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Chairman: Mr. Milko TARABANOV (Bulgaria).

AGENDA ITEMS 33 AND 92 (*continued*)

International co-operation in the peaceful uses of outer space: report of the Committee on the Peaceful Uses of Outer Space (A/8420, A/C.1/L.569, 570, 571 and 574)

Preparation of an international treaty concerning the Moon (A/8391, A/C.1/L.568 and 572)

GENERAL DEBATE (*continued*)

1. Mr. SHEPARD (United States of America): I should like to take a few minutes of the Committee's time at the beginning of my statement to explain what the envelopes are on the desks of all the representatives. Each envelope contains, in the case of each country that was a Member of the United Nations at the time of my Apollo 14 flight, the flag of that particular country. For those countries that were not Members at the time of the flight in February, I have included a similar photograph, but with an insignia which was also carried to the moon.

2. Members might be interested in noting the date of those photographs. They are dated 20 October, which, as members may recall, was before the vote on the admission of the People's Republic of China. The photographs were ready to be passed out at that particular time and, on the advice of some of the more politically conscious members of my mission, they were withheld because it might have been felt that we were perhaps trying to influence the voting on that particular issue. Let me assure members, however, that I took these flags along with me before I knew that I was to become a representative to this Assembly, and that they come to you with no motive other than the genuine friendship of myself and of my fellow astronauts.

3. The peaceful uses of outer space constitute a subject of profound, I might even say passionate, concern to that rather small band of men in my profession. I commented earlier in this Committee [*1812th meeting*] on the fragility of our earth and the fact that from deep in the void of space one can see no sign even of the presence of man,

much less man as black or yellow, white or brown, or of the arbitrary boundaries he has created. But we are here on this earth, and when we turn to an item such as the peaceful and practical applications of space technology we are perhaps mankind at its best. In the phrase which has been adopted for next year's environmental control conference in Stockholm, we are "only one earth", and now we have a new and powerful tool to help us to nurture, preserve, protect, conserve and wisely use our earth: the peaceful and practical applications of the techniques and systems we have developed for the exploration of outer space.

4. With that in mind, my Government welcomes the decision of the Scientific and Technical Sub-Committee to convene a Working Group on Remote Sensing of the Earth by Satellites. There are, as I am sure many members of the Committee are aware, a variety of applications of space technology for peaceful purposes which already serve us. Communications satellites and weather satellites come first to my mind. The field of earth resources satellites is a new and experimental one, in which the problems and the challenges are great. We must not expect too much too soon. However, since I have recently returned from a successful lunar mission I have some very personal reasons for trusting the efficiency of space technology—otherwise, of course, I might still be swinging at golf balls on the lunar surface.

5. We are especially pleased by the positive and realistic note that the Scientific and Technical Sub-Committee has struck in conveying its charge to the Working Group. Recognizing the potential benefits of remote sensing technology, particularly for the developing countries, the Sub-Committee identified that application as an important potential benefit to individual States and to the international community. It asked the Working Group to make recommendations for the possible development, provision and operation of data collection and utilization within the United Nations or some other international framework. At the same time the Sub-Committee, very practically, asked the Working Group to base its recommendations on a review of the scientific and technical developments relating to devices and methods for the collection, processing and interpretation of data. Noting that the feasibility of remote sensing from space platforms had been scheduled for flight test early in 1972, with the launching of the Earth Resources Technology Satellite ERTS-A, it is recommended that the Working Group should begin its substantive work at such time as an assessment of the results of that test can be made.

6. We welcome that frame of reference. With the benefits and potential of remote sensing by satellite in mind, the Working Group is to base its recommendations on scientific

and technical facts, particularly those derived from actual flight experience. This positive, realistic approach offers the best possible prospect for constructive results.

7. I should like to digress here. Although I think this has to be the official position of this Committee, because one cannot proceed with concrete results without data, that should not, on the other hand, discourage any of the countries with a specific problem which could be solved by remote sensing and which is being specifically suggested to the Working Group. It is obviously going to be a long process, I think, when one takes into account the needs of one country in fairly concrete terms, with the need for exchanging funds and all of the other arrangements that have to be made. So I think that the earlier the specific need can be described by any country, developing or developed, and forwarded to the Working Group, the better the Working Group can perform its task, and the more of a two-way exchange this can become.

8. The United States has proceeded on a similar basis in its national programme. Seeing the need for hard facts in appraising the potential of remote sensing by satellites, we developed the Earth Resources Technology Satellite. As I have said, we will share our experience in this mission with the Working Group.

9. A further measure of our determination to work with other nations in this area is our invitation to investigators throughout the world to propose experimental uses of the data to be gathered by the Earth Resources Technology Satellite. In response to that invitation we have already received 106 proposals from 34 countries and two international organizations. This is not a new commitment. Many members of this Committee were present when President Nixon stated in the General Assembly at the twenty-fourth session that our programme would be “dedicated to produce information not only for the United States, but also for the world community” [1755th plenary meeting, para. 82].

10. In that spirit we have already joined with Brazil and Mexico in the aircraft phase of our programme. Last May we conducted an International Workshop on Earth Resources Survey Systems at the University of Michigan, which was attended by representatives of 53 countries and international organizations.

11. We believe that these and other related activities will make an important contribution to the deliberations of the Working Group. It is obviously important that the Group should proceed on an expanding basis. It should look not only to the United States but also to other nations that are investigating remote sensing of the environment from aircraft as well as from space platforms. Indeed, the outer space Committee has endorsed the request of its Scientific and Technical Sub-Committee that Member States should submit information on their national and international activities in this field. We look forward to their submissions, confident that they will go far towards assuring that efforts of the Working Group may be as useful and productive as possible in this early stage of our knowledge and experience.

12. Finally in this connexion, Member States can be grateful that a man of the calibre and experience of

Mr. Franco Fiorio of Italy will be presiding over this important new United Nations initiative in the field of outer space.

13. It is, therefore, a pleasure for the United States delegation to sponsor the resolution on the Working Group [A/C.1/L.571].

14. I have focused my opening remarks on some of the promises and challenges offered by the opportunity to apply space technology for peaceful purposes. Unfortunately, as with any human endeavour, man often does not make advances of this sort without creating potential problems. Therefore it is fortuitous and appropriate that as we enter the decade of the seventies—the space decade, if you will—we have before us a draft convention governing liability for damage caused by objects launched into outer space which might return to the surface of the earth and cause damage [see A/8420, para. 32].

15. I should like to speak for a moment on the proposal made by the representative of Canada at the 1821st meeting. He proposed the addition of a paragraph to article XIX of the draft convention, which would note that a State may, on becoming a party to the convention, declare generally that it will accept as binding in relation to any other party that makes a similar declaration the award of the claims commission established under the convention.

16. The Canadian representative has himself noted that that amendment would not add to the substance of the convention and that, even without such a provision, States are entirely free to make such declarations. We have very much in mind the painstaking and time-consuming character of the negotiations that led up to the draft convention that is now before the First Committee. More than eight years of effort are concentrated in this document. The draft convention represents a delicate balance of the interests and concerns of a great many countries, space Powers and non-space Powers alike. Therefore we would strongly appeal to the delegation of Canada not to press its amendment. If I may at this time, I should like to say this as an aside. Consider the case of the bull that runs across the chicken in the road. It automatically becomes the prize fighting cock of the farmer. When an automobile runs into a cow which is an average milking cow, it automatically becomes the prize pedigreed cow of the herd. When a hunter by mistake shoots a bull instead of a deer, it automatically becomes the prize bull of the herd. Let me suggest to those who are considering signing the binding amendment that, if they at some future date have the misfortune to have an object come back from outer space, it ought not to hit the prize bull.

17. My delegation would like to propose, instead of the Canadian suggestion, that the First Committee should take note in its report of the right of every State on becoming a party to the convention to make a declaration treating claims commission awards as binding. We hope very much that it will be possible for Canada, which was participated energetically and with dedication throughout these long negotiations, to agree on the desirability of calling international attention to the rights of States by means of a paragraph in the First Committee's report. Although we have not had an opportunity to discuss this suggestion with

the Rapporteur or with other members of the Committee, I should like to express the hope at this time that it will be acceptable to all parties.

