

INTERNATIONAL ASTRONOMICAL UNION

TWENTY-FIFTH MEETING OF THE EXECUTIVE COMMITTEE

HAMBURG, GERMANY

Monday 24 August and Tuesday 1 September 1964

Summary Report

The meetings were held in the Dozentenraum of the Philosophenturm at the University of Hamburg. Sessions were held as follows:

Monday 24 August: 9:30 a.m.-12:30 p.m.; 2:30 p.m.-5:30 p.m.; 8:30p.m.-10 p.m.
Tuesday 1 September: 8:00 p.m. - 11 p.m.

The following were present: V. A. Ambartsumian (President); L. Goldberg, Y. Hagihara, G. Haro, R. M. Petrie, B. Sternberk, R. H. Stoy (Vice-Presidents); D. H. Sadler (General Secretary); J. H. Oort (former President); P. Swings (President-elect); J.-C. Pecker (Assistant General Secretary). Miss Dorothy Bell attended as Assistant Secretary.

Introductory note: The following report is intended primarily as a record of the decisions taken by the Executive Committee at the above meetings; it is not intended to be a complete record of all the proceedings, but it does contain accounts of the discussions when these are considered of some permanent value as a record.

The lists of new Members of the Union; of consulting members; of Presidents, Vice-Presidents and Organizing Committees of Commissions; the details of the Budgets; and the resolutions adopted by Commissions but not referred to the General Assembly are not included in the Summary Report, since they will be given in the Information Bulletins and in the Transactions. The specimen of the IAU symposia volumes (Item 12); the report of the COSPAR Consultative Group (Item 14); the General Secretary's report on the second meeting of the ICSU Executive Committee held in London in June 1964 (Item 16); the new Statutes of FAGS (Item 19) are not included in this Report, but will be attached to the file copy kept in the Archives of the Union, together with such other items of agenda as may be relevant.

For convenience of reference there are added as Appendices to this Report the two brief reports of the meetings, held during the General Assembly in Hamburg, of the National Representatives and of the Presidents of Commissions.

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INTRODUCTION

Before the opening of the first session on Monday 24 August, the President welcomed Professor P. Swings who, as President-elect, had been invited to attend the meetings of the Executive Committee,

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1. Opening by the President. After expressing his pleasure that all members of the Executive Committee, and both advisers, were present the President formally declared opened the twenty-fifth meeting of the Executive Committee.

2. Report of the Special Nominating Committee. The President presented the report of the Special Nominating Committee as follows:

"The Special Nominating Committee unanimously recommends that the following nominations be made by the Executive Committee for consideration by the General Assembly:

As President	:	Professor P. Swings (Belgium)
As Vice-Presidents	:	Professor W. N. Christiansen (Australia)
		Professor W. Fricke (Germany)
		Professor M. Schwarzschild (U.S.A.)
		Professor A. B. Severny (U.S.S.R.)
As General Secretary	:	Professor J.-C. Pecker (France)
As Assistant General Secretary	:	Dr. L. Perek (Czechoslovakia)

(All have agreed to serve if nominated by the Executive Committee and elected by the General Assembly.)

The full Executive Committee will then consist of the above seven together with:

Continuing Vice-Presidents: Professor Y. Hagihara
Dr. G. Haro

In an advisory capacity:

Former President	:	Academician V. A. Ambartsumian (U.S.S.R.)
General Secretary	:	Mr. D. H. Sadler

The Special Nominating Committee further recommends that the Executive Committee select one of the four new Vice-Presidents to serve until 1967 only, so as to allow three new Vice-Presidents to be elected at each subsequent General Assembly."

The Executive Committee, which had been previously informed of this Report, unanimously accepted it and agreed formally to place the nominations before the General Assembly.

It was agreed that one of the four new Vice-Presidents should be selected, by random choice, to serve until 1967 only; Professor W. N. Christiansen was so chosen and will thus serve for one period of three years only, if agreed by the General Assembly.

3. Report by the General Secretary. The General Secretary presented a verbal report under three main headings:

(a) Administration. He reported that the amount of administrative work continues to grow, so much so that the present arrangements can no longer be continued; a major simplification of procedures is essential, together with an increase of staff. It has already been necessary to employ part-time typing assistance, and a full-time assistant to the Assistant Secretary will be essential in the future.

(b) Finance. The General Secretary reported that the present financial situation was reasonably satisfactory, but only because of the economical administration. He estimated that the cost of the General Assembly would be less than expected and that only a modest supplementary budget would be required for 1964. However, much greater provision for administrative expenses would have to be made in future, and he anticipated some difficulty in producing a balanced budget.

