

INTERNATIONAL ASTRONOMICAL UNION

UNION ASTRONOMIQUE INTERNATIONALE

Thirty-first Meeting of the Executive Committee

Hamburg-Bergedorf

Monday 26 to Friday 30 August 1968

P R O C E E D I N G S

The thirty-first meeting of the Executive Committee of the International Astronomical Union was held in Hamburg-Bergedorf, Federal Republic Germany, in the rooms of the European Southern Observatory. Sessions were held on Monday 26 through Friday 30 August 1968 with the exception of Thursday 29 August 1968. As a rule, sessions started at 9.00 a.m., except on Monday 26 August 1968 when they started at 9.30. Sessions mostly finished at 17.30, with lunch breaks from 13.00 to 14.30.

Present were:

O. Heckmann, President  
M.K. Vainu Bappu, Vice-President  
W.N. Christiansen, Vice-President  
L. Gratton, Vice-President  
J. Sahade, Vice-President  
M. Schwarzschild, Vice-President  
L. Perek, General Secretary  
C. de Jager, Assistant General Secretary  
J.-C. Pecker, Former General Secretary  
A. Jappel, Assistant Secretary  
Miss C.E. Boot, Secretary

Absent were:

A.B. Severny, Vice-President  
P. Swings, Former President

Introductory note: The report has been prepared in the order of the items overleaf in the summary list of the agenda. The documents related to the agenda and distributed before the meetings have not been included in the present report.

A G E N D A

I Opening by the President.  
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II ADMINISTRATIVE MATTERS.

1. Internal matters of administrative nature.  
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- a) Report of the General Secretary on the Administrative Office and on the archives of the Union, with the proposal to eliminate certain obsolete files.
- b) Report of the President on the progress made in the Special Nominating Committee.
2. Statutes and By-laws of the IAU.  
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- a) Report of the General Secretary on the preparation of the revised Statutes and By-laws.
- b) Discussion of revised Statutes and By-laws as prepared by the General Secretary.
- c) Discussion of steps to be taken before submission of the draft to the General Assembly (e.g. distribution to adhering organizations, adoption of final version by Executive Committee, time table, etc.).
3. IAU Commissions.  
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- a) Some financial aspects of Commission No. 38 - Exchange of Astronomers.
- b) Young Astronomers' School - Commission No. 46 on Teaching of Astronomy.
- c) Membership in more than three Commissions.
- d) Commission No. 5 - Change in title.
4. General Assemblies.  
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- a) Report on the Extraordinary General Assembly.
- b) The XIVth General Assembly - Report of the General Secretary on the state of preparation.

c) The XVth General Assembly - Invitation of Australia and Poland.

5. Finances.

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a) Report of the General Secretary on the present financial situation of the IAU and on foreseeable developments.

b) Some questions related to annual contributions.

c) IAU contributions to Symposia and Colloquia.

6. Publications.

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a) Savings in publication costs.

b) Publication delays.

c) Report on joint action Thomas - Severny for cheaper publication.

d) Distribution scheme of Draft Reports.

III SCIENTIFIC ACTIVITY...

7. Scientific content of the XIVth General Assembly.

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a) Invited Discourses.

b) Joint Discussions.

c) Commission Meetings.

d) Style of Draft Reports.

8. IAU Symposia and Colloquia.

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Report by Assistant General Secretary.

9. Other Scientific Meetings.

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Report by Assistant General Secretary.

10. Special Projects.

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11. Relations with other Organizations.

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a) UNESCO - Contracts.

- b) ICSU - Report by General Secretary.
- c) FAGS - Election of new President.
- d) COSPAR - Report by General Secretary, and future policy.
- e) IUCSTP - New constitution.
- f) IUCAF
- g) CCDS
- h) CODATA
- i) IAB
- j) IAF

IV OTHER BUSINESS.

12. Varia.  
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13. Next Meeting of the Executive Committee.  
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I Opening by the President, O. Heckmann.  
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The President welcomed the participants to the meeting and read a telegram from Vice-President A.B. Severny, who asked to be excused for sudden illness. He informed the Executive Committee that P. Swings was unable to attend the meeting, and he suggested to send the former President a telegram expressing the Executive Committee's regret.

He announced that W.N. Christiansen would have to leave on Friday. He welcomed Miss C.E. Boot who attended for taking down the minutes, in order to unburden A. Jappel.

The agenda was accepted with the proviso that item 5c (IAU contributions to Symposia and Colloquia) would be discussed together with item 8 (IAU Symposia and Colloquia), while item 7d (Style of Draft Reports) should be discussed with item 6d (Distribution scheme of Draft Reports).

II ADMINISTRATIVE MATTERS.

1. Internal matters of administrative nature.  
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- a) Report of the General Secretary on the Administrative Office and on the archives of the Union, with the proposal to eliminate certain obsolete files, and on the financial authority to the General Secretary.

Minutes of last meeting of Executive Committee: These were approved. Reprints and IAU publications: The state of payment appears to be satisfactory.

Archives of the Union: The General Secretary suggested to eliminate all archives that are older than five years and which have been used for publication. A. Jappel estimated this to be about two thirds of all archives. It was found interesting to keep those archives that are of use for the history of the Union. The Observatory at Uccle-Brussels seems to be willing to accept the whole files. The General Secretary will ask Uccle; if their answer appears to be negative, the first suggestion will be followed.

The IAU Secretariat consists now of three full-time

employees, viz. Dr A. Jappel, Mrs. J. Daňková and Mrs. T. Hermanová.

**Circular Letters:** The General Secretary reminded the Executive Committee that it had agreed with the proposals as stated in Circular Letter No. 73 on the composition of the Board of Directors of SPARMO, and with the contents of Circular Letter No. 74 which dealt with: contracts with UNESCO, the Vice-President of Commission 17, the IAU representation in the Joint Commission on Spectroscopy, the representation of the IAU at the Congress of the International Geological Union and the IAU representation at the Symposium on Meteorites.

