CHAPTER IV

REPORT OF THE EXECUTIVE COMMITTEE

1985-1988

EXECUTIVE COMMITTEE

1985-1988

President:

Prof. J. Sahade
C.C. No. 677, Observatorio Astronomico, Universidad
Nacional de La Plata, 1900 La Plata (Bs. As.), Argentina

Vice-Presidents:

Dr. A.H. Batten
Herzberg Institute of Astrophysics, Dominion Astrophysical
Observatory, 5071 West Saanich Road, Victoria BC,
V8X 4M6, Canada

Prof. R. Kippenhahn
MPI für Physik & Astrophysik,
Karl-Schwarzschild-Strasse 1, D-8046 Garching bei
München, Germany, FR

Prof. R.P. Kraft
Lick Observatory, University of California, Santa Cruz,
CA 95064, USA

Prof. P.O. Lindblad
Stockholm Observatory, S6133 00 Saltsjöbaden, Sweden

Prof. M. Peimbert
Instituto de Astronomia, Apartado Postal 70264, Mexico
04510 DF, Mexico

Prof. Ya. S. Yatskiv
Main Astronomical Observatory, Ukrainian Academy of
Sciences, SU-252127 Kiev, USSR

General Secretary:

Dr. J.-P. Swings
Institut d'Astrophysique, 5, avenue de Cointe,
B-4200 Cointe-Ougrée, Belgium

Assistant General Secretary:

Dr. D. McNally
University of London Observatory, Mill Hill Park, London
NW7 2QS, UK

Advisers:

Emeritus Prof.
R. Hanbury Brown
37 Beatty Street, Balgowlah, NSW 2093, Australia

Dr. R.W. West
European South Observatory, Karl-Schwarzschild Strasse 2,
D-8046, Garching bei München, Germany, FR
1. **Introduction**

The present report covers the period from the end of the XIXth General Assembly up to mid 1988.

The report by the General Secretary at the XXth General Assembly for the period 1st January-31 July, 1988 is to be found pp. 26-28.

A summarized financial report of the Union audited accounts for the calendar years 1985, 1986 & 1987 and a brief resume of the Union's accounts for 1988 are also included.

2. **Administration**

**Executive Committee Meetings**

The Executive Committee held the following meetings:

- **53rd Meeting:** Delhi, India, November 17, 18 & 26, 1985
- **54th Meeting:** Delhi, India, November 28, 1986
- **55th Meeting:** Liège, Belgium, September 19-22, 1986
- **56th Meeting:** Santa Cruz, USA, September 9-12, 1987

The 53rd Meeting was chaired by Professor R. Hanbury Brown while the 54th was chaired by the newly elected President, Professor J. Sahade; the new Members of the Executive Committee were all present, as well as the two advisers. The 55th and 56th Meetings were also chaired by Professor J. Sahade.

**Officers' Meetings**

The President, the General Secretary and the Assistant General Secretary met as follows:

- **November 16, 1985** Delhi, India
- **May 14, 1986** Paris, France
- **September 18, 1986** Liège, Belgium
- **March 11-12, 1987** Paris, France
- **September 8, 1987** Santa Cruz, USA
- **November 6, 1987** Paris, France
- **March 10-11, 1988** Baltimore, USA

**IAU Secretariat**

The secretariat is in the process of moving to the following address:

98bis, boulevard Arago  
F-75014 - PARIS, France

The phone and telex numbers remain unchanged.

**IAU Staff**

Miss D. Lours and Mrs. B. Manning left the secretariat on April 27, and June 25, 1987, respectively. They have been replaced by Mrs. Monique Orine, administrative assistant, and Mrs. Huguette Gigan, part-time bilingual secretary, as of September 1, and October 15, 1987, respectively.
Adhering Countries

Nigerian membership of IAU was ratified by the XIXth General Assembly (motion adopted unanimously, see Transactions XIXB, p. 54).

Members of the IAU

The XIXth General Assembly welcomed 935 new members; the total number of IAU members thus became 6027, on 28 November 1985. The number, as of June 1988, is 5940.

Consultants to IAU Commissions

The 40 IAU Commissions had a total of approximately 200 consultants.

3. Commissions of the IAU

The name of Commission 51 has become "Bioastronomy: Search for Extraterrestrial Life", as of the end of the XIXth General Assembly.

Commission Reports, covering the period July 1, 1984, to June 30, 1987 have been published (Reports on Astronomy; IAU Transactions XXA, 708 pp.).

An updated list of the IAU Working Groups, belonging to one or more Commissions, has been published (cf. IB 59, pp. 11-13).

A few specific points about some Commission activities, especially those providing services to the astronomical community, are listed below:

Commission 5

Work has continued on the new IAU Style Manual, largely due to the active role of G. Wilkins (cf. IB 60, p. 26): the Manual is expected to be presented at the XXth General Assembly. Contacts have also been made with editors of the main astronomical journals to attempt to coordinate the rules of publication.

Commission 6

The IAU Central Bureau for Astronomical Telegrams (Director: B.G. Marsden) issued the following number of circulars and "telegram books" respectively in 1985, 1986, and 1987: 132, 35; 135, 41; 230, 55; i.e. a total of 497 circulars and of 131 "telegram books".

Commissions 19 and 31

The new International Earth Rotation Service (IERS) established in 1987 by the IAU and the IUGG, has become operational on January 1, 1988 (cf. IB 59, p. 15).

Commission 20

Together with Commission 6 and the IAU Working Group on Planetary System Nomenclature (WGPSN), procedures were established for assigning names and designations to various classes of newly discovered bodies in the solar system. The IAU Minor Planet Center (Director: B.G. Marsden) issued 3330 MPCs and numbered no less than 554 new minor planets during 1985-1987.

