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Alphabetical List of Officers of the Board, of Chairman and Official Members of Commissions and Sub-Commissions and of Presidents and Secretaries of National Committees of U.R.S.I.

ABBREVIATIONS

Com. = Commission, Committee.
S.-Com. = Sub-Commission.
N.C. = National Committee.
O. M. = Official Member.
M. = Membre, Member.
Pr. H = Honorary President.
Pr. = President.
Ch. = Chairman.
V.-Pr. = Vice-President.
V.-Ch. = Vice-Chairman.
Secr. = Secretary.

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O

OORT, Prof. Dr. J. H., Astronomical Observatory, Leiden, Netherlands. O.M. Com. V.

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P

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PROCTOR-WILSON W., Esq., B.B.C. Research Department, Kingswood, Warren, Tadworthl Surrey, United Kingdom. O.M. Com. VI.

PUSHKOV, Prof. N. B., c/o Academy of Sciences, Moscow, U.S.S.R. O.M. Com. III, M. U.R.S.I.-A.G.I., Central Com. Ursigrams.

R

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S

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STELJMAH, M. T., c/o Academy of Sciences, Moscow, U.S.S.R. O.M. Com. VI.

STERKY, Dr. H., Director General, Royal Board of Swedish Telecommunications, Stockholm, Sweden. Pr. N.C.

STRANSKY, Prof. Dr. Ing. J., Narodni Komitét pro vedeckou radiotechniku pri narodni rade badatelské, Ecole Polytechnique, Husova 5, Prague I, Czechoslovakia. Pr. N.C.

STRØMGREN, Prof. Dr. B., Universitete Astronomiske Observatorium, Øster Volgade 3, Copenhagen K, Denmark. O.M. Com. V.

STUMPERS, Dr. F. L., Philips Research Laboratory, Kastanjelaan, Eindhoven, Netherlands. Ch. S.-Com. VI.1.

T

TELLEGEN, Prof. Ir. L. D. H., Geulberg 1, Nuenen, Netherlands. Pr. N.C., Ch. S.-Com. VI.2.

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VAÏSALA, Prof. V., Meteorological Institute of the University, Helsinki, Finland. O.M. Com. II.

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WEBSTER, Prof. H. C., Department of Physics, The University of Queensland, Brisbane, Australia. O.M. Com. VI.

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ZINJANI, Shri M. H., Under Secretary, Department of Scientific Research and Technical Education, Ministry of Education and Scientific Research, New Delhi, India. Secr. N. C.

IN MEMORIAM

Father P. Lejay

The manuscript of this Bulletin was already in the printer's hands when we were informed of the untimely death of Father P. Lejay, Past President of U.R.S.I. We beg his Family and the order to which he belonged to accept our deepest sympathy.

Prof. Dr. Hans Rukop

It is with a deep regret that we inform our readers of the death of Prof. Dr. Hans Rukop, Chairman of Commission VII of the German National Committee of U.R.S.I.

Prof. Rukop promoted the development of electronic tubes and thus accelerated progress in the field of high frequency technic as one of its pionners.

U. R. S. I. NEWS

It is a great pleasure for those long associated with the U.R.S.I. to congratulate Ing. Col. E. Herbays on the completion of his 30th year as Secretary General of the U.R.S.I. During this long association with U.R.S.I. Col. Herbays has earned the respect of the leaders of radio science everywhere in contribution so greatly to the effectiveness of our scientific radio Union. Col. Herbays came into the U.R.S.I. on September 1928. He was designated by Mr. Goldschmidt, then Secretary General of U.R.S.I., as one of the few Belgian officers who had specialized radio-electricity in Paris. During the Second World War, he made great effort in maintaining the activities of the General Secretariat of U.R.S.I. so that the Union could renew its work after the end of the war with full vigor. Designated as Convenor of the Comité Spécial de l'Année Géophysique Internationale by the International Council of Scientific Unions in 1952, he had an important part in the setting up and the organization of the C.S.A.G.I. During his very active life, Col. Herbays has engaged in many activities towards the advancement of radio science. A few of the more important follow :

Ingénieur Civil A.I.A. (Brussels) ;

Ingénieur Radioélectricien E.S.E. (Paris) ;

Licencié en Sciences Commerciales et Financières.

U.R.S.I. : Member of the General Secretariat (1928-1946),
Secretary (1946-1952), Secretary General (1952).

I.C.S.U. : Officer of the Board (1949-1952),
Vice President (1952-1955),
Treasurer (1955).

Vice President of the F.A.G.S.

President of the Belgian Institut National de Radioélectricité et Cinéma.

Vice President of the Federation of International Associations established in Belgium.

Officer of the Belgian Army (1915-1946) ; was Commanding Officer of the School of Transmission Troops.

We all salute our Secretary General for his devotion to the International Scientific Radio Union on his 30th year as Secretary General.

L. V. BERKNER,
President U.R.S.I.

* * *

Prof. Dr. J. Lugeon, Honorary President of the Swiss National Committee of U.R.S.I., has accepted to represent the International Scientific Radio Union at the third session of the World Meteorological Congress which will take place in Geneva, Switzerland, at the Palais des Nations from 1st to 28th April 1959.

U. R. S. I. PUBLICATIONS

Free distribution

In accordance with a proposal of the Board of Officers of U.R.S.I. accepted by the majority of National Committees, from January 1st, 1959, the free distribution of U.R.S.I. administrative publications (General Assembly Proceedings and *Information Bulletin*) will be organized according to the following scheme :

National Committees of category 1 (125 $) : 5 copies.
National Committees of category 2 (250 $) : 10 copies.
National Committees of category 3 (500 $) : 20 copies.
National Committees of category 4 (1000 $) : 40 copies.
National Committees of category 5 (2000 $) : 80 copies.
National Committees of category 6 (4000 $) : 160 copies.

National Committees wishing supplementary copies with a 25 % deduction are invited to inform the Secretary General at the latest on January 31st, 1959.

The subscription price to the *Information Bulletin* is maintained to B. F. 250 ($ 5) (B. F. 187.50 or $ 3.75 for National Committees).

GENERAL ASSEMBLIES

Submission of reports and papers by National Committees to General Assemblies

During a meeting held in Brussels in March 1958, the Board of Officers of U.R.S.I. drafted « Rules for Submission of Reports and Papers to General Assemblies ». After various suggestions made either by members of the Board or by Commission Chairmen, these Rules were modified, and the following text will be submitted to the XIIIth General Assembly of U.R.S.I.

Rules for submission of reports and papers to General Assemblies

1. — General

1.1. These rules for submission of documents to General Assemblies have been drafted with the aim of giving a greater homogeneity to scientific reports that must be finally published in the Proceedings of these Assemblies, of giving a wider circulation to researches effected in the various countries, of underlining the progresses achieved in such researches, and of facilitating the work of authors. These rules have been drafted by the Board of Officers, taking into account decisions adopted by the General Assembly on proposals made by the Executive Committee or the Publication Committee.

1.2. Scientific documents submitted to General Assemblies are classified under the following headings :

(i) National Committee Reports,

(ii) Commission Reports,

(iii) Sub-Commission and Working Group Reports,

(iv) Individual papers invited by U.R.S.I. Commission Chairmen or by the Board of U.R.S.I.

1.3. Documents should fulfil the conditions mentioned hereafter and reach the Secretary General by the dates stated.

1.4. *Texts* should be in one of U.R.S.I. official languages (French or English) ; they should be typewritten with *double spacing* and carefully revised by their authors so that they may be reproduced or printed without further revision. The symbols used should be clearly explained and should be in accordance with standard scientific usage.

1.5. *Drawings*, *Diagrams* (line-figures) should contain no text except for brief indications such as Fig. I, etc. The overall dimensions should not be less than 3″ ½ × 4″ ½ (9 × 12 cm) nor exceeding 6″ ½ × 10″ (16 × 25 cm).

The accompanying text should be submitted on a separate sheet. The place of figures should be clearly indicated in the margin of the text concerned.

1.6. Before each General Assembly the deadlines will be fixed by the Secretary General through the *Information Bulletin* and through special announcements to National Committees and to Commission and Sub-Commission Chairmen.

1.7. Participants to General Assemblies are invited to indicate, when they register, the Commission or Commissions in which they are interested ; papers will be distributed according to this selection.

1.8. National Committee Reports, Commission Reports, Sub-Commission Reports and Working Group Reports will be published in full in the Proceedings. Invited papers and related discussion may be published in special symposia publications as recommended by Commission Chairmen and approved by the Board of Officers.

2. — National Committee Reports

2.1. National Committee Reports should reach the Secretary General, *in triplicate*, *at least two months before* the General Assembly (see 1.4. and 1.5.).

2.2. To facilitate distribution, such reports should be subdivided into separate parts corresponding to each U.R.S.I. Commission.

2.3. National Committees are invited to draft their reports in the following form :

(*a*) a brief description of researches accomplished on the various topics in the field of the Commissions since the writing of the last report.

(*b*) a list of references concerned with these topics.

2.4. *Texts* describing researches should be subdivided into sections related to the various topics investigated. Since, in general, the subjects are fully developed in the basic scientific contributions which should be mentioned in the references, it is not necessary to include too much detail in the reports. These sections should (*a*) characterize completely the past period, (*b*) clearly mention the progress achieved, the new developments and those having exceptional interest, (*c*) be brief and certainly not exceed 500 words for each major topic.

2.5. References should also be grouped by topic, under titles corresponding to those of the various sections (see 2.4.).

2.6. National Committees are asked in their description of researches carried out (see 2.3, *a*) to avoid inclusion of extensive summaries of individual papers published or not.