(c) The General Assembly. The General Secretary outlined the arrangements for scientific meetings during the General Assembly and referred particularly to the additional meeting at which the results of the Ranger VII programme were to be presented.

4. Admission of new Adhering Countries.

(a) New Zealand. The General Secretary reported that the application from New Zealand, with the Royal Society of New Zealand as the Adhering Organization, conformed to provisions of the Statutes; the Executive Committee unanimously agreed to admit New Zealand as a member country of the Union, with adherence in Category 1.

(b) Associate Membership. Consideration was given to the possibility of introducing a second class of national membership which might be called "associate membership". It was suggested that such associate members... would pay no contributions and have no voting rights, but would otherwise enjoy the privileges of membership. This type of membership would be appropriate for the newly-developing countries, and might well provide the means of bringing such countries into the IAU without over-emphasising the level of astronomical activity. The Executive Committee agreed that this suggestion was worthy of further study and referred it to the new Executive Committee, since it was clearly impracticable to introduce the necessary new Statutes at the twelfth General Assembly.

5. Consideration of the Agenda for the first session of the General Assembly. As there was no controversial matter on the Agenda for the first session of the General Assembly, only formal consideration was given to this item.

6. Election of new Members of the Union.

(a) Changes of membership. At its first session the Executive Committee formally adopted the list of proposals compiled by the General Secretary for changes in the membership of the Union and referred this list to the Nominating Committee for comment and advice. At the second session the General Secretary presented the report of the Nominating Committee and called attention to the few cases in which the Nominating Committee had resolved the disagreements between the proposals made by Presidents of Commissions and the views of Adhering Organizations. The list, as modified by the Nominating Committee, was adopted by the Executive Committee, and thus all those nominated as new Members were formally elected to membership.

(b) Consulting Members. Consideration was given to the desirability of introducing a new class of individual Members to be known as "corresponding" or "consulting Members". The main purpose would be to enable some Commissions to include among their members distinguished scientists who might not otherwise qualify for membership of the Union because their interests are limited to a very narrow field of astronomy. It was felt that the introduction of "consulting Members" might help to solve some of the difficulties that arise through the rapid increase in the number of Members.

The Executive Committee agreed in principle to the introduction of such a new class of Member, subject to comments of the Nominating Committee and to detailed proposals. At its second session it approved the following resolution to be submitted to the General Assembly:

"The Executive Committee requests the General Assembly to approve of the introduction of a new class of Consulting Members, without at present any addition, or amendment, to the Statutes and By-Laws.

Consulting Members may be appointed, at any time, by the Presidents of Commissions, on the recommendation of two or more members of the Commission, as members of their Commissions and participate fully in the work of those Commissions; they will receive, in some form to be decided, the Reports of the Commissions of which they are members and will have the right to attend the General Assemblies of the Union. They continue as Consulting Members only to the end of each General Assembly, when their membership will automatically lapse unless specifically renewed.

The General Secretary will keep, but not publish, a record of Consulting Members and of the Commissions to which they belong."

(At the General Assembly this resolution was adopted in modified form, the last two lines being omitted.)

It was agreed that, should the General Assembly approve the resolution, Consulting Members could be admitted forthwith.

7. Changes in Commissions. The Executive Committee considered at length the various proposals or suggestions for the creation of new Commissions, the re-arrangement of functions and subjects of some and the dissolution of others. Some of these proposals arose from the decisions made at the twenty-fourth meeting of the Executive Committee in Liège, which were considered by the Commissions concerned during their meetings in Hamburg; others arose from the Commissions themselves, or from suggestions from individuals. The following decisions were finally agreed, subject to the approval, in appropriate cases, of the General Assembly:

(a) to set up two new Commissions as follows:

- No. 45 - Spectral Classifications and Multi-band Colour Indices
Classifications spectrales et indices de couleur à plusieurs bandes
- No. 46 - The Teaching of Astronomy
L'Enseignement de l'Astronomie

(b) to change the names of three Commissions, as follows:

- No. 17 - The Moon: La Lune
- No. 19 - The Rotation of the Earth: La Rotation de la Terre
- No. 30 - Radial Velocities: Les Vitesses Radiales

(c) to change the functions of the following Commissions, with or without a change of name:

- No. 7 - To take over, from Commission 17, responsibility for the work on the theory of the orbit of the Moon.
- No.16 - To transfer to Commission 17 responsibility for its previous work on the physical study of the Moon, as a satellite.
- No.17 - To assume responsibility for all aspects of the study of the Moon, except for work on the theory of its orbit round the Earth.
- No.19 - To take over, from Commission 31, responsibility for the astronomical observations made for the determination of universal time; Commission 19 will thus be concerned in the future with all questions concerning the rotation of the Earth. It will continue to receive reports from the International Polar Motion Service.
- No.31 - To transfer to Commission 19 those parts of its previous work concerned with the astronomical determination of universal time. It will in future be concerned with the definition of time, with time-keeping and the dissemination of time-signals, and with various problems concerning the determination of Ephemeris Time. It will continue to receive reports from the Bureau International de l'Heure.