Commission 22

The IAU Meteor Data Center, created in Lund, Sweden (director: B.A. Lindblad) has computed and archived an impressive number of orbits. A report by B.A. Lindblad has been published for the period 1985-1987 (cf. IB 59, p. 17 & IB 60, p. 27).
Commission 38
Under the guidance of its President, E.A. Müller, this Commission continued to give assistance to (young) astronomers under the rules published in IB 55, pp. 25-27. The names of the 23 grant recipients for the period February 1985-November 1987 have been published in IB 59, pp. 18-19.

Commission 46: Visiting Lecturers' Programmes (VLP)

a. VLP in Lima (Peru): see IB 56, p. 14; 57, p. 16 & 58, p. 16. A limited extension of this VLP will start shortly.

b. VLP in Asuncion (Paraguay): a description appeared in IB 58, pp. 16-17 & 60, p. 27. The present contract is only for one year, starting in 1988. The possibility of the extension of the contract will be examined by the next Executive Committee.

Commission 46
New rules concerning the membership and activities of Commission 46 are under preparation. Two IAU-UNESCO International Schools for Young Astronomers were successfully held in Beijing (10-30 August 1986) and Porto (15-27 September 1986).

4. Scientific meetings

Symposia (22)

114 Relativity in Celestial Mechanics and Astrometry - High Precision Dynamical Theories and Observational Verifications
Leningrad, USSR, May 28-31, 1985

115 Star Forming Regions
Tokyo, Japan, November 11-15, 1985

116 Luminous Stars and Associations in Galaxies
Porto Heli, Greece, May 26-31, 1985

117 Dark Matter in the Universe
Princeton, USA, June 24-28, 1985

118 Instrumentation and Research Programs for Small Telescopes
Christchurch, New Zealand, December 2-6, 1985

119 Quasars
Bangalore, India, December 2-6, 1985

120 Astrochemistry
Goa, India, December 3-7, 1985

121 Observational Evidence of Activity in Galaxies
Byurakan, Armenia, USSR, June 3-7, 1986

122 Circumstellar Matter
Heidelberg, Germany, FR, June 23-27, 1986

123 Advances in Helio- and Asteroseismology
Aarhus, Denmark, July 7-11, 1986

124 Observational Cosmology
Shanghai, China, PR, August 25-29, 1986
125 The Origin and Evolution of Neutron Stars  
Nanjing, China, PR, May 26-29, 1986

126 Globular Cluster Systems in Galaxies  
Cambridge, MA, USA, August 25-29, 1986

127 Structure and Dynamics of Elliptical Galaxies  
Princeton, USA, May 28-31, 1986

128 Earth's Rotation and Reference Frames for Geodesy and Geodynamics  
Washington, USA, October 20-24, 1986

129 The Impact of VLBI on Astrophysics, Astrometry and Geophysics  
Cambridge, MA, USA, May 31 - June 3, 1987

130 Evolution of Large Scale Structures in the Universe  
Balatonfured, Hungary, June 15-20, 1987

131 Planetary Nebulae  
Mexico City, Mexico, October 5-9, 1987

132 The Impact of Very High S/N Spectroscopy on Stellar Physics  
Paris, France, June 29-July 3, 1987

133 Mapping the Sky - Past Heritage and Future Directions  
Paris, France, June 1-5, 1987

135 Interstellar Dust  
Mountain View, CA, USA, July 26-30, 1988

136 The Galactic Center  
Los Angeles, CA, USA, July 25-29, 1988

Colloquia (21)

87 Hydrogen Deficient Stars and Related Objects  
Mysore, India, November 10-15, 1985

88 Stellar Radial Velocities  
Schenectady, NY, USA, October 24-27, 1984

89 Radiation Hydrodynamics in Stars and Compact Objects  
Copenhagen, Denmark, June 11-20, 1985

90 Upper Main Sequence Stars with Anomalous Abundances  
Nauchny, Crimea, May 14-17, 1985

91 History of Oriental Astronomy  
New Delhi, India, November 14-17, 1985

92 Physics of Be Stars  
Boulder, CO, USA, August 18-22, 1986

93 Cataclysmic Variables  
Bamberg, Germany, FR, June 16-20, 1986
94 Physics of Formation of FeII Lines Outside LTE
   Capri, Italy, July 4-8, 1986

95 Second Conference on Faint Blue Stars
   Tucson, AZ, USA, May 31 - June 3, 1987

96 The Few Body Problem
   Turku, Finland, June 14-19, 1987

97 Wide Components in Double and Multiple Stars: Problems of Observation and
   Interpretation
   Brussels, Belgium, June 8-13, 1987

98 The Contribution of Amateur Astronomers to Astronomy
   Paris, France, June 20-24, 1987

99 Bioastronomy - The Next Steps
   Lake Balaton, Hungary, June 22-27, 1987

100 Fundamentals of Astrometry
    Belgrade, Yugoslavia, September 8-11, 1987

101 Interaction of Supernova Remnants with the Interstellar Medium
    Penticton, BC, Canada, June 9-12, 1987

102 UV and X-Ray Spectroscopy of Astrophysical and Laboratory Plasmas
    Beaulieu-sur-Mer, France, September 9-11, 1987

103 The Symbiotic Phenomenon
    Torun, Poland, 18-21 August, 1987

105 The Teaching of Astronomy
    Williamstown, NY, USA, July 27-30, 1988

106 Evolution of Peculiar Red Giant Stars
    Bloomington, IN, USA, July 27-29, 1988

109 Applications of Computer Technology to Dynamical Astronomy
    Gaithersburg, MD, USA, July 27-29, 1988

110 Library and Information Services in Astronomy
    Washington, DC, USA, July 28-30, August 1, 1988

Co-sponsored Meetings

CNES/IAU Meeting on "Comparative Study of Magnetospheric Systems"
La Londe des Maures, France September 9-14, 1985

IAU/ESLAB Symposium on "Exploration of Halley's Comet"
Heidelberg, Germany, FR, October 27-31, 1986
COSPAR/IAU Symposium on "Latest Results on Venus and Uranus Missions"
Toulouse, France, June 30-July 12, 1986

