VERBATIM RECORD OF THE THIRTY-EIGHTH MEETING

Held at Headquarters, New York,
on Wednesday, 6 October 1965, at 10.30 a.m.

1. General debate (continued)
2. Statement by Mr. Johnson, World Meteorological Organization

The CHAIRMAN: Before calling on the first speaker for today, the representative of Italy, I wish to welcome here on behalf of the members of the Committee the distinguished President of COSPAR, Mr. Maurice Roy, who will address the Committee at its next meeting. We all know of the valuable assistance rendered by COSPAR to our Committee and to its Scientific and Technical Sub-Committee. We are gratified to see among us this eminent scientist, the President of COSPAR.

Under item 3 of our agenda, we have already heard the statements of the representatives of the Soviet Union and the United States. We shall now continue with the general debate. There are three members of the Committee on my list to speak at this morning's meeting -- the representatives of Italy, Argentina and Japan -- as well as the representative of WMO.

Some members have indicated their intention to speak tomorrow. I should like to urge members of the Committee to inscribe their names on the speakers' list as soon as possible, so that we may finish the general debate tomorrow morning or, at the latest, tomorrow afternoon.

As I indicated yesterday, the Secretariat has made the necessary arrangements for two meetings on both Thursday and Friday. I should like to remind the Committee that we will have to finish our work not later than Friday afternoon.

GENERAL DEBATE (continued)

Mr. VINCI (Italy): First of all, Mr. Chairman, I should like to associate myself with the welcome you have extended to the President of COSPAR. May I join you in giving him a welcome and greetings on behalf of my delegation and myself.

(Mr. Vinci, Italy)

Mr. Chairman, I listened yesterday with great interest to the significant statement which you made. I listened also with equal interest to the speeches of the representatives of the Soviet Union and the United States who listed the impressive achievements obtained by their countries in the peaceful exploration of space. I wish to express to them the appreciation and the congratulations of my delegation for such successful advances in man's venture into outer space.

This session of our Committee is being held almost a full year after our last one without any meetings of our Scientific and Technical Sub-Committee and with only the recent session of the Legal Sub-Committee to review. As our Chairman pointed out in his statement, our 1964 report which had been prepared for the nineteenth session of the General Assembly will be presented to its twentieth session, and it is time now to look ahead to our future tasks in order to keep apace with the rapid development of space exploration and activities conducted by Member States.

Since our last meeting about one hundred important space launchings have taken place, the majority of them by the great space Powers: the United States of America and the Union of Soviet Socialist Republics. Only a single shot was achieved by one of those nations arriving later in space exploration: the San Marco satellite, put in orbit last December by Italy with the advice and assistance of the United States National Aeronautics and Space Administration. It was with great satisfaction that my country registered its San Marco I satellite with the United Nations registry as the first one to follow the lead taken by the two main space Powers.

I am also happy to report that after the planned four months of successful operation in orbit the satellite has been switched off and has entered its orbital flight, re-entering the atmosphere and disintegrating itself last month. Preliminary scientific data obtained from the San Marco I have been already made known to the scientific world community at COSPAR's annual meeting in Buenos Aires, while the bulk of the data is still being processed by our scientists.

Reverting to the global picture in toto, since the beginning of the space age in 1957 there have been a little more than 400 successful major launchings into space, of which the United States and the Soviet Union have accomplished all but four, namely, two United Kingdom Ariels, one Canadian Alouette, and the already-mentioned Italian San Marco I.

(Mr. Vinci, Italy)

The very fact that, of these 400 launchings over the past eight years, about one hundred were accomplished during the last twelve months is a clear indication of the acceleration of the national and international space momentum and of the growing amount of intellectual and financial means ploughed into them. Not only have the number of launchings increased, but also their scope and accomplishments. In the past three months, the array of achievements has been tremendously impressive. The manned space ships of the Vostok and Gemini class have demonstrated the possibility of working in space in a shirtsleeves environment, of enduring moon landing missions, and of operating efficiently even outside of the space craft in the vacuum of space.

On behalf of my delegation, I suggest that, as a token of our appreciation and admiration of the United Nations and of all mankind for all the brave astronauts and cosmonauts who are risking their lives to probe the unknowns of outer space, this Committee take the initiative for the erection at some appropriate place in this very building of a plaque engraved with their names as a reminder of the first ten years in space to the generations to come.

The achievements of the unmanned automatic space ships in 1965 were also extraordinary, and include priceless photographs of the surface of Mars and of both the visible and invisible sides of the lunar surface, and generally increased our knowledge of their space environment and of many areas of space science.

Lastly, great strides have been made in space applications which already are providing concrete benefits to mankind by supplying better weather forecasts, better communications, and better navigation systems. In this connexion, it was appropriately recalled yesterday by the representative of the United States how it was made possible in so many countries to follow the historical visit of Paul VI on 4 October to this very building. It is, I feel, a matter of inspiration and encouragement for all of us to know that the message of peace by the Pope had lifted the hopes and expectations of millions of people at the same time that ours were.

(Mr. Vinci, Italy)

In reviewing briefly these attainments, we are very proud of them as members of the human race which has, in some other instances, not given us much to be proud of. At the same time, we are forced to make some soul-searching considerations about the role and responsibilities of this Committee, of which we are members and staunch supporters.

While I wish to reserve the right of my delegation to formulate appropriate suggestions and comments on specific items of our approved agenda, should it prove necessary, allow me to examine in retrospect the work of this Committee and its Sub-Committees to date, and their objectives and usefulness for the future within the terms of reference assigned to us in resolution 1472 (XIV) of the General Assembly.

This Committee in its seven years of existence has produced five reports and has been instrumental in the unanimous adoption of five fundamental space resolutions by the General Assembly: 1721 (XVI), 1802 (XVII), 1962 (XVIII) and 1963 (XVIII), which, together with 1472 (XIV), represent, up to date, the position and contribution of the United Nations to the development of international co-operation in the peaceful use of outer space.

