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COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

VERBATIM RECORD OF THE ONE HUNDRED AND NINETY-SIXTH MEETING

Held at Headquarters, New York,
on Thursday, 21 June 1979, at 3 p.m.

Chairman: Mr. JANKOWITSCH (Austria)

General exchange of views (continued)

Applications of space science and technology and activities in outer space: (cont'd)

(a) Remote sensing of the earth by satellites

(b) Direct television broadcasting by satellites

(c) Definition and/or delimitation of outer space and outer space activities, bearing in mind, inter alia, questions relating to the geostationary orbit

(d) Space transportation systems

(e) Use of nuclear power sources in outer space

(f) Examination of the physical nature and technical attributes of the geostationary orbit

(g) Draft treaty relating to the moon



79-70444

The meeting was called to order at 3.30 p.m.

GENERAL EXCHANGE OF VIEWS (continued)

The CHAIRMAN: Before proceeding to the agenda item this afternoon, I should like to inform the Committee that a long-time member of the United States delegation to the Committee on the Peaceful Uses of Outer Space, Mr. Arnold W. Frutkin, Associate Administrator for External Affairs of NASA, is retiring tomorrow. It is my intention, with the agreement of the Committee, to send him, on the Committee's behalf and my own, greetings upon his retirement and to thank him for his contribution to international co-operation in the field of outer space.

Secondly, the Committee will be interested to hear that another long-time member of the Committee on the Peaceful Uses of Outer Space, the Chairman of one of our Working Groups, Ambassador Rydbeck of Sweden, has just been appointed by the Secretary-General as the new Commissioner-General for the United Nations Relief and Works Agency for Palestine Refugees in the Near East. I intend, with the agreement of the Committee, also to send Ambassador Rydbeck, on behalf of the Committee and on my own behalf, our good wishes for the successful accomplishment of his new duties.

Mrs. HUCKE (Federal Republic of Germany): My delegation would like to express its satisfaction at seeing you, Ambassador Jankovitsch, again in the Chair of this Committee. I should also like to express my appreciation of the important and difficult work undertaken by the two Sub-Committees. At the same time, I should like to thank the Secretariat of the United Nations, and especially the Outer Space Affairs Division, for the preparation of the session and for their excellent help and service in organizing our work.

In order to shorten the general statement of my delegation, I have just distributed a brief survey of the space activities which have taken place in the Federal Republic of Germany during the past year. In addition to that report, I shall now make a few comments on some of the subjects to which the Sub-Committees of the United Nations Space Committee have devoted particular attention during this year.

(Mrs. Hucke, Federal Republic of Germany)

One of those subjects was remote sensing. Against the background of a world-wide increase in demand for natural resources information and environmental monitoring, on the one hand, and the interests and efforts of many countries to introduce and utilize remote sensing methods to this end, on the other hand, the Federal Republic of Germany attaches great importance to the various issues raised by remote sensing of the earth by means of satellites. In this connexion, the Federal Government places particular emphasis on the fact that, in its opinion, this technology is still to a large extent in a stage of research and experiment whose characteristic features must be given due consideration during the forthcoming discussions. At the moment, we cannot see any sound scientific basis for classifying remote sensing data in application-related categories. Moreover, we cannot as yet detect any method which would be appropriate for describing the information content and resolution of remote sensing data in a manner both generally acceptable and also applicable to the most varied types of sensors. In this connexion, express support is given to the report requested by the Scientific and Technical Sub-Committee concerning the definition of the effective resolution element (ERE). In order to facilitate the exchange of data and thus improve utilization possibilities, we consider it desirable that the Scientific and Technical Sub-Committee investigate - perhaps with support from a panel of experts appointed specifically to this end - the technical prerequisites and aids required in this connexion. Above and beyond this, it would be excellent if the Scientific and Technical Sub-Committee could give thought to the question of what are the prerequisites for better co-ordination of the earth surveying satellite systems of different countries and how this can be achieved, the goal being the optimal utilization and application of such satellite systems. One way of achieving this goal could be to draw up international measuring programmes for specific application areas of general interest. In this connexion, the catalogue of remote sensing applications suggested by the Scientific and Technical Sub-Committee can constitute an important tool.

(Mrs. Hucke, Federal Republic of Germany)

In the field of international co-operation, we note with satisfaction the growing efforts of the United Nations, of the remote sensing centres at the United Nations Food and Agriculture Organization (FAO) and the United Nations Centre for Natural Resources, Energy and Transport (CNRET), and of the World Meteorological Organization (WMO) and other international and national institutions both to support the developing countries with special programmes in the application of remote sensing data and to promote regional co-operation.

The question of the supply of nuclear energy for satellites constitutes another major item of the agenda of the Scientific and Technical Sub-Committee.

Let me emphasize the great importance attached by my Government to issues involving the safety of nuclear power sources in space. The results obtained by the Scientific and Technical Sub-Committee Working Group in this connexion reflect a spirit of co-operation and the desire of all countries to establish safety prerequisites for the utilization of nuclear power sources. The manifold problems raised in this field cannot, of course, be solved during the first meeting of the Working Group. We are confident, however, that the report now submitted constitutes a sound basis for further discussions of the issues still outstanding.

The question of a low orbit for nuclear powered satellites in particular requires, in our opinion, more detailed scrutiny and debate, because the use of nuclear energy in low orbits naturally poses more serious problems, for example, from the point of view of safety on the ground. My delegation hopes that these questions will be cleared up as the result of further study and considers that this topic should be examined in more detail during the next meeting of the Working Group.

We are of the opinion that during its next session the Legal Sub-Committee also should deal with the problems of the use of nuclear power sources for satellites to the extent that its discussion can be conducted independently of the findings of the deliberations within the Scientific and Technical Sub-Committee.

Let me now conclude this statement with a few comments on the subject of direct television broadcasting by satellites, bearing in mind that the position of the Federal Republic of Germany has been repeatedly

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explained in this Committee and in the Legal Sub-Committee and has, generally speaking, remained unchanged from the beginning of our debates.