2.7. Due to the fact that general bibliographies are well covered by the « Science Abstracts », the « Bulletin Signalétique », and by reference lists published in radio periodicals, National Committees are asked to avoid duplication of these existing sources. The report should endeavour to be a brief coherent account of progress with only the essential references.

2.8. National Committees are required to draft their reports in one of the official languages of U.R.S.I. and, are invited, to include translation into the other official language of U.R.S.I.

2.9. The parts of National Committee Reports are reproduced and distributed at the opening of the General Assembly according to the wishes expressed by the participants when they register (see 1.7.). They are published in the Proceedings.

2.10. Administrative Reports, or Reports on the general activity of National Committees, are published in the *Information Bulletin*. They are not reproduced nor distributed at General Assemblies.

3. — Commission Reports

3.1. Reports on Commission work during periods between General Assemblies should reach the Secretary General, *in triplicate*, *at least two months before* the General Assembly. Should a Chairman wish to have the Secretary General circulate this report to official members of this Commission, the report should reach the Secretary General at least four months before the General Assembly (see 1.4. and 1.5.).

3.2. U.R.S.I. Commission Chairmen are requested to provide the Secretary General, at the latest at the opening of the General Assembly, with the translation of the report into the official language not used for the original text.

3.3. Commission reports mentioned in 3.1. are reproduced and distributed at the opening of the General Assembly according to the wishes expressed by the participants when they register (see 1.7.). These reports are published in the Proceedings.

4. — Reports on work of Sub-Commissions and Working Groups

4.1. Reports on work of Sub-Commissions and Working Groups during the period between General Assemblies should reach the Secretary General, *in triplicate*, *at least three months before* the General Assembly (see 1.4. and 1.5.). One copy will be sent by the Secretary General to the Commission Chairman. Should a Sub-Commission or Working Group Chairman wish to have this report distributed to the members of his Sub-Commission or Group, he should forward to the Secretary General the number of copies requested, or send the original text, *at least four months before* the General Assembly.

4.2. The Chairmen are requested to provide if possible the Secretary General, at the latest at the opening of the General Assembly, with the translation of the report into the official language not used for the original text.

4.3. Reports mentioned in 4.1. are reproduced and distributed at the opening of the General Assembly according to the wishes expressed by the participants when they register (see 1.7.). These reports are published in the Proceedings.

5. — Individual papers

5.1. Any Official Member of a Commission may suggest to the international Commission Chairman specific papers to be invited. Only papers invited by International Commission Chairmen, or by the Board of U.R.S.I., will be accepted by the Secretary General. Other papers will be returned to their authors, but the subject there of may be introduced in the scientific meetings of the appropriate Commission if desired by the Commission Chairman at a time chosen by him.

5.2. Invited papers to the General Assembly should reach the Secretary General *in triplicate* at the deadline date established by him (see 1.4. and 1.5.).

5.3. Papers on specific subjects will be invited by Commission Chairmen after consultation (by mail) with official members of their Commission to develop specific subjects of current interest to the Commission. Such papers will be limited in length (for purposes of reproduction) to 4000 words and three sheets of illustrations unless otherwise specifically arranged by the Commission Chairman. Such papers should be accompanied by 100 word abstracts for publication in the Proceedings.

5.4. Only not yet published scientific papers invited by the Commission Chairmen will be reproduced by the Secretary General before the General Assembly for distribution in accordance with the wishes expressed by the participants when they register (see 1.7.).

6. — Symposia

6.1. By arrangement with the Secretary General, Commission Chairmen may plan symposia of current and vital interest to their Commissions, to be held in connection with the General Assemblies.

6.2. Series of invited papers, as mentioned in 5. may constitute the principal contributions to such symposia.

6.3. Symposia, including papers and an accurate report of the discussion may be published either commercially, or by U.R.S.I., upon authority of the Board of Officers and through arrangements made by the Secretary General.

XIIth GENERAL ASSEMBLY

Proceedings

Parts 2 and 3 of Volume XI (Proceedings of Commission on Radio and Troposphere and of Commission on Ionospheric Radio) are out of press. Copies have been forwarded to National Committees which have informed the Secretary General of their requirements.

Supplementary copies are available a the General Secretariat at the price of B. F. 175, or $ 3.5, or £ 1.5.0 per copy (postage included) for Part 2 and B. F. 225, or $ 4.5, or £ 1.12.0 per copy (postage included) for Part 3.

NATIONAL COMMITTEES

Italy

MEMBERSHIP OF THE NATIONAL COMMITTEE

The Italian National Committee, at its last meeting of June 30th, 1958, modified its membership as follows :

President : Prof. Mario BOELLA, Professeur de communications électriques, Polytechnique, Turin.

Vice-President : Prof. Carlo MATTEINI, Professeur de radiotechnique, Université de Rome.

Members :

Prof. Giorgio BARZILAI, Professeur d'électronique, Université de Rome.

Prof. Nello CARRARA, Professeur d'ondes électromagnétiques, Université de Florence.

Prof. Giuseppe FRANCINI, Professeur d'électronique appliquée, Université de Padoue.

Prof. Emilio GATTI, Professeur d'électronique, Polytechnique de Milan.

Prof. Gaetano LATMIRAL, Professeur de théorie et technique des ondes électromagnétiques, Institut Supérieur Naval de Naples.

Prof. Algeri MARINO, Professeur de communications électriques, Université de Rome.

Prof. Ugo TIBERIO, Professeur de radiotechnique, Université de Pise.

Secretary-Treasurer : Doct. Alvaro DONADIO, Fonctionnaire du Secrétariat Général du Conseil National des Recherches, Rome, Piazzale delle Scienze 7.

Sweden

MEMBERSHIP OF THE NATIONAL COMMITTEE

The Swedish National Committee of U.R.S.I. at its meeting of June 16th, 1958, was constituted as follows for the period 1958-1960 :

President : Dr. Håkan K. A. STERKY, Director General, Royal Board of Swedish Telecommunications, Stockholm 16.

Vice-President : Dr. Hannes ALFVÉN, Professor, Royal Institute of Technology, Valhallavägen 79, Stockholm 70.

Secretary : Mr. Sven A. GEJER, Director of Division, Royal Board of Swedish Telecommunications, Stockholm 16.

Ordinary Members :

Mr. Hilding E. BJÖRKLUND, Engineer-in-Chief, Electrotechnical Laboratory of Swedish Army Administration, Solna 6.

Mr. Erik B. ESPING, Technical Director, Royal Board of Swedish Telecommunications, Stockholm 16.

Dr. Erik G. HALLÉN, Professor, Royal Institute of Technology, Valhallavägen 79, Stockholm 70.

Dr. Nikolai HERLOFSON, Demonstrator, Royal Institute of Technology, Valhallavägen 79, Stokcholm 70.

Mr. Bertil HÅÅRD, Licentiate of Technology, Ingenjörsaktiebolaget Elenik, Nordenflychsvägen 62, Stockholm K.

Mr. Henrik A. LINDGREN, Head of Division, Swedish Air Force Administration, Stockholm 80.

Mr. Nils-Henrik LUNDQUIST, Head of Department, Research Institute of National Defence, Div. 3, Stockholm 80.

Dr. Erik O. LÖFGREN, Professor, Royal Institute of Technology, Valhallavägen 79, Stockholm 70.

Dr. Dietrich MÜLLER-HILLEBRAND, Professor, Institute of High-Tension Research, Uppsala.

Dr. Yngve K. OHMAN, Professor, Stockholm Astronomical Observatory, Saltsjöbaden.

Mr. Lars-Olow RAAB, Licentiate of Science, Meteorologist, Swedish Meteorological and Hydrological Institute, Fridhemsgatan 9, Stockholm 12.

Dr. Olof E. H. RYDBECK, Professor, Chalmers Institute of Technology, Gibraltargatan 5 G, Gothenburg.

Mr. Hans Fredrik RYDSTRÖM, Head of Division, Swedish Admiralty, Stockholm 80.

Dr. Henry WALLMAN, Professor, Chalmers Institute of Technology, Gilbratargatan 5 P, Gothenburg.

Adjoined Members :

Mr. Bertil AGDUR, Licentiate of Technology, Royal Institute of Technology, Valhallavägen 79, Stockholm 70.

Mr. Per ÅKERLIND, Head of Section, Royal Board of Swedish Telecommunications, Textilvägen 7, Stockholm 20.

Dr. Nils AMBOLT, Head of Division, Royal Swedish Board of Shipping and Navigation, Stockholm 100.

Dr. Carl-Georg AURELL, Professor, Chalmers Institute of Technology, Gibraltargatan 5 P, Gothenburg.

Mr. Folke EKLUND, Head of Division, Research Institute of National Defence, Div. 3, Stockholm 80.

Mrs. Aina ELVIUS, Lecturer, Stockholm Astronomical Observatory, Saltsjöbaden.

Mr. Martin FEHRM, Director General, Research Institute of National Defence, Stockholm 80.

Mr. Torsten GUSSING, Demonstrator, Research Institute of National Defence, Div. 3, Stockholm 80.

Mr. Hein HVATUM, Electrical Engineer, Chalmers Institute of Technology, Gibraltargatan 5 G, Gothenburg.

Mr. Bengt JOSEPHSON, Head of Division, Research Institute of National Defence, Div. 3, Stockholm 80.

Mr. Hugo LARSSON, Technical Director, Svenska AB Philips, Gävlegatan 16, Stockholm.

Mr. Bertil-Anders LINDBLAD, Lecturer, Lund Astronomical Observatory, Lund .

Mr. Rune LINDQUIST, Licentiate of Technology, Research Institute of National Defence, Div. 3, Stockholm 80.

Mr. Per-Olov LUNDBOM, Demonstrator, Research Institute of National Defence, Div. 3, Stockholm 80.

Dr. Harald NORINDER, Emeritus Professor, Institute of High-Tension Research, Uppsala.