**Financial authority to the General Secretary:** At the twenty-ninth meeting of the Executive Committee a document had been distributed determining the financial authority of the General Secretary. By an oversight this paper had not been discussed at the twenty-ninth and the thirtieth meetings of the Executive Committee. At the present meeting, the Executive Committee has agreed with the proposals therein.

**Adherence of the Irish Republic:** Up to now Ireland adhered to the Union through the Dublin Institute for Advanced Studies. P.A. Wayman, Director of the Dunsink Observatory, the Director of the Dublin Institute for Advanced Studies and the Royal Irish Academy suggested that Ireland should, from now on, adhere to the Union through the Royal Irish Academy. This proposal was accepted. The General Secretary shall ask the Royal Irish Academy to inform him when Ireland would adhere to ICSU.

b) Report of the President on the progress made in the Special Nominating Committee.

The President reported that suggestions for the future composition of the Executive Committee had been received from Christiansen, Goldberg, Mustel, Sadler, Swings and Heckmann. Statistics of the opinions of members of the Special Nominating Committee were distributed. The proposals were discussed in detail.

2. Statutes and By-laws of the IAU.

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The records of the discussion of this point will appear in a separate report.

3. IAU Commissions.

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a) Some financial aspects of Commission No. 38 - Exchange of Astronomers.

Commission 38 spent in 1967 \$ 9.279.-; the permitted amount was only \$ 4.500.-. In view of the present financial state the Executive Committee agreed to the proposal of the General Secretary to place all grants paid in 1967 on the budget of 1967 and leave for the years 1968 - 1970 the sum of \$ 22.000.- to the Commission.

Professor Chandhuri from India, who temporarily worked in Biaffra, has now moved to the University of Sussex and asks for a living support from the IAU (£ 250.- a month, for four months, possibly to be extended to six months). Professor Chandhuri teaches mathematics. The General Secretary's suggestion to refuse this application was unanimously accepted.

b) Young Astronomers' School - Commission No. 46 on Teaching of Astronomy.

The General Secretary read a letter of J. Kleczek, Secretary of the International School for Young Astronomers. A full report of the School, now taking place in Arcetri, will be received later.

The 1969 School is planned for India. As regards the choice of the programme, the teachers and the students, Kleczek should contact Bappu. It is considered of great importance that the School is held in 1969 in India: this is more economic and expected to be more efficient than sending Indian students abroad. Being the first experiment of this kind all ways should be tried to utilize this project to the full extent. The General Secretary will convey the Executive Committee's feelings about this School to Kleczek. He also will ask Kleczek to get in contact with Bappu.

The Summer School for 1970 is projected for Edinburgh, but it was suggested that it might be more important to have it in Latin-America. This proposal will be submitted to Commission 46. They will be informed that Sahade is interested and perhaps Haro too.

Kleczek has announced that his three-years' period will

be over in 1969, after the India School. It was suggested that Kleczek be asked to continue this function for another three-years period. This was agreed. It was generally felt that IAU offices should not be held longer than over two terms.

c) Membership in more than three Commissions.

It was decided, in 1955, that astronomers should not, in principle, be members of more than three IAU Commissions, with the exception of the Commissions 5, 6, 38 (and 46). A survey of Commission membership showed that about 60 members of the IAU were members of more than three Commissions. These received a Circular Letter from the General Secretary and most of them followed up the suggestion to reduce the number of their memberships. The General Secretary explained why 13 members should be allowed to stay members of more than three Commissions; furthermore, two members of the Union are members of four Commissions, but did never reply to any letter.

In order to keep strictly to the rules it was suggested that it might be better to henceforth adopt the name "Working Groups" for those Commissions that are not purely scientific.

d) Commission No. 5 - Change in title.

The Executive Committee agreed about the change of the title of Commission 5 into: "Commission for Documentation (Commission de Documentation)", which corresponds better to the present aims of this Commission.

4. General Assemblies.

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a) Report on the Extraordinary General Assembly.

The General Secretary reported on the Extraordinary General Assembly held in Prague, Czechoslovakia, on 15 May 1968. There it was agreed to modify the Statutes of the Union by introducing two new categories of adherence, i.e. category 7 and 8 with 20 and 30 units of contribution respectively. A lengthy discussion developed on the problem of how to persuade certain countries to volunteer for a higher category. It was decided that no measure would be taken in this



respect. However, since the proposal to increase the categories came from the President of the National Committee of one of the adhering countries, it was also decided to inform this President about the present situation.

b) The XIVth General Assembly - Report of the General Secretary on the state of preparation.

The General Secretary reported on the preparations by the Local Organizing Committee for the Brighton meeting (Chairman: D.H. Sadler). Most people will be accommodated in Brighton, part of them in the University. Members of the Executive Committee are suggested to register soon, in order to be located in the University buildings. The preliminary announcement will be published in January 1969 together with the next Information Bulletin of the IAU. The registration fee will be \$ 20.- per member, more for invited participants and guests. In view of the large attendance of invited participants in Prague, discussions arose about the determination of an upper limit of the number of invited participants and guests. It was decided that each country should not be allowed to propose more invited participants than 35 per cent of its number of members. Furthermore, each active participant, member or invited participant, should only be allowed to take one registered guest to the meeting. This advice should be transmitted to the Local Organizing Committee in Brighton.

c) The XVth General Assembly - Invitation of Australia and Poland.

