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COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

VERBATIM RECORDS OF THE THIRTY-SEVENTH TO FORTY-SECOND MEETINGS

Held at Headquarters, New York,
from Tuesday 5 to Friday 8 October 1965

Chairman:

Mr. WALDHEIM

(Austria)

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VERBATIM RECORD OF THE THIRTY-SEVENTH MEETING

Held at Headquarters, New York,
on Tuesday, 5 October 1965, at 10.30 a.m.

1. Welcome by the Chairman to Mr. Nesterenko, Under-Secretary for Political and Security Council Affairs
2. Adoption of the agenda
3. Statement by the Chairman
4. General debate

WELCOME BY THE CHAIRMAN TO MR. NESTERENKO, UNDER-SECRETARY FOR POLITICAL AND SECURITY COUNCIL AFFAIRS

The CHAIRMAN: May I first of all welcome all the delegates to this meeting and express my satisfaction that it was possible, despite a number of difficulties, to convene this Committee.

I should also like to extend a warm welcome to Mr. Nesterenko, the new Under-Secretary for Political and Security Council affairs, who is attending our meeting for the first time.

Mr. Nesterenko comes to the Secretariat with a distinguished record in the foreign service of his country as well as with a background in science and technology which equip him to make a valuable contribution to the work of the Secretariat in this important field. I am sure that the Committee will join me in wishing him every success in his new functions.

ADOPTION OF THE AGENDA

The CHAIRMAN: I do hope that we will be able to carry out our agenda in the spirit of co-operation which has always been the basis of the work in this Committee. I should also like to express the hope that we will not run into technical difficulties which might be caused by the numerous simultaneous committee meetings of the General Assembly. In particular, I am somewhat concerned -- and I say this quite frankly -- regarding the verbatim records, which are normally distributed on the day following each meeting. However, I trust that the Conference Services will not let us down and will be able to provide us with the necessary conference rooms every day so that we may proceed with our daily deliberations without interruption.

Members of the Committee have received the provisional agenda of the seventh session of the Committee, which is contained in document A/AC.105/L.18. If there are no objections I shall take it that the Committee adopts the agenda as outlined in that document.

It was so decided.

The CHAIRMAN: In accordance with the Committee's practice at previous sessions, I shall now, if there is no objection, invite the representatives of the interested specialized agencies, as well as the representative of COSPAR, to take their places as observers.

It was so decided.

STATEMENT BY THE CHAIRMAN

The CHAIRMAN: In opening the seventh session of the Committee on the Peaceful Uses of Outer Space, I should like to recall some of the major events and achievements in the exploration of outer space which we have witnessed since the sixth session of this Committee was held in November 1964.

The past year has shown in a most convincing manner that man has achieved remarkable progress in the art of applying the law of the universe governing the revolution of celestial bodies. The improved technique of launching man-made satellites in orbit around our planet, and the exceptional degree of control over space-craft pursuing their lonely path to the moon and through the solar system to other planets, are sufficient proof that man will ultimately be capable of mastering the manifold technical difficulties with which he is confronted in the adverse conditions of outer space.

In this connexion, I should like to congratulate both the United States and the Soviet Union for the outstanding success achieved in the exploration of the planet Mars and the lunar surface. We heard this morning about the most recent Soviet rocket launching to the moon, and I should like to take this opportunity to express to the delegation of the Soviet Union my sincere wishes for the successful outcome of this exciting undertaking.

Most important and fascinating, however, is the fact that the exploration of outer space will not be limited to the electronic registration and collection of data, but that man himself has seized control over the instruments at his disposal and has asserted his place and demonstrated his superiority over the marvellous but soulless machines which project him into outer space.

The year 1965 represents a milestone in this development, and I should like to express my admiration for the genius and courage of all those men who, through their pioneering deeds, have freed man from the bonds of gravity. The spectacular "space walk" of Soviet Air Force officer Leonov and United States Army Major White are a first but decisive step towards the future role of man in outer space.

Indeed, the whole world, both large and small nations, follow the development and progress in the exploration of outer space with increasing interest. Whilst we are legitimately proud of these achievements, everyone of us is also full of hope that the great prospects opening up before mankind as a result of man's entry into outer space will serve the common interest of all nations and will be used for peaceful purposes only.

(The Chairman)

We must, therefore, endeavour to strengthen this hope through extensive international co-operation, and we must make sure that we adopt in time adequate solutions to the numerous political and legal aspects of the exploration of outer space.

I would, therefore, appeal to the members of this Committee, and in particular to the major space Powers, that this Committee should reassert and strengthen its role and strive in a spirit of compromise to achieve as wide an agreement as possible, in order to enable the Committee to carry out without further delay the mandate entrusted to it.

Distinguished members of the Committee, during the sixth session, which was held from 26 October to 6 November 1964, you have adopted a report addressed to the nineteenth session of the General Assembly, but which, due to circumstances well known to all of us, will now be submitted to the twentieth session of the General Assembly.

This report contains a number of encouraging and constructive elements on the exchange of information, on education and training, and recommends in particular the encouragement of international programmes and the granting of United Nations sponsorship to India for the continuing operation of the Thumba International Equatorial Sounding Rocket Facility. If the recommendations of the Committee, contained in its report, document A/5785, are -- as we all hope -- endorsed by the General Assembly, we will have opened the gates to increased international co-operation in the scientific and technical field of outer space research. The successful operation of the Thumba space centre in India has already demonstrated that a pooling of the efforts of a number of countries is not only beneficial to the advance of science, but also a significant symbol of effective international collaboration. The Committee should, therefore, lend its continued support to international projects which might be brought to its attention.

As the Scientific and Technical Sub-Committee has not met since June, 1964, the only item of a scientific and technical aspect on our agenda is the consideration of the progress reports of the International Telecommunication Union and the World Meteorological Organization. These reports give us an interesting picture of the extent to which artificial satellites are already used in the broad field of telecommunications and meteorological observations. These fields, which represent a direct and most convincing example of the tremendous possibilities of

(The Chairman)

the peaceful uses of outer space, will already in the near future play an important role in the economic life of many countries.