Mr. Thomas OVERGAARD, Director of Division, Royal Board of Swedish Telecommunications, Stockholm 16.

Mr. Sven G. RAHMN, Senior Radio Engineer, Radio Section of Swedish Telecommunications Administration, Vallgatan 10, Gothenburg.

Mr. Arne SCHLEIMANN-JENSEN, Director of Schleimann-Jensen Laboratory, Klingsta Skogsväg 26, Danderyd.

Mr. Carl H. VON SIVERS, Electrical Engineer, Sivers Laboratory, Kristallvägen 18, Hägersten.

Mr. Lennart STIGMARK, Demonstrator, Lund University, Lund.

Mr. Willy STOFFREGEN, Senior Research Engineer, Ionosphere Laboratory, Uppsala 11.

Mr. Gunnar SVALA, Head of Division, L. M. Ericsson Telephone Co., Stockholm 32.

Mr. Gustaf E. SWEDENBORG, Director of Division, Royal Board of Swedish Telecommunications, Stockholm 16.

Mr. Sigvard TOMNER, Licentiate of Technology, AB Svenska Elektronrör, Lumavägen 6, Stockholm 20.

Dr. Torkel WALLMARK, Royal Institute of Technology, Valhallavägen 79, Stockholm 70.

Mr. Tord WIKLAND, Demonstrator, Research Institute of National Defence, Stockholm 80.

The following were appointed official members to U.R.S.I. Commissions and are chairmen in the corresponding sections of the Swedish National Committee :

Commission I : Mr. Hilding BJÖRKLUND.

Commission II : Mr. Bengt JOSEPHSON.

Commission III : Mr. Sven GEJER.

Commission IV : Prof. Dietrich MÜLLER-HILLEBRAND.

Commission V : Prof. Olof E. H. RYDBECK.

Commission VI : Prof. Erik HALLÉN.

Commission VII : Prof. Henry WALLMAN.

COMMISSIONS

The Board of Officers of U.R.S.I. at the meeting held in March 1958, has drafted new Rules for Commissions to be used instead of those actually in use.

This draft has been circulated for suggestions and comments and has been slightly improved. It will be submitted to the approval of the forthcoming General Assembly, but in the meanwhile the Board asks the Commission Chairmen to follow this new draft for the preparation of the XIIIth General Assembly and for the conduct of their works during this meeting.

Rules for Commissions

(Draft)

ORGANIZATION OF COMMISSIONS

Art. 1. — Commissions are established and abolished by the General Assembly which also determines the fields of their activities.

Art. 2. — The number and names of Commissions are determined by the General Assembly on proposal of the Executive Committee.

Art. 3. — A Commission is composed of Officers and Official Members and, in special circumstances, of consultants designated by the Chairman.

Art. 4. — Official Members of the Commissions are appointed by the National Committees, each of which may appoint one Official Member for each Commission. The same Official Member may represent a National Committee on several Commissions.

Art. 5. — The Officers of each Commission are a Chairman elected by the General Assembly, and a Vice-Chairman elected by the Commission itself, and if desired two secretaries also elected by the Commission. The two secretaries should between them

speak the two official languages and one of them should be easily accessible to the Chairman geographically.

Functions of Commissions

Art. 6. — The functions of the Commissions are :

(*a*) preparation of programmes of researches, studies and experiments pertinent to their respective fields ; examination of results obtained, and preparation of reports and conclusions for presentation to the General Assemblies of the Union ;

(*b*) organization of meetings to be held during the General Assembly and preparation of reports and conclusions for publication ;

(*c*) preparation of resolutions and recommendations ; preparation of responses to requests in their respective fields from the C.C.I.R. and other appropriate organizations ;

(*d*) organization of symposia at or between General Assemblies and preparation of scientific publications generated by such symposia ;

(*e*) preparation of standard nomenclature, experimental procedures, physical constants, etc.

Art. 7. — Work on the programmes of researches prepared by Commissions devolves upon the National Committees which agree to collaborate. The National Committees are encouraged to establish National Commissions.

Art. 8. — Results obtained by National Committees are communicated by the Official Member to the Chairman of the Commission concerned and to the Secretary General of the Union who gives them the appropriate distribution. The reports of results may be accompanied by comments and proposals by the National Committee.

Art. 9. — Between General Assemblies the Chairmen of Commissions correspond with their Board and Official Members on both administrative and scientific matters relating to the functioning of their Commissions. The Secretary General shall be kept informed.

Sub-Commissions

Art. 10. — (*a*) A Commission may, with the approval of the General Assembly, form Sub-Commissions to study particular matters within its scope.

(*b*) The Chairman of each Sub-Commission is elected by the General Assembly on the recommendation of the appropriate Commission. In general, it is expected that he will be a delegate at that Assembly.

(*c*) The members of each Sub-Commission shall be appointed by the Chairman of the responsible Commission, after consultation with its Official Members, if necessary by correspondence.

(*d*) The term of each Sub-Commission expires at the end of the General Assembly following the one at which its formation was approved. If necessary, its mandate may be renewed.

(*e*) At or before each General Assembly the Chairman of each Sub-Commission shall present to the parent Commission a report on the work of this Sub-Commission.

Administrative Meetings of Commissions

Art. 11. — The Commissions and Sub-Commissions meet during the General Assemblies ; on proposal of the Chairman of the Commission and the approval of the Board of Officers of U.R.S.I. they may meet at any time.

Art. 12. — All decisions of Commissions are taken by majority of Official Members present or participating in a mail vote. When there is a tie vote, the Chairman casts the deciding vote.

Art. 13. — Each Commission may make rules for the conduct of its own work, which rules must be approved by the General Assembly. These rules may not contain previsions contrary to the terms of the Statutes of the Union and of these Rules.

Art. 14. — About one year in advance of the General Assembly, a meeting of the Board of Officers will be arranged with Commission Chairmen to plan the General Assembly.

The objects of this meeting are :

(*a*) to define the general programme of the forthcoming General Assembly,

(*b*) to make plans for the joint sessions of Commissions,

(*c*) to define the main topics to be discussed by each Commission at this Assembly.

Commission Chairmen will communicate with Official Members of their Commission in advance of this meeting to obtain their proposals on both administrative and scientific matters of concern to the Commission that may be included in the programme of the Assembly.

Art. 15. — Commissions will be expected to have their formal administrative meetings at General Assemblies :

(*a*) Immediately preceding the formal opening of the Assembly to plan their work ;

(*b*) Before the second meeting of the Executive Committee of the Union to transmit recommendations for consideration of the Executive Committee ;

(*c*) Near the end of the Assembly under the Chairmanship of the incoming Commission Chairman to plan their work for the ensuing triennium.

Art. 16. — The newly elected Board of Officers of U.R.S.I. and the incoming Commission Chairmen will meet immediately following each General Assembly to plan the work of the Union for the ensuing triennium.

Scientific Meetings of Commissions

Art. 17. — In addition to the Official Members, National Committees may designate representatives from their own country to participate in scientific meetings of Commissions until the end of the next General Assembly.

Art 18 — Chairmen of Commissions may appoint, in certain special circumstances, consultants to their Commissions. The attention of Chairmen of Commissions is drawn to art 25 of Bylaws with respect of the invitation of other individual scientists to participate in the scientific work of their Commissions.

Art. 19. — Symposia arranged by Commissions may be planned for conduct at any time with approval of the Board of Officers ; times just preceding, or under special circumstances during, the General Assemblies may be especially appropriate. In general,

Commissions are encouraged to publish the proceedings of such symposia through arrangement with the Secretary General, commercially if possible or otherwise as Special Reports of U.R.S.I. Commission Chairmen may themselves edit such reports or may appoint a special editor for each report upon notification of the Secretary General.

LANGUAGES

Art. 20. — The French text of these Rules will be used for their final interpretation.

Commission I

STANDARDIZATION OF QUANTITIES USED IN RADIO

We want to draw the attention of our readers to the communication on page 57 of this *Information Bulletin.*

Commission III

IONOSPHERIC DATA IN JAPAN

The Radio Research Laboratories, Kokubunji, Tokyo, Japan, has issued a publication entitled « Ionospheric Data in Japan for the latter half of 1948 (July-December 1948). This work contains ionospheric data for every day and hour at Wakkanai, Fukaura, Shibata, Kokubunji and Ymagawa.

Commission V

Radio-Astronomy

RADIOASTRONOMICAL STATIONS IN POLAND

Jagellonian University. — A radioastronomical station has been established in Fort Skala, which operates a parabolic radiotelescope of 5 m diameter on 810 Mc/s. Observations are made from 9 to 12 h UT. Monthly bulletins on solar data are issued from november 1957.

University Nikolaj Kopernik. — A radioastronomical station established at Piwnice operates a steerable cylindroparabolic radiotelescope on 127 Mc/s. Regular observations are made since the middle of 1958.

U.R.S.I. - A.G.I. COMMITTEE

Edinburgh Meeting, 21st-23rd July, 1958

The following members and observers were present :

Sir EDWARD APPLETON (*Chairman*).
Mr. Y. AONO.
Dr. W. J. G. BEYNON (*Secretary*).
Mr. C. M. MINNIS (representing Dr. R. L. SMITH-ROSE).
Mr. J. A. RATCLIFFE.
Dr. R. SLUTZ.
Mr. A. H. SHAPLEY.
Colonel E. HERBAYS (*Secretary General*, U.R.S.I.).
Professor S. CHAPMAN (*President*, C.S.A.G.I.).
Mr. G. M. BROWN.
Dr. M. A. ELLISON.
Mr. W. E. J. FARVIS.
Mr. R. W. KNECHT.
Dr. A. J. LYON.
Mr. W. R. PIGGOTT.
Dr. J. O. THOMAS.