We continue to believe that human rights, such as those pertaining to freedom of opinion, freedom of the press and free flow of information regardless of frontiers, as well as access for everybody to information from all sources, offer the best possibilities for education, instruction and judgement, thus promoting better understanding among peoples. The free flow of information must be reciprocal, that is, it must be an exchange, and not a one-way street.

(Mrs. Hucke, Federal Republic of Germany)

As the media in East and West are, financially and technically, fully developed to disseminate news and opinions on a world-wide scale, reciprocity needs but one condition: respect for the abovementioned principles recognized in several United Nations and other legal instruments jointly agreed upon. In the light of the 1978 report of the International Press Institute describing the working conditions of journalists all over the world, we do not believe that either politicians or public servants should have anything to say in the management, direction or correction of the media.

Concerning the problem of information between North and South, we realize that there is a considerable imbalance in the possibilities of and capacities for disseminating news. Almost 80 per cent of all news emanates from Eastern and Western sources. It will be our task to avoid a division of the world into those who disseminate news and those who receive it. It will be equally our task to help the developing countries in setting up efficient news agencies and other media infrastructures, thus enabling them to participate actively in a worldwide exchange of information. To that end the industrialized countries should contribute by providing technical and financial aid. The Federal Republic of Germany shares this view and has during the past year subsidized more than 90 projects - for instance, broadcasting, television, films, news agencies, printing machinery, press and editorial services, publications, audiovisual media, training of journalists and technicians, and so forth - in 44 developing countries, with a total expenditure of more than $300 million. The Federal Government plans to increase these subsidies. It is our particular interest that the citizens of the developing countries can be informed through their own media and news agencies. We want to hear more about what journalists of the third world report about their home countries, and we want to know more about these countries. Thus, a long-term, but very necessary and valuable, goal is that of reducing the existing imbalance of information between North and South.

I do not wish to go into too much detail with regard to the principles on which a consensus still lies ahead of us. We strongly hope that our work will focus on and be oriented towards the results obtained by UNESCO during the elaboration of the mass media Declaration at the end of last year, and thus may be brought to an effective conclusion.

(Mrs. Hucke, Federal Republic of Germany)

May I assure you, Mr. Chairman, that this delegation will do its best to contribute to further progress and to finding solutions acceptable to all of us.

Concerning other items of the agenda - for instance, the preparation for the United Nations Conference on the Exploration and Peaceful Uses of Outer Space - my delegation would like to speak when respective items are discussed.

Mr. YASH PAL (India): Mr. Chairman, let me begin by congratulating you on your masterly survey of the work done by the two Sub-Committees and for reminding us in your inimitable manner how tardy we have been and what we must do to justify our existence. We may be passing through a relatively dull period, but I am sure that under your guidance we will perk up and begin looking for new ways out of some of the deadlocks we find ourselves in.

At the outset, I should like to pay my compliments to the United Nations Expert on outer space, Mr. Murthy, who I hear will be leaving us during the course of the year. Mr. Murthy during his tenure of about seven years has done a magnificent job on a relatively low budget. The benefits of his work will be long lasting. His catalytic activity has helped to create a widespread intimacy with the methods and techniques of space applications in many developing countries. For this he has drawn especially on the inner resources of those countries themselves. In this Committee we shall miss him and his no-nonsense commitment to his work. At the same time, I am happy that his place will be taken by such a knowledgeable and experienced person as Mr. Padang. All of us who have worked with him in this Committee feel certain that, building on the traditions set by Mr. Murthy, he will take the space applications programme of the United Nations to new levels of effectiveness. Mr. Padang will have a very special role in the next few years because of the forthcoming second United Nations Conference on outer space. We should like to welcome him and assure him of our full co-operation.

In my statement two days ago, I conveyed our views on most of the substantive issues under agenda item 3. I shall therefore not repeat in this general statement what I have said earlier. Let me, however, say a few words about an important task which we have to perform during this session in our

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role as the preparatory committee for the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space. In this regard we have a substantial piece of work already done for us by the Scientific and Technical Sub-Committee in its role as the advisory committee. However, many important things have yet to be settled before we complete our recommendations to the General Assembly. We believe that the decision to hold the Conference has been taken at a very critical moment in the history of the development of space activity. It is essential that we approach this task with enthusiasm and hope for the future. This is not a conference to allocate spheres of influence or to distribute spoils. I suggest it should also not be a conference only to discuss space extravaganzas and high technology. In my view it should be a conference in which we can draw up an agenda for things to be done, severally and collectively by all States, to ensure that the promise of space is actually realized, in full measure, for all humanity, at the social and personal levels. The draft agenda suggested by the Scientific and Technical Sub-Committee has been drawn up with the involvement of all members and with great care. As we work as the preparatory committee, with the help of the Secretariat and the officers to be appointed, we shall have occasion to give a concrete action-oriented structure to most of the agenda items and, I hope, create a crusade of thought and action around the world, even before we meet in the Conference itself.

The Committee has set up a Working Group for this purpose and given me the responsibility of chairing it. I feel honoured by this trust and shall try, with the active co-operation of all representatives, to fulfil it to the best of my ability.

I should like to say just a few words about what is new in the space area in my country. I took the liberty of distributing yesterday a report which gives a brief portrait of our activities. Therefore I shall confine myself today to a few items, largely related to our co-operative activities.

(Mr. Yash Pal, India)

I am happy to announce that India's second satellite, devoted to earth observation, was launched on 7 June from a Soviet cosmodrome, using an INTERCOSMOS rocket. This is an important step in the continuing collaboration between India and the Soviet Union. We have received invaluable assistance from our Soviet colleagues, and an active working relationship has been established. Besides the launching, the USSR Academy of Sciences also provided the solar panels, chemical batteries, tape recorders, thermal paints and gas bottles for this satellite. The satellite, including the payloads, was designed and built in India, in the research laboratories of the Indian Space Research Organization, with a lot of work being done by Indian industry and by collaborating Indian laboratories.

