal (Czechoslovakia), where once again the technical and legal aspects of remote sensing by satellites were discussed, in continuation of the discussion started in Prague. New aspects of the discussion proved the usefulness of a second round-table on this particular subject.

The official subjects of the Colloquium were as follows:

1) Telecommunications: legal issues arising from space activities;
2) Use of the Geostationary Orbit (GSO);
3) Legal Aspects Concerning Solar Energy;
4) Definition and/or Delimitation of Outer Space;
5) The Legal Regime of International Space Flight;
6) Astronautics for Peace and Human Progress;
7) Miscellaneous Subjects.

During the first session, which was chaired by Prof. Diederiks-Verschoor (Netherlands), three papers were presented and there were ensuing discussions.

After Mr. Sarkar (Switzerland) presented his paper entitled "An Introduction to Space Telecommunications Regulations", he clarified some issues raised during the discussion. First, he discussed two ways of solving the allocations of positions in the GSO: (1) parking positions (slot) to each country in advance (favored by the broadcasting organizations) and (2) a flexible allocation plan of positions in the GSO per a limited period. Second, he dealt with the special position of broadcasting satellites in space telecommunications; specifically, the relationships between telecommunication and sovereignty and the extent to which technical possibilities could assist broadcast satellite regulations.

After the presentation of the papers on the subject of the use of GSO, the discussion concentrated on the status of the GSO, essentially whether it is a limited resource or not and the kind of regime that should be created for the use of GSO.

Mr. Perek (U.N.) referred to the discussion during the 1977 IISL Colloquium on the 1976 Bogota Declaration, in which the equatorial States proclaimed sovereignty over particular segments of the GSO above their territory. In his view, this claim of

sovereignty is an expression of fear by countries that are not yet able to use the GSO themselves. He was of the opinion that the allocation plan of positions on the GSO as developed by the ITU, leads the way to a system convenient to *all* States. Such a plan gives every State the right to use, without owning, a certain position at a certain segment. In accordance with Art. 33 of the 1973 International Telecommunications Convention (ITC), it can be deduced that the GSO is - unlike outer space - a limited natural resource. The progressive development of solar powered satellites in the future must be considered with an allotment plan like the one discussed during the ITU conference and the World Administrative Broadcasting Satellite Conference in order to guarantee efficient use and equitable access for all States.

Professor Christol (USA) pointed out that, in his view, the key theme of Art. 33 of the 1973 ITC is the question of 'how limited is the natural resource of the GSO'? When that limitation is defined and the capacity is known, an allotment plan for the use of the GSO can be designed in accordance with the existing rules of space law and international law relating to the benefit of all mankind.

Mr. Padang (U.N.) stated that the general consensus about the interpretation of art. 33, is that the GSO is a limited natural resource. Consequently, the use of the GSO by all types of satellites for broadcasting, telecommunication, meteorology and navigation, is limited. Bearing in mind Articles I and II of the 1967 Outer Space Treaty, the equitable use and share of that limited resource should be emphasized. No matter how one judges the Bogota Declaration of the Equatorial States, it is a call for more equity.

Professor Gorove (U.S.A.) was of the opinion that the use of the phrase "limited natural resource" in connection with the GSO is not a well chosen expression, since the GSO is not a traditional type of resource. He agreed with Professor Haanappel that the GSO is not subject to national appropriation in view of Art. II of the 1967 Outer Space Treaty. He pointed out that at the time the Outer Space Treaty was negotiated and after the Treaty had come into force, the prohibition of appropriation was understood to relate to "area" or "resource" in the same manner as the draft treaty on the moon limits its prohibition of appropriation to the "surface or subsurface" of the moon or other celestial bodies. Apparently these terms do not mean to include any natural resources found on the surface or in the subsurface, as such resources found are to be the common heritage of mankind. He was also of the opinion that reference to this rather elusive and undefined concept in a legally binding document, no matter how well motivated, would be unfortunate unless it is realized from the outset that it carries no clear juridical connotation but belongs to the realm of politics, philosophy or morality, and not law.

Mrs. Galloway (U.S.A.) pointed out that, in her view, the equatorial States, in claiming sovereignty over segments of the GSO above their territory, have a different opinion of the term "equality" of States. They seem to be afraid that the right to use the GSO depends on the *capacity to launch* of the developed countries, which the under-developed nations lack. Equality should, however, be interpreted as "equal access to orbit". In the case of a limited natural resource such as the GSO, the right to use such a resource should be based on "sharing" in the common interest of mankind.

At the second session, chaired by Dr. Vereshchetin (USSR), papers were presented on "Definition and/or Delimitation of Outer Space and the Legal Regime of

International Space Flight." The discussion on the Definition and/or Delimitation of Outer Space can be summarized as follows.

Mr. Moss (U.S.A.) made remarks in relation to the paper presented by Mr. DeSaussure (U.S.A.) on the subject of an international right to reorbit earth-threatening satellites. He focused on the importance of a provision concerning the receiving of damages after retrieval/reorbiting of the satellites concerned. In connection thereto he mentioned problems which could arise in utilizing the space shuttle.

