## PART I

## REPORTS AND RECOMMENDATIONS PRESENTED TO THE GENERAL ASSEMBLY BY THE EXECUTIVE COMMITTEE AND THE COMMISSIONS OF THE UNION

## EXECUTIVE COMMITTEE

## PRESIDENT:

Sir Frank Dyson, Astronomer Royal of England, Royal Observatory, Greenwich, England.

## VICE-PRESIDENTS:

Prof. G. Abetti, Direttore del R. Osservatorio Astrofisico, Arcetri-Firenze, Italia.
Prof. C. Fabry, Professeur de Physique à l'Université de Paris, France.
Prof. N. E. Nörlund, Director of the Geodetic Institute and Professor of Mathematics in the University of Copenhagen, Denmark.
Prof. F. Nušl, Professeur d'Astronomie à la Karlova Université, Directeur de l'Observatoire National, Prague, Tchécoslovaquie.
Prof. F. Schlesinger, Director of the Yale University Observatory, New Haven, Conn., U.S.A.

GENERAL SECRETARY:
Prof. F. J. M. Stratton, Professor of Astrophysics at Cambridge University, Director of the Solar Physics Observatory, Cambridge, England.

## REPORT OF THE EXECUTIVE COMMITTEE, 1932

The original period covered by the convention, which brought the Union into existence, terminated on December 31, 193I. An extraordinary meeting of the General Assembly was held in London on September 19, I93I, at which a set of new Statutes was approved for the period ending on December 3I, 1943. An account of this meeting and of the preliminary steps preceding it will be given later in this report.

## Countries adhering to the Union

Since the last meeting India and the Vatican State have adhered to the Union, and Roumania has taken up full membership. For financial reasons Australia and South Africa have been compelled to withdraw, but it is hoped that at some future date Australia and South Africa will find themselves able to rejoin the Union. It is also hoped that one or two other countries will before long adhere to the Union.

The following is the list of countries at present adhering to the Union and of the adhering organizations:

| Country |  | Year of Adherence | Adhering Organizations |
| :---: | :---: | :---: | :---: |
| Argentine Repub |  | 1927 | Government. |
| Belgium ... | ... | 1920 | Académie Royale de Belgique. |
| Brazil |  | 1922 | Government. |
| Canada |  | 1920 | Government. |
| Czecho-Slovakia |  | 1922 | Government. |
| Denmark | ... | 1922 | Det Kongelige Danske Videnskabernes Selskab, |
| Egypt |  | 1925 | Government. |
| France |  | 1920 | Académie des Sciences. |
| Great Britain | .. | 1920 | Royal Society. |
| Greece |  | 1920 | Academy of Athens. |
| Holland | ... | 1922 | Nederlandsche Astronomen Club. |
| India |  | 1931 | Government. |
| Italy | . | 1921 | Consiglio Nazionale delle Ricerche. |
| Japan | .. | 1920 | National Research Council. |
| Mexico |  | 1921 | Government. |
| Norway | $\ldots$ | 1922 | Videnske Selskabet i Oslo. |
| Poland |  | 1922 | Polska Akademja Umiejętności, Cracovie. |
| Portugal ... | ... | 1924 | Government. |
| Roumania | ... | 1928 | National Committee of Astronomy. |
| Spain ... | $\ldots$ | 1922 | Government. |
| Sweden | ... | 1925 | Government. |
| Switzerland |  | 1923 | Société Helvétique des Sciences Naturelles. |
| United States | $\cdots$ | 1920 | National Research Council. |
| Vatican State | ... | 1932 | Pontifical Academy of Sciences (Nuovi Lincei). |

## Deceased Members

The Executive Committee regret to record the loss by death of the following members of the Union:
Prof. M. Alliaume, Member of Commission 8. Died October 24, 193 r.
Miss A. Ames, Member of Commission 28 and Local Secretary for the 1932 Meeting. Died June 26, 1932.
Prof. H. Andoyer, Vice-President of the Union, President of Commission 4, Member of Commission 7. Died June 12, 1929.
Prof. F. Angelitti, Member of Commission 7. Died January 25, 1931.
Dr L. A. Bauer, Member of Commission 12. Died April 12, 1932.
Mr F. E. Baxandall, Member of Commission 29. Died October 30, 1929.