Reference was made to a letter from H. Wood, Chairman of the National Committee for Astronomy of Australia of 5 August 1966 and to a letter from the Chairman of the Polish Academy of Sciences of February 1967 in which the IAU had been invited to hold its General Assembly in the respective countries for 1973. The argument for Poland would be that 1973 is the fifth centenary of the birth of Copernicus. Arguments for Australia are that: the invitation from Australia is of six years standing; the IAU has never met in the southern hemisphere; the new 150-inch telescope will be in operation in 1973. Furthermore, there will be two other large international confer-

ences in 1976 in Australia, which would make the IAU meeting less desirable in that year.

It was decided to accept the invitation of Australia for 1973 and to decline that of Poland. However, it was suggested that in 1973 one or two IAU Symposia could be held in Poland, for instance about celestial mechanics or about general relativity, possibly in Cracow and/or Warsaw. The General Secretary will write accordingly to the Polish Academy of Sciences.

5. Finances.

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a) Report of the General Secretary on the present financial situation of the IAU and on foreseeable developments.

The General Secretary read (with comments) to the Executive Committee the financial report for the period from 1 January 1968 to 30 June 1968, which had been distributed. It was stated that the balance was slightly positive. Some comments: It is impossible to balance the costs and receipts for publications, but the General Secretary expressed his hope to keep payments within the budget, in spite of the deficit the publications always cause, due to the free distribution of the Transactions to all IAU members. As to item 8 of the financial report (Organization of IAU Symposia and Colloquia, and participation in other scientific meetings) the General Secretary stated that no Symposium and only 3 Colloquia will be held in 1968. However, the savings of this year will cover the high expenses expected in the next few years, in view of the crowded future programme of IAU Symposia and Colloquia.

With regard to the salaries to be paid by the Union to the Administrative Office, the General Secretary proposed to raise these following the standards of ICSU instead of keeping to the national standards. The Executive Committee agreed to this proposal.

The General Secretary then commented on the budget estimate for the years 1969 - 1970 (also distributed) and expressed the hope to keep within this budget. No large deviations are as yet expected.

b) Some questions related to annual contributions.

The General Secretary informed the Executive Committee

that the Union has banking accounts in the U.S.A., in London, Nice, Prague and Utrecht. The banking account in Prague will be closed in 1970. The account in England will be kept at least till 1970. In view of the unstable situation of the French franc the question was put forward whether it would not be advisable to transfer a certain amount from France to Switzerland. The Executive Committee resolved to investigate this possibility before taking a final decision.

The General Secretary then informed the Executive Committee that Poland and the German Democratic Republic wished to adhere to the Union in a lower category (4 to 3 and 3 to 2 respectively). This was agreed upon. In the discussion which ensued it was noted that according to the present Statutes

- 1) it is impossible to force a certain category upon a country,
- 2) the Union can only refuse adherence to a country applying for membership if the category proposed is manifestly inadequate.

The present Statutes do not consider the possibility to exclude a country already adhering.

It was then pointed out that these problems should be dealt with in the new Statutes.

c) IAU contributions to Symposia and Colloquia.

- It was already agreed upon to discuss this item together with item 8 of the agenda (IAU Symposia and Colloquia).

6. Publications.

a) Survey of publication costs (heading changed at the proposal of the General Secretary).

The General Secretary reported on the distribution and costs of IAU publications (documents distributed). On the average 40 to 50 copies of all publications are distributed to various persons and organizations; Transactions XIIIIB were distributed to all members of the Union (1600 copies); the costs of the latter amounted to \$ 7.000.-; the costs for Symposia and Highlights range between \$ 200.- and \$ 800.- per volume.

Next, the stock of IAU publications with Academic Press as on 31 May 1968 was discussed. A small number of copies is available of Symposia prior to Symposium No. 27 and Transactions XI and XII; the stock of Transactions XIII is about 1000 volumes. Symposia Nos. 27 through 31 are still in demand. The situation with the other Symposia is nearly stationary.

The Executive Committee discussed the question what to do with the large stock of Transactions XIII (lower the price? send them free of charge to some libraries?), but decided to postpone the decision until the next meeting of the Executive Committee.

Symposium No. 29 is not yet out. In view of the long delay the Executive Committee had already decided in 1967 that it would not appear in the regular list of IAU Symposia; it will be published in the U.S.S.R., but so far nothing is known of the time of publication. The appearance of the Symposium will be announced in the Information Bulletin.

The General Secretary commented on the difference in costs per page between the Symposia published by Academic Press and Reidel; (see table below):

Costs per page with Academic Press:		Costs per page with Reidel:	
Symposium No. 24	4.28 cents	Symposium No. 32	5.60 cents
Symposium No. 25	4.27 cents	Symposium No. 33	4.69 cents
Symposium No. 26	4.35 cents	Symposium No. 34	4.61 cents
Symposium No. 27	4.01 cents	Symposium No. 35	4.46 cents
Symposium No. 28	3.84 cents		
Symposium No. 30	4.25 cents		
Symposium No. 31	3.78 cents		

The prices with Reidel are higher than with Academic Press, and also higher than the price agreed upon in the contract with Reidel. The differences are explained in a letter by Reidel (see document). The Executive Committee considered that these disadvantages were compensated by the far better services and shorter delays of Reidel as compared with Academic Press.

b) Publication delays.

The General Secretary reported on the publications of the

last year. With 10 months Reidel published Symposia Nos. 32, 33, 34 and 35, the Highlights, and the Transactions XIII A and XIII B; he should be congratulated on this accomplishment. The Executive Committee also congratulated the General Secretary and the Assistant General Secretary for their share in the rapid publication. The advertisement campaign was also started; publicity leaflets were distributed by Reidel. Schwarzschild wondered whether the announcements of the publications could not be sent to addresses on the mailing list of the Astrophysical Journal, which goes far beyond the normal astronomical distribution. The General Secretary will propose this to Reidel, however, the present advertisement campaign seems to reach already about 25.000 addresses (number corrected after the meeting). The General Secretary also remarked that the promotion of Symposium No. 31 had been delayed considerably, but that Academic Press eventually started a publicity campaign.