Mr. Perek (U.N.) commented on the papers presented by Mr. Almond (U.S.A.) and Professor Gorbiel (Poland). He advocated the geometric approach to solve the delimitation problem, referring to terrestrial boundaries. Since a definition of outer space is greatly needed, he suggested the limit of 100 km., because it has technically been proven that aircraft cannot fly higher than 83 km. He was of the opinion that a consensus on at least this part of the definition could be reached. Dr. Finch stated the opinion that the proposal by Mr. Troyonovsky (USSR) to the U.N. in June 1978, whereby the upper limit of outer space was determined as 100-110 km above sea level, should be elaborated in UNCOPUOS.

Dr. Kopal (Czechoslovakia), adding more reasons for delimitation, mentioned the necessity in international law for precise definitions; the necessity of defining outer space when speaking about space activities, and the need of delimitation in regard to use of the geostationary orbit. As for criteria for such a definition, he favored at least one being an astronautical criterion. The final definition, in his opinion, would be an arbitrary one. Dr. Safavi (Iran) referred to the rules of air law, which are governed by the principle of sovereignty of the underlying countries. He stressed the importance of the limitation regarding air space. In his opinion outer space is not a question of a fixed limit, but should be considered as a "free zone". Prof. Gorove (U.S.A.) accentuated the fact that presently many satellites are in orbit, so consequently some sort of regime has to be created. He stated that, at a later stage, the status of the area between air and outer space can be worked out.

Mr. Padang (U.N.) drew attention to the question of safety measures to be taken in the case of re- and/or de-orbiting. In his opinion a duty to re- or de-orbit earth threatening satellites should be taken into consideration. In regard to the delimitation question, he advocated the scientific approach as being more promising in reaching an agreement between the States. Prof. Haanappel (Canada) remarked that at least three elements have to be included in an international agreement, as advocated by the participants present at the Colloquium:

1. a lower boundary of outer space,
2. a functional element,
3. a clause providing the stipulation that the agreement shall be subject to revision after 5 years, in accordance with technological developments.

Prof. Christol (U.S.A.) warned against the use of the term "the right of innocent passage" to be applied to space law, since this term should be exclusively used and applied by coastal States. He preferred the term "right of passage" in matters pertaining to space activities. Prof. Okolie (U.S.A.) pointed out that, in relation to the delimitation question of outer space, a definition of the space shuttle, whether aircraft

or spacecraft, is required. General Menter (U.S.A.), supported by Dr. Finch, was of the opinion that the space shuttle is not a true aircraft, referring to the Federal Aviation Act.

The discussion on the subject of the Legal Regime of International Space Flight was postponed to the third session, because papers on this subject were to be presented at the third session, chaired by General M. Menter (U.S.A.).

Mr. Sloup (U.S.A.) was of the opinion that an international agreement on the authority of the spacecraft commander was premature because it is not known what is wanted or needed from him. At this stage it would be better to consider the problems involved, and carefully note the direction being taken by individual state regulations.

Mr. Bourély (France) was in favor of a convention pertaining to spacecraft jurisdiction. He addressed a question to Dr. Vereshchetin in reference to the use of mixed space crews and the arrangements that have been made in advance. Dr. Vereshchetin (USSR) answered that a general agreement between nine socialist countries was concluded in July, 1976, which he reported on at the 1977 session of this Colloquium. It provided for a wide range of cooperation, but contains no specific intergovernmental space flight agreement, only an inter-agency agreement in regard to cosmonauts pertaining to flights with joint crews in the period of 1978 through 1983. No specific arrangements on jurisdiction were needed because of the short duration of these flights, which are a week or less. Agreements on jurisdiction will be needed only for longer flights. General Menter (U.S.A.) recalled that no specific agreement on jurisdiction existed for the Soyez-Apollo series, since crews were only together for two days or less.

Mr. Padang (U.N.) noted that criminal jurisdiction might have to be determined by the launching state. Referring to an agreement between the launching state and participating States, using the Soyez case as an example, he observed that such doctrine would not apply because only States have the responsibility according to the outer space treaties. General Menter (U.S.A.) noted that the general rule leaves jurisdiction to the launching state, except where there is another agreement between States having a joint launching. Dr. Finch (U.S.A.) asked what law would apply to space stations, whether it will be the launching state or the organization in the new era of the 1990's and 2000's. He suggested this as a subject for present and future consideration, to help determine how space stations will operate.

Prof. Haanappel (Canada) was of the opinion that the advantage of an agreement on spacecraft jurisdiction would be knowledge in advance of the law to be applied, but with the disadvantage that it would allow forum shopping. With reference to the law of the place where the act transpires, it must be noted that there is no conflict law in outer space. Application of such law would be impossible and therefore some national law would have to be applied.