Prof. G. Bigourdan, formerly Director of the Bureau de l'Heure, Member of Commissions 5, 18. Died February 28, 1932.
Prof. E. Cosserat, Member of Commission 23. Died April 26, 1931.
Prof. R. H. Curtiss, Member of Commission 29. Died December 25, 1929.
Dr W. G. Duffield, Member of Commission 12. Died August I, 1929.
M. P. Fatou, Member of Commission 7. Died August ro, 1930.

General G. Ferrié, President of Commission 18, Member of Commission 3r. Died February 16, 1932.
Prof. R. Gautier, Member of Commission 19. Died April I9, I931.
Father J. G. Hagen, Member of Commissions 23, 25, 27, 28. Died September 5, 1930.
Prof. E. S. King, Member of Commissions 25, 26. Died September ro, 193 r.
Dr E. B. Knobel, Member of Commission 5. Died July 25, 1930.
M. C. J. Merfield, Member of Commissions 8, 18, 3I. Died January 23, 193 I.

Dr H. Morize, Member of Commission 19. Died March 19, 1930.
M. P. Puiseux, Member of Commission 17. Died September 28, 1928.
M. J. C. S. Rodrigues, Member of Commission 4. Died February 25, 1930.

Prof. H. H. Turner, President of Commission 23, Member of Commissions 17, 25. Died August 20, 1930.
Prof. A. Wolfer, formerly Vice-President of the Union, Member of Commission 12. Died October 8, 1931 .

## New Members

The following were co-opted by the various commissions under the old Statute IV, 8 and the new By-law IV, I5. It will be seen that commissions have freely exercised the power acquired under the new By-laws to co-opt as members colleagues from countries which do not adhere to the Union.
J. A. Anderson (I2), W. Baade (25), J. Bemporad (19), S. Blažko (27), S. L. Boothroyd (22), P. ten Bruggencate (27), Mme E. Chandon (9), N. Coculesco (7, 18), M. Couder (9), N. Dneprovsky (8, 19), R. Emden (35), E. Freundlich (12), B. P. Gerasimovič (27), K. Graff (25, 27), P. Guthnick (27), W. Hassenstein (25), J. Hellerich (25), C. Hoffmeister (22, 27), A. Iwanoff (18), R. Jouaust (18), E. Kohlschütter (18), A. Kopff (4, 8, 20, 34), J. Krassowski (19), J. Lagarde (23), H. Ludendorff (3, 27), H. Mahnkopf (19), D. H. Menzel (12), K. Müller (17), P. V. Neugebauer (5), S. B. Nicholson (12), B. Noumerov (20), E. Opik (22), J. A. Pearce (30), G. Perrier (18), J. Peters (7), R. Prager (27), E. Przybyllok (26), G. W. Ritchey (9), J. Robertson (4), R. F. Sanford (30), R. Schorr (34), H. T. Stetson (I2, 19), G. Stracke (20), M. Subbotin (19), A. Unsöld (12), Miss Vinter Hansen (4), H. Vogt (35), G. Witt (34), M. Wolf (28), F. E. Wright (17).

Changes in membership of commissions and of office in the Union and other information of general interest to members have been published in six circulars issued by the General Secretary and distributed to members of the Union.

Appointments made by the Executive Committee
To fill the vacancy on the Executive Committee caused by the death of Professor Andoyer the Executive Committee appointed Prof. Fabry as a Vice-President. The Executive Committee have appointed the President and Prof. Fabry as members of the Executive Committee of the International Council of Scientific Unions. They have also appointed Dr C. E. St John and Prof. G. Abetti as representatives of the Union on the Committee on Terrestrial and Solar Relationships formed by the International Council of Scientific Unions. All the above appointments will come up for confirmation or revision at the meeting of the General Assembly at Cambridge.

The Executive Committee have appointed Prof. Deslandres and subsequently Prof. E. Esclangon as Director of the Bureau de l'Heure in the place of the late Prof. Bigourdan; they have also appointed Prof. E. W. Brown to be President of Commission 4, Prof. Esclangon to be President of Commission 23 and General G. Perrier to be President of Commission 18 in place of the late Prof. Andoyer, Prof. Turner and General Ferrié respectively.

## Revision of Statutes

In accordance with the resolution of the General Assembly at the Leiden meeting the Executive Committee in 1928 nominated the following committee to draft new Statutes for the Union for submission to the General Assembly: Prof. de Sitter (President), Prof, Dugan, General Ferrié, Prof. Kamienski, Prof. Kimura, Prof. Lindblad, Father Rodés, Prof. Stroobant and the General Secretary. The committee met at the Paris Observatory on July 17, 1930, the absent members, Prof. Dugan, Prof. Kimura and Prof. Stroobant, having been fully consulted by correspondence beforehand. A unanimous report was drawn up and draft statutes and by-laws were submitted to all the national committees and adhering organizations. Opportunity was given for amendments to be submitted by adhering organizations: these were circulated in May 193x to all countries along with the notice convening the Extraordinary Meeting of the General Assembly at which the draft statutes and proposed amendments were to be voted upon.