The position is clear and the contribution is by no means unimportant. In the scientific and technical domain, these resolutions have laid the ground work, through existing channels of United Nations specialized agencies and of the Secretariat, for increasing international co-operation in five important areas related to the development of peaceful space activities, namely, the exchange of information, the encouragement of international programmes, the sponsorship of international sounding rocket ranges, the availability of space education and training facilities, and the monitoring mechanism within COSPAR to avoid the potentially harmful effects of space experiments.

In the legal field, the fundamental principles elaborated by our Committee and commended unanimously by the General Assembly to States for their guidance in the use of outer space, namely, that "international law, including the Charter of the United Nations, applies to outer space and celestial bodies", and that "outer space and the celestial bodies are free for exploration and use by all States in conformity with international law, and are not subject to national appropriation".

(Mr. Vinci, Italy)

These have been enlarged and clarified in the nine fundamental principles contained in General Assembly resolution 1962 (XVIII), which represents a true first step towards a Magna Carta on space, and is complementary to resolution 1884 (XVIII) prohibiting weapons of mass destruction in space, and to the Moscow Treaty banning nuclear tests. All these are undoubtedly important achievements and indeed a good start in our task in developing international co-operation for the peaceful uses of outer space.

(Mr. Vinci, Italy)

But in the presence of such momentous progress in space exploration activities as those taking place today in the world, there is always a danger that this Committee, by acting too slowly or too shyly, might become simply a collector of information on scientific and technical activities, and a rubber-stamp for rules originating from practical operations in space, with the disturbing possibility that both the words "peaceful" and "co-operation", so dear to our hearts and minds, might be subject in the future to a slow deterioration due to the conflicts of interest arising within the framework of global space endeavours.

In order to keep pace with the creativity and imagination of the space leaders of so many different countries, this Committee will have to make full use of the creativity and imagination of its members in the pursuit of the objectives set forth by all sessions of the General Assembly since 1959, namely the development of international co-operation for the peaceful use of outer space.

My delegation wishes today to contribute the little ability and imagination with which it is gifted in assessing the possibilities of amplifying the results already achieved, both in scientific and technical co-operation and in the elaboration of a comprehensive code of space law.

In the scientific and technical area, I shall touch several topics which might be of some interest for the future work of our Committee.

First, registration of launchings: Resolution 1721 (XVI) called for States launching objects into outer space

> "...to furnish information promptly to the Committee on the Peaceful Uses of Outer Space, through the Secretary-General, for the registration of launchings".

The kind of information that should be reported, and when, is largely within the discretion of the launching States, who may supply whatever data they see fit. Judging by reports of the specialized Press, in some cases it has been found difficult to comply with even the minimum requirements prescribed by this United Nations resolution. But even at this time, when only two Powers are deeply engaged in the launching of spacecraft, an incomplete record might seriously impair the usefulness of the United Nations registry and the role it could, and should, play in the maintenance of the regime of law and order in outer space. It is the suggestion of my delegation that this Committee should dedicate additional study

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to this matter, prior to the inevitable proliferation of launching States and of spacecraft in orbit, in order to avoid defeating the whole purpose of registration.

Second, exchange of information: In past meetings of this Committee, as well as in the space resolutions approved by the General Assembly, the emphasis has been upon promoting the general exchange of space information among all Member States, with the purpose of general dissemination of space facts and possibilities. In today's more sophisticated atmosphere, the time has come to assess the amount of exchange of information which is taking place, and to study a rational subdivision of activity in this area between this Committee, UNESCO, WMO, ITU and other relevant United Nations agencies and from non-governmental bodies such as COSPAR and the IAF. As an example, UNESCO could be the agency responsible for all exchanges of information, preparation of manuals and dissemination of space knowledge up to graduate level; and COSPAR for a similar activity at the post-graduate and scientific research level. WHO, ITU, the International Atomic Energy Agency, and so forth, could be responsible for the exchange of information and the preparation of technical manuals in their specialized areas of endeavour. The task of this Committee would be limited to the collection and dissemination of information and data aimed at stimulating Member States to develop and increase international co-operation in outer space. To this effect, the information required could be of a broad general nature, but complete and up to date, in order to supply useful indications of the individual space programme most conducive to international co-operation.

Third, the encouragement of an international programme: While in the first years of space exploration the international programmes were all entirely scientific in scope and objectives, at the present stage of development they could be subdivided into two categories: scientific and applications. The international programmes in the scientific field originate mainly in the scientific world community, represented at its highest level by COSPAR and in the technological area by IAF. This Committee's role in this area of international co-operation should be limited to taking due note of the reports of these bodies and to supplying support which may be requested in seeking to promote the interest and assistance of Member States and United Nations specialized agencies in the development of specific projects, such as the International Year of the Quiet Sun, the World Magnetic Survey, and future projects. In the field of applications,

(Mr. Vinci, Italy)

the role of this Committee is much more important, inasmuch as the area of international co-operation is much more closely connected with the immediate benefit of mankind -- and also, unfortunately, with a whole constellation of problems requiring international solutions.

The three main developments under discussion, at various stages of realization at the present time, are: the establishment of a world weather watch and meteorological satellite network; the organization of a global satellite communications system; and the proposed establishment of an operational navigational satellite capability.

While our Committee has been following with great attention and gratification the meritorious activities performed by WMO in developing the world weather watch system, it should continue to support, with its authority and with recommendations to Member States and other United Nations agencies, the implementation of those phases of the world weather watch which are still behind the desired stage, such as the enlargement and streamlining of the ground network of meteorological stations in some areas of the world. The latest WMO report presented for our attention is an especially valuable document for consultation by our Scientific and Technical Sub-Committee in this regard.

In the realm of the operation of meteorological satellites, recent achievements point to the desirability of utilizing, in the not too distant future, manned orbiting weather stations in addition to the automatic ones. A study on this subject and its positive implications, in the framework of international space co-operation, might well be one of the topics this Committee could consider in its future sessions.