18. I should also like to say, with regard to the possibility of amending the convention as suggested by the delegation of Uganda also at the 1821st meeting, that, with all respect, we do not think the liability convention is the place to deal with the possibility of life on other planets. It is not that we deny the possibility of life on other planets; we just do not think the liability convention is the place in which it should be discussed. The draft convention before us deals with compensation for damage caused by the launching of man-made objects from the earth. The outer space Treaty¹ already binds parties to a régime of peace and applies the United Nations Charter to activities and phenomena in space. I think we know too little about the possibility of extraterrestrial life to deal meaningfully with the intriguing possibilities to which the representative of Uganda has referred, although I should be happy to discuss it with him unofficially at any time.

19. I was moved to learn of the very generous words spoken by the representative of Sweden, Mr. Rydbeck [1822nd meeting], on my professional activities. I think what he said should be taken as recognition of the contribution made by all astronauts, not exclusively of my own personal contribution. The Ambassador's kindness makes it the more difficult, although it is nevertheless necessary, to reject the assertion he made at the 1820th meeting that the draft liability convention represents a *Diktat* arranged by the two major space Powers and imposed upon the other members of the Committee on the Peaceful Uses of Outer Space. On the contrary, there never would have been a draft convention without the dedicated and persevering work of Brazil, Belgium, India, Lebanon and Mexico, to name only a few of the countries which made indispensable contributions. As I pointed out in my earlier statement, it was Brazil that two years ago proposed the recommendatory awards provision that made the draft convention possible. To assert that the draft was sprung on unwilling non-space Powers when the Legal Sub-Committee began its June session is a statement in defiance of the facts.

20. I should now like to speak of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space [resolution 2345 (XXII), annex]. I am sure the Committee will understand that this Agreement is of direct personal interest to me and to my fellow astronauts. I have several close friends who are cosmonauts of the Soviet Union and I am sure they share my personal interest in this Agreement. In the past a number of countries that became parties to the outer space Treaty have taken the position that their accession to the astronaut Agreement would be facilitated by the completion of negotiations on a sound liability convention. Now that the liability negotiations have in fact been brought to a successful conclusion, I want to express the keen hope that countries around the world will be encouraged to join in the astronaut Agreement. The

Agreement at present has some 78 signatures and 51 ratifications and accessions. It is my hope that we shall soon have many more accessions.

21. I should like also to say a few words concerning the proposal of the Soviet Union for negotiations on a draft treaty concerning the moon [A/C.1/L.568]. As my Government has said, we will give very serious consideration to any proposal for international co-operation in the exploration and use of outer space for peaceful purposes. We have told our good friends from the Soviet Union that we look forward to discussing the draft treaty concerning the moon in the Committee on the Peaceful Uses of Outer Space and the Legal Sub-Committee. In the meantime, my own Government will be studying the Soviet proposal with care and in depth.

22. I should be failing in my own sense of duty if I did not make some remarks on a personal basis and in advance of an official United States Government position.

23. I have some doubt with regard to the contents and scope of the Soviet proposal. It seems to me personally that a significant number of the articles in the Soviet text, in their present form, either duplicate or restate with only slight variations certain rights and obligations which are already provided for in the outer space Treaty. Therefore, I strongly suggest that the Legal Sub-Committee should bear this in mind when it considers the Soviet proposal and other proposals that have been made or may be made in this field. At the same time, we continue to welcome all useful ideas for the further development of international law concerning activities in outer space.

24. My Government notes with pleasure the continuing productivity of the Legal Sub-Committee. We feel that it will be equally productive in its future work. As regards its work, we have been discussing with other delegations whether, in view of the United Nations financial situation, it might be possible, if the Legal Sub-Committee is to meet in Geneva, to limit its 1972 session to the same two-week duration as that scheduled for the Scientific and Technical Sub-Committee.

25. Let me make another aside here. I have noted, in every Committee, in plenary and in the halls and corridors of the United Nations, a great deal of concern about the financial situation in which this body finds itself. I have noted no singular expression of an attempt to correct this financial situation. My delegation offers this as something concrete: one attempt to be made to correct this financial situation by reducing its costs. We propose that this be given serious consideration by the other members of the outer space Committee.

26. This has been an important and productive year for the outer space Committee and for the United Nations programmes and activities in the field of practical applications of space technology. I have already highlighted two major achievements. The draft resolution contained in document A/C.1/L.569, of which my country is a sponsor, highlights a variety of other achievements, and I shall not take the further time of the Committee to consider each of them. I should like, however, to call the attention of the Committee to operative paragraphs 6, 7 and 8 of the draft

¹ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (resolution 2222 (XXI), annex).

resolution, which note the encouraging progress in promoting practical applications of space technology for all countries, taking into particular account the needs of the developing countries.

27. I should like to point out the contributions that several Member States have made in the field of education and training, either by hosting technical panels or providing scholarship or training programmes for space technicians who are studying in the field of practical applications. It is significant that, along with the highly industrialized countries of France, Italy, Japan and the United Kingdom, the developing countries such as Argentina, Brazil, India and Mexico are actively sharing or planning to share their own experience and programmes with other countries.

28. I wish also to express our gratitude to the United Nations Expert on Space Applications, Professor Humberto Ricciardi, who in 1971 embarked on an active programme designed to promote the application of space technology. Mr. Ricciardi's work has been well done and we heartily approve of the decision made by the Committee to extend his mandate for another year. Finally, we wish to thank the Outer Space Affairs Division for the assistance it has rendered to all members of the outer space Committee and the support it has provided the Expert. The United Nations has been well served by the Office of the Expert and the Outer Space Affairs Division, and we appreciate their good work.

29. I believe that the peaceful uses of outer space is a topic about which we will hear a great deal more over the coming years at the United Nations. This is most appropriate. We have Member States on this single fragile and beautiful planet on which we live. We have many varying interests, but certainly the peaceful uses of outer space is a single common bond among all Member nations. It is well that the United Nations is seeking now, today, to promote the benefits of a global technology for the future benefit of all mankind.

30. The CHAIRMAN (*interpretation from French*): Although Rear-Admiral Shepard did not take the flag of the First Committee to the moon and bring it back to earth, I am sure I speak for the members of the Committee in thanking him for the idea he had of taking the flags of the nations to the moon and bringing them back. I hope that he will convey our thanks to his colleagues.

31. Before calling on the next speaker, I should like to inform the Committee that the USSR has joined in sponsoring the draft resolution contained in document A/C.1/L.569.

32. Mr. RIBIERE (France) (*interpretation from French*): I should like first of all, as you did, to thank Rear-Admiral Shepard for the present he was good enough to give us, which we much appreciate. I expect most of us have children, and if as adults we are very touched by this, I believe that our children will preserve very carefully this souvenir of that great experience in which Rear-Admiral Shepard not only participated but of which he was the principal initiator.

33. Of course, all of us today feel some diffidence about speaking on the question under discussion after the

statement made by Rear-Admiral Shepard. It is rare, I think, for a man of his calibre to come before the Committee and give representatives the benefit of so remarkable an experience. We who specialize in general ideas—and I say this all the more freely since I myself am a Deputy to the National Assembly of my country—must confess here to some concern about the vagueness of our knowledge and the diffuseness of our specialties. However, in addition to his admirable qualities as Crew Commander, explorer, astronaut and scientist, the representative of the United States has an even rarer gift, that of fair play and humour. He showed it today when he told us the parable of the cow. I shall perhaps reply on this point somewhat further on in my remarks, but I have also been told that at a previous meeting of the Committee he ventured into other fields dealt with by you and gave his opinion on problems such as international security viewed from the moon. I hope that he will pardon me if I venture today to speak about outer space as seen from the earth, which, I must confess, has always been my proper domain from which, unfortunately, I have heretofore but rarely departed. But I hope to live long enough so that one day I may follow in Rear-Admiral Shepard's footsteps.

34. The examination of the report of the Committee on the Peaceful Uses of Outer Space provides our delegations every year with an opportunity for a somewhat paradoxical exercise. We were led—and we are gratified to note this—to repeat the tributes paid to countries, in particular the two great Powers, which were audaciously and successfully leading the exploration of space. On the other hand, when we referred back to our own work as representatives, we have been compelled for several years now to castigate our inability to bring about progress in the law of space. This change of tone was certainly a sign of our modesty, but in the long run we must recognize that it has become somewhat irritating and humiliating.

35. I am therefore very happy to be able, at this session, finally to pay tribute not only to the scientists and others responsible for the scientific and technical successes of the year, but also to the diplomats, be they jurists or not, who have finally completed the draft convention on international liability for damage caused by space objects [*see A/8420, para. 32*].

