
U. R. S. I.

TABLE DES MATIERES — CONTENTS

	Pages
NECROLOGIE — OBITUARY :	
J. H. Dellinger	3
XIV^e ASSEMBLEE GENERALE — XIVth GENERAL ASSEMBLY :	
Voyages	5
Travels	5
COMITES NATIONAUX — NATIONAL COMMITTEES :	
France. — Journées d'études sur le contrôle optimum et les systèmes non linéaires	6
COMMISSIONS ET COMITES — COMMISSIONS AND COMMITTEES :	
Canada. — Official Member for Commission I	9
Suisse. — Membre Officiel pour la Commission VII	9
Commission V. — Project West Ford	9
Comité pour les Recherches Radioélectriques Spatiales — Space Radio Research Committee :	
Documentation	9
Bibliography	10
Advances in the Astronautical Sciences	10
Project West Ford	11
SERVICES PERMANENTS — PERMANENT SERVICES :	
I.U.W.D.S. :	
Minutes of the Brussels meeting	13
Relationship between I.U.W.D.S. and C.O.S.P.A.R.	26
Manuel des Codes d'Ursigrammes — Supplément	27
Manual of Ursigram Codes — Supplement	27
Partial amendment to « CORAJ » code	27

COMITES INTER-UNIONS — INTER-UNION COMMITTEES :

I.U.C.A.F. :

Report of the Geneva Meeting	30
Project West Ford	44

C.O.S.P.A.R. :

Meetings	45
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I.C.S.U. :

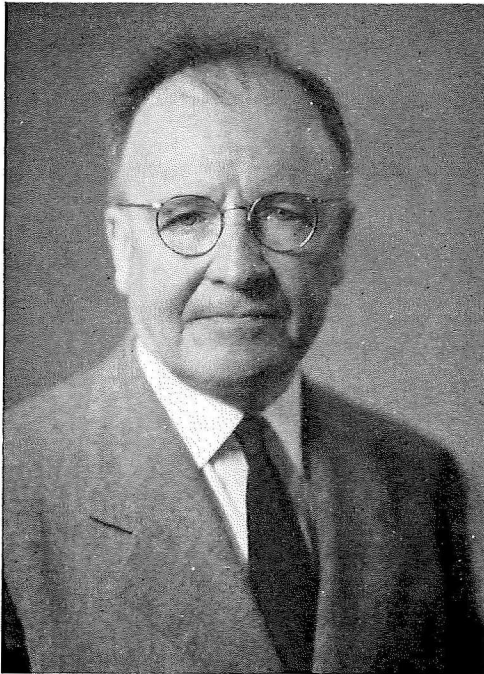
Advisory Committee on Scientific Research in Meteorology with Artificial Satellites	46
International co-operation in the peaceful uses of outer space ...	50

U.N.E.S.C.O. :

Un programme d'action — Travaux de la 12 ^e Conférence Générale	55
U.N.E.S.C.O. General Conference lays down 1963-1964 pro- gramme	58

OBITUARY

J. Howard Dellinger



The end of 1962 put U.R.S.I. into mourning. Dr. John Howard Dellinger, Honorary President, passed away on December 28. Born in Cleveland, Ohio, in 1886, he became fascinated by physics as a young student at Western Reserve University and since then he devoted all his activities to radio. If he was born a little too late to invent radio, he did everything during more than half a century to make up for such delay.

Radio-physicists know well the « Dellinger effect » which is the simultaneous of solar eruptions and semi-world-wide radio fadeouts.

They all know the influence that discovery had on further investigations on the relationship between solar phenomena and radio wave propagation. Most of them know that Dr. Dellinger served as physicist in the U. S. A. National Bureau of Standards from 1907 to 1948. To go over Dr. Dellinger's scientific career would be a very long, although most interesting task, but here we should confine ourselves to Dr. Dellinger's devotion to U.R.S.I. In 1961, he wrote the following about the U.R.S.I. General Assembly held in Washington in 1927 : « I think E. V. Appleton and I are the only participants in the 1927 meeting who are still active in U.R.S.I. ». Active was the right word : he was Chairman of the Commission on Radio Propagation from 1934 to 1946, from 1946 to 1952 he took charge of the chairmanship of the Commission on Radio Measurements and Standards. Vice-President of U.R.S.I. from 1934 to 1952, he was then elected as Honorary President for life.

This election did not put an end to his interest and participation to U.R.S.I.'s activities. Since 1952 when, for the first time, a Publication Committee was appointed, at each General Assembly Dr. Dellinger took a most active and efficient part in the discussions concerned with the future of U.R.S.I. publications which as it is well known are the bases of U.R.S.I.'s standing. His long acquaintance with U.R.S.I. needs and views had the most fruitful weight on the decisions reached by the Committee.

At the 1954 General Assembly Dr. Dellinger was asked to take the leadership of the new U.R.S.I. Committee for C.C.I.R. work established to coordinate studies, carried out by U.R.S.I. at the request of the C.C.I.R. Under the guidance of the Chairman, the Committee had not only a very efficient co-ordinating action but used their authority to stimulate U.R.S.I. Commission Chairmen to study thoroughly the various questions brought to them by the C.C.I.R. Those who have attended the C.C.I.R. meetings know how Dr. Dellinger could strengthen the links between the U.R.S.I. and the C.C.I.R.

Now U.R.S.I. has lost one of his most active supporter and adviser, his departure will be deeply felt and the most sincere wish we can express to commemorate our regretted Honorary President's memory is that many young radio scientists follow the path shown to them by John Howard Dellinger.

XIV^e ASSEMBLÉE GÉNÉRALE

Voyages

Le Japan Travel Bureau (J.T.B.) ouvrira un bureau provisoire au siège de l'Assemblée Générale pendant toute la durée de la réunion; ce bureau s'occupera des réservations et changements d'itinéraires pour les voyages individuels.

Les délégués qui désirent obtenir des renseignements sur leur voyage vers le Japon peuvent s'adresser aux agences locales de l'organisation des Wagons-Lits//Cook et Thos Cook & Son qui travaille en collaboration avec les compagnies aériennes Japan Air Lines et Air France. Ces agences possèdent toutes les informations utiles pour l'organisation des voyages au Japon pour la prochaine Assemblée Générale.

XIVth GENERAL ASSEMBLY

Travels

The Japan Travel Bureau (J.T.B.) will have a temporary office at the Assembly Centre operating during the assembly period. The service provided will include making reservations for private travel or any changes in travel schedules, etc.

For overseas travels to Japan, delegates may consult any local agencies of Wagons-Lits//Cook and Thos Cook & Son co-operating with the Japan Air Lines and Air France. Those agencies are provided with information for the arrangements of travels for the forthcoming General Assembly.

COMITÉS NATIONAUX

France

JOURNÉES D'ÉTUDES SUR LE CONTRÔLE OPTIMUM ET LES SYSTÈMES NON LINÉAIRES

En 1961 le Comité National Français de Radioélectricité Scientifique avait patronné des « Journées d'Etudes sur les Amplificateurs Paramétriques ». Cette manifestation avait été organisée par l'Institut National des Sciences et Techniques Nucléaires de Saclay, et par la Faculté des Sciences de Paris (Chaire de Radioélectricité). Un compte rendu sommaire avait été diffusé dans un des bulletins de l'U.R.S.I.

Devant le succès remporté par cette manifestation, les mêmes organisateurs ont décidé de monter une nouvelle manifestation en 1962, en choisissant pour sujet : *Le Contrôle optimum et les Systèmes non linéaires*. L'U.R.S.I. était liée de très près à cette conférence, puisque non seulement le Comité National Français la patronnait, mais encore M. J. Loeb, président de la Commission VI y a prononcé deux conférences. Ces journées d'études intéressaient en effet non seulement la Commission VII de radio-électronique, mais aussi la Commission VI, axée sur les problèmes plus théoriques concernant les ondes et les signaux.

La structure qui avait donné satisfaction en 1961 a été conservée ; une personnalité scientifique de grande réputation est invitée à prononcer quatre conférences destinées à faire le point de la question. Le Professeur L. Zadeh, de l'Université de Californie, a traité le programme suivant, en quatre conférences :

- Définition d'un système stochastique à nombre d'états finis et ses relations avec l'automation probabilistique. La notion de stratégie ; existence d'une stratégie optimale.
- Obtention de l'équation fonctionnelle satisfaite par la stratégie optimale ; l'équation fonctionnelle du contrôle compétitif et sa solution.

- Critères relatifs aux grandeurs scalaires et vectorielles, l'admissible et l'optimum ; conditions générales d'optimalité. Le principe « bang-gang ».
- Techniques d'itération dans la recherche des stratégies optimales ; application de la programmation linéaire et non linéaire au contrôle optimum.

D'autres conférences étaient destinées soit à préparer les auditeurs à l'exposé du Professeur Zadeh, soit à traiter d'autres aspects du contrôle optimum, notamment ceux mettant en œuvre des circuits non linéaires. Ces conférences ont porté sur les sujets suivants :

- Formulation générale du problème du contrôle optimum. Systèmes à temps minimum ; principe « Bang-bang », par A. BLAQUIERE (Faculté des Sciences de Paris).
- Asservissement à relais avec saturation sur la dérivée seconde et sur la dérivée troisième. Comparaison avec les systèmes linéaires présentant la même saturation, par J. LOEB, Président de la Commission VI de l'U.R.S.I.
- Application des circuits non linéaires et programmation mathématique, par T. STERN (Columbia University, New York).
- Méthodes d'étude de la résonance paramétrique, par P. SZULKIN (Académie des Sciences de Pologne, Warszawa).
- Application de la seconde méthode de Liapounof en dynamique des réacteurs, en régime de puissance, par H. SMETS (O. E. C. E.).
- Echantillonnage des composantes dynamiques dans les systèmes de contrôle et les calculateurs analogiques, par J. PESCHON (O. E. C. E.).
- Détection optimale des variations de puissance d'un réacteur nucléaire, par G. AMBROSINO (Centre National de la Recherche Scientifique).

Enfin une journée avait été prévue pour permettre aux chercheurs français de présenter des communications sur leurs récents travaux. Cinq communications ont été présentées, dont voici les titres :

- Etude du contrôle de la puissance d'un réacteur par le débit du réfrigérant, avec température d'entrée et de sortie constante, par P. BARBASTE (Euratom, Ispra).

- Relation entre les systèmes à cycles limites et les équations linéaires aux valeurs propres de la physique mathématique, par M. FER (Faculté des Sciences de Paris).
- Sur la chaîne adaptative d'un régulateur de tension, par G. GIRALT, J. LAGASSE et Y. SEVELY (Faculté des Sciences de Toulouse).
- Résultats récents sur l'optimisation de l'empoisonnement xénon dans les réacteurs, par J. VALAT et P. CHARREYRE (C. E. N., Saclay).
- Solution exacte de certains systèmes d'équations différentielles non linéaires polynomiales couplées, par J. VALAT (C. E. N., Saclay).