The year to which the "Highlights" refer is mentioned on the cover and in the book, but not on the binding. This should be corrected in future similar publications.

c) Report on the joint action Thomas - Severny for cheaper publication.

The General Secretary read letters from Severny and Thomas; to the latter a letter from the publishers Gordon & Breach was added. Severny proposes to have the publications printed in the U.S.S.R. for the price of about three to four thousand rubles per 250 printed pages. Further information, to be given by Mrs. Massevitch, has not yet arrived.

From the letters of Thomas, and Gordon & Breach, two proposals emanate: Gordon & Breach is willing to print the volumes for 4,5 cents per printed page and the professional edition would be available to individuals at 2,25 cents per printed page on prepaid orders. Thomas refers to the publications of a JILA Symposium on Wolf-Rayet Stars, held 10 - 14 June 1968, which will be edited by him and Mrs. Gebbie and printed in photo-offset, non-adjusted margins. The book will be printed by the U.S. Government Printing Office and should be ready before the end of the year. The price is expected to be low, some two to three dollars. An example of

such a book was showed; its price is \$ 2.25, the printing and binding are good. In the ensuing discussion the question was raised whether a lowering of the price would substantially increase the number of volumes sold among students, in particular among those outside the U.S. Christiansen wondered whether the libraries would keep accepting buying books at higher prices to the benefit of individuals. The General Secretary mentioned the problem of the time schedule. In the U.S.S.R. the experience with Symposium No. 29 was not encouraging. With the U.S. Government Printing Office the situation seems more prospective, but the experience with the publication of the JILA Symposium should be awaited. However, it was not considered advisable for the IAU to have its publications printed by an official government agency. It was also considered questionable whether the price suggested by Thomas could be maintained, since the price depends largely on the prospective sales. Of the past Symposia the following numbers were sold.

	Copies sold
Symposium No. 24	795
Symposium No. 25	824
Symposium No. 26	834
Symposium No. 27	639
Symposium No. 28	686
Symposium No. 30	363
Symposium No. 31	262

There is very little personal sale. It was also remarked that the time needed for printing is about the same with the U.S. Government Printing Office and Reidel.

The General Secretary remarked that as a consequence of the present contractual arrangement the contract with Reidel can only be canceled at least one year before the expiration, i.e. before 1 September 1969. In the short time available there would be hardly time to make a contract with another publisher; therefore, he suggested to continue the contract with Reidel for another three years period. The President remarked that although we have in principle freedom till 1 September next year and although it is not yet necessary to take a firm decision at this moment, it looks reasonable that we should consider

continuing the present contract if no important changes would occur. The members of the Executive Committee were requested to locally investigate whether there exist other possibilities, and to inform the General Secretary about their findings. The President then asked whether the Executive Committee agreed with the General Secretary's proposal to continue the contract for another three years period; this was agreed upon.

- d) Draft Reports and Transactions (this section is a combination of items 6d (Distribution scheme of Draft Reports) and 7d (Style of Draft Reports) of the agenda).

The General Secretary introduced the subject. A proposal from the last Executive Committee's meeting to predistribute the printed Draft Reports only to the members of the Commissions concerned appears to meet with practical difficulties and seems not to give a significant saving in the costs.

On the present budget for the coming years an amount of \$ 13.700.- is estimated for the Draft Reports and Transactions XIVA. This amount goes mainly to the following headings: Production \$ 6.000.-; Binding \$ 1.800.-; Postage \$ 5.000.-. The General Secretary has investigated ways to use this money as efficiently as possible, or to economize on it, and made three proposals. It was agreed that series of formal Draft Reports would be discontinued; the Reports of Commission Presidents would only be published once, in their final form; possible amendments or corrections would be included in Transactions XIVB. Then there appear to be the following possibilities:

- 1) Transactions XIVA will contain 400 pages and will be sent by airmail to the members, prior to the Brighton General Assembly.
- 2) The volume will contain 650 pages and will be brought to and distributed at Brighton to the attending IAU members. Other members will receive the volume later, by surface mail.
- 3) It is suggested to abolish the Transactions as they are and to ask Commission Presidents to report once per year or per 1,5 year. Books containing such reports would be printed twice a year; each issue would contain 250 pages. Members should subscribe to these volumes.

This last suggestion has several advantages, viz. that in the course of three years the Commission Reports will appear on a total of 1500 pages, and at no costs for the Union, since these will be carried by the members. Reference was made to a letter from Reidel of 16 August 1968 (read to the Executive Committee by the General Secretary).

A very long discussion ensued, which essentially led to the following result: the third proposal was not accepted, mainly on the following grounds: a) it was feared that Commission Presidents would not be willing to submit Commission Reports every 12 to 18 months; b) it was felt that the Union should not delegate its responsibility in the matter of the Transactions to a private publisher; and c) there was some feeling against changing the Transactions into a kind of journal. As long as the IAU would have the financial possibility, it was considered worth while to pay the \$ 13.700.- for the Transactions.

Of the two other possibilities there was unanimous agreement for the second, to bring to and distribute Transactions XIVA at Brighton and to send them later, by surface mail, to IAU Members not present. Since the future Transactions will contain less pages than the previous ones, this means that Commission Presidents will have drastically to reduce the length of their Reports. It was agreed that the Draft Reports should be reduced to about half the size they were in 1967, with a minimum of 10 pages. With regard to the style of the Draft Reports it was agreed that it would consist of two parts. The first part of one or a few pages should contain the President's review of the last three annual period and should describe the highlights of the scientific development in the field; some references should be given. The second part of the Commission Reports should deal with current unpublished work of the Commission members. Detailed guidance should, in due time, be given to the Presidents of Commissions; furthermore, care should be taken that there be no overlapping or duplication with other Commission Reports and that nothing should appear in the Reports that has already been stated in annual reports or review journals.