36. It is space research that I should like to hail first, for the feats of 1971 really deserve our admiration. It seems to us that only brevity can suitably express the admiration that we all felt for the technical perfection, scientific value and, I might even say, the beauty of the Apollo 14 and 15 missions to the moon.

37. The establishment by the Soviet Union of the first manned scientific station in earth orbit was an event of capital importance which has opened the way to a new phase in space exploration, offering a wealth of immediate practical applications. In striking down the three cosmonauts who had just accomplished this great first in space, fate shook our emotions with an intensity equal to the esteem in which we hold the American and Soviet engineers and pilots. May the representative of the Soviet Union be once again assured that my country shared its mourning on receiving the news of the death of Colonels Dobrovolsky, Volkov and Patsaev.

38. We also know that on a less spectacular scale, but in a fruitful fashion none the less, many countries have patiently pursued their efforts in space exploration and co-operation. After Japan, the United Kingdom joined the space Powers. We are happy that the "Prospero" satellite has just added—at least by its name—a note of fantasy to the host of devices orbiting the earth.

39. For our part, since the successful launching of the "Diamond B" rockets, we have essentially continued the development of a meteorological research programme that uses a satellite to monitor a network of atmospheric balloons equipped with data-recording instruments. The "Aeolus" programme, as it was christened, has up to now provided satisfactory results.

40. Such was not the case, as you know, with the European experiment which was to have taken place a few days ago at the base we set up in Kourou. The "Europa" rocket, which is a joint effort on the part of the United Kingdom, France and the Federal Republic of Germany, went wrong again. In the field of space research, failures are often no more than an additional pretext for redoubling our efforts and finally succeeding. That at least is how I believe the technicians of the European community feel about it.

41. The virtue of perseverance and stubbornness has, in any case, been demonstrated by the jurists on the space Committee. It is to them now, and more especially to the Chairman of the Committee, Ambassador Waldheim; the Chairman of the Legal Sub-Committee, Mr. Wyzner, and the Rapporteur, Mr. de Souza e Silva, that my tributes are addressed, because for once the diplomats have done almost as well as the scientists: they have succeeded, after years of effort—which I will not go into now—in drafting the text of a convention on liability for damage caused by objects launched into outer space.

42. My delegation understands the rightful satisfaction with which Ambassador Waldheim and Mr. Wyzner submitted that text to the Committee at the 1819th meeting. For years the Assembly has ended its sessions by urging the Committee, yet again, to make a decisive effort to conclude such a draft. This effort has finally borne fruit since the draft, as completed in July 1971, was formally approved by the Committee at its September session. Mr. Wyzner described with precision and clarity the objectives of the draft convention and the means it provides for attaining those objectives. He stressed—and rightly so—the fact that the Committee took as the fundamental rule the principle of the absolute liability of the launching State. This I recognize as a decisive measure in favour of potential victims of a space accident.

43. However, I shall not conceal the fact that we had hoped for a more satisfactory response to two other fundamental questions, namely, the rule of law to be applied in determining the damages payable to the victim and the settlement procedure for damage claims.

44. We for our part would have liked a draft that guaranteed full and complete compensation for the damage caused, thanks to the application of the *lex loci* and the binding arbitration of disputes.

45. Of course, as was said by Rear-Admiral Shepard, when a cow has an accident we always have a tendency to claim that it was the best cow in the herd and to ask for maximum compensation. None the less, I think he will agree with me that, whatever the artistic beauty of certain 100- or 200-storey buildings in New York, their historic value and their value for the heritage of the world cannot be compared to the splendours of the temple of Angkor-Wat or the Palace of Versailles. It would certainly be much more difficult to rebuild the Palace of Versailles—which at such a time would, I hope, have been evacuated by its inhabitants—if, by misfortune, a space capsule should fall on it, or on the temple of Angkor-Wat, for that matter, than it would be to rebuild the handsomest building in Manhattan. I hope Rear-Admiral Shepard will excuse me for having replied to his parable.

46. This unfortunately is not the solution offered in articles XII, XIII, XIV and following articles of the draft convention, and my delegation of course understands the reservations that a number of delegations still have concerning that text.

47. We note, however, that the claims commission which is to be set up, if the diplomatic negotiations do not succeed after one year, is to establish the amount of compensation to be awarded the victims in accordance with international law and the principles of justice and equity. In the opinion of the French delegation, the Commission could not abide by those principles if it failed to take account of the position of the victim and the legal rules applicable to him. Moreover, the text of the convention provides in its preamble that the States parties to it recognize the need to ensure full and equitable compensation to the victims of damage.

48. The claims commission will therefore play a capital role and, while one may regret that its arbitration is not binding, it may be taken that the publication of its awards, whether or not they are enforced, will give them an indisputable moral force. Obviously, the best thing would be for the parties to agree amongst themselves, on a mutual basis, to make the awards of the claims commission binding.

49. For the rest, we can easily agree with the observations of the Chairman of the Legal Sub-Committee about the progress which this convention constitutes in the field of international space law. It establishes the joint liability of launching States; it defines "launching States"; it clearly specifies, as had long been hoped, the stipulations of the space Treaty.²

50. Aware as we may be of the imperfections of the draft convention, we cannot but recognize that after eight years of negotiations all the legal avenues had been explored. Lack of agreement would have postponed indefinitely the completion of a text the urgency of which is emphasized by the increasing number of space vehicle launchings. On the other hand, the draft convention might induce those States which have still not done so to sign the space Treaty or the Agreement on the rescue of astronauts³ and thus

² *Idem*.

³ Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (resolution 2345 (XXII), annex).

strengthen the authority of these new instruments of international law.

51. That is why the French delegation, in a spirit of compromise, has decided to support the draft convention and hopes that the Assembly will recommend it to States for signature.

52. I should like to say that the accession clause, which appears among the final provisions, was agreed upon having regard to the precedents of the space Treaty and the Agreement on the rescue of astronauts. Quite clearly neither that clause nor any signature, ratification or adherence by virtue of that clause could, in the view of my delegation, in any way modify the legal or political status of States or other international entities wishing to become parties to the convention.

53. The completion of the Committee's work on the draft convention will compel it to press on with other urgent matters of concern to outer space.

54. It is important that the field of application of the convention should now be precisely defined and therefore that key problems such as the definition of outer space, or the registration of objects launched into space, should be resolved. These are two questions whose study my delegation has been urging for years, for it is hard to see how we could go on indefinitely with the drafting of space law without agreeing on the limits and the conditions of application of that law.

55. It appears to us paradoxical to try and deal with a subject and set up rules for an area whose limits are unknown. Whatever the virtues of empiricism—and they have been shown to exist—we continue none the less, in the spirit of logic—which is one of the virtues or failings attributed to the French, to regret its absence in this question and therefore to call for an agreed definition of outer space.

56. We are equally firmly convinced of the need to settle the problem of the registration of space vehicles, for it seems to us that this procedure is essential for the proper application of the convention on liability. How can one identify the author of the damage if the object which caused it bears no registration? Of course, we are not unaware of the technical difficulties this problem will raise and last year's report of the Scientific and Technical Sub-Committee echoed them [*see A/AC.105/82*], but we have reason to believe that with the development of science, procedures for the registry of space vehicles will soon be found that do not involve any danger to the vehicles.

57. France, which has submitted a working paper on this point,⁴ will study with interest the draft convention announced by the Canadian delegation at the 1821st meeting.

58. In addition to these two fundamental questions, my delegation would like to reaffirm its interest in the question of direct broadcasting. We already stated last year that the

development of this technology, in our opinion, raised questions of law concerning both the sovereignty of States covered by the broadcasts and the content of the information broadcast. We have already had occasion to indicate that we thought it would be a good idea to ponder the drafting of a code of ethics to govern this new field of space applications.

59. Finally, there has recently been a quickening of interest in the examination of rules to govern both human activity on the moon and the régime governing substances coming from that body. We owe this renewed attention particularly to the initiative taken by the Soviet Union in submitting a draft international treaty concerning the moon [*A/C.1/L.568*]. But it would be unfair to overlook the earlier efforts of several countries, in particular Argentina, to build up this new law governing substances from the moon and from other celestial bodies.

60. We should congratulate the Soviet Union for the pioneer work it is doing in this field. In the light of the first comments that the representative of the Soviet Union made concerning the draft treaty at the 1820th meeting, we shall be in a better position at forthcoming meetings of the Legal Sub-Committee to make known our views on this document; but I am happy to note now, having read the preamble to the draft resolution, that the question of rules to govern the legal régime for substances coming from celestial bodies has not been overlooked.