Prof. Gorove raised the question whether Art. VIII of the 1967 treaty refers to all jurisdictions, civil and criminal, or whether it is limited to civil jurisdiction only. He referred to the *U.S. v. Cordova* case involving an aircraft crime over the high seas in which the U.S. Supreme Court decided that criminal jurisdiction must be spelled out and could not be inferred, in this case from maritime jurisdiction. He did not feel this doctrine would be applicable to the 1967 treaty because of Article VIII which appeared to have extended federal jurisdiction.

Prof. Gorove also raised the point that a consideration of jurisdiction and control under the 1967 Outer Space Treaty should include Article V, making astronauts envoys of mankind. Envoy is not defined but it suggests some diplomatic status. If so, the question is raised whether an astronaut, who commits a crime in space, could claim this diplomatic status as a defense to criminal jurisdiction.

General Menter (U.S.A.) observed that the U.S. Congress solved the *Cordova* problem with specific legislation expanding criminal jurisdiction for specified crimes outside of the previous United States jurisdiction. Even if states have criminal jurisdiction under a treaty, each state must provide the specific criminal laws for the treaty-provided jurisdiction. Such a treaty could not be self-executing. He also noted that legislation is presently pending in the U.S. to expand jurisdiction in the airspace to outer space, but noted that the proposed legislation has not yet become law. Mr. Sloup (U.S.A.) noted that the pending U.S. legislation would apply only to criminal law and not to regulation under the Federal Aviation Act.

Dr. Safavi (Iran) suggested that in deciding jurisdiction it is necessary to distinguish between problems of the spacecraft itself and the persons on board. In the former case there is no problem, as it should be governed by the law of the registration. In the latter case he suggests three different problems. Assume a crime has been committed in outer space and the space vehicle:

1. Lands in the launching country; such country has jurisdiction over the actions.
2. Lands in another country. Similar to aircraft laws, this country should have competence over such criminal acts either to try as crime against that State or to extradite the person(s) involved to the launching State.
3. Where the spacecraft is on the ground and a crime is committed. There is no question but that it will be within the jurisdiction of such State.

In general the authors were asked to relate their papers as closely as possible to the general theme of the Congress, namely Astronautics for Peace and Human Progress. Some authors presented special papers devoted to this subject. Speaking on the subject were Mrs. Galloway and Prof. Gorove, both from the U.S.A. From the discussion on this subject, the following was noted.

Dr. Finch asked Mrs. Galloway to comment further on the use of more "military" in her presentation. He noted the definition of "military" and "non-aggressive" were explored in an earlier paper by General Menter. He also asked Dr. Vereshchetin to define these terms. Mrs. Galloway answered that in order to consider Article IV of the 1967 Outer Space Treaty it is necessary to understand these terms. She used as an example the U.S. Department of Defense. It is a military deterrent, but need not be aggressive. Aggression is difficult to define. Astronauts and cosmonauts get their training in the military service, but because of that they do not need to be aggressive. In defining the terms, our purpose is to avoid destruction and killing. We want to achieve peaceful development of outer space, but in order to establish a treaty, we first have to take care of a regime, of the status quo, and of the correct legal definitions.

Dr. Vereshchetin (USSR) warned that it was important to have certain prohibitions on specific activities as in Article IV. More regulations have to be provided to prohibit certain activities. Mr. Almond (U.S.A.) agreed and said that in doing so a distinction must be made between a prohibition on "use" as contained in Article IV, and verification, as is at the heart of arms control. Limitation of "use" has to be recognized according to Article IV, and in addition there should be ways of verification in order to make the prohibitions on "use" work.

Finally, Dr. Finch (U.S.A.) noted that surveillance satellites have made a large contribution to peace, because they verify that agreements are not violated. World War III will not be born until the aggressor has control of outer space.

The last session, chaired by Mr. Padang of the United Nations treated miscellaneous subjects. The following opinions were expressed during the discussion.

Referring to the paper by Professor Christol, Mr. Moss asked if the use of satellites was permissible against warheads. Professor Christol answered in the affirmative, referring to the U.N. Charter. In reply to the question by Mr. Gehrig (U.S.A.) of how one verifies that a satellite is an anti-satellite, since the U.N. does not have the capability to install a verification system, Professor Christol said that the right to inspect satellites is required either through the U.N., or a separate agency or bilaterally. Mr. Perek (U.N.) added that the U.N. could technically install a verification system, but it would be politically difficult, since the U.N. does not pass judgment on actions of member States.

In answer to a question about his paper Mr. Gehrig (U.S.A.) clarified that the operational remote sensing system he mentioned would be a U.S. one.

Dr. Kolossov (USSR) continued with an independent statement: We look from earth to space rather than from space to earth. Peace in outer space is inseparable from peace on earth. The reason that we have not yet come to World War III, is not technical in nature nor does it lie in outer space; it is rather sociological in nature. Outer space may, however, help world peace. "Outer space law for peace and human progress" would be a better theme than "astronautics for peace and human progress". Only political decisions will help. We must look for cooperative projects to promote human progress, for example, in the field of solar energy. A definition of outer space and outer space activities will bring us closer to world peace and human progress. The concept of "common heritage" is of no help. Referring to this statement Mr. Schenkman (the Netherlands) observed that we should look from space to earth, because space can help to solve our problems on earth.