A letter of apology was received from Dr. L. V. Berkner (President of U.R.S.I.) regretting his inability to attend.

Contents

1. — Progress of I.G.Y. Programme

(*a*) *Flow of Ionospheric Data to World Data Centres*

Reports were received from various members on progress in I.G.Y. ionospheric measurements and on the flow of data to World Data Centres (WDC*s*). Vertical incidence data had been received at WDC*s* as follows : tabulations : 128 stations ; ionograms : 71 stations ; *f*-plots : 105 stations. It was felt that the number of stations sending tabulations was reasonably satisfactory at this stage, but there appeared to be considerable delay in submitting ionograms. It was noted that no I.G.Y. data had been received from certain networks, and it was agreed that the Secretary should report this to the National Committees concerned and urge their co-operation (see Resolution 2).

In the case of other ionospheric studies (absorption, drifts, noise, whistlers) the supply of data to W.D.C*s* appears to be considerably in arrears. However, it was felt that this was not altogether unexpected since these types of measurements generally involve a degree of reduction and interpretation before they are in a form suitable for submission to WDC*s*. Methods whereby the flow of data in these projects might be stimulated were discussed, and it was agreed that the following workers in the fields concerned might contact stations and render such help as may be required.

Absorption.	A1.	Mr. W. R. PIGGOTT.
	A2.	Dr. C. G. LITTLE.
Drifts :		Dr. B. H. BRIGGS.
Noise :		Mr. F. HORNER.
Whistlers :		Dr. M. G. MORGAN.

Arising from the item « co-operation in certain I.G.Y. ionospheric studies » in the report of the last meeting held in Boulder, 1957, it was reported that a collaborative experiment involving six countries in Western Europe on the study of sporadic E was in progress. The results of this will be discussed at a joint meeting of the workers concerned later this year.

(b) Reduction of $h'(f)$ curves to $N(h)$ profiles

It was reported that these reductions were being undertaken on a routine basis in Great Britain, U. S. A., New Zealand and Australia. A comparison has been made of the $N(h)$ curves derived by several different groups from the same $h'(f)$ curve, and has disclosed no significant discrepancies.

Members felt that there would probably be a continuing demand for these $N(h)$ tabulations in the future and that adequate numbers should be deposited in the Data Centres (in addition to the initial circulation). The Committee adopted Resolution 9, in which a definite proposal is made concerning the number of copies likely to be required.

2. — PUBLICATION OF I.G.Y. IONOSPHERIC DATA

The previous decision to publish monthly median hourly values of twelve selected parameters in some three volumes of the « Annals of the I.G.Y. » was confirmed. It was further agreed that an additional volume of « The Annals » may be required for publication of monthly mean $N(h)$ curves. It was considered that the final publication of data for absorption, drifts, etc., might require a fifth volume.

The Committee noted that the C.S.A.G.I. Coordinator recommended that ionospheric data should be assembled for publication at WDC C1 (Slough) and whistler data at WDC A (Boulder). After some discussion on the work involved in preparing the data

for publication it was agreed that the other Data Centres should collaborate with those nominated to ensure the success of the publication.

(See also paragraph 1(*b*) above concerning the publication of N(*h*) tabulations).

3. — I.G.Y. Post Facto Calendar

The Committee strongly supported the proposal for the preparation of an I.G.Y. Post Facto Calendar (Resolution 8). This Calendar which would be published in the Annals, will give, for each day of the I.G.Y., the degree of activity manifested in geomagnetism, aurora, ionosphere, solar activity and cosmic rays. The question of suitable ionospheric indices was discussed and it was agreed that for each Greenwich day two such indices should be included, one based on the normal region E and the other on region F2. The former will provide an index of the day-to-day variability in the intensity of the solar radiation responsible for region E and the latter a measure of disturbance in region F2. It was agreed that suitable indices should be provided by Mr. C. M. Minnis (region E) and Mr. W. R. Piggott (region F2).

It was considered that at some later date it might be valuable to prepare an amplified calendar covering ionospheric activity only.

4. — Proposal for the extension of the I.G.Y.

The Committee considered at length the proposal of the Soviet I.G.Y. National Committee to continue the I.G.Y. for a further year. It was felt that it was certainly very desirable to continue the international co-operation in geophysics which had been established during the I.G.Y., but that for practical reasons the International Geophysical Year should terminate as planned. The considered views of the Committee are summarized in Resolution 1.

5. — Post I.G.Y. Ionospheric Measurements

Considerable discussion took place on the subject of a post-I.G.Y. ionospheric programme. The following points emerged for vertical incidence work :

(i) The number of ionospheric stations should *not be less than* that operating in the period immediately prior to the I.G.Y.

(ii) It would be desirable to have some especially intensive observations during the period of the next sunspot minimum (in about five years' time). It was agreed that this would best be achieved if as many stations as possible were encouraged to continue with some skeleton programme in the interim period.

Detailed consideration of observing schedules and the distribution of stations after the I.G.Y. was made by a Working Party (see Appendix II). The Committee noted that in response to a C.C.I.R. request a Working Group of Commission III of U.R.S.I. had prepared a list of stations which had been established for the I.G.Y. and which from the propagation and prediction standpoint it was considered should continue in operation after the I.G.Y. It was now felt that it would be valuable to submit to C.C.I.R. the proposals contained in Appendix II on the subject of the post-, I.G.Y. operation of ionospheric stations (Resolution 10).

In the case of N(h) calculations, it was recommended that it would be most profitable to calculate these for agreed selected months of the *last* sunspot minimum years 1953-54.

In the case of drifts, absorption, noise, and possibly whistlers, the Committee recommends that in view of the delays experienced in initiating such I.G.Y. studies, stations making these should continue for a further year (see Resolution 3).

6. — Accessibility of I.G.Y. Data in WDCs

The Committee discussed the desirability or otherwise of drafting proposals whereby individual or national interests in data deposited at WDCs might be protected. It was decided that no action should be taken in this matter (see Resolution 6).

7. — Post-I.G.Y. operation of World Data Centres

The Committee considered that in the future some form of permanent international ionospheric service under the auspices of U.R.S.I. will be necessary. To this end, it was strongly felt that the existing arrangement of four Data Centres should continue, and that all countries should be encouraged to maintain the supply of data after the end of the I.G.Y. (Resolution 4). It was agreed that U.R.S.I. should establish a Special Committee to consider means whereby an « ionosphere data service » could be established

(Resolution 5) and that the members of the existing C.S.A.G.I. Group on World Data Centres should be invited to form the nucleus of this proposed U.R.S.I. Committee, with the Secretary General of U.R.S.I. as an ex officio member. The present membership will thus be : Dr. W. J. G. Beynon (C.S.A.G.I. Ionosphere Reporter-Chairman) ; Dr. R. Slutz (WDC A) ; Dr. N. Pushkov (WDC B) ; Dr. R. L. Smith-Rose (WDC C1) ; Mr. Y. Aono (WDC C2). At a later date some users of ionospheric data should be added to the membership of the Committee.

The desirability that such a service should persue as liberal a policy as possible in the supply of data to bona fide research workers was strongly emphasised.

8. — Proposed Commission on World Geophysical Days

The Committee warmly supported this proposal and recommended that it take the form of a Special Committee of I.C.S.U. with representatives of interested Scientific Unions (Resolution 7). Mr. A. H. Shapley was nominated the U.R.S.I. representative.

Various suggestions for the advance specification of Regular World Days and World Meteorological Intervals in a World Geophysical Calendar were discussed but the final details were left for discussion by the proposed Special Committee. However, it was agreed that the recommendations regarding this matter should be such that the programmes of observations would not be unduly onerous and capable of being maintained over a long period.

There was some discussion on the possibility of continuing a form of « alert » system after the I.G.Y. and whilst it was agreed that such a system would enhance the value of the Calendar it was felt that this should be regarded as of secondary importance.

9. — Magnetic Recording at Ionospheric Stations

The Committee discussed the value of making magnetic observations at ionospheric stations, especially those in isolated areas. It was stated that after the I.G.Y. some magnetic recording equipment would probably become available from I.G.Y. magnetic observatories, and the C.S.A.G.I. Ionosphere Reporter was asked to investigate the possibility of making this available for use at selected ionospheric observatories (Resolution 11).

10. — U.R.S.I. Ionosphere Station Manual

The Committee received a report from the Secretary on the preparation of the U.R.S.I. Ionosphere Station Manual. The manual is expected to be published in the near future and will include full details of all stations (past and present) at which ionospheric measurements of any kind have been made together with some 240 tables of solar zenith angles and other relevant geophysical data.

11. — Proposed meeting for preliminary discussion of I.G.Y. ionospheric results

Some discussion took place on the organisation of a meeting in 1959 for preliminary discussion of I.G.Y. ionospheric results. It was agreed that the U.R.S.I./A.G.I. Committee should devote its next meeting in September 1959 at Brussels to such a discussion. It was further agreed that the attendance of a number of consultants should be invited and that the proceedings of the meeting should be published.

W. J. G. Beynon.

25th July, 1958.

Resolutions

1. — Ionospheric Observations after the I.G.Y.

The U.R.S.I./A.G.I. Committee welcomes the spirit of the Soviet I.G.Y. Committee's suggestion for extending the I.G.Y. as indicating the desire for continued international collaboration in the field of science. Nevertheless the U.R.S.I./A.G.I. Committee is of the opinion that the I.G.Y. itself should terminate in 1958 as planned, though it would hope that those temporary stations which started operations late will continue their work in order to carry out at least one year of complete observations.