61. All these questions make up a very heavy agenda for the Committee on space. Problems of priority and hierarchy of necessity arise. Last July we and the Argentine delegation introduced a draft recommendation on priorities proposing what we thought would be a reasonable and feasible arrangement, which the Committee was good enough to endorse. That list appears in paragraph 37 of the report. More specifically, the Committee at its last meeting recommended that the Legal Sub-Committee should give priority consideration to ALL the questions concerning the moon and those dealing with the registration of space vehicles.

62. We support that recommendation, convinced as we are that the other comments in paragraph 38 of the report will be duly taken into consideration and that the Legal Sub-Committee, under the benevolent authority of Mr. Wyzner, will work in a manner satisfactory to us all.

63. The foregoing observations relate primarily to the work of the Legal Sub-Committee. The successful completion of the draft convention on liability justified our giving it this priority. But if our most immediate legal concerns have been satisfied, we cannot fail to take an even keener interest in the other purpose of our Committee, which is to encourage, in the best conditions, the practical utilization of space technology.

64. Here, of course, we are talking about the Scientific and Technical Sub-Committee. That body has done considerable work this year. Endowed as it was with a dynamic Chairman and effective secretariat, it has made available to members a volume of information which, as is clear from any but the most cursory study, gives a very full picture of the present possibilities for the use of space technology.

⁴ See *Official Records of the General Assembly, Twenty-fourth Session, Supplement No. 21*, annex III, appendix I.

65. The Sub-Committee began a new stage when it decided to set up a Working Group on Remote Sensing of the Earth by Satellites. France participated in the organizational meeting of this Group on 9 September. Like Canada, we believe we will be in a position to make a useful contribution to its work by describing the results of the research which France has been carrying on in this field for several years.

66. We shall also try to lend active support to the programme of education and training for the peaceful uses of outer space, undertaken at the instigation of the space Committee. France, as indicated in paragraph 22 of the report, has decided to invite technical groups to observe various programmes on space technology applications which are under way in the National Space Research Centre. Moreover, as is noted in paragraph 24 of the report, it has taken the decision to grant fellowships for training in space techniques, in accordance with the procedures of the United Nations.

67. Our effort does not stand alone. It is shared, if not exceeded, by several countries members of the Committee. I think that all of us share the same confidence in the remarkable work done by the Secretariat expert on the application of space technology to development. Within the financial limitations of the Organization, and taking into account the structure of the Secretariat and the energizing role played by the Outer Space Affairs Division led so ably by Mr. Abdel-Ghani, we feel that the programme entrusted to Mr. Ricciardi should be developed.

68. Such successes, no matter how modest or embryonic they may appear, are the true measure of our will to engage in international co-operation. It is that will, affirmed and reaffirmed every year, that gives the work of the United Nations on the peaceful uses of outer space its special value. Once again, we shall be happy to demonstrate our own desire for co-operation by voting in favour of all of the draft resolutions before us.

69. Mr. VAN USSEL (Belgium) (*interpretation from French*): The work of our Committee on international co-operation for the peaceful uses of outer space is of special significance this year. This is the first time so distinguished an astronaut as Rear-Admiral Shepard, who commanded the crew of Apollo 14, has taken part in our proceedings. While his skills as an astronaut are well known to us and have compelled the deep admiration of the whole world, we have also been able to appreciate his ability as a diplomat now that he represents the United States in the main political Committee of our Organization.

70. The year which is now coming to an end has once again been a grandiose and glorious one for the two great Powers which are in the vanguard of progress relating to the development of astronautical techniques and the exploration of orbital space and the moon. My delegation wishes to congratulate them most warmly. Both the Apollo and the Lunokhod missions will be recognized as decisive steps in the conquest of the moon and the acquisition of scientific knowledge indispensable to the attainment of a new objective for human genius. We take note especially of the feat achieved by the Soviet scientists with Salyut and Soyuz, which indicated that the developing technology of

orbital stations and space docking promises much for the exploration of outer space. The Apollo 15 mission, too, filled us with admiration for its technical and scientific perfection. We regret all the more the fact that the achievements of human science should have been darkened by tragic events which cost the lives of three Soviet astronauts. We wish to convey to the Soviet delegation the assurance of our deepest sympathy and our heartfelt condolences.

71. My country is also gratified that the two great space Powers are aware of the need for real and effective co-operation for future activities. If the awareness of this need is followed by practical measures, it can only strengthen international understanding and world peace. We are therefore in favour of any initiative to foster the exchange of scientific information, the exchange of lunar materials, and especially the development of techniques for the rendezvous and docking of manned space vehicles.

72. It is obvious that the great majority of nations are not directly involved in the space venture. Many of them do not possess the means, and even if they did, they have in any case chosen other priority tasks. But this leads us inevitably to reassert the principle that while they recognize the special interests of the Powers directly concerned in the matter, they none the less expect of them that the development of space science will be undertaken in conditions which will not jeopardize the always fragile chances of peace in the world, but above all will take into account the general interest of the international community.

73. Yet the more one wonders about the implications of astronautics for mankind, the more one realizes that the conquest of the moon and of outer space, despite its spectacular nature, is not as important as astronautics already is, and will long continue to be, for the discovery of the earth itself and, therefore, for the services it can render us in using the resources of the earth. In fact, we are only beginning to discover our own planet, for the simple reason that we could not have done so without satellites. It is symptomatic that the Twenty-second Astronautical Congress held at Brussels a few months ago should have devoted most of its deliberations not to the exploration of the moon and space, but to the usefulness of the new space science and technology for the study of our own planet and for a better utilization of its resources. Rather than pure astronautics, the Congress focused on remote sensing, remote communications, space medicine, oceanography, meteorology, etc. In other words, more attention is being paid to the spin-off of astronautics because it seems more relevant to the direct needs of mankind. The question which sums up the work of the Twenty-second Astronautical Congress can be stated as follows: how can astronautical science help us to make the earth a better place to live in; how can it help development; how can it contribute to the elimination of underdevelopment; how can it bring men and nations closer together?

74. My delegation notes with satisfaction that the outer space Committee is more and more addressing itself to all the implications of this fundamental question, and to practical measures likely to furnish an adequate answer in keeping with the needs of the international community.

This inevitably raises the question of the importance of the responsibilities and the role incumbent first of all upon the Powers possessing the means to carry out the fundamental task of space research, and thus possessing the knowledge necessary for promoting practical applications. All this is dealt with succinctly in paragraphs 10 to 29 of the report of the outer space Committee [A/8420] devoted to the work of its Scientific and Technical Sub-Committee. My delegation fully approves its recommendations and the decisions contained therein.

75. Remote sensing from ecographical satellites seems to have an extremely promising future. At the Twenty-second Astronautical Congress, Mr. Heinz Kaminski, Director of the Bochum Observatory, made a most interesting statement, showing that the mere study of photographs taken by weather satellites has already pointed the way to discoveries in the volcanological and geological field. Photographs in the infra-red range, for instance, made it possible to forecast the imminent eruption of a volcano on the Jan Mayen Island. Other photographs revealed "hot spots" in the Libyan desert, which ground survey showed to be associated with huge oil and gas deposits. We have therefore reason to believe that with more sensitive sensors than those used by weather satellites, it will be easier to locate "hot spots" of this kind. A wide range of possibilities is thus opening up in geography, geology and other sciences. Therefore, we are in full agreement with the creation of a working group on remote sensing by satellites, and we sincerely hope that its work will lead to concrete results, in conjunction with the programme to promote the application of space technology mentioned in paragraph 15 of the report, and with better international co-operation in the field of education and training mentioned in paragraph 23, which takes note of the special efforts of the Governments of the United States and Brazil, as well as those of FAO.

76. It is obvious that the work accomplished, and still to be accomplished, by Professor Ricciardi goes far beyond the single field of remote sensing satellites. He is in fact confronted with a huge task, but we wish to express to him our appreciation for the way he has already set about it.

77. We also take note of paragraph 14 of the report on improving the effectiveness of the Outer Space Affairs Division within the Secretariat. The assessment of the needs of developing countries, the usefulness of satellites for preserving the environment, satellite broadcasting for education and training—simply listing them shows that we must strive to avoid fragmentation and dispersal among the various sectors and bodies of the United Nations, with the attendant risk of duplication and unjustified expenditure. To give only two examples: why should the United Nations Secretariat deal with matters which UNESCO would be better equipped to handle? Is it worth offering technical assistance which is not included in the priorities adopted by the potential beneficiaries themselves?

