42. May the resources of celestial bodies be exploited by one or more States to the exclusion of the others?

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AD HOC COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE
Legal Committee

REPORT UNDER PARAGRAPH 1 (d) of GENERAL ASSEMBLY RESOLUTION 1348 (XIII)

(Working paper submitted by the delegation of the Unites States)

The following material is submitted by the delegation of the United States in connexion with the report of the United Nations ad hoc Committee on the Peaceful Uses of Outer Space under paragraph 1 (d) of General Assembly resolution 1348 (XIII).

A. MANDATE OF THE COMMITTEE UNDER PARAGRAPH 1 (d)

Paragraph 1 (d) of the General Assembly resolution of 13 December 1958, adopted at its 792nd plenary meeting, reads as follows:

> "The General Assembly . . . 1. Establishes an ad hoc Committee on the Peaceful Uses of Outer Space . . . and requests it to report to the General Assembly at its fourteenth session on the following . . . (d) The nature of legal problems which may arise in the carrying out of programmes to explore outer space . . . ." A/RES/1348 (XIII)

The Committee considered that it could most usefully fulfil its terms of reference by (1) enumerating and defining problems that have arisen, or are likely to arise, in the carrying out of space programmes; (2) grouping these problems according to priority in the sense of their amenability to early treatment, but without, of course, trying to pass upon any question of relative importance among them; and (3) indicating, without definite recommendation, various means by which answers to such problems might be pursued.

The identification of legal problems entails, of necessity, some consideration of possible approaches to their solution, particularly with a view to presenting the best informed comment that can be made on the matter of priorities. Under

its mandate and within the time allotted, the Committee did not consider it appropriate to attempt to frame answers to identified legal problems, or for that matter to penetrate deeply into their substance.

It was observed that the provisions of the Charter of the United Nations and of the Statute of the International Court of Justice as they applied to international relations were not limited in their operation to the confines of the earth. The Committee noted that no State conducting activities in outer space or activities connected with the exploration of outer space had sought to distinguish such activities in this respect from other activities. The Committee noted also that the reported activities in, or connected with the exploration or, outer space had been generally regarded as compatible with the principle that outer space is freely available for exploration and use by all.

The Committee agreed that, among the legal problems of outer-space activities that could be discerned, some were more urgent and more nearly ripe for positive international agreement than others. It was felt that the progress of activities in outer space and of advances in science and technology would continually pose new problems relevant to the international legal order and modify both the character and the relative importance of existing problems. For example, future arrangements among governments or private groups of scientists for co-operation in space research or dissemination of space data may entail legal problems ranging from administrative or procedural arrangements to regulation or control. The Committee noted the indispensable usefulness of close and continuous co-operation between jurists and scientists to take these and other developments into account. Although an attempt at comprehensive codification of space law was thought to be premature, the Committee also recognized the need both to take timely, constructive action and to make the law of space responsive to the facts of space. Accordingly, it agreed that the rough grouping of legal problems in order or recommended priority should itself be kept under regular review by whatever means the General Assembly should deem fitting.

It was unanimously recognized that the principles and procedures developed in the past to govern the use of such areas as the air space, the sea, and the polar regions deserved attentive study for fruitful analogies that might be adaptable to the treatment of legal problems arising out of the exploration and use of outer space. On the other hand, it was acknowledged that outer-space

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activities were distinguished by many specific factual conditions, not all of which were now known, that would render many of its legal problems unique.

B. LEGAL PROBLEMS CALLING FOR AND SUSCEPTIBLE OF PRIORITY TREATMENT

1. Availability of Outer Space for Exploration and Use

During the International Geophysical Year 1957-58 and subsequently, countries participating in programmes of space exploration have proceeded on the premise of the lawfulness of the launching and flights of space vehicles regardless of what territory they might pass "over". The Committee noted that, with this practice, there may have been initiated the establishment of a general acceptable principle to the effect that outer space is open to all and freely available for activities not prohibited by existing or future international law or agreements.

2. Liability for Injury or Damage Caused by Space Vehicles

It was recognized that, despite all reasonable precautions, injury or damage might result from the launching, flight, and return to earth of various kinds of space vehicles. Among these vehicles would be orbital satellites, vehicles designed for space probes, and vehicles designed to penetrate outer space and then return through air space to the earth.

A number of problems exist with respect to defining and delimiting liability of the launching State and other States associated with it in space activity causing injury or damage. First of all there is the question of the type of interest protected: that is, the kind of injury for which recovery may be had. Second, there is the question of the type of conduct giving rise to liability: should liability be without regard to fault for some or all activities, or should it be based upon negligence? Third, should liability of the launching State be unlimited in amount? Finally, where more than one State participates in a particular activity, is the liability joint or several? The Committee noted that municipal legal systems differ in their solutions to such problems.