As regards post-1958 activities in the field of radio science, the U.R.S.I./A.G.I. Committee is of opinion that these should be such as can be maintained for a longer period than one year, and at least up to and through the next period of sunspot minimum. To that end they have drawn up a programme of ionospheric station operation, specifically designed to promote the solution of out-

standing scientific problems. This programme involves the operation of certain key stations on a full schedule and others on a patrol basis. It is one which could be readily expanded, if desired, during the next period of sunspot minimum.

2. — Flow of Ionospheric Data to World Data Centres

The U.R.S.I./A.G.I. Committee considers that the flow of tabulated vertical soundings data to World Data Centres is gratifying but it appears that the position is not quite so satisfactory for the case of ionograms and *f*-plots. The Committee strongly urges those stations and networks of stations which have not yet complied with earlier recommendations to give immediate attention to this matter.

3. — I.G.Y. Studies of Drifts, Absorption, Noise and Whistlers

The U.R.S.I./A.G.I. Committee has considered the progress of I.G.Y. studies on drifts, absorption, atmospheric radio noise and whistlers. It would appear that some delays have been experienced in initiating these studies and the Committee recommends that where this is the case stations should continue for a further year.

4. — Flow of Ionospheric Data to World Data Centres after the I.G.Y.

The U.R.S.I./A.G.I. Committee stresses the invaluable service of the World Data Centres in the field of radio science and has unanimously agreed that all countries should be invited to continue to supply all available ionospheric data to these WDCs after the termination of the I.G.Y.

5. — International Ionosphere Data Service

The U.R.S.I./A.G.I. Committee considers that ultimately it will be desirable to establish some form of permanent international ionospheric data service under the auspices of U.R.S.I. The Committee strongly recommends that the existing four World Data Centres should form the basis of such a service, and recommends to the Board of Officers of U.R.S.I. that a provisional committee be appointed to work out details of such a service.

The proposed membership of this committee is given in the Minutes.

6. — Accessibility of I.G.Y. Data at World Data Centres

The U.R.S.I./A.G.I. Committee strongly recommends that all observations and data in the field of radio science, which will be assembled at World Data Centres, should be unconditionally available to all bona fide scientific workers.

7. — Proposed Commission on World Geophysical Days

The U.R.S.I./A.G.I. Committee strongly supports the proposal for the formation of a Commission on World Geophysical Days. It suggests that the Commission takes the form of a Special Committee of the International Council of Scientific Unions with representatives of interested Scientific Unions.

8. — I.G.Y. Post-facto Calendar

The U.R.S.I./A.G.I. Committee strongly supports the proposal for the preparation of a post-facto calendar for each day of the I.G.Y., and has agreed that suitable ionospheric indices shall be included in it.

9. — Booklets of N(h) Tabulations

The U.R.S.I./A.G.I. Committee strongly commends the work now being undertaken by certain National Committees on the reduction of $h'(f)$ recordings to N(h) profiles and their publication in tabulated form. It considers that, in the future, there will be a considerable demand for these tabulations and recommends that the organisations concerned be encouraged to produce an adequate number of copies of each booklet. It is suggested that 350 copies will meet the needs of an initial circulation and the future requirements of the World Data Centres.

10. — Ionospheric Stations after the I.G.Y.

The U.R.S.I./A.G.I. Committee has noted the recommendation to C.C.I.R. of an U.R.S.I. Sub-Committee concerning ionospheric stations after the I.G.Y. (*Information Bulletin* N° 108, p. 17),

and wishes to draw the further attention of C.C.I.R. to the additional recommendations on this subject contained in the report of the present meeting of the Committee (July 1958).

11. — Magnetic recordings at Ionospheric Stations

The U.R.S.I./A.G.I. Committee notes that on the termination of the I.G.Y. it is likely that certain recording equipment will be available from magnetic observatories, and recommends that the possibility of this equipment being made available for use at selected ionospheric stations.

12. — Preliminary Discussion of I.G.Y. ionospheric results

The U.R.S.I./A.G.I. Committee has agreed that it would be desirable to have a preliminary discussion of I.G.Y. ionospheric results before the next General Assembly of U.R.S.I. in 1960. To this end it has agreed that its next meeting should take place in early September, 1959, in Brussels, and take the form of a discussion on this subject. The Committee recommends that a number of consultants should be invited and that the proceedings of the meeting should be published.

W. J. G. Beynon,
Secretary

25th July, 1958.

Recommandations
on Ionospheric Vertical Soundings after the I.G.Y.

(*Prepared by a Working Group of the U.R.S.I./A.G.I. Committee*)

The preliminary results from the I.G.Y. show the great value of having had a wide geographic distribution of stations for the study of the morphology of the ionosphere, the analysis and understanding of great geophysical events, some of which are very infrequent, and the production of ionospheric maps for radio propagation prediction projects. The world-wide effort during the I.G.Y. has also resulted in the formation of a number of new groups who are taking an active interest in ionospheric problems and in a considerable capital outlay in providing equipment and setting up stations. It is, therefore, worthwhile to consider whether those facilities can be exploited efficiently after the I.G.Y. to produce further valuable information.

While it is generally agreed that the basic requirements of the propagation prediction services can be met in the future by the maintenance of a smaller number of observing stations, both the operational and the research services will continue to need :

(*a*) A chain of stations measuring all ionospheric parameters so as to provide a continuing watch on the unpredictable future variations in solar activity and detailed accurate data for other extended series of observations.

(*b*) The continuation of at least a limited series of observations at the majority of new stations, so that the solar cycle variations of the ionosphere can be delineated.

(*c*) Series of single station and regional investigations using ionospheric sounders to solve particular scientific and practical problems.

(*d*) A patrol system so that particular geophysical events can be studied on a world-wide basis by post-mortem analysis without incurring the great expense and labour of continuously reducing and circulating large amounts of data.

In practice, the use of ionosondes to support or control other ionospheric investigations automatically implies some operation on a patrol basis both to maintain the quality of the observations and to provide actual experience of normal ionospheric conditions at the station.

The majority of experiments involving extensive networks of stations would not be hindered by restricting the number of parameters systematically reduced at the stations to three, namely :

$$f_o\text{F2},\ (\text{M } 3000)\ \text{F2},\ \text{and}\ f\text{-min}$$

and these could be made available most efficiently by means of tables of hourly values and preferably by abridged *f*-plots showing these parameters only.

The provision of these basic measurements does not significantly increase the minimum effort needed to maintain an ionospheric sounding station in useful condition. It must be stressed that the scientific value of full observations, with good time resolution, for even one event like that of 23rd February, 1956, is worth at least the film costs incurred in a year's full operation of a station.

There should be a major effort to maintain three types of station after the I.G.Y. :

Class F (full). — A network of stations which would operate a full patrol schedule as recommended for the I.G.Y. period, reducing all standard I.G.Y. parameters with, possibly, additional scaling for N(h) profiles, and circulating the data obtained.

Class P (patrol). — The majority of existing stations which would operate at full patrol schedule, including any necessary calibration procedures, but systematically reduce and circulate only hourly values of f_oF2, (M 3000) F2, f-min, and abridged f-plots. Other reductions would be made as required for participation in particular experiments.

Class S (support). — A minority of stations, mainly connected with Universities, which would have a supporting role with regular observing schedules restricted to specified periods, e. g. World Geophysical Days, special periods needed for the scientific work of the station or sponsoring institute, and any special co-operative programmes such as those called for by satellite experiments. These stations would, of course, circulate at least the three basic parameters for the specified observational periods.

The planning of the post-I.G.Y. vertical incidence soundings programme involves judging the optimum compromise between the cost and labour of obtaining results and their scientific and practical value when obtained. The decision in particular cases must, of course, be left to the sponsoring authorities, but it is desirable to indicate the scientific factors involved.

A study of the requirements suggests that most projects on which active work is known to be in progress, and which involve future observations, could be adequately covered in the post-I.G.Y. period with remarkably little effort at the stations. Thus it appears that any ionosonde which is being kept operational for particular local experiments could make a worthwhile contribution to the study of zonal or world-wide problems at a relatively small cost and effort.

The tables given below show the distribution of effort on different ionospheric problems which could be expected if the stations,

at present known to be operating, were available in the post-I.G.Y. period.

Sponsoring authorities are invited to consider the importance of their stations to the solution of these problems, bearing in mind that the maintenance of a world-wide net of economic ionospheric vertical incidence stations is at least as important as the maintenance of the corresponding well established network of magnetic observatories.

During the I.G.Y. period, the main emphasis has been concentrated on obtaining complete and detailed observations on a large number of ionospheric parameters. After the I.G.Y., the emphasis ought to be changed so that the requirement for internationally circulated data is restricted to a limit sample of key parameters only. Similarly, while it is desirable that a full programme of vertical incidence recording should be maintained at as many stations as possible, it would not be necessary to carry out a complete systematic reduction of the data obtained. This will greatly reduce the effort and expense involved in operating most stations.

It should be noted that in a number of cases individual stations appear in two or more of the project groups and it is, of course, particularly important to maintain these stations.

Notes on the project groups

(1) *Solar cycle control using long series of observations*

The study of the long period variations of the solar cycle and the requirements of the practical radio propagation prediction services both demand the permanent operation of a small group of stations which will provide very reliable regular data of all normal ionospheric parameters with, possibly, in addition regular N(h) reductions. There are practical advantages in nominating stations which have already completed very long series of observations (approaching two solar cycles), but it is likely that I.G.Y. studies may show that it is desirable to include one or two strategically placed stations with only one cycle of operation. Approximately 10 stations should provide an adequate response to this requirement, all operating as class F stations.

(2) *Stations which should be operated for at least another half solar cycle*

Many stations have been specially established during the I.G.Y. at places where it was urgently necessary to obtain ionospheric data for prediction purposes and for studies of the morphology of the ionosphere. The full value of these stations cannot be obtained unless at least a skeleton series of measurements can be maintained through half a solar cycle. It is recommended that as many as possible of these stations should attempt a full programme and full reduction (class F), and that the remainder should be operated in class P, i.e. full patrol observations with the minimum amount of reduction of ionograms to tabular form.