In this connexion, I should like to draw the attention of the members of this Committee to pages 21 and 22 of the report of the International Telecommunication Union giving a description of the communication satellite "Molnia I", which was launched by the Soviet Union in April 1965. I should further like to refer to the advancement of atmospheric sciences and their application in the light of developments in outer space, as outlined in the report of the World Meteorological Organization, where it is indicated that the World Meteorological Centres in Moscow and Washington are now in full operation and that other centres are likely to be established in Australia and in the tropical zones of the globe.

The World Meteorological Organization, relying for the time being mainly on the TIROS operational satellite system of the United States, as described in annex D of the report, is thus advancing successfully towards the concept of the "World Weather Watch", which holds great promise not only for technically advanced countries, but also to a large extent for the agricultural economy of the developing countries, in particular those located in the tropical areas.

In addition to the aforementioned reports, the members of the Committee have received document A/AC.105/28, which was prepared by the Secretariat and which contains Information on Facilities for Education and Training in Basic Subjects related to the Peaceful Uses of Outer Space. The Secretariat has also circulated, at the request of the officers of the Committee and for the information of its members, excerpts from the second report of the Advisory Committee on the Application of Science and Technology to Development (E/4026), and of the thirty-first report of the Administrative Committee on Co-ordination (E/4029). These excerpts are contained in documents A/AC.105/L.17 and A/AC.105/L.20.

(The Chairman)

In connexion with these and other questions which might be of interest to the members of the Committee, I would like to suggest that the Secretary of the Committee, Mr. Abdel-Ghani, be given an opportunity of addressing the members of the Committee at its present meeting.

I would now comment briefly on the work of the fourth session of the Legal Sub-Committee, which was held in New York from 21 September to 1 October 1965.

The Chair regrets that the Legal Sub-Committee, despite the efforts of its members, and especially of its able Chairman, Professor Lachs, was not in a position to reach agreement on the draft convention on assistance to and return of astronauts and space vehicles. With regard to the draft convention on liability for damage caused by objects launched into outer space, one has to take into account the legal complexity of the matter, and it is therefore only fair to state that the Sub-Committee did useful work in clarifying the positions involved and narrowing the gaps with regard to a number of important principles.

Moreover, in its draft report the Legal Sub-Committee recommends that the two draft agreements before it should be considered further at its next session. May I, therefore, in thanking Professor Lachs for his untiring efforts and his skillful guidance in this important field of action, express the hope that the Legal Sub-Committee will, at its next session, be in a position to overcome the remaining obstacles so that it may successfully carry out the mandate contained in General Assembly resolution 1963 (XVIII).

As you are all aware, the Committee, at its last session, in November 1964, set up a working group, composed of all the members of this Committee, to examine the desirability, organization and objectives of an international conference or meeting, to be held in 1967, on the exploration and peaceful uses of outer space, as well as to make recommendations on the question of participation in the said meeting of the appropriate international organization. It was agreed that the working group should report to the Committee at its next session.

In this connexion, I should like to draw the attention of the Committee to my letter of 20 July 1965, by which I informed all members of the Committee that there appeared to be agreement among the members that the working group should meet between 7 and 10 September 1965. In a subsequent letter, dated 3 September 1965, I informed the members of the Committee that it had proved impossible to hold the meeting of the working group, as suggested in this letter, between 7 and 10 September 1965.

(The Chairman)

In the meantime, I have been conducting, with the assistance of the officers of this Committee, extensive consultations with all members of the Committee, with the aim of finding a new date for the working group. While there seems to be general agreement that the working group should meet as soon as possible, a great number of members of the Committee have expressed concern that the heavy agenda of the twentieth session of the General Assembly would prevent them from carrying out, in the careful and detailed manner which the question deserves, the complex mandate given to the working group. In view of these circumstances, the Chair has no better solution to offer than that he continue his efforts in order to reach a consensus on the date of the meeting of the working group.

In conclusion, I should like to recall the agreement reached at the first session of this Committee in March 1962 -- an agreement observed at subsequent sessions -- that it will be the aim of all members of the Committee to conduct the Committee's work in such a way that it will be able to reach agreement in its work without need for voting. I trust that the members of the Committee will agree to continue this procedure at our present session.

Mr. ABDEL-GHANI (Secretary of the Committee): Since the adoption of the Committee's report to the nineteenth session of the General Assembly, the Secretariat has been able to make reasonable progress in carrying out the functions entrusted to it by the Committee. In a brief statement of this kind, I will touch upon the more important points of interest to the Committee.

First, under the heading of "Exchange of information", the Committee will recall that in its report to the nineteenth session of the General Assembly, paragraph 34-1 called for the preparation and up-dating of reviews on national and international co-operative space activities, on activities and resources of the United Nations, the specialized agencies, and other competent international organizations and bodies relating to the peaceful uses of outer space, on bibliographies and abstracting services, and, finally, on education and training.

Work on these reviews is proceeding satisfactorily. With the continued co-operation of Member States, as well as of the specialized agencies and various interested and regional organizations, we anticipate no difficulty in producing the reviews in time for the requested deadline in 1966. In conformity with paragraph 15 B I of the Committee's report, Member States will shortly be requested

(Mr. Abdel-Ghani, Secretary)

to furnish the Secretary-General with information on new developments and achievements for inclusion in the review of national and international co-operative space activities, which is due to be presented to the Scientific and Technical Sub-Committee at its forthcoming session next year. The Secretariat intends to issue a new edition of the survey which was published a few months ago under the United Nations international and national space programmes.

I might also mention the steps taken to implement the Committee's request, in paragraph 13 D I, for a report on existing material aimed at ensuring popular understanding of the purposes and potentialities of space activities, and the means by which new material, if needed, might be prepared and made available. As a first step, we have undertaken a survey of existing material, to which, so far, over forty countries and organizations have contributed bibliographic information or suggestions. The survey will provide a basis for the Secretary-General's recommendations to the Scientific and Technical Sub-Committee.