Ce colloque a permis à de nombreux spécialistes appartenant à des universités françaises, et des organismes de recherches français et étrangers, qu'ils soient publics (C. E. A., Euratom, ...) ou privés, de confronter leurs points de vue sur ces questions en pleine évolution dont l'importance est considérable pour les recherches spatiales, qui constituent actuellement un des grands centres d'intérêt de l'U.R.S.I.

Les organisateurs de ces journées adressent leurs remerciements au Directeur de l'Institut National des Sciences et Techniques Nucléaires, M. J. Debiesse qui a bien voulu les accueillir et leur donner les moyens financiers pour réaliser cette manifestation.

P. GRIVET,	A. BLAQUIERE,	M. Y. BERNARD,
Faculté des Sciences de Paris	Faculté des Sciences de Paris	Conservatoire National des Arts et Métiers. Paris

COMMISSIONS AND COMMITTEES

Canada

The newly appointed National Chairman for Commission I on Radio Measurements and Standards is Mr. C. F. PATTENSON, Radio and Electrical Engineering Division, National Research Council, Ottawa 2, Ontario.

Suisse

Les fonctions de Président de la Commission VII — Radio-électronique — ont été remises par le Dr SCHAETI à M. le Prof. Dr F. BORGNIS, Institut de Hautes Fréquences de l'E. P. F., Sternwartstrasse, 7, Zürich 6.

Commission V. — Radio Astronomy

PROJECT WEST FORD

See the letter from J. W. Findlay, Chairman SSB West Ford Committee, published on p. 11

Comité pour les Recherches Radioélectriques Spatiales

DOCUMENTATION

L'attention des membres du Comité est attirée sur un article de E. T. Martin et G. Jacobs publié dans le Journal des Télécommu-

nications (vol. 30, n° 1, janvier 1963) et intitulé : « Quelques facteurs techniques influant sur la possibilité de faire des émissions de radio-diffusion directement à partir de satellites terrestres ».

Nous attirons également l'attention des membres du Comité sur la lettre du Secrétaire Général de l'I.C.S.U. publiée à la page 46.

Space Radio Research Committee

BIBLIOGRAPHY

Attention of the members of the Committee is drawn to a paper by E. T. Martin and G. Jacobs published in the Telecommunication Journal (vol. 30, n° 1, January 1963) : « Some technical factors affecting the feasibility of direct broadcasting from earth satellites ».

Attention of the members is also drawn to the letter from the Secretary General of I.C.S.U. published on page 46.

ADVANCES IN THE ASTRONAUTICAL SCIENCES

The American Astronautical Society wishes to announce publication of the following proceedings to appear as volumes 10 through 13 of the series « *Advances in the Astronautical Sciences* » :

1. — *Manned Lunar Flight, Volume 10.*

This volume covers a symposium, held at Denver, Colorado, on 29 December 1961, and cosponsored by the American Association for the Advancement of Science, the National Aeronautics and Space Administration, and the American Physiological Society. It includes three principal sections : (1) Lunar Spacecraft — The Lunar Trip, (2) Physiological Aspects of Manned Lunar Flight, and (3) Lunar Environment and Basing.

2. — *Eighth Annual Meeting, Volume 11.*

This volume comprises the most significant papers presented at this AAS national meeting held in Washington D. C., 16-18 January 1962. The technical sessions included : Basic Research, Guidance and Control, Bioastronautics, Communications, Lunar and Planetary Exploration, Astrodynamics, and Applications of Astronautical Systems.

3. — *Scientific Satellites — Mission and Design, Volume 12.*

The papers presented at this astronautics symposium held on 27 December 1962 in Philadelphia, are incorporated in this volume. This symposium will give a status report on current scientific satellites, such as the Topside Sounder and the Aeronomy Satellite S-6, and on the observatory satellites - geophysical, solar, and astronomical observatories.

4. — *Interplanetary Missions Conference (Ninth Annual Meeting), Volume 13.*

This AAS national conference, held 15-17 January 1963 in Los Angeles, is the first principal conference which takes interplanetary missions as its theme. The technical sessions comprise the following : Planetary Bases and Exploration, Launch and Boost Systems, Interplanetary Flight, Planetary Entries, Planetary Astronautical Systems, and Advanced Research.

PROJECT WEST FORD

We have received the following letter from J. W. Findlay, Chairman S.S.B. West Ford Committee and Secretary, I.A.U. West Ford Committee :

MEMORANDUM : for Members of the West Ford Committee, International Astronomical Union.

Dear Colleague :

You will recall that in my letter of March 8, 1962, I said that a second attempt to launch Project West Ford would be made during 1962. The attempt has been delayed, but it is now likely to take place early this year.

The characteristics of the West Ford experiment and the launch plans remain essentially as I described them in my previous letter. I wish to remind you particularly of the safeguard described in that letter : namely, that the release of the dipoles will be controlled by a triggering device which can be activated only by radio command from the ground, so that the decision to release the dipoles can be reserved until it has been determined whether the orbit is a suitable one.

I hope to be able to tell you soon about the arrangements that can be made for sending information about the experiment to those observatories that intend to observe the properties of the dipole belt. We expect these arrangements to be similar to those made in connection with the first attempt in October 1961.

January 18, 1963.

Sincerely yours,

John W. FINDLAY,

Chairman, S.S.B. West Ford Committee
Secretary, I.A.U. West Ford Committee

The letter of March 6, 1962 has been published and circulated as supplement to *Information Bulletin* n° 130.

PERMANENT SERVICES

International Ursigram and World Days Service (I.U.W.D.S.)

MINUTES OF THE FIRST MEETING OF THE I.U.W.D.S. STEERING COMMITTEE BRUSSELS, OCTOBER 29 AND 30, 1962

Were present :

- Dr. R. L. SMITH-ROSE, Representative European Regional Committee.
- Dr. H. UYEDA, Representative Western Pacific Regional Committee.
- Mr. A. H. SHAPLEY, Representative Western Hemisphere Regional Committee and U.R.S.I.
- Dr. R. MICHARD, Representative I.A.U.
- Col. E. HERBAYS, Secretary General U.R.S.I.
- Dr. A. F. MOORE, Scientific Secretary F.A.G.S.
- Mr. L. D. de FEITER, Secretary I.U.W.D.S.
- Miss J. V. LINCOLN, Deputy Secretary I.U.W.D.S.

Were excused :

- Dr. N. PUSHKOV, Representative Eurasian Regional Committee.
- Dr. M. NICOLET, Representative I.U.G.G.

Preliminary : During the meeting a telegram was received from the former secretary of the two Committees C.C.U. and I.W.D.S.-steering Committee, Prof. Dr. R. Coutrez, wishing every success to this meeting. Apologies were received from Drs. Pushkov and Nicolet and from Dr. Smith-Rose, who was unable to attend the first day of the meeting.

I. — OPENING BY THE SECRETARY GENERAL OF U.R.S.I.

In opening the meeting our host, Col. E. Herbays, welcomed those present at this, the first meeting of the Steering Committee.

He gave an outline of the arguments which led him and the secretary to call this meeting. The main aim of the meeting will be the reconstitution of the two former Committees : Central Committee on Ursigrams (C.C.U.) and the Steering Committee of the International World Days Service (I.W.D.S.) into the I.U.W.D.S. Steering Committee. Since at the Kyoto meeting (sept., 1961 ; for minutes see *U.R.S.I. Information Bulletin* 130, p. 27) the principle of this amalgamation has been approved by the Committees themselves, formal approval has been received from the interested Unions. Now this reorganisation has to be made effective. This cannot be done by correspondence and it is therefore that a special grant from U.N.E.S.C.O. has been requested and allocated. From this grant it is possible to cover all costs of this meeting including travelling expenses of the members attending the meeting.

2. — ELECTION OF A CHAIRMAN.

It has been common practice for both C.C.U. and I.W.D.S. not to elect a Chairman of the Committee as such, but to elect a chairman for every meeting. This procedure has been adopted because of the small number of members. It was generally felt, that for the present Committee a formal constitution would be the better choice. Following a proposal by Smith-Rose, Shapley was elected unanimously as the first Chairman of the Steering Committee. At the invitation of Herbays, Shapley took the chair.

3. — REPORT OF THE SECRETARY.

A brief review was given about the correspondence since the Kyoto-meeting, of the steps taken to prepare this meeting, the status of the publication of the Code Handbook. These items will be covered in the discussion of the following points on the agenda ; they will not be discussed here.

4. — AIMS OF I.U.W.D.S.

The « Aims and structure of I.U.W.D.S. » are given in appendix I. For easy reference and for providing the necessary background for the brief text of app. 1, some explanation of the present situation and its historical development will be given here.

More than with other Permanent Services the good functioning of I.U.W.D.S. places a rather heavy burden on both the participating observatories, providing the necessary information at short notice, and on the national and international (like W.M.O.) services providing the necessary communication facilities. For the observatories this means often a special organisation for having the observations reduced at the proper time and additional telephone and/or telegram costs. A rough estimate of the telegram costs necessary for a good functioning of the service, amounts to \$500.000 per annum. This situation is as best as possible reflected in the suggested membership of the Steering Committees (both International and Regional). This makes the Steering Committees stand as close as possible to the service itself and consequently provides better possibilities for an economic conduct of affairs.

On the other more scientific side, the influence of the relevant scientific disciplines is assured by the general structure of the I.U.W.D.S. Steering Committee where the scientific unions and other international bodies interested in the Service are or can be represented.

The relation between I.U.W.D.S. and its three sponsoring Unions (I.A.U., I.U.G.G. and U.R.S.I.) and the implication of its adherence to F.A.G.S. has been the subject of a lengthy discussion. Some confusion had arisen because one of the bodies, now forming I.U.W.D.S. i. e. C.C.U., has been an U.R.S.I. Committee exclusively, while the other, the I.W.D.S., has been founded in 1958 in U.R.S.I. at the request of I.C.S.U. as an International *service* with a combined membership. C.C.U. joined F.A.G.S. in 1958 and I.W.D.S. in 1960. The combination of the two bodies, into I.U.W.D.S. which has to be made definitive at this meeting, makes the situation of this new Service more like one of the former I.W.D.S. It will be a permanent service, in which the three aforementioned Unions are participating, it is administered by U.R.S.I. and adhering to F.A.G.S. The same situation occurs with two other services from F.A.G.S., which are sponsored by more than one Union (Bureau International de l'Heure (I.A.U.-I.U.G.G.) and International Polar Motion Service (I.U.G.G.-I.A.U.) but in fact they are the responsibility of only one of them (this was confirmed in a letter from the Scientific Secretary of F.A.G.S. to the Secretary of I.U.W.D.S. dated November 9, 1962).

As far as the financial consequence of the adherence to F.A.G.S. is concerned it should be stressed, that contrary to most other services, our main output will not be the publication of observational data but the transmission of messages, whose costs cannot be covered by any subvention from F.A.G.S. It will be mainly organisational expenses of the service for which the F.A.G.S.-subvention is needed (e. g. publication and distribution of World Geophysical Calendars, of the Code Handbook, of Calendar Records, etc.) Concerning the representation of the Service within F.A.G.S. it was decided that steps will be taken to replace Coutrez (the former secretary) by the present secretary.

