

VERBATIM RECORD OF THE ONE HUNDREDTH MEETING

Held on Friday, 3 September 1971, at 10.30 a.m.

Chairman:

Mr. WALDHEIM

(Austria)

CONSIDERATION OF REPORTS (continued):

- (a) REPORT OF THE SCIENTIFIC AND TECHNICAL SUB-COMMITTEE (A/AC.105/95)
- (b) REPORT OF THE LEGAL SUB-COMMITTEE (A/AC.105/94)

Mr. PIRADOV (Union of Soviet Socialist Republics) (interpretation from Russian): On behalf of the Soviet delegation I am happy to greet all those who are meeting in this room to take part in the fourteenth session of our Committee. As you quite rightly pointed out in your introductory statement, Mr. Chairman, the year that has elapsed since the last session of the Committee was one of fruitful work filled with important historical events in the field of the exploration of space. In the Soviet Union we have continued successfully to carry out a programme of space research and experiments with the Cosmos satellites, whose number a few days ago reached 435.

For over half a year a unique self-propelled lunar vehicle, Lunokhod-1, has been working on the moon. In a remarkable manner it transmits to earth detailed information on our remote -- yet close -- neighbour. The whole world followed with the greatest attention the expedition to the moon of the courageous American astronauts, and I should like to take this opportunity to congratulate our American colleagues on the occasion of the successful completion of the very difficult mission of the crew of Apollo 15. I do so with special pleasure since, as you know, during that flight a joint Soviet-American space experiment was carried out.

Mankind has been astounded by the unprecedented achievement of the crew of the first scientific research orbital space station in the history of space science -- the Salyut -- whose creation has opened up new and enormous possibilities for research in outer space as well as for applications of space technology for improving conditions of life on earth.

The names of the heroes of the Soviet Union -- cosmonauts Georgi Dobrovolsky, Vladislav Volkov and Viktor Patsayev -- who gave their lives in order to achieve the boldest aspiration of mankind, the conquest of outer space, will for ever remain engraved in the hearts and minds of the inhabitants of the earth. Risk is intimately linked to space exploration; but it is a noble and justified risk. In the telegram of condolences which the Secretary-General of the United Nations, U Thant, dispatched to the Soviet Government we read:

"These three went into outer space as the envoys of all mankind and their loss will be mourned not only by the Soviet people, but by all peoples of the world."

(Mr. Piradov, USSR)

In our view the words of the Secretary-General of the United Nations described extremely well the attitude of the whole of mankind towards its sons who have opened up the road to the future. In the name of the delegation of the Soviet Union, I should like, from the bottom of my heart, to thank all those who have expressed their condolences on the tragic death of the three Soviet cosmonauts and also to thank you personally, Mr. Chairman.

International co-operation in the field of the exploration of outer space is most successful. The number of States engaged in space research is increasing constantly, as are also mutual contacts. The Soviet Union and other socialist States are carrying out an important programme of space activities, especially in the field of space telecommunications, research on earth satellites, space technology, and so on. There is large-scale co-operation with many other countries in the field of the peaceful uses of space. As an example, I can cite our contacts with American and French scientists. The working out of a system of docking of Soviet and American space ships is especially important, and specialists rightly believe it will contribute to ensuring the security of astronauts in orbit and offer additional guarantees of rescue. There have also been further developments in the co-operation between the Soviet Union and many developing countries in the field of space exploration.

Speaking of last year, I must mention another event which is certainly not on the same scale as the achievements of science and technology but which nevertheless has an importance of principle for the future co-operation of States and the progressive development of space law. I have in mind the conclusion by the Legal Sub-Committee of a convention on space liability. Today we can note with great satisfaction that lawyers and diplomats in that Sub-Committee carried out extremely well the instructions of the General Assembly. The tenth session of the Legal Sub-Committee -- whose report we must consider and approve -- was a commemorative session of sorts, and I am happy to see that such an important achievement marked that session. I should like to add my voice to that of other delegations that have already spoken about this and note that great praise must be given in this field to the Chairman of the Sub-Committee, Mr. Wyzner.

The Legal Sub-Committee over the years has proved to be an extremely effective international organ able to find mutually acceptable solutions to the most difficult problems relating to the legal régime of outer space.

(Mr. Piradov, USSR)

The Legal Sub-Committee was the source of fundamental instruments which made space law an independent branch of international law -- treaties on the principles governing the activities of States in the exploration and exploitation of outer space, including the moon and other celestial bodies, the agreement on the rescue and return of astronauts and space objects and so on -- and it is very important to stress the creative role in international law of that Sub-Committee in order to understand its importance.

During the working out of the draft convention on liability, the Soviet delegation made every effort to achieve agreement on a mutually acceptable basis. The Soviet Union has striven to take into account the views of other members of the Sub-Committee. In order to bring about a rapprochement among the various positions, we refrained from insisting on many provisions and wording to which we attach great importance. This is the internal logic of any international agreement. Without a reasonable compromise there is no international agreement, since we must find a common denominator for the interests and points of view of a large number of the most diverse States. The General Assembly expects of us a draft convention which to the maximum extent possible would be consonant with the present-day stage of development of space technology and the activities of States in the exploration of outer space, which would also be in the interests of the greatest possible number of States, whatever their political or legal systems, and which would be open to all desirous of joining it without discrimination. We consider that the draft convention approved by the Legal Sub-Committee responds to all these needs, and the very clear statement of the Chairman of the Legal Sub-Committee, who introduced this draft convention, has confirmed this belief. I repeat that for our part we consider that this document is not ideal but we are ready to support it most decisively as a reasonable and generally acceptable compromise which the Committee can transmit to the General Assembly with the feeling that it has fully discharged its duty.

Rapid development of space technology and science confronts jurists with more and more difficult tasks. As you know, our Committee must choose, from among the many legal problems relating to space activities, the most important problems

(Mr. Piradov, USSR)

which the Legal Sub-Committee should deal with specifically at its next session, the eleventh session. In our view, the first such problem at this stage is the legal regulation of the activities of man on the moon. I am not going to repeat all I have already said about the remarkable achievements in the exploration of that celestial body. I only wish to recall that the commander of the space craft Apollo 15, David Scott, at a press conference in Houston on 12 August this year, spoke in favour of a wide-ranging exploration of the moon and suggested that permanent space stations be established on the moon with the most complex research equipment. All this shows that the activities of man on the moon will very soon acquire a permanent or long-term character.

As you know, the Soviet Government, on the basis of the need further to work out and regulate the norms and principles of international space law and to regulate the activities of States in the exploration of the moon, proposed to the Secretary-General of the United Nations the placing upon the agenda of the twenty-sixth session of the General Assembly of an item with regard to the working out of an international agreement on the moon. The Secretary-General of the United Nations has received a Soviet draft of that treaty, which, as you well know, has been distributed as an official United Nations document. The Soviet Union has always been in favour of a progressive development of international space law in the interests of all peoples, since the creation of a lasting international legal system as a basis for the activities of States in space contributes to the cause of peace and facilitates mutual understanding and co-operation among all States. The moon, as the only natural earth satellite, plays a special role in relations among States in space activities. That is why, in our view, these questions must be settled in a specific treaty. We hope that the members of the Committee and other Member States of the United Nations have had time to take cognizance of the Soviet draft treaty on the moon, which introduces into space law many new elements and renders them more specific as they apply to the moon.

The draft treaty on the moon opens up a favourable outlook for future fruitful work in this field in the interest of all peoples. It could serve when the day comes -- and we are sure it will come -- for international instruments regulating

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the activities of man on every celestial body, and there is no doubt that that moment is not far off. We fully support the recommendation of the Legal Sub-Committee that the question of principles to regulate the activities of man on the moon be inscribed on the agenda of its eleventh session. We believe that it should be considered as one of the first items at that eleventh session of the Legal Sub-Committee.