Finally, it was agreed that the Transactions XIVA would be given free of charge to IAU members only; they would be sold to libraries and to invited participants.



In this connection, the General Secretary mentioned that the German Democratic Republic and the U.S.S.R. had paid a slightly increased annual contribution. For this amount they got all IAU publications. Financially, it will no longer be possible to keep to this procedure. The two countries will be informed about this by the General Secretary.

### III SCIENTIFIC ACTIVITY

#### 7. Scientific content of the XIVth General Assembly.

##### a) Invited Discourses.

The subject was introduced by the General Secretary who suggested three names of possible speakers. After a discussion it was agreed to have only two Invited Discourses, each with two speakers. The General Secretary was asked to invite Drs. Bok and Lin for a joint Invited Discourse on the galactic spiral structure, and Hewish and Ginzburg for a joint Invited Discourse on pulsars. It was essential to take the decision now in order to allow time for a second thought in case that one or more of the invited speakers would not accept the proposal.

##### b) Joint Discussions.

The subject was introduced by the General Secretary who suggested that Joint Discussions be held during the General Assembly on the following subjects: 1) Sun; 2) Modern Celestial Mechanics; 3) Galactic Dynamics; 4) Radio and/or Radar Astronomy; 5) Astrophysics (Physics of Stellar Interior and/or Atmospheres); 6) Solar System. In the discussion which followed the essential problem raised by the members of the Executive Committee was whether that amount of guidance should be given to Commission Presidents or whether they should be let entirely free in making their proposals about Joint Discussions. Several other subjects were mentioned, such as cosmology and relativistic astrophysics, the theory of solar flares, but the final outcome was that the General Secretary was asked to write Commission Presidents, not mentioning any topics and to urge them to contact each other about possible topics for Joint Discussions. Proposals should reach

him early enough to allow the Executive Committee to comment on them and/or to suggest alternative topics.

c) Commission Meetings.

The Executive Committee expressed its feeling that no uninvited papers should be allowed in any Commission Meeting. Presidents of Commissions have the responsibility for the scientific content of the Meeting and have therefore the authority to refuse uninvited papers. Since this seems never to have been explicitly stated before, the General Secretary was asked to inform the Presidents accordingly.

8. IAU Symposia and Colloquia.  
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The subject was introduced by the Assistant General Secretary. The colloquia on "Mass Loss from Stars" (Trieste, 12-17 September 1968), and on "Non-Periodic Phenomena in Variable Stars" (Budapest, 5-9 September 1968) were mentioned but not further discussed. Documents were distributed on all further Colloquia and Symposia for which proposals had been received.

First the Colloquia were discussed. It was decided henceforth to number the IAU Colloquia consecutively, for administrative reasons.

Colloquium No. 1: "The Problem of Variation of Geographical Coordinates in the Southern Hemisphere", La Plata, 4-9 November 1968. The subject had already been agreed upon by the Executive Committee; a financial support of \$ 500.= was allocated.

Colloquium No. 2: "Spectrum Formation in Stars with Steady-State Extended Atmospheres", München, 16, 17 and 18 April 1969. The subject had already been agreed upon, and a financial support of \$ 500.= had already been allocated. No further comments.

Colloquium No. 3: "Problems of Interstellar Dust", Jena, 22 through 27 August 1969.

The subject had already been agreed upon; financial support was agreed in principle to a maximum of \$ 500.=, awaiting the formal submission of an application by H. Lambrecht.

Colloquium No. 4: "La cohésion de techniques d'observations de binaires", Nice, 15-19 September 1969. The subject had already been agreed upon by the Executive Committee and financial support of \$ 500.= had already been allocated. No further comments.

Colloquium No. 5: "Stellar Rotation", Columbus, Ohio, autumn 1969, proposed by A. Slettebak and sponsored by Commissions 29 and 35. The subject was agreed by the Executive Committee; financial support to a maximum of \$ 500.= was agreed in principle, awaiting a formal application by A. Slettebak. He should also be asked to slightly internationalize the composition of the Organizing Committee.

Colloquium No. 6: "Proper Motions", Minneapolis, April or May 1970, proposed by W.J. Luyten and sponsored by Commission 24. The Executive Committee agreed with the subject and allocated in principle a maximum of \$ 500.= to this Colloquium, awaiting a formal application by W.J. Luyten.

Colloquium on the Final Stages of Stellar Evolution, or White Dwarfs, proposed by V. Weidemann. The proposal was fairly vague and in a preliminary stage. Weidemann should be asked to contact Luyten, who had proposed a Symposium on "White Dwarfs", and to see whether these proposals could merge into one.

Colloquium on "Experimental Determination of Fundamental Spectroscopic Data", to be held in London or Teddington, in conjunction with the General Assembly, proposed by A.H. Cook and sponsored by Commission 14. In the application the meeting was called a Symposium, but the Executive Committee suggested to call it a Colloquium, since it is only sponsored by one Commission, the subject will be limited in scope and there seems to be no intention to publish the proceedings. Cook should be asked to send further details about the proposal, preferably through the President of Commission 14.

#### Symposia.

Symposium No. 36 on "Ultraviolet Stellar Spectra and Related Ground-Based Observations", Lunteren, Netherlands, 24-27 June 1969. The subject had already been agreed upon by the Executive Committee; a financial support of \$ 2000.= had been applied for; this was allocated. The constitution of the Organizing Committee was agreed. It was suggested that the Symposium be co-sponsored by COSPAR. The question was raised whether this was still possible in this phase of the organization of the Symposium. It was realized that a co-sponsor-

ship by COSPAR would mainly have a formal character and it may be possible to suggest to COSPAR that one of the members of the Organizing Committee (e.g. N.G. Roman or R. Wilson) would be nominated by COSPAR as its representative. The Assistant General Secretary should ask Morton's opinion about this. After a positive reply the General Secretary should send a formal invitation to COSPAR.