COSPAR/IAU Symposium on "Solar and Stellar Activity"
Toulouse, France, June 30-July 12, 1986

COSPAR/IAU Symposium on "Comets Halley and Giacobini-Zinner"
Toulouse, France, June 30-July 12, 1986

SCOSTEP/IAU 6th International Symposium on "Solar-Terrestrial Physics"
Toulouse, France, June 30-July 5, 1986

SCOSTEP/IAU Symposium "Synopsis of the Solar Maximum Analysis"
Toulouse, France, July 2-5, 1986

Symposium on "Image Detection and Quality", with Commission Internationale
d'Optique,
Paris, July 16-18, 1986

COSPAR/IAU Symposium on "Physics of Compact Objects: Theory versus
Observations"
Sofia, Bulgaria, July 13-19, 1987

COSPAR/IAU/IUGG/IUPAP/SCOSTEP/URSI/WMO Symposium on "The Middle
Atmosphere after MAP"
Espoo, Finland, 19-23 July, 1988

COSPAR/IAU/SCOSTEP Symposium on "International Heliospheric Study"
Espoo, Finland, 20-23 July, 1988

COSPAR/IAU/IUPAP Symposium on "Cosmic Ray Studies in Space"
Espoo, Finland, 25-26 July, 1988

COSPAR/IAA/IUGG/IUPAP Symposium on "Studies of Cometary Environments: Modelling
and Space Missions"
Espoo, Finland, 25-26 July, 1988

COSPAR/IAU/IUPAP Symposium on "Relativistic Gravitation"
Espoo, Finland, 18-19 July, 1988

COSPAR/IAA/IUGG/IUUGS Symposium on "The Outer Planets: Current
Knowledge, Future Prospects"
Espoo, Finland, 19-20 July, 1988

COSPAR/IAA/IAU Symposium on "Advances and Perspectives in X-Ray and
Gamma-Ray Astronomy"
Espoo, Finland, 19-20 July, 1988

COSPAR/IAA/IUGG/IUUGS Symposium on "Reappraisal of Moon and
Mars/Phobos/Deimos: Preparation for Renewed Exploration"
Espoo, Finland, 21-22 July, 1988

COSPAR/IAA/IAU Symposium on "Magnetic Energy Conversion in Astrophysical
and Laboratory Plasmas"
Espoo, Finland, 21-23 July, 1988

COSPAR/IAU Symposium on "Space Observations of Solar Variability"
Espoo, Finland, 27-28 July, 1988
COSPAR/IAU Workshop on "Future Planetary Missions"
Toulouse, France, June 30 -July 12, 1986

COSPAR/IAU Workshop on "Contamination of Environment of Space Shuttle for
Astronomical Observations",
Toulouse, France, June 30 -July 12, 1986

COSPAR/IAU Workshop on "Chemical Evolution of Outer Planets, Satellites, and
Small Bodies"
Toulouse, France, June 30 -July 12, 1986

COSPAR/IAA/IAU/IUGG/IUGS Workshop on "Future Planetary Missions"
Espoo, Finland, 20 July 1988

COSPAR/IAGA/IAU Workshop on "The Middle and Upper Atmosphere of Venus"
Espoo, Finland, 25-27 July, 1988

COSPAR/IAU/SCOSTEP Workshop on "Scientific Planning for the Solar Maximum
and Beyond"
Espoo, Finland, 25-27 July, 1988

COSPAR/IAU/IUGG Workshop on "Origin and Evolution of Planetary and Satellite
Systems"
Espoo, Finland, 29-30 July, 1988

Regional Meetings (4)

Ninth European Regional Astronomy Meeting on "Activity in Stars and Galaxies"
(with EPS)
Leicester, UK, September 2-5, 1986

Fifth Latin-American Regional Astronomy Meeting,
Merida, Yucatan, Mexico,
October 6-10, 1986

Tenth European Regional Astronomy Meeting (with EPS),
Praha, Czechoslovakia, August 24-29, 1987

Fourth Asian-Pacific Regional Astronomy Meeting (with EPS),
Beijing, China, PR, October 5-9, 1987

IAU/UNESCO Young Astronomers' Schools (2)

XIVth IAU-UNESCO International School for Young Astronomers
Beijing, China, PR, 10-30 August, 1986

XVth IAU-UNESCO International School for Young Astronomers
Porto, Portugal, 8-20 September 1986
XIXth General Assembly, New Delhi, India, 19-28 November, 1985

IAU Transactions, Volume XIXB (1986), contain a report of the Proceedings of the General Assembly of the Union, including the resolutions passed at the Assembly. It also contains the reports of Commission meetings during the period of the General Assembly.

5. Publications

Publisher

In November 1984, the contract with D. Reidel Publishing Co. was renewed for a six-year period, from 1985-1991. The contract was continued when Reidel became a part of Kluwer Academic Publishers.

Sales

Number of copies sold (hard, soft) by D. Reidel Publishing Company in the period 1985-1987:

Transactions:

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<th>Series</th>
<th>Number</th>
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<td>XIVA (2)</td>
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| XIVB (2) | 38 (20), 39 (8), 40 (9), 43 (18), 44 (14), 45 (32), 46 (5), 47 (8), 48 (25), 49 (4, 22), 50 (15, 16), 51 (5, 20), 52 (3, 15), 53 (2, 9), 54 (14, 1), 55 (6, 16), 56 (3, 11), 57 (4, 11), 58 (6, 9), 59 (12, 23), 60 (8, 8), 61 (9, 17), 62 (5, 25), 63 (22, 0), 64 (6, 22), 65 (6, 3), 66 (12, 29), 67 (52, 22), 68 (5, 2), 69 (4, 24), 70 (5, 14), 71 (13, 14), 72 (9, 12), 73 (12, 20), 74 (6, 32), 75 (15, 54), 76 (15, 7), 77 (10, 34), 78 (12, 9), 79 (15, 30), 80 (28, 8), 81 (7, 40), 82 (12, 24), 83 (14, 33), 84 (22, 4), 85 (8, 19), 86 (14, 13), 87 (21, 11), 88 (9, 17), 89 (9, 14), 90 (19, 7), 91 (18, 9), 92 (22, 10), 93 (14, 14), 94 (11, 25), 95 (18, 7), 96 (25, 16), 97 (21, 13), 98 (5, 8), 99 (12, 18), 100 (28, 37), 101 (38, 26), 102 (33, 41), 103 (28, 34), 104 (49, 50), 105 (58, 107), 106 (405, 352), 107 (276, 197), 108 (69, 60), 109 (322, 208), 110 (34, 93), 111 (373, 253), 112 (446, 438), 113 (373, 287), 114 (364, 195), 115 (302, 213), 116 (306, 112), 117 (290, 273), 118 (309, 217), 119 (331, 311), 120 (306, 115).

Highlights:

I (10), II (13), III (17), IV 1 (8, 9), IV 2 (8, 9), V (21, 8), VI (20, 36), VII (198, 208).

Symposia Proceedings:

Six issues of the Information Bulletin (no 55 through 60) have been sent, free of charge, to IAU Members, consultants, scientific institutions, and selected international organizations. Each print-run was 7500 copies.
6. **Relations to other organisations**

IAU was represented by the General Secretary at the following meetings of the International Council of Scientific Unions (ICSU): 20th meeting of the General Committee (München, Germany, FR, 1985), 21st General Assembly and 21st/22nd meetings of the General Committee (Bern, Switzerland, 1986) and 23rd meeting of the General Committee (Rome, Italy, 1987). The highlights concern future programmes such as the International Space Year (1992), and the large International Geosphere-Biosphere Programme (IGBP).

IAU was also represented at meetings of the ICSU Committee for Space Research (COSPAR): XXVIth Plenary meeting of COSPAR (Toulouse, France, 1986): J.-P. Swings and R. Wilson; XXVIIth Plenary meeting of COSPAR (Espoo, Finland, 1988): J.-P. Swings.

The following IAU Representatives to other ICSU and international bodies were active during the period 1985-1988: it is to be noted that one minor change occurred: the present IAU representative to IAF (International Astronautical Federation) is Dr. Y. Kondo, President, IAU Commission 44:

<table>
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<tr>
<th>Organisation</th>
<th>Representative 1985-1988</th>
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<tr>
<td>ICSU</td>
<td>R.M. West (until Sept. 86)</td>
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<td></td>
<td>J.-P. Swings (after)</td>
</tr>
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<td>BIH (*)</td>
<td>P. Pâquet</td>
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<td></td>
<td>G. Winkler</td>
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<tr>
<td>CCDS</td>
<td>J. Benavente</td>
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<tr>
<td>Consultative Committee for the Definition of the Second Working Group on the Temps Atomique International</td>
<td>G. Winkler</td>
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<tr>
<td>CCIR</td>
<td>J. Whiteoak</td>
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<tr>
<td>International Radio Consultative Committee</td>
<td>A.R. Thompson</td>
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<td>Study Group 2</td>
<td>J. Pilkington</td>
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<tr>
<td>Study Group 7</td>
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<td>CODATA</td>
<td>G. Westerhout</td>
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<tr>
<td>Committee for Data for Science &amp; Technology</td>
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<td>J.-P. Swings</td>
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<td>Committee on Space Research</td>
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<td>J.-P. Swings</td>
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<tr>
<td>Committee on Science &amp; Technology in Developing Countries</td>
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<td>CTS</td>
<td>L. Gouguenheim</td>
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<td>Committee on the Teaching of Science</td>
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<td>D. McNally</td>
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<td>J. Kovalevsky</td>
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<td>Federation of Astronomical &amp; Geophysical Services</td>
<td>E. Tandberg-Hanssen</td>
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<td>IAF</td>
<td>M. Papagiannis/ Y. Kondo</td>
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<td>International Astronautical Federation</td>
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REPORT OF THE EXECUTIVE COMMITTEE

ICSTI (***) International Council for Scientific & Technical Information  
G. Wilkins

IPMS (*) International Polar Motion Service  
Ye Shu-Hua

IUCAF Inter-Union Commission on Frequency Allocation for Radio Astronomy & Space Science  
R. Schilizzi  
G. Swarup

IUPAP International Union of Pure & Applied Physics  
V. Trimble

IUWDS International Ursigram & World Day Service  
H. Coffey

QBASA Quarterly Bulletin on Solar Activity  
E. Hiei

SCOPE Scientific Committee on Problems of Environment  
R. Cayrel

SCOSTEP Scientific Committee on Solar-Terrestrial Physics  
S.T. Wu

URSI Union Radio Scientifique Internationale  
J. Baldwin

CIE Compagnie Internationale de l'Eclairage  
D. Crawford

IERS (*) International Earth Rotation Service  
G. Wilkins

(***) IAU Membership in ICSTI was discontinued in 1987.

7. Financial matters

Summarized accounts

The 3 year (1985-1987) summarized accounts are given in the following table together with the budgetary estimates. The data is extracted from the "Vérification des Comptes" for 1985, 1986 & 1987 as certified by the IAU Auditors, R. Bacle, HEC (1985, 1986) and P. Meyssonier EC (1987), Paris. The unit is Swiss Francs throughout.