The objectives of this experimental programme are to conduct earth observation experiments, to collect, process, analyse and disseminate data of relevance to hydrology, forestry, meteorology and geology, using two television cameras operating in visible and near infrared wavelengths; to study the ocean surface state, using a two-frequency microwave radiometre operating at frequencies of 19 GHz and 22 GHz; to conduct studies in X-ray astronomy using a pin-hole camera; to evolve a methodology for the collection and dissemination of data of meteorological interest from remotely located platforms; and to evaluate the performance characteristics of indigenously developed thermal paints, heat pipes and solar cells, and the like, under prolonged exposure to the environment of space.

The satellite has been launched into its nominal orbit, and check-outs conducted up to the time I left home indicate that everything is functioning normally. Data reception, command and tracking stations have been set up at Ahmedabad, Bangalore, Sriharikota and Car Nicobar. A data products facility is fully operational, and all the software for various corrections and classification schemes is ready. A large number of principle investigators across the country have already done their ground truth measurements over selected test sites. The implementation

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of this experiment has given us a great deal of experience in setting up the technical and organizational interfaces necessary in an operational remote sensing system.

Our television payload resolution is only about a kilometre, and the data would be taken only over the Indian land mass and its mountain and ocean environment, since there is no high-density tape recorder on board. Yet we are very excited about the prospect of working with this satellite. We believe that in the field of remote sensing the establishment of over-all system management and the link between information and action is most important. We hope we shall get a chance to work on that next year.

Before it was launched our satellite was called SEO - Satellite For Earth Observation. Now we have named it BHASKARA, after two great Indian mathematicians of that name who lived about a millennium ago.

We seem to be particularly lucky in our collaboration. Besides the collaboration with the Soviet Union which I touched upon earlier, we have active working arrangements with France, the Federal Republic of Germany and the European Space Agency. Earlier, in active collaboration with NASA, we conducted the famous SITE experiment, which has become a landmark in the history of communication and is having its impact not only in India but all around the world. Over 45 studies of social evaluation alone have already been published, and an evaluation of all these evaluations is now in preparation.

SITE has provided invaluable insights into system configurations for the use of space technology for educational programmes in developing countries; it has emphasized the need for specific, self-reliant, innovative inventions on the ground both in technological and managerial areas, before space technology can fulfil its promise. Space has to be used, we believe, not only as a means but also as a catalyst in doing a great many things which otherwise are neglected.

(Mr. Yash Pal, India)

On 30 June we shall end our satellite telecommunication experiment project, conducted for the last two years using the Franco-German satellite SYMPHONIE under a collaboration programme with the SYMPHONIE organization. For this, we had the use of one transponder for 12 hours a day over a period of two years. This enabled us to develop and test in an operational situation fixed and transportable earth stations, large and small. We have experimented with television origination from the villages, telecast cricket test matches from Pakistan, provided emergency communication during floods, and done other experiments, such as radio networking, television with multiple audios - as many as six audios to one video channel - computer communication, digital communication, multiple access, clock sychronization experiments both within India and between India and Europe, network integration and television teleconferencing. During all this period we have received excellent co-operation from the SYMPHONIE organization and its excellent satellite.

SYMPHONIE will move early next month, but next year we hope to restart our experiments much more intensively, thanks to further collaboration, this time with the European Space Agency. We are in the advanced stages of building a three axis stabilized experimental telecommunications satellite, which will be launched along with METEOSAT on the third experimental flight of ARIANE in the middle of next year and will be put into synchronous orbit by our own apogee motor.

ARIANE has set us a very tight time schedule, but we hope to develop a great deal of hardware, systems capability and self-confidence while trying to keep pace with it. This project, which we call "Apple", is on schedule, and the satellite will provide us with an excellent opportunity to test the development of our time division multiple access system, besides doing many other exciting technical and social experiments.

And then, by the beginning of 1981, we hope to have our own first operational satellite system, currently being built under contract by Ford Aerospace. This will combine, in one satellite, telecommunication, television broadcasting, and a meteorological radiometer. The satellite control earth stations and others are being built in India.

(Mr. Yash Pal, India)

I might mention that we continue to be enthusiastic about educational and training programmes in the area of space applications. Indeed, for many years now, we have had at least one event every year involving participants from other countries, particularly fellow developing countries. A United Nations/FAO seminar on remote sensing was organized in November last year, with a large part of the faculty coming from India. We have just sent out an announcement about a training course for earth station managers and system planners, to be held towards the end of this year, for which we shall offer a subsistence allowance to the participants. Several of our scientists and engineers have been made available to the United Nations Expert on Outer Space for his programmes around the world. We are always on the look-out for collaborative working arrangements, particularly with other developing countries.

(Mr. Yash Pal, India)

I should like to express my appreciation of the detailed statement made yesterday by the representative of the United States about the competent and concerned manner in which NASA is handling the problem of the re-entry of SKYLAB. I hope that the manoeuvres to move SKYLAB into a lower drag attitude which were mentioned by him yesterday were successful. The capability to change the drag attitude during the last 12 hours or so before re-entry would be a powerful control element that would be available to increase or decrease the residence time in space by a few hours. That would then be sufficient to ensure that the earth, within the orbit, turns to a position such that the crowded areas of Europe and Asia do not lie under the wide footprint of the decay path. That was explained to us by the representative of the United States yesterday.

I would strongly urge that such a manoeuvre be given high priority in order to ensure, if required, that the already small chance of injury and loss of life is further reduced.

I should like to end my statement by quoting from something I was moved to say when welcoming the participants in the COSPAR meeting held in Bangalore about two weeks ago. I believe that it has something to do with the spirit of our work here - a spirit which some have expressed the fear we are in danger of losing.