In reply to a question by Dr. Finch (U.S.A.) of why direct broadcast satellites are destabilizing, Dr. Kolossov answered that direct broadcast satellites were destabilizing when operated without the prior consent of the receiving State.

Answering a question by Prof. Okolie (U.S.A.) of why the "common heritage" concept was not a component of world peace, Dr. Kolossov (USSR) said that the USSR makes a distinction between "common heritage" and "common province", and that the latter phrase is preferable.

After the paper was presented by Prof. Gorove on Cosmos 954 and the Question of Liability, a large discussion developed.

In reply to the question by Dr. Kolossov (USSR) of what the legal basis was for a distinction between the use of nuclear resources in space and elsewhere, Prof. Gorove

said that an answer was very difficult and required more study, since it is not clear what we mean by "weapons", at what point nuclear power becomes a weapon, and if we consider a "laser" a weapon. Mr. Almond was of the opinion that the approach to this question should be through the concept of "technique", and the question then becomes: "Is the technique potentially harmful to a State?"

General Menter observed that at the time of the 1967 Outer Space Treaty it was the intention to avoid all kinds of mass explosions. Mrs. Galloway thought a distinction should be drawn between nuclear *devices* and nuclear *weapons*. To this Prof. Gorove answered that potentially every nuclear power source can become a weapon, including a "laser". Miss Reijnen said that "weapon" means the use of any power for other than scientific purposes. Prof. Wolcott was of the opinion that we should restrain our definition to things which are intended to be a weapon.

Dr. Kolossov observed that in connection with article IV of the Outer Space Treaty and the "use of force", it would probably be more important to define such a concept than to define "weapon". Perhaps the draft U.N. Treaty on the Non-Use of Force in International Relations could be an alternative to amending Article IV of the Outer Space Treaty. Mr. Almond (U.S.A.) asked how the draft U.N. Treaty differed from the provisions of the U.N. Charter. Prof. Christol did not see a need for amending Article IV. Prof. Gorove agreed, and thought that Article IV went further than the Charter. Prof. Okolie was of the opinion that the Outer Space Treaty was addressed to specific issues, while the Charter addresses general issues. We should confine ourselves to Article IV of the Outer Space Treaty. Mr. Almond (U.S.A.) observed that arms limitation provisions should be distinguished from the *ius ad bellum,* which in turn should be distinguished from the *ius in bello.* Article IV of the Outer Space Treaty is essentially an arms limitation provision.

The discussions had been on a high level during the Colloquium. The attendance of three members of the United Nations was highly appreciated.

Dr. I.H.Ph. Diederiks-Verschoor
President, International Institute
of Space Law

4. *Fall Symposium of the University of Virginia School of Law, Charlottesville, Virginia, October 20-21, 1978.*

"International Law and the Environment" was the theme of the 1978 fall symposium of the John Bassett Moore Society of International Law held at the University of Virginia School of Law, Charlottesville, Virginia, October 20-21, 1978.

One of the sessions was devoted to problems created by *Space Debris* and was presided over by Prof. Richard Lillich. The participants were Prof. Carl Q. Christol, Mrs. Eilene Galloway, Prof. Stephen Gorove, Brig. Gen. Martin Menter, and Mr. Herbert

Reis. The topics of discussion centered around pollution of the space environment and the issues of law and policy created by the crash of Cosmos 954.

Eilene Galloway
Vice President, International
Institute of Space Law

5. *"Frontiers of Space Law" Program, American Astronautical Society, 25th Anniversary Conference, Houston, Texas, October 31, 1978.*

A program, "Frontiers of Space Law", comprised a morning session on October 31, 1978, of the American Astronautical Society (AAS) 25th Anniversary Conference in Houston, Texas. The International Institute of Space Law was a conference co-sponsor.

Addressing a "standing room only" audience, the subjects of the presentations, were: Richard R. Colino, Vice-President and General Manager-International Operations Division, COMSAT— "Telecommunications"; S. Neil Hosenball, General Counsel, NASA—"The Space Shuttle"; Mrs. Eilene Galloway, Vice President, International Institute of Space Law—"Options for an Operational Remote Sensing System"; Prof. Stephen Gorove, Chairman of the Graduate Program of the School of Law and Professor of Law, University of Mississippi—"Solar Power Space Station"; Major General Walter D. Reed, The Judge Advocate General, United States Air Force—"Legal Aspects of Military Peaceful Uses of Outer Space."

The organizer and moderator of the Space Law session was Martin Menter, of Haffer & Alterman, Washington, D.C. The papers presented will be published in the Proceedings of the AAS 25th Anniversary Conference.