Symposium No. 37 on "X- and Gamma-Ray Astronomy", Frascati (Roma), 8-10 May 1969. The subject had already been agreed upon by the Executive Committee. During the meeting Gratton asked a financial support of \$ 1000.=. This was granted, but it was understood that the maximum amount to be possibly allocated was \$ 2000.=. Furthermore, he suggested to extend the Organizing Committee by Ginzburg, so that it would consist of Gratton (Chairman), Friedman, Ginzburg, and Rossi. The Assistant General Secretary was asked to write an official letter to the U.S.S.R. Academy of Sciences to ask their agreement for Ginzburg to participate in the work of the Organizing Committee. Apparently COSPAR would be happy to co-sponsor this Symposium. The Executive Committee agreed, and the General Secretary was asked to send a formal invitation to COSPAR. In an earlier letter Contopoulos had suggested to nominate Westerlund as a member of the Organizing Committee, but the Executive Committee thought that the inclusion of Westerlund would not noticeably strengthen the Organizing Committee and asked the Assistant General Secretary to inform Contopoulos in that sense.

Symposium No. 38 on "The Spiral Structure of the Galaxy", Basel, 29 August through 4 September 1969. The subject had already been agreed upon by the Executive Committee. The composition of the Organizing Committee was agreed, and it was also agreed that a maximum amount of \$ 2000.= should be allocated.

Symposium No. 39 on "Gas Dynamics of the Interstellar Medium (With Joint IAU/IUTAM Symposium on Cosmical Gas Dynamics)", to be held in the Crimea, from 8 to 19 September 1969 (dates telegraphically confirmed by Pikelner during the meeting). The subject had already been agreed upon by the Executive Committee. Financial support of \$ 2000.= was asked and allocated. In a short discussion the final title of the Symposium was reconsidered, but it was decided to keep it as it was. It was also asked whether the proceedings should be published by the IAU in its Symposium series or by IUTAM, but since the emphasis is on the IAU (the Symposium being numbered in the

IAU series), publication should be the task of the Union. This will be written by the General Secretary to IUTAM. It was furthermore mentioned that, since this Symposium would already be the sixth in a series, it might be considered to stop this series after the 1969 Symposium. No formal decision was taken in this respect.

Symposium No. 40 on "Planetary Atmospheres", to be held in West-Texas, mid-October 1969, proposed by H.J. Smith. The proposal was sponsored by Commission 16 and could possibly be co-sponsored by Commission 17 (not yet asked). The Executive Committee agreed with the Symposium. Financial support up to \$ 1500.= was agreed in principle, awaiting the formal application by the Organizing Committee. An Organizing Committee was proposed consisting of T.C. Owen (Chairman), Dollfus, Moroz, Kuzmin, Hall, Kuiper, Sagan and Bolton. The Executive Committee felt that not enough theoreticians were included in this Committee (Rasool); furthermore, a specialist in interferometry, such as Connes, Merz or Delbouille, should perhaps be included in the Organizing Committee. On the other hand the Organizing Committee should not be made too large. The Assistant General Secretary was asked to inform Smith about this. Co-sponsorship by COSPAR was suggested; the Assistant General Secretary should ask Smith whether he would agree with this proposal; in case of an affirmative answer the General Secretary should send a formal invitation to COSPAR.

Symposium on "White Dwarfs", possibly to be held in St. Andrews, Scotland, just before the General Assembly in Brighton, in August 1970. The Symposium was proposed by W.J. Luyten and sponsored by Commissions 24, 25, 29 and 35. The subject was agreed by the Executive Committee. A grant of \$ 1500.= should in principle be reserved for this meeting, awaiting the formal application by Luyten. For the Organizing Committee some other names were mentioned, like Reeves and Schatzman. Luyten should also be suggested to get in contact with Weidemann, in view of the latter's proposal for a Colloquium or Symposium on White Dwarfs or on the Final Stages of Stellar Evolution (see above).

Symposium on "External Galaxies and Quasi-Stellar Objects", to be held in Uppsala, 12-14 August 1970. The subject had already been agreed upon in principle by the previous Executive Committee, but it had asked that the topic be further specified. This has been done, but apparently the Executive Committee was not yet quite happy with the topic

and suggested that it could be further narrowed, e.g. to "Nuclei of External Galaxies and Quasi-Stellar Objects". The Executive Committee agreed in principle about a maximum financial support of \$ 2000.=, but would not yet commit itself and wished to await the formal application. The proposed Organizing Committee was felt to be too conservative in composition and was lacking young dynamic people. Also not all fields were represented. Since Denisse is no longer active in radio astronomy, he could perhaps be replaced by Véron. Other names mentioned were Burbidge and Sérsic (Cordoba). Further decisions were postponed till the next year.

Symposium on "Solar X-Rays and Far Ultra Violet Emissions", London, in conjunction with the General Assembly in Brighton. Proposed by C.W. Allen, who suggested that Commissions 10, 12 and 44 should co-sponsor the proposal. The Chairman of Commission 12 agreed; Švestka, Chairman of Commission 10, did not consent.

It was suggested that this Symposium be combined with another proposal (see below) for a Symposium on "UV and X-Ray Spectroscopy of Astrophysical and Laboratory Plasmas", envisaged for 1971. The Assistant General Secretary should write to the proposers of the two Symposia and ask for their agreement with this combination. In any case the Symposium proposed by C.W. Allen should be postponed till 1971. The Executive Committee did not yet take a further decision about this Symposium, awaiting more information.