The utilization of satellites in expanding global communications has received the constant attention of the General Assembly and of this Committee, as is demonstrated in resolutions 1721 (XVI), 1802 (XVII) and 1963 (XVIII). But, as was expected, the first positive and practical steps aimed at exploiting this new application for the benefit of mankind, which were taken on the initiative of the United States, gave rise to some criticism from certain Member States. On 24 July 1964, two inter-related agreements creating the first provisional global satellite communications network were formulated at Washington and have been signed to date by a consortium of forty-six States. The network is operated by the American company COMSAT under the Interim Communications Satellite Committee, an

(Mr. Vinci, Italy)

international decision-making body, by a majority of votes of its member States. The problem raised by this arrangement, according to some critics, is that it does not appear to be entirely compatible with the goals of United Nations policies, which are aimed at benefiting all countries irrespective of their state of development, inasmuch as it envisages the overwhelming control, by one State or a small group of States, of the decision-making process.

(Mr. Vinci, Italy)

However, it has to be kept in mind, first, that any voting arrangement should always reflect to some extent the contribution of participants, especially in view of the heavy investments required by such an initiative; and, secondly, that the Russian agreement is of a provisional character, the permanent one to be established only on 1 January 1970, or "at the earliest practical date". Therefore the shortcomings, if any, of the organizational structure of the consortium are more than balanced, in our view, by the obligation to reappraise it within five years and by the fact that it is always open to all countries which may wish to join it.

Fourth, international sounding rocket facilities. Concurrently with and following the approval of United Nations sponsorship for the international sounding rocket facility at Thumba, operated by the Government of India, several other Governments have expressed their intention of providing similar facilities for joint international launchings. The Italian Government has confirmed on every occasion, and wishes to confirm again today, its readiness to discuss joint projects and launchings in co-operation with any Member State or group of States, such as ESRO, from its mobile San Marco range complex off the coast of Kenya, which is being readied for orbiting its equatorial scientific satellite, the San Marco II, some time next year.

Furthermore, this Committee at its last session listened to proposals for the establishment of international sounding rocket ranges by representatives of Argentina and Brazil. The experience gained in the initial operation of the Thumba range and the fact that each of the new ranges might present some difficult characteristics different from the others might make necessary a revision of the principles established for United Nations sponsorship of those ranges, or perhaps new classifications of ranges -- if not United Nations-sponsored at least United Nations-recognized, as operating in the spirit of international co-operation. This spirit, of course, is that of stimulating joint launchings and joint space activities by Member States wherever and whenever benefit can accrue to the peaceful development and use of outer space.

(Mr. Vinci, Italy)

In this respect, the Italian delegation believes that it would be a fitting celebration of the tenth anniversay of space flight in 1967 if as many joint launchings as possible could be planned by Member States on UN-sponsored or UN-recognized ranges for the period which could be named "Tenth Anniversary Year", starting October 1966 and ending October 1967. Emphasis could also be placed on joint launchings by Member States which have not yet participated in such endeavours and are willing to do so irrespective of their geographical location, political system or rate of development.

Such joint launchings, which could be co-ordinated and planned with the help of COSPAR, would enable all the participating countries to avail themselves of opportunities for practical instruction and training; it would advance effectively the cause of international co-operation in space. Of course, the greatest success of such a programme would be assured if the two major Powers would themselves set an example by planning some significant joint endeavour for the same period.

May I say a word now about space education and training.

The general purpose of space education and training may be divided into three main areas:

(a) Basic education and training in space knowledge, which may be accomplished at high school, college, university and other institutions of learning up to a very high degree of scientific skill. The basic tools for helping space-developing countries in this phase are scholarships, fellowships, or simply the availability of adequate facilities in a nearby friendly country.

The preparation by the Office of the Secretary-General of the document (A/AC.105/28) listing all the possibilities in this field is a good step in the right direction and could become a very effective tool for national programming, if all Member States would co-operate by keeping the information up to date in view of the rapidly changing aspects of the space education picture in the world. A loose-leaf manual and the use of well-studied questionnaires might help in this task and our Scientific and Technical Sub-Committee could be invited to elaborate further on this matter after consulting with UNESCO and other related agencies.

(Mr. Vinci, Italy)

(b) Practical training at international sounding rocket ranges, as envisaged in the original discussion which led to the formulation of principles for United Nations sponsorship of such facilities. This is the kind of activity that would offer to trainees of interested States opportunities for carrying out practical experiments and building up practical knowledge at United Nations-sponsored international facilities, enabling them to formulate later on a rational and articulate basis for planning space activities for their own countries. My delegation believes that this type of training has to be recommended but that details and specific agreement on different aspects of it should be left to the host countries under guidelines of only very broad scope defined by this Committee.

(c) Application and training. In this area lies the most immediate interests of many space-developing countries wishing to enjoy as soon as possible the practical benefits offered by meteorological, communication and navigational satellites. But there could not be any benefits reaped in any country lacking both appropriate ground facilities and skilled personnel to operate them. The first objective of a programme of international co-operation in this area should therefore be to study a comprehensive plan to give practical training in each of these specific activities to scientists and technicians from Member States requesting it.

The plan, in its three-pronged approach, should take into account the different stages of development of meteorological, communication and navigation satellite technology and should be prepared by the competent United Nations agencies -- WMO, ITU, ICAO and IMCO -- after having ascertained the willingness of the States already engaged in such activities to consider the possibility of receiving trainees from other countries.

In regard to this and to the preceding areas of space activity, my delegation deems very interesting and of a constructive nature the considerations contained in paragraph 72 of the report of the Administrative Committee on Co-ordination, which might well represent a new and very effective way of promoting space education and training to the benefit of developing countries.

(Mr. Vinci, Italy)

Before shifting to the legal aspects of our work, I should like to comment briefly on the task of the Working Group which will meet in the near future to discuss the opportunity of organizing an international space conference to celebrate the tenth anniversary of space flight. My delegation, as the original proposer of the Working Group, regrets the long delay in its meeting but does not feel this is due to the attitude of any individual or any member of the Committee, but rather to general difficulty, particularly in the choice of a date. The difficulty, and hence the delay, seems to derive also from the fact that many of us still do not have a clear idea of how the conference should be organized so as to meet the two specific objectives agreed upon by this Committee, namely, to be part of a fitting celebration of the tenth year of space flight and to serve the cause of supplying useful knowledge to space-developing countries.