Our Committee is also seized of the report of the Scientific and Technical Sub-Committee. The Soviet delegation shares the views and recommendations contained in that report, generally speaking, but we should like to make a few remarks pertaining to that document. I should like to draw attention to the last paragraph of point 24 of that report, which states:

"... the Committee on the Peaceful Uses of Outer Space, as the focal point for activities of the entire United Nations family in the field of the study and utilization of outer space and practical applications of space techniques, should endeavour to see that no unnecessary duplication occurs in this field between the activities of the agencies and organizations within the United Nations system." (A/AC.105/95, para. 24)

I should like to say a few words about two elements here which we consider should be borne in mind. First, it is very important, as a matter of principle, to maintain our Committee's leading and guiding role in all aspects of the activities of bodies of the United Nations system dealing with the exploration and exploitation of outer space at a time when many United Nations bodies are working out their own programmes in this field. We think that in the report of the Committee to the General Assembly we should once again stress the particularly important role of the Committee in all these matters as the main link ensuring co-ordination of all activities of all United Nations bodies in the field of outer space exploration. Secondly, we should like to point to the direct link between the paragraph I have just quoted and the passage in the report where the Secretary-General is invited to consider the possibility of increasing the effectiveness of the Outer Space Affairs Division of the United Nations Secretariat which is so well led by a man all of us highly respect, Mr. Abdel Ghani.

(Mr. Piradov, USSR)

We consider that the fight against duplication of United Nations activities in the field of the exploration and exploitation of outer space should first of all be based on the strengthening of that section of the Secretariat, which should become the main instrument for carrying out the leading and guiding role of our Committee which I have just mentioned.

(Mr. Piradov, USSR)

Increasing the effectiveness of the Outer Space Affairs Division would also lead to obvious savings, since the programme in the field of the application of space techniques could certainly be carried out to a large extent within that Division.

We take a completely favourable view of the request contained in paragraph 24 of the report of the Scientific and Technical Sub-Committee to the Secretary-General, that he present information on relations between measures carried out by experts in the field of the practical application of space techniques, and the effectiveness of the Outer Space Affairs Division.

In the light of this report, the Scientific and Technical Sub-Committee should, in our view, at its next session work out complete recommendations to the Committee concerning the possibility of increasing and enhancing the effectiveness of the Outer Space Affairs Division and doing away with the existing duplication and fragmentation of resources in the field of space exploration. This being understood, we would not object to the appropriation of certain resources at the level of last year's appropriations for the space experts.

We would like to remind you, Mr. Chairman, that at the last session of the Sub-Committee it was decided to set up a working group to study questions relating to the surveying of earth resources by means of artificial satellites. We regard this group as being set up to carry out a specific and limited mandate, and consider it to be a temporary body of the Scientific and Technical Sub-Committee. In that connexion, we should like to remind you once again that so new a field in the utilization and application of space techniques as that of the remote surveying of earth resources, in addition to technical aspects, gives rise to many other political and economic problems. It involves, above all, the matter of respect for the sovereign rights of States. A State has the exclusive right to do what it deems fit with its own natural resources and with information concerning them. We must not forget that any abuse in the field of the application of space techniques could result in dire consequences. It is obvious that the only lasting basis possible for the application of artificial earth satellites to remote surveying of earth resources

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must be grounded in large-scale international co-operation; its foundation must be the strict legal regulation of activities in space. This is why, in our view, the study of the technical aspects of the problem must go hand in hand with the elaboration of legal norms and principles governing practical activities in the field of space techniques.

Finally, I should like to express the hope that this session of the Committee will be completed on the basis of the mutual understanding and co-operation among delegations which characterized the session of the Legal Sub-Committee this year, and which, Mr. Chairman, has always characterized the work of our Committee under your guidance.

Mr. SKALA (Sweden): Before entering into the subject-matter of our agenda item, allow me, Mr. Chairman, to associate my delegation with those that have already heaped praise upon you. Your Chairmanship is indeed a firm guarantee for the successful continuation of our work, and especially that the important work we are to perform at this session will be carried out in the best possible way.

The Swedish delegation had the occasion to state last year that the space age seemed to have passed its first adolescence. After the buoyancy and perhaps extravagance, which characterized the first decade in space and which saw achievements of historical and almost unfathomable dimensions, has come the time of, if not maturity, at least stocktaking and reflection on the future course in outer space. The space Powers, in so far as we have detailed knowledge about their plans, have trimmed their budgets and are redefining their programmes. Europe is in a phase of transition from fundamental research to greater emphasis on space applications. And my own country, Sweden, to the extent that it has any space activities worthy of mentioning in this context, is also looking for new directions and for its proper place in international space co-operation.

If for a moment we look away from the continued spectacular advances of the super-Powers in their respective programmes, the Swedish delegation

(Mr. Skala, Sweden)

feels that one of the more important and striking events of the last year was that of the incipient co-operation between the two. If that co-operation is still somewhat lacking in substance -- though only yesterday we had new information in this respect -- the framework that has already been laid for it is quite impressive.

The rationality and potential importance of these agreements is evident and welcomed by all. The Swedish delegation for its part hopes that they will constitute the initiation of a process whereby the super-Powers will co-operate not only to their own bilateral satisfaction but also with the interests of other nations, as represented through the United Nations, present in their minds.

Turning now to our agenda, I should like to dwell briefly on four main questions: first, the liability convention; second, the decision to set up a new working group on remote sensing from satellites; third, what I might call Professor Ricciardi's budget; and finally, the working group on direct-broadcast satellites.

The Legal Sub-Committee has now, after seven or eight years of quandary and interminable discussion, deemed fit to submit for the approval of the Outer Space Committee a draft convention on liability for damage caused by objects launched into outer space. It is not difficult to understand that those who have fought so long to hammer out differences over vital parts of this convention now felt that they had come to the end of the road and that they were unable to find new formulations to overcome fundamental divergencies of political and legal conception. This conviction undoubtedly helped to achieve a tenuous majority in the Sub-Committee for the draft before us.

As we are all aware, the main battle has raged over two issues: the measure of compensation, and the nature of the award to be rendered by the claims commission. I shall not repeat the reasons for Sweden's position on these two subjects. They are all well known to you and have, indeed, been expressed by a majority of this Committee over a number of years. One would have hoped that the end-result of the Sub-Committee's work would have

(Mr. Skala, Sweden)

contained a true and practicable compromise on these problems. The draft liability convention does not, however, in its text -- at least not in its operative part -- meet either of the two basic requirements: that victims should receive full compensation for damage, and that the award of the claims commission should be final and binding in all cases. These are fundamental flaws in the convention and put into doubt its usefulness. We find it doubtful, too, that this will be deemed a satisfactory answer to the request made by the General Assembly in its resolution 2733 B (XXV), operative paragraphs 5 and 6.

We have already heard the Legal Sub-Committee, at this meeting, making reassuring explanatory statements to the effect that the concerns of the General Assembly have been met. We hope that this is the correct interpretation. One only wonders why, if this is so, it might not be said directly in the convention.

For the above reasons, Sweden had to reserve its position in the Legal Sub-Committee. We hope that further discussions will take place in this Committee with a view to improving the draft further, preferably on the basis of document A/AC.105/L.74, referred to yesterday by the representative of Canada. If no new developments occur which give a satisfactory solution to the two unresolved questions, Sweden will again have to maintain its earlier reservation.

(Mr. Skala, Sweden)

The Swedish delegation greatly welcomes the decision of the Technical and Scientific Sub-Committee to set up a working group on remote sensing from satellites. We hope to revert to the matter at the organizational meeting of the working group which is scheduled in conjunction with this session of the Outer Space Committee. Suffice it to say today that Sweden attaches the greatest importance to the work of the working group. If this is carefully undertaken and if active collaboration is ensured from all, notably the two space Powers, there is a real chance that we might make a significant contribution towards economic and social development and towards our professed aim of making the United Nations a focal point for space applications.