(d) not to press the change to "technical committees" considered at the Liège meeting, but to leave to the Commissions concerned (mainly Nos. 31, 40, 43 and 44) the sharing of certain aspects of their work with other Commissions concerned with subjects studied by means of the techniques involved.

(e) not to set up a new Commission to coordinate and centralise computer programmes for the processing of astronomical data.

8. Nomination of Presidents and Vice-Presidents of Commissions. At its first session the Executive Committee considered a preliminary list of Presidents and Vice-Presidents of the various Commissions, based primarily on the recommendations of the present Presidents. After modification, these were discussed informally with the Presidents and, as far as possible, the approval of those nominated was sought in respect of their willingness to serve. At the final session a complete list of Presidents and Vice-Presidents was agreed for submission to the General Assembly for election.

9. Approval of the Organizing Committees for Commissions. A preliminary list of proposals for the composition of the Organizing Committees of Commissions was considered by the Executive Committee at the same time as proposals for Presidents and Vice-Presidents were being considered. These proposals were largely based on suggestions by the present Presidents of Commissions. The Executive Committee suggested various amendments for consideration by the Commissions at their meetings during the General Assembly. At its final session the Executive Committee generally approved the Organizing Committees, as proposed by the Commissions.

10. Financial accounts and budget. The Executive Committee considered the preparation of budgets for the period until the next General Assembly for submission to the Finance Committee. It first approved a modification of the supplementary budget for 1964 as previously given in the report of the Executive Committee. Acting on the advice of the General Secretary it recommended to the Finance Committee that the General Assembly should be asked to approve a supplementary budgetary provision of \$6,500.

The Executive Committee agreed to present to the Finance Committee a single budget to cover the three years 1965, 1966 and 1967; this would be complemented by the supplementary budget for the year 1967, which could be adopted by the 13th General Assembly.

The details of this budget follow closely those in the budget recommended by the Finance Committee and adopted by the General Assembly. The Executive Committee was, however, only able to give an overall figure for item 4 of the Expenditure on "Specific Projects". The recommendations of the Finance Committee, which had the responsibility of reducing the individual amounts requested under this item to agree with the total available, were, however, subsequently agreed by the Executive Committee.

In considering the allocations to the specific projects the Finance Committee formally drew the attention of the Executive Committee to the decision of Commission 38 to authorise its President to make grants in respect of wives and families of astronomers in certain cases. The Executive Committee accepted the resolution from the Finance Committee in the following terms:

"The Finance Committee has considered the suggestion from the President of Commission 38 that, in certain cases, grants for travel expenses can be made in respect of wives and children. It strongly recommends that, in the present state of the Union's finances, such a procedure should be deferred."

The General Secretary called attention to the desirability of adopting a form of financial authority to the General Secretary. This was formally approved and adopted in the following form:

Financial Authority to the General Secretary

"The Executive Committee, in the exercise of its responsibility to the General Assembly for the conduct of the finances of the Union, instructs and authorizes the General Secretary as follows:

1. Accounts. The General Secretary, acting as treasurer of the Union, shall be responsible for
 - (a) keeping accounts by recording all the Union's receipts and payments,
 - (b) preparing the financial statement and accounts to be submitted for consideration by the Finance Committee.

These accounts shall be certified by a qualified professional accountant.

2. Budget. Before each General Assembly, the General Secretary shall prepare an estimate of a budget of income and expenditure for the following period, for submission by the Executive Committee to the Finance Committee, and subsequently for approval by the General Assembly.

3. Expenditure within the Budget. The General Secretary is authorized to incur expenditure and to make payments, on behalf of the Union, within the provisions of the budget subject to the approval of the Executive Committee in respect of the individual projects for which an overall total sum (for example, for Symposia or for unforeseen projects) has been provided in the budget.

The General Secretary is, in particular, authorized to

(a) pay all sums necessary for the efficient conduct of the Administrative Office, including the salaries of the Assistant Secretary and other staff;

(b) negotiate contracts for the printing and publication of the Transactions and other publications of the Union, and make the necessary payments,

in accord with any general directives that may, from time to time, be given by the Executive Committee.

4. Expenditure outside the Budget. The Executive Committee may authorize the General Secretary to incur expenditure and to make payments, on behalf of the Union, outside the provisions of the budget:

(a) where the budget provision is considered inadequate, because of increased prices, poor estimation or other reasons;

(b) in respect of new items, the necessity for which has arisen since the General Assembly.