Symposium on "Magnetic Fields on the Sun and in Interplanetary Space", perhaps to be held in France, in conjunction with the General Assembly in Brighton, 1970. Proposed by Z. Švestka and sponsored by Commissions 10 and 12; Commissions 40, 43 and 44 will also be invited.

The Executive Committee agreed upon the subject and also provisionally allocated a grant of no more than \$ 1500.=, but only after receipt of an application. It was suggested that the title should better read "Magnetic Fields of the Sun and their Extension into Interplanetary Space". It was understood that the magnetosphere of the earth was not included in the subject. Finally, the possible co-sponsorship of Commission 15 (Comets) was mentioned and agreed. There were some comments on the possible constitution of the Organizing Committee and Švestka would be invited to submit a formal proposal.

Symposium on "The Applications of Transport Theory", to be held in England, in conjunction with the General Assembly in Brighton. The subject was considered interesting and welcomed with sympathy, but no decisions were as yet taken in view of the preliminary state of the organization. Names of possible members of the Organizing Committee (Underhill, Bellman and Ueno) were mentioned. The final decision was postponed until later.

Symposium on "UV and X-Ray Spectroscopy of Astrophysical and Laboratory Plasmas", to be held in the Netherlands, in 1971. Proposed by R. Wilson and sponsored by Commission 44.

As stated above, the possibility was considered that the Symposium suggested by C.W. Allen ("Solar X-Rays and Far UV Emissions") be combined with the present proposal. The decision on this Symposium was also postponed till the next meeting of the Executive Committee. As a possible other co-sponsoring agency ESRO was mentioned; as an alternative place Frascati was suggested.

Symposium on "Wolf-Rayet Stars". The proposal was brought forward in the meeting of the Executive Committee by Sahade, who suggested that this Symposium be held in Argentina on the occasion of the dedication of the new 85-inch telescope. As a possible date October 1970 was suggested. However, the general feeling was that this was too close to the General Assembly in Brighton and that few people would then obtain their travel costs to Argentina. Therefore, it was suggested to postpone it till March or April 1971. This would also give more time for the organization and would make the time interval between the JILA Symposium on Wolf-Rayet Stars and this one a bit larger. Sahade was suggested to elaborate on the organization, and to make a formal proposal. It was agreed that Vainu Bappu would be the Chairman of the Organizing Committee.

Finally, the Executive Committee agreed that the editors of Symposia should be allowed to refuse papers, even if the paper had been accepted earlier for oral presentation, if the paper later turns out to be of insufficient scientific value. The Symposium editors should also have instructions to considerably shorten papers that are too long. However, a paper should only be refused after having been read by at least one member of the Organizing Committee.

9. Other Scientific Meetings.  
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The Assistant General Secretary made a short report and mentioned the meetings on:

Wolf-Rayet Stars, in JILA, Boulder, 10-15 June 1968; a report by R.N. Thomas was acknowledged.

Aurorae and Airglow, in Ås near Oslo, 29 July to 9 August 1968.

Meteorite Research, in Vienna, 7-13 August 1968.

The Exploration and Peaceful Uses of Outer Space, in Vienna, 14-27 August 1968.

Laboratory Astrophysics, in Lunteren, Netherlands, 2-5 September 1968.

Physics of the Magnetosphere, in Washington, 3-13 September 1968.

The Integration of Science Teaching, in Varna, 11-19 September 1968.

The Moon and Planets, in Kiev, 7-12 October 1968.

For later meetings reference was made to Information Bulletin No. 20 of the IAU.

The organizers of the Symposium on the Physics of the Magnetosphere in Washington had erroneously mentioned the IAU as one of the co-sponsors of this Symposium, This is not correct, since the IAU (decision of the 29th meeting of the Executive Committee, Prague, 1967) had only expressed its sympathy with the Symposium. The IAU cannot co-sponsor a meeting organized by a national organization.

10. Special Projects:  
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Sahade drew attention to the problem of the promotion of astronomy in South-America. Columbia became member of the IAU in 1967; Venezuela has many instruments but these are not used and even not installed. The problem has many aspects. For Columbia it is the finding of a place for a suitable instrument and the training of young astronomers; for Venezuela it is mainly that of finding a site for the Observatory and getting people, in particular the Government, interested in the project. It appears that UNESCO is willing to help, but does not know how to realize its support. It was suggested that



a teaching professor could be nominated with the help of UNESCO to provide for the astrophysical background in these countries. He should have a fair command of Spanish. It was decided to nominate a permanent commission for the promotion of astronomy in South-America. This commission should consist of Haro and Sahade as permanent members, and the President of the IAU. Heckmann should write to Haro and Sahade. Help of UNESCO would only be requested if the local universities express their willingness to cooperate.

11. Relations with other Organizations.  
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a) UNESCO - Contracts.

The General Secretary informed the Executive Committee that in the course of October - November 1968 UNESCO will decide on the applications for financial support regarding Summer Schools in 1969 and 1970.

A letter by UNESCO (reference AVS 46/7 of April 1968) regarding an application by Mr. De and the cancelling of contract UNESCO/NS/0176/67 was acknowledged.

b) ICSU - Report by General Secretary.

The General Assembly of ICSU has been postponed till the end of September. It will be attended by the General Secretary. At the ICSU meeting in Rome in 1967 the IAU has proposed that COSPAR should not be on equal footing with the Unions; this has been accepted and embodied in the Constitution.

c) FAGS - Election of new President.

According to the existing rules the President of FAGS is chosen alternatively from one of the member Unions. It seems that the next President will be the IAU representative. In this connection the Executive Committee strongly supported the suggestion to urge that Sadler stay the IAU representative in FAGS; the hope was expressed that he would accept a possible election as the new President of FAGS. The importance of FAGS for the IAU was stressed.

d) COSPAR - Report by General Secretary, and future policy.