## Extraordinary Meeting of the General Assembly

The President, with the consent of the Executive Committee, convened an Extraordinary Meeting of the General Assembly to be held in the rooms of the Royal Astronomical Society, London, on September 19, 1931. The business was purely administrative, consisting of the voting on the draft statutes and by-laws and on the proposed grants to commissions for the year 1932. Most countries forwarded their votes to the President in writing in accordance with the old Statute VI, I7; the countries represented by delegates were Great Britain, Holland, Portugal and the United States. None of the amendments submitted by adhering organizations received a sufficient number of votes for their adoption. On several questions, where there was a difference of opinion (e.g. the scales for subscription and for voting on administrative questions and the number of Vice-Presidents), there was not sufficient support for the draft statute or by-law and in these cases the original statute held good. Otherwise the draft statutes and by-laws were passed in the form submitted by the committee which had been appointed to revise the statutes. They will be found printed in the current volume of the Transactions of the Union. Several changes have been made in the English text, from the form originally circulated to adhering organizations and to national committees, in order to make it conform more accurately to the official French text.

The Executive Committee wish to express the thanks of the Union to the members of the committee which prepared the draft of the revised statutes.

The following grants for the year 1932 were approved at the Extraordinary Meeting of the General Assembly.

|  |  | $f$ |
| :---: | :---: | ---: |
| Commission | 6 Bureau des Télégrammes | 66 |
| ", | I2 Cartes synoptiques | Io0 |
| " | I2 Immagini spettroscopiche | 60 |
| " | I9 Variation des latitudes | IOO |



The unit of subscription was fixed at $45^{\circ}$ gold francs for the year 1932.

## Effect of the New Statutes

The Executive Committee desire to call the attention of members of the Union to the following points arising in connection with the new Statutes. As will be seen from the lists of new members, presidents of the standing committees with the full support of the members of those committees have availed themselves freely of their new powers (By-law IV, 15) of co-opting members who are not citizens of countries adhering to the Union. National committees have also made use of their power of nominating members of the Union (By-law I, I). One result of these wider powers of national committees may be expected in a reduction of the size of some of the standing committees. The adhesion to the International Council of Scientific Unions carries with it the right to nominate two members of the Executive Committee of the Council and the duty to subscribe to the Council a sum not exceeding I.5 per cent. of the Union's revenue: at present this contribution is fixed at I per cent. With regard to the distribution of the publications of the Union to approved observatories action has been taken by the Executive Committee and the General Secretary.

## Income and Expenditure

The accounts for the four years 1928-31 are given below. The balance on January I, 1932 was $£ 12748 \mathrm{~s}$. od. Against this is to be placed grants voted by the General Assembly in 1928 for Commission 23 towards the expenses of the Carte $d u$ Ciel, grants not yet claimed. The sum of $f 300$ a year for three years was voted and so far only $£ 196$ I 6 s . 3 d . has been paid. Further grants have been made by the Executive Committee to the amount of $£_{\mathrm{I}} \mathrm{rgo}$ which have not yet been paid. That leaves the true balance on January I, 1932 at $£ 38 \mathrm{I} 4 \mathrm{~s}$. 3 d. As subscriptions are always paid in late, sometimes several years in arrear, while the money voted is generally required at the beginning of each year, it would not be proper to regard this balance as money on which to draw during the coming three years.
INCOME AND EXPENDITURE, 1928

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$i$
4



INCOME AND EXPENDITURE, 1930

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| 50 | 0 | 0 |
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| 36 | 6 | 7 |
| 36 | 7 | 10 |
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$\qquad$ Printing and Stationery
Clerical Assistance


INCOME
INCOME AND EXPENDITURE, 1931

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|  |  |  |
| 36 | 7 | 7 |
| 215 | 0 | 0 |
| 72 | 12 | 10 |
| 36 | 4 | 10 |
| 215 | 0 | 0 |
| Relationships: |  |  |
| 75 | 0 | 0 |
|  |  |  |
| 142 | 14 | 4 |





II

## Publications

In addition to vol. III of the Transactions of the Union the following works have been published under the auspices of standing committees of the Union and either at the expense of the Union or with the aid of subventions from the Union.
Commission 3. Délimitation Scientifique des Constellations. Atlas Céleste.