What machinery should be utilized for determining liability and providing for compensation? It was realized that a principal problem in this area is the problem of remedy and enforcement. One suggestion made was that early consideration be given to agreement on unqualified submission to the compulsory jurisdiction of the International Court of Justice in any dispute as to the liability of States for injury or damage caused by space vehicles.

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3. Allocation of Radio Frequencies

It was recognized that there are stringent technical limits on the availability of radio frequencies for communications. The development of space vehicles will pose new and increasing demands on the radio spectrum. It was emphasized that rational allocation of frequencies for communications with and among space vehicles would be imperative. In this way, what might otherwise come to constitute paralyzing interference among radio transmissions could be avoided.

Attention was drawn to the fact that there is already in existence and operation an international organization suited to the consideration of problems of radio frequency allocation for outer space uses, namely, the International Telecommunication Union. A committee of this organization has already issued a Recommendation and a Report which bear the following titles: "Selection of Frequencies Used in Telecommunication with and Between Artificial Earth Satellites and other Space Vehicles" and "Factors Affecting the Selection of Frequencies for Telecommunication with and Between Space Vehicles". The findings contained in these two documents will be presented to the Administrative Radio Conference of the ITU which will open in Geneva on 17 August 1959.

Attention should also be given to the problem of transmissions from space vehicles, once these transmissions have outlived their usefulness. Such a measure would help conserve and make optimum use of the frequencies which are assigned for outer space communications. In considering this problem, it would be necessary to balance this factor against the interest in conserving a means for continuous identification of space vehicles.

4. Interference between Spacecraft and Aircraft

As the launchings of spacecraft become more numerous and widespread throughout the world, practical problems will clearly arise in regard to the prevention of interference at the lower altitudes between spacecraft and conventional aircraft. The latter are already employed in great numbers across the earth; and in many areas, problems of traffic congestion already exist. It is important to deal with the problem of interference between aircraft and spacecraft during launch or return to the earth. It was considered that governments should give early attention to this matter and that technical studies could usefully be undertaken.

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5. Identification and Registration of Space Vehicles and Co-ordination of Launchings

It is expected that the number of space vehicles will progressively increase. In the course of time, their numbers may become very large. One serious problem that will require management is the potential overloading of tracking facilities by an excess of space vehicles or by the launching of vehicles indiscriminately, without co-ordination and without registration. It may, therefore, become highly advisable to conclude appropriate agreements for the central registration of all launchings of space vehicles. This would perhaps be a minimum measure. A further measure would be agreement on the co-ordination of launchings so that tracking facilities could cope with them after launch.

Identification of space vehicles could also be obtained by agreement on an allocation of individual call signs to these vehicles; the call signs could be emitted at stipulated regular intervals, at least until identification by other means had been established.

As part of the problem of identification, there arises the question of placing suitable markings on space vehicles so that, in the event of their return to earth, they may be readily identified. Such visual markings might, by agreement, be recorded in a central register, along with call signs and current orbital or transit characteristics of space vehicles.

6. Re-entry and Landing of Space Vehicles

Problems of re-entry and landing of space vehicles will exist both with respect to unmanned space vehicles and later with respect to manned vehicles of exploration. Where re-entry and return are designed for space vehicle, it will be appropriate for the launching State to enter into suitable arrangements with the State on whose territory the space vehicle is intended to land and other States whose airspace may be entered during descent. Recognizing, however, that such landings may occur unintentionally, members called attention to the desirability of the conclusion of multilateral agreements concerning re-entry and landing, such agreements to contain appropriate provisions on procedures and undertakings of co-operation. Among the subjects that might be covered by such agreements would be the return to the launching State of the vehicle itself and (in the case of a manned vehicle) provision for the speedy return of personnel. It was considered that substantive rules of international law already exist concerning rights and duties with respect to aircraft and airmen landing on

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foreign territory through accident, mistake, or distress. The opinion was expressed that such rules would have direct application in the event of unintentional landings of space vehicles.

C. OTHER PROBLEMS

1. Limit of Territorial Airspace and Boundary at Which Outer Space Begins

It was pointed out that under the terms of existing international conventions and customary international law States have complete and exclusive sovereignty in the airspace above their territories and territorial waters. The concurrent existence of a region in space which is open to all and freely available for activities not prohibited by existing or future international law raises such questions as where airspace ends and where outer space begins. It was noted that, while this problem has been much discussed in scholarly writing, there is no concensus among publicists as to the limits of territorial airspace.