(Mr. Abdel-Ghani, Secretary)

In a related recommendation, in paragraph 13 D 2, the Committee requested the Secretary-General to discuss with COSPAR the status of COSPAR's preparation of technical manuals and consider how the publication and distribution of this technical literature might be encouraged. COSPAR has prepared two manuals, one on the optical tracking of satellites and the other on the establishment of a rocket-launching facility. These are two topics of particular interest to the developing countries and others embarking on small-scale space programmes. COSPAR has already put forward the manual on optical tracking of satellites; it was prefaced by Dr. Martyn, Chairman of the Scientific and Technical Sub-Committee. The Secretariat was able to provide financial assistance to COSPAR for the publication and distribution of the two manuals.

In this regard it gives the Secretariat pleasure to state that we are in constant contact with COSPAR, and during its last session in Buenos Aires I had the valuable opportunity of discussing with the President of COSPAR, Professor Roy, and with many of his collaborators, several of the questions of common interest to the Committee and COSPAR.

Still under the heading of information, I may mention the calendar of space conferences which the Secretariat is now issuing on an experimental basis and also the steady development of the Outer Space Affairs Group Library. The most recent calendar was circulated to delegations last month, and soon they will receive a list of the Library's holdings of material on space research and technology. With regard to registration, the space Powers continue to furnish the Secretary-General with information regarding their launchings and the information has been placed in the public registry maintained by the Secretary-General and has been widely circulated to Member States and circles concerned with the matter.

Before concluding this part, I wish to mention that the two informal papers prepared and circulated by the Outer Space Affairs Group to members of the Committee -- the monthly survey of space events and the bimonthly digest of space studies -- have been well received by many Committee members, with comments and suggestions, and this encourages us to continue to try to improve this project.

(Mr. Abdel-Ghani, Secretary)

Turning to the question of encouragement of international programmes, the Secretariat has, in conformity with the Committee's recommendations of 1964, begun preliminary consultations on navigation satellites with the two specialized agencies concerned, the Inter-Governmental Maritime Consultative Organization and the International Civil Aviation Organization. At the same time, the competent authorities of some of the countries represented in this Committee have conducted studies on the question, and we think that it is appropriate -- if there is no objection -- to contact these authorities and acquire the available information on their studies. The assembled background material and the acquired information will be put before the Scientific and Technical Sub-Committee when it takes up the matter.

In the field of education and training, the Secretariat has continued to compile material from governmental and other reliable sources. A document was issued recently reproducing the information furnished to date by Member States regarding facilities for education and training, including the availability of scholarships and fellowships. Further documents of this nature will be issued on a continuing basis, as requested by the Committee. In addition we shall provide, as requested by the Committee, the Scientific and Technical Sub-Committee at its next session with ample information on the subject of facilities for education and training in basic subjects related to the peaceful uses of outer space. The report to be presented to the Sub-Committee will attempt to provide the Sub-Committee with a complete picture of training opportunities, including those available through the specialized agencies.

Dealing with the work of the Secretariat in this field, I think it is necessary to bring to the attention of the Committee that the Administrative Committee on Co-ordination has attached particular importance to the question of education and training in the space field. In its meeting early last summer, under the chairmanship of the Secretary-General and with the participation of the heads of specialized agencies, the Committee stated the following in paragraph 72 of its report, extracts of which have been circulated in document A/AC.105/L.20:

(Mr. Abdel-Ghani, Secretary)

"The question of training is one of the most important facing the United Nations family in the space field and is of direct, practical concern to many countries, particularly in areas such as communications where space technology is already being applied on an increasing scale. What is envisaged by ACC is a relatively modest programme designed to support and, where appropriate, supplement existing programmes. If resources permitted, funds might, for example, be provided to assist in the provision of fellowships, travel to seminars, the organization of training courses, etc. It was noted that the Outer Space Committee had called for assistance to increase the value of TERLS, the internationally sponsored sounding rocket launching site in India, as a training centre. In this connexion, it was noted that the establishment of meteorological sounding rocket programmes, which require only very simple launching facilities, could provide a good way for countries to enter the space field."

In accordance with the above-mentioned statement, the Outer Space Affairs Group submitted to the specialized agencies concerned a plan for a twofold but modest programme as it was envisaged by ACC. On one hand, it is proposed to establish a joint fellowship fund under the aegis of the Outer Space Committee to assist scientists and technicians from the developing countries to obtain a broad education and training in the space field. On the other hand, it is proposed that a pilot training summer course be organized for the benefit of trainees from one of the regions aspiring to take part in space technology. These suggestions are now under consideration by the specialized agencies concerned.

However, it is necessary to state here that, in making these suggestions, care has been taken to base them on the principle that training activities under the auspices of the Outer Space Committee should be so designed as to avoid duplication of programmes at present being carried out on a bilateral basis or by individual agencies or international institutes. In this regard, we benefited to a great extent from the discussions we had with several competent people, especially in COSPAR, and its Working Group V, which is concerned with the question of education and training.

(Mr. Abdel-Ghani, Secretary)

In conclusion, I wish to state that in our work we have benefited greatly from consultations with our colleagues in the specialized agencies, through the meeting of the Inter-Agency Working Group on outer space matters, which comprises representatives of the United Nations Secretariat and the specialized agencies concerned, as well as through the constant contact with their liaison officers in the Headquarters.

(Mr. Abdel-Ghani, Secretary)

I should like also to place on record an appreciation of the co-operation we have received from COSPAR, with which we established a close and effective working relationship, and also with other international and regional organizations concerned with outer space matters. In its recent meeting in Athens, last month, I found the International Astronautical Federation ready to co-operate with the United Nations Secretariat in areas of common interest to the Committee and the Federation, especially in the field of popular understanding of space matters.

Last but not least, under the enlightened guidance of you, Mr. Chairman, and the guidance of the distinguished Vice-Chairman and Rapporteur of the Committee, and with the assistance of the members of the Committee, and that of the eminent scientists who compose the Scientific and Technical Sub-Committee, my colleagues and myself find that their part, modest as it is, in promoting international co-operation in the peaceful uses of outer space a pleasant and rewarding job.