Delporte. Delporte.
Commission 5. Les Observatoires Astronomiques et les Astro-
nomes.
Commission 12. Immagini Spettroscopiche del Bordo Solare, Abettr. 1923-8.
Cartes Synoptiques de la Chromosphère Solaire
D'Azambuza. et Catalogue des filaments de la Couche Supérieure, rgr9-24.
Commission 27. Minima of Eclipsing Variables, r928-3r. Banachiewicz.
Variable Stars especially recommended to Ob-
Nijland. servers, B.A.N. 5, 197.
Commission 3r. Bulletins Horaires du Bureau de l'Heure. Bigourdan, Deslandres, Esclangon.
Commission on Solar and Terrestrial Relationships.
Bulletins for Character Figures of Solar Pheno-
Brunner. mena I-16, 1929-3I.
Character Figures for Solar Phenomena, 1923-8. Brunner.

## Special Grants

During the four years since the last meeting of the General Assembly the Executive Committee have received a number of applications for financial assistance in connection with the work of the various standing committees of the Union. 'The following requests were acceded to and grants have been made by the Committee.
(a) Commission 19. A grant of $£ 288 s$. od was made to Professor Muller as a contribution towards the cost of printing for the period 1912.0 to 1922.7 the "Resultate der Internationalen Breitendienste."
(b) Commission 27. A grant of $£$ ro $6 s .7 d$. was made to Professor Shapley to meet the organizing expenses incurred in the work of the Commission on Variable Stars.
(c) Commission 34. A grant of $f_{5} 50$ has been agreed to for Dr H. Spencer-Jones towards the computations for the determination of the orbit of Eros.
(c) Commission 35. A grant of $£ 100$ has been agreed to for Professor Sir A. S. Eddington towards the cost of printing a table of the solutions of Emden's equation. This volume is being printed under arrangements made by the Committee on Mathematical Tables of the British Association for the Advancement of Science.
(e) Commission on Solar and Terrestrial Relationships. A grant of $£ 75$ has been made and a further grant of $£ 40$ agreed to for Prof. S. Chapman towards the cost of preparing and printing the solar character figures for the period rgi6-28.

The Executive Committee will ask for approval of these grants at the General Assembly.

## The Meeting at Cambridge (Mass.)

At the meeting in Leiden an invitation was received and cordially accepted for the next meeting to be held in the United States of America early in September 1932. In due course the place of meeting and the dates were fixed by the American Astronomical Society, in consultation with the Executive Committee of the Union,
to be at Cambridge, Massachusetts, on September 2-9, 1932. A local committee was formed with Professor Harlow Shapley, Director of the Harvard College Observatory, as Chairman and Miss Adelaide Ames as Secretary. Presidents of Commissions were asked to send draft reports to the General Secretary by the end of March 1932. Such reports as have been received in time have been printed in advance of the meeting so that copies might be available for those attending the meeting and for members of the commissions. National Committees were invited to submit resolutions for the consideration of the General Assembly and adhering organizations were invited to submit amendments to the Statutes and By-laws. One amendment to the By-laws and several resolutions were submitted and due notice of these was sent to all adhering organizations and national committees before the end of April, 9932.

The procedure adopted at earlier meetings will be followed. The reception by the American Astronomical Society on September 2 will be followed on Saturday, September 3, by the official welcome to the Union and the first business meeting of the General Assembly. The Agenda for this meeting will be found below. The Executive Committee will nominate chairmen for the meeting for those commissions whose Presidents cannot attend the Cambridge meeting, and will nominate recorders for the meeting.

The opening meeting of the General Assembly will be followed by meetings of the Standing Commissions. Requests for grants during the coming three years must be received in time for consideration by the Executive Committee and the Finance Committee. The latter committee and the Standing Commissions will report to the meeting of the General Assembly on Thursday, September 8. At this meeting the Executive Committee will submit nominations for the new Executive Committee (By-law III, II). The President, Prof. Abetti, and Prof. Schlesinger retire from the Executive Committee at the end of the Cambridge meeting. The new Executive Committee will be elected at the final session of the General Assembly on Friday, September 9.