Martin Menter
President, Association of the
U.S. Members of the
International Institute of Space Law

6. *"WARC 1979" Program of the Association of U.S. Members of the International Institute of Space Law, IAF, New York City, March 21, 1979.*

An informational program entitled "WARC 1979" (*i.e.* World Administrative Radio Conference, 1979), sponsored by the International Institute of Space Law, was held on March 21, 1979 during the annual meeting of the Legal Subcommittee, UN Committee on the Peaceful Uses of Outer Space (COPUOS) at the Dag Hammarskjold Auditorium in the UN Secretariat Building.

Stephen E. Doyle, Group Manager, Telecommunication and Informational System Studies, Office of Technology Assessment, U.S. Congress, spoke on "ITU in Perspective" and Kalmann Schaefer, Foreign Affairs Advisor, U.S. Federal Communications Commission, presented "Highlights of the 1979 WARC." Martin

Menter, an International Astronautical Federation (IAF) observer to the Legal Subcommittee (COPUOS) meeting, served as program moderator. Mrs. Eilene Galloway, Vice President of the International Institute of Space Law, welcomed the attendees on behalf of the IISL, in the absence of Dr. Diederiks-Verschoor, the IISL President, who had returned to Holland at the conclusion of the first week of the Legal Subcommittee meeting.

A reception, hosted by the Association of U.S. members of the International Institute of Space Law, preceded the program and a question period followed upon completion of the speakers' direct presentation.

Martin Menter
President, Association of
U.S. Members of the International
Institute of Space Law, IAF.

7. *Goddard Memorial Symposium, American Astronautical Society, Washington, D.C., March 28-30, 1979.*

This symposium was launched by NASA Administrator Robert Frosch, ESA President Roy Gibson, and the Honorable Peter Jankowitsch, Chairman of the U.N. Commission on Peaceful Uses of Outer Space, March 28-30, 1979. Subsequent sessions examined institutional, fiscal, technological, and legal problems relative to the development and operations of future space systems.

One related session on "Perspectives on Astronautics: Past and Future" proved particularly stimulating and will be separately published as Volume II in the AAS History Series, to be edited by F.C. Durant, III.

Former NASA Historian Eugene M. Emme presented portions of his paper on "Presidents and Space: From Eisenhower to Carter".

Eilene Galloway of the International Institute of Space Law presented a stimulating paper on "The U.S. Congress and Outer Space: From Sputnik to the Shuttle". This was traced from the beginning up to the present day with the new challenges of space. Galloway concluded that it was the Congress that gave the use and exploration of outer space high priority from 1957 until today.

John H. Disher, Director of Advanced Programs in NASA's Office of Space Transportation, presented a remarkable survey of the technological evolution of transportation from Mercury to the Shuttle and trends for tomorrow.

The final paper likewise held to additional perspectives. It examined the evolution of the large-scale managerial, policy, and interlocking institutional arrangements making the Apollo program succeed. It was submitted by Dean Robert C. Seamans of

the Massachusetts Institute of Technology and Frederick I. Ordway of the Department of Energy and entitled: "The Apollo Lesson and Large Scale Technology".

Eugene M. Emme
Former NASA Historian
Director-at-Large
American Astronautical Society

8. *Other Events*

In November 1978 a Conference on Space Commerce: New Options for Economic Growth was held, sponsored by the American Institute of Aeronautics and Astronautics and New York University in New York City. The two-day conference reviewed present and future space activities that are of interest to the business and financial community, and looked at parallels between investing in high-technology, high-risk terrestrial programs and space efforts.

9. *Brief News*

Skylab fell back into the earth on July 11, 1979. Tons of molten debris fell into the Pacific Ocean and in sparsely populated areas of Australia.

B. Forthcoming Events

The 22nd Colloquium on the Law of Outer Space will be held during the XXXth Congress of the International Astronautical Federation, Sept. 17-22, 1979, in Munich, Germany. Topics on the agenda include: 1) Energy and Outer Space; 2) Telecommunications, 3) Status of International Flight, and 4) Other Subjects.

Manual on Space Law. Compiled and edited by Nandasiri Jasentuliyana and Roy S. K. Lee. 1979, Oceana Publications, Inc./Dobbs Ferry, New York and Sijthoff & Noordhoff/Alphen AAN Den Rijn. Volume I, 479 p. Volume II, 550 p.

The *Manual on Space Law* was edited by Nandasiri Jasentuliyana (Sri Lanka) Political Affairs Officer of the United Nations Outer Space Affairs Division and Deputy Secretary of the UN Committee on the Peaceful Uses of Outer Space and Roy S. Lee (China) Member of the United Nations Secretariat, Secretary of the United Nations Conference on the Law of the Sea and formerly a member of the Institute of Air and Space Law at McGill University. Their objective was to bring together basic documents, research and reference materials thus far developed on the law of outer space, and to assess the results. They have produced an invaluable contribution to knowledge of the past history, present issues and future prospects of space law.