> "Space science is a 'set' which has come to encompass a great many disciplines and many breeds of men. By providing an umbrella for many of them COSPAR" - and I believe this Committee also - "is encouraging a synthesis very essential to intellectual inquiry and human development. To most people space means rockets, man on the moon, journeys to planets and rendezvous of satellites. It also means intercontinental missiles, multiple warheads, anti-satellite weapons and surveillance vehicles. This sub-set is not represented in the COSPAR meetings.
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> "For many of us here space provides enhanced capability to tackle many of the questions about how the universe is put together, what makes it tick,

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what are the messages that come to us from various violent and non-violent happenings in stars, galaxies and the space and the matter in between. We witness events now which are similar to those which must have occurred when the sun and the earth began and others which tell us how our personal sun might die or fade away billions of years later. Living on this speck of moist dust we call earth, we search with great inquisitiveness, and perhaps with some humility, for the meaning and method in the great tapestry of the universe. And in doing all this, we use with great success the natural laws and rules of the game discovered here on earth through centuries of experimentation and theory-making.

"Though scale and circumstances may be different, most of our physics seems to work; however, there are tantalizing possibilities that completely unfamiliar scales and circumstances might reveal some basic traits of nature which remain hidden in our run-of-the-mill environment.

"I suggest that this part of space activity has great relevance for developing a new ethos and ethics for all humanity. This is an activity which joins us to our very origins - possibly illuminating the processes through which life itself began - and could lead to a new awareness of our place in the scheme of things, including the triviality of our differences as seen against this large-scale panorama. Perhaps it even leads to a new type of religiosity based not on revelation but on some sort of an Einsteinian god where a close kinship between all men and between man and his environment becomes a self-evident truth. Taboos and rules of public behaviour then become more like traffic regulations to avoid collisions on the highway, rather than arbitrary constraints without reason or justification. Of course, one does not have to become a crass rationalist disowning one's cultural heritage, because our past is also a part of the whole, being imprinted on our memory disks or encoded in our genes.

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"There is yet another breed of space scientists here too. They are the ones who are engaged in developing systems and techniques for addressing some of the important practical problems of today and tomorrow. Space platforms provide us with a unique capability for seeing and interacting with large parts of the earth simultaneously.

"Through space communication we develop a new concept of neighbourhoods which is independent of distance or physical location. To a country like India it provides means of reaching and being reached by people who have been neglected during the normal process of industrialization. The possibilities of using this enhanced capability are enormous: decentralized industrial growth, programmes in formal and non-formal education, support for activities in agriculture and family welfare and programmes of national integration. Indeed, we have already conducted a massive experiment in this area with great success.

"When we view large parts of the earth with space-borne sensors" - what in this Committee we call remote sensing - "we see not only things and features but also their interrelationships. Many of the discussions at this meeting and its specialized symposia would be connected with applications of remote sensing to hydrology, meteorology and mineral resources.

"The major thrust of the Indian space programme is in the area of practical applications for development. Indeed, we believe that space technology was specially invented for us. But as we work in this area we also find that recipes are not enough, that we have to get intimately involved not only in scientific and technical innovations but also in the human and managerial aspects and that the ultimate configuration of our programme is substantially dependent on these human considerations. This special mix, consisting of a deep curiosity about how the universe is put together, technology development to address our own special problems and a concern for the quality and character of applications, has come to us in large measure from the founder of our programme, Dr. Vikram Sarabhai."

I beg the Committee's indulgence for having quoted that, but I thought that in some sense some of these things were relevant to our discussions.

Mr. DEBERGH (Belgium) (interpretation from French): I believe that I have already in a way expressed my delegation's pleasure at working once again under your guidance, Mr. Chairman. I should not like to fail to express on this occasion my delegation's gratitude also to the members of the Outer Space Affairs Division and the rest of the United Nations Secretariat for the way in which they have been carrying out their tasks in serving this Committee and the States Members of the Organization.

In your introductory statement, Mr. Chairman, you rightly drew attention to the apparent lack of progress in this Committee's work, a lack of progress which becomes particularly striking in respect of the work of the Legal Sub-Committee. Since my delegation is one of those responsible for that state of affairs, I do not intend to avoid this genuine problem. However, this is not the first time in our Committee's history that this has happened. Who cannot recall the dead-locks that beset us earlier in the negotiations on the Convention on International Liability for Damage caused by Space Objects. That Convention saw the light of day only after seven years of indefatigable efforts.

I know that comparisons are not necessarily valid. The fact is that the respective situations are not identical either with respect to their substance or their form. As to the substance, there is clearly much more interest in the question of the physical safety of populations, while for the moment the public is not particularly excited about hypothetical questions, such as the status of the moon, or who finally will be the censor of some television broadcasting - the owner of the television set or his Government. As to the formal aspects, the differences are not developing along the same lines for each of the three subjects concerned, that is, the moon, direct television broadcasting and remote sensing; so the options are not even interchangeable in the terms of a global agreement. Let us be frank, moreover: one of those three subjects does not particularly merit the priority assigned to it by us. The irony of fate would have it however that, thanks to the preference of the Austrian delegation for the treaty relating to the moon, we have the solution close at hand,

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at least so long as we content ourselves with achieving certain things without trying to fit them into an axiomatic global framework which, rightly or wrongly, not everyone is willing to accept. A lot could be said, incidentally, about this lack of ability to find a formula whereby with well-balanced, positive and constructive wording one could induce one's fellow negotiator to make a concession he would have to refuse if it was couched in negative restrictive or constrictive terms or if it referred superfluously to some resolution that that negotiator's Government had never accepted.

Another cause of inertia is probably that we often reason on the basis of preconceived or abstract principles, losing sight of or neglecting what is going on or will happen in the real world as a result of limits of a technical nature. Therefore, the co-ordination between the Legal and Scientific and Technical Sub-Committees is not always perfect.

This leads me to react favourably to the suggestion made the day before yesterday by the representative of France to telescope into one session the meetings of our three bodies as an experimental idea, an innovative one which, moreover, has considerable financial merit.