(Mr. Vinci, Italy)

To this effect, the task of the Working Group in the opinion of my delegation should be to examine, not only the desirability of the conference but also that of other events, such as the one mentioned in my previous remarks, namely: the planning of as many joint launchings as possible, with associated space seminars; a special session of this Committee to summarize and assess the achievements in the development of space co-operation; the inauguration of a plate in the United Nations building with the names of the astronauts and cosmonauts and other proposals which might be forthcoming between now and the date of the meeting.

My comments on the legal matters related to the peaceful exploration of outer space will be of a general nature, since there is not much to say on the report of the Legal Sub-Committee, except to regret that it has not been able to complete its task, though it did further clarification on some important points during its duscussions thanks only to the dedication of its members and to the able and very competent chairmanship of Professor Lachs.

First of all, we have to recognize that gradually the edifice of an effective regime of law in outer space is taking shape.

United Nations resolutions 1721 (XVI) and 1962 (XVIII) containing principles which have been unanimously declared appropriate to guard space, and exploration and use of outer space, represent major landmarks in the evolution of space law, in addition to three multilateral treaties of universal range: the Moscow Treaty of 5 August 1963 banning nuclear weapon tests; the final acts of the Extraordinary Administrative Radio Conference, allocating radio frequencies for space service of various kinds; and the Washington Agreement on July 1964, establishing an interim agreement for a global communications satellite.

It is, furthermore, encouraging to note that the requirements of the rapidly evolving activities in space have resulted, so far, in the acceptance of United Nations resolutions as the appropriate channel for setting the standard of conduct in this new medium. Whether one interprets these resolutions as evidence of customary law or as law-creating, their effect, in practice, is the same and both the major space Powers see the functions of the United Nations space resolutions in the light of international law, as accepted by Member States.

(Mr. Vinci, Italy)

It will, therefore, be possible to proceed in the same fashion in approaching several space legal questions which have still to be settled.

Among them some of the most important and urgent are the following:

(a) the establishment of appropriate ground rules for the exploration and use of the moon and other celestial bodies for States planning manned exploration of them. Principles 2 and 3 of resolution 1962 (XVIII) are clearly inadequate for such developments and more specific guidelines are needed, especially since the first manned launchings on the surface of the moon are not more than five years away.

(b) the formal sanctioning of the apparent willingness of States to limit their sovereignty over air space, so as to allow freedom of passage of space craft for peaceful purposes in the re-entry space;

(c) the conclusion of an international agreement on the liability for damage caused by the launching of objects into outer space. Although it is recognized that this is a tremendously complex matter, that does not alter the fact that if a chunk of space craft should fall on somebody's head the families would not know whom to sue in order to get compensation for the damage. This possibility might appear very remote today, but it will be much more real ten or twenty years from now, when thousands of space objects of all shapes and dimensions will be falling back to earth. Although the recent discussions of our Legal Sub-Committee show some progress towards an agreement, the pace is far too slow to be satisfactory.

(d) the acceptance of an agreement for assistance to and return of astronauts and space craft. Not only is this agreement becoming urgent in relation to the increased tempo of manned space launching, but it should also be immediately followed by the study of the desirability of the organization of an international rescue force to be used for the immediate assistance of astronauts in distress, wherever they might require it -- far out in space, in orbit or in the take-off or re-entry phases. With hundreds of manned space missions foreseen for the next decade, such a force might become a must in order to prevent tragic mishaps as implied by the law of physics.

(Mr. Vinci, Italy)

(e) the conduct of a progressive study on the legal, political and social implications of the widespread use of space applications in the fields of meteorology, navigation and communication.

As in the case of the items pertaining to the scientific and technical domain, these legal problems do not necessarily have to be solved today or tomorrow in their entirety, but the fact that they do exist and that they might become controversial if not properly and finally approached and considered, fully warrants the interest and the future imaginative co-operation and efforts of this Committee and of its two Sub-Committees.

The history of our past successes -- and we have been successful -- is one of patience, moderation, restraint and mutual respect. Even when in past years many rooms of this building were struck by the coldest drafts of the cold war, the meeting room of this Committee was the only one, perhaps, where the atmosphere was always warm and the doors were always open to reasonable agreement and compromise.

In this context, I wish to note also the enthusiastic and productive work performed by the Office of Outer Space Affairs of the Secretariat, which has been extremely helpful in supplying complete background information needed to reach significant decisions used in carrying out promptly and efficiently the tasks assigned to it by this Committee.

Mr. Abdel-Ghani, to whose report the Italian delegation has listened with interest and appreciation, should be commended together with the Staff for a job well done.

May I conclude by saying the world is far from being perfect today, but I sincerely hope that the work of our Committee, which dwells on the developments in space of such fateful importance for the future of mankind, will proceed in such a way as to have a positive influence also on the international political climate.

Mr. COCCA (Argentina) (interpretation from Spanish): First of all, I should like to associate my delegation with the words of welcome to the Chairman of COSPAR, Professor Roy, particularly bearing in mind that just a few months ago -- last May to be specific -- we had the pleasure of working closely with such an

eminent scientist in the meeting that was held at Mar del Plata. My country's co-operation at the international level has been modest, but for some time now we have been governing our work by agreements which show our desire to open bases -- one of which is already open, and two of which are under construction -- and open these to the widest possible co-operation.

One instance we might mention is that in January last of this year Argentina participated in the successful launching of rockets in the Antarctic -- in the Argentine section of that area.

Therefore, I shall refer, rather, to two subsidiary items: the teaching and training of specialized staff.

With regard to education, my delegation will not proceed to enumerate the work we have done, because we consider that the information has been amply provided in documents A/AC.105/20/Add.1 of 3 July 1964, and A/AC.105/28 of 31 August 1965, and in the report prepared for the symposium on astronautics in education, held recently in Athens, in connexion with the Sixteenth International Astronautical Congress (IAF/Educational Committee/8 Symposium 1, by the President of the International Institute of Space Law, Professor E. Pépin, on the outlook for the teaching and study of space law throughout the world.