78. Speaking of paragraph 19 of the report, we must note the implication that some Member States are not responding to the invitation to furnish the United Nations with information on their national space activities or those founded on international co-operation. We are not unaware that this request is contained in non-compulsory recom-

mendations of the General Assembly, but we none the less believe that it is not politic to ignore them. One of the fundamental objectives of this exchange of information is to avoid and eliminate any duplication in national programmes. The imperatives of scientific policy in the present-day world urge the importance of concentrating effort where success is most likely. The exchange of information therefore makes it possible better to co-ordinate national efforts and to help establish more sensible national priorities.

79. In the field of education and training, mentioned in paragraphs 21-25 of the report, my delegation is happy to note that many countries, the great majority of which do not belong in the category of space super-Powers, have set up most useful programmes and brought them under the United Nations umbrella. We should like here to express our appreciation to France, Japan, Argentina, Brazil, the United Kingdom, Italy and India.

80. I now come to that part of the report of the outer space Committee dealing with the work of its Legal Sub-Committee. It is this work that for several years has given rise to most concern; I am, therefore, especially pleased to note that the Sub-Committee has been able finally to present to us a draft convention on the important question of international liability for damage caused by space objects. There is no need to go into the details of this draft since the statement made by the Chairman of the Legal Sub-Committee on 1 September last in the outer space Committee, to be found in annex II to the Committee's report, presents a very detailed analysis. Besides, Mr. Wyzner repeated the main points in his statement at the 1819th meeting.

81. My delegation is firmly convinced that this draft convention is an important contribution to the development of the régime governing human activities in the field of outer space exploration, and especially the possible implications of these activities should they have prejudicial effects outside the State responsible for them. Of course, the draft, like any human work, is not perfect. It often happens that the General Assembly adopts resolutions and declarations which are not as perfect as we might wish. All of us certainly remember the recent example of the Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, beyond the Limits of National Jurisdiction, as well as the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of the United Nations. We all remember that none of us was willing to regard these as perfect texts giving complete satisfaction. We nevertheless adopted them, after entering reservations but without touching the texts themselves, lest we upset the delicate balance or the compromise reached after difficult negotiations. We did so because we know that, for the sake of coexistence, international life very often requires compromise, not to say sacrifice. We are also aware of the fact that one should leave well enough alone and say as the Romans did, the *summum jus* may lead to the *summa injuria*.

82. The draft convention which we have to consider now is also the fruit of compromise, but my delegation is of the

opinion that this is a compromise of a superior order to those which made possible the adoption of the two Declarations I mentioned above. Those two Declarations impinge on entrenched interests. But the draft convention legislates in a field where principles are still general and vague, such as the principle of international liability. The Legal Sub-Committee had to do pioneer work, so to speak, and, composed as it is, there were many pioneers of all kinds in it, of all ideologies, of different training, of divergent points of view. It would be an over-simplification to claim that there were only two pioneers, or rather two super-pioneers, the USSR and the United States, and that these two super-pioneers imposed their will upon the other 26 members of the Sub-Committee on two essential elements of the draft. The truth is that even the mini-pioneers were far from being in unison on these two delicate elements and on many others too. The truth was more complex; everyone had to sacrifice something to all the others, in the course of lengthy negotiations which took several years. It is true that last year there were only two points still to settle, but we must not lose sight of the fact that at the beginning of these negotiations there was disagreement on almost everything: the question whether liability was to be objective or not, the liability of international organizations, liability for damage caused in space itself, cases of exoneration from liability, the rights of stateless victims or victims no longer having effective ties with their country of origin, the choice of currency for payment of compensation, the very important question of whether there should be a limit to liability or not, and so on.

83. On all these questions without exception negotiation was most difficult, but a compromise was always reached and it was not always favoured by my delegation. But it would be an exaggeration to say that 26 members of the Sub-Committee had to accept a compromise supposedly reached by the two others, the two great Powers, on the two problems still pending. The truth is that the 26 countries were themselves divided on the solution to these two questions, and that the difference of opinion did not necessarily coincide with political or ideological differences. The compromise which was finally reached was in no way a compromise invented or imposed by the two great Powers. My delegation, which considers that it did useful work to reconcile divergent viewpoints—and the differences were not always between the great Powers—thinks that it decided independently and freely, and if we played the role of honest broker our aim was to reconcile the views of all without exception, convinced as we were that any compromise was honourable if from the standpoint of international law it guaranteed *restitutio in integrum* to the victim. I said from the standpoint of international law because this is the crux of the matter. There is indeed no clear and relevant *lex lata* offering a commonly accepted and acceptable solution. That is why article XII states that the compensation which the launching State shall be liable to pay for damage shall be determined in accordance with international law and the principles of justice and equity. And it is clear that my delegation would never have assumed the responsibility of limiting itself to this. That is why we fought for this article to be given a teleological slant. It says that the amount of compensation must be determined in such a way that it restores the victim to the *status quo ante*.

84. We therefore reject any interpretation of article XII that suggests that it does not provide for total compensation. In the eyes of my delegation this article is based upon present international law, and is more than obvious. In fact, many municipal laws concerning the obligation to pay compensation say nothing about the extent of compensation. We think that the body which will have to settle possible disputes cannot ignore the moral, political and legal obligation flowing from this text. We are ready if need be to delve into a more detailed justification of article XII, but for the time being we prefer to turn to another article which has been the subject of criticism or reservations during this general debate.

85. I have in mind, of course, article XIX dealing with the competence of the claims commission. It is a fact that under this article the decision of the commission will not in principle be binding. But here again this article is but a reflection of an existing situation, of international law as it is at present. Belgium is one of the few countries that have at all times defended the compulsory jurisdiction of the International Court of Justice and worked in favour of the legal settlement or the settlement by arbitration of any dispute. We can only congratulate ourselves on this policy which, if it has occasionally caused us to lose, has always ensured that the law was on our side. But we are bound to note that the international community is not of this view and that the trend even seems to be in the opposite direction. We all know what happened to legal settlement in the Convention on the Law of Treaties, which is yet supposed to constitute the very foundation of international law: the principle was rescued, but at what price? The price of the notion of *jus cogens*, a most ambiguous notion, according to some even void of any meaning. Another example occurred two years ago when the General Assembly adopted a Convention on Special Missions [*resolution 2530 (XXIV), annex*], a harmless convention if ever there was one, but even for that convention the great majority refused to include a clause providing for compulsory legal settlement.

86. Therefore my delegation has come to the conclusion that it is preferable to have a well-established procedure which would put the responsible State in a position where it would be unable, morally and politically, to ignore the recommendation of the claims commission in the eyes of the whole world. In addition, article XIX is not an isolated article. It should be read in conjunction with article XV which relates to the composition of the claims commission. My delegation would certainly have rejected article XIX if the claims commission had for instance been composed on a parity basis. Article XV specifically provides that the commission will be composed of three members, the third of whom, the Chairman, will be completely impartial, which will therefore guarantee that the decision of the commission is impartial, so that I wonder how this decision—although it is called a recommendation—can still be distinguished from a compulsory decision.

87. This is only the beginning of our argument in favour of the draft convention. We believe that this draft is more than a compromise. The Belgian representative in the Legal Sub-Committee presented it by saying: "We are all here in a dual capacity, as jurists and as diplomats. Law is the science of what is right, diplomacy the science of what is possible."

I would add to this that the draft convention on liability is the happy result of the marriage of law and diplomacy.

88. It remains for me to say a few words on paragraphs 37-40 of the report of the Committee on outer space relating to priorities in the programme of work of the Legal Sub-Committee. In the view of my delegation a certain logic must be respected in the work of the Sub-Committee. Once agreement has been reached on the legal norms to be applied, consideration can properly be given to the problem of deciding to what these norms should apply. Therefore priority should be granted to the definition of outer space, and especially to the question of registration of space objects.

89. On this last question the Belgian delegation has already stated, and wishes to repeat, that it was not convinced by the reply furnished by the Scientific and Technical Sub-Committee in its report of 1 May 1970 [A/AC.105/82]. Careful scrutiny of the Sub-Committee's report reveals that it has reversed the order of things. Whereas the Legal Sub-Committee had asked for an answer on registration and secondly on identification, the Scientific and Technical Sub-Committee concentrated on identification, and spoke only incidentally of registration. In philosophy such a technique is called a reversal of premises, and Aristotle long ago condemned such a subterfuge.