GENERAL DEBATE

The CHAIRMAN: I should now like to pass to item 3 of our agenda, which is the general debate. So far I have three speakers on my list: the representative of the Soviet Union, the representative of the United States and the representative of Italy.

Mr. FEDORENKO (Union of Soviet Socialist Republics) (interpretation from Russian): Before embarking upon the presentation of the contents of our statement, may I, Mr. Chairman, take the opportunity at this first meeting of the Committee on the Peaceful Uses of Outer Space under your chairmanship, to say that the Soviet Union would like to tender its most heartfelt congratulations to you upon your well-deserved election to this important and responsible post. We do not doubt that through your competence, your experience, your energy and your characteristic tact, the Committee will be able to make headway towards new horizons and achieve further successes in its activities.

May we likewise thank you, Mr. Chairman, for your good wishes and congratulations in connexion with the new achievements of Soviet science in the field of the conquest of outer space.

(Mr. Fedorenko, USSR)

During the relatively short period of its existence, the Committee on Outer Space has adopted a good tradition of taking stock at every autumn session of the work done by Member States on the exploration of the peaceful uses of outer space, as well as their efforts in the further development and perfecting of forms and methods of co-operation in this field.

In the past year the Soviet Union has continued large-scale work on the study of space close to earth by means of satellites and geophysical and meteorological rockets of various types, as well as exploration of the depths of outer space -- the moon and the planets -- by means of interplanetary automatic stations. At the same time Soviet scientists have continued their efforts towards the conquering of outer space by man, towards making it liveable, as it were, and towards the utilization of scientific achievements in outer space for peaceful uses.

It may quite definitely be stated that the past year has been most fruitful from the point of view of the collection of new scientific data, the expansion of our knowledge of the laws of nature and the solution of important engineering and technological problems in the field of rocket and space technology.

A new page in the history of the conquest of outer space by man, has been turned by the successful flight in the Soviet Union of the cosmic ship Voskhod II, piloted by a crew consisting of the ship's commander, Cosmonaut Pilot Colonel Pavel Ivanovich Belyaev and Cosmonaut Pilot Lieutenant Colonel Aleksei Arkhipovich Leonov. In the course of the flight of the space craft Voskhod II on 18 and 19 March this year, a complex scientific and technical experiment was carried out successfully involving a walk in outer space. On 19 March Aleksei Leonov, in a special space suit, left the cabin of the space ship and, in a free flight in outer space more than 500 kilometres from the earth lasting twenty minutes, successfully carried out a series of planned experiments. The emergence of Aleksei Leonov directly into outer space for practical work, for research in free flight in cosmos, was duly recognized by the scientific community of the world as an outstanding attainment of space technology of our times. Soviet scientists are sharing the medical, biological and other scientific results of the flights of Soviet cosmonauts on Voskhod II with their colleagues

(Mr. Fedorenko, USSR)

from other countries, and as the data are analysed and processed, they disseminate them more widely and report on them at scientific conferences. The feat of the crew of Voskhod II was an important contribution to world science and marked the beginning of an entirely new type of study and conquest of outer space by man. It has shown that man can not only fly inside space craft, but can actively operate outside and perform necessary tasks and scientific observations in outer space.

In noting the special importance of this period in the matter of space technology, the historians of science will probably call 1965 the year of space travel in order to stress the historical fact that for the first time man emerged from the closed cabin of a space craft and, soaring alongside it like the fabled cosmic bird, gazed at the earth from outer space. The American astronaut Edward White later accomplished the same feat from the space craft Gemini IV, and after the first daring explorers others will follow, to explore the still new and little-known limitless ocean of outer space.

As a part of its programme for the exploration of outer space, on 18 July this year the Soviet Union launched an interplanetary station, Zond III. It was designed for scientific exploration of outer space and the solution of new problems connected with instruments for use in long-range space vessels. By means of photo-television apparatus set up on board the station, on 20 July this year, when Zond III was at close range, approximately 10,000 kilometres from the surface of the moon, we photographed, for the first time, a part of the unseen part of the moon, which had not been included in the pictures first taken by the Soviet automatic interplanetary station in 1959. Now, on the far side of the natural satellite of our planet, there are practically no blank spots left.

(Mr. Fedorenko, USSR)

The clear, high-quality photographs obtained of the lunar surface are now being analysed, and a more detailed atlas of the surface of the moon which is not visible to the earth is being prepared. After passing the moon, Zond III is continuing along its heliocentric orbit, and scientific experiments are being performed aboard the space craft.

At the Sixteenth Congress of the International Astronautical Federation, which took place in September of this year, Soviet scientists reported on the first results of analyses and processing of photographs taken from Zond III for the purpose of studying the physics of interplanetary space in the immediate vicinity of the moon.

This year, interplanetary stations Lunik V and Lunik VI were also launched. Yesterday, 4 October, the Soviet Union launched a space rocket towards the moon carrying an automated station, Lunik VII, weighing 1,506 kilogrammes. A substantial step forward was thus achieved by Soviet scientists in studying the physics of space in the immediate vicinity of our planet. On 16 July of this year, in accordance with plans for space research by means of a new powerful carrier rocket, the Soviet Union launched upon an earth orbit a scientific space station, Proton I. The total pay-load of the craft thus launched -- which is a complex scientific space station with a control system and measuring apparatus -- was 12.2 tons. The launching into orbit of a scientific station of such weight and complexity as Proton I opens to science vast prospects for the study not only of outer space in the immediate vicinity of the earth, but also of the depths of the universe, by space craft of great weight, thus making possible extensive scientific experimentation and exploration. In the space laboratory Proton I, a unique scientific programme has been set up, devoted to a number of fundamental problems of the physics of cosmic rays of ultra-high energy.

The exploration of outer space by means of the Cosmos series, inaugurated in 1962, was also successfully continued. In the course of this programme, we developed a technique for the launching of several satellites by means of one rocket carrier. On 16 July and on 3 and 18 September of this year, five satellites were launched simultaneously by one Cosmos rocket carrier.