In his *Foreword* to Volume I, Manfred Lachs, Judge and fromer President of the International Court of Justice, writes that

> This Manual is a panorama of a new chapter on international law. Coming at the right time it should be an important tool in the hands of both theoreticians and practitioners, helpful to those who wish to study the new field of international cooperation and to those who are active in it. As in the field of science and technology, so also in the field of law, the novelties and achievements recorded in and through outer space may have an important impact on the future development of general international law and many of its other branches.

Volume I is divided into two parts. Part One "Principles of Space Law" is composed of reviews by eminent contributors on the four space treaties now in force, and six emerging subjects of concern to the Legal Subcommittee of the UN Committee on the Peaceful Uses of Outer Space. Part Two covers "Space Agencies and Institutions", and is followed by a General Bibliography on Space Law.

Volume II contains the texts of space law treaties, draft texts of subjects now pending before the Legal Subcommittee, and documents on international institutions covering various applications of space science and technology.

The fifteen contributors to Volume I were either participants in the work of the UN Committee on the Peaceful Uses of Outer Space or authors with proven knowledge of international space activities and their legal implications. The 1967 Treaty on Outer Space was analyzed by Paul G. Dembling, formerly General Counsel of NASA. Roy S. K. Lee, United Nations Secretariat, made an assessment of the 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space. The Convention on International Liability for Damage Caused by Space Objects was evaluated by Bin Cheng while the Convention on Registration of Objects Launched into Outer Space came under the scrutiny of Ambassador Aldo Armando Cocca.

Three chapters deal with aspects of telecommunications, one on "Regulations Governing Space Telecommunication" by Nandasiri Jasentuliyana, Deputy Secretary of the UN Committee on the Peaceful Uses of Outer Space, the second by Erich Schulze, President of the International Copyright Society, who wrote on the "Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite." The third chapter in this field was written by Charles M. Dolfen, Vice Chairman of the Canadian Radio-Television and Telecommunications Commission, who analyzed the "Principles Governing Direct Satellite Broadcasting."

Two more of the critical issues now before the Legal Subcommittee were analyzed by Nicolas M. Matte, Director of the Institute of Air and Space Law and Centre of Research, McGill University, who contributed a chapter on the "Treaty Relating to the Moon" and Ivan A. Vlasic, also of the McGill University Institute, who analyzed the "Principles Relating to Remote Sensing of the Earth from Space." A chapter on "Bilateral Agreements" was contributed by the General Counsel of NASA: S. Neil Hosenball.

In Part Two, six agencies and institutions were analyzed by the following authors: Richard R. Colino, Vice President and General Manager of INTELSAT, who wrote on the "International Telecommunications Satellite Organization"; Yuri Kolossov, Legal Advisor of the Legal Division of the Ministry of Foreign Affairs of the U.S.S.R., whose chapter is on "International System and Organization of Space Communication (INTERSPUTNIK)." Vladlen S. Vereshchetin, Vice Chairman of INTERCOSMOS of the U.S.S.R. Academy of Sciences, contributed a chapter on the "Agreement on Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes (INTERCOSMOS)". The chapter on the European Space Agency was written by Hans Kaltenecker, former Director, Legal and International Affairs of the European Space Agency. The "International Maritime Satellite System (INMARSAT) was contributed by one of the editors, Nandasiri Jasentuliyana. The "Arab Corporation for Space Communications (ARABSAT)" was written by Stephen Gorove, founder of the Journal of Space Law of the University of Mississippi.

The editors planned that "Each chapter dealing with a given instrument or institution covers four areas of concern: the origin and process of the negotiations; the major issues which were confronted and the solutions which are sought; the interpretations or understanding of the text given by the drafters, the practice which has evolved in applying the instrument, its evaluation and suggested improvements."

Although starting with these same objectives, the results vary with the experience brought to the task and the writing style of each author. The variations, naturally resulting from fifteen different authors, form a readable account which should prove not only interesting but highly useful to those first entering the space law field, either as official participants or students. The analyses combined with the texts of basic documents afford interpretations and a means of checking original sources. As Ambassador Cocca (Argentina) pointed out—"It will be appreciated that there is more

than one interpretation regarding substantial questions of the Registration Convention," and the same observation could be made by each author concerning his chapter. Additional interpretations would be possible on the four space treaties now in force. The material is presented in such a manner as to be extremely useful in making assignments to students who have before them not only the space law bibliography but innumerable references to United Nations documents noted at the end of each chapter.

Volume II is a necessary part of the working tools required by those interested in the development of space law. Beginning with Part III, the texts of the instruments, Part IV continues with information on the current status of each document. There is an article-by-article list of "travaux préparatoires" in Part V of the legal instruments while Part VI presents a selected bibliography on the relevant documents.

Volume III is planned for publication late in 1979 and will include the full text of official documents and Travaux Préparatoires on space law. From the materials in the three volumes it will be possible to trace steps in the negotiating process of the space treaties and the draft texts of subjects now pending on the agenda of the Legal Subcommittee. It would be helpful to add a section on the working procedures of the United Nations Committee on the Peaceful Uses of Outer Space and its two subcommittees, particularly with reference to the use of working groups and the use of consensus in making decisions.