At the latest session of the Technical and Scientific Sub-Committee there was considerable argument over the scope and direction of United Nations information activities in the space field as carried out for more than one year by Professor Ricciardi, our eminent expert on space applications. Professor Ricciardi presented the Sub-Committee with an ambitious programme to help fill the dangerous gap in outer space knowledge which exists today in many developing countries. The programme got bogged down, however, in the Sub-Committee because of its budgetary implications. I should like to reiterate here our support for Professor Ricciardi's proposal and our hope that this Committee will be able to retain the vital elements of it and agree on its funding. The sums involved are hardly astronomical and have been further squeezed in the course of our debate. We cannot rightly claim to be the focal point of dissemination of information in the outer space field and at the same time deny resources for the carrying out of important and well documented programmes to that end. This is not, in our opinion, in contradiction with the somewhat alarming findings of Professor Ricciardi that interest and knowledge in space applications are unsatisfactory in many developing countries. On the contrary, if we are to break this vicious circle which would only tend to increase the distance between developed and developing countries, we must take energetic measures to rouse all countries to the possibilities which space techniques may offer them. We feel that Professor Ricciardi's proposal works in that direction and that therefore it deserves our support.

(Mr. Skala, Sweden)

Lastly, I should like to turn to the subject of the Working Group on Direct Broadcast Satellites. As you will remember, this Group has so far held three sessions and was in a fairly short time able to summarize the situation in the field of direct broadcasting from the technical point of view and agree on certain basic concepts in the legal and organizational spheres. The Working Group felt at the outcome of its third session that further work would have to await results from activities carried out in other international bodies, such as ITU, UNESCO and OMPI. The Outer Space Committee was consequently in resolution 2733 A (XXV) requested by the General Assembly to keep under review the question of reconvening the Working Group at such time as additional material of substance on which further useful studies might be based might become available. It is likely that certain such material will become available during the next twelve months which could render another session of the Working Group in 1972 useful. Since the organizational machinery of the United Nations works slowly and decisions on meetings have to be taken far in advance, the Swedish delegation would like to propose that this Committee give some thought to the idea of reconvening the Working Group. We feel that the most judicious way to go about this at this time would be to authorize the Chairman of the Working Group to consult with members of the Outer Space Committee on the advisability of reconvening the Group some time in 1972. However, in order to take care of the budgetary and organizational implications, the Outer Space Committee would have to decide in principle at this session to reserve time for a meeting of the Working Group in 1972. I understand that there is time available for such a meeting in New York from 3 to 14 April which, by the way, would not involve any extra budgetary allocations. The actual decision to meet, of course would be taken only after further consultations have taken place. The Swedish delegation hopes that this suggestion will be agreeable to all members of this Committee and looks forward to all comments on the subject.

Sir Laurence McINTYRE (Australia): Mr. Chairman, The Australian delegation is pleased to be taking part again, under your distinguished guidance, in our combined efforts to promote international co-operation in the peaceful uses of outer space for the benefit of mankind.

(Sir Laurence McIntyre, Australia)

We are meeting to prepare a report to the General Assembly covering our work and that of our subsidiary bodies over the past year and making recommendations for future action. As the main documents for our attention, we have before us the reports of the Legal Sub-Committee and of the Scientific and Technical Sub-Committee. Happily, I think we can agree, as others here have affirmed, that both Sub-Committees have made valuable progress in 1971.

Without doubt the main achievement this year has been the agreement in the Legal Sub-Committee to send forward for consideration in this Committee the text of the draft convention on international liability for damage caused by space objects, which was so comprehensively and ably introduced to us on 1 September by the Chairman of that Sub-Committee. My delegation welcomes the fact that the Sub-Committee has at last been able to make this advance. We have always felt that an international instrument of law must exist that would provide effective protection for innocent human beings who might suffer damage or injury through the activities of States in space.

While welcoming the draft convention, however, we are bound to say at the same time that it still presents a number of shortcomings. This is perhaps understandable, for the simple reason that perfection is probably not attainable in this complex field in which law and politics -- and national interests -- are so closely interwoven. Accordingly, we incline to the view that the text is probably the best upon which broad-based agreement could be achieved for the foreseeable future, it is also, in our view, significantly better than having no convention at all.

The report of the Legal Sub-Committee in paragraphs 24 and 25 makes it clear that three delegation in particular were far from happy with the convention as it stands and that a number of other delegations also had misgivings about it. The representative of Canada, in his interesting statement yesterday, explained clearly the reasons for his Government's concern. The delegations, however, did not object to the transmission of the draft convention to the main Committees for consideration. As appears from the report, their misgivings relate to the formulae adopted to cover what have come to be known as the two main outstanding issues on which differences of view have blocked final agreement on the text of a convention, namely, the provisions concerning measure of compensation and settlement of claims.

(Sir Laurence McIntyre, Australia)

We have always felt that there are at least two essential conditions of a satisfactory liability convention. First, and most important, it should be able to ensure the payment of a full measure of compensation to the victims of space damage. As we say in popular jargon, it should be "victim-oriented", and should be seen to be so. Second, it should be capable of gaining the adherence of the two main space Powers. Basically, I think, our problem over the last two or three years has been to arrive at a text that would satisfy, or reconcile, both of these requirements.

Thus, it was that early in the 1971 session of the Legal Sub-Committee we were happy to learn that the United States and the Soviet Union had been able to agree on a package arrangement in regard to the four remaining problems. As we all know, these were the questions of measure of compensation, settlement of claims, international organizations and the final clauses. Taken together, with the preamble and the 13 articles proposed in 1970, this package would constitute a complete convention.

(Sir Laurence McIntyre, Australia)

However, although this agreement met the second of the two requirements that I have outlined -- namely, the resultant convention would have the support of the two main space Powers -- we did not then feel that it went far enough in meeting the first criterion, namely, that the convention should be genuinely "victim-oriented". For that reason the Australian delegation took the view that the Sub-Committee should try to improve the package, in an effort to produce a convention that would be more widely acceptable from the standpoint of substance to the members of our Committee and beyond that to the membership of the United Nations at large.

We consider that efforts to that end that were made during the session of the Sub-Committee were at least partly successful, and that as a result the convention that is now before the Committee, although still not fully satisfactory, is a somewhat better instrument than the original package would have amounted to.

Representatives will recall that the General Assembly, in its resolution 2733 B (XXV), laid down useful guidelines for the work of the outer space Committee on the liability convention. Agreement on a convention that accorded with the spirit of that resolution would, in our view, enable this Committee to discharge its responsibility to the victims of space damage. That is the reason why the Australian delegation wanted the convention to reflect as far as possible the spirit of General Assembly resolution 2733 B (XXV). We believe that this has been largely achieved through the insertion, in its existing form, of the fourth preambular paragraph.

My delegation attaches importance to that preambular paragraph. We believe that it should be read in conjunction with article XII, which deals with measure of compensation. We are all aware of the painfully achieved compromise that article XII represents. We recall that some members of the Sub-Committee saw in it a certain lack of clarity and said they would have preferred a somewhat more explicit statement of the principles on which compensation should be determined. In discussing the convention, however, several delegations made useful interpretative statements on the question of measure of compensation. I would mention, among others, the representatives of Belgium, the United Kingdom, Argentina, Italy and the United States. On the basis of

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those statements and of the link between the fourth preambular paragraph and article XII of the draft convention, Australia could accept the provisions relating to measure of compensation.

As regards the articles on the settlement of claims, they also represent a painfully negotiated compromise where agreement has been hard to find. The effect of those articles, as we all know, is that a claims commission would render a final and recommendatory award unless the parties to a dispute had agreed to the process of binding arbitration. My delegation regrets that it has not been possible to include in this convention a provision that would require parties to accept as binding decisions of a claims commission. We feel that acceptance of even the possibility that awards would not be binding constitutes a major concession to the Powers which are active in launching objects into space. However, we understand the argument that if we want to have a convention we shall probably have to accept this fact and settle for something a little less than binding arbitration.