(Mr. Fedorenko, USSR)

In accordance with the programme of utilizing satellites for the setting up of extra-long-range communications, on 22 April 1964 the Soviet Union launched the communication satellite Molnia I. The satellite was placed into a high elliptical orbit with an apogee of 39,380 kilometres above the northern hemisphere. The orbit selected makes possible long-range radio communication for several hours over a broad territory, right up to the very northernmost latitudes. Utilizing the satellite Molnia I, a whole series of experiments are being carried out in connexion with the transmission of television, telephone conversations, telegraphic and photo-telegraphic communications between such widely separated points in the Soviet Union as Moscow and Vladivostok. There have also been broadcasts of colour television, with the utilization of the attainments of the scientists of the Soviet Union and France in this area. These tests were carried out successfully, demonstrating that the achievements of Soviet and French scientists in the field of colour television make it possible to create, on the basis of the SECAM system and its standard, a highly perfected system of colour television, whose elaboration and dissemination is being provided for in an agreement between the Soviet Union and France. We hope that in future operational systems of colour television, along with ordinary means of radio communication, greater use will be made of outer space communication and that the satellites of the Molnia type may be used as a basis for setting up such lines of communication.

During the current period, a number of rather interesting experiments -- to which reference has already been made -- have also been carried out in the United States of America: the transmission of photographs of Mars by Mariner IV, the photographing of the visible side of the moon by the Rangers, and the lengthy flight of the crew of Gemini V. Increasing numbers of scientists, scientific organizations and countries are beginning to deal ever more actively with questions involving the study of outer space. This has been most eloquently borne out in 1965, especially by the work of the COSPAR symposium at Mar del Plata and that of the Sixteenth Congress of the International Astronautical Federation in Athens, at which scientists from scores of countries presented much interesting information and many reports attesting to the success of space flight and the increasing interest of the world in the peaceful uses of outer space and the engineering and technological problems involved.

(Mr. Fedorenko, USSR)

We could also point to the original and interesting work in the field of cosmic exploration being carried out by a number of socialist countries -- in particular Czechoslovakia, Poland, Hungary, the German Democratic Republic, Romania, Bulgaria -- as well as by the scientists of Belgium, Italy, Brazil, Argentina, Japan and other countries.

The scientific community has duly noted the success attained by scientists of France in the field of outer space exploration, and we await with interest the first launching of a French satellite by means of a French carrier and the entry, thereby, of France among the countries which are performing their own independent launchings into outer space.

We consider it essential to point out the fortunate fact that during the period since our last meeting, in spite of considerable difficulties, fruitful co-operation has been set up between countries in the field of outer space. This co-operation has grown both quantitatively and qualitatively, with an increasing number of contacts among scientists and scientific institutions of various countries on a bilateral and a multilateral basis.

There has been a successful continuation of the work of COSPAR, whose membership has been expanded through the invitation of scientific organizations of a number of countries. Ever-increasing numbers of scientists have been developing mutual contacts under the auspices of the Astronautical Federation and through regional organizations.

Also significant is the fact that, through the efforts of scientists of many countries, increasing amplification of knowledge and greater accuracy are being attained in the study of the characteristics of outer space, making it possible to hope for ever-safer progress in its conquest.

As will be seen from the reports presented to us by the International Telecommunication Union and the World Meteorological Organization, these bodies are continuing their useful work in the development and promotion of co-operation among many countries with regard to the improvement of meteorological forecasting and the development of meteorological science, as well as the improvement of means of communication throughout the world through the utilization of artificial satellites.

(Mr. Fedorenko, USSR)

The Soviet Union has actively participated in the measures taken by members of WMO in connexion with the World Weather Watch Programme. A great part of this system utilizes data provided by artificial satellites. Our hydro-meteorological service has completed the construction of buildings for the World Meteorological Centre in Moscow and is now continuing the installation of its technical machinery. At the same time measures are being taken to establish three subsidiary stations of the World Meteorological Centre, to be located in Novosibirsk, Khabarovsk and Tashkent. The World Meteorological Centre has prepared and is developing a system for the collection and processing of data obtained from Soviet meteorological satellites. This system makes it possible to reprocess material quickly for use in the meteorological service and to share it with other countries. A large group of scientists -- including Soviet scientists -- has been formed under the WMO to work on the processing of data obtained from meteorological satellites for use in weather forecasting, especially for the development of modern, hydro-dynamic weather forecasting systems using electronic computers. A survey of these activities may be found in the latest WMO report. In this connexion, also, in June of this year, Soviet scientists, together with American scientists, prepared a report which was issued by the Executive Committee of WMO in Geneva.

We note with satisfaction the first successful results of the international launching facilities in India. In this regard, international co-operation has developed in a familiar pattern. However, can we conclude from this that it has achieved such a level that all possibilities are exhausted and that nothing now remains but to rest on our laurels? Obviously, this is not the case. The Soviet Union believes that the task of the Committee lies not in merely registering or setting down what has been accomplished concerning the establishment of contacts among scientists to further co-operation among States. The Committee must encourage and develop, in an all-round fashion, international co-operation in this area; it must seek new opportunities and new forms of co-operation. It is precisely from this point of view that the Soviet Union regards its participation in the work of the Committee on the Peaceful Uses of Outer Space.

(Mr. Fedorenko, USSR)

Guided by the need for the progress of science in the exploration and peaceful uses of outer space, the Soviet Union supported the proposal put forward in the Scientific and Technical Sub-Committee by a number of countries, for holding an international conference on the exploration and peaceful utilization of outer space in 1967. In supporting this proposal for the convening of a conference, the Soviet Union proceeds from the premise that the holding of such a conference would be an important step forward in outer space exploration programmes throughout the world and would contribute much to the further development of international co-operation in this field. In fact, the preparation for, and the holding of, a large-scale international conference in this field would in itself be an important form of co-operation among States. Many members of the Committee supported the idea of holding this conference on outer space in 1967, as suggested by the representatives of Austria, France and other countries, and agreed that it is time to hold such a conference. At the present stage in the exploration and study of outer space, a vast amount of scientific material has been collected, and many discoveries of an essential nature have been made; many hypotheses have been formulated. Now it would be very helpful to give scientists of all countries an opportunity to discuss what has been attained thus far and to map out, through joint efforts, the most important steps to be taken for further exploration in this field in the interests of peace and the progress of science.