5. — MEMBERSHIP OF THE I.U.W.D.S.-STEERING COMMITTEE.

The present membership is indicated in the first part of these minutes, some discussion has been devoted to a possible extension of this membership, with following results :

(a) *C.O.S.P.A.R.* — At present I.U.W.D.S. has a « spokesman » to C.O.S.P.A.R. (A.H. Shapley). He is classed as an observer at C.O.S.P.A.R. meetings, in the same sense as I.C.S.U., C.I.G., S.C.A.R. and non-member countries.

C.O.S.P.A.R. is only very indirectly represented in the I.U.W.D.S. Steering Committee. The general feeling of the Steering Committee was that the I.U.W.D.S.-C.O.S.P.A.R. relationship should be stronger and more formal.

It was suggested to approach Prof. Beynon for bringing these views in C.O.S.P.A.R. (Meeting of the C.O.S.P.A.R. Executive Board, mid-November).

(b) *I.U.P.A.P.* — When I.W.D.S. was formed representation from I.U.P.A.P. (the Working Group on Cosmic Rays), was suggested. Until now no such representation has been realized. Nevertheless/ cosmic ray physicists have shown active interest in the work of our service and, on the other hand, the observations of special events made with balloon-borne Cosmic Ray instruments deserve a quick distribution. An efficient way to have this discipline involved in our work seems to be a personal approach of individual scientists. The names of Sarabhai and Pommerantz were mentioned.

(c) *U.R.S.I.* — As the Chairman is member of the Steering Committee in two capacities i. e. as the representative of both U.R.S.I. and the Western Hemisphere Regional Committee, he proposed to resign as U.R.S.I. representative. In a private discussion after the meeting between the Chairman and the secretary the name of Dr. A. P. Mitra was proposed.

6 and 11. — Some of the international organizations, which are interested in the work of I.U.W.D.S. will not be directly represented. The way in which such liaisons have been maintained in the past is by means of spokesmen or consultants. Cooperation along these lines will be sought with the following organizations :

(a) *W.M.O.* — Our relations with this organization have been most fruitful in the past. It might well be desirable to have a more formal representation in the future.

(b) *S.C.A.R.* — In view of the increased importance of observations made in polar regions a close cooperation with S.C.A.R. seems desirable. There has been a proposal to have organized Antarctica as a fifth Region.

(c) *I.Q.S.Y.* — Reporter for World Days and Communications is A. H. Shapley. Thus our liaison is well assured.

(d) *Inter-Union Commission on Solar and Terrestrial Relationships.* — A. H. Shapley is a member of this Commission and no further representation is considered to be necessary.

(e) *European Solar Particles and Radiation Monitoring Organization (S.P.A.R.M.O.)* — A report sent by J. P. Legrand, secretary of S.P.A.R.M.O., was distributed during the meeting. This initiative within the European region was appreciated very much. The cooperation with S.P.A.R.M.O. can be best assured through the European Regional Committee. The types of alerts envisaged by this organization, were considered to be of use to our service, and suitable codes will be provided by the I.U.W.D.S. secretaries.

(f) *E.S.R.O.* — An appropriate cooperation between E.S.R.O. and the European Regional Committee was considered at a recent meeting of this latter Committee held in London last June.

7. — PUBLICATIONS.

The following types of publications were considered :

(a) *Minutes of the meetings.* — These will be distributed among the members, the participating Unions, F.A.G.S. and I.C.S.U.; and they will be published in the *U.R.S.I. Information Bulletin.*

(b) *Handbook of Ursigram codes.* — The publication of supplements to the existing Ursigram codes in loose-leaf form is in progress. In addition the publication of inter-change codes in a small booklet was considered.

(c) *World Geophysical Calendars.* — There will be given a wide distribution through the constituent Unions and the Regional Warning Centers and by means of publishing in the *Information Bulletins of the Scientific Unions and in Scientific Journals (J. G. R., Nature, Science, etc.).*

(d) *Annual Report.* — This report is considered to give an overall description of the functioning of the service and of the codes which are in use. It would be given a wide distribution in order to attract the attention of possible users to the service. The secretary is asked to draft such a report and to have it published in the *Information Bulletins.*

(e) *Annual publication of Calendar Records.* — The publication of daily indices from different disciplines and of the most important solar and geophysical events, was started for the I.G.Y. (see *I.G.Y. Annals*, Vol. 16). There seems to be an increasing demand for such a publication. The most appropriate means is, to start a series of annual Volumes. According to a proposal of the Secretary General of U.R.S.I., it was decided to publish these Records as U.R.S.I. Monographs. The Secretary was asked to contact Elsevier. A suggestion was made to distribute these volumes free of charge to the observatories and institutions participating in the service. Supplementary copies could be made available for sale.

8. — FINANCES.

1. Running expenses of the service :

Balance forward at 31-12-1961		\$ 5115,27
Estimated expenses in 1962 :		
(a) Normal functioning of the service ...	\$ 1000.—	
(b) I.Q.S.Y.	500.—	1500.—
Balance at 31-12-1962		<u>\$ 3615,27</u>

2. Estimated expenses for 1963 :

(a) Calendar, printing and postage	\$ 200.—
(b) Editing and publishing Code Hand- book supplements	1000.—
	<hr/>
	\$ 1200.—
(c) Calendar records	1000.—
(d) Secretariat	100.—
	<hr/>
Total estimated expenses	\$ 2300.—

3. Special grant from U.N.E.S.C.O. for orga- nizing this meeting	\$ 4000.—
Actual costs of the meeting	2088,27
	<hr/>

To be returned to U.N.E.S.C.O. \$ 1911,73

From these statements it appears that the service has a very good balance in hand. According to Dr. Moore it appears likely that no grant from F.A.G.S. will be allocated for 1963.

9. — FUNCTIONING OF THE URSIGRAM SERVICE.

At a request of the secretary reports were received from the Regional Warning Centers giving details of their contribution to the Ursigram network. As not from all RWS's reports were available and as intercomparison was difficult because of differences in presentation, the secretary was asked to write a combined report to be distributed together with the annual report on the functioning of the service.

It was mentioned that at this moment the unification of the codes in actual use was still not achieved. The Steering Committee strongly recommends the use of interchange codes for the messages to be sent between the regions and invites the Regional Committees to take all necessary steps in order to have the number of regional codes reduced as far as possible. A unification of codes is necessary to achieve an efficient service. The system of unified codes provided for the Spacewarn network was confirmed. These codes are published in the *C.O.S.P.A.R. Information Bulletin* n° 9 and consequently they will not be published in the Handbook of

Ursigram Codes. A reference to the C.O.S.P.A.R. I. B. was considered to be sufficient.

Some discussion was devoted to the intermingling of the Ursigram — with the spacewarn network. Reason for this discussion was a sentence in the minutes of the meeting of the European Regional Committee, where it was stated : « ... it was understood that as they dont normally belong to the U.R.S.I. field of activity, there is no obligation to distribute them except in cases of special arrangements ». It was the general feeling of the Steering Committee, that the spacewarn messages do belong to our general field of interest, but no centre should be obliged to distribute informations of any kind. Special arrangements may be taken between Centres for such distributions.

The role of Ursigram broadcasts within the general scheme of interchange of information was discussed briefly. In some regions, like e. g. Western Pacific such broadcasts are a very good means of distribution, but in others, where good teletype channels are available it would be certainly a step backwards to rely on broadcasts exclusively.

The resolution II reached at the June meeting of the European Regional Committee, in which a full-time coverage by one of the three existing Regional Warning Centres was strongly recommended, was noted with satisfaction. However, as Michard mentioned, no need for such a full-time coverage was felt for this moment, near the minimum of the solar cycle. The priority list for the interchange of data, as adopted by the European Regional Committee (see appendix) was provisionally adopted. Secretaries of Regional Committees are asked to send their comments to the secretary of the Steering Committee.

10. — FUNCTIONING OF THE WORLD DAYS SERVICE.

The Deputy Secretary reported that the World Geophysical Calendar for 1963 is almost ready for publication and that a few items for the I.Q.S.Y.-calendars have to be checked with the reporters of the relevant discipline. The I.Q.S.Y. calendars are expected to be presented at the next meeting of the I.Q.S.Y. Special Committee (Rome, March 1963).

For the Calendar Records 1959 a few indices are still lacking. The Steering Committee invited the Deputy Secretary to take the

necessary steps in order to have the Calendar Records completed as soon as possible. The program for World Geophysical Alerts and Special World Intervals suffers from lack of contributions from the Regional Warning Centers. The Regional Warning Centers therefore are invited to reinstate their regional advice and to send a message to the World Warning Agency on a daily basis in order to assure W.W.A. that they have evaluated the situation. The document on the I.Q.S.Y. program for World Days (I.U.G.G. Chronicle no. 45, p. 226, August 1962) was discussed and the following additional remarks were made.

The program for I.Q.S.Y. will be worked out further by the Chairman and the secretaries at the end of the meeting. Full details will be distributed thereafter. The United States Naval Observatory will be asked to provide the information on solar eclipses. It was thought that a sufficiently accurate 10 cm solar index was available URANI code, daily from Ottawa; Regional Warning Centers are invited to give this index a rapid and wide distribution.

Dr. Uyeda called attention to a C.C.I.R. recommendation, in which it was recommended to remove any modulation from the standard frequency emissions. This would have rather heavy implications on the program plans of I.U.W.D.S., as notices of alerts and S.W.I. are broadcast on these standard frequencies. This point will be studied carefully and appropriate steps will be taken by the I.U.W.D.S. officers.

12. — It was decided to have an informal meeting at the occasion of the I.Q.S.Y. meeting in Rome (March 1963) and a formal meeting during the U.R.S.I. General Assembly, Tokyo, September 1963.

13. — At the end of the sessions, the Chairman recalled the important contribution given to the Ursigram service by the late A. Delouf, who for a long time has been actively engaged with the work at the Regional Warning Center at Paris and whose loss is deeply experienced by all who have been in personal contact with him.

The Chairman expressed the sincere thanks of the Steering Committee to :

(a) F.A.G.S. and U.N.E.S.C.O. for the financial support they had given to the service, especially by making this fruitful meeting possible.

(b) The National Institutions and W.M.O. for their continued interest in our work, and their invaluable support by the provision and transmission of the observational data.

(c) U.R.S.I. for the facilities provided during the present meeting.

He invited the secretary to bring these thanks at the attention of these Organisations and Institutions.

APPENDIX I

Aims and Structure of I.U.W.D.S. drafted by the Steering Committee (October 1962)

1. — NAME.

The International Ursigram and World Days Service (I.U.W.D.S.) is a Permanent Service of the International Scientific Radio Union (U.R.S.I.), in association with the International Astronomical Union (I.A.U.) and the International Union of Geodesy and Geophysics (I.U.G.G.). The I.U.W.D.S. adheres to the Federation of Astronomical and Geophysical Services (F.A.G.S.). The I.U.W.D.S. is a combination (1962) of two former permanent services, the International World Days Service and the U.R.S.I. Central Committee on Ursigram.