As the draft convention stands, the decision or award of the commission would be made public and a certified copy would be sent to the Secretary-General of the United Nations, as well as to the parties. The parties would be obliged to consider in good faith the commission's finding. In the light of the circumstances in which this convention has been negotiated, the international community has, I believe, the right to expect that the parties will observe this obligation with the utmost seriousness.

Against the background of the foregoing comments, my delegation welcomes the negotiation of the draft liability convention and is prepared, if no further improvements are negotiable in this Committee, to support its transmission to the General Assembly.

The priority accorded the liability convention has given the agenda for the annual session of the Legal Sub-Committee a certain predictable similarity for some years now. Adoption of the convention in the General Assembly, however, would open the way for more detailed consideration of other items of business in the Sub-Committee. It would create a novel, and I may say welcome, situation for the Sub-Committee to be able to devote attention to other matters.

(Sir Laurence McIntyre, Australia)

At its last session the Sub-Committee anticipated what I might call the partial vacuum that would result from the adoption of the liability convention and adopted a recommendation to this Committee setting out certain subjects that it felt might be included in the agenda for its next session. My delegation takes note of these subjects and will be pleased to take part in the consideration of this recommendation. We do not wish to prejudge the course of this discussion or developments elsewhere, but it is our tentative view that it might be useful if the Legal Sub-Committee were to take up the subjects relating to activities on the moon. As our Soviet colleague reminded us this morning, the Foreign Minister of the USSR has requested the inclusion of an item in the agenda of the General Assembly entitled "Preparation of an international treaty concerning the moon", and has forwarded a draft treaty on the subject with his request. This matter will, of course, be considered first in the General Assembly, but we consider that there would be value in remitting it to the Sub-Committee for early study.

This year the Scientific and Technical Sub-Committee conducted its business for the first time with a formal agenda, the objective of which was to direct the attention of the member States to important subjects for consideration. We hope that this practice will continue in future.

The main feature of the 1971 session of the Sub-Committee was its positive response to the General Assembly's request in its resolution 2733 C (XXV) that it "determine ... whether, at what time and in what specific frame of reference to convene a working group on earth ... surveying". The Sub-Committee decided to establish a working group, to be named the Working Group on Remote Sensing of the Earth by Satellites, and it decided further, as we know, that an organizational meeting of the Group would take place during the current session of this Committee.

We know also --- and the representative of the United States has reminded us of this --- that the United States will be initiating experiments to test the feasibility of remote sensing of the earth by satellite early next year. We can expect that the information gathered by the first American earth resources technology satellite (ERTS) will be of value to a broad range of users and in particular that it will be of material use to our Working Group. It

(Sir Laurence McIntyre, Australia)

will be important, in this regard, not only that the Working Group take appropriate advantage of the ERTS experiment but that it maintain close co-ordination with other interested United Nations bodies. In so doing it would be appropriate that, where possible, the assistance of such bodies should be enlisted in seeking solutions to problems that are identified in the course of the Group's work.

In approaching this broad question my delegation hopes that the Working Group will give full consideration to the practical applications of earth resources surveying. To that end we hope that it will be able to investigate what earth resources need to be assessed and to what degree, both on a regional and a global basis.

(Sir Laurence McIntyre, Australia)

We would regard it as important that the activities of the group should not hamper bilateral arrangements that already exist or prejudice the future conclusion of further arrangements. Indeed, it would seem that the information gathered from bilateral activities -- as for example in the case of the first earth resources technology satellite -- might be profitably applied to furthering the studies of the working group.

In this regard, I would like to interpolate that the Australian Committee, set up to co-operate with the United States ERTS experiment, will bring to bear on the evaluation of the imagery from ERTS, and from Skylab as well, a significant proportion of the expertise available in Australia. The imagery of nominated areas will be examined by scientists from as many disciplines as possible who are familiar with the ground situation in those areas. The objective will be to make our investigations, which will cover differing areas of Australia, Antarctica and Papua New Guinea, as complete as possible. We also propose to disseminate the results of these investigations as widely as possible, both within and outside Australia. By so doing we hope to contribute to the essential process of making known the capabilities of satellite technology. Such dissemination of knowledge, we hope, would be helpful to the working group in the fulfilment of its terms of reference.

I would also like to offer the thought that, in the study of remote sensing techniques, consideration should be given to the technology as a whole and that an evaluation should be made of the relative cost and value of imagery obtained from satellites as compared with that from aircraft. Such treatment of the subject would make it possible to get a clear idea of the relative merits of the satellite technique.

By the time the working group holds its first substantive meeting, we would hope that it would have available to it a large body of information from various sources. Among this information would be the results of the panel meetings held last May at the University of Michigan and to be held this month by the FAO in Rome, and in November-December of this year in Brazil, as well as some findings from the United States ERTS experiment. We would ourselves regard it as desirable that the working group should not meet substantively until the ERTS experiment has begun to bear fruit.

(Sir Laurence McIntyre, Australia)

In addition, as requested in the report of the Scientific and Technical Sub-Committee, the Secretary-General will presumably be providing the working group with comments on this subject and submitting working papers on each of the three phases of the task of the working group. We would hope, too, for a cross-fertilization of ideas between the working group and other interested specialized agencies. In our view this process of feeding information and views into the working group and, equally importantly, into those areas of government that are concerned with this problem can only be helpful, and we can see a most useful catalytic role for the Secretariat in the whole process. We would only add that it will be important that governments should receive whatever information is available, as far as possible in advance of the working group's first meeting, to enable them to develop coherent national positions and to contribute usefully to the meeting itself.

Decisions will also have to be taken at this session of the Committee regarding the Secretary-General's proposals for assessing requirements for assistance in connexion with practical space applications. The Scientific and Technical Sub-Committee's report contained certain recommendations concerning the Secretary-General's proposals, but referred the matter of the expenditure involved to the Committee for consideration. My delegation believes that, with goodwill, we can reach a satisfactory solution to this problem. I would only add that although my delegation is generally sympathetic towards the Secretary-General's proposals, we would hope that the scheme of activity finally adopted will not overlap with work being done by other international organizations.

My delegation would like to make one final point on the report of the Scientific and Technical Sub-Committee. We note that it contains a recommendation that this Committee should take into consideration the possibility of awarding observer status to the International Astronautical Federation. My delegation would be happy to concur in this if it is the will of the Committee. The Federation has a number of member societies in many nations of the world, including Australia, and to give it the position of an observer at our deliberations would, we think, facilitate a mutually beneficial interchange of ideas and information between our two bodies.

(Sir Laurence McIntyre, Australia)

I should like, before ending, to pay my own delegation's tribute to the heroism and remarkable achievements of all those astronauts who ventured into space, and to the moon, during the past year, and to offer our deep condolences over the death of the three gallant Soviet astronauts who perished so tragically when about to set foot back on earth.

That is all that my delegation would like to say at this stage of our debate. We look forward to a useful and productive session of the Committee.

Mrs. BOIVINEAU (France) (interpretation from French): My delegation would first of all like to thank the Chairman of the Legal Sub-Committee, Mr. Wyzner, for his very full report to the Committee on the work of that Sub-Committee at its tenth session. Mr. Wyzner made a very clear and detailed exposition of the convention on liability for damage caused by objects launched into outer space and recalled the background of the negotiations, a background which throws considerable light on the content of the text adopted by the Legal Sub-Committee.