90. It is quite normal in international society for the means of communication to be registered, even if such registration does not afford total certainty about identification. Should one do away with the registration of ships and planes because one is unable to identify a ship or a plane in distress or lost?

91. Paragraph 38 of the Committee's report also grants priority to what is called, generally speaking, "questions relating to the moon". It is obvious that the proposal of the Soviet Union to negotiate a treaty concerning the moon or, as it would probably be more correct to call it, a treaty governing human activities on the moon, comes under this general heading. The draft treaty presented to us by the Soviet Union [A/C.1/L.568] is very close to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies [resolution 2222 (XXI), annex], and it should therefore be tied in with the work which the Legal Sub-Committee has already started with respect to the moon, work which has already produced some important basic documents. That being so, the Soviet initiative deserves the support of our Committee. We should like to remind members that Belgium is a sponsor of the Soviet draft resolution [A/C.1/L.568], especially since the preamble takes into account previous texts submitted by the delegation of Argentina and the operative part mentions paragraph 38 of the report of the Legal Sub-Committee. That Treaty may open the way to other initiatives of the same kind, among which we might already envisage in the not too distant future consideration of the legal status of orbital and space stations.

92. These are some of the remarks which my delegation thought it useful to make in the general debate on the question which is now on our agenda.

93. Mr. BANERJEE (India): The recent advances in outer space technology have been rapid and fascinating. The success achieved through the genius, scientific skill and labour of mankind has been spectacular. In the background of this expanding outer space technology, my delegation feels, it should be the endeavour of the international community to benefit from the application of outer space technology. The new techniques should rightly be applied for peaceful purposes only in the exploration and exploitation of outer space and in the extension of the frontiers of knowledge. The space Powers which have been pioneers in this highly sophisticated field deserve the full support of the international community and are to be congratulated on their remarkable achievements.

94. Before considering the report of the outer space Committee, I should like to mention very briefly the space activities carried out in India. With the assistance and collaboration of the United States and the Soviet Union, India has made significant progress in the application of space technology, and we hope that the other developing countries will also come forward to reap similar benefits of outer space technology.

95. I should like to make a reference here to the document entitled *The Application of Space Technology to Development*⁵ and its addendum by Vikram A. Sarabhai and other Indian scientists of the Indian Space Research Organization, which has been published by the United Nations. This document could not be discussed in detail at the eighth session of the Scientific and Technical Sub-Committee, but it was recognized then that it contained considerable useful information. My delegation therefore suggests that the recommendations made in this document be examined for acceptance and appropriate action as it is likely to be of interest particularly to other developing countries.

96. The Fifth Training Course at the Experimental Satellite Communications Earth Station (ESCES) in Ahmedabad, India, commenced on 6 September 1971, and a total of 13 trainees from Ghana, Iraq, Kuwait, Poland, Cuba, the Sudan, Jordan and Cameroon have been attending the Training Centre.

97. During the year 1970-1971, India concluded agreements with the United Kingdom and Japan for conducting collaborative rocket experiments from the Thumba Equatorial Rocket Launching Station range, and with the European Space Research Organization for exchange of scientific and technical information of mutual interest about space and technology, space experiments and space applications.

98. The Indian Space Research Organization and the Institute of Space and Aeronautical Science of the University of Tokyo had conducted rocket experiments from the Thumba Range. These experiments were conducted for the study of the Equatorial Electro-jet using Nike-Apache rockets supplied by NASA of the United States, while the ionospheric probes were constructed by Japanese scientists.

99. India and the Soviet Union have also collaborated for conducting systematic investigations of the upper atmos-

⁵ United Nations publication, Sales No. E.72.II.A12.

phere from the TERLS range using Soviet meteorological rockets, and 35 Soviet-made M-100 rockets have been launched so far to measure certain data at 50 to 55 kilometres altitude. Under this programme about 100 rockets will be launched for these investigations over a period of two years.

100. Our interest in the field of space meteorology is well known. We have carried out joint experiments with NASA of the United States, and a major programme in rocket meteorology is currently being pursued in collaboration with the Soviet Union from the Thumba Equatorial Rocket Launching Station. Uses of satellite meteorology, especially the study of cloud formations and cloud pictures, is now part of a regular programme of the Indian Meteorological Department. This is of particular significance to us and perhaps to many other countries, since it is likely to assist in giving warnings well in advance about the occurrence of severe tropical storms and thus minimize the risks of widespread destruction of life and property.

101. We have made a modest beginning in the field of remote sensing, which is likely to provide very exciting and cost effective applications. A programme of remote sensing was successfully carried out with the assistance of NASA on the early detection of the coconut wilt (root) disease in Kerala in South India. The initial results are extremely promising. Indian scientists participated in the International Workshop on Earth Resources Survey Systems held at Ann Arbor, Michigan, and in the United Nations Panel on Remote Sensing Systems for Earth Resources Surveys. India has a keen interest in this subject because of its potentialities and we intend to participate actively in the Working Group on Remote Sensing of the Earth by Satellites, when it is convened as a part of the Committee on the Peaceful Uses of Outer Space.

102. I should now like to mention briefly a few points regarding the report of the outer space Committee [A/8420] and particularly regarding the draft convention on international liability for damage caused by space objects. My delegation would like to point out that the draft convention does not fully represent our views on such questions as the settlement of disputes in case of damage by objects launched into space and the assessment of compensation. My delegation appreciates that the present draft was the product of difficult negotiations in the Legal Sub-Committee over a period of more than six years. We would have preferred it if, in the procedure provided for the settlement of disputes relating to damages, it could be accepted that the award of the claims commission would be binding on both the parties.

103. Our view has always been that in case of damage by space objects the compensation to the victim must be prompt and adequate and the quantum of compensation should be victim-oriented. In jurisprudence it is a well-known principle that justice should not merely be done but should also be seen to be done. Similarly, it is not enough to give merely an assurance of prompt and adequate compensation to the victims: it must also appear in the convention on liability that prompt and adequate compensation will be paid. My own country and, I believe, many other countries would have been happy if the award of the claims commission could have been made binding, and that

would have set the pattern for the adoption of similar international conventions on other subjects.

104. However, the 28 articles of the draft liability convention, on which a general consensus of agreement has been reached in spite of the reservations by some countries, represent a considerable achievement in this rather difficult field of negotiations. My delegation would therefore support the adoption of the draft convention in its present form, even though it is not entirely satisfactory to us. The draft liability convention recommended by the outer space Committee provides an assurance and a reasonable prospect of the payment of prompt and fair compensation to the victims concerned, even though it is not in the precise form in which we and many other countries would have liked it to be specified in the draft convention.

105. I might mention that the question of the registration of space objects launched from the earth has a direct bearing on the question of the implementation of the liability convention, to which we have always attached great importance. The registration of all space objects launched into space would help identification, which is necessary for submitting claims for damages under the liability convention. The question of the registration of space objects should therefore be taken up on a priority basis.

106. My delegation is happy to note that the use of satellite broadcasting for the advancement of education and training has been specifically mentioned in the report of the outer space Committee, with particular reference to the work programme currently being undertaken by the United Nations Educational, Scientific and Cultural Organization and the International Telecommunication Union, which the Scientific and Technical Sub-Committee considered to be vital to the development of satellite broadcasting for the advancement of education and training. My delegation welcomes in this connexion the decision of the Government of France to extend invitations to technical panels to participate in a number of programmes on space technology applications which are being carried out by the National Space Research Centre. We welcome the statement by the representative of Japan regarding Japan's intention to invite experts from other countries to a panel on satellite broadcasting for education, which is likely to be held in 1973. We also welcome the decisions of the Governments of the United Kingdom and France to provide fellowships for training in space technology, as mentioned in the report of the Sub-Committee. It is a matter of gratification for us that the report of the outer space Committee welcomed the training facilities being provided by the Government of India in satellite communication technology at the Experimental Satellite Communication Earth Station in India, and that the Committee took note of the views expressed by the Sub-Committee on the progress reported regarding the work of the Thumba Equatorial Rocket Launching Station in India and the CELPA Mar del Plata Rocket Launching Station in Argentina, and shared the Sub-Committee's satisfaction at the work being carried out at those ranges relating to the use of sounding rocket facilities for international co-operation and training in the peaceful and scientific exploration of outer space.