2. — TERMS OF REFERENCE.

The service aims to provide information rapidly to the world scientific community to assist in the planning, coordination and conduct of scientific work in the relevant disciplines.

These aims will be achieved by the

- (a) Advance specification of Regular World Days, World Geophysical Intervals and other periods of geophysical interest, which will be published annually in World Geophysical Calendars.
- (b) Collection, coordination, interchange and distribution by rapid means of selected current observations and information of immediate significance to geophysical and space research and the provision of suitable interchange synoptic codes.

- (c) Specification on a current schedule, by a World Warning Agency, of solar activity and geophysical alerts and occasionally special World Intervals.
- (d) Preparation and publication of periodic post-facto Calendar Records of significant indices and outstanding solar and geophysical events.
- (e) Undertaking of similar activities in cooperation with the participating scientific Unions or other international scientific bodies.

3. — REGIONAL STRUCTURE.

3.1 In view of par. 2*b* and 2*c* there shall be Regional Ursigram and World Days Services in each of the Geophysical Regions. At present (1962) there are four such Regions :

- (a) Europe and Africa ;
- (b) Western Hemisphere ;
- (c) Western Pacific ;
- (d) Eurasia.

3.2. In each Region communication facilities are provided by the respective National communications services for the collection and distribution of current observations and information. One of the centers engaged in this work shall be designated as the Regional Warning Center, through which center the interchange of data between the regions is accomplished. Other centers in this region may be called Associate Regional Warning Centers.

3.3. One of the Regional Warning Centers shall be designated as the World Warning Agency which declares the world-wide alerts and special observing periods, with the active cooperation of the other Regional Warning Centers.

3.4. In each Region there shall be a Regional Ursigram and World Days Committee, for which rules are given under par. 5.

4. — STEERING COMMITTEE.

4.1 The I.U.W.D.S. shall be administered by an I.U.W.D.S. Steering Committee consisting of

- (a) One representative from each of the following scientific Unions :
U.R.S.I. ; I.A.U. ; I.U.G.G.

- (b) One representative from each of the Regional Ursigram and World Days Committees.
- (c) The I.U.W.D.S. Secretary and I.U.W.D.S. Deputy Secretary.
- (d) The Secretary General of U.R.S.I. (ex. officio).

4.2. In addition the Steering Committee shall have the power to seek cooperation, by direct representation or otherwise, with other international bodies interested in the work of the service.

4.3. The Steering Committee shall elect its Chairman and appoint the two secretaries ; the position of these officers will be reviewed at the occasion of each General Assembly of U.R.S.I.

4.4. The Steering Committee shall be responsible for the world-wide and interregional aspects of the service, for overall plans and guidance, and for the necessary central publications.

4.5. The Steering Committee shall designate the World Warning Agency from among the existing Regional Warning Centers.

5. — REGIONAL COMMITTEES.

5.1. In as much as I.U.W.D.S. is administered by U.R.S.I., the Regional Committees are formed under the auspices of the relevant U.R.S.I. National Committees, with the direct participation, if they desire, of National Committees of I.A.U. and I.U.G.G.

5.2. The existing (1962) Regional Committees on Ursigrams are considered to be reconstituted as the nucleus of the Regional Ursigram and World Days Committees without further formality.

5.3. In addition the Regional Committees shall have the power to seek cooperation, by direct representation or otherwise, with others in the region actively engaged in obtaining observational data, the communications network, the Regional Warning Centers and the users.

5.4. The Regional Committees are responsible for the activities of the Service in their region, including the collection of information from observatories and the coordination and dissemination of summaries and other appropriate information to the other regions through their Regional Warning Center, according to the plans set up by the I.U.W.D.S. Steering Committee.

5.5. Each Regional Committee shall designate the Regional Warning Center for its region and recognize any Associate Regional

Warning Center deemed necessary for the effective conduct of the work.

5.6. Regional Committees shall otherwise dispose of the largest autonomy for the conduct of their own affairs with the provision that any modification of the interchange codes to be used and the attribution of indicator numbers of stations remain matters for the I.U.W.D.S. exclusively.

January, 1963.

APPENDIX II

I.U.W.D.S. Priority List

Priority I

Solar flares	Optical importance or greater
Solar radio noise data	especially bursts of type IV
Sudden ionospheric disturbance	importance 1 or greater especially P. C. A.
Riometer data	Yellow line, 5694 A
Solar corona	
Location of radio sources on the sun	
Solar chromosphere	Calcium plages
ADALERT	
GEOALERT	
SPACEWARN messages	Launching announcements and orbital data of satellites
Geomagnetic data	K-figures and outstanding occurrences
Solar flare patrol hours	

Priority II

Sunspot data	Including magnetic classification
Ionospheric critical frequencies	
Propagation quality figures	
Ionospheric predictions	
Solar corona	Green line, 5303 A
Cosmic ray flux data	
Aurorae	

RELATIONSHIP BETWEEN I.U.W.D.S. AND C.O.S.P.A.R.

(Abstract from the Report of the Fourth Meeting
of the C.O.S.P.A.R. Bureau, Paris, November 12-13, 1962)

A letter from Prof. Beynon was received during the meeting requesting that C.O.S.P.A.R. consider establishing a stronger and more effective relationship between I.U.W.D.S. (International Ursigram and World Day Service) and C.O.S.P.A.R. Prof. Beynon's request was based on a letter from Mr. A. H. Shapley, Chairman of the I.U.W.D.S. Steering Committee, in which he pointed out the activities of I.U.W.D.S. in which C.O.S.P.A.R. is also involved or included :

- (a) the designation of days or intervals on the annual geophysical calendar ;
- (b) the alerts, warnings and rapid data exchange system, and
- (c) the SPACEWARN communication network, which, in effect, I.U.W.D.S. manages for C.O.S.P.A.R.

Mr. Shapley mentioned that I.U.W.D.S. had a representative to C.O.S.P.A.R. who is classed as an observer at C.O.S.P.A.R. meetings in the same sense as C.I.G., S.C.A.R. and non-member countries. Also C.O.S.P.A.R. is only very indirectly represented in the I.U.W.D.S. Steering Committee. From a practical standpoint the cooperation between I.U.W.D.S. and C.O.S.P.A.R. has not been too bad, but it has been heavily dependent on personal relationship. The SPACEWARN activity is quite well coordinated but improvements could be made as regards (a) calendar activities and (b) alerts systems, etc.

Mr. Shapley pointed out in his letter the following possibilities which should bring about a stronger relationship :

- (1) Provide for some sort of formal representation of I.U.W.D.S. on the C.O.S.P.A.R. Executive Council so that it will have suitable relationship to Working Groups, etc. ;
- (2) Provide for I.U.W.D.S. to designate a Correspondent for Alerts and Geophysical Calendar in C.O.S.P.A.R. Working Group 2, and to designate the Correspondent for SPACEWARN in Working Group 3 ;
- (3) Provide for C.O.S.P.A.R. to designate a representative to the I.U.W.D.S. Steering Committee.

The Bureau agreed that in view of the many contributions of I.U.W.D.S. to the essential work of C.O.S.P.A.R. it was necessary to maintain a close relationship with I.U.W.D.S. It was decided to recommend to the Executive Council of C.O.S.P.A.R. that the Chairman of the I.U.W.D.S. Steering Committee be invited to attend the meetings of the Executive Council as a consultant.

The Executive Secretary was instructed to send a copy of Mr. Shapley's letter to the Chairman of Working Group 2 with the request to consider at the next meeting of Working Group 2 in Rome, questions relating to the geophysical calendar and alerts.

It was agreed that the question of relationship between I.U.W.D.S. and C.O.S.P.A.R. should be given further consideration at the Warsaw meeting of C.O.S.P.A.R.

MANUEL DES CODES DES URSIGRAMMES

Nous informons nos lecteurs qu'un supplément au Manuel des Codes des Ursigrammes vient d'être publié ; il contient les codes ci-après : CORAJ, URANA, URANI, URANT, IONaa.

Les détenteurs du Manuel qui n'auraient pas reçu ce supplément peuvent s'adresser au Secrétariat Général de l'U.R.S.I.

MANUAL OF URSIGRAM CODES

We inform our readers that a supplement to the Manual of Ursigram Codes has been issued : it contains the following codes : CORAJ, URANA, URANI, URANT, IONaa.

Holders of a Manual who did not receive the supplement may obtain it upon request to the General Secretariat of U.R.S.I.

PARTIAL AMENDMENT TO « CORAJ » CODE

CORAJ — COSMIC RAYS

Western Pacific — Japanese

Code Word : CORAJ for COSmic RAY data (Japan)

Symbolic Form : CORAJ JJaII bedef gijkl nosst HHHvv

Key : JJ = Greenwich date of observation

a = apparatus

- 0 = Neutron Monitor
- 1 = Meson Monitor (10 cm Pb, $\pm 45^\circ$, 14,400 cm²)
- 2 = Counter telescope (no shielding, $\pm 70^\circ$, 14,400 cm²)
- 3 = Counter telescope (10 cm Pb, $\pm 70^\circ$, 14,400 cm²)
- 4 = Counter telescope (10 cm Pb, $\pm 20^\circ$, $\times \pm 70^\circ$, 16,630 cm²)
- 5 = Inclined telescope directing North (10 cm Pb, $30^\circ \pm 15^\circ$, 4, 190 cm²)
- 6 = Inclined telescope directing South (the same as 5)
- 7 = Inclined telescope directing East (the same as 5)
- 8 = Inclined telescope directing West (the same as 5)

II = observatory indicator

- 26 = Cosmic Ray Observatory (I.P.C.R.), Mt. Norikura, 2770 m above sea level
- 51 = The Institute of Physical and Chemical Research, Tokyo

b = mean intensity for 0000-0200 U. T.

Daily mean value is expressed by the figure 5, and the deviation for two hours period from the daily mean value is expressed as follows :

- 9 = + 4 %
- 8 = + 3 %
- 7 = + 2 %
- 6 = + 1 %
- 5 = 0
- 4 = — 1 %
- 3 = — 2 %
- 2 = — 3 %
- 1 = — 4 %
- 0 = — 5 %

The scale unit of deviation for the observational data obtained by apparatus « O » should be doubled.

- c* = mean intensity for 0200-0400 U. T.
- d* = mean intensity for 0400-0600 U. T.
- e* = mean intensity for 0600-0800 U. T.
- f* = mean intensity for 0800-1000 U. T.

- g* = mean intensity for 1000-1200 U. T.
i = mean intensity for 1200-1400 U. T.
j = mean intensity for 1400-1600 U. T.
k = mean intensity for 1600-1800 U. T.
l = mean intensity for 1800-2000 U. T.
n = mean intensity for 2000-2200 U. T.
o = mean intensity for 2200-2400 U. T.
ss = Relative daily mean intensity in units of 0.1 % (0.2 %
for apparatus « O ») corrected for the barometer effect,
50 corresponds to that of September 1, 1961.
t = classification of unusual phenomena
0 = calm
1 = increase
2 = after-effect of increase
3 = decrease
4 = after-effect of decrease
5 = daily variation of large amplitude
6 = daily variation of anomalous phase
If « *t* » is other than « 1 », HHHvv are omitted
HHH = time of maximum intensity in hours and tenths U. T.
vv = percentage of the increment -
-

INTER-UNION COMMITTEES

I.U.C.A.F.