The ICSU mean conversion rates for Swiss Francs for 1985-1987 are:

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<th>Year</th>
<th>1 US $</th>
<th>1Dfl.</th>
<th>1FF</th>
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### TABLE I
Summary 1985-1987

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**Expenditure**

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<td>7. IAU Publications</td>
<td>50000.00</td>
<td>21722.40</td>
<td>16592.45</td>
<td>32814.48</td>
<td>73129.33</td>
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<td>8. Publication for Executive Committee &amp; Developing Countries</td>
<td>34000.00</td>
<td>2623.47</td>
<td>7619.91</td>
<td>4526.45</td>
<td>14769.83</td>
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<td>9. Executive Committee Meeting</td>
<td>80000.00</td>
<td>1360.92</td>
<td>19564.00</td>
<td>23146.38</td>
<td>44071.30</td>
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<td>23000.00</td>
<td>3670.30</td>
<td>5274.69</td>
<td>2439.85</td>
<td>33341.84</td>
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<td>11. Symposium &amp; Colloquia</td>
<td>35000.00</td>
<td>96616.28</td>
<td>116160.03</td>
<td>151004.83</td>
<td>363881.14</td>
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<td>130000.00</td>
<td>13899.00</td>
<td>4816.38</td>
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<td>13. Projects of Executive Committee</td>
<td>110000.00</td>
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<td></td>
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<tr>
<td>14. Representation</td>
<td>23000.00</td>
<td>8948.70</td>
<td>7904.27</td>
<td>16852.97</td>
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<td>3500.00</td>
<td>1983.53</td>
<td>1144.71</td>
<td>341.63</td>
<td>6469.87</td>
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<td>50000.00</td>
<td>31543.75</td>
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<td>17. Visiting Lecturer’s Programmes</td>
<td>48000.00</td>
<td>12784.96</td>
<td>8833.46</td>
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<td>18. Regional Meetings</td>
<td>65000.00</td>
<td>32800.00</td>
<td>16556.58</td>
<td>48556.58</td>
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<td>19. Miscellaneous</td>
<td>0.00</td>
<td>119.90</td>
<td>159.75</td>
<td>367.84</td>
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<td>Loss on transfers</td>
<td>0.00</td>
<td>2110.68</td>
<td>512.41</td>
<td>652.02</td>
<td>3275.11</td>
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---

**Comments on summarized accounts**

**Income:**

Total income was in excess of budget.

1. Shortfall in contribution with respect to budget is largely due to late or non-payment.

4. The ICSU contribution shows a steady decline which is continuing.
Expenditure:

1. Administrative costs were seriously underestimated in the budget. The savings in 1987 were a consequence of a change of staff and the savings of 1987 will not carry forward.

4. Commission Projects were over budget.

9. The Officers Meeting expenses were over budget in 1987 - this was a direct consequence of the staff changes.

15. There was a considerable underspend on the VLP programme.

18. 1986 includes an unsupported miscellaneous expenditure of 88.19 not detected until 1987.

Balance 1985-1987

The balance for the years 1985-1987 is set out below:

**TABLE 2**

<table>
<thead>
<tr>
<th></th>
<th>1985</th>
<th>1986</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>486119,64</td>
<td>622856,74</td>
<td>515193,69</td>
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<tr>
<td>Expenditure</td>
<td>-616847,33</td>
<td>-513551,29</td>
<td>-454464,50</td>
</tr>
<tr>
<td>Re/devaluation</td>
<td>23672,68</td>
<td>-93529,04</td>
<td>-36317,23</td>
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<tr>
<td>Balance of the preceding year</td>
<td>826143,03</td>
<td>719088,03</td>
<td>755134,44</td>
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<tr>
<td>Balance</td>
<td>719088,03</td>
<td>735134,44</td>
<td>759546,40</td>
</tr>
</tbody>
</table>

(*) The accounts for Symposium 130 have affected this balance as follows:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Income</td>
<td>55950,01</td>
<td></td>
</tr>
<tr>
<td>Expenditure</td>
<td>33533,39</td>
<td></td>
</tr>
<tr>
<td>Balance</td>
<td>22416,62</td>
<td></td>
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</tbody>
</table>

Total balance as of 31.12.87

781963,02

The balance for 1987 must be increased by 22416,62 as a result of IAU Symposium 130 (income +55950,01; expenditure -33533,39) giving a reserve of 781963,02 as of 1987 December 31. The losses on valuation result from changes in major currencies - in particular the US dollar which suffered heavy devaluation during the period of accounts. The present balance is about 20% in excess of one year's working. It should be noted that ICSU is currently reviewing the balances held by member Unions.

Residual budget 1988

The residual budget for 1988 is set out in Table 3. The figures are provisional, have not been audited and do not include loss on exchange.
**TABLE 3**

<table>
<thead>
<tr>
<th></th>
<th>EC Budget</th>
<th>Residual Inc/Exp</th>
<th>Difference (B-R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Contributions</td>
<td>453130</td>
<td>461105</td>
<td>-7975</td>
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<tr>
<td>2. Publications</td>
<td>55000</td>
<td>55551</td>
<td>-551</td>
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<tr>
<td>3. Interest</td>
<td>35000</td>
<td>22060</td>
<td>-12940</td>
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<tr>
<td>4. UNESCO/ICSU Contribution</td>
<td>35000</td>
<td>25122</td>
<td>9878</td>
</tr>
<tr>
<td>5. Miscellaneous</td>
<td>-</td>
<td>19370</td>
<td>-19370</td>
</tr>
<tr>
<td><strong>Total income</strong></td>
<td><strong>578130</strong></td>
<td><strong>583208</strong></td>
<td><strong>-5078</strong></td>
</tr>
</tbody>
</table>