My delegation would also like to touch on the spirit in which we began to participate in the task of education in space science and space law. A glance at any of these documents will make clear, immediately and explicitly, the broad basis on which we have undertaken this work. This breadth of vision has been applied first of all at the national level, then at the regional and international levels, with a feeling for integration whenever an opportunity arose.

At the national level, a central body, the National Space Research Commission, co-ordinates space research in the ionosphere, cosmic radiation and aeronomics, which is carried out at universities. We organize courses in space law throughout our territory, and they are held at national, provincial and privately run centres. The cost is financed under a programme covering three aspects: dissemination of information, orientation and study in depth, which are successive stages to be carried out at each university. This central body also finances study and specialized research -- in the country and abroad -- in the same fields, and in the scientific and technical aspects linked with the development of electronic equipment and sounding rockets. Although astrophysics, astronomics, electromagnetism, quantum mechanics, spherical astronomy, statistical astronomy and celestial mechanics are being studied in more depth at the School of Pure and Natural Science of the University of Buenos Aires, we have also expanded our interest in these fields in other universities.

As an example of regional co-operation, we might draw attention to the fact that on page 3 of document A/AC.105/28 there is a reference to the Latin American School of Physics, located at the University of Tucumán in Argentina, which studies magneto-hydrodynamics, solar physics, the physics of the magnetosphere, interplanetary plasma and statistical mechanics. This led to the creation at Buenos Aires, in connexion with the Inter-American Symposium on Space Research in 1960, of a committee called the Inter-American Space Research Committee, which has been meeting at regular intervals and which has scheduled new meetings in the second quarter of next year at Lima. This Committee, which is non-governmental in nature, can make a noteworthy contribution to the work of this body, particularly in the sphere of Latin America.

(Mr. Cocca, Argentina)

Perhaps one of the subjects that has best provided for the integration of viewpoints as well as starting points for consideration of these problems -- not only in the American hemisphere, but at the European level as well -- has been the new discipline that is emerging ever more clearly and specifically, although progress is slow because it must be the result of lengthy study and discussion. I am referring to the question of space law.

Argentina, in 1957, gave an early course in space law. In 1959, another course was given in Peru; in 1960 in Brazil; in 1962 and 1963 in Spain and in 1963 in Ecuador as well. I should also mention the round table on space law held at Rome on 10 October 1962, and the round table on a legal system of satellite communications held in July 1964, at Buenos Aires. This year we have arranged for intensive co-operation with Mexico, Venezuela and Colombia. In all of these activities, Argentina has been a dynamic participant. We felt that we should put forward whatever knowledge we had and display our best spirit of co-operation in the hope of contributing to the common task for the good of us all.

From what I have said it can be seen that education has been developing at the university level, while not ruling out dissemination of information on space science at other levels. Thus, in the report of the Chairman of the International Institute of Space Law, we see that already three teachers' text-books are available: one in French, one in English and one in Spanish. The English text and that text published in Buenos Aires have chapters on space law. In this same connexion, the review of the Argentine Association of Space Science -- known formerly as the Argentine Interplanetary Association -- which has been in publication for fifteen years gives simple answers to people who are space science "fans", as a sort of popularization of the science of space. This review is sent to specialized bodies in various Spanish-speaking countries, and its pages are open to all who wish to contribute.

I should now like to refer to the regional Latin American Centre for Study of Space Communications. In the Secretary's statement which we heard yesterday, emphasis was placed on the importance of training specialized staff -- a point which was dealt with specifically in paragraph 72 of the thirty-first report of the Administrative Committee on Co-ordination, document E/4029, and which was touched on brilliantly by the Italian representative this morning.

(Mr. Cocca, Argentina)

This report states that training is one of the foremost among the problems confronting the United Nations in the field of space questions, and is of direct and practical interest to an ever-increasing number of countries. In this connexion, Argentina has been well aware that, in order to work out systems which will prove trustworthy and efficient on a national level, we will require the active co-operation of the largest possible number of countries, in view of the vast breadth and scope of the projects, whether we are referring to telecommunications satellites, meteorological systems, geodetics or navigation. We feel that many countries could co-operate efficiently in these fields by carrying out studies of space experiments, since analysis of information provided by satellites, as well as experiments with land links with space communication systems can give us very important information with regard to the new systems to be set up.

Argentina's geographical location would, we feel, make it a duty for our country to offer its utmost co-operation in establishing ground stations designed to cover the southern cone of a global satellite communications system, and to act as a distribution centre for information derived from meteorological satellites. I might also mention the advantage of a common language, which will facilitate the work of technicians and specialists from Latin American countries attending this proposed regional centre.

(Mr. Cocca, Argentina)

As an example I might mention some of the tasks and activities to be carried out by this regional Latin American centre for the study of space communication -- the design and construction of land stations, experimental communications with active and passive satellites, analysis and discussion of the results of research and experiments, the perfecting of installations, examination of requirements for future installations and facilities for the tracking of low-altitude satellites, up-to-date libraries and bibliographical material, studies to work out laboratory programmes which would be very flexible, training courses and the setting up of fellowships abroad.

To conclude, I might say that an estimate has been made of the contribution we would hope for from the Special Fund. This would not be a very large amount, perhaps of the order of $US494,120, and Argentina's contribution to this project would be approximately $US600,000.

Lastly, allow me, on behalf of my delegation, to make a comment designed to make the work of this Committee more effective. As the delegation of Argentina has held on previous occasions, we consider that it is not appropriate to postpone -- much less to cancel -- meetings of such importance as those of the Scientific and Technical Sub-Committee, particularly in a year which coincides with the most noteworthy events and developments in the field of space science. My delegation also feels that it is not advisable to postpone the Legal Sub-Committee's meetings for long -- as much as a year, perhaps -- particularly since the work of the jurists has still not reached a point of development and, especially, of unity, that we had hoped it might have achieved by this time.

In conclusion, I should like to express my delegation's best wishes and hopes for the success of the Committee at this session and for the progress which will undoubtedly be made in the forthcoming year with the help of its two Sub-Committees.