Doc. I.U.C.A.F./44. Report of a Meeting of the Committee held in the I.F.R.B. Board Room in the I.T.U. Building, Geneva, on Wednesday and Thursday, 28th and 29th November 1962

PRESENT

Dr. J. F. DENISSE (*Chairman*)
Dr. J. P. HAGEN
Dr. E. METZLER
Professor J. H. OORT
Dr. H. STERKY
Professor Dr. A. UNSÖLD
Dr. J. H. D. VAN DER TOORN
Dr. R. L. SMITH-ROSE (*Secretary General*)

Also attended { Mr. N. I. KRASNOSSELSKI (*Chairman*, I.F.R.B.)
Dr. W. L. GERBER (*Chairman*, Swiss National
Committee of U.R.S.I.)
Dr. M. JOACHIM (C.C.I.R.)

1. — The Secretary reported apologies he had received from Mr. Cata, Dr. Emberson, Mr. Ratcliffe and Professor van de Hulst.

2. — Mr. Krasnosseleski welcomed the members of the Inter-Union Committee, and offered them the available facilities of the I.F.R.B. during their meeting. He made a special apology on behalf of Mr. Cata, who was away due to sickness.

The Chairman, Dr. Denisse, thanked Mr. Krasnosseleski for his cordial welcome : he asked that the regrets of the Committee be conveyed to Mr. Cata, with their best wishes for a speedy recovery.

3. — The Committee approved the Report of the meeting held in Amsterdam in April 1962 and previously circulated as Doc. I.U.C.A.F./31, with some corrections given in Doc. I.U.C.A.F./31 A.

The corrected report had been printed in the *U.R.S.I. Information Bulletin* No. 132 (May-June 1962) and reprints were distributed to the Committee.

4. — *Radio astronomy and the I.T.U.*

The Committee had previously appreciated the importance of ensuring that the members of the I.T.U. Administrative Council supported the request that the subject of Radio Astronomy should be included in the Agenda of the Extraordinary Administrative Radio Conference, which will start on 7th October, 1963.

It was noted that the two Recommendations drawn up by the Committee at its meeting in Amsterdam (Appendix II of Doc. I.U.C.A.F./31), had already been distributed to C.C.I.R. Study Group IV (as Documents 106 and 107) for the forthcoming Plenary Assembly of C.C.I.R. at Geneva (in place of New Delhi) in January/February 1963.

It was reported that 18 administrations (see Appendix I) had already indicated that they support these recommendations, although only 7 of these (Canada, China, Federal Republic of Germany, France, Switzerland, United Kingdom, and the United States of America) are included in the 25 members of the I.T.U. Administrative Council.

Various members present, including the Chairman, Dr. Sterky, Dr. Metzler and Mr. Krasnosselski, stressed the importance of getting the scientists in various countries to approach their national administrations, so that the members of the latter could understand the importance to the radio astronomer of obtaining adequate protection from interference at various parts of the radio frequency spectrum. At the suggestion of Dr. Sterky, discussion on the action to be taken was split into two parts :

- (a) Approach to members of the Administrative Council, which will meet in March/April 1963 ;
- (b) In case (a) results in Radio Astronomy being placed on the Agenda of the E.A.R.C., the members of the latter should be prepared in advance with an explanation of the problem of the radio astronomer in regard to interference with his scientific work.

5. — *The Administrative Council of the I.T.U.*

In discussing the action to be taken under 4 (a) above, Dr. Metzler stressed the importance of making direct contact with the members of the Council. It was therefore agreed that in addition to an

official letter being sent by Dr. Smith-Rose to each of the 25 members of the Council, individual members of the Committee should follow this with a personal contact according to the following list :

I.T.U. Administrative Council Member		Inter-Union Committee member to make contact
Country	Name	
Argentine	Mr. J. A. Autelli	Hagen
Australia	Mr. E. Sawkins	{ Smith-Rose + Oort
Brazil	M. L. Oswaldo de Miranda	Denisse
*Canada	Mr. C. J. Acton	— *
*Chine	Mr. G. C. Chien	— *
Columbia	Dr. G. Sendoya Naranso	{ Hagen Smith-Rose
Spain	Mr. J. G. Moreno	Denisse
*U. S. A.	Mr. F. Colt de Wolf	— *
Ethiopia	M. G. Tedros	Sterky
*France	M. G. Terras	— *
India	Mr. N. V. Gadadhar	Mitra
Iran	Mr. S. Ghassem	Smith-Rose
Italy	Dr. F. Nicotera	Smith-Rose
Japan	Mr. H. Matsuda	{ Smith-Rose † Denisse
Morocco	M. M. Ben Abdellah	Smith-Rose
Mexico	Mr. L. B. Gutierrez	Oort †
Phillipines	Mr. R. Contreras	Hagen
United Arab Republic ..	Dr. M. Mohamed Riad	{ Sterky Oort
*Federal Republic of Ger- many	Mr. H. Bornemann	— *
Yugoslavia	M. V. Senk	{ Denisse Smith-Rose
*United Kingdom	Mr. A. Wolstencroft	— *
Switzerland	M. A. Langenberger	Denisse
Czechoslovakia	M. M. Laipert	Denisse
Tunisia	M. Mohamed Mili	{ Sterky Smith-Rose
U. S. S. R.	Mr. I. V. Klovov	{ Denisse Oort

+ indicates telegrams required.

* indicates support already promised : follow up letter required from Smith-Rose.

6. — *Communication to Members of the Extraordinary Administrative Radio Conference (E.A.R.C.).*

During the meeting of the Inter-Union Committee in Geneva on 29th November, 1962, the Secretary General arranged for the dispatch of a letter to all of the 115 national administrations and the associated organizations (about 140 in all), which participate in the activities of the I.T.U. A copy of this letter with its two appendices has already been circulated to the Committee as Doc. I.U.C.A.F./43.

It was urged that all members of the Committee should do their utmost to ensure that the appropriate scientists in the various countries make contact with their own national administrations, so that as many as possible of the latter should look favourably upon and give their support to the radio astronomers. What is required is that as great protection as practicable should be given to the various bands of frequencies assigned to radio astronomy in the Radio Regulations (Geneva, 1959).

7. — *Interference with observations in Radio Astronomy.*

Dr. Sterky referred to the discussion which the Committee had at its Amsterdam meeting on the question of interference experienced by radio astronomers in carrying out their work (see para. 7 of Doc. I.U.C.A.F./31). No material information had so far become available as to the nature and extent of such interference; and Dr. Hagen suggested that in most countries the radio astronomers do not understand the official procedure concerning radio interference, and are not clear as to the authorities to whom complaints of interference should be addressed. In general it was thought that few complaints of interference were brought to the notice of national administrations; and Mr. Krasnoselski confirmed that I.F.R.B. has no record of such complaints on an international scale.

It was agreed that steps should be taken to encourage radio astronomers to survey and report on the subject of interference with their own observations.

A survey of this type is necessary to obtain the data to support the appeal which could be brought before the I.T.U. conference in 1963; and this would form a worth-while insurance for the long-term protection of radio astronomy from interference caused by the emissions of other radio services.

It was suggested that the U. S. Federal Communications Commission (F.C.C.) might also conduct a systematic survey of interference in the frequency bands already allotted to radio astronomy and those being requested for the future.

It was also proposed that one or more radio astronomy observatories in Europe might organize a corresponding survey in at least some of the allotted bands of frequencies.

Following Dr. Hagen's suggestion, it was decided to prepare and circulate a letter inviting the submission of details of interference in the frequency bands, shared with other services, based on a restricted programme of observations. This letter (Appendix II) was prepared jointly with the Chairman ; and it was intended that it should be circulated by Dr. Denisse in Europe, and by Dr. Hagen in U. S. A.

8. — *New Frequencies for Radio Astronomy and Space Research.*

Dr. Hagen drew the attention of the Committee to the proposals being made by the United States to C.C.I.R. Study Group IV for new frequency bands for radio astronomy (see Doc. I.U.C.A.F./36). He also introduced FCC document 62-1127 giving the views of the United States on the need for frequencies for space research in addition to those required for communication with and control of space vehicles.

9. — *Details of Radio Astronomy Observatories.*

At the meeting of the Inter-Union Committee in London in October 1961, it was decided that steps should be taken to compile for publication, a list of the positions and characteristics of both existing and projected radio astronomy observatories. The Committee noted that this work was already being undertaken by the Director of C.C.I.R. as recommended at the Interim meeting of Study Group IV in Washington in March, 1961. A number of Circulars on the Radio Astronomy Service, containing the information required, had already been issued ; and during the meeting, Dr. Smith-Rose made a formal request to Mr. Gross, the Secretary General of I.T.U., to be supplied with a sufficient quantity of these Circulars for distribution to radio astronomers through members of the Committee, and through Dr. Sadler, the General Secretary of the International Astronomical Union.

As a supplementary contribution the Committee also noted the detailed information on Radio Astronomy Observatories in U. S. A., contained in Doc. I.U.C.A.F./37.

Members of the Inter-Union Committee stressed the importance of keeping all this information up to date, and ensuring its distribution to radio astronomers throughout the world. Drs. Sterky and van der Toorn mentioned that the I.T.U. would correctly assume that it was the responsibility of National administrations to keep astronomers and scientists informed on these matters in their respective countries ; but the present Committee could greatly assist in this matter.

It was to be anticipated that a comprehensive and up to date list of observatories would be prepared at the forthcoming Plenary Assembly of C.C.I.R. (in Geneva, 1963) ; and that this would be revised at the following meeting of the Administrative Council of the I.T.U. Dr. Smith-Rose was asked to take appropriate action to ensure that these lists, with any supplementary information in the future, were available to all interested members of U.R.S.I., I.A.U. and C.O.S.P.A.R. All this action would help to secure closer collaboration between the radio astronomers and their respective national administrations.

10. — *Level of Reception in Radio Astronomy and its Protection from Harmful Interference.*

Dr. Hagen pointed out that it was desirable to co-ordinate the quantities stated as the levels of reception in radio astronomy that required protection from interference (see, for example Documents I.U.C.A.F./11, 36, 39 and 41). This subject was being actively pursued by Study Group IV of C.C.I.R., and it was to be expected that at the forthcoming Plenary Assembly (Geneva, 1963), all the data available would be co-ordinated in a comprehensive report on this subject. It was considered that the coordination should be based on the use of isotropic receiving antennae.

11. — *The West Ford Project.*

Prof. Unsold referred to a recent newspaper report that preparations were in hand for a new launching in the West Ford Project. During the meeting, Dr. Hagen telephoned the United States authorities and obtained the following details.