**Expenditure**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Administration</td>
<td>183500</td>
<td>177719</td>
<td>5781</td>
</tr>
<tr>
<td>2. ICSU Subvention</td>
<td>11300</td>
<td>6521</td>
<td>4779</td>
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<td>3. Commission expenses</td>
<td>4000</td>
<td>2702</td>
<td>1283</td>
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<td>4. Commission projects</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4.1. Exchange of astronomers</td>
<td>24000</td>
<td>15077</td>
<td>8923</td>
</tr>
<tr>
<td>4.2. Other projects</td>
<td>14500</td>
<td>2595</td>
<td>11905</td>
</tr>
<tr>
<td>5. General Assembly</td>
<td>240000</td>
<td>337500</td>
<td>-97500</td>
</tr>
<tr>
<td>6. IAU Publications</td>
<td>15000</td>
<td>15662</td>
<td>-662</td>
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<tr>
<td>7. Publications for EC and developing countries</td>
<td>12000</td>
<td>2702</td>
<td>9298</td>
</tr>
<tr>
<td>8. EC Meetings</td>
<td>-</td>
<td>623</td>
<td>-623</td>
</tr>
<tr>
<td>9. Officers Meetings</td>
<td>8000</td>
<td>2549</td>
<td>-5451</td>
</tr>
<tr>
<td>10. Symposia &amp; Colloquia</td>
<td>125000</td>
<td>105228</td>
<td>19772</td>
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<tr>
<td>11. Inter-Union Commissions</td>
<td>9000</td>
<td>6159</td>
<td>2841</td>
</tr>
<tr>
<td>12. Projects of EC</td>
<td>5000</td>
<td>-</td>
<td>5000</td>
</tr>
<tr>
<td>13. Representation</td>
<td>8000</td>
<td>4028</td>
<td>-3972</td>
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<tr>
<td>14. Bank charges</td>
<td>1000</td>
<td>2438</td>
<td>-1438</td>
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<tr>
<td>15.1. Young Astr. Schools</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>15.2. VLP</td>
<td>24000</td>
<td>2894</td>
<td>21106</td>
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<tr>
<td>16. Regional Meetings</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17. SNC</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18. Miscellaneous</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total expenditure:</strong></td>
<td><strong>684300</strong></td>
<td><strong>684397</strong></td>
<td><strong>97</strong></td>
</tr>
</tbody>
</table>

**Excess of expenditure over income:**

- 106170
- 101189
- 4981
Adopted Budget for 1989-1991

The budget for 1989-1991 was approved at the XXth General Assembly and is given below:

**TABLE 4**


All amounts in Swiss Francs

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Contributions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Adhering Organisations (238 units)</td>
<td>1 532 720</td>
<td>493 850</td>
<td>510</td>
<td>510</td>
<td>528 360</td>
</tr>
<tr>
<td>1.2 ICSU/UNESCO</td>
<td>78 000</td>
<td>26 000</td>
<td>26 000</td>
<td>26 000</td>
<td></td>
</tr>
<tr>
<td>1.2.1 ICSU Allocations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.2 ICSU Grants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.3 UNESCO Contracts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Publications</td>
<td>165 000</td>
<td>55 000</td>
<td>55 000</td>
<td>55 000</td>
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<tr>
<td>3. Interests, etc.</td>
<td>75 000</td>
<td>25 000</td>
<td>25 000</td>
<td>25 000</td>
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<tr>
<td>4. Other receipts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td>1 850 720</td>
<td>599 850</td>
<td>616</td>
<td>510</td>
<td>634 360</td>
</tr>
</tbody>
</table>

Notes:

1.1. Changes of category:
- Argentina: II to III: now 4 units
- China: III to V: now 10 units

1.2. Possibility of around 4 new Members in category I. Total:
- 1986-1988: 226 units
- 1988-1991: 238 units

1.3. Same inflation considered for 1989-1991 as for previous triennium; very difficult to estimate in present crisis period.

Proposed unit of contribution:
- 2075 SF for 1989
- 2145 SF for 1990
- 2220 SF for 1991

1.2. The income from ICSU/UNESCO has decreased in the last years. It is 17 335 US $ for 1988 (in November 87 dollars !). Therefore the sum indicated in the draft can only be realistically introduced as 26 000 SF.

2. 6 year contract with Reidel Publ.: same royalties as for 1986-1988 triennium.
### EXPENSES

#### EXECUTIVE COMMITTEE, etc.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1.1.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>EC Meetings</td>
<td>80 000</td>
<td>40 000</td>
<td>40 000</td>
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<tr>
<td>1.2.</td>
<td></td>
<td></td>
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<tr>
<td>Officers' Meetings</td>
<td>24 000</td>
<td>8 000</td>
<td>8 000</td>
<td>8 000</td>
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<tr>
<td>1.3.</td>
<td></td>
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<tr>
<td>SNC Expenses</td>
<td>5 000</td>
<td>-</td>
<td>5 000</td>
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<td>1.4.</td>
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<tr>
<td>Other</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td><strong>TOTAL 1.</strong></td>
<td>109 000</td>
<td>48 000</td>
<td>53 000</td>
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#### PUBLICATIONS

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<td>Information Bulletin</td>
<td>63 000</td>
<td>20 000</td>
<td>21 000</td>
<td>22 000</td>
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<tr>
<td>Other Publications</td>
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<td>-</td>
<td>-</td>
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<td>2.3.</td>
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<tr>
<td>Distribution to Developing Countries</td>
<td>30 000</td>
<td>10 000</td>
<td>10 000</td>
<td>10 000</td>
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<tr>
<td><strong>TOTAL 2.</strong></td>
<td>93 000</td>
<td>30 000</td>
<td>31 000</td>
<td>32 000</td>
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#### SCIENTIFIC AND RELATED ACTIVITIES