Space law has developed as a new branch of international law and this Manual will be of inestimable value to law schools, departments of political science which include international relations, and government officials whose work necessarily involves them in problems arising from the use and exploration of outer space. The volumes will be helpful to delegates newly appointed by their governments to serve on the United Nations Committee on the Peaceful Uses of Outer Space and its Scientific and Technical Subcommittee and Legal Subcommittee.

Eilene M. Galloway
Vice President, International
Institute of Space Law (IAF)

Resource Sensing from Space: Prospects for Developing Countries, National Academy of Sciences (Washington, D.C., 1977).

This report examines the new technology of resource sensing from space for its potential value to developing countries and indicates steps that might be taken by means of technical cooperation to promote its transfer and diffusion abroad.

The report analyzes the benefits of remote sensing to the developing countries taking into consideration the vast expenditures and the technological abilities. Then the report discusses the gap between the technical experimenters and the resource managers depending upon the experience with LANDSATS 1 and 2.

The report also contains the present state of planning and guesswork about future technologies, in addition to a discussion of both the short-term and the long-term prospects for the effective use of resource sensing data from space by the developing countries. How the United States can help peoples to take advantage of the images produced is also discussed in addition to the varying models of international organization that might prove to be appropriate to the case of remote sensing technology.

Finally, the report deals with the international implications of remote sensing and with the political dimension of this technology in relation to its evolution and the particular interest of the developing countries.

The Politics of Space, by William Schauer (Holmes and Meier Publishers, Inc. 1976).

The author of this book researches many aspects of the activities of man in outer space and the impact of the space age on the military and strategic policy of the Soviet Union as well as the United States.

The book starts by tracing the history of the Russian and American space programs and their organization. Then the author evaluates and describes the Russian and the American budgeting, secrecy and security of their military operations in space. The book includes a study of motivations and goals in addition to the planetary programs and future space activities in the light of international cooperation. It also analyzes the motives behind the vast expenditure of money and considers the effects of space activities on the law, economy, military planning, and the foreign policies of the Soviet Union and the United States.

Direct Broadcast Satellites and The United Nations, by Kathryn M. Queeney (Sijthoff and Noordhoff International Publishers B.V., Alphen aan den Rijn, the Netherlands, 1978).

In this book, the author reviews all significant activities to date concerning the development of a non-technical regulatory regime in the United Nations and a number of its sub-organs. It also reports work done in the involved Specialized Agencies, and in other national and international organizations concerned with the economic, legal, technical and sociocultural implications of broadcast satellites.

The work is a pioneering effort in many respects. Its principal sources are official U.N. meetings, records and reports. It draws upon interviews with informed officials and the relatively scarce books and articles of relevance, representing a first effort of such depth and scope on this subject.

Structured in a chronological sequence, this book must be viewed as a whole to be appreciated. Beginning with the earliest discussions of direct broadcasting in the United Nations, Ms. Queeney traces the activities of the Committee on the Peaceful Uses of Outer Space, its Legal Sub-Committee and its Scientific and Technical Sub-Committee, and the organization, work, as well as results of the U.N. Working Group on Direct Broadcast Satellites. She explains and reviews the roles of UNESCO and the International Telecommunication Union, and traces each step in the evaluation of relevant work in those organizations.

Ms. Queeney emphasizes the value of the U.N. forums as focal points for discussion and pragmatic compromise. She describes the opening phase of what may prove to be a long history of international interaction in a highly sensitive field. This work is the first comprehensive effort to tie together the many related forums and to examine them, their relevance, and their usefulness in depth.

Regimes for the Ocean, Outer Space, and Weather, by Seyom Brown, Nina W. Cornell, Larry L. Fabian, and Edith Brown Reiss (The Brookings Institution, Washington, D.C., 1978).

This book is an examination of the sharpened international competition for control over areas of the globe hitherto considered beyond national jurisdiction. This study analyzes the causes and consequences of that competition in three realms: the ocean, outer space, and the weather and climate.

The authors find that, without substantial alteration of the traditional framework for using these international "commons", competition will progressively embitter international relations—especially between the technologically advanced and the technologically lagging countries—and result in waste and degradation of natural resources.

In addition to this study being an examination of the problems of scarcity and an assessment of the possibilities for regulating resource use, the authors also set forth a proposal. They suggest that new international agencies be established to coordinate the disparate private and governmental activities affecting the atmosphere and extraterrestrial space, as well as the oceans and the weather. Only then, the authors argue, can the exploitation of limited, essential resources be controlled so as to promote the general welfare of the earth's inhabitants.

Chapters nine through fourteen of this book deal with governmental activities affecting outer space. Topics discussed include alternative regimes for activities in outer space, remote sensing of the Earth from outer space, television broadcasting from outer space, maritime satellites, frequency and orbit, and international accountability in the use of outer space. At the end of each chapter the authors give their proposals, recommendations, or alternative approaches.