As is known, at its last session the Committee set up a special Working Group, consisting of all its members, to carry out a comprehensive, detailed discussion of this question of convening an international conference on outer space in 1967, and of the preparations necessary, for the benefit of our Committee. We expected that the scientists, all representatives on this Committee, would be able to meet and, in a business-like way, deal with the practical work involved in preparing for such a conference. One year should have been sufficient time to enable the Working Group to study, without haste, all the pertinent aspects of the convening of the conference. However, our expectations were not realized. In spite of the efforts of the Soviet Union and a number of other countries represented in this Committee, this discussion was not carried out because of the negative attitude on the part of a number of States which are also represented in this Committee.

(Mr. Fedorenko, USSR)

There is hardly need to mention that the attempts of these countries to avoid or obstruct discussions of the question of the holding of such an important gathering as an international conference on outer space was a matter of regret and disappointment for all those interested in advancing the peaceful uses of outer space. The Committee should concern itself urgently with the matter of convening this conference; it must find a way out of the situation which now exists, in order to overcome these artificially created difficulties placed in the way of holding a large-scale conference on the peaceful uses of outer space.

International co-operation regarding the peaceful uses of outer space finds other difficulties in its path, also. The year that has passed has clearly confirmed the justification for and validity of criticisms voiced by many members of the Committee concerning measures taken by the United States aimed at undermining a mutually beneficial co-operation on a basis of equality in the field of space communications. Recent facts indicate convincingly that actions carried out by the United States, in circumvention of the United Nations and the International Telecommunication Union, in setting up a world system of space communications have been inspired, from the outset, not at all by the needs of the United Nations. In creating and perfecting the most modern forms of communication, the United States has not been influenced by the necessity for the advancement of the economies and cultures of the developing countries. These steps were taken by the United States for the benefit of the selfish interests of a private corporation, COMSAT, and those of the powerful monopolies standing behind it which operate in the area of communications in general and the production of rockets and electronic devices, pursuing for their own purposes the subordination of the whole field of international communications, through a unilateral system of communications, to the hegemony of the United States. It stands to reason that all this can in no way contribute to international co-operation, in the true meaning of the word.

Important tasks have been placed before this Committee by the General Assembly also, concerning the formulation of legal norms which require co-operation among States in the use of outer space for peaceful purposes. As will be seen from the report of this Sub-Committee, in the current year, unfortunately, it has not been possible to make any substantial headway in the preparation of basic drafts for international agreements covering the exploration and peaceful uses of outer space.

(Mr. Fedorenko, USSR)

Thus, Mr. Chairman, it should be acknowledged that the tasks placed before the United Nations Committee on Outer Space by General Assembly resolution 1963(XVIII) are still unfulfilled. We should like to recall that in that resolution there are recommendations to this Committee to consider the question of the formulation, in the form of an international agreement, of the legal principles of the activities of Governments in the exploration and use of outer space.

In this connexion, the delegation of the Soviet Union proposed at the recently concluded session of the Sub-Committee that the above-mentioned international agreement be embarked upon. This proposal was supported by the representatives of a number of countries. The Soviet delegation considers that the formulation of an agreement on legal principles and activities of States in outer space which would contain legal obligations is highly urgent and necessary and is one of the top priority tasks of the Legal Sub-Committee.

Discussion in the Sub-Committee also showed that the absence of a broad international agreement, which would contain the basic legal principles and activities of States in outer space, creates considerable difficulties also for the effecting of the legal settlement of various concrete problems. For instance, agreement on the rescue and return of cosmonauts and space craft in the case of accident, and agreement on the liability for damage, which may be done by cosmic or space craft.

Last year, as is known, the Legal Sub-Committee effected useful work on the question of the formulation of a draft agreement on the rescue of cosmonauts. The Sub-Committee came to agreement on a number of provisions of the draft agreement. The Soviet Union was the initiator of the formulation of an international agreement on the rescue of cosmonauts. The Soviet side had constantly exerted all efforts in order to make headway in the achievement of agreement on this subject. In connexion with this, the Soviet delegation, in trying to meet the positions of other members of the Committee, has on many occasions substantially altered the formulation of the provisions of its own draft and proposed new compromise formulations. This was positively assessed by the majority of the members of the Committee.

However, in view of the negative attitude adopted by certain members of the Committee, it has not been possible to conclude the draft agreement on the

(Mr. Fedorenko, USSR)

rescue of cosmonauts. Further efforts are necessary for the speedy conclusion of the preparation of a draft on the above-mentioned agreement.

As is known, the Legal Sub-Committee continued the discussion of problems connected with the formulation of a draft agreement on liability for damage that may be caused by objects launched into outer space. This problem is not an easy one. It touches upon different legal systems in which questions of liability for damage are solved in different ways.

On the other hand, international legal norms which regulate liability for damage done internationally are not always of the same character and are far from being comprehensive. The Soviet Union delegation considers that the most appropriate basis for the formulation of a mutually agreeable document on the question of liability for damage caused by objects launched into outer space might be that of the draft of the Hungarian People's Republic. That draft has been formulated with due account being taken of the proper provisions of the Declaration of legal principles governing the activities of States in the exploration and use of outer space.

We are prepared, in future, to exert all efforts in order to achieve progress in this question and carry out the instructions of the General Assembly contained in resolution 1963 (XVIII) regarding the drafting of a draft convention on liability for damage caused by objects launched into outer space.

In spite of the difficulties standing in the way of further co-operation and the exploration and peaceful uses of outer space, we wish to express the hope that co-operation among States, among scientists and among scientific organizations at various levels and in various forms will continue to grow and become stronger. All countries are interested in the development of useful co-operation in this regard, which is in line with the interests of science and the interests of mankind as a whole. The Soviet Union intends to continue to establish and develop mutually beneficial co-operation with other countries in this regard. Our country will continue in the future to exert all efforts to ensure that fruitful international co-operation on a basis of equality might develop in the exploration and peaceful uses of outer space.