5. Bank accounts. The General Secretary is responsible for ensuring that all necessary procedures are fulfilled in respect of the Union's current and savings accounts. He may delegate responsibility for one current bank account to the Assistant General Secretary.

6. Travel and subsistence expenses. The General Secretary, the Assistant General Secretary, as well as the Assistant Secretary and other members of the staff, are entitled to the repayment of travel and subsistence expenses in respect of journeys necessarily undertaken on account of the business of the Union. (Travel expenses in connection with meetings of the Executive Committee, meetings of the ICSU or similar organizations, or scientific meetings, are paid in accord with the standard procedures for members of the Executive Committee.)

7. Expense account. The General Secretary and the Assistant General Secretary are authorized to receive repayment, from the funds of the Administrative Office, of the reasonable expenses of hospitality necessarily incurred in the conduct of the business of the Union, subject to a maximum of 200 U.S. dollars in any one year." >

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The question of the investment of the Union's reserves was referred to the new Executive Committee.

11. Unit of contribution. The Executive Committee formally agreed to propose to the Finance Committee that it should recommend to the General Assembly that the unit of contribution should remain unchanged at 600 gold francs.

12. Administration.

(a) Administrative Office. The Assistant General Secretary summarised the arrangements for the setting up of the Administrative Office in Nice and

stated that he had already started negotiations regarding staff contracts, social security, insurance, etc. He also hoped to obtain tax concessions. Furthermore he said that accommodation, and many other facilities, would be provided without charge to the Union.

(b) Transactions, Volume XII. The Assistant General Secretary reported that it was proposed to publish the Transactions in three volumes as follows:

- Volume A - Reports on Astronomy, to contain the corrected Draft Reports;
- Volume B - Proceedings of the Twelfth General Assembly, to contain the reports of the General Assembly, the Invited Discourses, the Joint Discussions and the reports of Commission meetings;
- Volume C - A Handbook, to contain Statutes, List of Members and their addresses, List of Commissions and their membership, and various other material of permanent interest to Members.

In the discussion the desirability of rapid publication of the Invited Discourses was stressed, as a result of which it was agreed to transfer them from Volume B to Volume A. It was, however, pointed out that Volume A would not be distributed free to Members of the Union, so that it was agreed that reprints of the Invited Discourses should be obtained and distributed to Members.

The idea of an IAU Handbook was received with enthusiasm and various suggestions were made as to additions to its contents. The details were left to the future General Secretary.

(c) Publication of the proceedings of Symposia. The Assistant General Secretary summarised the arrangements he proposed for the publication of the proceedings of symposia. The main feature would be that the Union would pay all costs of production, that the volumes would be sold on behalf of the Union by Academic Press and that the Union would receive all proceeds from the sales, less the Commission taken by Academic Press.

A specimen, prepared by the Union's printers, showing the format and typography proposed for the new series of symposium volumes, was generally approved. The Assistant General Secretary pointed out that the new procedure would come into force from Symposium No. 24 only, and that special arrangements had been made for the rapid publication of Symposium No. 23 ("Astronomical Observations from Space Vehicles") in Annales d'Astrophysique.

The General Secretary gave a very rough estimate of the likely costs of producing future Symposium volumes and of the returns that might be expected from sales; he emphasised the absolute necessity of keeping the length of the proceedings to a minimum. After discussion the Executive Committee adopted the following resolution:

"The Executive Committee calls the attention of the Organizing Committees, and particularly of the Scientific Editors, of IAU Symposia to the necessity for brevity in the printed proceedings. This is essential, not merely for reasons of economy, but primarily to keep to a minimum the increasing amount of astronomical literature.

Symposia should be planned from the beginning with this brevity in mind, and all participants should be so informed at an early stage. Scientific Editors should be prepared to omit, or to reduce the length of,

contributed papers, where this can be done without loss of original material of scientific value. The General Secretary will provide general guidance in this matter and is authorized to state specific limits in particular cases."

(d) The IAU Symbol. The IAU proposed symbol, which was incorporated on the specimen for the symposium volumes, was approved, and the General Secretary was authorized to introduce it where appropriate.

(e) IAU Distribution List. The General Secretary reported that there were still quite a number of institutions on the IAU Distribution List which had not yet accepted the invitation to pay an annual contribution of \$15. It was agreed that a special letter should be sent to these institutions at the end of 1964 and that the institutions that did not reply should be removed from the Distribution List, unless special circumstances applied.