The earliest possible date for the next launching was the spring of 1963 ; the technical plans for this would be generally described in the Supplement on « Project West Ford » to *U.R.S.I. Information Bulletin* No. 130, January-February 1962. The launching will be announced by the responsible authorities through the West Ford Committee of the National Academy of Sciences. Notification will be on a private basis to those who have informed the Committee of a desire to conduct experiments. Precautions will be taken to ensure that the package, which is to be reduced from 75 to 50 pounds, is in the correct orbit before the dipoles are released ; and this may be up to a few days after launching.

In view of the fact that Dr. J. W. Findlay is Chairman of the I.A.U. Committee on the Project, it was proposed that Dr. Smith-Rose should write to him, expressing the concern of this Inter-Union Committee at the revival of the project, and the hope that Dr. Findlay can use the contacts he had previously arranged to request astronomers to be ready to make further observations, both optical and radio, on the effect of the forthcoming West Ford experiment.

Reference was also made to the publication in the *Quarterly Journal of the Royal Astronomical Society* of a discussion by Bondi, Lovell and others on Needles or West Ford from the Optical Point of View.

12. — *Space Research Service.*

The Committee confirmed its support of the three Resolutions 10, 11 and 12 adopted by C.O.S.P.A.R. at its meeting in Washington in May, 1962. In anticipation of the Committee's agreement, Dr. Smith-Rose had already communicated these Resolutions to the Director of C.C.I.R., Dr. Metzler, who had forwarded them to Professor Ranzi, Chairman of C.C.I.R. Study Group IV, for consideration at the forthcoming Plenary Assembly of C.C.I.R. in Geneva, 1963.

13. — *Finance.*

The Committee approved an interim Financial Report for the first ten months of 1962 prepared by Col. Herbays, who expressed his regrets at not being able to attend the present meeting in Geneva. The Committee accepted Col. Herbays' proposal that

for 1963 the adhering bodies (I.A.U., U.R.S.I. and C.O.S.P.A.R.) should be asked to make an initial contribution of \$500 each, in anticipation that this may suffice to enable I.U.C.A.F. to continue its activities, including participation in the Plenary Assembly of C.C.I.R., and in such meetings of the I.T.U. as it may be found desirable to have direct representation.

Dr. Hagen pointed out that both he and Dr. Emberson had now changed their situations in U. S. A., so that in future, it would be necessary for each of them to claim a full reimbursement of his expenses in connection with meetings of the Committee.

The Committee asked Dr. Smith Rose to convey their thanks to Col. Herbays for his most useful detailed report, and to express their regrets that he was unable to be with them at this meeting.

14. — *Future Activities.*

Referring to part (b) of Dr. Sterky's suggestion recorded in Minute 4 above, it was decided that a document on the subject of Frequencies for Radio Astronomy should be prepared at the next meeting of the Committee, in time to be submitted to the I.T.U. before 7th June, 1963.

Such a document should be prepared after the meeting of the Administrative Council (23rd March — 26th April, 1963), and should take account of any decisions reached at the Plenary Assembly of C.C.I.R. (15th January — 15th February, 1963).

15. — *Future Membership of the Committee.*

Some consideration was given to the future membership of the Committee, and particularly to those members who had been unable to attend any of the four meetings which had been held to date.

It was decided that Dr. Denisse should write to Dr. Vitkevitch expressing the regrets of the Committee at his absence; and enquire if he would be able to attend in the future, or could suggest another astronomer who might replace him. Dr. Smith-Rose would take similar action with Mr. Ilyin.

It was also decided to approach the Presidents of the three participating bodies to enquire if they wished to change their representation at not more than half the members at any one time. Dr. Hagen confirmed that both he and Dr. Emberson would be very interested to continue as members of the Committee.

16. — *Date and Place of next meeting.*

In view of the dates recorded in minute 14, it was decided that the next meeting of the Committee should be on 28th/29th May, 1963; and, at the suggestion of the Chairman, this should be held in Paris.

APPENDIX I

Administrations which have signified to I.T.U. that they support the inclusion of Radio Astronomy in the Agenda of the 1963 Extraordinary Administrative Radio Conference (E.A.R.C.).

(as at 29th November, 1962)

- *Canada
- *Chine
- Denmark
- Eire
- *Federal German Republic
- *France
- Netherlands
- New Zealand
- Norway
- South Africa
- Sweden
- *Switzerland
- United Arab Republic
- *United Kingdom
- United Kingdom Overseas Territories
- *United States of America
- United States Overseas Territories
- Vatican City

* Member of I.T.U. Administrative Council.

tivity ; time, frequency and nature, and also origin, if known, of the interfering signal.

Reports on these experiments should be sent to :

Dr. J. F. DENISSE, Observatoire de Paris, Section d'Astrophysique, Meudon (Seine-et-Oise), France.

Dr. J. P. HAGEN, Pennsylvania State University, Room 222, Electrical Engineering Building, University Park, Pennsylvania, U. S. A.

Dr. R. L. SMITH-ROSE, 21 Tumblewood Road, Banstead, Surrey, United Kingdom.

Independently of these reports, it is recommended that radio-astronomers should inform their own Administration (usually the Ministry of Posts and Telecommunications) of the existence of any harmful interference in the bands listed in the Radio Regulations (1959), and ask for its co-operation for locating the origin of the interference.

It is recognized that only a few radio observatories are actually making observations in the above bands of frequencies, and that the securing of the necessary information requires a definite effort from the radioastronomers : but it is felt that this effort is essential for the I.U.C.A.F. Committee to present the case of Radioastronomy with any chance of success in further discussion.

Sincerely yours,

J. F. DENISSE,

*Chairman of I.U.C.A.F. and
Commission 40 of I.A.U.*

APPENDIX

Review of Frequencies Assigned to Radio Astronomy in Radio Regulations, Geneva, 1959

No.	Frequency Band Mc/s	Applicable to Regions	Reference in Radio Regulations Rec. = Recommendation F = Footnote	Remarks
1.	Standard Frequency Guard Bands 2.5, 5, 10, 15, 20 and 25	1, 2 and 3	Rec. No. 31 F 204	Required to be protected for radio astronomy
2.	Within the range 37-41 Mc/s : (a) 38.0 ± 0.25 (b) 40.68 ± 0.25	1, 2 and 3	Rec. No. 32 F 234	Reaffirm need for protection of one or both bands
3.	73.0-74.6	2	F 253	Reaffirm and seek greater protection
4.	79.75-80.25	1 and 3 except Korea, India & Japan	F 261	Reaffirm
5.	150-153	1	F 286	Similar allocation required in Regions 2 and 3

No.	Frequency Band Mc/s	Applicable to Regions	Reference in Radio Regulations Rec. = Recommendation F = Footnote	Remarks
6.	322-329 (Deuterium line)	No allocation	F 310	Paragraph 10 (ii) of I.U.C.A.F./26 still applies
7.	406-410	1, 2 and 3	F 317	Confirm 10 (iii) of I.U.C.A.F./26
8.	606-614	1 and 3	F 332 (Rec. No. 2, Stockholm, 1961)	Protection recommended at European Broadcasting Conference, Region 1; and extension to Regions 2 and 3 by C.C.I.R.
9.	1400-1427 (Hydrogen line)	1, 2 and 3	F 350	Seek removal of footnote, and extension of exclusive allocation to U. S. S. R. etc. Note also, Rec. No. 3 — Stockholm 1961 — refers to need for harmonic protection from broadcasting at 470, 702 and 710 Mc/s
10.	1645-1675 (OH line)	No allocation	F 354	Probably too near H line above to justify pressing for protection

No.	Frequency Band Mc/s	Applicable to Regions	Reference in Radio Regulations Rec. = Recommendation F = Footnote	Remarks
11.	1660-1690 3165-3195 4800-4810 5800-5815 8680-8700	No allocation	F 354	Used only in U. S. S. R., etc. and not required generally by radio astronomers
12.	2690-2700	1, 2 and 3	F 365	Seek exclusive allocation as part of harmonic series
13.	4990-5000	1, 2 and 3	F 365	— ditto —
14.	Gc/s 10.68-10.70 15.35-15.40 19.3 -19.4 31.3-31.5	1, 2 and 3 » » »	F 405 » » »	Seek exclusive allocation and deletion of footnote in future

Project West Ford

See the letter from J. W. Findlay, Chairman SSB West Ford Committee, published on p. 11.

COSPAR

Meetings

The Fourth International Space Science Symposium and the Sixth C.O.S.P.A.R. Plenary Meeting will be held at Warsaw, Poland, June 3-11, 1963.

All those interested in the meetings may obtain further information from the C.O.S.P.A.R. Secretariat, 28 Nieuwe Schoolstraat, The Hague, Netherland.

I. C. S. U

Advisory Committee on Scientific Research in Meteorology with Artificial Satellites

We have received from the Secretary General of I.C.S.U. the following letter :

Dear Sir,

I have the pleasure to let you know that the Executive Board of the International Council of Scientific Unions, meeting in Prague in October 17-21, 1962, after having discussed the implications of the United Nations Resolution 1721 (XVI) on international cooperation in the peaceful uses of outer space, has taken unanimously the following resolution :

« The Executive Board

having considered the resolutions 27 and 28 (EC XIV) of WMO on research aspects and applications of meteorological satellites ;

noted that, pending the possible establishment by the 4th Congress of WMO next year of an Advisory Committee on Scientific Research in Meteorology with Artificial Satellites, the Executive Committee of WMO decided to set up a Working Group to fulfil temporarily some of the functions of the Advisory Committee ;

noted also that this Working Group will consist of 12 members : 7 representatives of W.M.O., 4 of I.C.S.U. and 1 of U.N.E.S.C.O. ;

noted with great satisfaction that the Executive Committee of W.M.O. has nominated members whose functions or activities in I.U.G.G. or C.O.S.P.A.R. enable them to speak at the same time for I.C.S.U. and for W.M.O., that such a selection was possible shows that the members of the Working Group could have been chosen by consultation between the two organizations ;

wished that the 4th Congress of W.M.O. examine the resolution 27 (EC XIV) in the spirit of the working agreement between W.M.O.

and I.C.S.U. and set up the Advisory Committee in close co-operation with I.C.S.U. ;

would particularly appreciate that the members of the Advisory Committee be selected by consultation between the two organizations ;

hoped that the members of the Committee would work not so much as representatives of either organization than as individuals, in their capacity of scientists ;

pending final decision of the 4th Congress of W.M.O. and in a spirit of co-operation, after consultation with the International Associations of Meteorology and Atmospheric Physics and of Geomagnetism and Aeronomy of I.U.G.G., with U.R.S.I. and C.O.S.P.A.R. ;

designated the following members to represent I.C.S.U. on the temporary Working Group : Professor W. Dieminger, Dr. W. L. Godson, Professor L. Kondratiev, Professor Sv. Petterssen, Professor J. Van Mieghem ;

thought that only points a (i) to a (vi) of the appendix to the First Report of W.M.O. are within I.C.S.U.'s competence ; finally

entrusted the liaison between I.C.S.U. and the International Telecommunication Union to the Inter-Union Committee on Frequency Allocations. »

I pray you to find herewith a copy of the W.M.O. resolution to which this text is referring.