Mr. NABRIT (United States of America): I welcome this, my first, opportunity to be present as the United States representative on the Committee on the Peaceful Uses of Outer Space. I wish to reassert that the United States continues to believe that it should be our common aim to work towards agreements. I am confident, Mr. Chairman, that with your wise and patient counsel we shall continue on a constructive path.

The year 1965 has been one of continuing and sometimes expanding co-operation in outer space activities. The Committee on the Peaceful Uses of Outer Space provides a unique forum for highlighting this truth, which has sometimes been obscured by newspaper headlines.

I do not intend today to dwell on the spectacular space developments which members of the Committee have read all about in the world press. Instead, I want to review briefly the co-operative enterprises which my Government has undertaken and to listen attentively to your ideas.

The quest for co-operation is an endeavour that we can all engage in with pride; a challenge that the small can meet as well as the large. President Johnson summed up our intentions in his statement of 25 August 1965 when he said:

"... our American dream for outer space is a dream for peace and a dream of friendly cooperation among all of the nations of the earth".

(The New York Times, 26 August 1965)

The year that has elapsed since the Committee last met has, of course, seen remarkable technical achievements in space. We believe that this progress should be shared with other nations, and that, for this purpose, space programmes must be carried out in an open and generous spirit.

(Mr. Nabrit, United States)

The thorough and immediate reporting of our manned flight programmes is perhaps the example most often mentioned, but I should like to point out some others. Probes undertaken by the United States during 1965 transmitted back to earth highly significant close-up photographs of the surface of the moon and Mars. The moon photographs, especially prepared for measurement and analysis, have been distributed to leading astronomers and other interested scientists in thirty-eight countries, and are available to all countries. There will be a similar dissemination of our Mariner photographs of Mars. Interpretation of these pictures requires the help of gifted minds wherever they may be.

Our National Aeronautics and Space Administration - hereafter referred to as NASA - publishes over 15,000 reports each year and provides an unparalleled comprehensive index and abstracting service which affords vast coverage of both scientific and technical fields. NASA personnel participate and report widely in international scientific and technical discussions. Since we last met, for example, more than 250 NASA scientists and engineers have presented papers at some eighty professional meetings overseas. I stress that all of their material and far more is available to scientists everywhere.

Many members of this Committee will remember their visit to Cape Kennedy in 1962. They may not realize that since 1958 more than 13,500 individuals from 107 countries have visited NASA installations. Beyond this pattern of information, exchange and personnel training, we are continuing our energetic support of substantial co-operative projects. An example of these is the Italian-built and instrumented San Marco space craft placed in orbit by an Italian crew last December from NASA facilities at Wallops Island, Virginia. Italy thus became the third nation to launch a satellite.

Later this year NASA expects to place in orbit a French satellite to measure very low frequency radio emissions, and a second Canadian satellite - the first of four in a new series to conduct ionospheric studies. Other joint satellite projects are proceeding with the United Kingdom and the European Space Research Organization, and a new agreement for such a project has been made with the Federal Republic of Germany.

We value the scientific and technical skill which our partners bring to these ventures. An additional opportunity for international co-operation in space activities is the United States programme under which foreign scientists are

(Mr. Nabrit, United States)

invited to propose individual experiments for inclusion on the larger NASA satellites. Proposals selected on their merit are then prepared for flight by the sponsors abroad: sixteen have already been selected for flight and many more are under consideration. NASA has recently opened the Apollo manned space craft and the 1971 Voyager mission to Mars to foreign participation of this kind. A number of proposals for both have already been received.

Co-operative sound and rocket projects offer relatively low-cost opportunities to countries wishing to initiate space programmes. Ten members of this Committee have participated in such co-operative projects with NASA and the total number of countries participating in these joint projects is now seventeen. These programmes have progressed well beyond bilateral agreements. Ionospheric studies with Norway and Sweden have led to collaborative efforts between the two and with Denmark. Projects with India and Pakistan have developed into co-operative meteorological studies by Pakistani, Indian and Australian scientists to supplement the international Indian Ocean expedition. Agreements with Argentina and Brazil have led to the establishment of an inter-American meteorological sound and rocket network, which we hope will eventually engage Western Hemisphere meteorologists from the Antarctic peninsula to the shores of the Hudson Bay.

The meteorological satellite programme has developed into an outstanding example of the benefits that come to all in developed as well as highly developed countries as space capabilities improve. There is an excellent account of this activity in the current report of the World Meteorological Organization.

In the last year, the United States has launched two new experimental weather satellites, Tiros IX and X. Tiros IX's unique configuration has made cloud patterns of the entire earth available on a daily basis for the first time, and Tiros X has gone into an orbit permitting daily checking of hurricanes and typhoons. Together with Tiros VII and VIII, which continue to perform satisfactorily, these new satellites have allowed us to furnish information on weather conditions to nations in all latitudes around the world; last December for example Tiros' photographs made possible forty-eight-hour advance warning of a dangerous tropical cyclone that struck India and Ceylon.

The success of these experimental satellites has made it possible to move on to the next stage: the Tiros operational satellite system. Space-craft launched as part of this system in 1966 will carry automatic picture transmission system -- referred to hereafter as APT. Cameras, which will enable users anywhere to

(Mr. Nabrit, United States)

receive pictures of local weather conditions directly from the satellite through simple and inexpensive ground equipment. Such equipment has already been set up and used in eleven countries with beneficial results. Present indications are that about thirty countries will be equipped to take advantage of the first operational automatic picture transmissions early next year. The data from the global coverage satellites will also be catalogued, archived, and made available for use by scientists on request. We urge developing nations in particular to avail themselves directly of this new opportunity.

