Doubts were generally expressed as to whether the physical characteristics of the air or of aircraft were capable of providing a generally satisfactory solution.

An authoritative answer to the problem at this time would require an international agreement, and the opinion was expressed that such agreement now, based on current knowledge and experience, would be premature. In the absence of an agreement, further experience might lead to the fixing of a precise limit through the emergence of a rule of customary law. There was also discussion as to whether or not further experience might suggest the desirability of basing the legal regime on the characteristics of the space vehicle and activity rather than on delimiting regions in space. The view was expressed that when more experience had been gained, rules of customary law might be developed which might be codified later.

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

In any event, any decisions arrived at now or in the near future might have to be revised in the light of scientific and technological achievement.

In view of the difficulty of determining immediately the height of the division between air space and outer space, it was finally proposed (by another representative) that the Committee should confine itself to affirming that such a division should be fixed and declaring outer space free, and should not explicitly fix the height of the air space, as the Paris 1919 Convention and the Chicago 1944 Convention had done.

It was generally believed that the definition of a precise limit for territorial air space did not present a legal problem calling for priority consideration at this moment. The Committee noted that the solution of the problems which it had identified as susceptible of priority treatment was not dependent upon the establishment of boundaries for territorial airspace and outer space.

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

Draft Report of the Working Group

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 scope of the mandate thus given the Committee was the subject of discussion. It was agreed that the terms of reference of the Committee referred exclusively to the peaceful uses of outer space. One view expressed was that the task of the Committee related to the identification and listing of legal problems which might arise in the carrying out of programmes to explore outer space but that the Committee was not called upon to formulate either general or particular solutions of those problems. Another view was that the Committee in identifying and listing the problems, should give some indication of the significance and implications of each problem and concerning the degree of priority which might be given to its solution. The position was also taken that the Committee should bear in mind certain relevant general principles, such as those contained in the preamble to resolution 1348 (XIII). It was also pointed out that, while paragraph 1(d) of resolution 1348 (XIII) referred only to problems which might arise in the exploration of outer space, it was not always possible in relation to certain activities to differentiate between exploration and exploitation of outer space and that both the exploration and exploitation of outer space were expressly mentioned in the preamble to the resolution.

The Committee recognized that it would be impossible at this stage to identify and define, exhaustively, all the juridical problems which might arise in the exploration of outer space. Recognizing the multiplicity of these juridical problems the Committee considered that it could most usefully fulfil its mandate from the General Assembly in view of the complex character of these problems, by (1) selecting and defining problems that have arisen, or are likely to arise in the near future, 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.

The Committee considered the relevance to space activities of the provisions of the United Nations Charter and of the Statute of the International Court of Justice, which synthesized the idea of co-operation between men and the joint achievement of great projects for the benefit of all mankind; it observed that as a matter of principle those instruments were not limited in their operation to the confines of the earth. It considered as a worthy standard for activities connected with the exploration and use of outer space the principles set forth in the preamble of resolution 1348 (XIII), in which the General Assembly called attention to Article 2, paragraph 1 of the Charter which states that "the Organization is based on the principle of the sovereign equality of all its Members", recognized the common interest of mankind in outer space and the common aim that it should be used for peaceful purposes only, and expressed the desire of promoting energetically the fullest exploration and exploitation of outer space for the benefit of mankind. The Committee noted also that the reported activities in, or connected with, the exploration of 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 some of the legal problems of outer space activities were more urgent and more nearly ripe for positive international agreement than

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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.

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 other regions of the earth deserved attentive study for possibly 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 activities were distinguished by many specific factual conditions, not all of which were now known, that would render many of its legal problems unique. 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.

It was 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. 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 responsible 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.

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/The Committee noted that several of the problems referred to, or particula
aspects of such problems, concerned the International Civil Aviation Organization
and the application of the Convention on International Civil Aviation. For inst
a definition of the limit of air space would affect the scope of the application
that Convention as well as of ICAO's work, and the passage of space vehicles
through air space would affect the operation and safety of international civil
aviation which was ICAO's particular responsibility. These were matters as regar
which co-ordination with ICAO's interests would be necessary./

B. LEGAL PROBLEMS SUSCEPTIBLE OF PRIORITY TREATMENT

1. Freedom of Outer Space for Exploration and Use

During the International Geophysical Year 1957-8 and subsequently, countries
throughout the world proceeded on the premise of the permissibility of the
launching and flight of the space vehicles which were launched, regardless of wha
territory they passed "over" during the course of their flight through outer spac
The Committee believes that, with this practice, there may have been initiated th
recognition or establishment of a generally accepted rule to the effect that, in
principle, outer space is, on conditions of equality, freely available fo
exploration and use by all in accordance with existing or future international la
or agreements.