The French delegation, for its part, had hoped for a more satisfactory convention, one which would be more favourable to the interests of the victims, guaranteeing full and total compensation for damage caused, particularly under the lex loci and by establishing compulsory arbitration of disputes. However, we should note that the claims commission which will be set up will -- if negotiations on the diplomatic level have not proved successful after a year -- set the amount of compensation to be paid to the victims in keeping with international law and the principles of justice and equity. In the view of my delegation, the commission could not abide by these principles if it did not take account of the possible environment in which the victim was and the juridical rules applicable to that environment. Furthermore, the text of the convention provides in its preamble that States parties should acknowledge the need to ensure 'a full and equitable measure of compensation to victims of such damage'.

The claims commission will therefore play an essential role. While we may regret that its arbitration is not compulsory, we can nevertheless believe that the publication of its verdicts, whether or not they are binding, will give it unchallengeable moral force.

(Mrs. Boivineau, France)

My delegation is aware of the inadequacies of the convention, but we believe that after eight years of negotiations all juridical possibilities have been explored. Failure to reach an agreement this year would make the possibility of reaching agreement on a text whose urgency is underscored by the increasing number of launchings of space devices recede into the remote future.

(Mrs. Boivineau, France)

Furthermore, we must acknowledge that in spite of its imperfections, the Convention does improve upon and make clearer the rather vague stipulations of the space Treaty. It establishes mutual responsibility among launching States, which it defines and includes under that title States which may have lent their territory for launching. The draft thus constitutes a new important stage in our work of preparing space law. Furthermore, as was stressed by Mr. Wyzner, States which hitherto considered that they could not sign the space Treaty or the Agreement on the Rescue of Astronauts until there was a juridical guarantee for the protection of possible victims of space devices, can now do so, thus enhancing the moral force of this body of international law which is being built.

For these reasons, and also in a spirit of compromise, my delegation agrees with the draft convention and to its transmission to the General Assembly. However, we should like to make it clear that the "all States" accession clause contained in the final provisions was included in the Convention in the light of the precedents of the space Treaty of 1967 and the Agreement of 1968 on the rescue of astronauts; but it must be clearly understood that neither this clause nor any signature, ratification or adherence under this clause can, in the view of my delegation, modify the juridical or political status of States or other international entities wishing to become parties to this Convention.

The agreement reached by the Legal Sub-Committee at its tenth session on the draft convention will make it possible for it -- and indeed will make it its duty -- to continue at an accelerated rate its study of other pressing questions relating to outer space. Indeed, it is important that we should now delimit clearly the field of the application of the Convention, and hence that we should resolve problems such as, for example, the delimitation of outer space, the definition of space activities and the juridical principles which should govern direct broadcast satellites and the registration of space objects.

The Legal Sub-Committee for some years now has devoted the bulk of its meetings to the preparation of the draft convention. While we recognize the importance of this matter, my delegation regrets that the Sub-Committee hitherto has not been able to do anything but scratch the surface of the

(Mrs. Boivineau, France)

other urgent questions which fall within its domain. It is in this spirit that the delegation of Argentina and the French delegation presented to the Sub-Committee a draft recommendation on priorities, which was adopted. That recommendation is contained on page 15 of the report and confirms the need clearly to define the field of application of space law and requests the Committee to include in the agenda of its next session, as important items, matters relating to direct broadcast satellites, the definition of outer space and outer space activities, the registration of objects launched into space, man's activities on the moon, outer space matters and the remote sensing of earth resources. Finally, it requests the Committee to establish, if necessary, an order of priority in the study of these problems.

France, like Canada, submitted a draft convention on the registration of space vehicles as well as a working document on principles which should govern direct television, and we hope that this recommendation will receive the support of the Committee and that the Legal Sub-Committee will be able to undertake a detailed study of questions which have been so far left aside.

With regard to the work of the Scientific and Technical Sub-Committee, the French delegation would like to express its pleasure, first of all, at the establishment of a Working Group on Remote Sensing of the Earth by Satellites, which is to meet next week. The French Centre for Space Studies, CNES, has already carried out studies and experiments in this area, particularly with regard to aerial photography. It has borne in mind, however, that we must make access to remote sensing systems as free as possible and should preserve the maximum of sovereignty for each country concerned.

The French delegation, furthermore, expresses its pleasure in seeing that the importance of the promotional work carried out by the specialist in space applications, Mr. Ricciardi, is acknowledged. My delegation considers that it would be desirable that that importance, particularly for the developing countries, should be confirmed concretely by the channelling of acceptable financial resources, and the figure put forward in the proposal of the Secretary-General appears to be reasonable.

(Mrs. Boivineau, France)

I should like to say for the benefit of the developing countries in particular and within the framework of the scientific and technological aspects of international co-operation that France has offered three research scholarships to candidates specializing in space studies to be appointed by the United Nations.

My delegation and the Government we represent are aware of the role which the United Nations should play in outer space affairs and, like previous speakers whom we have heard yesterday and this morning, we should like to assure you, Mr. Chairman, of our wish to contribute in so far as possible to the accomplishment of this task.

Mr. YOSHIDA (Japan): We have continued to witness during the past year the achievement of the most remarkable scientific and technological success in the field of exploration and use of outer space realized by the two main super Powers. My delegation particularly welcomes the increasing trend of closer co-operation in this field between the United States and the Soviet Union -- a trend that was clearly explained by the representative of the United States yesterday. We are convinced that it will only serve to enhance the cause of world peace.

The space activities carried out by my country have continued to make steady progress in the past year. A test satellite named "Tansei", Japan's No. 2 satellite, was successfully launched into orbit in February this year and, encouraged by the success of "Tansei", our nation is looking forward to the launching during this month of the scientific satellite No. 1, whose primary objectives will be to carry out ionospheric experiments, solar radio emission experiments and energetic particle experiments.

As I had the occasion a short while ago of elucidating in some detail in the Scientific and Technical Sub-Committee our increasingly vigorous activities in the field of space, I need not repeat the theme. But I wish to emphasize our firm determination that Japan should make a significant contribution to the exploration and use of outer space for peaceful purposes, in accordance with the spirit enunciated in the outer space Treaty.

Now I shall make some comments on the reports of the two Sub-Committees before us. May I begin by dealing with the report of the Legal Sub-Committee. It is indeed gratifying that the Legal Sub-Committee was able to adopt finally the text of the draft convention on international liability for damage caused by space objects. It is certainly the product of compromise resulting from lengthy negotiations and hard bargaining over the past several years. In particular, I would not fail to express our gratitude once again to the Chairman of the Legal Sub-Committee, Mr. Wyzner, for the impartial and timely way in which he guided the deliberations of the Sub-Committee.

(Mr. Yoshida, Japan)

Having said that, I should also like to reiterate in this forum my delegation's feeling of dissatisfaction regarding the substantive provisions now in articles XII and XIX of the draft convention, namely, the key articles relating to the measure of compensation and the settlement of claims. It should be recalled, in this connexion, that my delegation -- together with the delegations of Canada and Sweden -- while not objecting to the procedure whereby the Legal Sub-Committee forwarded the whole text of the draft convention to the parent Committee for its consideration, was unable to support it in the Sub-Committee. That was because we would have preferred to see those two articles on the measure of compensation and especially on the settlement of claims modified to bring them more in line with the earlier proposals we had made with other delegations, in document A/AC.105/C.2/L.74. Our reservation on those articles is clearly recorded in paragraph 24 of the present report (A/AC.105/94). I wish to reaffirm that we remain most reluctant to change our position on those two articles. We still feel strongly that, seen against the motivation which inspired our past joint efforts in searching for the best means to ensure the protection of the legitimate interests of victims of damage caused by a space object through effective and prompt payment of full and equitable compensation, the relevant text as presented to us in this Committee can hardly be called satisfactory. We still adhere to the view that the final text concerning the procedures for the settlement of claims should contain at least some indication that the decision of the Claims Commission is to be final and binding, while the text relating to the measure of compensation should be so worded as to ensure to the victims the full restoration of the condition equivalent to that which would have existed if the damage had not occurred.