(3) *Stations organised for particular zonal or regional studies*

(*a*) Equatorial longitude variations.
(*b*) Trans-equatorial variations.
(*c*) Sub-tropical gradients.
(*d*) North Auroral zone longitude variations.
(*e*) Trans-auroral zone studies.
(*f*) Polar cap problems.
(*g*) Special regional anomalies or studies (Weddell Sea, Okinawa, Siberia, Australia).

In all these cases it is essential that results from a number of stations can be studied together, and satisfactory work in the future depends on the maintenance of station groups. At present, it appears that operation in class P should be recommended for such station, with more elaborate reduction for periods specified regionally or to meet particular problems. In a few cases, class S operation might be adequate.

(4) *Support projects*

(*a*) Support measurements for satellite problems.
(*b*) Support measurements for special ionospheric storm and cosmic events.

These projects will require the use of every available ionosonde and, in particular, the continued operation of many isolated stations, even if adequate former data are available for normal prediction and morphology work.

(*c*) Control for absorption and drift measurements.

(*d*) Control for rocket and other ad hoc propagation experiments.

These projects require ionograms during the actual sequence of measurements together with sufficient patrol recording to enable the classification of normal and abnormal ionospheric conditions, It is strongly recommended that at least class P operation be employed with, of course, the reduction of any special parameters needed for the main investigation.

(5) *Capital Stations*

In a number of cases, stations have been set up in countries lacking previous experience in ionospheric work, and these have proved to be valuable not only for their contributions to the world-wide network but also as a means of encouraging and stimulating the study of the ionosphere and the practical use of ionospheric and propagation data in these countries. It is strongly recommended that these stations be maintained as class F stations whenever practical and, if operated in class P, that the desirability of more complete reduction for local purposes should not be overlooked. The central stations of the major national networks have not been included.

Members of Working Group : A. H. SHAPLEY (*Chairman*), Y. AONO, R. W. KNECHT, A. J. LYON, C. M. MINNIS, W. R. PIGGOTT.

23rd July, 1958.

TABLE 1

Solar cycle control using long series of observations (9)

Fairbanks	Kokubunji	Slough
Godley Head	Moscow	Washington
Huancayo	Port Stanley	Watheroo

TABLE 2

Needing to be operated for at least another half solar cycle (52)

Alert
Arctica I
Arctica II
Bangui
Bogota
Boulder
Budapest
Bunia
Byrd Station
Cape Hallett
Concepcion
Dixon Is.
Elisabethville
Ellsworth
Eureka
Fletcher's Ice Is.
Fort Norman
Frobisher Bay
Genova
Grahamstown
Grand Bahama
Haifa
Halley Bay
La Paz
La Quiaca
Leidschedam
Lulea
Lycksele
Marion Is.
Meanook
Mexico City (El Cerrillo)
Mirny
Natal
Nurmijarvi
Paramaribo
Prague
Providenie Bay
Quetta
Rome
Rugen
Salekhard
Scott Base
Simferopol
Sodankyla
South Pole Station
Thule
Trelew
Tsumeb
Tucuman
Ushuaia
Victoria
Yellowknife

TABLE 3

Particular Zonal or Regional Studies

(*a*) Equatorial Longitude Variations (7) :

Bangui
Bunia
Huancayo
Ibadan
Kodaikanal
Natal
Singapore

(*b*) Trans-equatorial Variations (14) :

Bangui
Bunia
Elisabethville
Huancayo
Ibadan
Kodaikanal
La Paz
La Quiaca
Léopoldville
Lwiro
Madras
Talara
Tiruchirapalli
Trivandrum

(*c*) Sub-Tropical Gradients (13) :

Bogota	Okinawa	Tananarive
Buenos Aires	Paramaribo	Tsumeb
Dakar	Quetta	Tucuman
Delhi	Raratonga	Yamagawa
Maui		

(*d*) North Auroral Zone Longitude Variations :

Churchill	Longyearbyen	Sodankyla
Fairbanks	Murmansk	Tromso
Fort Norman	Narsarssuak	Yellowknife
Kiruna	Reykjavik	

(*e*) Trans-auroral Zone Studies (29) :

Anchorage	Kiruna	Providenie Bay
Baker Lake	Leningrad	Scott Base
Barrow	Longyearbyen	Sodankyla
Cape Hallett	Lulea	South Pole Station
Campbell Is.	Lycksele	Tikhaya Bay
College	Macquarie Is.	Tixie Bay
Decepcion	Mirny	Tromso
Ellsworth	Murmansk	Uppsala
Godley Head	Nurmijarvi	Winnipeg
Halley Bay	Oslo	

(*f*) Polar Cap Problems (15) :

Alert	Fletcher Ice Is.	Tikhaya Bay
Arctica I	Fort Chimo	Thule
Arctica II	Frobisher Bay	
Clyde	Godhavn	Byrd Station
Eureka	Resolute Bay	Pointe Géologie
		South Pole Station

(*g*) Special Regional Anomalies or Studies (Weddell Sea Anomaly, Okinawa High, Indian Study, Siberian High) (34) :

Decepcion	Port Stanley	Baguio
Ellsworth	Ushuaia	Canberra
Halley Bay		Hobart
Port Lockroy	Brisbane	Okinawa

Taipei
Townsville
Watheroo
Yamagawa

Ahmedabad
Bombay
Calcutta

Delhi
Kodaikanal
Madras
Tiruchirapalli
Trivandrum

Alma Ata
Ashkhabad

Gorkig
Dixon
Irkutsk
Providenie Bay
Sverdlovsk
Tbilisi
Tikhaya Bay
Tixie Bay
Tomsk

TABLE 4

Support Projects

(*a*) Satellite-ionospheric Experiments :

All stations

(*b*) Storms and cosmic events :
All stations, but in particular :

Adak
Kerguelen Is.
Marion Is.
Maui
Raratonga
Tananarive

(*c*) Absorption and Drifts (27) :

Alma Ata
Ashkabad
Baker Lake
Brisbane
College
Dixon Is.
Freiburg
Godley Head
Ibadan
Irkutsk
Johannesburg
Kiruna
Kokubunji
Lindau
Mirny
Moscow
Oslo
Resolute Bay
Rostov
Rugen
Singapore
Slough
Stanford
Tomsk
Tromso
Winnipeg
Yamagawa

(*d*) Rockets, Propagation, etc. (22) :

Adak
Akita
Anchorage
Belvoir(Washington)
Boulder
Barrow
Churchill
College
Freiburg
Grand Bahama
Kiruna
Kokubunji
Kyoto
Lindau
Okinawa
Ottawa
Puerto Rico
St. Johns
Slough
Stanford
Wakkanai
White Sands

TABLE 5

Capital Stations (22)

Baguio	Graz	Rome
Bogota	Haifa	Rugen
Budapest	Huancayo	Sao Paolo
Concepcion	La Paz	Schwarz
De Bildt	Prague	Schwarzenburg
Dourbes	Quetta	Taipei
El Cerrillo	Rabat	Tortosa
Godhavn	Reykjavik	

World-Wide Soundings Committee

MEMORANDUM N° 18

Proposed Recommendation on Ionospheric Vertical Soundings after the I.G.Y.

Attached is a proposal which I plan to make to the U.R.S.I.-A.G.I. Committee at its forthcoming meeting in Edinburgh. As stated therein, it is made by me as an individual, but I believe it is consistent with much of the correspondence of our Committee. I apologize for not being able earlier to distribute this draft. However, I note that Piggott, Aono, Mednikoa and myself will all be attending either the U.R.S.I./A.G.I. meeting or the C.S.A.G.I. meeting and will thus have opportunity to modify the proposal informally : further, we have a detailed letter from Turner and his views are not inconsistent.

I would invite consultants to send comments to me in duplicate, one copy to Boulder, and the other to me in care of Madame N. V. Mednikova, Scientific Research Institute for Terrestrial Magnetism, Moscow, Russia. Any negative reactions should be sent promptly to have influence on any final C.S.A.G.I. recommendation on this subject.

Sincerely yours,

A. H. SHAPLEY,
Chairman of U.R.S.I.-A.G.I.
Committee. World-wide Soundings

Proposed Recommendation on Ionospheric Vertical Soundings after the I.G.Y.

by A. H. SHAPLEY,

Chairman Special Committee on World-wide Soundings, U.R.S.I.-A.G.I, Committee

The I.G.Y. experience seems to be showing the value of broad geographical coverage in the ionospheric vertical sounding program. It is not realistic, however, to expect to maintain the I.G.Y. level of emphasis indefinitely, but it seems very desirable to continue as many ionosondes as possible in patrol status.

This proposal is made by the Chairman of the WWSC in a personal capacity. It is only now being checked explicity with the WWSC members and consultants. However, it seems consistent with the tenor of the correspondence among the committee.

Many institutions and scientists agree that vertical sounding stations can no longer be justified solely for propagation prediction purposes except for the group of stations listed in the resolution of the 1957 U.R.S.I. Boulder Assembly in response to a C.C.I.R. question. However, it is felt that countries and laboratories should be urged to continue in operation as many other ionosondes as possible on a patrol basis and as support or controls for other ionospheric, propagation or geophysical experiments. In most cases it is expected that the field station will have some other experiment or function as its principal justification, and the vertical sounding patrol is an added task to be performed with a minimum of man-hours by field observers.

The proposed plan for the post-I.G.Y. period would call for as complete an observing schedule as is practical with every ionosonde ; it is noted that film is relatively cheap, and full observation with good time resolution of one event like that of February 23, 1956, is worth the film costs for a year or more. One should, however, relax the implied emphasis on 100 % coverage ; this emphasis was appropriate during the I.G.Y., but observers ought to be more realistic and achieve a balance between accurate, meaningful vertical sounding observations and full coverage — and also their other scientific work.