Equally encouraging progress has been made in the field of satellite communication. The interim commercial system now including forty-six States -- twenty-nine more than at the time of our last meeting -- became an operational reality in April, as the Early Bird synchronous satellite took its station 22,500 miles above the Atlantic. The participants in this enterprise can, we think, take particular pride in their pioneer work. They include all areas of the world: from the Western Hemisphere - Argentina, Brazil, Canada, Chile, Colombia, the United States; from Africa - Algeria, Ethiopia, Libya, South Africa, Sudan, Tunisia, the United Arab Republic; from the Far East - Australia, Ceylon, Republic of China, Indonesia, Japan, New Zealand; from the Middle East - India, Iraq, Israel, Jordan, Kuwait, Lebanon, Pakistan, Saudi Arabia, Syria and Yemen; from Europe - Austria, Belgium, Denmark, Federal Republic of Germany, France, Greece, Ireland, Italy, Monaco, Netherlands, Norway, Portugal, Spain, Switzerland, the United Kingdom and Vatican City. These countries account for about 90 per cent of the estimated potential world satellite telecommunications traffic. By the end of 1967, this communication satellite system will be providing global coverage, including voice, telegraphy, high-speed data, facsimile and television service.

(Mr. Nabrit, United States)

I remind the members of the Committee that, whether a State is a participant or not, access to this system is free and non-discriminatory. Only yesterday, this system made it possible for television viewers across the Atlantic Ocean to watch the historic visit of His Holiness Pope Paul to this very building. If any were unable to see it, political -- and not technical -- barriers limited their vision.

Turning for a moment to the details of the work before us, I wish to repeat my country's endorsement of the recommendation made by this Committee last year in the scientific and technical area, including the recommendation for United Nations sponsorship of the Indian sounding rocket facility at Thumba.

As had been made clear by our Secretary, much of the Committee's work of last year has already produced good results. With Mr. Abdel-Ghani, we should especially like to single out the Committee's report entitled "Information on facilities for education and training in basic subjects related to the peaceful uses of outer space" (A/AC.105/28). It is a valuable first step in a promising new United Nations function. We hope that those Member States which have not yet contributed will make a special effort to do so in the future. We also trust, as the Committee recommended last year, that the Secretary-General will make information available on a continuing basis. Some countries' reports in this document speak of needs for training and education in space-related activities. We should therefore like to call attention to the opportunities listed by the United States in its submission. During the current year, seventy-three resident research associates from twenty countries are working at NASA centres. Seventy-eight international fellows from seventeen countries are studying at American universities, not to mention the hundreds of students studying related disciplines on grants from Government agencies other than NASA. Eighty-two technical trainees from six countries are in NASA centres in the United States for training in various NASA co-operative projects, bringing the number of scientists, engineers and technicians who have been, and are being, trained in such joint projects to 225, from eighteen countries.

We commend the World Meteorological Organization and the International Telecommunications Union, which is this year celebrating its centennial, on their constructive work in space-related activities. We believe that the Committee should note their reports with appreciation, and request that these organizations give us the benefit of their reports again next year.

(Mr. Nabrit, United States)

We are particularly pleased with the interest shown by the Administrative Committee on Co-ordination in the efforts of our Committee. We welcome their comments and suggestions concerning international co-operation in our important tasks of co-ordination, education and training.

Unfortunately, progress has not been up to expectations in all facets of outer-space co-operation. It is a matter of deep regret to the United States that the meeting of the Legal Sub-Committee, which has just concluded, produced no complete agreement on two important matters: assistance to, and return of, astronauts and space objects, and liability for damage caused by space launchings. I believe that I am expressing the views of all members of this Committee when I say that we hope most earnestly that there will be early progress by the United Nations in developing further the law of outer space. The United States will be making vigorous efforts to this end.

A suggestion has been made that we should yield priority to the codification in treaty form of the Declaration of legal principles adopted by the General Assembly in 1963. As members will recall from Ambassador Stevenson's statement at that time, the United States attributes very important effects to that Declaration as it stands. We do not think the Declaration requires re-statement in any new form. This is not to say that work should not be done to embody in international agreements a statement of legal obligations which Member States would undertake in giving specific effect to individual principles set forth in the Declaration. For instance, we are anxious to see completed the agreements on liability and assistance and return, which have now been in preparation for eighteen months. And, as Ambassador Goldberg proposed in his speech to the General Assembly on 23 September, we believe that the United Nations should undertake, in advance of man-landings on the moon, the drafting of international rules to govern the exploration of celestial bodies. Each of these undertakings presents a challenge. Each has its difficulties, as we have already seen. We do not think it would enhance the prospects of success and accomplishment if an attempt were made to cover all these questions, and others too, in a single treaty or agreement.

Let us go ahead with energy on each of these projects for building the law of outer space. We remain interested in a constructive, detailed discussion of proposals for an international meeting on outer space. We had hoped that the

(Mr. Nabrit, United States)

Working Group set up for this purpose by the Committee would meet, as agreed, before the General Assembly, and we regret that this was not possible. When the Working Group does meet, the United States will be prepared to consider carefully the wishes of the other members, and to make its own contribution to the Group's study and recommendation.

On balance, I think that the quest for peaceful co-operation in space has continued to move forward in 1965. My statements are by their nature concentrated on United States contributions, but there are many others who have much to say. We welcome your own reports, for this is a quest in which we hope that all of you will join us, and in which all of us will succeed.

The CHAIRMAN: As far as I understand it, the delegate of Italy does not want to speak this morning, but at the next meeting. Under these circumstances, we have no further speaker on the list. Therefore, I should like to give delegates some information about our next meeting.

I want to draw your attention to an error in the announcement of forthcoming meetings in today's Journal. The Committee on the Peaceful Uses of Outer Space will meet tomorrow at 10.30 in Conference Room 4, and not at 3 p.m., as stated in the Journal. The First Committee will meet at 3 p.m. tomorrow. This is the reason why we will have our meeting tomorrow morning.

Before adjourning this meeting, I want to inform delegates of the following. The Committee has to complete its work not later than next Friday. The First Committee of the General Assembly is expected to start its work early next week, possibly on Monday or Tuesday. As many of the members of this Committee represent their countries in the First Committee, we should try to finish our work not later than Friday. As I have indicated, we will have one meeting tomorrow morning. We shall have two meetings on Thursday and Friday. I hope that this schedule will enable us to complete our work in time. However, it is necessary to invite those members who want to participate in the general debate to do so tomorrow and, possibly, not later than Thursday.

The meeting rose at 12.40 p.m.