In view of the total disappearance of any reference to the lex loci delicti commissi and the subsequent dilution of the concept of full compensation, my delegation entertains considerable apprehension regarding the degree of protection which the victims could justifiably obtain under this formula. As to the procedures for the settlement of claims, the decision or award of the claims commission is clearly stated to be of only a recommendatory nature so long as the parties do not agree to make it binding. And, on this particular point, I am sure that there are still at least several members in this Committee who continue to entertain the same apprehension.

(Mr. Yoshida, Japan)

From a slightly different angle, my delegation considers it most important that, in the interest of the international community, this liability convention should strike an equitable and harmonious balance between the rights and obligations of launching States and those of non-launching States. In this respect, we do not feel that this balance and harmony is sufficiently secured by the present text since it seems not to be sufficiently victim-oriented. Moreover, my delegation wishes to remind this Committee that, in elaborating the convention on liability for damage caused by space objects, we are evolving a new legal concept and are setting up a new legal framework which should serve as an invaluable precedent for future lawmakers when they have to consider other liability conventions on other, like matters. For example, the provision for state responsibility based on absolute liability is a novel one.

Indeed, we regret that we should have to add this tone of concern to the jubilant atmosphere at present reigning over the outer space Committee, since a common draft text has been completed after years of hard work. However, we sincerely think it is our duty to make clear to those countries outside of this Committee which have not yet become familiar with the text of the draft convention the points we feel should be taken into account during the course of their own consideration of the draft convention. I would appreciate it, indeed, if this Committee were to give second and careful thought to what I have just said, and I should like to see those basic reservations of ours included in the final report of this Committee.

As to the future work of the Legal Sub-Committee, my delegation limits itself at this stage to saying that it favours the priority consideration at the next stage by the Sub-Committee of matters relating to the registration of objects launched into space for the exploration or use of outer space. After the conclusion of a liability convention we feel it will only be logical for us to take up this matter, as a matter of urgency, and try to secure the identification of parties which may be liable in case of occurrence of damage.

I now turn to the report of the Scientific and Technical Sub-Committee (A/AC.105/95). My delegation welcomes the recommendations of that Sub-Committee for the establishment and convening of the Working Group on Remote Sensing of the Earth by Satellites and wishes to pledge its full-fledged co-operation to the

(Mr. Yoshida, Japan)

Working Group when it addresses itself to this most challenging task. We are willing to play an active part in the work to be carried out by that Working Group. This field of remote sensing of the earth by satellites is the area in which our activities are still in the formative stage, and much remains to be done. My delegation, therefore, is of the opinion that the Working Group should begin its work with limited objectives and gradually expand its activities in the future when accurate data becomes more available. In this connexion I find the timing of the convening of the Working Group as set forth in the above-mentioned recommendations quite pertinent, as they advise that the Working Group should begin its substantial work at such time as an assessment of the experiments which test the feasibility of remote sensing of the earth from space platforms will have been made.

I should like to point out also that this field of remote sensing of the earth by satellites is a very wide one and that there are various relevant bodies both within and outside the United Nations. Careful attention should therefore be paid to the problem of co-ordination of the activities of those competent bodies. We wish to render our whole-hearted support to the Working Group in tackling the enormous problems pertaining to the protection of the environment and the exploration of resources, not only on the earth's surface but also in the ocean and on the sea-bed.

(Mr. Yoshida, Japan)

With regard to the assessment of the needs of developing countries and the ability of the United Nations to meet those needs, especially in the field of space applications, my delegation would like to express first its appreciation to the work so far done by Mr. Ricciardi. We should also like to repeat our full support for the report of the Secretary-General, especially for its phase one, contained in document A/AC.105/C.1/L.37. My delegation, for its part, is fully prepared, as it stated at the last session of the Scientific and Technical Sub-Committee, to co-operate as much as possible in the programme for space applications along the lines proposed by the Secretary-General in his report. In this connexion, we announced recently at the session of the Scientific and Technical Sub-Committee that the possibility of convening a panel on satellites for educational broadcasting is now being seriously studied by the authorities in Tokyo. Such a panel may be held in 1973. Moreover, my Government intends to send experts to a similar panel which is scheduled to be held in India in February 1972.

In concluding my remarks, I should like to reaffirm that Japan attaches great importance to this whole field of the peaceful uses of outer space and that it is our intention to do our best to contribute to future progress and international co-operation in this field.

My delegation wishes to reserve its right of intervention on the matters upon which I did not touch today, when it seems necessary to do so.

Mr. CHRISTIANI (Austria): Before entering into the substance of the matters before the Committee, I should like to join previous speakers in expressing the deep-felt condolences of my delegation to the representative of the Soviet Union on the tragic deaths of the three Soviet astronauts, Dobrovolsky, Volkov and Patsayev. The outstanding scientific accomplishments of their mission and the courage and dedication of these three men will never be forgotten.

(Mr. Christiani, Austria)

I wish also to congratulate the delegation of the United States on the spectacular success of the flight of Apollo 15. The knowledge about the structure and dynamics of the moon which may be gained from this mission is a major step forward in the exploration of our universe.

From the statement by the representative of the United States yesterday we learned about the advanced stage of bilateral co-operation between the United States and the Soviet Union in many detailed fields of space, which we consider to be a most significant development. We express the hope that the combined efforts of the two major space Powers will also be of scientific and practical benefit to many other countries.

Coming to the issues before us, and firstly to the legal questions, I want to state from the very outset my delegation's deep satisfaction that, after such a long time of extensive and often controversial discussion on the liability convention in the Legal Sub-Committee, in the plenary Committee and in the General Assembly, the final break-through was achieved at this year's session of the Sub-Committee in Geneva. Before commenting on the draft submitted to us -- and I will confine my remarks to the most important provisions laid down in articles XII and XIX -- I should like to thank the Chairman of the Sub-Committee, Mr. Wyzner, for the outstanding role he has played for many years in the elaboration of the draft. We can fully associate ourselves with the remarks with which he presented and evaluated the draft convention two days ago.

I wish to make it clear that we -- like other delegations -- do not consider the formula on the questions of "applicable law" and "settlement of claims" to be perfect. We also, like others, should have preferred to see the "full reparation" for the victim appearing not only in the preamble but also incorporated in article XII, and we should also have preferred that the findings of the claims commission be final and binding. Nevertheless, we think that the compromise found for the two questions is a fair and reasonable one and, at least in our view, the best solution that could have been realistically achieved.

(Mr. Christiani, Austria)

Every argument pro and contra has been carefully considered and meticulously weighed for a very long time, and we doubt that any improvement could possibly be attained, at least for the time being. As we are all aware, the only alternative now would be to have no convention at all, which, at a time when outer space activities have become almost an every-day occurrence would certainly be a big step backwards. My delegation has repeatedly stated in this context that only a realistic attitude which recognizes the differences in the domestic legal systems of the various countries could bring us to the completion of the convention, a matter already long overdue. For these reasons, while we understand the preoccupations of some delegations, we cannot consider a demand for the application of the lex loci -- although it may perhaps be desirable -- to be realistic. We think that the provisions laid down in article XII as they stand now will provide a good opportunity for those who may eventually be victims of damage caused by man-made space objects -- an occurrence which we all hope will never happen. We are in agreement with the representative of Canada that a sole reference to "international law" and to "justice and equity" would certainly not alone be sufficient to offer adequate protection. We all know that these principles could be looked upon in different ways and their meaning appear to be relative in different societies. But article XII also lays down the principle of the restitutio in integrum, which, provided that in particular places the rules are interpreted and applied in good faith, seems to my delegation to offer adequate protection in the same way as if the "full reparation" had been explicitly stated.

As for the settlement of claims in article XIX of the draft, we regard this provision also not as ideal but as a carefully drafted compromise which is certainly acceptable to my delegation. We note with satisfaction that this article provides for a publication of the decisions or awards of the commission, a fact which may have considerable impact in a given case and should not be underestimated.