Mr. MATSUI (Japan): This being my first opportunity, Mr. Chairman, to take the floor in this Committee since you moved to its Chair last May, permit me, first of all, to extend to you my sincere congratulations on your unanimous election to the Chairmanship of this very important body of the United Nations. I am happy to note that under your able and inspiring guidance the Committee has carried on its tasks as efficiently and harmoniously as it had during the period when your equally illustrious predecessor, Ambassador Matsch of Austria, presided over it. May I also now pledge to you, and to our fellow representatives on this Committee the unfaltering support and co-operation of my delegation, now and always, towards the fulfilment of the manifold tasks devolving upon all of us.

Once again this year mankind has witnessed an even greater series of remarkable achievements in the exploration of outer space. Pictures of Mars conveyed to the earth from millions upon millions of miles away by the United States Mariner IV brought us in one stroke much nearer to that mysterious planet which for ages has excited man's imagination. When the gallant astronauts of the Soviet Union and of the United States left the security of their capsules to step into actual outer space, they fired the imagination of the watching world and proved that beyond our air, beyond the stratosphere, there are still other realms where man may work out his destiny.

Besides these spectacular events there is also a steady but none the less remarkable progress in the practical uses of outer space. At the previous session of this Committee, in October of last year, I mentioned a small communications satellite, the Syncom III, which successfully relayed the Eighteenth Olympiad from Tokyo to all parts of the world, and I am happy to note that this experience, to which my country also contributed, has now resulted in much wider uses of this device, as shown by the recent achievement of the Early Bird satellite. Thus, scientific and technical progress in this new field of human endeavours goes ahead by leaps and bounds, and scientific fact in this domain has now even surpassed the most imaginative science fiction.

(Mr. Matsui, Japan)

Turning now to the task we have been pursuing over the past several years in this Committee, we must admit in all frankness that our progress has been much slower than actual events. In particular our achievements during the past year have been relatively meagre. Progress has been made in some respects, it is true, but in the vital field of the establishment of the rule of law for outer space, we have not succeeded in bringing about any substantial advance. Thus there has been a widening of the gap between scientific progress and applicable legal rules. There may be many reasons for this, one of which undoubtedly was the abnormal situation that prevailed during the nineteenth session of the General Assembly. Also, present international circumstances may not be particularly favourable to the achievement of any major agreement of a political or legal nature. More specifically, one might say that the most recent session of the Legal Sub-Committee was to some extent at a disadvantage because of its concurrence with the meetings of the General Assembly. Whatever the reasons may be, I should like here to stress this point -- that the establishment of a regime of law for outer space should be a matter of urgent concern to every nation in the world, and it should not be reduced to a simple matter of expediency for the few space Powers. We can overcome the difficulties ahead of us only in a spirit of international co-operation and mutual accommodation, leaving aside narrow national interests.

With the successful achievement of the San Marco project, Italy has now become the third satellite launching nation. On this great success, I wish to congratulate most sincerely our colleague, Ambassador Vinci. This remarkable achievement must force us to recognize, however, that in the near future there will be not just two, or three, space Powers, but quite a number of States and international organizations conducting or participating in the launching of satellites into outer space. The problems now facing the present space Powers will soon become the problems of many other nations and the entire international community. This vital consideration must be borne clearly in mind in any debate on the legal aspects of this subject.

(Mr. Matsui, Japan)

At this point I should like briefly to touch upon my own country's space activities and to give some account of our experiments in this field. Ever since 1955 Japan has engaged in space research activities by using various types of sounding rockets. This year, so far, we have successfully fired twenty sounding rockets, including two three-stage rockets. These important experiments were conducted by the University of Space and Aeronautical Science of the University of Tokyo.

(Mr. Matsui, Japan)

A programme is also being elaborated to develop a rocket capable of launching a satellite into orbit, and for this purpose the static firing test of a full size booster rocket was carried out successfully in May of this year. This project of launching an artificial satellite into outer space in the near future has now been submitted to our National Space Activities Council for its serious consideration, this being a committee of experts advisory to the Prime Minister.

Regarding the meteorological use of artificial satellites, a subject mentioned yesterday by the representative of the United States, Mr. Nabrit, I am informed that close co-operation exists between our two countries for the use of the United States weather satellites for our mutual benefit and advantage.

Japan's space activities, as I have explained them above, are aimed at the peaceful uses of outer space. We are convinced, as we have stated on many occasions in the past, that the uses and exploration of outer space, in this immensely challenging new area of human activities, must be strictly limited to peaceful purposes only. It is a matter of regret to my delegation that the objective of limiting the uses of outer space to peaceful purposes only has failed so far to be recognized as a legal principle governing the activities of States in this promising area due, no doubt, to differences of opinion as to the scope and definition of the word "peaceful". We are hopeful, however, that before too long this very important principle will be set forth clearly and without reservation so that peaceful co-operation among States may be ensured in outer space. In our view, the proposed codification of the Declaration of legal principles adopted as General Assembly resolution 1962 (XVIII) provides a proper basis for this undertaking. I sincerely hope that this Committee will take up this subject at an appropriate time, as provided for in resolution 1963 (XVIII).

In view of the rapid progress of space exploration, it has now been recognized that the preparation of draft international agreements on liability of damage caused by objects launched into outer space, and assistance to and return of astronauts, is an urgent matter requiring early solution. Sharing the view expressed by many of the speakers who have preceeded me, my delegation regrets and is disappointed that no tangible progress has been achieved at the recent meeting of the Legal Sub-Committee, but we should not be discouraged by the slow progress. We must, on the contrary, renew our efforts for the early conclusion of these agreements.

(Mr. Matsui, Japan)

In this context, I should like to draw the attention of the Committee once again to the desirability of establishing an international registration system for launching of objects into outer space. Such an international registry would not only facilitate the identification and return of the fallen object, but also would ensure prompt compensation for damage caused by it.