The difficulties of fixing a stationary boundary at this time were agreed to be formidable. Neither the physical characteristics of the air nor the physical characteristics of aircraft were thought to be capable of providing a generally satisfactory solution to the various problems which may arise. A definitive answer to the problem would require an agreement, and the opinion was expressed that such agreement now, based on current knowledge and experience, would be premature. There was also discussion as to whether or not further experience might call into question the utility of legal regimes geared primarily to spatial rather than functional criteria.

Several approaches to the problem were discussed. It was suggested that further experience with particular activities might be conducive to the development of customary rules which could be codified at some later date. At that time, it might be possible to arrive at a more precise definition of the spatial extent of sovereignty if such a definition then seemed necessary or desirable.

A part of, and supplement to, the development of customary law might be the conclusion of inter-governmental agreements, as necessary, to govern activities sufficiently close to the earth's surface and bearing such a special relationship to particular States as to call for their consent. Each such agreement could contain appropriate provisions as to the lawfulness or unlawfulness of a given activity by reference not only to altitude and "vertical" position but also to

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trajectory, flight mission, known or inferred instrumentation, and other functional characteristics of the vehicle or object in question.

A third approach would be to fix tentatively a range within which the boundary between airspace and outer space would be assumed, on the basis of present experience and knowledge, to exist. It was generally agreed that there would be little dissent from the proposition that territorial airspace extends at least to the altitude presently used for normal aircraft flight and so much more of the airspace as might reasonably be envisaged now as usable for similar purposes in the near future. On the other hand, it was suggested that space beyond the perigee of the lowest probable satellite orbit might continue to be regarded as open to all and freely available for all activities not otherwise prohibited. It was pointed out that this approach had the advantage of avoiding an arbitrary boundary so low as to interfere with the existing regime governing international aviation or so high as to fetter activities which bear no special relationship to underlying States. It was emphasized that the relationship might vary with the particular space activity, its function and its mode of implementation, and that decisions tentatively arrived at might have to be revised in the light of scientific and technological achievement.

In view of the available alternatives and the possibility of solving immediate problems in non-spatial terms, the Committee did not believe the definition of the spatial limit of territorial airspace presented a legal problem capable of priority consideration at this moment.

2. A Comprehensive Code

Consideration was given to the wisdom of attempting comprehensive codification of rules of international law which might be agreed or thought by analogy to apply to activities in space. It was agreed that there was much in past experience with regard to the law of the high seas and the law of the air which might, mutatis mutandis, be helpful in anticipating problems of space law and in suggesting ways of dealing with them. It was pointed out that characterization of outer space as open to all did not automatically incorporate all rules developed in other physical contexts similarly classified, such as the high seas.

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It was, however, concluded that a comprehensive code was not practicable or desirable at the present stage of knowledge and development. It was pointed out that the rule of law is neither dependent upon, nor assured by, comprehensive codification; that premature codification might prejudice subsequent efforts to codify based on a more complete understanding of the practical problems involved; and that the validity of analogy depends upon the relevance of the factors selected. It was emphasized that relatively little is so far known about the actual and prospective uses of outer space in all their possible varieties of technical significance, political context, and economic utility. In this situation, it would surely be premature to try to draft a comprehensive set of norms; these would have to be so general in character that they might lack any real utility; they might, moreover, be misleading in giving an illusion of certainty where none existed; or the establishment of norms at this stage could have the harmful effect of purporting to establish principles which might, with experience, prove to be inappropriate and erroneous.

3. Exploration of Celestial Bodies

The Committee was of the view that the exploration of celestial bodies did not itself present any legal problems distinct from those generally raised by space exploration. Problems would arise only if states claimed, on one ground or another, sovereignty over all or part of a celestial body to the exclusion of other States. It was suggested that celestial bodies are incapable of appropriation to national sovereignty. The view was also expressed that some form of international administration over celestial bodies might be adopted.

It was pointed out that exploration, settlement and exploitation of natural resources raised distinguishable problems, and that only settlement and exploitation raised serious problems of possible claims to sovereignty. These did not appear likely in the near future.

4. Interference among Space Vehicles

It was agreed that, apart from problems of communications and overload of tracking facilities, there was presently little danger of interference of space

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vehicles with each other. It was pointed out that this situation might change in time, particularly if vehicles is space are used extensively for either global or interplanetary travel. There was discussion about the applicability of rules and experience with air traffic to future space travel. It was decided that more scientific information would be needed before rules could be drafted.

5. Relations with Extra-terrestrial Life

The Committee felt that there was little at this time which could usefully be done with regard to this problem.