Hoping that in the best interest of international scientific cooperation you will think it fit to take into consideration this I.C.S.U. Resolution,

Yours sincerely,

14 January 1963.

Prof. Dr. J. VAN MIEGHEM,
Secretary General I C.S.U.

**W.M.O. Resolutions 27 and 28 (EC-XIV)
Meteorological Applications of Artificial Satellites**

The Executive Committee,

noting part C of Resolution 1721 (XVI) of the UN General Assembly ;

considering

- (1) that observations provided by artificial satellites have already proved to be of great value for furthering the science of meteorology ;
- (2) that the increased knowledge which will result from satellite observations, in conjunction with conventional observations from an expanded network of meteorological stations, will undoubtedly help in the application of meteorology to the economic well-being of mankind ;
- (3) that international co-operation in the use of these satellites is necessary in order to ensure that the maximum benefit is derived ; and

having considered the draft of the First Report of the World Meteorological Organization on the « Advancement of Atmospheric Sciences and their Application in the Light of Developments in Outer Space », prepared by the Secretary General with the help of consultants from the U. S. A. and U. S. S. R. ;

expresses its appreciation to the Governments of the U. S. A. and the U. S. S. R. for the assistance provided to the Secretary General ;

endorses the proposals contained in the above Report ;

invites the United Nations and other organizations concerned to give thorough and urgent attention to these proposals, and especially to the financial implications ;

recommends to Congress :

- (1) that high priority be given by W.M.O. to the implementation of these proposals ;
- (2) that a W.M.O. Advisory Committee be established with terms of reference as laid down in Appendix H of the Report ;
and

requests the Secretary General :

- (1) to distribute the Report to Members as a matter of urgency ;
- (2) to present the Report to ECOSOC, the UN Committee on the Peaceful Uses of Outer Space, and the UN General Assembly, and, in so doing, to endeavour to secure support for the proposals contained in the Report and assistance in their implementation ;

- (3) to submit a comprehensive report to Congress on subsequent developments.

**Working Group on Research Aspects
of Meteorological Satellites**

The Executive Committee,

noting :

- (1) that in Resolution 27 (EC-XIV) it is recommended to Congress that a W.M.O. Advisory Committee be established with terms of reference as laid down in Appendix H of the First Report of the World Meteorological Organization on the « Advancement of Atmospheric Sciences and their Application in the Light of Developments in Outer Space » ;
- (2) that the operational functions of the proposed Advisory Committee can be fulfilled temporarily by the existing Panel of Experts on Artificial Satellites ;

decides :

- (1) to establish a Working Group on Research Aspects of Meteorological Satellites, to fulfil temporarily the research functions of the proposed Advisory Committee, with the following terms of reference.

To advise on the research aspects of the implementation of Part C of UN General Assembly Resolution 1721 (XVI) and in this context :

- (i) to study the observational requirements of research workers in the atmospheric sciences and to recommend steps for meeting these requirements ;
- (ii) to examine all scientific aspects of the objectives mentioned in Part C of the General Assembly Resolution 1721 (XVI) and to submit recommendations on the scientific problems that have to be solved in order to implement the resolution ;
- (iii) to list specific research tasks which have to be performed to advance the atmospheric sciences and to keep up to date the list of these tasks ;
- (iv) to advise on proposals volunteered in support of these research tasks ;

- (v) to evaluate, at appropriate intervals of time, the progress achieved and to recommend, in the light of the results attained, the discontinuance or reorientation of parts of research tasks that have been listed ;
 - (vi) to study the further research possibilities afforded by new atmospheric data ;
- (2) to invite the following individuals to serve on the working group :
- P. BOLIN,
 - G. P. CRESSMAN,
 - D. A. DAVIES, (*Chairman*),
 - P. K. EVSEEV,
 - M. NICOLET,
 - R. C. SUTCLIFFE,
 - E. VASSY,
- one member to be designated by U.N.E.S.C.O.,
four members to be designated by I.C.S.U. ;
- (3) to request the working group to report to the President of W.M.O. for consideration by Cg-IV ; and
- requests* the Secretary General :
- (1) to give every assistance to the working group ;
 - (2) to designate a member of the Secretariat to act as technical secretary for the working group ; and
 - (3) to arrange for an early session of the working group.

Resolution Adopted by the General Assembly of the O.U.N.

1802 (XVII) — INTERNATIONAL CO-OPERATION
IN THE PEACEFUL USES OF OUTER SPACE

The General Assembly,

Recalling its resolution 1721 (XVI) of 20 December 1961 on international co-operation in the peaceful uses of outer space,

Believing that the activities of States in the exploration and use of outer space should be carried out in conformity with international law including the Charter of the United Nations, in the interest of friendly relations among nations,

Stressing the necessity of the progressive development of international law pertaining to the further elaboration of basic legal principles governing the activities of States in the exploration and use of outer space, to liability for space vehicle accidents and to assistance to, and return of, astronauts and space vehicles, as well as to other legal problems,

Bearing in mind that the application of scientific and technological advances in outer space, particularly in the fields of meteorology and communications, can bring great advantages to mankind and contribute to the economic and social progress of the developing countries as envisaged in the United Nations Development Decade programme,

Having considered the report submitted by the Committee on the Peaceful Uses of Outer Space in response to resolution 1721 (XVI),

I.

1. *Notes with regret* that the Committee on the Peaceful Uses of Outer Space has not yet made recommendations on legal questions connected with the peaceful uses of outer space ;

2. *Calls upon* all Member States to co-operate in the further development of law for outer space ;

3. *Requests* the Committee on the Peaceful Uses of Outer Space to continue urgently its work on the further elaboration of basic legal principles governing the activities of States in the exploration and use of outer space, on liability for space vehicle accidents and on assistance to, and return of, astronauts and space vehicles, as well as on other legal problems ;

4. *Refers* to the Committee on the Peaceful Uses of Outer Space, as a basis for this work, all proposals which have been made thus far, including the draft declaration of the basic principles governing the activities of States pertaining to the exploration and use of outer space submitted by the Union of Soviet Socialist Republics, the draft international agreement on the rescue of astronauts and space-ships making emergency landings submitted by the Union of Soviet Socialist Republics, the draft proposal on assistance to, and return of, space vehicles and personnel submitted by the United States of America, the draft proposal on liability for space vehicle

accidents submitted by the United States of America, the draft code for international co-operation in the peaceful uses of outer space submitted by the United Arab Republic, the draft declaration of basic principles governing the activities of States pertaining to the exploration and use of outer space submitted by the United Kingdom of Great Britain and Northern Ireland, the draft declaration of principles relating to the exploration and use of outer space submitted by the United States of America, and all other proposals and documents presented to the General Assembly during its debates on this item and the records of those debates ;

II.

1. *Endorses* the recommendations set forth in the report of the Committee on the Peaceful Uses of Outer Space concerning the exchange of information ;

2. *Notes with appreciation* that a number of Member States have already, on a voluntary basis, provided information on their national space programmes, and urges other States and regional and international organizations to do so ;

3. *Urges* all Member States and appropriate specialized agencies to give whole-hearted and effective support to the international programmes mentioned in the report and already under way, including the International Year of the Quiet Sun and the World Magnetic Survey ;

4. *Notes* that the Committee on the Peaceful Uses of Outer Space considers that the creation and use of sounding rocket launching facilities under United Nations sponsorship would contribute to the achievement of the objectives of resolution 1721 (XVI) by furthering international collaboration in space research and the advancement of human knowledge, and by providing opportunity for valuable practical training for interested users ;

5. *Notes* the recommendation that Member States should consider the establishment under United Nations sponsorship of a sounding rocket facility, or facilities, on the geomagnetic equator, in time for the International Year of the Quiet Sun ;

6. *Endorses* the basic principles suggested by the Committee on the Peaceful Uses of Outer Space for the operation of such facilities under United Nations sponsorship ;

7. *Affirms* that such facilities when established and operated in accordance with these principles, shall, at the request of the host Member State, be eligible for United Nations sponsorship ;

III.

1. *Notes with appreciation* the prompt initial response of the World Meteorological Organization to the request of the General Assembly, as embodied in resolution 1721 C (XVI), that it report on a programme to advance atmospheric science research and to develop improved weather forecasting capabilities in the light of developments in outer space ;

2. *Calls upon* Member States to strengthen weather forecasting services and to encourage their scientific communities to cooperate in the expansion of atmospheric science research ;

3. *Recommends* that the World Meteorological Organization, in consultation with other United Nations agencies and governmental and non-governmental organizations, should develop in greater detail its plan for an expanded programme to strengthen meteorological services and research, placing particular emphasis on the use of meteorological satellites and on the expansion of training and educational opportunities in these fields ;

4. *Invites* the International Council of Scientific Unions through its member unions and national academies to develop an expanded programme of atmospheric science research which will complement the programmes fostered by the World Meteorological Organization ;

5. *Invites* United Nations agencies concerned with the granting of technical and financial assistance, in consultation with the World Meteorological Organization, to give sympathetic consideration to requests from Member States for technical and financial assistance to supplement their own resources for these activities, including the improvement of meteorological networks ;

6. *Requests* the World Meteorological Organization, following its Congress in April 1963, to report to the Committee on the Peaceful Uses of Outer Space, and to the Economic and Social Council at its thirty-sixth session, on steps taken relating to these activities ;

IV.

1. *Notes with appreciation* the prompt initial response of the International Telecommunication Union to the request of the General Assembly, as embodied in resolution 1721 D (XVI), that it report on those aspects of space communications in which international co-operation will be required ;

2. *Believes* that communication by satellite offers great benefits to mankind, as it will permit the expansion of radio, telephone and television transmissions, including the broadcast of United Nations activities, thus facilitating contact among the peoples of the world ;

3. *Emphasizes* the importance of international co-operation to achieve effective satellite communications which will be available on a world-wide basis ;

4. *Observes* that the Secretary-General of the International Telecommunication Union has invited members to submit information on :

- (a) Technical progress and developments in space telecommunications ;
- (b) Subjects which they regard as appropriate for international co-operation in order to achieve the objectives set forth in General Assembly resolution 1721 D (XVI) ;
- (c) Which of those subjects, if any, should be included in the agenda of the Extraordinary Administrative Radio Conference to be held in October 1963 ;

5. *Notes* that the Secretary-General of the International Telecommunication Union, in the light of the replies, will report on these questions to the next meeting of its Administrative Council in March 1963 in order that the Council may complete the agenda for this Conference ;

6. *Considers* it of the utmost importance that this Conference make allocations of radio frequency bands sufficient to meet expected outer space needs ;

7. *Requests* the International Telecommunication Union to report to the Committee on the Peaceful Uses of Outer Space, and to the Economic and Social Council at its thirty-sixth session, on progress made relating to its outer space activities.

U. N. E. S. C. O.

Un programme d'action

Les travaux de la 12^e Conférence générale de l'U.N.E.S.C.O.