Finally, I should like briefly to touch upon the question of the Working Group examining the desirability, the organization and the objectives of an international conference for the peaceful uses of outer space. My delegation entirely shares the view stated by you, Mr. Chairman, that the Working Group should meet as soon as possible and that consultations should be carried on promptly so that a consensus might be reached on the date for a meeting of the Working Group. It is the view of my delegation, however, that any overlapping with the current session of the General Assembly should be avoided. For the purpose of expediting effective discussions, a period after the recess of the General Assembly -- possibly during the early part of next January -- might be most appropriate.

Mr. TREMBLAY (Canada) (interpretation from French): My delegation has paid considerable attention to the statements made yesterday in this Committee. We also share the general interest inspired by the successes achieved in the captivating and challenging area of space exploration. The contributions to space research of the two great Powers are of such scope that the other countries can hardly hope to equal them.

Nevertheless, I am convinced that the representatives of these Powers will agree with my delegation in asserting that the opportunities for useful research in the field of space activity are not reserved to the great Powers alone. Indeed, they both recognized here in this Committee, through their representatives, that the smaller Powers could likewise participate in research. We have already heard that Italy had launched a satellite, and reference was also made to Canada's intention of placing in orbit four satellites between 1965 and 1970. The success of their launchings will be, we hope, as remarkable as that of the first Canadian satellite, Alouette, which was placed in orbit in 1962.

The four satellites, designed, manufactured and tested by Canada's Council of Defence Research, will be placed in orbit by the United States organization, NASA, in accordance with an agreement concluded between these two entities. The first purpose of these launchings is to make it possible to carry

(Mr. Tremblay, Canada)

out a research programme in the field of the exploration of the ionosphere. Geographically, Canada occupies a privileged position which makes it possible for it to study the regions of the ionosphere and beyond. The study of these regions is of great importance for world communications, as you know.

The results obtained these last few years by the two great Powers in the field of the peaceful exploration of outer space are not only impressive in themselves; they should make evident to us the need for doubling our efforts in this Committee and in its Sub-Committees towards achieving as soon as possible the objectives set before us by the General Assembly. The fact that an ever-increasing number of astronauts and space objects are launched into outer space will surely make us realize the importance in concluding conventions on these matters, such as assistance, return and liability. My delegation accordingly hopes that the subsequent meetings of the Legal Sub-Committee will be more fruitful than the ones that have just been concluded. The delegation of Canada will continue to co-operate at these meetings with delegations sharing these aims in order to reconcile the differences of opinion that might exist and to achieve results satisfactory to all. The United Nations has an important role to play in this field of activity and we must play it fully.

My delegation wishes to associate itself with previous speakers who regret that the Working Group of the Committee has been unable thus far to meet in order to study the proposal of holding an international conference in 1967. This study should be continued in such circumstances as would make it possible for all delegations to give this matter their attention. In this connexion, Canada hopes to participate in the meetings of the Working Group at the beginning of next year, and will consider with interest and sympathy any suggestions relating to the holding of a conference.

To conclude, I should like to congratulate the Secretariat for the work it has done in regard to questions relating to outer space and its exploration. My delegation notes with interest the encouragement given to the education and training of specialists and we believe that specific directives elaborated by the United Nations and the specialized agencies in this field will be beneficial.

The CHAIRMAN: I have no further delegates on my list for this morning. However, the representative of WMO has asked for the floor to make a statement.

STATEMENT BY MR. JOHNSON, WORLD METEOROLOGICAL ORGANIZATION

Mr. JOHNSON (World Meteorological Organization): The Secretary-General of the World Meteorological Organization, Mr. Davies, has offered me the privilege of again reporting to your Committee on his behalf.

Representatives will recall that, in response to the interest of the General Assembly and of this Committee, WMO has prepared what is becoming an annual report on the advancement of atmospheric sciences and their application in the light of developments in outer space. You have now received the fourth such report.

The first report followed soon after the demonstrated utility of artificial earth-orbiting satellites for the observation of the world's weather. The concept of the world weather watch was discussed in general terms, and subsequent reports have further developed the planning for the application of space technology and for the world weather watch concept. The world weather watch is a bold approach to the complex task of planning and implementing a new world weather system. It should be recognized, however, that over the past century there has, in fact, been developed a world weather system which is in operation. It is now necessary that there be a full reappraisal of the existing arrangements for weather observation, data exchange, forecasting, warning, and service to the public. New technology becoming available needs to be applied to the formidable problems of forecasting the world's weather accurately. WMO, and its predecessor, the International Meteorological Organization, have actively co-ordinated the efforts of most countries of the world in the exchange of information concerning the world's most popular subject -- the weather. The principle under which international co-operation in meteorology has always worked requires a high level of national participation by member Governments and their meteorological services. Such co-operation must continue. Some Governments will be called upon to make substantial contributions from national resources for the benefit of the over-all world weather watch. World weather centres will be, or have been, established by three countries for the benefit of the entire world. Other countries will be called upon to establish regional centres for various parts of the world, particularly in developing areas, and still others will be requested to assume responsibility for collection of data from large areas and redistribution of the data to world and regional centres, as well as to national locations.

(Mr. Johnson, WMO)

WMO has adopted a specific schedule for completion of the first-phase planning for the world weather watch. This must of necessity be designed to present plans to the periodic quadrennial congresses of WMO. Consequently, a specific plan for the world weather watch, based on existing technology, including meteorological satellites, will be presented to the fifth WMO congress in 1967 for implementation during the ensuing four-year financial period 1968-1971. At the same time, there will continue to be improvements in technology which will require that further study and investigation be made in order that later WMO congresses will be in a position to decide upon incorporation of these new developments in subsequent periods. Therefore, planning will continue to be a vital and dynamic feature of the WMO structure.

To assist in this planning, specific organizational changes have been made in WMO to provide headquarters leadership, and some members of the organization are contributing generously from their own planning efforts, in an effort to ensure that the world system takes adequate advantage of the rapid advances being made in the atmospheric sciences.