(f) Proposed IAU account in Moscow. Arising from the previous item, the General Secretary suggested that it might be easier for some countries with currency difficulties to pay contributions through an account in roubles in Moscow. He was authorized by the Executive Committee to enter into negotiations with the U.S.S.R. Academy of Sciences, with a view to inaugurating such an account.

13. Scientific meetings. Although the Executive Committee realised that the new Executive Committee would have the opportunity of confirming the plans for scientific meetings at its twenty-sixth meeting, it nevertheless felt it desirable to draw up provisional plans, including details (subjects, organizers, places and dates) where relevant.

The General Secretary drew the attention of the Executive Committee to a letter from the Natural Sciences Department of Unesco requesting that consideration be given to holding at least some meetings in the less well developed countries.

The Assistant General Secretary gave brief reports on the five symposia, Nos. 22, 23, 24, 25 and 26 held since the last meeting of the Executive Committee. He also briefly summarised the arrangements that had been made for the publication of the proceedings of Symposia Nos. 19 to 23. For Symposium No. 24 onwards he proposed to introduce a new series of IAU Symposium volumes, produced under the auspices of the IAU itself.

(a) Future Symposia. Consideration was given to future symposia. It was agreed to confirm the three symposia, previously allocated numbers 27, 28, 29 at the Executive Committee meeting in Liège; however, No. 29 was re-numbered 30 to allow for the introduction of the Symposium (No. 29) on Cosmical Gas Dynamics, to be held in Nice in September 1965. The four numbered symposia to which approval was given are thus as follows:

No. 27 - Construction of Large Telescopes. To be held in Pasadena and/or Tucson in April 1965. The Chairman of the Organizing Committee will be I. S. Bowen, with D. L. Crawford, H. Elsässer and L. Gratton among the members of the Organizing Committee.

- No. 28 - Radioastronomy and the Galactic System. To be held in the Netherlands at the end of September 1965. The Organizing Committee is proposed as follows: J. H. Oort (Chairman), A. Blaauw, G. Burbidge, F. J. Kerr, M. Ryle (or F. G. Smith), L. Woltjer, and I. S. Shklovsky. It was agreed to invite the co-operation of URSI in this Symposium.
- No. 29 - Cosmical Gas Dynamics (Fifth Symposium). To be held, in co-operation with IUTAM, in Nice in early September 1965. The Organizing Committee will consist of R. N. Thomas (Chairman), K. H. Böhm, J.-C. Pecker, A. B. Severny, C. A. Whitney (plus representatives from IUTAM).
- No. 30 - Instability Phenomena in Galaxies. To be held in the Armenian S.S.R. in the spring of 1966. The Chairman of the Organizing Committee will be V. A. Ambartsumian, with E. M. Burbidge, A. Sandage and J. Lequeux as provisional members.

Approval was also given to a Symposium on the Determination of Radial Velocities and their Applications, to be held in the summer of 1966 in either Marseille or Toronto, with Ch. Fehrenbach or R. M. Petrie as Chairman of the Organizing Committee. No number was allocated, and the details of the organization were left for consideration by Commission 30.

Consideration was then given to various other subjects that had been proposed, as follows:

(i) It was agreed not to proceed with the organization of Symposia on Non-Stable Stars and on "Man in the Moon", that had been discussed in Liège.

(ii) It was decided that there was danger of considerable overlap between a Symposium on the Evolution of Galaxies, proposed by the President of Commission 28, and Symposium No. 30 to be held in the spring of 1966. The General Secretary was asked to discuss this overlap with the President of Commission 28.

(b) Financial provision for Symposia. The Executive Committee then considered the financial allocations to the four numbered Symposia, bearing in mind the small amount available in the budget for this purpose. It was agreed to make provisional allocations as follows:

No. 27 - \$ 1,000	(maximum \$1,500)
No. 28 - \$ 2,000	(maximum \$2,500)
No. 29 - \$ 1,500	(maximum \$2,000)
No. 30 - \$ 2,000	

(c) IAU participation in other symposia. The Executive Committee then considered participation in symposia proposed by other organizations, in which the IAU had been invited to participate. It agreed to participate in the following symposia, with the IAU representation on the organizing committees as given:

(i) COSPAR Symposium on Galactic and Extra-galactic Phenomena and Space Research, to be held in Buenos Aires in May 1965. IAU representatives on the Organizing Committee will be H. C. van de Hulst, H. Friedman, S. Mandel'stan, C. Varsavsky.

(ii) URSI Symposium on Solar-Terrestrial Physics, to be held in Belgrade in 1966. IAU representatives on the Organizing Committee are C. W. Allen and E. R. Mustel.

(iii) IUTAM Symposium on the Dynamics of Satellites, to be held in Paris in 1965. IAU representatives on the Organizing Committee are D. Brouwer and J. Kovalevsky. The Executive Committee agreed to make a contribution of \$1,000 to this Symposium.