The General Secretary informed the Executive Committee

that Gratton is the present official IAU representative in COSPAR. He now wishes to be relieved of this task and it was proposed that he should be succeeded by De Jager, as from 1 January 1969 on. This was agreed upon. In this respect it was suggested that the official IAU representative in COSPAR be, if possible, a member of the Executive Committee; this in view of the great importance of COSPAR for astronomy.

Gratton reported on the IAU representation in COSPAR's Working Groups. Since 1967 the possibility has existed for the various Unions to nominate their official representatives in the various working Groups of COSPAR. The Union did not take this opportunity, until it was informed about the establishment of COSPAR's Working Group No. VII: 'Space Related Studies of the Moon and Planets'. In view of the danger of an overlap of the activities of this Working Group with those of the Commissions of the Union, it was decided to nominate IAU representatives in Working Group No. VII and, at the same time, in all other appropriate working Groups of COSPAR.

The General Secretary informed that the following people have been invited as IAU representatives in the various Working Groups; they have, in the meantime, accepted this invitation.

Working Group I	Kovalevsky Whipple (also in Panel on "Cosmic Dust" in WG II) Massevitch
Working Group II	Lüst Severny
Working Group VII	Dollfus Hall Mihajlov Pettengill

The General Secretary has proposed this IAU representation to COSPAR. However, COSPAR did not yet acknowledge the receipt of this proposal. Since our representatives in working Group VII are the Presidents and Vice-Presidents of Commission 16 (Planets and Satellites) and 17 (Moon), this automatically means that their function as IAU representatives terminates at the next General Assembly of the Union.

e) IUCSTP.

The General Secretary informed the Executive Committee that IUCSTP has made its budget estimate for 1968 which amounts to \$ 30.000.-. It asks support from the Unions to get this amount together. The general feeling of the Executive Committee was that \$ 30.000.- is considered too large an annual budget for this kind of organization; on the other hand, the Unions are responsible for the creation of this body. Other Inter-Union Commissions regularly get support, ranging between \$ 200.- and \$ 700.- annually. The largest amount ever paid is \$ 1000.-. After a discussion it was decided to grant IUCSTP a lump sum of \$ 2000.- per year. The Union will not pay the travel and subsistence costs of the IAU representatives to IUCSTP meetings.

f) IUCAF.

The General Secretary read a letter of IUCAF in which the additional reservation of the ..... MHz band for radio astronomy was proposed. The General Secretary had already expressed the agreement of the Union; this was confirmed by the Executive Committee.

g) CCDS.

The CCDS has accepted a definition of the second based on physical standards, while astronomers define the second through the motion of the celestial bodies. The President has written a very dignified objection against the decision of CCDS, but remarked that astronomy is absolutely not touched by the new definition.

h) CODATA.

Mrs. Ch. Moore-Sitterly represented the IAU at the first International CODATA Conference held near Frankfurt/Main, Germany, 30 June to 5 July 1968. One of the suggestions resulting from that meeting was directed towards establishing well-defined links between the Unions and CODATA. Each Union could set up a small committee consisting of one member from each data project within that Union, with the CODATA representative as chairman. Mrs. Moore-Sitterly has made a proposal for such a committee, but it was agreed to postpone the decision on the composition of this committee till after the next CODATA meeting (1969). Mrs. Moore-Sitterly should be asked to act as IAU representative also at that meeting.

i) IAB.

J.B. Sykes, President of Commission 5, represented the Union at the General Assembly of the International Council of Scientific Unions Abstracting Board, held at Goslar, Germany, on 11

July 1968. In his report to the Union Sykes mentioned that the IAB Executive Committee has resolved to cease paying travel and subsistence expenses to the Unions' representatives for attending at IAB General Assemblies, Full-Board and Executive Committee meetings as from 1 January 1969. The Executive Committee agreed henceforth to pay these costs for one representative once a year. The payment of the annual lump sum to IAB will be cancelled. The General Secretary would inform the IAB about this decision.

j) IAF.

The President proposed Hynek as representative of the IAU at the Congress of the International Astronautical Federation in October 1968 in New York. However, on the proposal of one of the members of the Executive Committee it was decided to ask Henize to act as IAU representative at this meeting, although it is not completely certain whether he will be able to accept this proposal. This representation is only meant for this meeting; there is no permanent IAU representation in the IAF.

12. Varia.

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Gratton suggested as a possible subject for a Joint Discussion during the next General Assembly: Cosmic Rays. It was also felt that this subject, though mainly treated by physicists, is of astronomical interest and that a commission for cosmic rays in the Union would be desirable. A Joint Discussion during the next General Assembly was considered as being stimulating for the later formation of a commission on this subject. The General Secretary was asked to bring this problem to the attention of potentially interested Presidents of Commissions and to look for possible participants in a Joint Discussion, also outside the circle of IAU members.

As a next point the problem of automation in astronomy was mentioned by Gratton. Opinions about the need and importance of automation in astronomy differed. It was agreed that automation should not be the field of one single Commission, like Commission 9 (Instruments), but some general interest in the subject should be provoked, for instance by organizing a colloquium at a certain moment. It was agreed that Gratton, as an astronomer, should write to Commission 9 to see whether this Commission is interested in the subject. He could ask the President of Commission 9 to contact other Commissions, if desirable. During or after the Brighton meeting one could see which further steps to take.

It was decided to change the present title of A. Jappel (Assistant Secretary) into: Executive Secretary. This does not involve a change in the function, nor in the hierarchic position of Dr. Jappel.

13. Next meeting of the Executive Committee.  
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It was agreed to have the next meeting of the Executive Committee in Frascati, Roma, from 20 September (arrival) through 28 September (departure) 1969. The meeting will start on Sunday 21 September 1969.

14. The President declared the 31st meeting of the Executive Committee closed on 30 August 1968 at 5 p.m.