Finally, I should like to revert to the relevant comments made the day before yesterday by the representative of India who brought out the fact that strategic and military considerations often underlie the problems that we are discussing. Such considerations can indeed have an impact on what we are doing.

This is not the first time that this problem has been brought up. If I may be allowed to go back a bit in time, I should like to refer to a part of a statement made on 16 October 1972 in the First Committee of the General Assembly by a delegation to which I feel quite closely tied. At that time that delegation asked whether

> "it is not high time carefully to re-examine all the Committee's terms of reference. Its very name indicates that it must deal with 'peaceful' uses of outer space, but we know full well that it is extremely difficult to distinguish between the category of peaceful uses and the category of military, or even non-peaceful uses. We all know that ballistic missile launching devices and artificial satellites, which can be used for civil purposes, can also be used for military purposes, which are not necessarily

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non-peaceful purposes, as is evident from some important treaties which are necessary to the maintenance of peace and recognized as such and which lay down that satellites are to be regarded as national means of detection. Hence, there is necessarily some ambiguity in the Committee's terms of reference. There can be little doubt that that ambiguity has had a paralysing influence on the Committee's work and that it has prevented the Committee from playing the central role it was intended to play - even more than the simple fact that space technology was the monopoly of the two super-Powers, which for many, many years were engaged in an arms race." (A/C.1/PV.1864, para. 51)

What can we do now faced as we are with this problem? I do not think that we should change the role of our Committee or establish another committee to deal directly with disarmament problems. Nor do I think it would be useful to meet back to back with the bodies which, within or outside the United Nations, have the competence to deal with this problem. But we should in any event perhaps take better account of their work and, above all, we could work a bit more closely within the framework of one of the terms of reference of our Committee, namely, that of its peaceful objective.

If thorny problems present themselves we should not necessarily cover them up with subterfuges and pretexts, but rather we should tackle them with the intellectual honesty that they demand. And, of course, if our work could contribute, however slightly, to disarmament or demilitarization anywhere in the world we should take the opportunity to ensure that that be done. In my statement yesterday I gave an example of the step we could take in that direction.

(Mr. Debergh, Belgium)

These have been some of the considerations that occurred to me following your introductory statement, Mr. Chairman. I do not want to repeat myself on the substance of questions being dealt with by our two Sub-Committees; but I do want to say that with respect to the use of nuclear power sources in outer space my delegation takes note with gratitude of the consensus that has come about in the Working Group and in the Scientific and Technical Sub-Committee as well as of the suggestion to continue and complete the study on some questions still pending, such as the safe orbit or the operation of nuclear-powered satellites; security criteria; notification of the launching of nuclear-powered objects into space and the necessity for a systematic safety assessment by the launching country.

Since we are dealing here with the safety of populations, this does not, in the view of my delegation, in any way exclude the competence of the Legal Sub-Committee to examine here and now problems that call for international regulation, in particular, prior notification of launchings, the nature of information to be made available in the case of possible malfunction and, finally, the means of assistance. We could perhaps eventually also add to this a reflection on the scope of the Convention on International Liability for Damage caused by Space Objects, in particular a reflection on the issue of the degree of compensation for the cost of investigation and clean-up rendered necessary, in cases of catastrophe. We could also consider the relevant paragraph of the General Assembly resolution recommending to States Members the adoption of the Convention; I mean the paragraph that provides that any party to the Convention may declare that it recognizes as binding the decision of the Claims Commissions set up by the Convention. We have lost track of this clause and I am ashamed to say that my country is also guilty here.

Mutatis mutandis, all this is applicable in the case of the re-entry of SKYLAB, on the subject of which the United States delegation gave us relevant and precise information, for which we warmly thank it.

As for direct television broadcasting by satellites, my delegation's position is well known. We are convinced that the establishment of basic restrictive rules on a world-wide basis is not a realistic idea, for the simple reason that full respect for the regulations of the International Telecommunications Union (ITU) makes international television broadcasting virtually impossible. The representative of India once again recalled this the day before yesterday. This being the case, regulation of direct transnational

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television broadcasts ideally should be carried out pragmatically among radio broadcasting bodies on a regional basis, somewhat as is being done at the present time by the Intervision and Eurovision systems.

My country, given its territorial size, will probably never be able to launch a direct television broadcasting satellite. We would be able to act only in co-operation with our Western European neighbours, as is more or less envisaged in the Geneva plan of the ITU which assigns the same orbital position to most of the Western European countries as well as channels in the frequency band of 12 gigaHerz that are very close to one another. This is the infrastructure of the joint satellites and programme exchange arrangements.

Thus, as I was saying, my country can act only in co-operation with its neighbours in this area. For all these reasons we prefer to proceed pragmatically, free from any and all preconceived ideas and, in particular, from anything of a constraining nature, without third-party intervention and without going back on what has already been achieved in ITU regulations.

As to the definition and/or delimitation of outer space, I already spoke on this yesterday, but I should merely like to add that my country remains very firmly of the view that the geostationary orbit is a part of outer space. We admit, however, that problems can arise and that they should and must be examined and judged separately on their own merits, distinct from the problems of the definition and/or delimitation of outer space.

As to the second United Nations Conference on the Peaceful Uses of Outer Space, my delegation is satisfied with the preparatory work accomplished by the Scientific and Technical Sub-Committee. At a later time, my delegation will give its views on practical questions relating to the organization of that conference, taking as our guidelines three basic considerations, first, that the conference must be fully oriented towards the needs of the developing countries; secondly, that the financial implications should be carefully weighed; and, thirdly, that this could have some bearing on the choice of the venue of the conference.

Mr. DE LA PEDRAJA (Mexico) (interpretation from Spanish): Mr. President, my delegation has already had an opportunity in its statement made a few days ago to say how pleased it is to be working under your guidance.