(d) Colloquia. The Executive Committee took note of the following proposals, by Commissions, for colloquia:

(i) Commission 26. On the Evolution of Double Stars, to be held at the Observatoire Royal de Belgique at Uccle in 1966; the Organizing Committee will consist of S. Arend, P. Domnanget, P. van de Kamp, A. G. Velghe and one other.

(ii) Commissions 27 and 42. On Variable Stars, to be held in Bamberg, probably in September 1965; the Organizing Committee will be made up from members of both Commissions.

(iii) Commission 21. On the Zodiacal Light, to be held in Hawaii in late 1965 or 1966; the Chairman of the Organizing Committee will be Dr. F. E. Roach.

The Executive Committee noted that the Finance Committee had referred to it the request for a grant of \$ 500 for the Colloquium on Variable Stars, and referred this for favourable consideration to the new Executive Committee.

(e) Participation of Commissions in scientific meetings. The Executive Committee took note of, and gave general approval to (for future consideration by the new Executive Committee) the following requests, expressed in the form of resolutions by Commissions:

(i) Commission 10. To participate in symposia, or other meetings, organized by other bodies (such as the Special Committee for the IQSY) on subjects of special interest to the Commission.

(ii) Commission 43. That the IAU should sponsor from time to time, where appropriate in co-operation with other Unions, conferences and symposia that will keep its members in contact with the most recent work on inter-planetary plasma and cosmic rays, and will foster international co-operation in their understanding.

14. Specific Projects.

(a) IAU Telegram Bureau. The General Secretary reported that the discussions in Commission 6 had led to satisfactory proposals for the future of the IAU Telegram Bureau, which could not be continued in Copenhagen where it had been since it was instituted in 1922. Dr. Whipple of the Smithsonian Astrophysical Observatory had agreed to accept responsibility for the Bureau in Cambridge, with Dr. O. Gingerich as Acting Director. Arrangements will be made for Dr. Gingerich shortly to visit Copenhagen to arrange for the details of the transfer of the Bureau, as from 1 January 1965.

Assistance had been promised by Professor A. G. Velghe of the Observatoire Royal de Belgique in respect of the European distribution of cards sent in bulk from Cambridge. The Executive Committee expressed its general approval of the

proposed arrangements and instructed the General Secretary firstly to write to Dr. Reiz and Mr. Thernøe to thank them for their services in running the Bureau so successfully in Copenhagen, and also to express gratitude to Dr. Whipple and Dr. Gingerich for agreeing to take over the work in Cambridge.

(b) Bibliography of Astronomy. The General Secretary made a short report on the present state of the Bibliography of Astronomy, 1881-1898, emphasizing the considerable difficulties that still lay ahead in the completion of the contributions from various countries. The Committee noted with pleasure that the Finance Committee had been able to agree to the provision of a sum of about \$250 to assist with the completion of the British contribution.

(c) Teaching of Astronomy. The Executive Committee received a brief report on the proceedings of the discussion on the Teaching of Astronomy and considered the two resolutions submitted to the Executive Committee from that meeting.

It agreed to set up a new Commission (No. 46) on the Teaching of Astronomy (l'Enseignement de l'Astronomie), with Professor E. Schatzman as President and the following as members of the Organizing Committee: L. H. Aller, B. J. Bok, J. L. Page, E. K. Kharadze, V. Kourganoff, H. G. J. Minnaert, E. A. Muller, H. C. van de Hulst. It was thought desirable not to appoint a Vice-President in the formative stages of the Commission. The Executive Committee also accepted the recommendation of the meeting and formally agreed to participation in the work of the Inter-Union Commission on Science Teaching; co-operation with this Inter-Union Commission would be entrusted to either the new Commission 46, or to a special committee appointed by that Commission.

The General Secretary was requested to convey to Professor Minnaert the thanks of the Union for having so efficiently organized and conducted the meeting on the Teaching of Astronomy.

(d) Space Contamination. The Executive Committee considered the provision that the Union should make to provide for the proper examination and, if necessary, the appropriate action to be taken in respect of space experiments with potentially undesirable effects on astronomy. In doing so it took into account its recommendations at the Liège meeting, subsequent correspondence arising from these, the report presented to the ICSU Executive Committee from the COSPAR Consultative Group, and finally a report from Professor van de Hulst, after discussion with Professor Oort.