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<tbody>
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<td>3.</td>
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<td></td>
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<tr>
<td>Meetings</td>
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<td>3.1.1.</td>
<td>General Assemblies</td>
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<td>3.1.2.</td>
<td>Symposia and Colloquia</td>
<td>365 000</td>
<td>120 000</td>
<td>120 000</td>
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<td>3.1.3.</td>
<td>Regional Astronomy Meetings</td>
<td>65 000</td>
<td>32 000</td>
<td>33 000</td>
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<td>3.1.4.</td>
<td>Young Astronomers' Schools</td>
<td>50 000</td>
<td>25 000</td>
<td>25 000</td>
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<td>3.1.5.</td>
<td>Visiting Lecturers' Programmes and follow-ups</td>
<td>72 000</td>
<td>24 000</td>
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<td>3.1.6.</td>
<td>Other</td>
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<td><strong>Total 3.1.</strong></td>
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<td>201 000</td>
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<td>Commissions Activities</td>
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<td>3.2.2.</td>
<td>Commission Projects</td>
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<td>3.2.2.1.</td>
<td>Exchange of Astronomers</td>
<td>70 000</td>
<td>23 000</td>
<td>23 000</td>
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<td>3.2.2.2.</td>
<td>IAU Telegram Bureau</td>
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<td>IAU Minor Planet Center</td>
<td>10 500</td>
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<td>3.2.2.4.</td>
<td>Variable Star Catalogue</td>
<td>10 500</td>
<td>3 500</td>
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<td>3.2.2.5.</td>
<td>IAU Meteor Data Center</td>
<td>3 000</td>
<td>1 000</td>
<td>1 000</td>
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<tr>
<td>3.2.2.6.</td>
<td>Other (incl. IERS)</td>
<td>6 000</td>
<td>2 000</td>
<td>2 000</td>
</tr>
<tr>
<td><strong>Total 3.2.</strong></td>
<td>125 500</td>
<td>41 500</td>
<td>41 500</td>
<td>42 500</td>
</tr>
<tr>
<td>3.3.</td>
<td>Relations With Other Organisations</td>
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<tr>
<td>3.3.1.</td>
<td>Dues to ICSU</td>
<td>38 500</td>
<td>12 500</td>
<td>12 800</td>
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<td>3.3.2.</td>
<td>Support of Inter-Union Commissions</td>
<td>18 000</td>
<td>6 000</td>
<td>6 000</td>
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<tr>
<td>3.3.3.</td>
<td>Representation to Other Organisations (including liaison members)</td>
<td>24 000</td>
<td>8 000</td>
<td>8 000</td>
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<tr>
<td><strong>Total 3.3.</strong></td>
<td>80 500</td>
<td>26 500</td>
<td>26 800</td>
<td>27 200</td>
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<td>Other Activities</td>
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<td>Executive Committee Projects</td>
<td>15 000</td>
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<td>Other Projects</td>
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<td><strong>Total 3.4.</strong></td>
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<tr>
<td><strong>TOTAL 3.</strong></td>
<td>1 013 000</td>
<td>274 000</td>
<td>275 300</td>
<td>461 700</td>
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</table>
4. ADMINISTRATION

4.1. Secretariat
4.1.1. Salaries and Social Charges, etc. 375 000 120 000 125 000 130 000
4.1.2. Office Expenses 165 000 50 000 55 000 60 000
4.1.2.1. Rent, Heating, Light, Cleaning, etc.
4.1.2.2. Communication (PTT)
4.1.2.3. Equipment (Major)
4.1.2.4. Office Supplies
4.1.3. General Secretary's Expenses 57 000 18 000 19 000 20 000
4.1.3.1. Travel, Subsistence
4.1.3.2. Representation
4.1.4. President's Expenses 18 000 6 000 6 000 6 000
4.1.5. Ass. General Secretary's Expenses + Local help (AGS) 12 000 4 000 4 000 4 000

Total 4.1. 630 000 199 000 210 000 221 000

4.2. Other
4.2.1. Bank Charges 3 000 1 000 1 000 1 000
4.2.2. Audit Fees, Legal Advice 4 500 1 500 1 500 1 500
4.2.3. Loss on Exchange - - - -
4.2.4. Miscellaneous - - - -

Total 4.2. 7 500 2 500 2 500 2 500

TOTAL 4. 637 500 201 500 212 500 223 500

TOTAL EXPENDITURE 1 852 500 553 500 571 800 727 200

INCOME - EXPENDITURE - 1 780 + 46 350 + 44 710 - 92 840

Notes:

1.1. EC meetings: less expensive than expected during 1986-1988, because of locations and absences at EC 56.
   For future: include President-Elect.

2.1. Mailing of Information Bulletin had been underestimated for previous triennium; one has also to take into account hundreds of new members after the XXth General Assembly.

3. No major change foreseen for next triennium.

4.1. Secretariat
4.1.1. Salaries: had been strongly underestimated for 1986-88 triennium; however, because of new personnel (i.e. one full-time administrative assistant, and one part-time (2/3) bilingual secretary), costs will not increase much during 1989-1991.
4.1.2. The location of the Paris secretariat may change in 1988, so that an estimate of the expenses is hard to make. A very slight increase over the figure of the previous triennium was made.
4.1.3. G.S. expenses: here also, underestimated for 1986-88.
4.1.4. President's expenses: one has to include trips for useful contacts in several countries: increase this item.
8. **List of Adhering Organizations**
   (Not reproduced here, see Chapter VII).

9. **List of deceased Members**
   (See updated list on pp. 25-26).

10. **List of IAU publications**

    **Transactions and Highlights**
    - Transactions XIXB: (Delhi, 1985) pp. xii + 656, D. Reidel Publ. Co., 1986

    - 106 The Milky Way Galaxy
    - 109 Astrometric Techniques
    - 111 Calibration of Fundamental Stellar Quantities
      D.S. Hayes et al., pp. xxiv + 646, 1985
    - 112 The Search for Extraterrestrial Life: Recent Developments
      M. Papagiannis, pp. xxvi + 580, 1985
    - 113 Dynamics of Star Clusters
      J. Goodman & P. Hut, 644 p., 1985
    - 114 Relativity in Celestial Mechanics and Astrometry, High Precision Dynamical Theories and Observational Verifications
      J. Kovalevsky & V.A. Brumberg, pp. xvii + 426, 1986
    - 115 Star Forming Regions
      M. Peimbert & J. Jugaku, pp. xxxiv + 734, 1985
    - 116 Luminous Stars and Associations in Galaxies
      C.W.H. de Loore, A.J. Willis & P. Laskarides, pp. xx + 530, 1986
    - 117 Dark Matter in the Universe
    - 118 Instrumentation and Research Programs for Small Telescopes
      P.L. Cottrell & J.B. Hearnshaw, pp. xxii + 482, 1986
    - 119 Quasars
      G. Swarup & V.K. Kapahi, pp. xxii + 606, 1986
120 Astrochemistry
M.S. Vardya & S.P. Tarafdar, pp. xxviii + 640, 1986