2. Liability for Injury or Damage Caused by Space Vehicles

Despite all reasonable precautions, injury or damage might result from the
launching, flight, and return to earth of various kinds of space vehicles.

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 or misconduct? Third, should a different principle
govern, depending on whether the place of injury is on the surface of the earth,
in the airspace or in outer space? Fourth, should liability of the launching

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State be unlimited in amount? Finally, where more than one State participates in
a particular activity, is the liability joint or several?

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. The Committee considered that early consideration
should be given to agreement on submission to the compulsory jurisdiction of the
International Court of Justice in disputes between States as to the liability of
States for injury or damage caused by space vehicles.

When it considered the foregoing questions the Committee noted that, in so
far as concerns liability for surface damage caused by aircraft, there was
formulated at Rome in 1952, under the aegis of ICAO, the Convention on Damage
Caused by Foreign Aircraft to Third Parties on the Surface. In the opinion of the
Committee that Convention and ICAO experience in relation thereto inter alia could
be taken into account in any study that might be carried out in the future
concerning liability for injury or damage caused by space vehicles. It was pointed
out, however, that no international standards regarding safety and precautionary
measures governing the launching and control of space vehicles had yet been
formulated, and this fact also could be taken into account in studying analogies
based on existing conventions.

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 existance 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

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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 wide-spread 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, if necessary with the assistance of competent specialized agencies.

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

It is expected that the number of space vehicles will progressively increase. In the course of time, their numbers may become very large. This indicates the necessity of providing suitable means for identifying individual space vehicles. Such identification of space vehicles could 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.

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Yet a third means of identification is by orbital or transit characteristics of space vehicles.

Identification would be facilitated by a system of registration of the launchings of space vehicles, their call signs, markings and orbital and transit characteristics. Registration indeed would serve a number of useful purposes. For example, one serious problem that will require management is the potential overloading of tracking facilities by the launching of space vehicles indiscriminately, without co-ordination. A further measure, beyond registration, would be agreement on the co-ordination of launchings so that tracking facilities could cope with them after launching. Registration might also afford a convenient means for the notification of launchings to other States, and thus enable them to make appropriate distinctions between the space vehicles so notified and other objects.

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 space vehicles are designed for re-entry and return, 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 sutiable undertakings on co-operation and appropriate provisions on procedures. 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 also considered that certain substantive rules of international law already exist concerning rights and duties with respect to aircraft and airmen landing on foreign territory through accident, mistake, or distress. The opinion was expressed that such rules should be applied in the event of similar landings of space vehicles.

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C. OTHER PROBLEMS

1. Limit of Territorial Air Space 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 not subject to the same regime 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 consensus among publicists as to the limits of territorial airspace.

Although a view was expressed that it might eventually prove essential to fix a precise limit, the difficulties of fixing such a limit at this time were agreed to be formidable. Doubts were expressed as to whether the physical characteristics of the air or of aircraft were capable of providing a generally satisfactory solution. An authoritative answer to the problem at this time would require an international agreement, and the opinion was expressed that such agreement now, based on current knowledge and experience, would be premature. In the absence of an agreement, further experience might lead to the fixing of a precise limit through the emergence of a rule of customary law. There was also discussion as to whether or not further experience might suggest the desirability of basing the legal regime on the characteristics of the space vehicle and activity rather than on delimiting regions in space.

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

Another 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

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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 lowest probable perigee of a satellite orbit might be regarded as outside the sovereignty of the subjacent State. It was pointed out that this approach had the advantage of avoiding an arbitrary boundary so low as to interfere with existing international aviation regimes or so high as unreasonably to fetter activities connected with the use and exploration of outer space. It was emphasized, however, that whether a boundary was so high as unreasonably to fetter certain activities would depend on the particular activity in question, its function and its mode of implementation. Any decisions arrived at now or in the near future might therefore have to be revised in the light of scientific and technological achievement.

It was generally believed that the definition of a precise limit for territorial airspace did not present a legal problem calling for priority consideration at this moment. The Committee noted that the solution of the problems which it had identified as susceptible of priority treatment was not dependent upon the establishment of boundaries for territorial airspace and outer space.

2. Exploration of Celestial Bodies

The Committee was of the view that problems would arise if States claimed, on one ground or another, exclusive rights over all or part of a celestial body. 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.

3. 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.