Our agenda consists of questions that have been before our Committee and Sub-Committees for some years. We hope that during this session we shall be able to make significant progress with respect to texts and to the position to be adopted by our Committee on each of the items before us. The fact that many of these issues are being studied jointly by the Scientific and Technical Sub-Committee and the Legal Sub-Committee shows once again that we must not establish artificial distinctions between these questions. What I mean is that each and every one of these questions presents us simultaneously with scientific and technical aspects, on the one hand, and legal aspects, on the other.

(Mr. de la Pedraja, Mexico)

All these aspects must of necessity be taken into account as a whole when we deal with them. My delegation has maintained that the Committee must decide that all the items making up the agenda of either Sub-Committee can be studied by the other so that it is not necessary for any question to be assigned to one Sub-Committee and not the other.

Since almost all the subjects on our agenda have been discussed in both Sub-Committees, my comments will refer equally to scientific and technical and to legal aspects. In this I shall follow the example of speakers that have preceded me.

With respect to the remote sensing of the earth by satellite, my delegation continues to feel that it is necessary to strengthen the co-ordinating function of the United Nations in the area of the collection and dissemination of information received from remote sensing, and to this end to use the most suitable classification of primary data in order to be able clearly to formulate internationally valid rules to prevent the indiscriminate dissemination of primary data as well as of processed information, thus avoiding the abusive use of such information to the detriment of the legitimate interests of sensed States.

On this point we should recall that there already exist severe limits to the broadcasting of information obtained by satellite when it refers to strategic questions or questions of national security. On this there is no controversy. We have never heard any delegation advocate the free dissemination of such information. It is thus logical to suppose that other countries like mine are basically interested in similar rules being observed also with respect to information relating to natural resources, over which the State concerned should exercise full sovereignty and control. This limitation on the indiscriminate dissemination of primary data or processed information on natural resources would not - nor should it - negatively affect the development of techniques of remote sensing by satellite, since the United Nations, if it were given the fundamental co-ordinating role that it should be given, would remain in charge of promoting these technological developments. At the same time, with respect to the work done by the Legal Sub-Committee in this area, the Mexican delegation maintains its interest in continuance of the study and definition of principles to govern the activities carried out in the area of remote sensing and attempts to ensure that under reasonable conditions the sensed State has access to primary data and processed

(Mr. de la Pedraja, Mexico)

information. That means that the payment to be made for it should be minimal and limited to covering the cost of reproducing the information. We should like to stress the right of the sensed State to have priority and continuous access to the information dealt with.

As for direct television broadcasting by satellite, it is of priority interest to the Legal Sub-Committee and was so particularly at its last session, although agreement on all the principles governing these activities has not been reached. My delegation is fully aware that the main problem here is to reconcile the principle that freedom of information is a fundamental human right with the need at the same time to protect the national interests of States and, especially, the cultural identity of each people, which must be maintained.

The Legal Sub-Committee has made progress in the formulation of a compromise text in this area, a text which, after being accepted, would be binding on all States subscribing thereto. Annex II, appendix A, to the report of the Legal Sub-Committee (A/AC.105/240) contains the text of draft principles on this subject as they were set forth after discussion in the Sub-Committee. In this regard, my delegation would like again to express its interest in the removal of the brackets around paragraphs 1a and 1b of the preamble so that the balance we are seeking in the text should not be negatively affected. In this respect I should like to repeat that my delegation is convinced that all States Members of the United Nations firmly support the validity of the principles of strict respect for and compliance with the sovereign rights of States and non-intervention in their internal affairs. We are all strongly in favour of the strengthening of peace and friendship among peoples as the only basis for ensuring the equitable development of mankind. Paragraphs 1a and 1b refer to these principles. Their exclusion would thus seem to indicate that direct television broadcasting would not only have as an end the implementation of the right to freedom of information but would also respond to the selfish interests - perhaps even abusive interests - of some organizations or entities. We do not think that agreement to paragraphs 1a and 1b would constitute a grave problem for any delegation. We therefore trust that those provisions are acceptable to the Committee. Also, in order to ensure the implementation of these principles, we feel it necessary to make direct television broadcasting subject to the conclusion of agreements and to the process of notifying the receiving State and engaging in consultations should that State so desire.

(Mr. de la Pedraja, Mexico)

With respect to space transport systems, my delegation would like to express its satisfaction with the achievements of various States in that area, achievements which should contribute to the furthering of the interests of mankind and to the strengthening of peace and co-operation among all peoples. For that reason we have always listened with great interest to the statements of delegations having interests in this area.

Concerning the use of nuclear power sources in outer space, my delegation would like to say that it has great interest in continuation of the examination of technical and security measures that should be adopted in the future with respect to the use of such sources in space.

We believe that the Group of experts established within the Scientific and Technical Sub-Committee should continue meeting at the next session of the Sub-Committee to make constant progress in the study of this question. At the same time, we feel that the Legal Sub-Committee should deal with the legal implications of the use of nuclear power sources in outer space, taking into account their impact upon the space environment and in particular the possibility of accidents occurring as a result of the uncontrolled re-entry of space objects. The Legal Sub-Committee should also deal with the legal implications of the uncontrolled re-entry of space objects, whether or not they contain nuclear power sources, because this is a problem that is daily growing in timeliness and importance.

With respect to the geostationary orbit, this is one of the issues that are of particular interest to our Committee. My delegation wishes to reaffirm its position that all States have the right to ensure and to promote their particular interests with respect to the need for an international régime governing use of the orbit. Equatorial States in particular should have the opportunity to appear before all forums they consider appropriate to express their particular interests, which should duly be taken into account in connexion with the establishment of an international régime in this area compatible with the common interest of all countries in the improvements and technological progress resulting from the use of that orbit.

(Mr. de la Pedraja, Mexico)

Our Committee must be convinced that it is much more useful to try to find a negotiated solution to this question than to permit the continuing polarization of opposing positions on the matter, which in no way promotes our paramount goal of international peace and harmony.