121 Observational Evidence of Activity in Galaxies

122 Circumstellar Matter

123 Advances in Helio- and Astroseismology
J. Christensen-Dalsgaard & S. Frandsen, pp. xxi + 604, 1988

124 Observational Cosmology
A. Hewitt, G. Burbidge & Li Zhi-Fang, pp. xxiii + 854, 1987

125 The Origin and Evolution of Neutron Stars

126 Globular Cluster Systems in Galaxies
J.E. Grindlay & A.G. Davis Philip, pp. xxvii+ 750, 1987

127 Structure and Dynamics of Elliptical Galaxies
T. de Zeeuw, pp. xxv + 579, 1987

128 The Earth’s Rotation and Reference Frames for Geodesy

129 The Impact of VLBI on Astrophysics and Geophysics
M.J. Reid & J.M. Moran, pp. xxiv + 599, 1988

132 The Impact of Very High S/N Spectroscopy on Stellar Physics
G. Cayrel de Strobel & M. Spite, pp. xxxiii + 626, 1988

IAU Colloquia Volumes

81 Local Interstellar Medium

82 Cepheids, Theory and Observations
B.F. Madore, Cambridge University Press, pp. ix + 300, 1985

83 Dynamics of Comets: Their Origin and Evolution

84 Longitude Zero Symposium 1884-1984

85 Properties and Interactions of Interplanetary Dust

86 Eighth International Colloquium on Ultraviolet and X-ray Spectroscopy of Astrophysical Laboratory Plasmas
G.A. Doschek, published by the Naval Research Laboratory, 1986
87 Hydrogen Deficient Stars and Related Objects

88 Stellar Radial Velocities
A.G. Davis Philip & D.W. Latham, L. Davis Press, pp. xi + 455, 1985

89 Radiation Hydrodynamics in Stars and Compact Objects

90 Upper Main Sequence Stars with Anomalous Abundances

91 History of Oriental Astronomy
G. Swarup, Cambridge University Press, pp. xiv + 289, 1987

92 Physics of Be Stars

93 Cataclysmic Variables

94 Physics of Formation of Fe II Lines Outside LTE

95 The Second Conference on Faint Blue Stars

96 The Few Body Problem

97 Wide Components in Double and Multiple Stars

98 Stargazers, The Contribution of Amateurs to Astronomy
S. Dunlop & M. Gerbaldi, Springer-Verlag, pp. xvii + 237, 1988

99 Bioastronomy, Next Steps

100 Supernova Remnants and the Interstellar Medium

101 UV and X-ray Spectroscopy of Astrophysical and Laboratory Plasmas
F. Bely-Dubau & P. Faucher, Journal de Physique, 49, pp. xvii + 400, 1988

102 The Symbiotic Phenomenon
Proceedings of Regional Astronomy Meetings

Seventh European
Florence, Italy, December 12-16, 1983
Frontiers of Astronomy & Astrophysics
R. Pallavicini, Italian Astronomical Society, Florence, Italy

Eighth European
Toulouse, France, September 17-21, 1984
New Aspects of Galaxy Photometry
High Resolution in Solar Physics
R. Muller, Springer-Verlag in the series Lecture Notes in Physics, 233, 320 p., 1985
Nearby Molecular Clouds
G. Serra, Springer-Verlag in the series Lecture Notes in Physics, 237, 242 p., 1985

Third Asian-Pacific
Kyoto, Japan, September 30-October 5, 1984

Fourth Latin-American
Rio de Janeiro, Brazil, November 18-23, 1984
Ed. P. Pismis & S. Torres-Peimbert, special issue of Revista Mexicana de Astronomia y Astrofisica, 12, 452 p., February 1986

Fourth Asian-Pacific
Beijing, China, PR, October 5-9, 1987
Vistas in Astronomy, 31, 1988, Science Press (Pergamon Press), Beijing

Miscellaneous Publications

Image Detection and Quality
SFO & ANRT meeting, co-sponsored by the IAU, SPIE, eds., 1987

Commission Publications

Published at the Tokyo Astronomical Observatory, F. Moriyama, Mitaka, Tokyo 181, Japan.

Published by the Sunspot Index Data Center (SIDC), Dr. A. Koeckelenbergh, 3 Avenue Circulaire, B-1180 Bruxelles, Belgium.

A monthly publication of Bureau International de l'Heure, 61, Avenue de l'Observatoire, 75014 Paris, France (now terminated).

Commission 19: Monthly Notes of the International Polar Motion Service.
Prepared and distributed by the Central Bureau of the International Polar Motion Service, International Latitude Observatory of Mizusawa-shi, Iwate-ken, Japan.
Commission 20: Minor Planet Circulars.
   Issued by the Minor Planet Center, B.G. Marsden, Center for
   Astrophysics, 60 Garden Street, Cambridge, MA 02138, USA

   Prepared and distributed by the Konkoly Observatory of the Hungarian
   Academy of Sciences , 1525 Budapest XII, Box 67, Hungary.

Commission 27: Catalogue of Variable Stars
   Catalogue of Suspected Variable Stars.
   Name-lists of Variable Stars.
   Distributed by Publishing House Nauka, Moscow, USSR

Commission 29: Nucleosynthesis in the Galaxy from the Study of Low-Mass Stars
   Proceedings of the IAU Commission 29 Meeting, held in New-Delhi,
   India, 1985
   G. Cayrel de Strobel & M. Parthasarathy, Eds., Journal of Astrophysics
   & Astronomy, 8, No. 2, 1987