107. My delegation welcomes the initiative of the Soviet Union in introducing a draft treaty concerning the moon

[A/C.1/L.568]. It is a matter for consideration whether the draft treaty should cover other celestial bodies as well, so that there would be only one treaty on the subject. Regarding the resources of the moon, our view is that those resources must be regarded as the common heritage of mankind and must not be subject to appropriation, by any party, by occupation or by extraction as property. There should, however, be freedom to use the moon for the purpose of further exploration of other planets and celestial bodies. My delegation is of the view that there is need for closer examination of the provisions regarding the exploitation of the resources of the moon, and would suggest that the various articles of the draft treaty concerning the moon should be carefully considered by the Governments of all countries, so that consideration of the draft treaty could be included, if possible, in the agenda of the twenty-seventh session of the General Assembly.

108. Before concluding I should like to thank those members of the Committee, in particular the representatives of the Soviet Union, Mexico, Italy, Japan and other friendly countries, for the deep sympathy they have expressed regarding the recent calamity in the coastal areas of the Bay of Bengal in my country. It is of particular significance that, with the application of outer space technology, it might be possible in future to give advance warning of approaching tropical storms and tidal waves, so that many lives could be saved and such calamities in different parts of the world might be less destructive.

109. My delegation is of the view that the United Nations has a significant role to play as a centre of international co-operation, particularly in meeting the needs of the developing countries in this highly specialized field. We would, therefore, extend our support for the programmes on space applications on the lines proposed by the Secretary-General in his report [A/AC.105/C.1/L.37 and Add.1]. I should like to emphasize once again that India attaches great importance to the entire field of the peaceful uses of outer space, and we believe that this new technology has immense potential, which could and should be utilized for the benefit of mankind as a whole.

110. Mr. AKWEI (Ghana): Since this is the first time, Sir, that my delegation has spoken in this Committee under your chairmanship, I should like to extend to you my warmest congratulations on your unanimous election. My delegation was privileged to work with you for nearly three years in the Preparatory Committee for the Twenty-fifth Anniversary of the United Nations and can bear witness to your eminent qualities as an accomplished diplomat and statesman. We have every confidence in your leadership and guidance.

111. My delegation has also had the good fortune to work with the Vice-Chairman, Mr. Ramphul of Mauritius, in his capacity as Vice-Chairman of the enlarged Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction, and the successful outcome of our deliberations during our meetings in Geneva in March this year was due in no small measure to his outstanding contribution.

112. Our Rapporteur, Mr. Migliuolo of Italy, also served as Rapporteur of the Preparatory Committee for the twenty-

fifth anniversary, with which, as I have already indicated, my delegation was very closely associated. I am confident that this Committee will benefit immensely from the enthusiasm and thoroughness which he showed in his work in the Preparatory Committee.

113. The eminent qualities of all three officers of our Committee leave my delegation in no doubt that our work in the Committee under your chairmanship, Sir, will be fruitful and constructive, and my delegation pledges its full support.

114. During the current year, 1971, the world has continued to witness not only further rapid advances in the field of space science and technology but also progress in international co-operation in the peaceful uses of outer space. The United States Apollo 14 and Apollo 15 missions, in January and August of this year, which landed men on the moon to explore further the moon's surface, were an outstanding success. Equally important was the establishment by the Soviet Union, in June, of the first manned scientific station, Salyut, in earth orbit. The scientific work done by the three Soviet cosmonauts aboard that orbital laboratory made a significant contribution to the development of orbital manned space flights. Their death was a tragic loss for all mankind, and we salute their memory.

115. The magnificent achievements of Apollo 14 and Apollo 15 and of Salyut have tended to overshadow other areas of progress in space science and technology, such as the applications of space science and technology to economic development, particularly in the fields of broadcasting, communications, and earth-sensor satellites. In this area of applicable space science, not only the space Powers but also, thanks to increasing international co-operation at both the bilateral and the multilateral level, several other nations, have made significant contributions to developments in space science applications. While we commend those technological advances, my delegation would like to stress once again the need for continued international co-operation, not only among the space Powers but among all nations. Many aspects of space activities, by their very nature, have political, economic and social implications that can affect the security and sovereign rights of States. Therefore the need for international co-operation to ensure the peaceful uses of outer space for the benefit of all mankind cannot be over-emphasized. It is for these reasons that my delegation has always supported and will continue to support United Nations efforts in this direction.

116. I should now like to make some comments on the report of the Committee on the Peaceful Uses of Outer Space [A/8420]. In so doing I should like to consider two specific aspects of the report which seem to my delegation to deserve the most serious and urgent consideration at this time. namely, the draft convention on liability for damage caused by space objects, submitted by the Legal Sub-Committee, and the recommendations of the Scientific and Technical Sub-Committee for continued United Nations activities to meet the needs of developing countries in the field of the applications of space technology to development.

117. The draft convention on liability for damage caused by objects launched into space no doubt forms the most

important basis of our discussions this year on the item of outer space. After eight years of work in the Legal Sub-Committee, the completion of the draft convention is in a sense the end of a long and arduous journey, one which, we recall, began in 1963 at the eighteenth session of the General Assembly, when the Assembly adopted the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space [*resolution 1962 (XVIII)*] and requested the Committee on the Peaceful Uses of Outer Space to prepare a draft convention on liability for damage caused by space objects.

118. Ghana has since that time been one of the strong advocates of the urgency and importance of having such a convention concluded as soon as possible. We again voted last year in support of resolution 2733 B (XXV), which expressed the General Assembly's deep regret that the outer space Committee had not been able to complete the draft liability convention and urged that the completion of such a treaty should remain the firm priority task of that Committee.

119. We recall that last year the two main articles on which there was still disagreement in the outer space Committee were one dealing with applicable space law and the other with the settlement of disputes. Under the compromise now reached in the case of applicable law, in article XII, compensation "shall be determined in accordance with international law and the principles of justice and equity, in order to provide such reparation and respect of the damage as will restore [*the party*] on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred".

120. In the case of settlement of disputes, the agreed compromise, in articles XV to XIX, was that the three-man claims commission's ruling on the merits of a compensation claim and the amount of compensation payable "shall be final and binding if the parties have so agreed" in advance.

121. Like several other representatives who have spoken before me, including the Chairman of the Legal Sub-Committee, my delegation holds the view that the draft convention is not a perfect instrument. We are particularly disappointed that the *lex loci* has not been accepted as the law upon which claims will be based. My Government has not given up hope that in the long run, whether by way of reconsideration or of revision of the convention, this defect will be remedied. My delegation is, however, realistic enough to appreciate that one can hardly expect a perfect instrument from a document which has emerged only after eight years of arduous negotiations in which compromises have had to be reached on deeply entrenched positions in order to arrive at a consensus on otherwise insoluble problems. It is in this spirit that we would accept a compromise text and would in fact support it. Nevertheless, we share the views expressed by the delegations of Italy, Sweden, Canada and Japan on article XIX, paragraph 2, of the draft convention, to the effect that the rule contained in that article is not sufficiently effective to guarantee that the victims will in all cases receive proper compensation, and that a formulation according to which awards would be binding in all cases, without qualifications, would have been preferable.

122. In this connexion, my delegation is of the view that the suggestion made at the 1821st meeting by the representative of Canada to the effect that States should consider making voluntary declarations when they sign and ratify the convention, to accept as binding the decision of any claims commission appointed under the convention vis-à-vis any other party which makes a reciprocal declaration, is of considerable merit and deserves the most favourable consideration.

123. In expressing my delegation's acceptance of and support for the draft liability convention in spite of its imperfections, I wish to make it quite clear that this acceptance and support are without prejudice to any future action the Government of Ghana might wish to take when the convention comes up for further consideration before signature and ratification.

124. With the conclusion of the draft liability convention, we hope the Legal Sub-Committee will now devote its attention to other matters which have not been given adequate consideration, because of the priority given all these years to the liability convention. In this regard, my delegation notes the recommendation in paragraph 38 of the outer space Committee's report that priority should be given to matters of objects launched into space for the exploration or use of outer space and to questions relating to the moon. This recommendation, in our view, should allow for early consideration of the Soviet-proposed draft treaty concerning the moon [*A/C.1/L.568*], which we consider a worthy initiative.