(Mr. Christiani, Austria)

In concluding on this point, let me say the following. I think we should not make the mistake of seeking a convention now which is perfect. Long experience in dealing with this matter has shown that that would not correspond to reality and that it would confront us with the alternative of having no convention, in which case, apart from all other considerations, our Committee would undoubtedly find itself in a most unfortunate position vis-à-vis the General Assembly. The future, and only the future, will show, in the light of the eventual application, whether the convention proves to be effective in securing the greatest possible protection. If not, it will have to be revised. We consider the insertion of a revision clause a major improvement over previous drafts.

Concerning the question of establishing a priority order for the other items on the agenda of the Legal Sub-Committee, my delegation reserves the right to comment on that issue at a later stage of our debate.

Turning now to the report of the Scientific and Technical Sub-Committee on the work of its recent session, I will limit my remarks to some specific points, placing particular emphasis on item 2 B of the agenda of the Sub-Committee, namely, the wide field of the practical applications of space technology. Before doing so, I wish to express my delegation's appreciation to the Chairman of that Sub-Committee, Professor Carver of Australia, for the excellent manner in which he conducted the discussions in the Sub-Committee, which was not always an easy task.

The Sub-Committee has established a Working Group on Remote Sensing of the Earth by Satellites and has agreed upon reasonable terms of reference and on the basis of a work schedule for the years to come. We hope that the first meeting of the Working Group next week will be a good start for the important work that lies ahead.

Besides the establishment of the Working Group, the most important subject the Sub-Committee has dealt with is the whole range of questions in connexion with the practicable applications of space technology, in particular the review of programmes which are based on the activities and recommendations of the Expert on Space Applications, Professor Ricciardi.

(Mr. Christiani, Austria)

On this occasion, I wish to pay tribute, on behalf of my delegation, to Professor Ricciardi for the outstanding work he has done in the short time since the beginning of his assignment. He has become the moving force of the Scientific and Technical Sub-Committee in one of its most important and demanding fields for the benefit of all non-space Powers, in particular the developing countries. I want to assure him of the continued co-operation and full support of my delegation in carrying out his difficult task.

All delegations in the Sub-Committee have recognized, as is stated in paragraph 24 of the report, the valuable work the expert has done so far, and the Sub-Committee has approved his recommendations for programmes for 1972. It was the Sub-Committee that, a few years ago, set the goals in this field and agreed upon the means by which those goals could best be achieved, thus providing the expert with a clear mandate. It is therefore, in our view, the responsibility of the Sub-Committee, and consequently of the main Committee, to appropriate the necessary funds for this purpose. We sincerely hope that we shall find ourselves in a position to agree on that matter, which is a prerequisite for the continuation of the work of the Sub-Committee with respect to practical applications of space technology.

Like other delegations, my delegation considers the question of the co-ordination of activities in respect of outer space, within the Secretariat and with other agencies and bodies as well, as an important one. I think we all agree on the principle that the Committee on Outer Space should continue to play the role of an over-all co-ordinator in this respect. In my view, it is not only the responsibility of our Committee but also of the various specialized agencies and bodies to see that overlapping and duplication are avoided and that the existing funds are used in an effective manner.

The International Astronautical Federation has requested the Scientific and Technical Sub-Committee to award observer status to that body. As my delegation did in the Sub-Committee, we warmly support that request and hope that this matter will be favourably decided by our Committee in the course of this session. We are certain that the Scientific and Technical Sub-Committee can benefit from closer co-operation with that organization.

(Mr. Christiani, Austria)

In conclusion, let me express my delegation's gratitude to the members of the Outer Space Affairs Division in the Secretariat. Their dedication and efficiency proved very often to be the basis for the accomplishments of the past years.

Mr. CHAKRAVARTY (India): This session of the Committee on Outer Space is particularly timely and significant. It is being held soon after the conclusion of the latest sessions of the Legal and the Scientific and Technical Sub-Committees and in an atmosphere characterized by the great accomplishments of Apollo 15 and Soyuz 11. The Indian delegation shares with the Union of Soviet Socialist Republics, and indeed with the entire world, their deep sorrow on the tragic loss of the cosmonauts of Soyuz 11 after the completion of their mission. The remarkable success achieved by Apollo 15 in the exploration of the lunar surface is a landmark in the further exploration of space. The Indian delegation wishes to put on record its admiration and appreciation for the achievements of the astronauts of Apollo 15.

The Indian delegation agrees entirely with the Canadian delegation that, in establishing the principles for the peaceful uses of outer space, we must reaffirm the common interest of mankind in the exploration and utilization of outer space, promote international co-operation in developing the role of law in relation to space activities, and apply space technology for the benefit of all members of the world community, including the developing countries.

During the tenth session, held in Geneva, the Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space was able to finalize the draft convention on international liability for damage caused by objects launched into outer space. This subject, which had been very important from the point of view of all the countries, had continued on the agenda of the Legal Sub-Committee for more than six years. The Indian delegation congratulates the Legal Sub-Committee, and particularly its very capable Chairman, Mr. Wyzner, for the hard work they had to put in towards finalizing the draft convention on international liability for damage caused by objects launched into outer space.

(Mr. Chakravarty, India)

The result achieved in that complex and difficult field is not likely to be fully satisfactory to every country, but it does represent a large measure of acceptance of apparently conflicting interests, and the Legal Sub-Committee deserves to be congratulated on its work. However, the Indian delegation believes that the provisions on measures of compensation, in article XII, are not entirely satisfactory because of the failure to adopt the rule that awards of the commission are binding. If it had been adopted, the award would have been the most effective guarantee to the victim that proper compensation would be paid.

The Legal Sub-Committee had also on its agenda a number of other subjects that had been referred to it, but it could not devote any attention to those items because of the priority that it gave to the finalization of the liability convention. As the Sub-Committee could not work out the priorities for the different items for consideration at its subsequent meetings, it adopted a resolution recommending that the Committee on Outer Space consider the desirability of establishing an order of priority for the various items referred to them. Our views in this respect will be communicated when these questions come up for discussion.

The rules which should govern man's activities on the moon and matters relating to the legal régime governing substances coming from the moon and from other celestial bodies, including the principles governing activities in the use of the natural resources of the moon and other celestial bodies, cannot any longer be considered distant and academic. Although the commercial exploitation of the moon may not be immediately possible, it is necessary to ensure that the advantages of such exploitation in the future are available to the international community and are used for the benefit of mankind. In the context of the exploitation of the natural resources on the moon, it is necessary to draw a distinction between commercial exploitation and exploitation for purposes of exploration. Thus, if the moon is used as a base for exploratory voyages to other planets, such exploitation may have to be permitted freely. The Indian delegation welcomes the Soviet and Argentinian initiatives on the subject of a moon treaty, and agrees that it should be discussed in depth by the Legal Sub-Committee. In drawing up any treaty in respect of the moon, it has to be ensured that the

(Mr. Chakravarty, India)

international community is not deprived of the advantages deriving from the exploration and exploitation of the moon.

The availability of remote sensing satellites for surveys of earth resources has great economic potentialities, and India has been taking advantage of it through co-operation with the space Powers, particularly the United States of America. We have made a modest beginning in the field of remote sensing which is likely to provide very exciting and cost-effective application. A programme of remote sensing was successfully carried out on the early detection of the coconut-wilt (root) disease in Kerala with the assistance of NASA.

(Mr. Chakravarty, India)

Initial results are extremely promising. Indian scientists have participated in the International Workshop on Earth Resources Survey Systems held at Ann Arbor, Michigan and at the United Nations Panel on Remote Sensing in view of India's special interest in this field. India will be prepared to participate actively in the Working Group on Remote Sensing of the Earth by Satellites. The Indian delegation believes that the work which would be done by the Working Group on Remote Sensing of the Earth would be of very great interest to all countries, particularly the developing countries, in respect of natural resources and the environment.