The reductions at the field station should be enough to assure maintenance of standards of observation, but beyond this should

be scaled to the scientific interests and needs of the station and the available manpower. The full I.G.Y. reduction program would be desirable, and stations should be encouraged to continue it. Stations which cannot do this, should, however, be strongly urged to continue a full patrol with a minimum systematic reduction program.

There will undoubtedly be still another category of station, one which cannot maintain a full patrol, but which would take soundings for special experiments. These might be their own experiments, or cooperative ones with other institutions or on a world-wide cooperative basis such as on World Days. Such ionosondes might be located, for example, at universities and used primarily by students.

Thus there might be three main categories of stations in the post-I.G.Y. period :

(1) Full patrol observing schedule ; full I.G.Y. reduction program, with possible addition of additional ionogram measurements for electron density profile work.

(2) Full patrol observing schedule, including calibration ; minimum reduction program at the field station, including all calibrations and an abridged daily *f*-plot (*fo*F2 and *f*-min only). Other reductions to satisfy special needs of station or institution or cooperative programs such as World Days.

(3) Observing schedule restricted to those times needed for scientific work of station or sponsoring institution and cooperative programs such as satellite experiments or World Days ; reduction program as in (2) above.

Central Radio Propagation Laboratories
National Bureau of Standards Boulder, Colorado.

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RESOLUTIONS AND RECOMMENDATIONS

(To be continued.)

C. C. I. R.

We received the following letter from the Director of the C.C.I.R. :

Subject : Standardisation of Quantities used in Radio.

To all participants in the work of the C.C.I.R.

Dear Sir,

At the XIIth General Assembly of the U.R.S.I. (Boulder, 1957), the 1st Commission (On Radio Measurements and Standards) of that organisation adopted its Resolution N° 5, which is also addressed to the members of the C.C.I.R.

In view of the important aid the U.R.S.I. is giving to the C.C.I.R. on a number of subjects, the Director of the C.C.I.R. hereby requests the Members to study this Resolution, of which a copy is attached, and to send resulting tables and material directly to the President of U.R.S.I. Commission I :

Mr. B. Decaux,
Ingénieur en chef,
Laboratoire National de Radioélectricité,
196, rue de Paris,
BAGNEUX (Seine).

In addition to the text of Resolution 5, we also take pleasure in attaching a short explanatory note on this Resolution prepared by Mr. Decaux.

Yours faithfully,

Dr. E. Metzler,
Director, C.C.I.R.

Note on the standardisation of quantities used in Radio

(Resolution N° 5 of U.R.S.I. Commission I)

Studies concerning the definition of the quantities used in radio, their measurement and the preparation of the corresponding standards are often out of step with the rapid growth of scientific and industrial research and achievements.

It therefore seems advisable to specify the quantities for which definitions, measurement methods and standards should be improved. Resolution N° 5 indicates these various points. As examples of what can be envisaged, mention may be made of Resolution N° 4 of the same Commission, on definitions :

> In order to avoid confusion between the terms « radio field strength » and » radio field intensity » it is recommended that :
>
> 1) the term : « *radio field strength* » be reserved for the amplitude of the electric or magnetic field vector (E or H) produced at a given place by the passage of radio waves ;
>
> 2) the term : « radio field intensity » be reserved for the density of the power flux of electromagnetic waves passing through a surface at right-angles to the direction of propagation ;

Resolution N° 3, on standards :

> It is expressly recommended that national laboratories compare their power measurement standards in the region of 3,000 and 10,000 Mc/s. Comparisons will be coordinated by Dr. R. L. Smith-Rose, Director, Radio Research Station, Ditton Park, Slough, Bucks, England ;

and Resolution N° 6, on the values of the quantities themselves :

> In the light of the progress achieved since the XIth General Assembly in the measurement of the speed of electromagnetic waves, it is recommended that for radio engineering purposes their speed *in vacuuo* be taken as 299,792.5 $\pm$ 0.4 km/s.

Methods and occasionally the definitions of measurement may vary considerably, depending upon the frequency ranges and the quantities being dealt with. This fact should be borne in mind.

Resolution N° 5

In order to stimulate national and international efforts to standardize the quantities used at radio frequencies, including the highest frequencies, such as power, impedance, voltage, current, attenuation, field strength, noise, etc., the XIIth U.R.S.I. Assembly wishes to point out to members of the U.R.S.I., I.E.C., C.C.I.R., I.S.O., and any other international bodies concerned with electrical standards, that the following action would be useful :

(*a*) The preparation as soon as possible of a list of radio quantities to be standardized, inclunding those with time, space or frequency distribution. The table of such quantities should specify dynamic ranges, frequency ranges and the corresponding desirable degrees of practical accuracy for the primary standards.

(*b*) Information and tables prepared as mentioned under (*a*) should be sent to the Chairman of U.R.S.I. Commission I for classification and possible adoption by the XIIIth General Assembly of the U.R.S.I. The tables should be brought up to date at future General Assemblies.

INTERNATIONAL GEOPHYSICAL YEAR

I.G.Y. News

The Fifth Meeting of C.S.A.G.I. was held in the Moscow State University from 30 July to 9 August 1958. Over four hundred delegates attended, including national delegations from some thirtyfive I.G.Y. Participating Committees. WMO was also represented.

The inaugural plenary session took place on Wednesday afternoon, 30 July, in the principal auditorium of the Main Building of the University At this session an address by the President of C.S.A.G.I. recalled the early beginning of the I.G.Y., its growth and planning ; and commented on the principal results that have been achieved. There was a report by the C.S.A.G.I. General Secretary covering activities since the IVth C.S.A.G.I. Meeting in Barcelona, September 1956 ; and a Finance Report by C.S.A.G.I. Bureau for the period 1953 to 1958 with a budget for 1959. Documents were circulated in advance.

The same evening there was a reception given by the U. S. S. R. Academy of Sciences for the delegates and their ladies.

The main business of the conference was conducted in the University's Faculty of Physics. The Bureau and C.S.AG.I. held meetings on preceeding days and continued to meet during the conference as occasion demanded. A.C.I.G.Y. held several meetings and there were the customary Working Groups in each discipline which conducted their discussions and symposia under the direction of the C.S.A.G.I. Reporters. There were meetings of a Publications Committee ; and of the World Data Centre and Finance Committees.

Certain important subjects such as the proposed prolongation of the I.G.Y. and various questions on the publication of data were referred by C.S.A.G.I. for comment by the appropriate Working Groups and Committees. In each Working Group there was discussion of the proposed arrangements whereby selected WDCs

would assist the C.S.A.G.I. Reporters with the preparation of the final catalogues of I.G.Y. data and the assembly of data for publication in I.G.Y. Annals.

The Resolutions from Committees and Working Groups were coordinated by a Resolutions Committee ; and at the final plenary session on Saturday morning, 9 August, after brief reports by the Chairmen of Committees and Working Groups, some fifty resolutions or recommendations by C.S.A.G.I. with accompanying comments were presented for the formal approval of the assembled delegates.

A selection from the Resolutions in summarised form is given as follows :

That I.G.Y. activities be continued in 1959 under the direction of C.S.A.G.I. or C.U.R.A.G.I. (Le Comité pour l'Utilisation des Résultats de l'Année Géophysique Internationale). The name « International Geophysical Cooperation 1959 » was suggested.

That a World Magnetic Survey be undertaken in the coming minimum solar activity period.

That, in addition to the establishment by I.C.S.U. of Scientific Committees for Oceanographic Research (SCOR) and Antarctic Research (SCAR) and the proposal for a Joint Commission on World Geophysical Days, there should be the establishment by I.C.S.U. of an appropriate international framework to succeed C.S.A.G.I. and C.U.R.A.G.I. with the task of initiating and intergrating collaborative research in geophysical, astrophysical and allied sciences.

That important results of I.G.Y. be published in I.G.Y. Annals with bibliographic references to results published elsewhere ; that the C.S.A.G.I. Reporters be responsible for the assembly of manuscripts, being assisted by certain WDC*s* ; that all manuscripts be channelled through the C.S.A.G.I. General Secretary's office ; and that, when necessary, the Board of Reporters be convened to study questions of publications.

That agreements be outlined in certain disciplines and experiments to protect the rights of investigators who contribute data, but without leading to delay of publication.

The WDC*s* be established on a permanent basis and be prepared to provide facilities to scientists of other countries for personal examination of data and publications on I.G.Y. subjects.

That Section XI Rockets and Satellites of the C.S.A.G.I. Guide be endorsed with the modifications and exceptions recorded by the Working Group ; and that publication of preliminary and final results of rocket and satellite experiments, including precise observations of orbits, be made in accordance with specified provisions.

In addition to the numerous symposia in all branches of the I.G.Y. programme which were held during the course of the conference, there were two lectures at the Scientists' Club. One was on the results of Cosmic Ray investigations by means of Rockets and Satellites in U. S. S. R. and the other on the results of oceanographic investigations made by the Soviet ship « Vityaz ». Two sessions of films provided by various delegations on I.G.Y. subjects were given at the Students Cinema Club at the University.

Various visits to scientific institutions in or near Moscow were arranged for the delegates. On Sunday 3 August, sightseeing tours of Moscow were organised and on Friday 8 August, excursions to the Tolstoy museum at Yasnaya Polyana, to the famous monastery at Zagorsk or on the Moscow canal were offered.

At the final plenary session on Saturday, the President concluded the proceedings with a summary of the results of the conference, some comments on the future and an expression of appreciation to the Soviet I.G.Y. Committee for the excellence of the arrangements for the meeting and for their hospitality to the delegates. That afternoon the Academy of Sciences gave a farewell reception.