125. I now wish to turn to the report of the Scientific and Technical Sub-Committee [*A/AC.105/95*]. It is obvious from the report that the Sub-Committee's most significant achievement during the year was the establishment and convening of a Working Group on Remote Sensing of the Earth by Satellites. My delegation welcomes and fully supports the formation of the Working Group. Although remote sensing by satellite is still largely at the experimental stage, these experiments have already reached a point where there can be little doubt that when fully developed such space science applications will prove to be a most effective tool in controlling and utilizing man's environment and the earth's resources to alleviate problems such as the shortage of food. Such applications can also increase our knowledge of the world's resources and enable us to determine more scientifically the relationship that should exist between populations and natural resources. Indeed, this revolutionary new science and technology can be extremely helpful to the economic development of countries, particularly the developing countries.

126. However, we should do well to heed the timely advice given by several delegations, including Brazil, that we first make sure that activities in this field are programmed under United Nations auspices and in such a way as fully to respect the sovereign rights of States. My delegation expresses the hope that the Working Group will take this into consideration in tackling the great task entrusted to it. Having said this, however, my delegation would like to state its firm support for any programme by which satellites could be used to disseminate the goals and objectives of the United Nations all over the world. We should particularly welcome extensive use of communication satellites to beam

not only television but also radio programmes to the relevant areas of Africa in combating such inhuman and uncivilized policies as racism and *apartheid*.

127. If, as has been stressed over and over again, United Nations efforts to promote applicable space science and technology are to enable the developing countries in particular to derive benefits from such applications, then the need for education and training for scientists from developing countries in the field of applicable space science cannot be over-emphasized. My delegation attaches great importance to this matter of education and training, and it is for this reason that we warmly welcome the decision of the Governments of the United Kingdom and France to provide fellowships for training persons from the developing countries in the near future. We also wish to thank the Government of India for the offer of training facilities in satellite communication technology at the Experimental Satellite Communication Earth Station in India. While we note that further offers of training may be forthcoming from the Government of Japan, we would appeal to all Member States that are in a position to do so to consider granting scholarships to persons from developing countries to undertake training in applicable space science and technology.

128. With regard to technical panels, my delegation also notes with interest that, in order to help disseminate knowledge about space technology and applications in the developing countries, the Scientific and Technical Sub-Committee has recommended a programme of technical panels and other meetings for 1971 and 1972, as well as the continuation of the work of the United Nations Expert on Space Applications, Professor Ricciardi.

129. We fully support these two recommendations, particularly regarding the continuation of Professor Ricciardi's work. My delegation is impressed by the enthusiasm and competence with which the Expert is fulfilling his assignment. We wish him every success in his endeavours.

130. Finally, I should like to make some brief remarks about the first United Nations Panel on Remote Sensing for Earth Resources Surveys, which was held in May this year, at the invitation of the United States Government, as part of the United Nations programme to disseminate knowledge about the application of space science to development.

131. My delegation was honoured to preside over this first United Nations Panel, the success of which the outer space Committee has noted with pleasure in paragraph 23 of its report.

132. On behalf of the Panel, I should like to take this opportunity to express our sincere appreciation and gratitude to the Government of the United States for inviting us to observe space applications work under way in various parts of the United States. The wealth of information freely made available to us during our visits to Purdue University, NASA's Manned Space Craft Center in Houston, Texas, the Goddard Space Flight Center and NASA Headquarters in Washington contributed immensely to our understanding of the programme.

133. I hope that future United Nations panels, particularly the forthcoming one scheduled to be held in Brazil from 29 November to 10 December this year, will be even more successful.

134. Although it was regrettable that my continent, Africa, which perhaps of all the continents stands in greatest need of development, was under-represented at the first United Nations technical Panel, I am personally confident that this anomaly will be corrected in future, as more and more African countries become aware of the potential benefits of such applicable space science to economic development. My delegation would therefore, without any hesitation, fully endorse the continuation of such panels in the future.

135. In conclusion, I should like to reiterate my delegation's belief that United Nations efforts to ensure that the benefits of practical applications of space science and technology are shared by the international community as a whole, particularly the developing countries, are laudable, and should be encouraged. My delegation fully supports these efforts.

136. It is our firm conviction that, for the developing countries of Africa in particular, the potential economic advantages to be derived from the practical applications of space science in such fields as agriculture, cartography, forestry, hydrology, mineral and marine resource surveys are indeed immense.

137. We should all therefore fully co-operate and support these United Nations efforts in order to ensure their success.

138. The CHAIRMAN (*interpretation from French*): I thank the representative of Ghana, Mr. Akwei, for his congratulations to the officers of the Committee.

139. Mr. AL-ZAHAWIE (Iraq): I did not intend to take the floor this afternoon, but since there are no further speakers on the list, I shall make the following brief remarks.

140. My delegation has followed with great interest and attention the debate so far on the present item. We would like to add our voice to that of the other delegations that have paid their tribute to the members of the Committee on the Peaceful Uses of Outer Space, to its Sub-Committees, and to the highly esteemed Chairman of the Committee, Ambassador Waldheim of Austria. My delegation, too, welcomes the draft convention on international liability for damage caused by space objects [*see A/8420, para. 32*], while taking note, at the same time, of the reservations expressed by certain delegations on the provisions on measures of compensation and on the settlement of claims.

141. The report of the Scientific and Technical Sub-Committee [*A/AC.105/95*] begins with the convening of a Working Group on Remote Sensing of the Earth by Satellites. We are thus reminded that we are on the threshold of an application of specific space programmes to some of the problems confronting man on this planet. Many speakers have rightly welcomed the potential benefits

to Member States, especially the developing countries, through the application of the remote sensing programme.

142. During the debate on the previous item in the Committee, I had occasion to refer to the fact that our institutions had lagged far behind man's scientific and technological achievements. The uses of outer space serve as an outstanding illustration of this fact. The gap is even reflected in the work of the two Sub-Committees of the Committee on the Peaceful Uses of Outer Space. Now this remark should in no way reflect any criticism of the substantial and most valuable work accomplished by the outstanding group of jurists who constitute the Legal Sub-Committee. It is simply one of the facts of our present state of mind. Considering the long period of time it took to arrive at the draft convention on international liability, which is now before us, the whole new field of the law of outer space should be given urgent and far-sighted consideration.

143. Certain delegations have voiced their apprehensions about the possible ways in which earth satellites might be misused. It was pointed out, for instance, that the earth resources survey programme in the field of natural resources could also be used for the purposes of economic spying, which would then be highly detrimental to the developing country involved. The use of satellites in the development of natural resources was one of the items on the agenda of the first meeting held by the Committee on Natural Resources.

144. Another item, which has also engaged the attention of other organs of the United Nations for a number of years now was the question of the permanent sovereignty of States over their natural resources. Now, obviously, there is a link between the remote sensing of the earth by satellite and the question of permanent sovereignty over natural resources—and the sooner a formula is found to accommodate the two, the better. I would go further and point out that the misuse of the earth resources survey programme may not be limited only to economic matters, important as they may be, but that satellites, as we well know, could also be the means for obtaining intelligence data of vital strategic significance.

145. The great advances in the use of outer space have made the traditional legal concepts of the inviolability of a State's air space or jurisdictional sovereignty well-nigh inapplicable. Non-space Powers especially are totally helpless as matters stand now. This is yet another global problem that calls for a global approach. It is in this light that the work of United Nations organizations in this field in general and the work of the Committee on the Peaceful Uses of Outer Space in particular assume their full significance.

146. Finally, my delegation believes that, among the subjects listed in the agenda for the next session of the Legal Sub-Committee, matters relating to the registration of objects launched into space for the exploration or use of outer space and matters relating to activities carried out through remote sensing satellites deserve particular priority. I would also include with that the question of the ownership of the information obtained by remote sensing. An agreement on these subjects would greatly contribute to the attainment of a more comprehensive codification of the international law of outer space in future. It is in this spirit that my delegation welcomes the draft convention on international liability, as it also welcomes and commends the Soviet initiative in the preparation of an international treaty concerning the moon [A/C.1/L.568].

147. The CHAIRMAN (*interpretation from French*): If no other member of the Committee wishes to take the floor, I should like to announce that in the course of the two meetings which we shall be holding tomorrow we shall endeavour to conclude the general debate and, if possible, in the afternoon complete our discussion of the draft resolutions and vote on them.

148. In addition, I should like to inform the members of the Committee of the fact that Sierra Leone has become a sponsor of the draft resolutions appearing in documents A/C.1/L.570 and 572.

The meeting rose at 5.25 p.m.