I should like to refer to the report No. E/AC.52/XV/CRP.1/Add.1 prepared by the Indian scientists Vikram Sarabhai, P.D. Bhavsar, E.V. Chitnis and P.R. Pisharoty concerning "The Application of Space Technology to Development" at the request of the Advisory Committee on Space Applications. Unfortunately, the report could not be discussed in detail during the eighth session of the Scientific and Technical Sub-Committee, since the representatives did not have time to go through the report. It was recognized, however, that it contained much useful information. The Indian delegation therefore takes the liberty of bringing this report to the attention of the Outer Space Committee and suggests that the report be studied and its recommendations examined for acceptance and appropriate action.

The Indian delegation wishes to express its appreciation of the fact that the Scientific and Technical Sub-Committee welcomed the report on the Thumba Equatorial Rocket Launching Station and expressed satisfaction with the work being carried out at the TERLS Range. This delegation hopes that the Outer Space Committee will recommend to the General Assembly the continuation of United Nations sponsorship of the TERLS Range.

The details of the training facilities in Satellite Communications Technology at the Experimental Satellite Communications Earth Station (ESCES) in India are already known. I should like to point out that the fifth training course at the Experimental Satellite Communications Earth Station in India will commence on 6 September 1971. Eighteen nominations for the fifth course in Satellite Communications Technology have been received so far from ten countries,

(Mr. Chakravartty, India)

namely, Ghana, Iran, Jordan, Kuwait, Cameroon, Lebanon, Cuba, Philippines, Sudan and Poland. The course is spread over a period of three months and consists of lectures, practicals, demonstrations, discussions, progress tests and visits to installations.

The question of granting observer status to the International Astronautical Federation had come up before the Scientific and Technical Sub-Committee. It came as a last-minute agenda item and the Sub-Committee recommended that the Committee on Outer Space should deal with this matter. The Indian delegation would support the recommendation that the International Astronautical Federation be given observer status.

Before I conclude I should like to mention that Mr. Ricciardi, the United Nations expert on outer space has been doing commendable work as a Liaison Cell in the United Nations by facilitating exchange of information and data on space technology and by making his advice available to those countries which need it, particularly the developing countries. The Indian delegation therefore hopes that it would be possible to make reasonable financial resources available to the United Nations expert on outer space so that he can function properly and effectively.

The advances in space technology have been rapid and fascinating. The Indian delegation hopes that the extension of the frontiers of knowledge relating to outer space would be matched adequately by international co-operation and agreement and that it would be possible for all countries to share the benefits of outer space for peaceful purposes on a sound basis of law and equity.

The CHAIRMAN: Since no other member of the Committee wishes to speak this morning, I shall call on the representative of the World Meteorological Organization

Mr. JOHNSON (World Meteorological Organization): It is my privilege once again to report to your Committee on the exciting activities of the World Meteorological Organization which result from the outstanding success of meteorological satellites. The representatives will recall that the demonstrated success in observing the earth and its atmosphere from space, more than ten years

(Mr. Johnson, WMO)

ago, resulted in the well-known resolutions of the General Assembly, 1721 (XVI) and 1802 (XVII). These resolutions called upon the World Meteorological Organization to engage in activities, in co-operation with the International Council of Scientific Unions, which would lead towards a better description of the atmosphere, and consequent better forecasts and warnings for mankind. We in the WMO have accepted this challenge and this opportunity. The term "World Weather Watch" is now familiar to nearly everyone, and soon the term "GARP", for Global Atmospheric Research Programme, will be equally well known.

Since I last had the opportunity to report to this Committee, the World Meteorological Organization has held its quadrennial Congress in April of this year. Critical review of the World Weather Watch and GARP programmes took place. This review resulted in enthusiastic endorsement by the membership of the progress which had been made. Guidance for the next four-year financial period was given.

The WMO is well along in its planning for and, in many respects, its implementation of, the World Weather Watch. Observing facilities are being improved, communications systems are being established where needed, the distribution of information to meteorological services world-wide is on a more stable basis and of primary interest to this Committee, meteorological satellites are providing routinely a global observation of the weather. The World Weather Watch would not exist without the meteorological satellite.

Although meteorological satellites have already been the stimulus for the World Weather Watch, the launching nations are pressing forward with still further improvements to those satellite systems. Emphasis is being placed upon improved quantitative definition of meteorological parameters, while continuing the rather qualitative approach permitted by pictorial description of the atmosphere. The Soviet Union and the United States have co-operated in efforts to develop compatible satellite systems which will provide data for the use of all countries.

At its twenty-fifth session, the United Nations General Assembly adopted resolution 2733 (XXV) which places important responsibilities upon and gives opportunities to Member nations and the World Meteorological Organization. That resolution was adopted soon after the unfortunate and disastrous typhoons which affected East Pakistan and the Philippines in late 1970. However, the

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occurrences of these disasters focused the attention of the public, the diplomatic community and the scientific and technical organizations on the work in this field which needs to be done. The WMO fortunately held its sixth Congress in April and was able to consider resolution 2733 (XXV), the World Weather Watch and GARP. The Congress was acutely aware of the impact of such devastating storms as those which caused such loss of life and property in East Pakistan and the Philippines, and took action designed to improve observations, forecasts and in particular the dissemination of advice and warnings to the public. Some proposals which were presented to the Congress were far in excess of the capabilities of the WMO, which acts as a co-ordinating body and not as an operational organization. Its resources will simply not permit the operation, for example, of expensive air reconnaissance facilities. However, the organization can certainly be expected to stimulate and co-ordinate all types of observation and warning activity.

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Specifically with respect to the problem of tropical cyclones, commonly called hurricanes or typhoons, the WMO has established a panel of distinguished experts on tropical cyclones under the chairmanship of Mr. P. Koteswaram, the Director-General of Observatories of India, who is also a Vice-President of the WMO. This panel includes representation from major countries affected by the tropical cyclone problem. The panel will meet in Japan within a month, and is required to make its first report to the President of the WMO by the end of 1971. This indicates the urgency which the organization has placed on the tropical cyclone question.

Satellite technology continues to be dominated by the launching countries; however, the benefits which accrue from this technology are wide-spread. The well-known automatic picture transmission, or APT system, provides rather simple ground stations with a daily look at the weather over a significant area surrounding the station. These stations now number more than 500 and exist in more than eighty countries of the world. Data are freely available from this system and will continue to be provided by the launching countries.

Emphasis is being placed upon the requirement to measure temperature, moisture and winds for inclusion in the sophisticated computer analysis and forecast programmes operated at the World Meteorological Centres in Moscow, Washington, Melbourne and elsewhere. Satellite system design is concentrating on the requirements to provide such data, and indeed considerable success has already been achieved in defining the temperature structure of the atmosphere by remote sensing techniques. The WMO is actively interested in these developments and will co-ordinate efforts to make the results of these techniques available to all interested members.

The WMO has conducted training programmes designed to make the best use of the vantage point which satellites provide for description of the atmosphere. Specialists have conducted seminars and workshops. A training guide has been published by the WMO. Because of the developments in satellite technology, this training guide will be revised completely within the next few months in order to present to all interested parties the most up-to-date information on the use and the application of satellite data.

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We in the WMO are grateful to this Committee and to the United Nations for the interest shown in meteorological problems and for the emphasis placed upon the use of space technology in improving the opportunities available to meteorologists, and hence to the public. We will continue to exploit satellite technology as the state of the art permits, and will pursue actively the stimulation and the co-ordination of the international opportunities presented by the World Weather Watch and the Global Atmospheric Research Programme. I am pleased to have had this opportunity to report to this Committee and will be happy to provide any further information which the representatives may desire.

The CHAIRMAN: I thank the representative of the World Meteorological Organization for his report.

Before I adjourn the meeting, I should like to remind representatives that we shall conclude the general debate at this afternoon's meeting.

The meeting rose at 12.45 p.m.