## Agenda for the First Meeting of the General Assembly

r. Address by the President of the Union.
2. Appointment of Vice-President in the place of the late Prof. Andoyer: the Executive Committee nominate Prof. C. Fabry.
3. Appointment of Recorders for the meeting.
4. Report of the Executive Committee.
5. Appointment of Finance Committee-one member to be nominated by each adhering country.
6. Appointment of Committee to advise the Executive Committee in the selection of members of Standing Commissions.
7. Amendment to Statute:

By-law II, 5. Au lieu de "Toute proposition soumise par un Comité National d'Astronomie ou par une Commission de l'Union" lire "Toute proposition soumise par un Organisme Adhérent, par un Comité National d'Astronomie ou par une Commission de l'Union." (Japan.)
8. Resolutions submitted by national committees of astronomy:
(a) Il est désirable de prendre des mesures pour combler la lacune qui subsiste dans la Bibliographie spéciale de l'Astronomie, entre la Bibliographie générale de J. C. Houzeau et A. Lancaster (s'arrêtant à l'année 1880) et la série des Astronomische Jahresberichte (commençant en 1899 ).

Le Comité National de Belgique signale à ce sujet que M. Stroobant s'est déjà
occupé du raccordement du "Vade mecum" de Houzeau (1882) à l' "Astronomische Jahresberichte." (Belgium.)
(b) It is proposed that the positions of stars in all new catalogues which are not catalogues of precision be referred to the equinox of 1900 or to another equinox which will be kept fixed during at least a century. (Holland.)

Meetings of Standing Commissions for discussion of Reports and Recommendations in the Alice Longfellow Hall.

First meetings of Commissions have been arranged as follows:
Monday morning

| Io.00 h . | Room 10 | (Ground Floor) | Commission | 4 | Ephemerides |
| :---: | :---: | :---: | :---: | :---: | :---: |
| " | III | (First Floor) | ,, | 12 | Solar Physics |
| ," | 110 | (First Floor) | " | 25 | Stellar Photometry |
| " | 106 | (First Floor) | ", | 26 | Double Stars |
| ," | \% I | (Ground Floor) | ,, | 27 | Variable Stars |
|  | ror | (First Floor) | ," | 31 | Bureau de l'Heure |
| 11.00 h. | 14 | (Ground Floor) | " | 16 | Planets |

Monday afternoon

| 14.00 h. | Room | 10 | (Ground Floor) | Commission | 5 | Bibliography |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ," | ", | 105 | (First Floor) | , | 9 | Instruments |
| " | ", | 109 | (First Floor) | " | 17 | Lunar Nomenclature |
| " | " | IOT | (First Floor) | ," | 19 | Variation of Latitude |
| , | , | 201 | (Second Floor) | , | 35 | Stellar Constitution |
| 15.00 h. | , | IIO | (First Floor) | " | 20 | Minor Planets |
| , | " | 14 | (Ground Floor) | " | 22 | Shooting Stars |
| " | " | 108 | (First Floor) | , | 23 | Carte du Ciel |
| " | " | 106 | (First Floor) | " | 24 | Stellar Parallax |

Tuesday morning

| ro.00 h. | Room | 10 | (Ground Floor) | Commission | 6 | Telegrams |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ," | " | 109 | (First Floor) | ," | 14 | Wave-Lengths |
| , | , | 106 | (First Floor) | ,, | 18 | Longitude |
| , | " | 14 | (Ground Floor) | " | 28 | Nebulae |
| II. 00 h. |  |  | (First Floor) | ," | 29 | Spectral Classification |
|  |  | 108 | (First Floor) |  | 34 | Solar Parallax |


| Wednesday morning |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 10.00 h. | Room 105 | (First Floor) | Commission | 3 | Notations |
| " | 10 | (Ground Floor) | , | 7 | Dynamical Astronomy |
| " | , Ifo | (First Floor) | ," | 30 | Radial Velocities |
| , | , 109 | (First Floor) | " | 33 | Stellar Statistics |
| II. 00 h. | 14 | (Ground Floor) | ", | 8 | Meridian Astronomy |

## Deputies for the General Secretary

The Executive Committee wish to express their thanks to Dr W. M. Smart, Cambridge Observatory, and Dr J. Jackson, Royal Observatory, Greenwich, for acting as deputies for the General Secretary. Dr Smart acted while Professor Stratton was abroad on an eclipse expedition in 1929 and undertook a considerable amount of work in seeing the proofs of Prof. Delporte's "Délimitation Scientifique des Constellations" through the Press. Dr Jackson acted during the winter of I93I-2, while Professor Stratton was abroad for reasons of health, and carried out a number of troublesome duties in connection with the preparations for the Cambridge meeting.