Our Committee has for several years now been discussing the draft treaty relating to the moon, and the questions on which it has not been possible to reach a consensus are clearly defined. My delegation would like to offer its definitive support to the position that the moon and its resources are the common heritage of mankind, because it feels that it is necessary for the work on legislation in this area to reflect the interests of mankind and the opportunities open to us at this time. We feel that the right of all States and peoples of the world to benefit from the exploration and exploitation of the moon and other celestial bodies should not be denied them once such activities become technically and economically feasible. We are also convinced that all States must be able to obtain information on every mission sent to the moon and that an international régime should be established to administer the exploitation of the resources which may be found on that celestial body.

Finally, my delegation would like to say that with respect to the preparatory work for the next United Nations Outer Space Conference, we must be very careful in establishing the agenda. We should include all aspects affected by the exploration of outer space. Indeed it is not only the scientific aspect of questions relating to the exploration of outer space that must be studied at the Conference; that world assembly must also have the opportunity to study all the possible consequences of the exploration of space, both present and future. We do not believe that there will be any problem in agreeing on the venue and dates of the Conference. We also share the view that it will be possible to agree quickly on the membership of the bureau of the Conference as well as on Secretariat participation.

APPLICATIONS OF SPACE SCIENCE AND TECHNOLOGY AND ACTIVITIES IN OUTER SPACE (continued)

(a) REMOTE SENSING OF THE EARTH BY SATELLITES

(b) DIRECT TELEVISION BROADCASTING BY SATELLITES

(c) DEFINITION AND/OR DELIMITATION OF OUTER SPACE AND OUTER SPACE ACTIVITIES, BEARING IN MIND, INTER ALIA, QUESTIONS RELATING TO THE GEOSTATIONARY ORBIT

(d) SPACE TRANSPORTATION SYSTEMS

(e) USE OF NUCLEAR POWER SOURCES IN OUTER SPACE

(f) EXAMINATION OF THE PHYSICAL NATURE AND TECHNICAL ATTRIBUTES OF THE GEOSTATIONARY ORBIT

(g) DRAFT TREATY RELATING TO THE MOON

Mr. KOLOSSOV (Union of Soviet Socialist Republics) (interpretation from Russian): Although agenda item 4 does not include the question of what could be called organizational matters, we should still like to say a few words on that item.

Our agenda at this session has on an experimental basis been drawn up in an analytical form in contrast to the agenda of earlier sessions of the Committee. It not only includes the discussion of the reports of the Scientific and Technical Sub-Committee and the Legal Sub-Committee, but also directly in items 4 and 5 of the agenda lists all the specific questions which are agenda items of both the Scientific and Technical Sub-Committee and the Legal Sub-Committee.

Today, the fourth day of our work, it is probably still a bit premature to draw any definite conclusions with regard to the success and usefulness of this experiment. However, we get the impression that this experiment has not yet led to the result which was clearly expected by those delegations which made the proposal. It seems to us that by the end of our session when the report and the recommendations are being drawn up - and that includes recommendations on the method of our work - it will be advisable to come back to this question and decide again whether or not the experiment is worth continuing or whether it would be worth while or advisable to return to our former method.

The second matter linked to the organization of our work is the proposal, a preliminary one as we understand it, that the work of our Committee and its two Sub-Committees should be done simultaneously. Apparently at this session it

(Mr. Kolossov, USSR)

will be difficult for us to take an appropriate decision. Some delegations clearly will even have difficulty in expressing a more or less definite attitude towards that proposal. This question necessarily must be studied back home in our capitals, but it seems to us that we must approach the discussion and study of these proposals in the light of two elements. The first element is that those pessimistic notes which have been sounded here, those words of impatience which were expressed by some delegations and the dissatisfaction expressed at the slow rate of results produced in our Committee all, in our view, concern highly relative matters. If we look at the very recent past and turn ourselves for a moment into specialists in the history of international space law, then we shall be convinced that in the course of some 10 years - or even less than 10 years - the international community has been presented with four universal treaties which are the foundation for current international space law.

(Mr. Kolossov, USSR)

Very regrettably there are far too few Member States of the United Nations that have become parties to these treaties. And I must say that even States which are members of our Committee do not always set a good example for all the other members of the international community in this respect. They are not all parties to the four agreements now in effect, even though at the same time they express dissatisfaction and want to draft additional agreements as quickly as possible. But we hope they will not do that and then not accede to those treaties.

We repeat that the slowdown in our work is a very relative thing. In addition to the four treaties which have already been elaborated, there has been a great deal of progress in drafting the treaty relating to the moon and principles of remote sensing of the earth. If one added all that together, we have not done so little.

The second consideration is that the results and the productivity of the work of our Committee and its Sub-Committees is linked not with how much time is spent in meetings and how many weeks are set aside for the work of any given body, but rather with the difficulties of the problems we are solving and with the growing complexity of space programmes and the expansion of space activities. They are also linked to the interconnexion of the different interests of States in this area - economic, ideological, political, legal and other. And it is quite natural that each new problem which arises is a bit harder to solve than other questions which were on the agenda at the very beginning of the space age. This brings to mind the fable of a famous Russian writer who has been translated into many languages of the world's peoples. Perhaps some people remember this fable. It tells of a donkey, a goat, a monkey and a clumsy bear that decided to form a music quartet. And they did not take their music. They wondered for a long time why their music was not harmonious. Finally the author of the fable advises the musicians: "Friends, no matter where you sit, all of you do not make good musicians". Of course we are at a higher level here. Each one of us does have his music but all our music, unfortunately, is apparently not the same. It varies. Our States give us various instructions, and quite clearly the absence of an agreed-upon political will, of political decisions, is the very reason why we cannot work more productively.

(Mr. Kolossov, USSR)

Therefore, in the statement by the head of our delegation in the plenary Committee, we emphasized that it is precisely in matters of questions relating to the regulation of space activities and to co-operation in the area of the peaceful exploration and use of outer space, and bearing in mind that our Committee is working - and it is quite just and correct that it does work this way - on the basis of consensus, that greater responsibility is required of each delegation and of each State member of our Committee. Moreover, this requires each member of our Committee to make an all-out effort to seek compromise decisions and to show greater readiness for compromises.