The Executive Committee expressed its general satisfaction both with the scope and the content of the COSPAR Consultative Group's report and thought that it would, in general, be unnecessary to set up its own permanent committee for this purpose; generally the COSPAR Consultative Group, consulting the IAU as necessary, was thought to be able to represent the interests of science in this difficult field. However, it was recognized that there could well be circumstances in which more specific and urgent action was required in the field of astronomy than could be expected from the COSPAR Consultative Group. The Executive Committee therefore requested Professor van de Hulst (who is a member of the COSPAR Consultative Group) to accept responsibility on behalf of the Union personally to take such action, by consulting individual Members of the Union or by convening an ad hoc committee as and when circumstances warrant it. He would, of course, keep in close contact with the General Secretary, who would in turn inform

the President and the Executive Committee as necessary. Professor van de Hulst agreed to accept this mandate, and the Executive Committee expressed its thanks to him. It was agreed that, in the circumstances, there was no necessity to continue the IAU West Ford Committee, and the General Secretary was asked to inform Dr. Findlay accordingly and to thank him and members of the Committee for their valuable service.

(e) The establishment of an astronomical observatory in the Antarctic. The General Secretary was instructed to write to Mr. P. Holden to say that the Executive Committee had carefully considered his proposal to set up an astronomical observatory in the Antarctic but that it was at present unable to give it its support. The IAU could not give such a project any financial support, and it was very doubtful of the scientific value of the programme, until much more information was available, especially regarding the atmospheric conditions and the astronomical seeing.

15. Future Policy. The Executive Committee considered a memorandum on this subject prepared by the General Secretary. There was little time to discuss future policy in detail, but the following recommendations were made:

(a) Presidential invitations to the General Assembly should in future be restricted to a few representatives from other organizations and to distinguished guests; invitations to other non-members should be handled through Adhering Organizations, which would have the authority to give permission for their nationals to attend the General Assembly. The General Secretary would give appropriate guidance in this connection.

(b) The names of Presidents, Vice-Presidents and Organizing Committees should continue to be published under the names of Commissions, but the full list of Commission members should be given only in one place and not necessarily repeated at the head of the Draft Reports.

(c) Volume XIII A of the Transactions, containing primarily the corrected versions of the Draft Reports, should not be distributed free to Members; however, Members should be given every encouragement to purchase copies at about 30% to 40% of the list price. It was noted that, according to a recent decision, Volume XIII A would contain the Invited Discourses; it was recommended that reprints should be made available free to Members.

(d) The General Secretary had suggested procedures for verifying correct names and addresses of Members, and for enquiring whether Members wished to remain in membership. The procedures were generally agreed, but the Executive Committee ruled that absence of reply was not to be taken as an indication of a wish to discontinue membership.

(e) At the request of the General Secretary the Executive Committee formally adopted the following resolution for submission to the General Assembly:

"The Executive Committee calls attention to the Register of astronomical meetings, with some international participation, maintained by the IAU Administrative Office. The main purpose of this Register is to facilitate the avoidance of inadvertent duplication of subjects and dates. It requests the General Assembly to urge all Members of the Union, and all concerned with the organization of such meetings, to inform the Administrative Office of the arrangements of all such meetings, preferably at the earliest planning stage."

The General Secretary reported on the arrangements he had made for the meeting of representatives of Adhering Countries and suggested that each country should be asked to appoint, in the future, a national correspondent who would be available for consultation about such matters as invitations, membership, grants, etc. A brief report of the meeting is appended to this record.

The Executive Committee considered, and generally approved of, the agenda for the meeting of Presidents of Commissions, which had been drawn up by the General Secretary and the Assistant General Secretary. A short account of the meeting is appended to this report.

16. Relationship with the International Council of Scientific Unions.

The General Secretary called attention to his report on the second meeting of the Executive Committee of the ICSU, held in London in June 1964; this report had been previously circulated. He expressed the view that the International Scientific Unions were gradually losing their rightful place in the affairs of the ICSU and proposed that a resolution be adopted that would enable the IAU representative on the ICSU Executive Committee formally to bring this matter to the attention of the ICSU so that it might be included on the agenda for the next meeting.

The terms of the resolution were agreed, but this was referred to the new Executive Committee for consideration and adoption.

17. Relationships with other organizations. The Executive Committee briefly reviewed the Union's relationships with other Unions and with the Scientific Committees of the ICSU.