For at least the next few years, the designation of world weather centres is now complete. The Governments of Australia, the Soviet Union and the United States of America have agreed to the designation of Melbourne, Moscow and Washington as world weather centres. In general, these centres will be responsible for the reception of conventional and satellite meteorological data on a global basis, transmission of such data to other centres, preparation of analyses and forecasts and distribution of these materials to offices requiring them. The centres will provide opportunities for training and for research, and facilities for the archiving of data in forms readily available to research workers.

The designation of regional meteorological centres is not yet complete. However, their functions will be similar to those of world weather centres but restricted to a smaller area and perhaps serving a smaller number of using agencies. In all cases, national decisions will be made as to the products of world weather centres and regional meteorological centres which a particular national service wishes to receive.

(Mr. Johnson, WMO)

It is envisaged that every effort will be made to make the world weather centres interchangeable in nature, in order that, in the event of breakdown, a centre will be able to act in the place of either, or both, of the other two centres which may be temporarily out of operation.

It is expected that, for some time to come, only two countries will be in a position to provide data from weather satellites. In these cases, the entire cost of the satellite system is expected to be borne by the launching country, and the data acquired on a global basis will be made freely available to the world at large. In the case of one of the satellite systems, there will be available a new device which was reported upon to this Committee last year -- the automatic picture transmission system -- which will enable a suitably equipped ground station to receive data from a fairly large surrounding area. Several countries of the world have expressed interest in this automatic system, which will provide data approximately 1,600 kilometres in radius around a particular location -- photographic data of good quality, for use in what is called local forecasting.

Many other types of observations are being considered in the world weather watch concept, such as buoys installed in large water areas where data are scarce, free-floating balloons for determination of wind speed and direction, and perhaps other parameters -- rockets, and so on. The incorporation of these highly sophisticated observation techniques into the world weather system will require very careful examination of the benefits to be accrued from such observations in comparison to their cost. Many studies of this nature have been, and are being, made in an effort to determine the actual benefits on as complicated a basis as possible.

WMO considers the problem of adequate observation of meteorological phenomena over vast ocean areas to be of sufficient importance to convene a technical conference of all members wishing to participate some time during 1966, on this subject of observational techniques over ocean areas.

Since the last report to your Committee, there have been two launchings of meteorological satellites by the United States of America. These were Tiros IX and Tiros X. Tiros IX was placed in orbit in such a configuration that the long-standing objective of world-wide coverage in a single day with a single satellite was achieved. An example of this is the mosaic of photographs appearing

(Mr. Johnson, WMO)

at the back of the fourth report, which you have received, which shows the entire world as observed by Tiros IX on 13 February 1965. This mosaic is composed of approximately 450 pictures taken on that day by the single satellite. Tiros X was launched later in 1965 in order to provide observational coverage by satellite during the important tropical storm season.

Plans have been made by the United States to launch a fully operational system during the early part of calendar year 1966, which will provide both the automatic picture transmission system for local areas and a separate satellite will provide global data for read-out at sophisticated ground stations, subsequent analysis and distribution of results to the world at large, in much the same manner as has been done for several years using the earlier series of research satellites beginning in April 1960.

(Mr. Johnson, WMO)

As has been reported to you previously, WMO has appointed an Advisory Committee of high-level scientists which concerns itself with a variety of research and operational problems in the atmospheric sciences. This Committee held its second meeting early in 1965 and has made numerous recommendations concerning the acquisition of specific types of data for research purposes. The Committee has also concerned itself with the requirement for adequate storage of data in convenient form for retrieval for research workers; it has concerned itself with the large-scale circulation in the stmosphere -- a problem in which artificial satellites can contribute much useful information. The Committee has also placed emphasis on the comparison of various instruments used in many countries in order that comparable data might be acquired. Finally, the very difficult question of modification of weather and climate by artificial means has been pointed out by the Committee as a major problem needing intense study. The work of this Committee has been co-ordinated closely with that of the International Council of Scientific Unions and with other non-governmental and inter-governmental organizations.

WMO, at its last congress, authorized the establishment of a new development fund, and specific plans for use of this fund have now been completed. Large portions of the $1.5 million available will be used to finance specific surveys and studies of major operational problems such as telecommunications, including the use of communication satellites; data observation techniques, including the use of weather satellites; and data processing facilities to make the data most readily available to all users. Other portions of the fund will be used for the establishment of necessary meteorological and telecommunications facilities in areas where this cannot be accomplished by national interests.

Finally, WMO will place considerable emphasis in the next few years on education and training in order that the standard of performance of meteorological personnel worldwide can be made adequate. The highly successful seminar on the application of meteorological satellite data to weather forecasting was held in Tokyo late in 1964 under the auspices of the Government of Japan and of WMO. Similar seminars and symposia are planned in other parts of the world during the next year.

(Mr. Johnson, WMO)

In conclusion, I would like to say that WMO considers that it is now in the midst of a dynamic period of rapidly changing technology which needs much further study for its proper application to the development of the atmospheric sciences. The weather satellite, as it has become more and more reliable and as techniques of interpretation of satellite data have been improved, has and will continue to make significant contributions to the development of our knowledge concerning the environment around us.

The CHAIRMAN: Since no other representative wishes to speak, I want to inform the Committee that the general debate will be continued tomorrow morning and concluded tomorrow afternoon. I therefore ask those representatives who want to speak in the general debate to inscribe their names on the list of speakers as soon as possible. So far, I have only one member of the Committee and the President of COSPAR on the speakers' list for tomorrow morning and three representatives for tomorrow afternoon. I would very much appreciate it if some representatives who want to speak tomorrow would do so in the morning.

Before adjourning this meeting, I wish to thank the Conference Services of the Secretariat for being able to provide us early this morning with the verbatim record of yesterday's meeting in English and French. I hope that the Secretariat will be able to continue this service during our current session despite its heavy workload during this session of the General Assembly and its main Committees.

The meeting rose at 12.35 p.m.

VERBATIM RECORD OF THE THIRTY-NINTH MEETING

Held at Headquarters, New York,
on Thursday, 7 October 1965, at 10.30 a.m.

1. Welcome to United States astronauts
2. General debate (continued)
3. Statement by Mr. Roy, President of COSPAR

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