In light of this, our delegation is making every effort to solve all the questions under agenda item 4 in a spirit of compromise. It is striving to go half way to meet the wishes and interests of other delegations. This would allow us to reach an agreed-upon decision - provided, naturally, that the other side takes similar steps.

Our delegation has distributed a working document, which the other delegations have received, entitled "Draft basic provisions of the General Assembly resolution on the delimitation of air space and outer space and on the legal status of the geostationary satellites' orbital space". In presenting and commenting on this document we wish - without reading it aloud, since delegations have the document - to emphasize some provisions.

First, a number of delegations express the opinion that it would be incorrect to solve the question of delimitation separately from the question of the legal status of the geostationary orbit. We are not convinced that that is really the case, that both questions can only be solved together. They can be solved separately. But, at the same time, we do not object to solving both questions together. In any case, discussing these two problems simultaneously and solving them in one document will not in our opinion be detrimental to achieving consensus on these items.

Secondly, we are introducing this document initially not in the form of a treaty, not in the form of a draft protocol to some already existing treaty, but in the form of draft basic provisions of a General Assembly resolution. Apparently we might complete discussion of the question of drafting a declaration and recommendations of States, especially since our Committee has had useful experience in beginning its work by stages, by adopting documents which are declaratory in nature.

(Mr. Kolossov, USSR)

Thirdly, we wish to draw attention to items of substance. The figure in paragraph 1 of our draft of 100 - or, as an alternative, 110 - kilometres above sea level does not mean that we are proposing to consider this altitude as the final boundary between air space and outer space. We are proposing it as a first step towards reaching an understanding. The altitude of 100 kilometres above sea level is undoubtedly outer space. With that we can already agree.

(Mr. Kolossov, USSR)

Hardly anyone doubts the fact that all the activities which have taken place thus far in outer space or at altitudes of 100, 105, 110 kilometres are really outer space activities. Incorporating this practice - and we think that it is already a norm of customary law - declaring this customary legal norm in a resolution of the General Assembly should not cause any difficulty as we see it. It is a fact, which we are simply declaring in a United Nations document.

Regarding the final definition of the boundary, it follows from our document that it should not be higher than 100 kilometres. Otherwise it would hinder the prosecution of those outer space activities which go on at altitudes of 100 kilometres today. That means that this boundary can only be lowered. It could be placed a bit lower, but how low an altitude it can drop to is clearly a question which the Scientific and Technical Sub-Committee and the jurists should study, and account should be taken of the many different factors which may have a bearing on the lowering of this boundary from 100 kilometres to something slightly lower. Clearly the interests of aviation should not be ignored either. In this regard the International Civil Aviation Organization might make its own contribution to our work. We have already talked about that. We shall not comment right now on the other paragraphs of our document. Obviously they are clear.

Agenda item 4 of our Committee contains another question about space transportation systems. As is known, at present there are successfully functioning transportation systems for supporting the vital activities and the ability to work of the orbital space stations and their crews. In the Soviet Union these are the SOYUZ transportation spacecraft, and the PROGRESS cargo spacecraft. With their help the extended-mission orbital stations get new crews, relief crews, necessary equipment, fuel and all the products which support and safeguard the life and activity of the crews.

We are just about to see yet another transportation system, which is being developed as a reusable spacecraft system - the American

(Mr. Kolossov, USSR)

space shuttles and the like. In this connexion it seems to us that new problems, not only technical but also legal, are arising. Thus, for example, the ability of such a shuttle system to fly up to a space object in outer space and move it around or take it out of orbit introduces into our agenda what is, in our view, a very important legal problem, which might be discussed right now within, among other places, the Legal Sub-Committee. I have in mind the question of banning the use of such transportation systems for removing from orbit the space objects of other States without their clearly expressed agreement to that effect. It seems to us that the members of our Committee should have an exchange of opinions on this question, should think it through and obviously at some stage should include it on the agenda of the Legal Sub-Committee.

In connexion with the use of the reusable shuttle system there are other legal problems which arise. For example, it seems to us that the need will arise to elaborate rules for the flights of such systems over the territories of foreign States during the first orbit after launching, that is at the moment when such systems may be at low altitudes and may have some effect on the territory of the underlying States.

The last thing we wanted to say today is that we agree - as more than one delegation does - with something that you yourself, Mr. Chairman, said would take us another 24 hours to reach a decision on; namely that we must make an attempt at this session of the Committee to reach some positive results before we finish. As we all know, the Legal Sub-Committee expressed an opinion in its report that our Committee at this session might, if it had the time and the opportunity, as well as the political will of the delegations, complete the drafting of two documents - the draft principles on the use by States of artificial earth satellites for direct television broadcasting and the draft treaty relating to the moon.

(Mr. Kolossov, USSR)

Our delegation feels that it would be advisable to form a working group on one or both of these questions in order to attempt to complete at this session the elaboration either of the principles of direct television broadcasting or of the draft treaty relating to the moon. Of course it is desirable to accomplish both these things, but the Soviet delegation is prepared to participate and try, in a spirit of compromise, to come up with generally accepted decisions, to reach a consensus on one or the other question at this session.

(Mr. Kolossov, USSR)

It seems to us that our Committee could present to the thirty-fourth session of the United Nations General Assembly in final form for adoption either both of these documents or at least one of them.

In conclusion, I should like to say that two other important questions have been touched upon - the use of nuclear power sources in outer space and the holding of the second Conference on Outer Space - and that for certain reasons we are not spending too much time on them. Our small amount of activity thus far does not mean that we lack due interest in the discussion of either of these two questions, and we should like to ask you, Mr. Chairman, to include our delegation on the list of speakers tomorrow, when my delegation will ask to speak, within the framework of agenda item 4, in order to make a statement on both the questions I have just mentioned.

The meeting rose at 5.15 p.m.