(*Extraits*)

La Conférence générale de l'U.N.E.S.C.O. a tenu à Paris sa 12^e session du 9 novembre au 12 décembre 1962. Elle avait élu pour président M. Paulo de Berrêdo Carneiro (Brésil) et désigné MM. Mohamed El Fasi (Maroc) et C. E. Beeby (Nouvelle-Zélande) pour présider respectivement sa Commission du Programme et sa Commission Administrative. Les fondateurs de l'Organisation des Nations Unies pour l'éducation, la science et la culture avaient en 1946 proclamé la « vocation d'universalité » de cette institution nouvelle ; ils ne représentaient alors que 44 nations. Mais la vocation dont ils parlaient semble bien devoir s'accomplir puisque l'U.N.E.S.C.O. compte aujourd'hui 113 Etats membres.

Une des premières tâches de la Conférence était de pourvoir le poste de Directeur général. A une très forte majorité elle a élu le 14 novembre, pour six ans, M. René Maheu (France) qui, depuis la démission de M. Vittorino Veronese (Italie) en 1961 assurait l'intérim de la Direction générale.

Après avoir fait le bilan des travaux réalisés depuis sa dernière session, la Conférence a défini les entreprises confiées à l'Organisation pour 1963-1964. Pour financer ces activités elle a voté un budget de 39 millions de dollars — le budget de l'exercice précédent ayant à peine dépassé 32.500.000 dollars. Il convient d'ailleurs de préciser que l'U.N.E.S.C.O. disposera aussi de ressources extra-budgétaires provenant de l'Assistance technique des Nations Unies et que l'on estime pour les deux années à venir à environ 12 millions de dollars. Elle sera d'autre part l'agent d'exécution de nombreux projets du Fond Spécial des Nations Unies concernant l'enseignement secondaire et l'enseignement technique supérieur, en Afrique, en Asie et en Amérique latine.

Dans ce budget et dans l'ensemble du programme les activités relatives à l'éducation continuent de recevoir la priorité.

Dans le domaine des sciences naturelles, la principale innovation du programme porte sur la préparation d'une Décennie hydrologique internationale, qui doit commencer en 1965. Aux diverses activités qu'exige cette préparation (réunion intergouvernementale, bourses d'étude, cours spécialisés) s'ajoutera la poursuite d'entreprises de grande envergure : missions d'enquêtes sismologiques, coordination des recherches océanographiques, aide à la recherche fondamentale dans des disciplines comme la biologie cellulaire, les recherches sur le cerveau, l'étude des micro-organismes, etc. Signalons en outre que le Département des Sciences naturelles recevra de l'Assistance technique et du Fonds spécial des Nations Unies plus de 10 millions de dollars pour administrer des établissements de recherche et d'enseignement dans les pays en voie de développement.

Au Département de l'Information, la Conférence générale a demandé essentiellement de tirer les conclusions de l'enquête qu'il a menée, pendant quatre ans, sur la demande des Nations Unies. Le rapport établi à la suite de cette enquête a été récemment approuvé par l'Assemblée générale de l'O.N.U. En suggérant un plan d'action internationale, il révèle que le tiers-monde — où vivent près de 70 % de la population mondiale — manque du minimum de moyens techniques d'information. Le programme de l'U.N.E.S.C.O. comporte donc de nombreux projets d'assistance, afin d'aider les Etats en voie de développement à améliorer leurs journaux, leurs agences de presse, leurs services de radio et de cinéma, voire de télévision éducative. Mais dans ce domaine le progrès spectaculaire des techniques de communication ouvre des horizons nouveaux, et la Conférence a voulu que soient étudiées « les conséquences que l'emploi de ces techniques nouvelles... sont susceptibles d'avoir à plus ou moins brève échéance, sur la réalisation des objectifs essentiels de l'U.N.E.S.C.O. », en particulier « l'expansion de la libre circulation des informations à des fins pacifiques et l'éducation de la jeunesse et des adultes. »

C'est également aux communications internationales — mais selon d'autres méthodes — que sera consacré le programme des Echanges internationaux. Le service qui en est chargé continuera la publication de ces annuaires (Etudes à l'Etranger, Vacances à

l'Etranger) auxquels s'ajoutera un *Répertoire des Echanges internationaux*. Il assurera également la gestion des bourses d'études de l'U.N.E.S.C.O., qui seront au nombre d'environ 1500 pour la période 1963-1964.

Parmi les autres décisions de la Conférence générale il convient de signaler aussi celles qui correspondent à la mission que doit remplir l'U.N.E.S.C.O., en s'efforçant de faire adopter par les gouvernements les lois et les pratiques qu'exigent le progrès intellectuel et le service de la paix. Deux recommandations ont été adoptées. La première concerne l'enseignement technique et professionnel ; elle rappelle aux Etats la nécessité de développer cet enseignement selon des principes communs ; exposés avec précision, ces principes portent sur l'organisation, l'orientation, le personnel et les méthodes des écoles chargées de la formation des ingénieurs, des techniciens et des travailleurs qualifiés.

La deuxième recommandation concerne la sauvegarde de la beauté et du caractère des paysages et des sites. Elle vise à assurer la protection des paysages urbains ou ruraux qui, en dépit de leur valeur esthétique, risquent d'être défigurés « par les travaux de construction et la spéculation foncière ».

Telles sont les grandes lignes des travaux accomplis par la 12^{me} session de la Conférence générale en ce qui concerne le programme de l'U.N.E.S.C.O. Il reste cependant à citer deux autres décisions, fort différentes, qui portent, la première sur l'un des organes directeurs de l'Organisation, l'autre sur les locaux nécessaires au secrétariat. Le Conseil exécutif de l'U.N.E.S.C.O., chargé de veiller à l'exécution du programme entre les sessions de la Conférence générale, comptait jusqu'à présent 24 membres, siégeant à titre individuel et représentant leurs gouvernements. Tenant compte de l'augmentation du nombre des Etats membres, la Conférence a décidé de porter à trente le nombre de ces conseillers.

Quant aux bâtiments du Siège de l'U.N.E.S.C.O., à Paris, devenus trop étroits, la Conférence a décidé de les compléter par des bureaux et des salles de conférence qui seront construits sous terre, afin de respecter l'harmonie du site. Le coût de la construction a été estimé à 5.615,000 dollars, somme payable en onze ans en partie grâce aux ressources propres de l'U.N.E.S.C.O., en partie grâce à des prêts bancaires garantis par le Gouvernement français.

U.N.E.S.C.O. General Conference Lays down 1963-1964 Programme

The U.N.E.S.C.O. General Conference held its 12th session in Paris from November 9 to December 12, 1962. It elected Mr. Paulo de Berrêdo Carneiro of Brazil as its president and named Mr. Mohamed El Fasi of Morocco and Mr. C. E. Beeby of New Zealand as chairmen of its Programme Commission and its Administrative Commission, respectively.

In 1946, the founders of the United Nations Educational, Scientific and Cultural Organization had proclaimed a « vocation of universality » for their new institution. At the time, they represented only 44 nations, but that vocation seems to be on the way to achievement because U.N.E.S.C.O. now numbers 113 Member States.

One of the Conference's first tasks was to elect a Director-General of U.N.E.S.C.O. On November 14, by an overwhelming majority, it elected for six years Mr. René Maheu of France who had served as Acting Director-General since the resignation of Mr. Vittorino Veronese of Italy in 1961.

After taking stock of work performed since its previous session, the Conference defined U.N.E.S.C.O.'s tasks for 1963-1964. To finance them, it voted a budget of \$ 39,000,000 — as compared to a previous two-year budget of slightly more than \$ 32,500,000. U.N.E.S.C.O. will also have at its disposal extra-budgetary resources from the United Nations Technical Assistance Programme, estimated at about \$ 12,000,000 for the next two years. In addition, it will serve as executing agent for a number of United Nations Special Fund projects involving secondary education and higher technical education in Africa, Asia and Latin America.

In this budget and in U.N.E.S.C.O.'s programme as a whole, priority will continue to be placed upon education.

In the natural sciences, the newest feature of the programme is the preparation of an International Hydrologic Decade, scheduled to begin in 1965. This preparatory phase will involve an inter-governmental meeting, fellowships and courses to train specialists. In addition, U.N.E.S.C.O. will carry on a number of major activities: seismological survey missions, the coordination of oceanographic research, and aid to basic research in such fields as cell biology,

brain research and the study of micro-organisms. It should be noted that the Natural Science Department will receive more than \$ 10,000,000 from UN Technical Assistance and the Special Fund to administer research and training projects in developing countries.

The Department of Mass Communication was asked by the General Conference principally to draw the conclusions of a four-year study which it had carried out upon the request of the United Nations. A report drawn up after the completion of this study was recently approved by the UN General Assembly. It suggests a plan for international action and reveals that nearly 70 per cent of the world's population lacks even a minimum of technical facilities for information. U.N.E.S.C.O.'s programme, therefore, includes a number of aid projects designed to help developing countries to improve their newspapers, press agencies, radio and film services and, in some cases, their educational television facilities. But, in this realm, spectacular progress in communication techniques has opened new horizons and the Conference asked that a study be made of « the consequences which the use of these techniques of communication on a world scale... are likely to have in the fairly near future, upon the achievement of the essential objectives of U.N.E.S.C.O. », particularly « the expansion of the free flow of information for peaceful purposes and for the education of youth and adults. »

U.N.E.S.C.O.'s programme of international exchanges will also be devoted to international communications, but in a different form. U.N.E.S.C.O.'s exchange service will continue to publish its annual handbooks (Study Abroad, Vacations Abroad) and will bring out a new Directory of International Exchanges. It will also administer some 1,500 U.N.E.S.C.O. fellowships in 1963-1964.

Among other General Conference decisions should be noted those concerning U.N.E.S.C.O.'s permanent function of encouraging the adoption by governments of laws and practices essential to peace and intellectual progress. Two recommendations were adopted. The first concerns technical and vocational education; it stresses the need to develop this form of education along carefully-stated common principles covering the Organization, orientation, staffs and methods of schools training engineers, technicians and skilled workers.

The second recommendation concerns the safeguarding of the beauty and character of sites and landscapes. It is aimed at guaranteeing the protection of rural and urban landscapes which, despite their esthetic value, are in danger of being disfigured by « building development and land speculation ».

These are the main achievements of the 12th session of the General Conference insofar as U.N.E.S.C.O.'s programme is concerned. Two other decisions, however, should be mentioned : the first concerning one of the Organization's governing bodies and the second the office space required by the Secretariat. The U.N.E.S.C.O. Executive Board, which has the task of supervising the execution of the programme between sessions of the General Conference, previously had 24 members, elected as individuals and representing their governments. Following the increase in the number of U.N.E.S.C.O.'s Member States, the Conference decided to raise the Board's membership to 30.

As for U.N.E.S.C.O.'s headquarters buildings in Paris, which have now become inadequate, the Conference decided to expand them by building offices and conference rooms underground in order to preserve the appearance of U.N.E.S.C.O.'s site. Cost of construction has been estimated at \$ 5,615,000, payable in eleven years partially from U.N.E.S.C.O.'s own resources and partially through bank loans to be guaranteed by the French Government.