It also gave consideration to the Union's participation in the various Inter-Union Commissions as follows:

(i) IUCAF. The Executive Committee firstly considered the terms of a resolution proposed by Commission 40 relating to the functions of IUCAF. It was agreed to support this resolution and to submit it to the General Assembly with some modifications designed to strengthen it. The resolution as finally modified reads as follows:

"The International Astronomical Union
considering that

- (a) radio-astronomical investigations are being conducted at many observatories with greatly increased intensity,
- (b) these investigations continue to be of prime importance to man's knowledge of the Universe, as may be illustrated by the recent discovery of the lines of the OH molecule,
- (c) by the recent investigations of radio sources and in particular the discovery of the quasi-stellar sources, radio astronomy has become one of the most promising fields of fundamental research in physics,
- (d) these investigations require large instruments and long-term planning;

supports the present proposals of the Inter-Union Commission on Frequency Allocations for Radio Astronomy and Space Science (IUCAF) concerning frequency allocations for radio astronomy,

and, in addition, requests

IUCAF to consider means of improving, through ITU and through national authorities, the protection available to observations of the OH line at 1664.4 to 1668.4 mc/s."

Consideration was then given to IAU representation on IUCAF, especially in view of IUCAF's increasing needs and responsibilities. (The attention of the Executive Committee had previously been called to the decision of the ICSU Executive Committee to extend the activities of IUCAF to include all areas of science in which radio frequency allocations are involved.) Various suggestions were made regarding the enlargement of the representation on IUCAF from the various Unions, and names were suggested for consideration by IUCAF at its next meeting in November. It was noted that these suggestions would involve a change in the constitution of IUCAF.

(ii) IUCSTR. The General Secretary reported that URSI had not so far replaced one of its representatives as called for by the constitution. It was agreed to invite M. Waldmeier to take the place of J. F. Denisse as one of the IAU representatives.

The General Secretary reported that the IUCSTR had held successful business and scientific meetings immediately prior to the General Assembly, and that the IUCSTR Tenth Report had been published and distributed.

(iii) IUCI. Some minor changes in the constitution of the Inter-Union Commission on the Ionosphere were formally approved.

18. Responsibilities for solar-terrestrial physics. In view of the fact that the ICSU Working Group on Solar-Terrestrial Physics had not been able to make any report, it was agreed to defer consideration of this item. The General Secretary reported that a few members of the Working Group had met in Hamburg but that a full meeting would have to be deferred until after the end of the General Assembly.

19. Federation of Astronomical and Geophysical Services.

(a) Formal approval was given to the proposed minor changes in the Statutes.

(b) Acting on the advice of Commission 10 and the IUCSTR, the Executive Committee formally agreed to sponsor the inclusion in FAGS of a new permanent service, SPARMO (Solar Particles and Radiations Monitoring Organization).

(c) The Executive Committee appointed D. H. Sadler to serve on the Council of FAGS in the place of M. Waldmeier, who had represented the Union in this capacity for many years. The General Secretary was asked to thank Professor Waldmeier for his services.

(d) The Executive Committee formally approved of the appointment of Dr. S. Yuni (who had previously been Acting Director) as the Director of the Central Bureau of the International Polar Motion Service.

20. Resolutions for the General Assembly. The Executive Committee gave consideration to those resolutions proposed by Commissions which the Resolutions Committee recommended should be submitted to the General Assembly. It approved all five such resolutions, with slight modifications in the case of Resolution No. 3 (IUCAF). These five resolutions, together with Resolution Nos. 1 and 2, which were proposed by the Executive Committee itself, were subsequently submitted to, and adopted by, the General Assembly.

21. Resolutions adopted by Commissions, and not accepted by the Resolutions Committee for submission to the General Assembly. The Executive Committee adopted the following resolution, which was submitted to and adopted by the General Assembly, as Resolution No. 8:

"Considering the impracticability of giving individual attention to every resolution adopted by each of its thirty-six Commissions, and having full confidence in its Commissions, this General Assembly wishes to give its endorsement to the resolutions adopted by its individual Commissions, and recommends that astronomers give effect to these resolutions in so far as they are able."

22. Nomination of the Special Nominating Committee. The Executive Committee decided to recommend to the General Assembly the following composition for the Special Nominating Committee:

"There are four alternative compositions according to the choice, by the new Executive Committee, of the one of its members due to retire in 1967. The following four suggested lists correspond to these four possibilities.

President -	P. Swings (Belgium)
Former President -	V. A. Ambartsumian (U.S.S.R.)
Members elected by the	C. S. Beals (Canada)
General Assembly	I. S. Bowen (U.S.A.)
	B. Lindblad (Sweden)

together with: EITHER Y. Fujita (Japan), if one of W. N. Christiansen (Australia), G. Haro (Mexico) or J.-C. Pecker (France) represents the Executive Committee

OR L. Gratton (Italy), if Y. Hagihara represents Japan."

23. Any other business. There being no other business the President thanked the General Secretary, and members of the Executive Committee, for their attendance and for their co-operation. In return, the Executive Committee expressed their appreciation of the President's Chairmanship.

D. H. Sadler
Former General Secretary

Royal Greenwich Observatory
Herstmonceux

September 1964

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