S. C. A. R.
SPECIAL COMMITTEE ON ANTARCTIC RESEARCH

Announcement of Symposia

A Symposium on Antarctic Meteorology will be held in Melbourne, Australia, early in 1959 and an Antarctic Symposium will be held in November 1959 in Buenos Aires, Argentina.

Minutes of the meeting held on 4 August 1958 at 8.30 p.m. in Moscow

PRESENT :

Delegates : Zenkevitch (I. U. B. S.), Laclavère (I. U. G. G.), Bolin (I. G. U.), Harang (U.R.S.I. and Norway), Panzarini (Argentina), Bullen (Australia), Van Mieghem (Belgium), Imbert (France), Miyadi (Japan), Robertson (New Zealand), Van Rooy (South Africa), Robin (U. K.), Wexler (U. S. A.), Somov (U. S. S. R.).

Observers : Böhnecke (SCOR), Ashford (W. M. O.) part time.

Advisers : Jacka, Gibbs (Australia) ; Burkhanov, Scherbakov, Krichak (U. S. S. R.) ; Cartwright (U. S. A.) part time ; Schneider (Argentine) ; Eliassen (Norway) ; Emery, Pone (France).

1. — The President opened the meeting by reviewing the formation and functioning of SCAR.

2. — Matters arising from the meeting at The Hague in February 1958.

(*a*) It was noted that the Bureau of I.C.S.U. had approved with minor alterations the suggested constitution o fSCAR.

(*b*) The meeting approved the suggestion that in item 3 of the constitution, the words « In organising the operation of the definitive scientific programme » should be deleted.

(*c*) It was reported that the following countries had already formed National Antarctic Committees : Australia, Belgium, France, Japan, New Zealand, South Africa. The U. S. A. had already formed a Polar Committee which would act as the National Antarctic Committee for the purposes of SCAR. The U. S. S. R. is in the process of forming a new National Antarctic Committee. The United Kingdom has strengthened its existing I.G.Y. Antarctic Sub-Committee to deal with the problems of SCAR. Argentina and Norway are likely to form National Antarctic Committees. No report was available form Chile.

(*d*) It was reported that the research programme formulated by SCAR was published in « The Chronicle of the I.U.G.G. » N° 10 in March 1958 and had thus had wide circulation (1).

(*e*) It was noted that Chile had appointed Professor don Humberto Fuenzalida V as their permanent delegate to SCAR.

(*f*) It was noted that the United Nations had been informed of the formation and purpose of SCAR.

(*g*) In order to promote cooperation with other bodies interested in the work of SCAR, one observer from the W.M.O. and one observer from the C.S.O.R. had been invited to the meeting

(*h*) An omission from some copies of the research programme of SCAR was noted.

(*i*) It was reported that an earlier meeting of certain countries in June 1958 to discuss cooperation under SCAR was not considered necessary.

(*j*) It was reported that France and Australia had paid annual subscriptions to SCAR by 21st May 1958 and countries which had not yet done so were requested to forward them to The Treasurer, I.C.S.U. Paleis Noordeinde, The Hague, Netherlands.

(*k*) At the request of the French Delegate and after discussion by the meeting it was decided to rewrite item 8 of the proceedings of the first meeting of the SCAR at The Hague as follows :

Area of Interest of SCAR

For the purpose of SCAR it was agreed that the « Antarctic » shall be bounded by the Antarctic Convergence. Certain Sub-

(1) Abstracts of this Programme were published also in the *U.R.S.I. Information Bulletin*, n° 108, March-April 1958.

Antarctic Islands listed below may be included in SCAR's area of interest even if they happen to lie outside the Antarctic Convergence.

(The following list of islands was approved by the second plenary session, with the proviso that the list could be amended in future as necessary).

Macquarie Island,
South Georgia,
Gough Island,
Tristan da Cunha,
Prince Edward Islands,
Iles Crozet,
Ile Amsterdam,
Ile St. Paul,
Iles de Kerguelen.

3. — National reports on Antarctic research planned for 1959 and later were then presented. These may be summarized as follows.

Argentina will take over Ellsworth Base from the U. S. A. and run a main scientific programme there but limited studies will continue at Base General Belgrano. Other Argentine Antarctic bases will continue to operate as before.

Australia will continue operations at Macquarie Island, Mawson and Davis. In addition they will take over Wilkes Base from the U. S. A. in February 1959. Ice sheet traverses will continue from Mawson for one further summer, then this activity will be transferred to Wilkes station. Printed details were presented.

Belgium will continue to operate its Antarctic base during 1959 as before.

France The inland station Charcot will be closed at the end of the I.G.Y. but d'Urville will continue to operate on the same lines as previously with some small reductions in the programme.

Japan will reoccupy Syowa Base in February 1959 and leave a wintering party of 12 to 15 men. The wintering party will study aurora and airglow, cosmic rays, geomagnetism, ionospheric physics, meteorology, glaciology, seismology. Printed details were presented.

New Zealand will continue operation at Scott Base and jointly with the U. S. A. at Hallett Station on a modified basis. During the 1958-59 summer biological, geological, surverying and oceanographic surveys will also be carried out. Printed details were presented.

Norway will continue the present scientific programme at their Antarctic base during 1959.

South Africa will continue work on Tristan da Cunha, and Marion Islands and on Gough Island subject to agreement by the U. K. They would welcome cooperation in putting a base on Bouvet Island, and would like to send 1 or 2 meteorologists to help in an Antarctic coastal station. All above proposals are tentative. Printed details were presented.

United Kingdom. At Halley Bay the U. K. will continue to carry out research in the most important scientific disciplines but the programme is not fully decided yet. Extensive topographical and geological surveys will continue in the Graham Land region and eight existing Antarctic bases will continue their programmes. Printed details were presented.

U. S. A. will continue to operate the Pole, Byrd and McMurdo stations and Cape Hallet in cooperation with New Zealand. They are also prepared to help at Ellsworth and Wilkes Bases. Ice sheet traverses would continue including one on to the Victoria Land plateau. Printed details were presented.

Note added on 11-8-58. The Little America station will be kept open after 1958 as a logistics and supply base in support of U. S. Antarctic research. The U. S. National Academy of Sciences is considering the question of further scientific investigations at Little America. More definite information will be supplied later to SCAR.

U. S. S. R. Will continue work at existing bases. Pioneerskaya will be closed in January 1959, while there will be some reduction of work at Bunger Oasis. It is hoped to move Sovietskaya to the pole of inaccessibility in October/November 1958. Ice sheet traverses will continue, including one from Vostock to the South Pole and back to Sovietskaya, and the pole of inaccessibility will be visited. It is intended to establish small bases south of the

Bellinghausen Sea and in Queen Maud Land. These will study glaciology and surface meteorology and will assist in traverses which plan to cross the Antarctic in the future. Oceanographical work will continue in the Bellinghausen Sea and in the region of the Antarctic Convergence to the north, and along the coast of Queen Maud Land.

4. — After discussion it was decided to set up the following working groups.

(1) *Biology, Physiology and Oceanography.*

Convener : Prof. Zenkevitch.

Members : Emery, Bohnecke, Robertson, Maximov, Capurro, Lill.

(2) *International Cooperation and Publications.*

Convener Laclavère,

Members : Somov Bullen, Odishaw, Schumann, Panzarini, Imbert, Robin, Nagata, Harang and a representative of the W. M. O.

(3) *Weather central and studies of the atmosphere, earth and ice.*

Convener : Wexler.

Members : Gibbs, Tauber, Krichak, Schneider, Van Rooy, Fritz, Jacka, Robertson, Robin, Kawabata, Shumsky, Cartwright and a representative of W. M. O.

It was agreed that the Conveners could add such experts as they considered necessary.

5. — The Australian delegate tabled a letter inviting SCAR to meet in Melbourne or Canberra in February 1959.

NOTE ADDED AFTER SCAR MEETING.

Chile. — Chilean plans for 1959 were circulated to delegates on 8-8-58. The 1958 bases will continue in operation, and « Risopatron » which was destroyed by fire in March 1958 will be rebuilt. New investigations in geomagnetism, cosmic rays, geology, chemistry, biochemistry and bioclimatology are planned.

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We want to draw the attention of our readers to the following publications issued by the Pergamon Institute, 122 East 55th Street, New York 22, and 5 Fitzroy Square, London W 1.

— *Radio Engineering,*

— *Radio Engineering and Electronics,*

— *Telecommunications.*

These journals are published in English translation on the initiative and under the editorial auspices of an Advisory Council of the Massachusetts Institute of Technology, assisted by a grant-in-aid from the National Science Foundation, by Pergamon Press, Inc., for the Pergamon Institute.

Technical assistance and distribution facilities for this project are also being provided by the A.I.E.E., New-York.

— *Radio Engineering*, and *Radio Engineering and Electronics*, each issue approximately 2500 pages per annum : to individuals $ 22.50 (£ 8) ; to libraries, research laboratories, government departments and industrial organizations $ 45 (£ 16).

— *Telecommunications* : approximately 1000 pages per annum : respectively $ 15.00 (£ 5.7 s.) and $ 30 (£ 10.14 s.).

International Electrotechnical Commission

Publication n° 50 (35), *second edition of the International Electrotechnical Vocabulary*, Group 35 : Electromechanical applications.

Publication n° 104, first edition. — Recommendation for an international specification for aluminium alloy conductor wire of the aluminium-magnesium-silicon type.

These publications are on sale at the Central Office of the I.E.C., at the Price of Sw. Fr. 6,— per copy, plus postage, for Publication n° 50 (35), and Sw. Fr. 1.50 per copy, plus postage, for Publication n° 104.