This book is a result of the Technology and International Institutions Project of the Brookings Foreign Policy Studies program. The project, conducted from 1972 to 1976, was supported in part by the National Science Foundation, the National Aeronautics and Space Administration, the Ford Foundation, and the Rockefeller Foundation. Each of the authors were then members of the research staff of the Foreign Policy Studies program, which is directed by Henry Owen.

The Eagle Has Returned, Part II, Vol. 45, Science and Technology Series ed. by Dr. Ernst A. Steinhoff (American Astronautical Society, 1977).

The Eagle Has Returned contains manuscripts of the Proceedings of the Dedication Conference of the International Space Hall of Fame, held at Alamogordo, New Mexico from 5 October through 9 October, 1976, as a tribute to 35 space pioneers, citizens of eight different nations, honored as the first inductees into the International Space Hall of Fame.

The purpose of this volume is to provide the international scientific community with those presentations and addresses, which due to their nature and resulting conference deliberations could not have been included in the earlier volume. They provide an overview and summary of the past achievements, current state of the art, and future near and far term achievement goals of international and national space flight, efforts expected from scientific, engineering, life sciences, space law, and managerial combinations of all these disciplines contributing toward the common objectives of space flight.

Of particular interest is the chapter dealing with the Developments in Space Law Roundtable which includes the remarks of Dr. Carl Q. Christol, Dr. Stephen Gorove, Dr. Isabella Diederiks-Verschoor, General Martin Menter, Subratu K. Sarkar, Mrs. Eilene Galloway, Dr. Charles Stach Drozer, Dr. István Herczeg, and Edward R. Finch, Jr. Topics discussed include "The Development of the International Law of Outer Space", "Space Law Developments", and "The Utility of Morphology to Space Law".

Other areas covered by the book are the dedication ceremonies, the special session, roundtables in the various areas of space, and of particular interest the "International Academy of Astronautics History Symposium" which contains select biographies of outstanding space pioneers such as Robert H. Goddard, Theordore von Kármán, Andrew Gallager Haley, and Wernher von Braun along with twelve others.

Remote Sensing Applications for Mineral Exploration, ed. by William L. Smith (Dowden, Hutchison, and Ross, Strundsburg, PA., 1977).

The purpose of this book as stated by the editor is to take a broad look at the early returns from a new technology as they relate to mineral resources management. It is an attempt to synthesize new concepts and capabilities that have been gained largely in the past few years since NASA's Earth Resources Technology Satellite (LANDSAT) was launched into orbit and started delivering high-quality, high resolution multa pictoral images of the earth.

This book examines remote sensing and its uses for geologists, mineral economists, and resource management personnel.

The contributors discuss the many applications of remote sensing to such areas as energy development, land use analysis, and drainage mapping. Some of the articles deal with the narrower fields of economic justification for gathering raw remote-sensor data and digital image enhancement of earth resources data.

The book is a highly technical one but does provide interesting background material that may be beneficial to those interested in the space law field.

World Wide Space Law Bibliography, edited by Kuo Lee Li (McGill University, Montreal, 1978).

This work, published under the auspices of the Institute and Center of Air and Space Law at McGill University, Montreal, is a comprehensive bibliography of materials published about space law, such as articles, documents, proceedings, and the like written in any language. Articles published in legal periodicals, as well as those in fields of astronautics, astropolitics, and astro-socio-economics, are included. United Nations documents are also referenced. Other categories included in the bibliography are international agreements dealing with space flight and practical applications of space technology, multilateral as well as bilateral.

Each bibliographic item has been classified according to a scheme based on progressive development of the subject matter. Also included is a comprehensive topical index providing quick access to the body of relevant material for any topic likely to be sought in research on space law.

Teleservices via Satellite: Experiments and Future Perspectives, by Delbert D. Smith (Sijthoff and Noordhoff, 1978).

This book explores the demonstrations and experiments in social applications of satellite communication. It is a chronicle of the major projects carried out in connection with the National Aeronautics and Space Administration (NASA)'s Applications Technology Satellites (ATS).

Part I of this book discusses the experimental context, early ATS user experiments, experimentation in the Rocky Mountain States, Appalachia, Satellite Instructional Television Experiment, and the Canadian and the United States user experimentation with the Communications Technology Satellite (Hermes).

Part II deals with the experimentation imperative and the institutional responses to it, also with the issues and perspectives in the development of a comprehensive teleservices experimentation program.

In general, this book shows that a new set of visions began to emerge with respect to communication satellite applications which were made possible by the development and flight of a generation of NASA applications satellites which have demonstrated the potential of space communications technology for social services.

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Outer Space Global Interdependence and the Geostationary Orbit— Finch 17

Astronautics for Peace and Human Progress—Part VI

Miscellaneous Subjects—Part VII

Addendum

ERRATA

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The correct date on page 129, para. 1, line 3 and p. 137, para. 2, line 5 is January 24, 1978.